

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## STRUCTURAL ANALYSIS

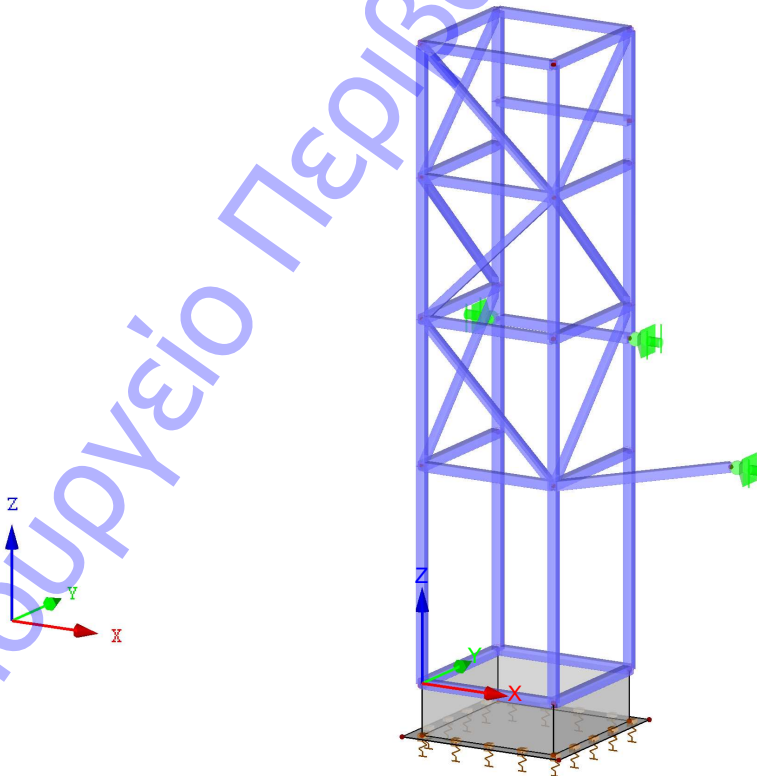
### PROJECT

ΣΤΑΤΙΚΗ ΜΕΛΕΤΗ ΦΡΕΑΤΙΟΥ  
ΑΝΕΛΚΥΣΤΗΡΑ ΑμεΑ Δ.Ι.Ε.Κ. ΛΑΜΙΑΣ

### CLIENT

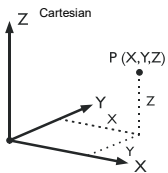
### CREATED BY

Isometric



|                |  |            |                |   |            |
|----------------|--|------------|----------------|---|------------|
| <b>1</b>       | <b>Model</b>   |            | <b>1.2</b>     | <b>Materials</b>  | <b>123</b> |
| <b>1.1</b>     | Nodes  | <b>2</b>   | <b>1.3</b>     | Cross-Sections  | <b>123</b> |
| <b>1.2</b>     | Lines  | <b>3</b>   | <b>1.5</b>     | Effective Lengths - Members   | <b>123</b> |
| <b>1.3</b>     | Materials  | <b>3</b>   | <b>1.9</b>     | Serviceability Data   | <b>123</b> |
| <b>1.4</b>     | Surfaces   | <b>3</b>   | <b>1.12</b>    | Parameters - Members  | <b>124</b> |
| <b>1.4.2</b>   | Surfaces - Integrated Objects  | <b>4</b>   | <b>2.4</b>     | Design by Member  | <b>125</b> |
| <b>1.7</b>     | Nodal Supports   | <b>4</b>   | <b>Graphic</b> | RF-STEEL EC3 CA2 - Design Ratio, Isometric  | <b>130</b> |
| <b>1.9</b>     | Surface Supports   | <b>4</b>   |                | <b>CA3 - Diagonals</b>  |            |
| <b>1.13</b>    | Cross-Sections   | <b>4</b>   | <b>1.1</b>     | General Data  | <b>131</b> |
| <b>1.17</b>    | Members  | <b>4</b>   | <b>1.2</b>     | Materials   | <b>131</b> |
| <b>2</b>       | <b>Load Cases and Combinations</b>   |            | <b>1.3</b>     | Cross-Sections  | <b>131</b> |
| <b>2.1</b>     | Load Cases   | <b>5</b>   | <b>1.5</b>     | Effective Lengths - Members   | <b>131</b> |
| <b>2.1.1</b>   | Load Cases - Calculation Parameters  | <b>5</b>   | <b>1.9</b>     | Serviceability Data   | <b>131</b> |
| <b>2.5</b>     | Load Combinations  | <b>5</b>   | <b>1.12</b>    | Parameters - Members  | <b>131</b> |
| <b>2.5.2</b>   | Load Combinations - Calculation Parameters   | <b>5</b>   | <b>2.4</b>     | Design by Member  | <b>132</b> |
| <b>2.7</b>     | Result Combinations  | <b>6</b>   | <b>Graphic</b> | RF-STEEL EC3 CA3 - Design Ratio, Isometric  | <b>135</b> |
| <b>3</b>       | <b>Loads</b>   |            |                | <b>RF-CONCRETE Surfaces</b>   |            |
|                | LC1 - SW - 3.2 Member Loads  | <b>6</b>   |                | <b>CA1 - Reinforced concrete design</b>   |            |
|                | LC1 - SW - 3.2/2 Member Loads - Load Eccentricity - Concentrated Force                   | <b>6</b>   | <b>1.1</b>     | General Data  | <b>136</b> |
|                | LC2 - Elevator loads - 3.2 Member Loads  | <b>7</b>   | <b>1.2</b>     | Materials   | <b>136</b> |
|                | LC2 - Elevator loads - 3.2/2 Member Loads - Load Eccentricity - Concentrated Force       | <b>7</b>   | <b>1.2.1</b>   | Material Parameters   | <b>136</b> |
|                | LC2 - Elevator loads - 3.6 Free Concentrated Loads                                       | <b>7</b>   | <b>1.3</b>     | Surfaces  | <b>136</b> |
|                | <b>Results - Result Combinations</b>   |            | <b>1.4</b>     | Reinforcement Group No. 1   | <b>137</b> |
| <b>4.1</b>     | Nodes - Support Forces   | <b>7</b>   | <b>2.2</b>     | Required Reinforcement by Surface   | <b>137</b> |
| <b>4.12</b>    | Cross-Sections - Internal Forces   | <b>8</b>   | <b>3.2</b>     | Serviceability Check by Surface   | <b>138</b> |
| <b>Graphic</b> | Internal forces $N$ , RC1: ULS (STR/GEO) - Permanent / transient - Eq. 6.10, Isometric   | <b>109</b> | <b>Graphic</b> | Serviceability Check Notes  | <b>138</b> |
| <b>Graphic</b> | Internal forces $V_y$ , RC1: ULS (STR/GEO) - Permanent / transient - Eq. 6.10, Isometric | <b>110</b> | <b>Graphic</b> | RF-CONCRETE Surfaces CA1 - Required Reinforcement $a_{s,1-z}$ (top), Isometric    | <b>139</b> |
| <b>Graphic</b> | Internal forces $V_z$ , RC1: ULS (STR/GEO) - Permanent / transient - Eq. 6.10, Isometric | <b>111</b> | <b>Graphic</b> | RF-CONCRETE Surfaces CA1 - Required Reinforcement $a_{s,2-z}$ (top), Isometric    | <b>140</b> |
| <b>Graphic</b> | Internal forces $M_x$ , RC1: ULS (STR/GEO) - Permanent / transient - Eq. 6.10, Isometric | <b>112</b> | <b>Graphic</b> | RF-CONCRETE Surfaces CA1 - Required Reinforcement $a_{s,1+z}$ (bottom), Isometric | <b>141</b> |
| <b>Graphic</b> | Internal forces $M_y$ , RC1: ULS (STR/GEO) - Permanent / transient - Eq. 6.10, Isometric | <b>113</b> | <b>Graphic</b> | RF-CONCRETE Surfaces CA1 - Required Reinforcement $a_{s,2+z}$ (bottom), Isometric | <b>142</b> |
| <b>Graphic</b> | Internal forces $M_z$ , RC1: ULS (STR/GEO) - Permanent / transient - Eq. 6.10, Isometric | <b>114</b> |                | <b>RF-DYNAM Pro</b>   |            |
|                | <b>RF-STEEL EC3</b>  |            | <b>1.1</b>     | Global Data   | <b>143</b> |
|                | <b>CA1 - Columns</b>   |            | <b>1.2.1</b>   | Mass Cases - General  | <b>143</b> |
| <b>1.1</b>     | General Data   | <b>115</b> | <b>1.3.1</b>   | Mass Combinations - General   | <b>143</b> |
| <b>1.2</b>     | Materials  | <b>115</b> | <b>1.4.1</b>   | Natural Vibration Case - General  | <b>143</b> |
| <b>1.3</b>     | Cross-Sections   | <b>115</b> | <b>1.4.2</b>   | Natural Vibration Case - Calculation Parameters                                   | <b>143</b> |
| <b>1.5</b>     | Effective Lengths - Members  | <b>115</b> | <b>1.5.1</b>   | Response Spectra - General  | <b>143</b> |
| <b>1.9</b>     | Serviceability Data  | <b>115</b> | <b>1.5.2</b>   | Response Spectra - Standard Parameters  | <b>143</b> |
| <b>1.12</b>    | Parameters - Members   | <b>115</b> | <b>1.5.3.1</b> | Response Spectra - Graph  | <b>144</b> |
| <b>2.4</b>     | Design by Member   | <b>117</b> | <b>1.5.3.2</b> | Response Spectra - Graph  | <b>144</b> |
| <b>Graphic</b> | RF-STEEL EC3 CA1 - Design Ratio, Isometric   | <b>122</b> | <b>1.8.1</b>   | Dynamic Load Cases - General  | <b>144</b> |
|                | <b>CA2 - Horizontal beams</b>  |            | <b>1.8.2.1</b> | Dynamic Load Cases - Response Spectrum Analysis                                   | <b>145</b> |
| <b>1.1</b>     | General Data   | <b>123</b> | <b>1.8.2.2</b> | Dynamic Load Cases - Response Spectrum Analysis - Mode Shapes To Generate         | <b>145</b> |
|                |  |            | <b>5.1</b>     | Natural Frequencies   | <b>145</b> |
|                |  |            | <b>5.7</b>     | Effective Modal Mass Factors  | <b>145</b> |

## ■ 1.1 NODES



| Node No. | Node Type | Reference | Coordinate | Node Coordinates |        |        | Comment |
|----------|-----------|-----------|------------|------------------|--------|--------|---------|
|          |           | Node      | System     | X [m]            | Y [m]  | Z [m]  |         |
| 1        | Standard  | -         | Cartesian  | 0.000            | 0.000  | 0.000  |         |
| 2        | Standard  | -         | Cartesian  | 0.000            | 0.000  | 6.750  |         |
| 3        | Standard  | -         | Cartesian  | 0.000            | 1.550  | 0.000  |         |
| 4        | Standard  | -         | Cartesian  | 0.000            | 1.550  | 6.750  |         |
| 5        | Standard  | -         | Cartesian  | 1.550            | 0.000  | 0.000  |         |
| 6        | Standard  | -         | Cartesian  | 1.550            | 0.000  | 6.750  |         |
| 7        | Standard  | -         | Cartesian  | 1.550            | 1.550  | 0.000  |         |
| 8        | Standard  | -         | Cartesian  | 1.550            | 1.550  | 6.750  |         |
| 9        | Standard  | -         | Cartesian  | 0.000            | 0.000  | 2.300  |         |
| 10       | Standard  | -         | Cartesian  | 0.000            | 1.550  | 2.300  |         |
| 11       | Standard  | -         | Cartesian  | 1.550            | 0.000  | 2.300  |         |
| 12       | Standard  | -         | Cartesian  | 1.550            | 1.550  | 2.300  |         |
| 13       | Standard  | -         | Cartesian  | 0.000            | 0.000  | 3.850  |         |
| 14       | Standard  | -         | Cartesian  | 0.000            | 1.550  | 3.850  |         |
| 15       | Standard  | -         | Cartesian  | 1.550            | 0.000  | 3.850  |         |
| 16       | Standard  | -         | Cartesian  | 1.550            | 1.550  | 3.850  |         |
| 17       | Standard  | -         | Cartesian  | 0.000            | 0.000  | 5.350  |         |
| 18       | Standard  | -         | Cartesian  | 0.000            | 1.550  | 5.350  |         |
| 19       | Standard  | -         | Cartesian  | 1.550            | 0.000  | 5.350  |         |
| 20       | Standard  | -         | Cartesian  | 1.550            | 1.550  | 5.350  |         |
| 21       | Standard  | -         | Cartesian  | 0.000            | 1.550  | 5.800  |         |
| 22       | Standard  | -         | Cartesian  | 1.550            | 1.550  | 5.800  |         |
| 23       | Standard  | -         | Cartesian  | 0.000            | 1.550  | 3.500  |         |
| 24       | Standard  | -         | Cartesian  | 1.550            | 1.550  | 3.500  |         |
| 25       | Standard  | -         | Cartesian  | 0.000            | 0.000  | -0.550 |         |
| 26       | Standard  | -         | Cartesian  | 0.000            | 1.550  | -0.550 |         |
| 27       | Standard  | -         | Cartesian  | 1.550            | 0.000  | -0.550 |         |
| 28       | Standard  | -         | Cartesian  | 1.550            | 1.550  | -0.550 |         |
| 29       | Standard  | -         | Cartesian  | -0.150           | -0.150 | -0.550 |         |
| 30       | Standard  | -         | Cartesian  | -0.150           | 1.700  | -0.550 |         |
| 31       | Standard  | -         | Cartesian  | 1.700            | 1.700  | -0.550 |         |
| 32       | Standard  | -         | Cartesian  | 1.700            | -0.150 | -0.550 |         |
| 33       | Standard  | -         | Cartesian  | 2.750            | 1.550  | 2.300  |         |

MODEL

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1.2 LINES

| Line No. | Line Type | Nodes No. | Line Length L [m] |    | Comment |
|----------|-----------|-----------|-------------------|----|---------|
| 1        | Polyline  | 1,9       | 2.300             | Z  |         |
| 2        | Polyline  | 3,10      | 2.300             | Z  |         |
| 3        | Polyline  | 5,11      | 2.300             | Z  |         |
| 4        | Polyline  | 7,12      | 2.300             | Z  |         |
| 5        | Polyline  | 1,3       | 1.550             | Y  |         |
| 6        | Polyline  | 5,7       | 1.550             | Y  |         |
| 7        | Polyline  | 1,5       | 1.550             | X  |         |
| 8        | Polyline  | 3,7       | 1.550             | X  |         |
| 9        | Polyline  | 9,10      | 1.550             | Y  |         |
| 10       | Polyline  | 11,12     | 1.550             | Y  |         |
| 11       | Polyline  | 9,11      | 1.550             | X  |         |
| 12       | Polyline  | 13,14     | 1.550             | Y  |         |
| 13       | Polyline  | 15,16     | 1.550             | Y  |         |
| 14       | Polyline  | 17,18     | 1.550             | Y  |         |
| 15       | Polyline  | 19,20     | 1.550             | Y  |         |
| 16       | Polyline  | 2,4       | 1.550             | Y  |         |
| 17       | Polyline  | 6,8       | 1.550             | Y  |         |
| 18       | Polyline  | 9,13      | 1.550             | Z  |         |
| 19       | Polyline  | 13,17     | 1.500             | Z  |         |
| 20       | Polyline  | 17,2      | 1.400             | Z  |         |
| 21       | Polyline  | 12,24     | 1.200             | Z  |         |
| 22       | Polyline  | 16,20     | 1.500             | Z  |         |
| 23       | Polyline  | 20,22     | 0.450             | Z  |         |
| 24       | Polyline  | 11,15     | 1.550             | Z  |         |
| 25       | Polyline  | 15,19     | 1.500             | Z  |         |
| 26       | Polyline  | 19,6      | 1.400             | Z  |         |
| 27       | Polyline  | 10,23     | 1.200             | Z  |         |
| 28       | Polyline  | 14,18     | 1.500             | Z  |         |
| 29       | Polyline  | 18,21     | 0.450             | Z  |         |
| 30       | Polyline  | 13,15     | 1.550             | X  |         |
| 31       | Polyline  | 17,19     | 1.550             | X  |         |
| 32       | Polyline  | 2,6       | 1.550             | X  |         |
| 33       | Polyline  | 4,8       | 1.550             | X  |         |
| 34       | Polyline  | 21,22     | 1.550             | X  |         |
| 35       | Polyline  | 23,24     | 1.550             | X  |         |
| 36       | Polyline  | 11,13     | 2.192             | XZ |         |
| 37       | Polyline  | 13,19     | 2.157             | XZ |         |
| 38       | Polyline  | 19,2      | 2.089             | XZ |         |
| 39       | Polyline  | 9,14      | 2.192             | YZ |         |
| 40       | Polyline  | 14,17     | 2.157             | YZ |         |
| 41       | Polyline  | 17,4      | 2.089             | YZ |         |
| 42       | Polyline  | 11,16     | 2.192             | YZ |         |
| 43       | Polyline  | 16,19     | 2.157             | YZ |         |
| 44       | Polyline  | 19,8      | 2.089             | YZ |         |
| 45       | Polyline  | 27,25     | 1.550             | X  |         |
| 46       | Polyline  | 25,26     | 1.550             | Y  |         |
| 47       | Polyline  | 26,28     | 1.550             | X  |         |
| 48       | Polyline  | 28,27     | 1.550             | Y  |         |
| 49       | Polyline  | 27,5      | 0.550             | Z  |         |
| 50       | Polyline  | 25,1      | 0.550             | Z  |         |
| 51       | Polyline  | 26,3      | 0.550             | Z  |         |
| 52       | Polyline  | 28,7      | 0.550             | Z  |         |
| 53       | Polyline  | 32,29     | 1.850             | X  |         |
| 54       | Polyline  | 29,30     | 1.850             | Y  |         |
| 55       | Polyline  | 30,31     | 1.850             | X  |         |
| 56       | Polyline  | 31,32     | 1.850             | Y  |         |
| 57       | Polyline  | 24,16     | 0.350             | Z  |         |
| 58       | Polyline  | 23,14     | 0.350             | Z  |         |
| 59       | Polyline  | 22,8      | 0.950             | Z  |         |
| 60       | Polyline  | 21,4      | 0.950             | Z  |         |
| 61       | Polyline  | 11,33     | 1.960             | XY |         |

1.3 MATERIALS

| Matl. No. | Modulus E [kN/cm <sup>2</sup> ]                       | Modulus G [kN/cm <sup>2</sup> ] | Poisson's Ratio ν [-] | Spec. Weight γ [kN/m <sup>3</sup> ] | Coeff. of Th. Ex α [1/°C] | Partial Factor γ <sub>M</sub> [-] | Material Model           |
|-----------|---|---------------------------------|-----------------------|-------------------------------------|---------------------------|-----------------------------------|--------------------------|
| 1         | Concrete C30/37   EN 1992-1-1:2004/A1:2014<br>3300.00 | 1375.00                         | 0.200                 | 25.00                               | 1.00E-05                  | 1.00                              | Isotropic Linear Elastic |
| 2         | Steel S 235   EN 10025-2:2004-11<br>21000.00          | 8076.92                         | 0.300                 | 78.50                               | 1.20E-05                  | 1.00                              | Isotropic Linear Elastic |

1.4 SURFACES

| Surface No. | Surface Type Geometry | Stiffness | Boundary Lines No. | Matl. No. | Thickness Type | d [mm] | Area A [m <sup>2</sup> ] | Weight W [kg] |
|-------------|-----------------------|-----------|--------------------|-----------|----------------|--------|--------------------------|---------------|
| 1           | Plane                 | Standard  | 53-56              | 1         | Constant       | 300.0  | 3.422                    | 2566.88       |
| 2           | Plane                 | Standard  | 5,51,46,50         | 1         | Constant       | 300.0  | 0.853                    | 639.38        |
| 3           | Plane                 | Standard  | 6,52,48,49         | 1         | Constant       | 300.0  | 0.853                    | 639.38        |
| 4           | Plane                 | Standard  | 8,52,47,51         | 1         | Constant       | 300.0  | 0.853                    | 639.38        |
| 5           | Plane                 | Standard  | 7,49,45,50         | 1         | Constant       | 300.0  | 0.853                    | 639.38        |

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## 1.4.2 SURFACES - INTEGRATED OBJECTS

| Surface No. | Nodes | Integrated Objects No. | Lines | Openings | Comment |
|-------------|-------|------------------------|-------|----------|---------|
| 1           |       | 45-48                  |       |          |         |

## 1.7 NODAL SUPPORTS

| Support No. | Nodes No. | Axis System  | Column in Z              | u <sub>x</sub>                      | u <sub>y</sub>                      | u <sub>z</sub>           | φ <sub>x</sub>           | φ <sub>y</sub>           | φ <sub>z</sub>           |
|-------------|-----------|--------------|--------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1           | 23,24,33  | Global X,Y,Z | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

## 1.9 SURFACE SUPPORTS

| Found. No. | On Surfaces No. | Spring Constants RF-SOILIN | Translation Support or Spring [kN/m <sup>3</sup> ]  | Shear Spring [kN/m]  |
|------------|-----------------|----------------------------|---|--|
| 1          | 1               | -                          | u <sub>x</sub><br><input checked="" type="checkbox"/><br>u <sub>y</sub><br><input checked="" type="checkbox"/><br>u <sub>z</sub><br>20000.000 | v <sub>xz</sub><br>1000.000<br>v <sub>yz</sub><br>1000.000 |

## 1.13 CROSS-SECTIONS

| Section No. | Matl. No.                        | J [cm <sup>4</sup> ]<br>A [cm <sup>2</sup> ] | I <sub>y</sub> [cm <sup>4</sup> ]<br>A <sub>y</sub> [cm <sup>2</sup> ] | I <sub>z</sub> [cm <sup>4</sup> ]<br>A <sub>z</sub> [cm <sup>2</sup> ] | Principal Axes<br>α [°] | Rotation<br>α' [°] | Overall Dimensions [mm]<br>Width b<br>Height h |
|-------------|----------------------------------|--|--|--|-------------------------|--------------------|--|
| 1           | QRO 100x4   EN 10219-2:2006<br>2 | 362.00<br>14.90                              | 226.00<br>6.47   | 226.00<br>6.47   | 0.00                    | 0.00               | 100.0<br>100.0                                 |
| 2           | QRO 100x4   EN 10219-2:2006<br>2 | 362.00<br>14.90                              | 226.00<br>6.47   | 226.00<br>6.47   | 0.00                    | 0.00               | 100.0<br>100.0                                 |
| 3           | QRO 80x3   EN 10219-2:2006<br>2  | 140.00<br>9.01                               | 87.80<br>3.89  | 87.80<br>3.89  | 0.00                    | 0.00               | 80.0<br>80.0                                   |

## 1.17 MEMBERS

| Mbr. No. | Line No. | Member | Rotation Type | β [°] | Cross-Section Start | Cross-Section End | Hinge No. Start | Hinge No. End | Ecc. No. | Div. No. | Length L [m] |    |
|----------|----------|--------|---------------|-------|---------------------|-------------------|-----------------|---------------|----------|----------|--------------|----|
| 1        | 1        | Beam   | Angle         | 0.00  | 1                   | 1                 | -               | -             | -        | -        | 2.300        | Z  |
| 2        | 2        | Beam   | Angle         | 0.00  | 1                   | 1                 | -               | -             | -        | -        | 2.300        | Z  |
| 3        | 3        | Beam   | Angle         | 0.00  | 1                   | 1                 | -               | -             | -        | -        | 2.300        | Z  |
| 4        | 4        | Beam   | Angle         | 0.00  | 1                   | 1                 | -               | -             | -        | -        | 2.300        | Z  |
| 5        | 5        | Beam   | Angle         | 0.00  | 2                   | 2                 | -               | -             | -        | -        | 1.550        | Y  |
| 6        | 6        | Beam   | Angle         | 0.00  | 2                   | 2                 | -               | -             | -        | -        | 1.550        | Y  |
| 7        | 7        | Beam   | Angle         | 0.00  | 2                   | 2                 | -               | -             | -        | -        | 1.550        | X  |
| 8        | 8        | Beam   | Angle         | 0.00  | 2                   | 2                 | -               | -             | -        | -        | 1.550        | X  |
| 9        | 9        | Beam   | Angle         | 0.00  | 2                   | 2                 | -               | -             | -        | -        | 1.550        | Y  |
| 10       | 10       | Beam   | Angle         | 0.00  | 2                   | 2                 | -               | -             | -        | -        | 1.550        | Y  |
| 11       | 11       | Beam   | Angle         | 0.00  | 2                   | 2                 | -               | -             | -        | -        | 1.550        | X  |
| 12       | 12       | Beam   | Angle         | 0.00  | 2                   | 2                 | -               | -             | -        | -        | 1.550        | Y  |
| 13       | 13       | Beam   | Angle         | 0.00  | 2                   | 2                 | -               | -             | -        | -        | 1.550        | Y  |
| 14       | 14       | Beam   | Angle         | 0.00  | 2                   | 2                 | -               | -             | -        | -        | 1.550        | Y  |
| 15       | 15       | Beam   | Angle         | 0.00  | 2                   | 2                 | -               | -             | -        | -        | 1.550        | Y  |
| 16       | 16       | Beam   | Angle         | 0.00  | 2                   | 2                 | -               | -             | -        | -        | 1.550        | Y  |
| 17       | 17       | Beam   | Angle         | 0.00  | 2                   | 2                 | -               | -             | -        | -        | 1.550        | Y  |
| 18       | 18       | Beam   | Angle         | 0.00  | 1                   | 1                 | -               | -             | -        | -        | 1.550        | Z  |
| 19       | 19       | Beam   | Angle         | 0.00  | 1                   | 1                 | -               | -             | -        | -        | 1.500        | Z  |
| 20       | 20       | Beam   | Angle         | 0.00  | 1                   | 1                 | -               | -             | -        | -        | 1.400        | Z  |
| 21       | 27       | Beam   | Angle         | 0.00  | 1                   | 1                 | -               | -             | -        | -        | 1.200        | Z  |
| 22       | 28       | Beam   | Angle         | 0.00  | 1                   | 1                 | -               | -             | -        | -        | 1.500        | Z  |
| 23       | 29       | Beam   | Angle         | 0.00  | 1                   | 1                 | -               | -             | -        | -        | 0.450        | Z  |
| 24       | 24       | Beam   | Angle         | 0.00  | 1                   | 1                 | -               | -             | -        | -        | 1.550        | Z  |
| 25       | 25       | Beam   | Angle         | 0.00  | 1                   | 1                 | -               | -             | -        | -        | 1.500        | Z  |
| 26       | 26       | Beam   | Angle         | 0.00  | 1                   | 1                 | -               | -             | -        | -        | 1.400        | Z  |
| 27       | 21       | Beam   | Angle         | 0.00  | 1                   | 1                 | -               | -             | -        | -        | 1.200        | Z  |
| 28       | 22       | Beam   | Angle         | 0.00  | 1                   | 1                 | -               | -             | -        | -        | 1.500        | Z  |
| 29       | 23       | Beam   | Angle         | 0.00  | 1                   | 1                 | -               | -             | -        | -        | 0.450        | Z  |
| 30       | 30       | Beam   | Angle         | 0.00  | 2                   | 2                 | -               | -             | -        | -        | 1.550        | X  |
| 31       | 31       | Beam   | Angle         | 0.00  | 2                   | 2                 | -               | -             | -        | -        | 1.550        | X  |
| 32       | 32       | Beam   | Angle         | 0.00  | 2                   | 2                 | -               | -             | -        | -        | 1.550        | X  |
| 33       | 33       | Beam   | Angle         | 0.00  | 2                   | 2                 | -               | -             | -        | -        | 1.550        | X  |
| 34       | 34       | Beam   | Angle         | 0.00  | 2                   | 2                 | -               | -             | -        | -        | 1.550        | X  |
| 35       | 35       | Beam   | Angle         | 0.00  | 2                   | 2                 | -               | -             | -        | -        | 1.550        | X  |
| 36       | 36       | Beam   | Angle         | 0.00  | 3                   | 3                 | -               | -             | -        | -        | 2.192        | XZ |
| 37       | 37       | Beam   | Angle         | 0.00  | 3                   | 3                 | -               | -             | -        | -        | 2.157        | XZ |
| 38       | 38       | Beam   | Angle         | 0.00  | 3                   | 3                 | -               | -             | -        | -        | 2.089        | XZ |
| 39       | 39       | Beam   | Angle         | 0.00  | 3                   | 3                 | -               | -             | -        | -        | 2.192        | YZ |
| 40       | 40       | Beam   | Angle         | 0.00  | 3                   | 3                 | -               | -             | -        | -        | 2.157        | YZ |
| 41       | 41       | Beam   | Angle         | 0.00  | 3                   | 3                 | -               | -             | -        | -        | 2.089        | YZ |
| 42       | 42       | Beam   | Angle         | 0.00  | 3                   | 3                 | -               | -             | -        | -        | 2.192        | YZ |
| 43       | 43       | Beam   | Angle         | 0.00  | 3                   | 3                 | -               | -             | -        | -        | 2.157        | YZ |
| 44       | 44       | Beam   | Angle         | 0.00  | 3                   | 3                 | -               | -             | -        | -        | 2.089        | YZ |
| 45       | 58       | Beam   | Angle         | 0.00  | 1                   | 1                 | -               | -             | -        | -        | 0.350        | Z  |
| 46       | 60       | Beam   | Angle         | 0.00  | 1                   | 1                 | -               | -             | -        | -        | 0.950        | Z  |

MODEL

Project: Model: Freatio\_EPAL LAMIAS\_R01 Date: 2/8/2023

1.17 MEMBERS

| Mbr. No. | Line No. | Member | Rotation |             | Cross-Section |     | Hinge No. |     | Ecc. No. | Div. No. | Length L [m] |    |
|----------|----------|--------|----------|-------------|---------------|-----|-----------|-----|----------|----------|--------------|----|
|          |          |        | Type     | $\beta$ [°] | Start         | End | Start     | End |          |          |              |    |
| 47       | 57       | Beam   | Angle    | 0.00        | 1             | 1   | -         | -   | -        | -        | 0.350        | Z  |
| 48       | 59       | Beam   | Angle    | 0.00        | 1             | 1   | -         | -   | -        | -        | 0.950        | Z  |
| 49       | 61       | Beam   | Angle    | 0.00        | 2             | 2   | -         | -   | -        | -        | 1.960        | XY |

2.1 LOAD CASES

| Load Case | Load Case Description | EN 1990   CEN Action Category                     | Self-Weight - Factor in Direction   |       |       |        |
|-----------|-----------------------|---|-------------------------------------|-------|-------|--------|
|           |                       |   | Active                              | X     | Y     | Z      |
| LC1       | SW                    | Permanent   | <input checked="" type="checkbox"/> | 0.000 | 0.000 | -1.000 |
| LC2       | Elevator loads        | Imposed - Category A: domestic, residential areas | <input type="checkbox"/>            |       |       |        |

2.1.1 LOAD CASES - CALCULATION PARAMETERS

| Load Case | Load Case Description | Calculation Parameters                                     |   |
|-----------|-----------------------|--|---|
|           |                       | Method of analysis   | Options   |
| LC1       | SW                    | Method of analysis   | <input checked="" type="radio"/> Geometrically linear analysis                              |
|           |                       | Method for solving system of nonlinear algebraic equations | <input checked="" type="radio"/> Newton-Raphson   |
| LC2       | Elevator loads        | Activate stiffness factors of:                             | <input checked="" type="checkbox"/> Cross-sections (factor for $J, I_y, I_z, A, A_y, A_z$ ) |
|           |                       |  | <input checked="" type="checkbox"/> Members (factor for $GJ, EI_y, EI_z, EA, GA_y, GA_z$ )  |

2.5 LOAD COMBINATIONS

| Load Combin. | Load Combination |                    | No. | Factor | Load Case |                |
|--------------|------------------|--------------------|-----|--------|-----------|----------------|
|              | DS               | Description        |     |        |           |                |
| CO1          | STR              | 1.35*LC1           | 1   | 1.35   | LC1       | SW             |
| CO2          | STR              | 1.35*LC1 + 1.5*LC2 | 1   | 1.35   | LC1       | SW             |
|              |                  |                    | 2   | 1.50   | LC2       | Elevator loads |
| CO3          | S Ch             | LC1                | 1   | 1.00   | LC1       | SW             |
| CO4          | S Ch             | LC1 + LC2          | 1   | 1.00   | LC1       | SW             |
|              |                  |                    | 2   | 1.00   | LC2       | Elevator loads |
| CO5          | S Fr             | LC1                | 1   | 1.00   | LC1       | SW             |
| CO6          | S Fr             | LC1 + 0.5*LC2      | 1   | 1.00   | LC1       | SW             |
|              |                  |                    | 2   | 0.50   | LC2       | Elevator loads |
| CO7          | S Qp             | LC1                | 1   | 1.00   | LC1       | SW             |
| CO8          | S Qp             | LC1 + 0.3*LC2      | 1   | 1.00   | LC1       | SW             |
|              |                  |                    | 2   | 0.30   | LC2       | Elevator loads |

2.5.2 LOAD COMBINATIONS - CALCULATION PARAMETERS

| Load Combin. | Description        | Calculation Parameters                                     |  |
|--------------|--------------------|--|--|
|              |                    | Method of analysis   | Options  |
| CO1          | 1.35*LC1           | Method of analysis   | <input checked="" type="radio"/> Second order analysis (P-Delta)   |
|              |                    | Method for solving system of nonlinear algebraic equations | <input checked="" type="radio"/> Picard  |
| CO2          | 1.35*LC1 + 1.5*LC2 | Options  | <input checked="" type="checkbox"/> Consider favorable effects due to tension  |
|              |                    | Activate stiffness factors of:                             | <input checked="" type="checkbox"/> Refer internal forces to deformed system for:<br><input checked="" type="checkbox"/> Normal forces $N$<br><input checked="" type="checkbox"/> Shear forces $V_y$ and $V_z$<br><input checked="" type="checkbox"/> Moments $M_y, M_z$ and $M_T$ |
| CO3          | LC1                | Method of analysis   | <input checked="" type="radio"/> Second order analysis (P-Delta)   |
|              |                    | Method for solving system of nonlinear algebraic equations | <input checked="" type="radio"/> Picard  |
| CO4          | LC1 + LC2          | Options  | <input checked="" type="checkbox"/> Consider favorable effects due to tension  |
|              |                    | Activate stiffness factors of:                             | <input checked="" type="checkbox"/> Refer internal forces to deformed system for:<br><input checked="" type="checkbox"/> Normal forces $N$<br><input checked="" type="checkbox"/> Shear forces $V_y$ and $V_z$<br><input checked="" type="checkbox"/> Moments $M_y, M_z$ and $M_T$ |

## LOADS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## 2.5.2 LOAD COMBINATIONS - CALCULATION PARAMETERS

| Load Combin. | Description   | Calculation Parameters  |
|--------------|---------------|---|
|              |               | Options : <input checked="" type="checkbox"/> Consider favorable effects due to tension<br>: <input checked="" type="checkbox"/> Refer internal forces to deformed system for:<br>: <input checked="" type="checkbox"/> Normal forces N<br>: <input checked="" type="checkbox"/> Shear forces $V_y$ and $V_z$<br>: <input checked="" type="checkbox"/> Moments $M_y$ , $M_z$ and $M_T$<br>Activate stiffness factors of: : <input checked="" type="checkbox"/> Materials (partial factor $\gamma_M$ )<br>: <input checked="" type="checkbox"/> Cross-sections (factor for $J$ , $I_y$ , $I_z$ , $A$ , $A_y$ , $A_z$ )<br>: <input checked="" type="checkbox"/> Members (factor for $GJ$ , $EI_y$ , $EI_z$ , $EA$ , $GA_y$ , $GA_z$ )  |
| CO5          | LC1           | Method of analysis : <input checked="" type="checkbox"/> Second order analysis (P-Delta)<br>Method for solving system of nonlinear algebraic equations : <input checked="" type="checkbox"/> Picard<br>Options : <input checked="" type="checkbox"/> Consider favorable effects due to tension<br>: <input checked="" type="checkbox"/> Refer internal forces to deformed system for:<br>: <input checked="" type="checkbox"/> Normal forces N<br>: <input checked="" type="checkbox"/> Shear forces $V_y$ and $V_z$<br>: <input checked="" type="checkbox"/> Moments $M_y$ , $M_z$ and $M_T$<br>Activate stiffness factors of: : <input checked="" type="checkbox"/> Materials (partial factor $\gamma_M$ )<br>: <input checked="" type="checkbox"/> Cross-sections (factor for $J$ , $I_y$ , $I_z$ , $A$ , $A_y$ , $A_z$ )<br>: <input checked="" type="checkbox"/> Members (factor for $GJ$ , $EI_y$ , $EI_z$ , $EA$ , $GA_y$ , $GA_z$ ) |
| CO6          | LC1 + 0.5*LC2 | Method of analysis : <input checked="" type="checkbox"/> Second order analysis (P-Delta)<br>Method for solving system of nonlinear algebraic equations : <input checked="" type="checkbox"/> Picard<br>Options : <input checked="" type="checkbox"/> Consider favorable effects due to tension<br>: <input checked="" type="checkbox"/> Refer internal forces to deformed system for:<br>: <input checked="" type="checkbox"/> Normal forces N<br>: <input checked="" type="checkbox"/> Shear forces $V_y$ and $V_z$<br>: <input checked="" type="checkbox"/> Moments $M_y$ , $M_z$ and $M_T$<br>Activate stiffness factors of: : <input checked="" type="checkbox"/> Materials (partial factor $\gamma_M$ )<br>: <input checked="" type="checkbox"/> Cross-sections (factor for $J$ , $I_y$ , $I_z$ , $A$ , $A_y$ , $A_z$ )<br>: <input checked="" type="checkbox"/> Members (factor for $GJ$ , $EI_y$ , $EI_z$ , $EA$ , $GA_y$ , $GA_z$ ) |
| CO7          | LC1           | Method of analysis : <input checked="" type="checkbox"/> Second order analysis (P-Delta)<br>Method for solving system of nonlinear algebraic equations : <input checked="" type="checkbox"/> Picard<br>Options : <input checked="" type="checkbox"/> Consider favorable effects due to tension<br>: <input checked="" type="checkbox"/> Refer internal forces to deformed system for:<br>: <input checked="" type="checkbox"/> Normal forces N<br>: <input checked="" type="checkbox"/> Shear forces $V_y$ and $V_z$<br>: <input checked="" type="checkbox"/> Moments $M_y$ , $M_z$ and $M_T$<br>Activate stiffness factors of: : <input checked="" type="checkbox"/> Materials (partial factor $\gamma_M$ )<br>: <input checked="" type="checkbox"/> Cross-sections (factor for $J$ , $I_y$ , $I_z$ , $A$ , $A_y$ , $A_z$ )<br>: <input checked="" type="checkbox"/> Members (factor for $GJ$ , $EI_y$ , $EI_z$ , $EA$ , $GA_y$ , $GA_z$ ) |
| CO8          | LC1 + 0.3*LC2 | Method of analysis : <input checked="" type="checkbox"/> Second order analysis (P-Delta)<br>Method for solving system of nonlinear algebraic equations : <input checked="" type="checkbox"/> Picard<br>Options : <input checked="" type="checkbox"/> Consider favorable effects due to tension<br>: <input checked="" type="checkbox"/> Refer internal forces to deformed system for:<br>: <input checked="" type="checkbox"/> Normal forces N<br>: <input checked="" type="checkbox"/> Shear forces $V_y$ and $V_z$<br>: <input checked="" type="checkbox"/> Moments $M_y$ , $M_z$ and $M_T$<br>Activate stiffness factors of: : <input checked="" type="checkbox"/> Materials (partial factor $\gamma_M$ )<br>: <input checked="" type="checkbox"/> Cross-sections (factor for $J$ , $I_y$ , $I_z$ , $A$ , $A_y$ , $A_z$ )<br>: <input checked="" type="checkbox"/> Members (factor for $GJ$ , $EI_y$ , $EI_z$ , $EA$ , $GA_y$ , $GA_z$ ) |

## 2.7 RESULT COMBINATIONS

| Result Combin | Description                                      | Loading        |
|---------------|--|----------------|
| RC1           | ULS (STR/GEO) - Permanent / transient - Eq. 6.10 | CO1/p or CO2/p |
| RC2           | SLS - Characteristic                             | CO3/p or CO4/p |
| RC3           | SLS - Frequent                                   | CO5/p or CO6/p |
| RC4           | SLS - Quasi-permanent                            | CO7/p or CO8/p |
| RC5           | DLC1, Result Envelope X 100% / Y 30% / Z 30%     |                |
| RC6           | DLC1, Result Envelope X 30% / Y 100% / Z 30%     |                |
| RC7           | DLC1, Result Envelope X 30% / Y 30% / Z 100%     |                |

## 3.2 MEMBER LOADS

LC1: SW

| No. | Reference to | On Members No. | Load Type | Load Distribution | Load Direction | Reference Length | Symbol | Value            | Unit    |
|-----|--------------|----------------|-----------|-------------------|----------------|------------------|--------|------------------|---------|
| 1   | Members      | 7,35           | Force     | Concentr.         | ZL             | True Length      | P<br>A | -0.800<br>50.000 | kN<br>% |

## 3.2/2 MEMBER LOADS - LOAD ECCENTRICITY - CONCENTRATED FORCE

LC1: SW

| No. | Reference to | On Members No. | Absolute Offset $e_y$ [mm] $e_z$ [mm] | Relative Offset y-Axis z-Axis |
|-----|--------------|----------------|---------------------------------------|-------------------------------|
| 1   | Members      | 7,35           | 0.0 0.0                               | Middle Middle                 |

## LOADS

Project: Model: Freatio\_EPAL LAMIAS\_R01 Date: 2/8/2023

LC2  
Elevator loads

### 3.2 MEMBER LOADS

LC2: Elevator loads

| No. | Reference to | On Members No. | Load Type | Load Distribution | Load Direction | Reference Length | Symbol | Value  | Unit |
|-----|--------------|----------------|-----------|-------------------|----------------|------------------|--------|--------|------|
| 1   | Members      | 17             | Force     | Concentr.         | XL             | True Length      | P      | 5.200  | kN   |
|     |              |                |           |                   |                |                  | A      | 0.350  | m    |
| 2   | Members      | 17             | Force     | Concentr.         | XL             | True Length      | P      | 5.200  | kN   |
|     |              |                |           |                   |                |                  | A      | 1.050  | m    |
| 3   | Members      | 17             | Force     | Concentr.         | YL             | True Length      | P      | 1.950  | kN   |
|     |              |                |           |                   |                |                  | A      | 1.050  | m    |
| 4   | Members      | 17             | Force     | Concentr.         | YL             | True Length      | P      | -1.950 | kN   |
|     |              |                |           |                   |                |                  | A      | 0.350  | m    |

### 3.2/2 MEMBER LOADS - LOAD ECCENTRICITY - CONCENTRATED FORCE

LC2: Elevator loads

| No. | Reference to | On Members No. | Absolute Offset e <sub>y</sub> [mm] | Absolute Offset e <sub>z</sub> [mm] | Relative Offset y-Axis | Relative Offset z-Axis |
|-----|--------------|----------------|-------------------------------------|-------------------------------------|------------------------|------------------------|
| 1   | Members      | 17             | 0.0                                 | 0.0                                 | Middle                 | Middle                 |
| 2   | Members      | 17             | 0.0                                 | 0.0                                 | Middle                 | Middle                 |
| 3   | Members      | 17             | 0.0                                 | 0.0                                 | Middle                 | Middle                 |
| 4   | Members      | 17             | 0.0                                 | 0.0                                 | Middle                 | Middle                 |

### 3.6 FREE CONCENTRATED LOADS

LC2: Elevator loads

| No. | On Surfaces No. | Project. | Load Type | Load Direction | Symbol | Magnitude Value | Unit | Load Position |       |       |
|-----|-----------------|----------|-----------|----------------|--------|-----------------|------|---------------|-------|-------|
| 1   | 1               | XY       | Force     | Z              | P      | -17.500         | kN   | X [m]         | Y [m] | Z [m] |
| 2   | 1               | XY       | Force     | Z              | P      | -17.500         | kN   | 1.280         | 1.200 | 0.000 |
| 3   | 1               | XY       | Force     | Z              | P      | -45.200         | kN   | 1.280         | 0.500 | 0.000 |

### 4.1 NODES - SUPPORT FORCES

Result Combinations

| Node No. | RC   | Support Forces [kN] |                |                |                | Support Moments [kNm] |                |                |  |
|----------|--|---------------------|----------------|----------------|----------------|-----------------------|----------------|----------------|--|
|          |  | Max                 | P <sub>x</sub> | P <sub>y</sub> | P <sub>z</sub> | M <sub>x</sub>        | M <sub>y</sub> | M <sub>z</sub> |  |
| 23       | RC1  | Max                 | 8.94           | -0.04          | 0.00           | 0.00                  | 0.00           | 0.00           | 0.00   |
|          |  | Min                 | -0.02          | -5.02          | 0.00           | 0.00                  | 0.00           | 0.00           | ULS (STR/GEO) - Permanent / transient - Eq. 6.10 |
|          | RC2  | Max                 | 5.95           | -0.03          | 0.00           | 0.00                  | 0.00           | 0.00           | 0.00   |
|          |  | Min                 | -0.02          | -3.35          | 0.00           | 0.00                  | 0.00           | 0.00           | ULS (STR/GEO) - Permanent / transient - Eq. 6.10 |
|          | RC3  | Max                 | 2.96           | -0.03          | 0.00           | 0.00                  | 0.00           | 0.00           | 0.00   |
|          |  | Min                 | -0.02          | -1.69          | 0.00           | 0.00                  | 0.00           | 0.00           | SLS - Characteristic                             |
|          | RC4  | Max                 | 1.77           | -0.03          | 0.00           | 0.00                  | 0.00           | 0.00           | 0.00   |
|          |  | Min                 | -0.02          | -1.03          | 0.00           | 0.00                  | 0.00           | 0.00           | SLS - Frequent                                   |
|          | DLC1, Result Envelope X 100% / Y 30% / Z 30% RC5 | Max                 | 1.09           | 0.73           | 0.00           | 0.00                  | 0.00           | 0.00           | 0.00   |
|          |  | Min                 | -1.09          | -0.73          | 0.00           | 0.00                  | 0.00           | 0.00           | SLS - Quasi-permanent                            |
|          | DLC1, Result Envelope X 100% / Y 30% / Z 30% RC6 | Max                 | 0.83           | 0.83           | 0.00           | 0.00                  | 0.00           | 0.00           | 0.00   |
|          |  | Min                 | -0.83          | -0.83          | 0.00           | 0.00                  | 0.00           | 0.00           | DLC1, Result Envelope X 100% / Y 30% / Z 30%     |
|          | DLC1, Result Envelope X 30% / Y 100% / Z 30% RC7 | Max                 | 2.27           | 1.27           | 0.00           | 0.00                  | 0.00           | 0.00           | 0.00   |
|          |  | Min                 | -2.27          | -1.27          | 0.00           | 0.00                  | 0.00           | 0.00           | DLC1, Result Envelope X 30% / Y 100% / Z 30%     |
| 24       | RC1  | Max                 | 8.77           | -0.06          | 0.00           | 0.00                  | 0.00           | 0.00           | 0.00   |
|          |  | Min                 | 0.04           | -2.83          | 0.00           | 0.00                  | 0.00           | 0.00           | ULS (STR/GEO) - Permanent / transient - Eq. 6.10 |
|          | RC2  | Max                 | 5.86           | -0.04          | 0.00           | 0.00                  | 0.00           | 0.00           | 0.00   |
|          |  | Min                 | 0.03           | -1.89          | 0.00           | 0.00                  | 0.00           | 0.00           | ULS (STR/GEO) - Permanent / transient - Eq. 6.10 |
|          | RC3  | Max                 | 2.95           | -0.04          | 0.00           | 0.00                  | 0.00           | 0.00           | 0.00   |
|          |  | Min                 | 0.03           | -0.97          | 0.00           | 0.00                  | 0.00           | 0.00           | SLS - Characteristic                             |
|          | RC4  | Max                 | 1.78           | -0.04          | 0.00           | 0.00                  | 0.00           | 0.00           | 0.00   |
|          |  | Min                 | 0.03           | -0.60          | 0.00           | 0.00                  | 0.00           | 0.00           | SLS - Frequent                                   |
|          | DLC1, Result Envelope X 100% / Y 30% / Z 30% RC5 | Max                 | 1.07           | 1.04           | 0.00           | 0.00                  | 0.00           | 0.00           | 0.00   |
|          |  | Min                 | -1.07          | -1.04          | 0.00           | 0.00                  | 0.00           | 0.00           | SLS - Quasi-permanent                            |
|          | DLC1, Result Envelope X 100% / Y 30% / Z 30% RC6 | Max                 | 0.81           | 1.50           | 0.00           | 0.00                  | 0.00           | 0.00           | 0.00   |
|          |  | Min                 | -0.81          | -1.50          | 0.00           | 0.00                  | 0.00           | 0.00           | DLC1, Result Envelope X 100% / Y 30% / Z 30%     |
|          | DLC1, Result Envelope X 30% / Y 100% / Z 30% RC7 | Max                 | 2.23           | 1.82           | 0.00           | 0.00                  | 0.00           | 0.00           | 0.00   |
|          |  | Min                 | -2.23          | -1.82          | 0.00           | 0.00                  | 0.00           | 0.00           | DLC1, Result Envelope X 30% / Y 100% / Z 30%     |
| 33       | RC1  | Max                 | 8.50           | 10.89          | 0.00           | 0.00                  | 0.00           | 0.00           | 0.00   |
|          |  |                     |                |                |                |                       |                |                | ULS (STR/GEO) - Permanent / transient - Eq. 6.10 |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## 4.1 NODES - SUPPORT FORCES

Result Combinations

| Node No. | RC   |     | Support Forces [kN] |                |                | Support Moments [kNm] |                |                |  |
|----------|--|-----|---------------------|----------------|----------------|-----------------------|----------------|----------------|--|
|          |  |     | P <sub>X</sub>      | P <sub>Y</sub> | P <sub>Z</sub> | M <sub>X</sub>        | M <sub>Y</sub> | M <sub>Z</sub> |  |
| 33       |  | Min | 0.04                | 0.05           | 0.00           | 0.00                  | 0.00           | 0.00           | ULS (STR/GEO) - Permanent / transient - Eq. 6.10 |
|          | RC2  | Max | 5.67                | 7.26           | 0.00           | 0.00                  | 0.00           | 0.00           | SLS - Characteristic                             |
|          |  | Min | 0.03                | 0.04           | 0.00           | 0.00                  | 0.00           | 0.00           | SLS - Characteristic                             |
|          | RC3  | Max | 2.85                | 3.65           | 0.00           | 0.00                  | 0.00           | 0.00           | SLS - Frequent                                   |
|          |  | Min | 0.03                | 0.04           | 0.00           | 0.00                  | 0.00           | 0.00           | SLS - Frequent                                   |
|          | RC4  | Max | 1.73                | 2.21           | 0.00           | 0.00                  | 0.00           | 0.00           | SLS - Quasi-permanent                            |
|          |  | Min | 0.03                | 0.04           | 0.00           | 0.00                  | 0.00           | 0.00           | SLS - Quasi-permanent                            |
|          | DLC1, Result Envelope X 100% / Y 30% / Z 30% | Max | 1.28                | 1.62           | 0.00           | 0.00                  | 0.00           | 0.00           | DLC1, Result Envelope X 100% / Y 30% / Z 30%     |
|          | DLC1, Result Envelope X 100% / Y 30% / Z 30% | Min | -1.28               | -1.62          | 0.00           | 0.00                  | 0.00           | 0.00           | DLC1, Result Envelope X 100% / Y 30% / Z 30%     |
|          | DLC1, Result Envelope X 30% / Y 100% / Z 30% | Max | 1.14                | 1.46           | 0.00           | 0.00                  | 0.00           | 0.00           | DLC1, Result Envelope X 30% / Y 100% / Z 30%     |
|          | DLC1, Result Envelope X 30% / Y 100% / Z 30% | Min | -1.14               | -1.46          | 0.00           | 0.00                  | 0.00           | 0.00           | DLC1, Result Envelope X 30% / Y 100% / Z 30%     |
|          | DLC1, Result Envelope X 30% / Y 30% / Z 100% | Max | 2.58                | 3.28           | 0.00           | 0.00                  | 0.00           | 0.00           | DLC1, Result Envelope X 30% / Y 30% / Z 100%     |
|          | DLC1, Result Envelope X 30% / Y 30% / Z 100% | Min | -2.58               | -3.28          | 0.00           | 0.00                  | 0.00           | 0.00           | DLC1, Result Envelope X 30% / Y 30% / Z 100%     |

## 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC   | Node No. | Location x [m] | Forces [kN]        |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |      |
|--------------------|--|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------------------------|------|
|                    |  |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |      |
| 1                  | Section No. 1: QRO 100x4   EN 10219-2:2006 |          |                |                    |                |                |                |                |                |                         |      |
|                    | RC1  | 1        | 0.000          | Max N              | 16.05          | 0.71           | -3.30          | 0.07           | 4.01           | 0.84                    | CO 2 |
|                    |  |          |                | Min N              | -2.55          | -0.01          | -0.01          | 0.00           | 0.01           | -0.02                   | CO 1 |
|                    |  |          |                | Max V <sub>y</sub> | 16.05          | 0.71           | -3.30          | 0.07           | 4.01           | 0.84                    | CO 2 |
|                    |  |          |                | Min V <sub>y</sub> | -2.55          | -0.01          | -0.01          | 0.00           | 0.01           | -0.02                   | CO 1 |
|                    |  |          |                | Max V <sub>z</sub> | -2.55          | -0.01          | -0.01          | 0.00           | 0.01           | -0.02                   | CO 1 |
|                    |  |          |                | Min V <sub>z</sub> | 16.05          | 0.71           | -3.30          | 0.07           | 4.01           | 0.84                    | CO 2 |
|                    |  |          |                | Max M <sub>T</sub> | 16.05          | 0.71           | -3.30          | 0.07           | 4.01           | 0.84                    | CO 2 |
|                    |  |          |                | Min M <sub>T</sub> | -2.55          | -0.01          | -0.01          | 0.00           | 0.01           | -0.02                   | CO 1 |
|                    |  |          |                | Max M <sub>y</sub> | 16.05          | 0.71           | -3.30          | 0.07           | 4.01           | 0.84                    | CO 2 |
|                    |  |          |                | Min M <sub>y</sub> | -2.55          | -0.01          | -0.01          | 0.00           | 0.01           | -0.02                   | CO 1 |
|                    |  |          |                | Max M <sub>z</sub> | 16.05          | 0.71           | -3.30          | 0.07           | 4.01           | 0.84                    | CO 2 |
|                    |  |          |                | Min M <sub>z</sub> | -2.55          | -0.01          | -0.01          | 0.00           | 0.01           | -0.02                   | CO 1 |
|                    |  | 9        | 2.300          | Max N              | 16.42          | 0.71           | -3.28          | 0.07           | -3.44          | -0.76                   | CO 2 |
|                    |  |          |                | Min N              | -2.18          | -0.01          | -0.01          | 0.00           | -0.01          | 0.00                    | CO 1 |
|                    |  |          |                | Max V <sub>y</sub> | 16.42          | 0.71           | -3.28          | 0.07           | -3.44          | -0.76                   | CO 2 |
|                    |  |          |                | Min V <sub>y</sub> | -2.18          | -0.01          | -0.01          | 0.00           | -0.01          | 0.00                    | CO 1 |
|                    |  |          |                | Max V <sub>z</sub> | -2.18          | -0.01          | -0.01          | 0.00           | -0.01          | 0.00                    | CO 1 |
|                    |  |          |                | Min V <sub>z</sub> | 16.42          | 0.71           | -3.28          | 0.07           | -3.44          | -0.76                   | CO 2 |
|                    |  |          |                | Max M <sub>T</sub> | 16.42          | 0.71           | -3.28          | 0.07           | -3.44          | -0.76                   | CO 2 |
|                    |  |          |                | Min M <sub>T</sub> | -2.18          | -0.01          | -0.01          | 0.00           | -0.01          | 0.00                    | CO 1 |
|                    |  |          |                | Max M <sub>y</sub> | -2.18          | -0.01          | -0.01          | 0.00           | -0.01          | 0.00                    | CO 1 |
|                    |  |          |                | Min M <sub>y</sub> | 16.42          | 0.71           | -3.28          | 0.07           | -3.44          | -0.76                   | CO 2 |
|                    |  |          |                | Max M <sub>z</sub> | -2.18          | -0.01          | -0.01          | 0.00           | -0.01          | 0.00                    | CO 1 |
|                    |  |          |                | Min M <sub>z</sub> | 16.42          | 0.71           | -3.28          | 0.07           | -3.44          | -0.76                   | CO 2 |
|                    | RC2  | 1        | 0.000          | Max N              | 10.51          | 0.47           | -2.19          | 0.05           | 2.67           | 0.56                    | CO 4 |
|                    |  |          |                | Min N              | -1.89          | -0.01          | -0.01          | 0.00           | 0.01           | -0.01                   | CO 3 |
|                    |  |          |                | Max V <sub>y</sub> | 10.51          | 0.47           | -2.19          | 0.05           | 2.67           | 0.56                    | CO 4 |
|                    |  |          |                | Min V <sub>y</sub> | -1.89          | -0.01          | -0.01          | 0.00           | 0.01           | -0.01                   | CO 3 |
|                    |  |          |                | Max V <sub>z</sub> | -1.89          | -0.01          | -0.01          | 0.00           | 0.01           | -0.01                   | CO 3 |
|                    |  |          |                | Min V <sub>z</sub> | 10.51          | 0.47           | -2.19          | 0.05           | 2.67           | 0.56                    | CO 4 |
|                    |  |          |                | Max M <sub>T</sub> | 10.51          | 0.47           | -2.19          | 0.05           | 2.67           | 0.56                    | CO 4 |
|                    |  |          |                | Min M <sub>T</sub> | -1.89          | -0.01          | -0.01          | 0.00           | 0.01           | -0.01                   | CO 3 |
|                    |  |          |                | Max M <sub>y</sub> | 10.51          | 0.47           | -2.19          | 0.05           | 2.67           | 0.56                    | CO 4 |
|                    |  |          |                | Min M <sub>y</sub> | -1.89          | -0.01          | -0.01          | 0.00           | 0.01           | -0.01                   | CO 3 |
|                    |  |          |                | Max M <sub>z</sub> | 10.51          | 0.47           | -2.19          | 0.05           | 2.67           | 0.56                    | CO 4 |
|                    |  |          |                | Min M <sub>z</sub> | -1.89          | -0.01          | -0.01          | 0.00           | 0.01           | -0.01                   | CO 3 |
|                    |  | 9        | 2.300          | Max N              | 10.78          | 0.47           | -2.18          | 0.04           | -2.29          | -0.51                   | CO 4 |
|                    |  |          |                | Min N              | -1.62          | -0.01          | -0.01          | 0.00           | -0.01          | 0.00                    | CO 3 |
|                    |  |          |                | Max V <sub>y</sub> | 10.78          | 0.47           | -2.18          | 0.04           | -2.29          | -0.51                   | CO 4 |
|                    |  |          |                | Min V <sub>y</sub> | -1.62          | -0.01          | -0.01          | 0.00           | -0.01          | 0.00                    | CO 3 |
|                    |  |          |                | Max V <sub>z</sub> | -1.62          | -0.01          | -0.01          | 0.00           | -0.01          | 0.00                    | CO 3 |
|                    |  |          |                | Min V <sub>z</sub> | 10.78          | 0.47           | -2.18          | 0.04           | -2.29          | -0.51                   | CO 4 |
|                    |  |          |                | Max M <sub>T</sub> | 10.78          | 0.47           | -2.18          | 0.04           | -2.29          | -0.51                   | CO 4 |
|                    |  |          |                | Min M <sub>T</sub> | -1.62          | -0.01          | -0.01          | 0.00           | -0.01          | 0.00                    | CO 3 |
|                    |  |          |                | Max M <sub>y</sub> | -1.62          | -0.01          | -0.01          | 0.00           | -0.01          | 0.00                    | CO 3 |
|                    |  |          |                | Min M <sub>y</sub> | 10.78          | 0.47           | -2.18          | 0.04           | -2.29          | -0.51                   | CO 4 |
|                    |  |          |                | Max M <sub>z</sub> | -1.62          | -0.01          | -0.01          | 0.00           | -0.01          | 0.00                    | CO 3 |
|                    |  |          |                | Min M <sub>z</sub> | 10.78          | 0.47           | -2.18          | 0.04           | -2.29          | -0.51                   | CO 4 |
|                    | RC3  | 1        | 0.000          | Max N              | 4.32           | 0.23           | -1.09          | 0.02           | 1.34           | 0.27                    | CO 6 |
|                    |  |          |                | Min N              | -1.89          | -0.01          | -0.01          | 0.00           | 0.01           | -0.01                   | CO 5 |
|                    |  |          |                | Max V <sub>y</sub> | 4.32           | 0.23           | -1.09          | 0.02           | 1.34           | 0.27                    | CO 6 |
|                    |  |          |                | Min V <sub>y</sub> | -1.89          | -0.01          | -0.01          | 0.00           | 0.01           | -0.01                   | CO 5 |
|                    |  |          |                | Max V <sub>z</sub> | -1.89          | -0.01          | -0.01          | 0.00           | 0.01           | -0.01                   | CO 5 |
|                    |  |          |                | Min V <sub>z</sub> | 4.32           | 0.23           | -1.09          | 0.02           | 1.34           | 0.27                    | CO 6 |
| Max M <sub>T</sub> |  |          |                | 4.32               | 0.23           | -1.09          | 0.02           | 1.34           | 0.27           | CO 6                    |      |

## RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC   | Node No. | Location x [m]     | Forces [kN]        |                |                |                    | Moments [kNm]  |                |            | Correspondin |
|--------------------|--|----------|--------------------|--------------------|----------------|----------------|--------------------|----------------|----------------|------------|--------------|
|                    |  |          |                    | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub>     | M <sub>y</sub> | M <sub>z</sub> | Load Cases |              |
| 1                  | RC3  | 9        | 2.300              | Min M <sub>T</sub> | -1.89          | -0.01          | -0.01              | 0.00           | 0.01           | -0.01      | CO 5         |
|                    |  |          |                    | Max M <sub>y</sub> | 4.32           | 0.23           | -1.09              | 0.02           | 1.34           | 0.27       | CO 6         |
|                    |  |          |                    | Min M <sub>y</sub> | -1.89          | -0.01          | -0.01              | 0.00           | 0.01           | -0.01      | CO 5         |
|                    |  |          |                    | Max M <sub>z</sub> | 4.32           | 0.23           | -1.09              | 0.02           | 1.34           | 0.27       | CO 6         |
|                    |  |          |                    | Min M <sub>z</sub> | -1.89          | -0.01          | -0.01              | 0.00           | 0.01           | -0.01      | CO 5         |
|                    |  |          |                    | Max N              | 4.58           | 0.23           | -1.09              | 0.02           | -1.15          | -0.25      | CO 6         |
|                    |  |          |                    | Min N              | -1.62          | -0.01          | -0.01              | 0.00           | -0.01          | 0.00       | CO 5         |
|                    |  |          |                    | Max V <sub>y</sub> | 4.58           | 0.23           | -1.09              | 0.02           | -1.15          | -0.25      | CO 6         |
|                    |  |          |                    | Min V <sub>y</sub> | -1.62          | -0.01          | -0.01              | 0.00           | -0.01          | 0.00       | CO 5         |
|                    |  |          |                    | Max V <sub>z</sub> | -1.62          | -0.01          | -0.01              | 0.00           | -0.01          | 0.00       | CO 5         |
|                    |  |          |                    | Min V <sub>z</sub> | 4.58           | 0.23           | -1.09              | 0.02           | -1.15          | -0.25      | CO 6         |
|                    |  |          |                    | Max M <sub>T</sub> | 4.58           | 0.23           | -1.09              | 0.02           | -1.15          | -0.25      | CO 6         |
|                    |  |          |                    | Min M <sub>T</sub> | -1.62          | -0.01          | -0.01              | 0.00           | -0.01          | 0.00       | CO 5         |
|                    |  |          |                    | Max M <sub>y</sub> | -1.62          | -0.01          | -0.01              | 0.00           | -0.01          | 0.00       | CO 5         |
|                    |  |          |                    | Min M <sub>y</sub> | 4.58           | 0.23           | -1.09              | 0.02           | -1.15          | -0.25      | CO 6         |
|                    |  |          |                    | Max M <sub>z</sub> | -1.62          | -0.01          | -0.01              | 0.00           | -0.01          | 0.00       | CO 5         |
|                    |  |          |                    | RC4                | 1              | 0.000          | Min M <sub>z</sub> | 4.58           | 0.23           | -1.09      | 0.02         |
|                    | Max N  | 1.84     | 0.13               |                    |                |                | -0.65              | 0.01           | 0.81           | 0.16       | CO 8         |
|                    | Min N  | -1.89    | -0.01              |                    |                |                | -0.01              | 0.00           | 0.01           | -0.01      | CO 7         |
|                    | Max V <sub>y</sub>                           | 1.84     | 0.13               |                    |                |                | -0.65              | 0.01           | 0.81           | 0.16       | CO 8         |
|                    | Min V <sub>y</sub>                           | -1.89    | -0.01              |                    |                |                | -0.01              | 0.00           | 0.01           | -0.01      | CO 7         |
|                    | Max V <sub>z</sub>                           | -1.89    | -0.01              |                    |                |                | -0.01              | 0.00           | 0.01           | -0.01      | CO 7         |
|                    | Min V <sub>z</sub>                           | 1.84     | 0.13               |                    |                |                | -0.65              | 0.01           | 0.81           | 0.16       | CO 8         |
|                    | Max M <sub>T</sub>                           | 1.84     | 0.13               |                    |                |                | -0.65              | 0.01           | 0.81           | 0.16       | CO 8         |
|                    | Min M <sub>T</sub>                           | -1.89    | -0.01              |                    |                |                | -0.01              | 0.00           | 0.01           | -0.01      | CO 7         |
|                    | Max M <sub>y</sub>                           | 1.84     | 0.13               |                    |                |                | -0.65              | 0.01           | 0.81           | 0.16       | CO 8         |
|                    | Min M <sub>y</sub>                           | -1.89    | -0.01              |                    |                |                | -0.01              | 0.00           | 0.01           | -0.01      | CO 7         |
|                    | Max M <sub>z</sub>                           | 1.84     | 0.13               |                    |                |                | -0.65              | 0.01           | 0.81           | 0.16       | CO 8         |
|                    | 9  | 2.300    | Min M <sub>z</sub> |                    | -1.89          | -0.01          | -0.01              | 0.00           | 0.01           | -0.01      | CO 7         |
|                    |  |          | Max N              |                    | 2.10           | 0.13           | -0.65              | 0.01           | -0.69          | -0.15      | CO 8         |
|                    |  |          | Min N              |                    | -1.62          | -0.01          | -0.01              | 0.00           | -0.01          | 0.00       | CO 7         |
|                    |  |          | Max V <sub>y</sub> |                    | 2.10           | 0.13           | -0.65              | 0.01           | -0.69          | -0.15      | CO 8         |
|                    |  |          | Min V <sub>y</sub> |                    | -1.62          | -0.01          | -0.01              | 0.00           | -0.01          | 0.00       | CO 7         |
|                    |  |          | Max V <sub>z</sub> |                    | -1.62          | -0.01          | -0.01              | 0.00           | -0.01          | 0.00       | CO 7         |
|                    |  |          | Min V <sub>z</sub> |                    | 2.10           | 0.13           | -0.65              | 0.01           | -0.69          | -0.15      | CO 8         |
|                    |  |          | Max M <sub>T</sub> |                    | 2.10           | 0.13           | -0.65              | 0.01           | -0.69          | -0.15      | CO 8         |
|                    |  |          | Min M <sub>T</sub> |                    | -1.62          | -0.01          | -0.01              | 0.00           | -0.01          | 0.00       | CO 7         |
|                    |  |          | Max M <sub>y</sub> |                    | -1.62          | -0.01          | -0.01              | 0.00           | -0.01          | 0.00       | CO 7         |
|                    |  |          | Min M <sub>y</sub> |                    | 2.10           | 0.13           | -0.65              | 0.01           | -0.69          | -0.15      | CO 8         |
|                    |  |          | Max M <sub>z</sub> |                    | -1.62          | -0.01          | -0.01              | 0.00           | -0.01          | 0.00       | CO 7         |
|                    |  |          | Min M <sub>z</sub> | 2.10               | 0.13           | -0.65          | 0.01               | -0.69          | -0.15          | CO 8       |              |
|                    | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                    |                    |                |                |                    |                |                |            |              |
|                    | RC5  | 1        | 0.000              | Max N              | 3.07           | 0.12           | -0.19              | 0.01           | 0.24           | 0.14       |              |
|                    |  |          |                    | Min N              | -3.07          | -0.12          | 0.19               | -0.01          | -0.24          | -0.14      |              |
|                    |  |          |                    | Max V <sub>y</sub> | 2.61           | 0.17           | -0.24              | 0.01           | 0.30           | 0.20       |              |
|                    |  |          |                    | Min V <sub>y</sub> | -2.61          | -0.17          | 0.24               | -0.01          | -0.30          | -0.20      |              |
|                    |  |          |                    | Max V <sub>z</sub> | -1.77          | -0.07          | 0.34               | -0.01          | -0.42          | -0.08      |              |
|                    |  |          |                    | Min V <sub>z</sub> | 1.77           | 0.07           | -0.34              | 0.01           | 0.42           | 0.08       |              |
|                    |  |          |                    | Max M <sub>T</sub> | 2.57           | 0.16           | -0.27              | 0.01           | 0.34           | 0.20       |              |
|                    |  |          |                    | Min M <sub>T</sub> | -2.57          | -0.16          | 0.27               | -0.01          | -0.34          | -0.20      |              |
|                    |  |          |                    | Max M <sub>y</sub> | 1.75           | 0.07           | -0.34              | 0.01           | 0.42           | 0.08       |              |
|                    |  |          |                    | Min M <sub>y</sub> | -1.75          | -0.07          | 0.34               | -0.01          | -0.42          | -0.08      |              |
|                    |  |          |                    | Max M <sub>z</sub> | 2.60           | 0.17           | -0.24              | 0.01           | 0.30           | 0.20       |              |
|                    |  | 9        | 2.300              | Min M <sub>z</sub> | -2.60          | -0.17          | 0.24               | -0.01          | -0.30          | -0.20      |              |
|                    |  |          |                    | Max N              | 3.07           | 0.12           | -0.19              | 0.01           | -0.21          | -0.13      |              |
|                    |  |          |                    | Min N              | -3.07          | -0.12          | 0.19               | -0.01          | 0.21           | 0.13       |              |
|                    |  |          |                    | Max V <sub>y</sub> | 2.61           | 0.17           | -0.24              | 0.01           | -0.26          | -0.18      |              |
|                    |  |          |                    | Min V <sub>y</sub> | -2.61          | -0.17          | 0.24               | -0.01          | 0.26           | 0.18       |              |
|                    |  |          |                    | Max V <sub>z</sub> | -1.77          | -0.07          | 0.34               | -0.01          | 0.36           | 0.07       |              |
|                    |  |          |                    | Min V <sub>z</sub> | 1.77           | 0.07           | -0.34              | 0.01           | -0.36          | -0.07      |              |
|                    |  |          |                    | Max M <sub>T</sub> | 2.57           | 0.16           | -0.27              | 0.01           | -0.29          | -0.18      |              |
|                    |  |          |                    | Min M <sub>T</sub> | -2.57          | -0.16          | 0.27               | -0.01          | 0.29           | 0.18       |              |
|                    |  |          |                    | Max M <sub>y</sub> | -1.79          | -0.07          | 0.34               | -0.01          | 0.36           | 0.07       |              |
|                    |  |          |                    | Min M <sub>y</sub> | 1.79           | 0.07           | -0.34              | 0.01           | -0.36          | -0.07      |              |
|                    |  |          |                    | Max M <sub>z</sub> | -2.62          | -0.17          | 0.24               | -0.01          | 0.26           | 0.18       |              |
|                    | Min M <sub>z</sub>                           |          |                    | 2.62               | 0.17           | -0.24          | 0.01               | -0.26          | -0.18          |            |              |
|                    | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                    |                    |                |                |                    |                |                |            |              |
|                    | RC6  | 1        | 0.000              | Max N              | 2.52           | 0.10           | -0.13              | 0.01           | 0.15           | 0.12       |              |
|                    |  |          |                    | Min N              | -2.52          | -0.10          | 0.13               | -0.01          | -0.15          | -0.12      |              |
|                    |  |          |                    | Max V <sub>y</sub> | 2.02           | 0.22           | -0.13              | 0.01           | 0.16           | 0.27       |              |
|                    |  |          |                    | Min V <sub>y</sub> | -2.02          | -0.22          | 0.13               | -0.01          | -0.16          | -0.27      |              |
|                    |  |          |                    | Max V <sub>z</sub> | -1.27          | 0.04           | 0.28               | -0.00          | -0.35          | 0.05       |              |
|                    |  |          |                    | Min V <sub>z</sub> | 1.27           | -0.04          | -0.28              | 0.00           | 0.35           | -0.05      |              |
|                    |  |          |                    | Max M <sub>T</sub> | 1.99           | 0.22           | -0.15              | 0.01           | 0.19           | 0.26       |              |
|                    |  |          |                    | Min M <sub>T</sub> | -1.99          | -0.22          | 0.15               | -0.01          | -0.19          | -0.26      |              |
|                    |  |          |                    | Max M <sub>y</sub> | 1.26           | -0.04          | -0.28              | 0.00           | 0.35           | -0.05      |              |
|                    |  |          |                    | Min M <sub>y</sub> | -1.26          | 0.04           | 0.28               | -0.00          | -0.35          | 0.05       |              |
|                    |  |          |                    | Max M <sub>z</sub> | 2.01           | 0.22           | -0.13              | 0.01           | 0.16           | 0.27       |              |
|                    |  | 9        | 2.300              | Min M <sub>z</sub> | -2.01          | -0.22          | 0.13               | -0.01          | -0.16          | -0.27      |              |
|                    |  |          |                    | Max N              | 2.52           | 0.10           | -0.13              | 0.01           | -0.14          | -0.11      |              |
|                    |  |          |                    | Min N              | -2.52          | -0.10          | 0.13               | -0.01          | 0.14           | 0.11       |              |
|                    |  |          |                    | Max V <sub>y</sub> | 2.02           | 0.22           | -0.13              | 0.01           | -0.13          | -0.24      |              |
|                    |  |          |                    | Min V <sub>y</sub> | -2.02          | -0.22          | 0.13               | -0.01          | 0.13           | 0.24       |              |
|                    |  |          |                    | Max V <sub>z</sub> | -1.27          | 0.04           | 0.28               | -0.00          | 0.30           | -0.05      |              |
|                    |  |          |                    | Min V <sub>z</sub> | 1.27           | -0.04          | -0.28              | 0.00           | -0.30          | 0.05       |              |
| Max M <sub>T</sub> |  |          |                    | 1.99               | 0.22           | -0.15          | 0.01               | -0.16          | -0.24          |            |              |
| Min M <sub>T</sub> | -1.99  | -0.22    | 0.15               | -0.01              | 0.16           | 0.24           |                    |                |                |            |              |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.                                   | RC  | Node No. | Location x [m] | Forces [kN]        |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |      |
|--|-----|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------------------------|------|
|  |     |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |      |
| 1  | RC6 |          |                | Max M <sub>y</sub> | -1.29          | 0.04           | 0.28           | -0.00          | 0.30           | -0.05                   |      |
|  |     |          |                | Min M <sub>y</sub> | 1.29           | -0.04          | -0.28          | 0.00           | -0.30          | 0.05                    |      |
|  |     |          |                | Max M <sub>z</sub> | -2.03          | -0.22          | 0.12           | -0.01          | 0.13           | 0.24                    |      |
|  |     |          |                | Min M <sub>z</sub> | 2.03           | 0.22           | -0.12          | 0.01           | -0.13          | -0.24                   |      |
| DLC1, Result Envelope X 30% / Y 30% / Z 100% |     |          |                |                    |                |                |                |                |                |                         |      |
|  | RC7 | 1        | 0.000          | Max N              | 6.95           | 0.25           | -0.36          | 0.02           | 0.44           | 0.30                    |      |
|  |     |          |                | Min N              | -6.95          | -0.25          | 0.36           | -0.02          | -0.44          | -0.30                   |      |
|  |     |          |                | Max V <sub>y</sub> | 6.02           | 0.32           | -0.49          | 0.02           | 0.61           | 0.38                    |      |
|  |     |          |                | Min V <sub>y</sub> | -6.02          | -0.32          | 0.49           | -0.02          | -0.61          | -0.38                   |      |
|  |     |          |                | Max V <sub>z</sub> | -3.76          | -0.18          | 0.67           | -0.02          | -0.83          | -0.22                   |      |
|  |     |          |                | Min V <sub>z</sub> | 3.76           | 0.18           | -0.67          | 0.02           | 0.83           | 0.22                    |      |
|  |     |          |                | Max M <sub>T</sub> | 5.89           | 0.31           | -0.56          | 0.02           | 0.70           | 0.37                    |      |
|  |     |          |                | Min M <sub>T</sub> | -5.89          | -0.31          | 0.56           | -0.02          | -0.70          | -0.37                   |      |
|  |     |          |                | Max M <sub>y</sub> | 3.71           | 0.18           | -0.67          | 0.02           | 0.83           | 0.22                    |      |
|  |     |          |                | Min M <sub>y</sub> | -3.71          | -0.18          | 0.67           | -0.02          | -0.83          | -0.22                   |      |
|  |     |          |                | Max M <sub>z</sub> | 5.99           | 0.32           | -0.50          | 0.02           | 0.61           | 0.38                    |      |
|  |     |          |                | Min M <sub>z</sub> | -5.99          | -0.32          | 0.50           | -0.02          | -0.61          | -0.38                   |      |
|  | 9   | 2.300    |                | Max N              | 6.95           | 0.25           | -0.36          | 0.02           | -0.39          | -0.27                   |      |
|  |     |          |                | Min N              | -6.95          | -0.25          | 0.36           | -0.02          | 0.39           | 0.27                    |      |
|  |     |          |                | Max V <sub>y</sub> | 6.02           | 0.32           | -0.49          | 0.02           | -0.53          | -0.35                   |      |
|  |     |          |                | Min V <sub>y</sub> | -6.02          | -0.32          | 0.49           | -0.02          | 0.53           | 0.35                    |      |
|  |     |          |                | Max V <sub>z</sub> | -3.76          | -0.18          | 0.67           | -0.02          | 0.71           | 0.20                    |      |
|  |     |          |                | Min V <sub>z</sub> | 3.76           | 0.18           | -0.67          | 0.02           | -0.71          | -0.20                   |      |
|  |     |          |                | Max M <sub>T</sub> | 5.89           | 0.31           | -0.56          | 0.02           | -0.60          | -0.34                   |      |
|  |     |          |                | Min M <sub>T</sub> | -5.89          | -0.31          | 0.56           | -0.02          | 0.60           | 0.34                    |      |
|  |     |          |                | Max M <sub>y</sub> | -3.82          | -0.18          | 0.67           | -0.02          | 0.71           | 0.20                    |      |
|  |     |          |                | Min M <sub>y</sub> | 3.82           | 0.18           | -0.67          | 0.02           | -0.71          | -0.20                   |      |
|  |     |          |                | Max M <sub>z</sub> | -6.05          | -0.32          | 0.49           | -0.02          | 0.52           | 0.35                    |      |
|  |     |          |                | Min M <sub>z</sub> | 6.05           | 0.32           | -0.49          | 0.02           | -0.52          | -0.35                   |      |
|  | RC1 | 3        | 0.000          | Max N              | 3.55           | 0.72           | -2.06          | 0.15           | 3.39           | 0.85                    | CO 2 |
|  |     |          |                | Min N              | -2.82          | -0.02          | -0.03          | 0.00           | 0.03           | -0.03                   | CO 1 |
|  |     |          |                | Max V <sub>y</sub> | 3.55           | 0.72           | -2.06          | 0.15           | 3.39           | 0.85                    | CO 2 |
|  |     |          |                | Min V <sub>y</sub> | -2.82          | -0.02          | -0.03          | 0.00           | 0.03           | -0.03                   | CO 1 |
|  |     |          |                | Max V <sub>z</sub> | -2.82          | -0.02          | -0.03          | 0.00           | 0.03           | -0.03                   | CO 1 |
|  |     |          |                | Min V <sub>z</sub> | 3.55           | 0.72           | -2.06          | 0.15           | 3.39           | 0.85                    | CO 2 |
|  |     |          |                | Max M <sub>T</sub> | 3.55           | 0.72           | -2.06          | 0.15           | 3.39           | 0.85                    | CO 2 |
|  |     |          |                | Min M <sub>T</sub> | -2.82          | -0.02          | -0.03          | 0.00           | 0.03           | -0.03                   | CO 1 |
|  |     |          |                | Max M <sub>y</sub> | 3.55           | 0.72           | -2.06          | 0.15           | 3.39           | 0.85                    | CO 2 |
|  |     |          |                | Min M <sub>y</sub> | -2.82          | -0.02          | -0.03          | 0.00           | 0.03           | -0.03                   | CO 1 |
|  |     |          |                | Max M <sub>z</sub> | 3.55           | 0.72           | -2.06          | 0.15           | 3.39           | 0.85                    | CO 2 |
|  |     |          |                | Min M <sub>z</sub> | -2.82          | -0.02          | -0.03          | 0.00           | 0.03           | -0.03                   | CO 1 |
|  |     | 10       | 2.300          | Max N              | 3.92           | 0.71           | -2.04          | 0.15           | -1.31          | -0.79                   | CO 2 |
|  |     |          |                | Min N              | -2.46          | -0.02          | -0.03          | 0.00           | -0.03          | 0.03                    | CO 1 |
|  |     |          |                | Max V <sub>y</sub> | 3.92           | 0.71           | -2.04          | 0.15           | -1.31          | -0.79                   | CO 2 |
|  |     |          |                | Min V <sub>y</sub> | -2.46          | -0.02          | -0.03          | 0.00           | -0.03          | 0.03                    | CO 1 |
|  |     |          |                | Max V <sub>z</sub> | -2.46          | -0.02          | -0.03          | 0.00           | -0.03          | 0.03                    | CO 1 |
|  |     |          |                | Min V <sub>z</sub> | 3.92           | 0.71           | -2.04          | 0.15           | -1.31          | -0.79                   | CO 2 |
|  |     |          |                | Max M <sub>T</sub> | 3.92           | 0.71           | -2.04          | 0.15           | -1.31          | -0.79                   | CO 2 |
|  |     |          |                | Min M <sub>T</sub> | -2.46          | -0.02          | -0.03          | 0.00           | -0.03          | 0.03                    | CO 1 |
|  |     |          |                | Max M <sub>y</sub> | -2.46          | -0.02          | -0.03          | 0.00           | -0.03          | 0.03                    | CO 1 |
|  |     |          |                | Min M <sub>y</sub> | 3.92           | 0.71           | -2.04          | 0.15           | -1.31          | -0.79                   | CO 2 |
|  |     |          |                | Max M <sub>z</sub> | -2.46          | -0.02          | -0.03          | 0.00           | -0.03          | 0.03                    | CO 1 |
|  |     |          |                | Min M <sub>z</sub> | 3.92           | 0.71           | -2.04          | 0.15           | -1.31          | -0.79                   | CO 2 |
|  | RC2 | 3        | 0.000          | Max N              | 2.15           | 0.47           | -1.37          | 0.10           | 2.26           | 0.56                    | CO 4 |
|  |     |          |                | Min N              | -2.09          | -0.02          | -0.02          | 0.00           | 0.02           | -0.02                   | CO 3 |
|  |     |          |                | Max V <sub>y</sub> | 2.15           | 0.47           | -1.37          | 0.10           | 2.26           | 0.56                    | CO 4 |
|  |     |          |                | Min V <sub>y</sub> | -2.09          | -0.02          | -0.02          | 0.00           | 0.02           | -0.02                   | CO 3 |
|  |     |          |                | Max V <sub>z</sub> | -2.09          | -0.02          | -0.02          | 0.00           | 0.02           | -0.02                   | CO 3 |
|  |     |          |                | Min V <sub>z</sub> | 2.15           | 0.47           | -1.37          | 0.10           | 2.26           | 0.56                    | CO 4 |
|  |     |          |                | Max M <sub>T</sub> | 2.15           | 0.47           | -1.37          | 0.10           | 2.26           | 0.56                    | CO 4 |
|  |     |          |                | Min M <sub>T</sub> | -2.09          | -0.02          | -0.02          | 0.00           | 0.02           | -0.02                   | CO 3 |
|  |     |          |                | Max M <sub>y</sub> | 2.15           | 0.47           | -1.37          | 0.10           | 2.26           | 0.56                    | CO 4 |
|  |     |          |                | Min M <sub>y</sub> | -2.09          | -0.02          | -0.02          | 0.00           | 0.02           | -0.02                   | CO 3 |
|  |     |          |                | Max M <sub>z</sub> | 2.15           | 0.47           | -1.37          | 0.10           | 2.26           | 0.56                    | CO 4 |
|  |     |          |                | Min M <sub>z</sub> | -2.09          | -0.02          | -0.02          | 0.00           | 0.02           | -0.02                   | CO 3 |
|  |     | 10       | 2.300          | Max N              | 2.43           | 0.47           | -1.36          | 0.10           | -0.87          | -0.52                   | CO 4 |
|  |     |          |                | Min N              | -1.82          | -0.02          | -0.02          | 0.00           | -0.02          | 0.02                    | CO 3 |
|  |     |          |                | Max V <sub>y</sub> | 2.43           | 0.47           | -1.36          | 0.10           | -0.87          | -0.52                   | CO 4 |
|  |     |          |                | Min V <sub>y</sub> | -1.82          | -0.02          | -0.02          | 0.00           | -0.02          | 0.02                    | CO 3 |
|  |     |          |                | Max V <sub>z</sub> | -1.82          | -0.02          | -0.02          | 0.00           | -0.02          | 0.02                    | CO 3 |
|  |     |          |                | Min V <sub>z</sub> | 2.43           | 0.47           | -1.36          | 0.10           | -0.87          | -0.52                   | CO 4 |
|  |     |          |                | Max M <sub>T</sub> | 2.43           | 0.47           | -1.36          | 0.10           | -0.87          | -0.52                   | CO 4 |
|  |     |          |                | Min M <sub>T</sub> | -1.82          | -0.02          | -0.02          | 0.00           | -0.02          | 0.02                    | CO 3 |
|  |     |          |                | Max M <sub>y</sub> | -1.82          | -0.02          | -0.02          | 0.00           | -0.02          | 0.02                    | CO 3 |
|  |     |          |                | Min M <sub>y</sub> | 2.43           | 0.47           | -1.36          | 0.10           | -0.87          | -0.52                   | CO 4 |
|  |     |          |                | Max M <sub>z</sub> | -1.82          | -0.02          | -0.02          | 0.00           | -0.02          | 0.02                    | CO 3 |
|  |     |          |                | Min M <sub>z</sub> | 2.43           | 0.47           | -1.36          | 0.10           | -0.87          | -0.52                   | CO 4 |
|  | RC3 | 3        | 0.000          | Max N              | 0.03           | 0.23           | -0.69          | 0.05           | 1.14           | 0.27                    | CO 6 |
|  |     |          |                | Min N              | -2.09          | -0.02          | -0.02          | 0.00           | 0.02           | -0.02                   | CO 5 |
|  |     |          |                | Max V <sub>y</sub> | 0.03           | 0.23           | -0.69          | 0.05           | 1.14           | 0.27                    | CO 6 |
|  |     |          |                | Min V <sub>y</sub> | -2.09          | -0.02          | -0.02          | 0.00           | 0.02           | -0.02                   | CO 5 |
|  |     |          |                | Max V <sub>z</sub> | -2.09          | -0.02          | -0.02          | 0.00           | 0.02           | -0.02                   | CO 5 |
|  |     |          |                | Min V <sub>z</sub> | 0.03           | 0.23           | -0.69          | 0.05           | 1.14           | 0.27                    | CO 6 |
|  |     |          |                | Max M <sub>T</sub> | 0.03           | 0.23           | -0.69          | 0.05           | 1.14           | 0.27                    | CO 6 |
|  |     |          |                | Min M <sub>T</sub> | -2.09          | -0.02          | -0.02          | 0.00           | 0.02           | -0.02                   | CO 5 |
|  |     |          |                | Max M <sub>y</sub> | 0.03           | 0.23           | -0.69          | 0.05           | 1.14           | 0.27                    | CO 6 |
|  |     |          |                | Min M <sub>y</sub> | -2.09          | -0.02          | -0.02          | 0.00           | 0.02           | -0.02                   | CO 5 |
|  |     |          |                | Max M <sub>z</sub> | 0.03           | 0.23           | -0.69          | 0.05           | 1.14           | 0.27                    | CO 6 |
|  |     |          |                | Min M <sub>z</sub> | -2.09          | -0.02          | -0.02          | 0.00           | 0.02           | -0.02                   | CO 5 |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC   | Node No. | Location x [m] | Forces [kN]        |                |                |                | Moments [kNm]  |                |       | Correspondin Load Cases |
|--------------------|--|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------|-------------------------|
|                    |  |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |                         |
| 2                  | RC3  | 10       | 2.300          | Max M <sub>z</sub> | 0.03           | 0.23           | -0.69          | 0.05           | 1.14           | 0.27  | CO 6                    |
|                    |  |          |                | Min M <sub>z</sub> | -2.09          | -0.02          | -0.02          | 0.00           | 0.02           | -0.02 | CO 5                    |
|                    |  |          |                | Max N              | 0.30           | 0.23           | -0.69          | 0.05           | -0.45          | -0.25 | CO 6                    |
|                    |  |          |                | Min N              | -1.82          | -0.02          | -0.02          | 0.00           | -0.02          | 0.02  | CO 5                    |
|                    |  |          |                | Max V <sub>y</sub> | 0.30           | 0.23           | -0.69          | 0.05           | -0.45          | -0.25 | CO 6                    |
|                    |  |          |                | Min V <sub>y</sub> | -1.82          | -0.02          | -0.02          | 0.00           | -0.02          | 0.02  | CO 5                    |
|                    |  |          |                | Max V <sub>z</sub> | -1.82          | -0.02          | -0.02          | 0.00           | -0.02          | 0.02  | CO 5                    |
|                    |  |          |                | Min V <sub>z</sub> | 0.30           | 0.23           | -0.69          | 0.05           | -0.45          | -0.25 | CO 6                    |
|                    |  |          |                | Max M <sub>T</sub> | 0.30           | 0.23           | -0.69          | 0.05           | -0.45          | -0.25 | CO 6                    |
|                    |  |          |                | Min M <sub>T</sub> | -1.82          | -0.02          | -0.02          | 0.00           | -0.02          | 0.02  | CO 5                    |
|                    |  |          |                | Max M <sub>y</sub> | -1.82          | -0.02          | -0.02          | 0.00           | -0.02          | 0.02  | CO 5                    |
|                    |  |          |                | Min M <sub>y</sub> | 0.30           | 0.23           | -0.69          | 0.05           | -0.45          | -0.25 | CO 6                    |
|                    |  |          |                | Max M <sub>z</sub> | -1.82          | -0.02          | -0.02          | 0.00           | -0.02          | 0.02  | CO 5                    |
|                    |  |          |                | Min M <sub>z</sub> | 0.30           | 0.23           | -0.69          | 0.05           | -0.45          | -0.25 | CO 6                    |
|                    | RC4  | 3        | 0.000          | Max N              | -0.82          | 0.13           | -0.42          | 0.03           | 0.69           | 0.15  | CO 8                    |
|                    |  |          |                | Min N              | -2.09          | -0.02          | -0.02          | 0.00           | 0.02           | -0.02 | CO 7                    |
|                    |  |          |                | Max V <sub>y</sub> | -0.82          | 0.13           | -0.42          | 0.03           | 0.69           | 0.15  | CO 8                    |
|                    |  |          |                | Min V <sub>y</sub> | -2.09          | -0.02          | -0.02          | 0.00           | 0.02           | -0.02 | CO 7                    |
|                    |  |          |                | Max V <sub>z</sub> | -2.09          | -0.02          | -0.02          | 0.00           | 0.02           | -0.02 | CO 7                    |
|                    |  |          |                | Min V <sub>z</sub> | -0.82          | 0.13           | -0.42          | 0.03           | 0.69           | 0.15  | CO 8                    |
|                    |  |          |                | Max M <sub>T</sub> | -0.82          | 0.13           | -0.42          | 0.03           | 0.69           | 0.15  | CO 8                    |
|                    |  |          |                | Min M <sub>T</sub> | -2.09          | -0.02          | -0.02          | 0.00           | 0.02           | -0.02 | CO 7                    |
|                    |  |          |                | Max M <sub>y</sub> | -0.82          | 0.13           | -0.42          | 0.03           | 0.69           | 0.15  | CO 8                    |
|                    |  |          |                | Min M <sub>y</sub> | -2.09          | -0.02          | -0.02          | 0.00           | 0.02           | -0.02 | CO 7                    |
|                    |  |          |                | Max M <sub>z</sub> | -0.82          | 0.13           | -0.42          | 0.03           | 0.69           | 0.15  | CO 8                    |
|                    |  |          |                | Min M <sub>z</sub> | -2.09          | -0.02          | -0.02          | 0.00           | 0.02           | -0.02 | CO 7                    |
|                    |  | 10       | 2.300          | Max N              | -0.55          | 0.13           | -0.42          | 0.03           | -0.28          | -0.14 | CO 8                    |
|                    |  |          |                | Min N              | -1.82          | -0.02          | -0.02          | 0.00           | -0.02          | 0.02  | CO 7                    |
|                    |  |          |                | Max V <sub>y</sub> | -0.55          | 0.13           | -0.42          | 0.03           | -0.28          | -0.14 | CO 8                    |
|                    |  |          |                | Min V <sub>y</sub> | -1.82          | -0.02          | -0.02          | 0.00           | -0.02          | 0.02  | CO 7                    |
|                    |  |          |                | Max V <sub>z</sub> | -1.82          | -0.02          | -0.02          | 0.00           | -0.02          | 0.02  | CO 7                    |
|                    |  |          |                | Min V <sub>z</sub> | -0.55          | 0.13           | -0.42          | 0.03           | -0.28          | -0.14 | CO 8                    |
|                    |  |          |                | Max M <sub>T</sub> | -0.55          | 0.13           | -0.42          | 0.03           | -0.28          | -0.14 | CO 8                    |
|                    |  |          |                | Min M <sub>T</sub> | -1.82          | -0.02          | -0.02          | 0.00           | -0.02          | 0.02  | CO 7                    |
|                    |  |          |                | Max M <sub>y</sub> | -1.82          | -0.02          | -0.02          | 0.00           | -0.02          | 0.02  | CO 7                    |
|                    |  |          |                | Min M <sub>y</sub> | -0.55          | 0.13           | -0.42          | 0.03           | -0.28          | -0.14 | CO 8                    |
|                    |  |          |                | Max M <sub>z</sub> | -1.82          | -0.02          | -0.02          | 0.00           | -0.02          | 0.02  | CO 7                    |
|                    |  |          |                | Min M <sub>z</sub> | -0.55          | 0.13           | -0.42          | 0.03           | -0.28          | -0.14 | CO 8                    |
|                    | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                |                    |                |                |                |                |                |       |                         |
|                    | RC5  | 3        | 0.000          | Max N              | 0.75           | 0.08           | -0.18          | 0.02           | 0.30           | 0.09  |                         |
|                    |  |          |                | Min N              | -0.75          | -0.08          | 0.18           | -0.02          | -0.30          | -0.09 |                         |
|                    |  |          |                | Max V <sub>y</sub> | 0.47           | 0.16           | -0.18          | 0.02           | 0.30           | 0.20  |                         |
|                    |  |          |                | Min V <sub>y</sub> | -0.47          | -0.16          | 0.18           | -0.02          | -0.30          | -0.20 |                         |
|                    |  |          |                | Max V <sub>z</sub> | -0.60          | -0.08          | 0.22           | -0.02          | -0.36          | -0.10 |                         |
|                    |  |          |                | Min V <sub>z</sub> | 0.60           | 0.08           | -0.22          | 0.02           | 0.36           | 0.10  |                         |
|                    |  |          |                | Max M <sub>T</sub> | 0.54           | 0.16           | -0.19          | 0.02           | 0.31           | 0.19  |                         |
|                    |  |          |                | Min M <sub>T</sub> | -0.54          | -0.16          | 0.19           | -0.02          | -0.31          | -0.19 |                         |
|                    |  |          |                | Max M <sub>y</sub> | 0.60           | 0.08           | -0.22          | 0.02           | 0.36           | 0.10  |                         |
|                    |  |          |                | Min M <sub>y</sub> | -0.60          | -0.08          | 0.22           | -0.02          | -0.36          | -0.10 |                         |
|                    |  |          |                | Max M <sub>z</sub> | 0.46           | 0.16           | -0.18          | 0.02           | 0.30           | 0.20  |                         |
|                    |  | 10       | 2.300          | Min M <sub>z</sub> | -0.46          | -0.16          | 0.18           | -0.02          | -0.30          | -0.20 |                         |
|                    |  |          |                | Max N              | 0.75           | 0.08           | -0.18          | 0.02           | -0.11          | -0.09 |                         |
|                    |  |          |                | Min N              | -0.75          | -0.08          | 0.18           | -0.02          | 0.11           | 0.09  |                         |
|                    |  |          |                | Max V <sub>y</sub> | 0.47           | 0.16           | -0.18          | 0.02           | -0.11          | -0.17 |                         |
|                    |  |          |                | Min V <sub>y</sub> | -0.47          | -0.16          | 0.18           | -0.02          | 0.11           | 0.17  |                         |
|                    |  |          |                | Max V <sub>z</sub> | -0.60          | -0.08          | 0.22           | -0.02          | 0.14           | 0.09  |                         |
|                    |  |          |                | Min V <sub>z</sub> | 0.60           | 0.08           | -0.22          | 0.02           | -0.14          | -0.09 |                         |
|                    |  |          |                | Max M <sub>T</sub> | 0.54           | 0.16           | -0.19          | 0.02           | -0.12          | -0.17 |                         |
|                    |  |          |                | Min M <sub>T</sub> | -0.54          | -0.16          | 0.19           | -0.02          | 0.12           | 0.17  |                         |
|                    |  |          |                | Max M <sub>y</sub> | -0.59          | -0.08          | 0.22           | -0.02          | 0.14           | 0.09  |                         |
|                    |  |          |                | Min M <sub>y</sub> | 0.59           | 0.08           | -0.22          | 0.02           | -0.14          | -0.09 |                         |
|                    |  |          |                | Max M <sub>z</sub> | -0.48          | -0.16          | 0.18           | -0.02          | 0.11           | 0.17  |                         |
|                    |  |          |                | Min M <sub>z</sub> | 0.48           | 0.16           | -0.18          | 0.02           | -0.11          | -0.17 |                         |
|                    | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                |                    |                |                |                |                |                |       |                         |
|                    | RC6  | 3        | 0.000          | Max N              | 0.78           | -0.00          | -0.14          | 0.01           | 0.23           | -0.01 |                         |
|                    |  |          |                | Min N              | -0.78          | 0.00           | 0.14           | -0.01          | -0.23          | 0.01  |                         |
|                    |  |          |                | Max V <sub>y</sub> | 0.15           | 0.21           | -0.11          | 0.02           | 0.19           | 0.26  |                         |
|                    |  |          |                | Min V <sub>y</sub> | -0.15          | -0.21          | 0.11           | -0.02          | -0.19          | -0.26 |                         |
|                    |  |          |                | Max V <sub>z</sub> | -0.55          | 0.02           | 0.17           | -0.01          | -0.28          | 0.02  |                         |
|                    |  |          |                | Min V <sub>z</sub> | 0.55           | -0.02          | -0.17          | 0.01           | 0.28           | -0.02 |                         |
|                    |  |          |                | Max M <sub>T</sub> | 0.25           | 0.20           | -0.12          | 0.02           | 0.20           | 0.25  |                         |
|                    |  |          |                | Min M <sub>T</sub> | -0.25          | -0.20          | 0.12           | -0.02          | -0.20          | -0.25 |                         |
|                    |  |          |                | Max M <sub>y</sub> | 0.56           | -0.01          | -0.17          | 0.01           | 0.28           | -0.02 |                         |
|                    |  |          |                | Min M <sub>y</sub> | -0.56          | 0.01           | 0.17           | -0.01          | -0.28          | 0.02  |                         |
|                    |  |          |                | Max M <sub>z</sub> | 0.15           | 0.21           | -0.11          | 0.02           | 0.19           | 0.26  |                         |
|                    |  | 10       | 2.300          | Min M <sub>z</sub> | -0.15          | -0.21          | 0.11           | -0.02          | -0.19          | -0.26 |                         |
|                    |  |          |                | Max N              | 0.78           | -0.00          | -0.14          | 0.01           | -0.09          | -0.00 |                         |
|                    |  |          |                | Min N              | -0.78          | 0.00           | 0.14           | -0.01          | 0.09           | 0.00  |                         |
|                    |  |          |                | Max V <sub>y</sub> | 0.15           | 0.21           | -0.11          | 0.02           | -0.07          | -0.22 |                         |
|                    |  |          |                | Min V <sub>y</sub> | -0.15          | -0.21          | 0.11           | -0.02          | 0.07           | 0.22  |                         |
|                    |  |          |                | Max V <sub>z</sub> | -0.55          | 0.02           | 0.17           | -0.01          | 0.11           | -0.01 |                         |
|                    |  |          |                | Min V <sub>z</sub> | 0.55           | -0.02          | -0.17          | 0.01           | -0.11          | 0.01  |                         |
|                    |  |          |                | Max M <sub>T</sub> | 0.25           | 0.20           | -0.12          | 0.02           | -0.07          | -0.21 |                         |
|                    |  |          |                | Min M <sub>T</sub> | -0.25          | -0.20          | 0.12           | -0.02          | 0.07           | 0.21  |                         |
|                    |  |          |                | Max M <sub>y</sub> | -0.54          | 0.02           | 0.17           | -0.01          | 0.11           | -0.02 |                         |
| Min M <sub>y</sub> |  |          |                | 0.54               | -0.02          | -0.17          | 0.01           | -0.11          | 0.02           |       |                         |
| Max M <sub>z</sub> |  |          |                | -0.16              | -0.21          | 0.11           | -0.02          | 0.07           | 0.22           |       |                         |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date:

2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m] | Forces [kN]        |                    |                |                |                | Moments [kNm]  |       |       | Correspondin Load Cases |
|------------|--|----------|----------------|--------------------|--------------------|----------------|----------------|----------------|----------------|-------|-------|-------------------------|
|            |  |          |                | N                  | V <sub>y</sub>     | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |       |                         |
| 2          | RC6  |          |                | Min M <sub>z</sub> | 0.16               | 0.21           | -0.11          | 0.02           | -0.07          | -0.22 |       |                         |
|            | DLC1, Result Envelope X 30% / Y 30% / Z 100% |          |                |                    |                    |                |                |                |                |       |       |                         |
|            | RC7  | 3        | 0.000          | Max N              | 1.42               | 0.20           | -0.38          | 0.04           | 0.63           | 0.24  |       |                         |
|            |  |          |                | Min N              | -1.42              | -0.20          | 0.38           | -0.04          | -0.63          | -0.24 |       |                         |
|            |  |          |                | Max V <sub>y</sub> | 1.05               | 0.31           | -0.36          | 0.04           | 0.61           | 0.37  |       |                         |
|            |  |          |                | Min V <sub>y</sub> | -1.05              | -0.31          | 0.36           | -0.04          | -0.61          | -0.37 |       |                         |
|            |  |          |                | Max V <sub>z</sub> | -1.20              | -0.20          | 0.44           | -0.04          | -0.73          | -0.24 |       |                         |
|            |  |          |                | Min V <sub>z</sub> | 1.20               | 0.20           | -0.44          | 0.04           | 0.73           | 0.24  |       |                         |
|            |  |          |                | Max M <sub>T</sub> | 1.14               | 0.30           | -0.38          | 0.05           | 0.64           | 0.36  |       |                         |
|            |  |          |                | Min M <sub>T</sub> | -1.14              | -0.30          | 0.38           | -0.05          | -0.64          | -0.36 |       |                         |
|            |  |          |                | Max M <sub>y</sub> | 1.20               | 0.20           | -0.44          | 0.04           | 0.73           | 0.24  |       |                         |
|            |  |          |                | Min M <sub>y</sub> | -1.20              | -0.20          | 0.44           | -0.04          | -0.73          | -0.24 |       |                         |
|            |  |          |                | Max M <sub>z</sub> | 1.04               | 0.31           | -0.36          | 0.04           | 0.60           | 0.37  |       |                         |
|            |  |          |                | Min M <sub>z</sub> | -1.04              | -0.31          | 0.36           | -0.04          | -0.60          | -0.37 |       |                         |
|            |  | 10       | 2.300          | Max N              | 1.42               | 0.20           | -0.38          | 0.04           | -0.24          | -0.23 |       |                         |
|            |  |          |                | Min N              | -1.42              | -0.20          | 0.38           | -0.04          | 0.24           | 0.23  |       |                         |
|            |  |          |                | Max V <sub>y</sub> | 1.05               | 0.31           | -0.36          | 0.04           | -0.23          | -0.33 |       |                         |
|            |  |          |                | Min V <sub>y</sub> | -1.05              | -0.31          | 0.36           | -0.04          | 0.23           | 0.33  |       |                         |
|            |  |          |                | Max V <sub>z</sub> | -1.20              | -0.20          | 0.44           | -0.04          | 0.28           | 0.22  |       |                         |
|            |  |          |                | Min V <sub>z</sub> | 1.20               | 0.20           | -0.44          | 0.04           | -0.28          | -0.22 |       |                         |
|            |  |          |                | Max M <sub>T</sub> | 1.14               | 0.30           | -0.38          | 0.05           | -0.24          | -0.32 |       |                         |
|            |  |          |                | Min M <sub>T</sub> | -1.14              | -0.30          | 0.38           | -0.05          | 0.24           | 0.32  |       |                         |
|            |  |          |                | Max M <sub>y</sub> | -1.20              | -0.20          | 0.44           | -0.04          | 0.28           | 0.22  |       |                         |
|            |  |          |                | Min M <sub>y</sub> | 1.20               | 0.20           | -0.44          | 0.04           | -0.28          | -0.22 |       |                         |
|            |  |          |                | Max M <sub>z</sub> | -1.06              | -0.31          | 0.37           | -0.04          | 0.23           | 0.33  |       |                         |
|            |  |          |                | Min M <sub>z</sub> | 1.06               | 0.31           | -0.37          | 0.04           | -0.23          | -0.33 |       |                         |
|            | 3  | RC1      | 5              | 0.000              | Max N              | -2.84          | 0.02           | -0.03          | -0.00          | 0.03  | 0.00  | CO 1                    |
|            |  |          |                |                    | Min N              | -17.63         | 0.82           | -3.27          | 0.07           | 4.07  | 0.97  | CO 2                    |
|            |  |          |                |                    | Max V <sub>y</sub> | -17.63         | 0.82           | -3.27          | 0.07           | 4.07  | 0.97  | CO 2                    |
|            |  |          |                |                    | Min V <sub>y</sub> | -2.84          | 0.02           | -0.03          | -0.00          | 0.03  | 0.00  | CO 1                    |
|            |  |          |                |                    | Max V <sub>z</sub> | -2.84          | 0.02           | -0.03          | -0.00          | 0.03  | 0.00  | CO 1                    |
|            |  |          |                |                    | Min V <sub>z</sub> | -17.63         | 0.82           | -3.27          | 0.07           | 4.07  | 0.97  | CO 2                    |
|            |  |          |                |                    | Max M <sub>T</sub> | -17.63         | 0.82           | -3.27          | 0.07           | 4.07  | 0.97  | CO 2                    |
|            |  |          |                |                    | Min M <sub>T</sub> | -2.84          | 0.02           | -0.03          | -0.00          | 0.03  | 0.00  | CO 1                    |
|            |  |          |                |                    | Max M <sub>y</sub> | -17.63         | 0.82           | -3.27          | 0.07           | 4.07  | 0.97  | CO 2                    |
|            |  |          |                |                    | Min M <sub>y</sub> | -2.84          | 0.02           | -0.03          | -0.00          | 0.03  | 0.00  | CO 1                    |
|            |  |          |                |                    | Max M <sub>z</sub> | -17.63         | 0.82           | -3.27          | 0.07           | 4.07  | 0.97  | CO 2                    |
|            |  |          |                | Min M <sub>z</sub> | -2.84              | 0.02           | -0.03          | -0.00          | 0.03           | 0.00  | CO 1  |                         |
|            |  | 11       | 2.300          | Max N              | -2.47              | 0.02           | -0.03          | -0.00          | -0.04          | -0.04 | CO 1  |                         |
|            |  |          |                | Min N              | -17.26             | 0.82           | -3.29          | 0.06           | -3.59          | -0.95 | CO 2  |                         |
|            |  |          |                | Max V <sub>y</sub> | -17.26             | 0.82           | -3.29          | 0.06           | -3.59          | -0.95 | CO 2  |                         |
|            |  |          |                | Min V <sub>y</sub> | -2.47              | 0.02           | -0.03          | -0.00          | -0.04          | -0.04 | CO 1  |                         |
|            |  |          |                | Max V <sub>z</sub> | -2.47              | 0.02           | -0.03          | -0.00          | -0.04          | -0.04 | CO 1  |                         |
|            |  |          |                | Min V <sub>z</sub> | -17.26             | 0.82           | -3.29          | 0.06           | -3.59          | -0.95 | CO 2  |                         |
|            |  |          |                | Max M <sub>T</sub> | -17.26             | 0.82           | -3.29          | 0.06           | -3.59          | -0.95 | CO 2  |                         |
|            |  |          |                | Min M <sub>T</sub> | -2.47              | 0.02           | -0.03          | -0.00          | -0.04          | -0.04 | CO 1  |                         |
|            |  |          |                | Max M <sub>y</sub> | -2.47              | 0.02           | -0.03          | -0.00          | -0.04          | -0.04 | CO 1  |                         |
|            |  |          |                | Min M <sub>y</sub> | -17.26             | 0.82           | -3.29          | 0.06           | -3.59          | -0.95 | CO 2  |                         |
|            |  |          |                | Max M <sub>z</sub> | -2.47              | 0.02           | -0.03          | -0.00          | -0.04          | -0.04 | CO 1  |                         |
|            |  |          |                | Min M <sub>z</sub> | -17.26             | 0.82           | -3.29          | 0.06           | -3.59          | -0.95 | CO 2  |                         |
|            |  | RC2      | 5              | 0.000              | Max N              | -2.10          | 0.02           | -0.02          | -0.00          | 0.02  | 0.00  | CO 3                    |
|            |  |          |                | Min N              | -11.96             | 0.55           | -2.20          | 0.04           | 2.72           | 0.65  | CO 4  |                         |
|            |  |          |                | Max V <sub>y</sub> | -11.96             | 0.55           | -2.20          | 0.04           | 2.72           | 0.65  | CO 4  |                         |
|            |  |          |                | Min V <sub>y</sub> | -2.10              | 0.02           | -0.02          | -0.00          | 0.02           | 0.00  | CO 3  |                         |
|            |  |          |                | Max V <sub>z</sub> | -2.10              | 0.02           | -0.02          | -0.00          | 0.02           | 0.00  | CO 3  |                         |
|            |  |          |                | Min V <sub>z</sub> | -11.96             | 0.55           | -2.20          | 0.04           | 2.72           | 0.65  | CO 4  |                         |
|            |  |          |                | Max M <sub>T</sub> | -11.96             | 0.55           | -2.20          | 0.04           | 2.72           | 0.65  | CO 4  |                         |
|            |  |          |                | Min M <sub>T</sub> | -2.10              | 0.02           | -0.02          | -0.00          | 0.02           | 0.00  | CO 3  |                         |
|            |  |          |                | Max M <sub>y</sub> | -11.96             | 0.55           | -2.20          | 0.04           | 2.72           | 0.65  | CO 4  |                         |
|            |  |          |                | Min M <sub>y</sub> | -2.10              | 0.02           | -0.02          | -0.00          | 0.02           | 0.00  | CO 3  |                         |
|            |  |          |                | Max M <sub>z</sub> | -11.96             | 0.55           | -2.20          | 0.04           | 2.72           | 0.65  | CO 4  |                         |
|            |  |          |                | Min M <sub>z</sub> | -2.10              | 0.02           | -0.02          | -0.00          | 0.02           | 0.00  | CO 3  |                         |
|            |  |          | 11             | 2.300              | Max N              | -1.83          | 0.02           | -0.02          | -0.00          | -0.03 | -0.03 | CO 3                    |
|            |  |          |                | Min N              | -11.69             | 0.55           | -2.21          | 0.04           | -2.40          | -0.64 | CO 4  |                         |
|            |  |          |                | Max V <sub>y</sub> | -11.69             | 0.55           | -2.21          | 0.04           | -2.40          | -0.64 | CO 4  |                         |
|            |  |          |                | Min V <sub>y</sub> | -1.83              | 0.02           | -0.02          | -0.00          | -0.03          | -0.03 | CO 3  |                         |
|            |  |          |                | Max V <sub>z</sub> | -1.83              | 0.02           | -0.02          | -0.00          | -0.03          | -0.03 | CO 3  |                         |
|            |  |          |                | Min V <sub>z</sub> | -11.69             | 0.55           | -2.21          | 0.04           | -2.40          | -0.64 | CO 4  |                         |
|            |  |          |                | Max M <sub>T</sub> | -11.69             | 0.55           | -2.21          | 0.04           | -2.40          | -0.64 | CO 4  |                         |
|            |  |          |                | Min M <sub>T</sub> | -1.83              | 0.02           | -0.02          | -0.00          | -0.03          | -0.03 | CO 3  |                         |
|            |  |          |                | Max M <sub>y</sub> | -1.83              | 0.02           | -0.02          | -0.00          | -0.03          | -0.03 | CO 3  |                         |
|            |  |          |                | Min M <sub>y</sub> | -11.69             | 0.55           | -2.21          | 0.04           | -2.40          | -0.64 | CO 4  |                         |
|            |  |          |                | Max M <sub>z</sub> | -1.83              | 0.02           | -0.02          | -0.00          | -0.03          | -0.03 | CO 3  |                         |
|            |  |          |                | Min M <sub>z</sub> | -11.69             | 0.55           | -2.21          | 0.04           | -2.40          | -0.64 | CO 4  |                         |
|            |  | RC3      | 5              | 0.000              | Max N              | -2.10          | 0.02           | -0.02          | -0.00          | 0.02  | 0.00  | CO 5                    |
|            |  |          |                | Min N              | -7.03              | 0.28           | -1.12          | 0.02           | 1.37           | 0.32  | CO 6  |                         |
|            |  |          |                | Max V <sub>y</sub> | -7.03              | 0.28           | -1.12          | 0.02           | 1.37           | 0.32  | CO 6  |                         |
|            |  |          |                | Min V <sub>y</sub> | -2.10              | 0.02           | -0.02          | -0.00          | 0.02           | 0.00  | CO 5  |                         |
|            |  |          |                | Max V <sub>z</sub> | -2.10              | 0.02           | -0.02          | -0.00          | 0.02           | 0.00  | CO 5  |                         |
|            |  |          |                | Min V <sub>z</sub> | -7.03              | 0.28           | -1.12          | 0.02           | 1.37           | 0.32  | CO 6  |                         |
|            |  |          |                | Max M <sub>T</sub> | -7.03              | 0.28           | -1.12          | 0.02           | 1.37           | 0.32  | CO 6  |                         |
|            |  |          |                | Min M <sub>T</sub> | -2.10              | 0.02           | -0.02          | -0.00          | 0.02           | 0.00  | CO 5  |                         |
|            |  |          |                | Max M <sub>y</sub> | -7.03              | 0.28           | -1.12          | 0.02           | 1.37           | 0.32  | CO 6  |                         |
|            |  |          |                | Min M <sub>y</sub> | -2.10              | 0.02           | -0.02          | -0.00          | 0.02           | 0.00  | CO 5  |                         |
|            |  |          |                | Max M <sub>z</sub> | -7.03              | 0.28           | -1.12          | 0.02           | 1.37           | 0.32  | CO 6  |                         |
|            |  |          |                | Min M <sub>z</sub> | -2.10              | 0.02           | -0.02          | -0.00          | 0.02           | 0.00  | CO 5  |                         |
|            |  |          | 11             | 2.300              | Max N              | -1.83          | 0.02           | -0.02          | -0.00          | -0.03 | -0.03 | CO 5                    |

## RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m] | Forces [kN]        |                |                | Moments [kNm]  |                |                | Corresponding Load Cases |      |
|------------|--|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|--------------------------|------|
|            |  |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                          |      |
| 3          | RC3  |          |                | Min N              | -6.76          | 0.28           | -1.12          | 0.02           | -1.22          | -0.33                    | CO 6 |
|            |  |          |                | Max V <sub>y</sub> | -6.76          | 0.28           | -1.12          | 0.02           | -1.22          | -0.33                    | CO 6 |
|            |  |          |                | Min V <sub>y</sub> | -1.83          | 0.02           | -0.02          | -0.00          | -0.03          | -0.03                    | CO 5 |
|            |  |          |                | Max V <sub>z</sub> | -1.83          | 0.02           | -0.02          | -0.00          | -0.03          | -0.03                    | CO 5 |
|            |  |          |                | Min V <sub>z</sub> | -6.76          | 0.28           | -1.12          | 0.02           | -1.22          | -0.33                    | CO 6 |
|            |  |          |                | Max M <sub>T</sub> | -6.76          | 0.28           | -1.12          | 0.02           | -1.22          | -0.33                    | CO 6 |
|            |  |          |                | Min M <sub>T</sub> | -1.83          | 0.02           | -0.02          | -0.00          | -0.03          | -0.03                    | CO 5 |
|            |  |          |                | Max M <sub>y</sub> | -1.83          | 0.02           | -0.02          | -0.00          | -0.03          | -0.03                    | CO 5 |
|            |  |          |                | Min M <sub>y</sub> | -6.76          | 0.28           | -1.12          | 0.02           | -1.22          | -0.33                    | CO 6 |
|            |  |          |                | Max M <sub>z</sub> | -1.83          | 0.02           | -0.02          | -0.00          | -0.03          | -0.03                    | CO 5 |
|            |  |          |                | Min M <sub>z</sub> | -6.76          | 0.28           | -1.12          | 0.02           | -1.22          | -0.33                    | CO 6 |
|            | RC4  | 5        | 0.000          | Max N              | -2.10          | 0.02           | -0.02          | -0.00          | 0.02           | 0.00                     | CO 7 |
|            |  |          |                | Min N              | -5.06          | 0.18           | -0.68          | 0.01           | 0.83           | 0.20                     | CO 8 |
|            |  |          |                | Max V <sub>y</sub> | -5.06          | 0.18           | -0.68          | 0.01           | 0.83           | 0.20                     | CO 8 |
|            |  |          |                | Min V <sub>y</sub> | -2.10          | 0.02           | -0.02          | -0.00          | 0.02           | 0.00                     | CO 7 |
|            |  |          |                | Max V <sub>z</sub> | -2.10          | 0.02           | -0.02          | -0.00          | 0.02           | 0.00                     | CO 7 |
|            |  |          |                | Min V <sub>z</sub> | -5.06          | 0.18           | -0.68          | 0.01           | 0.83           | 0.20                     | CO 8 |
|            |  |          |                | Max M <sub>T</sub> | -5.06          | 0.18           | -0.68          | 0.01           | 0.83           | 0.20                     | CO 8 |
|            |  |          |                | Min M <sub>T</sub> | -2.10          | 0.02           | -0.02          | -0.00          | 0.02           | 0.00                     | CO 7 |
|            |  |          |                | Max M <sub>y</sub> | -5.06          | 0.18           | -0.68          | 0.01           | 0.83           | 0.20                     | CO 8 |
|            |  |          |                | Min M <sub>y</sub> | -2.10          | 0.02           | -0.02          | -0.00          | 0.02           | 0.00                     | CO 7 |
|            |  |          |                | Max M <sub>z</sub> | -5.06          | 0.18           | -0.68          | 0.01           | 0.83           | 0.20                     | CO 8 |
|            |  |          |                | Min M <sub>z</sub> | -2.10          | 0.02           | -0.02          | -0.00          | 0.02           | 0.00                     | CO 7 |
|            |  | 11       | 2.300          | Max N              | -1.83          | 0.02           | -0.02          | -0.00          | -0.03          | -0.03                    | CO 7 |
|            |  |          |                | Min N              | -4.79          | 0.18           | -0.68          | 0.01           | -0.74          | -0.21                    | CO 8 |
|            |  |          |                | Max V <sub>y</sub> | -4.79          | 0.18           | -0.68          | 0.01           | -0.74          | -0.21                    | CO 8 |
|            |  |          |                | Min V <sub>y</sub> | -1.83          | 0.02           | -0.02          | -0.00          | -0.03          | -0.03                    | CO 7 |
|            |  |          |                | Max V <sub>z</sub> | -1.83          | 0.02           | -0.02          | -0.00          | -0.03          | -0.03                    | CO 7 |
|            |  |          |                | Min V <sub>z</sub> | -4.79          | 0.18           | -0.68          | 0.01           | -0.74          | -0.21                    | CO 8 |
|            |  |          |                | Max M <sub>T</sub> | -4.79          | 0.18           | -0.68          | 0.01           | -0.74          | -0.21                    | CO 8 |
|            |  |          |                | Min M <sub>T</sub> | -1.83          | 0.02           | -0.02          | -0.00          | -0.03          | -0.03                    | CO 7 |
|            |  |          |                | Max M <sub>y</sub> | -1.83          | 0.02           | -0.02          | -0.00          | -0.03          | -0.03                    | CO 7 |
|            |  |          |                | Min M <sub>y</sub> | -4.79          | 0.18           | -0.68          | 0.01           | -0.74          | -0.21                    | CO 8 |
|            |  |          |                | Max M <sub>z</sub> | -1.83          | 0.02           | -0.02          | -0.00          | -0.03          | -0.03                    | CO 7 |
|            |  |          |                | Min M <sub>z</sub> | -4.79          | 0.18           | -0.68          | 0.01           | -0.74          | -0.21                    | CO 8 |
|            | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                |                    |                |                |                |                |                |                          |      |
|            | RC5  | 5        | 0.000          | Max N              | 1.94           | -0.09          | 0.23           | -0.01          | -0.28          | -0.10                    |      |
|            |  |          |                | Min N              | -1.94          | 0.09           | -0.23          | 0.01           | 0.28           | 0.10                     |      |
|            |  |          |                | Max V <sub>y</sub> | -1.41          | 0.18           | -0.27          | 0.01           | 0.33           | 0.22                     |      |
|            |  |          |                | Min V <sub>y</sub> | 1.41           | -0.18          | 0.27           | -0.01          | -0.33          | -0.22                    |      |
|            |  |          |                | Max V <sub>z</sub> | 1.28           | -0.09          | 0.35           | -0.01          | -0.43          | -0.10                    |      |
|            |  |          |                | Min V <sub>z</sub> | -1.28          | 0.09           | -0.35          | 0.01           | 0.43           | 0.10                     |      |
|            |  |          |                | Max M <sub>T</sub> | -1.49          | 0.18           | -0.28          | 0.01           | 0.34           | 0.21                     |      |
|            |  |          |                | Min M <sub>T</sub> | 1.49           | -0.18          | 0.28           | -0.01          | -0.34          | -0.21                    |      |
|            |  |          |                | Max M <sub>y</sub> | -1.27          | 0.09           | -0.35          | 0.01           | 0.43           | 0.10                     |      |
|            |  |          |                | Min M <sub>y</sub> | 1.27           | -0.09          | 0.35           | -0.01          | -0.43          | -0.10                    |      |
|            |  |          |                | Max M <sub>z</sub> | -1.41          | 0.18           | -0.27          | 0.01           | 0.33           | 0.22                     |      |
|            |  |          |                | Min M <sub>z</sub> | 1.41           | -0.18          | 0.27           | -0.01          | -0.33          | -0.22                    |      |
|            |  | 11       | 2.300          | Max N              | 1.94           | -0.09          | 0.23           | -0.01          | 0.25           | 0.10                     |      |
|            |  |          |                | Min N              | -1.94          | 0.09           | -0.23          | 0.01           | -0.25          | -0.10                    |      |
|            |  |          |                | Max V <sub>y</sub> | -1.41          | 0.18           | -0.27          | 0.01           | -0.29          | -0.20                    |      |
|            |  |          |                | Min V <sub>y</sub> | 1.41           | -0.18          | 0.27           | -0.01          | 0.29           | 0.20                     |      |
|            |  |          |                | Max V <sub>z</sub> | 1.28           | -0.09          | 0.35           | -0.01          | 0.38           | 0.10                     |      |
|            |  |          |                | Min V <sub>z</sub> | -1.28          | 0.09           | -0.35          | 0.01           | -0.38          | -0.10                    |      |
|            |  |          |                | Max M <sub>T</sub> | -1.49          | 0.18           | -0.28          | 0.01           | -0.30          | -0.20                    |      |
|            |  |          |                | Min M <sub>T</sub> | 1.49           | -0.18          | 0.28           | -0.01          | 0.30           | 0.20                     |      |
|            |  |          |                | Max M <sub>y</sub> | 1.29           | -0.09          | 0.35           | -0.01          | 0.38           | 0.10                     |      |
|            |  |          |                | Min M <sub>y</sub> | -1.29          | 0.09           | -0.35          | 0.01           | -0.38          | -0.10                    |      |
|            |  |          |                | Max M <sub>z</sub> | 1.40           | -0.18          | 0.27           | -0.01          | 0.30           | 0.20                     |      |
|            |  |          |                | Min M <sub>z</sub> | -1.40          | 0.18           | -0.27          | 0.01           | -0.30          | -0.20                    |      |
|            | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                |                    |                |                |                |                |                |                          |      |
|            | RC6  | 5        | 0.000          | Max N              | 1.79           | 0.02           | 0.20           | -0.00          | -0.24          | 0.03                     |      |
|            |  |          |                | Min N              | -1.79          | -0.02          | -0.20          | 0.00           | 0.24           | -0.03                    |      |
|            |  |          |                | Max V <sub>y</sub> | -0.77          | 0.23           | -0.15          | 0.01           | 0.18           | 0.27                     |      |
|            |  |          |                | Min V <sub>y</sub> | 0.77           | -0.23          | 0.15           | -0.01          | -0.18          | -0.27                    |      |
|            |  |          |                | Max V <sub>z</sub> | 1.21           | 0.02           | 0.29           | -0.00          | -0.36          | 0.03                     |      |
|            |  |          |                | Min V <sub>z</sub> | -1.21          | -0.02          | -0.29          | 0.00           | 0.36           | -0.03                    |      |
|            |  |          |                | Max M <sub>T</sub> | -0.84          | 0.22           | -0.15          | 0.01           | 0.19           | 0.27                     |      |
|            |  |          |                | Min M <sub>T</sub> | 0.84           | -0.22          | 0.15           | -0.01          | -0.19          | -0.27                    |      |
|            |  |          |                | Max M <sub>y</sub> | -1.20          | -0.02          | -0.29          | 0.00           | 0.36           | -0.03                    |      |
|            |  |          |                | Min M <sub>y</sub> | 1.20           | 0.02           | 0.29           | -0.00          | -0.36          | 0.03                     |      |
|            |  |          |                | Max M <sub>z</sub> | -0.77          | 0.23           | -0.14          | 0.01           | 0.17           | 0.27                     |      |
|            |  |          |                | Min M <sub>z</sub> | 0.77           | -0.23          | 0.14           | -0.01          | -0.17          | -0.27                    |      |
|            |  | 11       | 2.300          | Max N              | 1.79           | 0.02           | 0.20           | -0.00          | 0.21           | -0.02                    |      |
|            |  |          |                | Min N              | -1.79          | -0.02          | -0.20          | 0.00           | -0.21          | 0.02                     |      |
|            |  |          |                | Max V <sub>y</sub> | -0.77          | 0.23           | -0.15          | 0.01           | -0.16          | -0.25                    |      |
|            |  |          |                | Min V <sub>y</sub> | 0.77           | -0.23          | 0.15           | -0.01          | 0.16           | 0.25                     |      |
|            |  |          |                | Max V <sub>z</sub> | 1.21           | 0.02           | 0.29           | -0.00          | 0.32           | -0.02                    |      |
|            |  |          |                | Min V <sub>z</sub> | -1.21          | -0.02          | -0.29          | 0.00           | -0.32          | 0.02                     |      |
|            |  |          |                | Max M <sub>T</sub> | -0.84          | 0.22           | -0.15          | 0.01           | -0.17          | -0.25                    |      |
|            |  |          |                | Min M <sub>T</sub> | 0.84           | -0.22          | 0.15           | -0.01          | 0.17           | 0.25                     |      |
|            |  |          |                | Max M <sub>y</sub> | 1.22           | 0.02           | 0.29           | -0.00          | 0.32           | -0.02                    |      |
|            |  |          |                | Min M <sub>y</sub> | -1.22          | -0.02          | -0.29          | 0.00           | -0.32          | 0.02                     |      |
|            |  |          |                | Max M <sub>z</sub> | 0.76           | -0.23          | 0.15           | -0.01          | 0.16           | 0.25                     |      |
|            |  |          |                | Min M <sub>z</sub> | -0.76          | 0.23           | -0.15          | 0.01           | -0.16          | -0.25                    |      |
|            | DLC1, Result Envelope X 30% / Y 30% / Z 100% |          |                |                    |                |                |                |                |                |                          |      |
|            | RC7  | 5        | 0.000          | Max N              | 4.24           | -0.23          | 0.43           | -0.02          | -0.51          | -0.27                    |      |

## RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] | Forces [kN]        |                |                |                |                | Moments [kNm]  |       |      | Correspondin Load Cases |
|------------|-----|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------|------|-------------------------|
|            |     |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |      |                         |
| 3          | RC7 | 11       | 2.300          | Min N              | -4.24          | 0.23           | -0.43          | 0.02           | 0.51           | 0.27  |      |                         |
|            |     |          |                | Max V <sub>y</sub> | -3.33          | 0.35           | -0.56          | 0.02           | 0.68           | 0.41  |      |                         |
|            |     |          |                | Min V <sub>y</sub> | 3.33           | -0.35          | 0.56           | -0.02          | -0.68          | -0.41 |      |                         |
|            |     |          |                | Max V <sub>z</sub> | 2.57           | -0.23          | 0.70           | -0.02          | -0.86          | -0.26 |      |                         |
|            |     |          |                | Min V <sub>z</sub> | -2.57          | 0.23           | -0.70          | 0.02           | 0.86           | 0.26  |      |                         |
|            |     |          |                | Max M <sub>T</sub> | -3.49          | 0.34           | -0.58          | 0.02           | 0.70           | 0.41  |      |                         |
|            |     |          |                | Min M <sub>T</sub> | 3.49           | -0.34          | 0.58           | -0.02          | -0.70          | -0.41 |      |                         |
|            |     |          |                | Max M <sub>y</sub> | -2.54          | 0.23           | -0.70          | 0.02           | 0.86           | 0.26  |      |                         |
|            |     |          |                | Min M <sub>y</sub> | 2.54           | -0.23          | 0.70           | -0.02          | -0.86          | -0.26 |      |                         |
|            |     |          |                | Max M <sub>z</sub> | -3.35          | 0.35           | -0.55          | 0.02           | 0.67           | 0.41  |      |                         |
|            |     |          |                | Min M <sub>z</sub> | 3.35           | -0.35          | 0.55           | -0.02          | -0.67          | -0.41 |      |                         |
|            |     |          |                | Max N              | 4.24           | -0.23          | 0.43           | -0.02          | 0.47           | 0.26  |      |                         |
|            |     |          |                | Min N              | -4.24          | 0.23           | -0.43          | 0.02           | -0.47          | -0.26 |      |                         |
|            |     |          |                | Max V <sub>y</sub> | -3.33          | 0.35           | -0.56          | 0.02           | -0.60          | -0.39 |      |                         |
|            |     |          |                | Min V <sub>y</sub> | 3.33           | -0.35          | 0.56           | -0.02          | 0.60           | 0.39  |      |                         |
|            |     |          |                | Max V <sub>z</sub> | 2.57           | -0.23          | 0.70           | -0.02          | 0.76           | 0.26  |      |                         |
|            |     |          |                | Min V <sub>z</sub> | -2.57          | 0.23           | -0.70          | 0.02           | -0.76          | -0.26 |      |                         |
|            |     |          |                | Max M <sub>T</sub> | -3.49          | 0.34           | -0.58          | 0.02           | -0.63          | -0.39 |      |                         |
|            |     |          |                | Min M <sub>T</sub> | 3.49           | -0.34          | 0.58           | -0.02          | 0.63           | 0.39  |      |                         |
|            |     |          |                | Max M <sub>y</sub> | 2.60           | -0.23          | 0.70           | -0.02          | 0.76           | 0.26  |      |                         |
|            |     |          |                | Min M <sub>y</sub> | -2.60          | 0.23           | -0.70          | 0.02           | -0.76          | -0.26 |      |                         |
|            |     |          |                | Max M <sub>z</sub> | 3.31           | -0.35          | 0.56           | -0.02          | 0.61           | 0.39  |      |                         |
|            |     |          |                | Min M <sub>z</sub> | -3.31          | 0.35           | -0.56          | 0.02           | -0.61          | -0.39 |      |                         |
| 4          | RC1 | 7        | 0.000          | Max N              | -2.96          | -0.03          | 0.01           | -0.00          | -0.01          | -0.03 | CO 1 |                         |
|            |     |          |                | Min N              | -13.17         | 0.78           | -1.95          | 0.14           | 3.33           | 0.93  | CO 2 |                         |
|            |     |          |                | Max V <sub>y</sub> | -13.17         | 0.78           | -1.95          | 0.14           | 3.33           | 0.93  | CO 2 |                         |
|            |     |          |                | Min V <sub>y</sub> | -2.96          | -0.03          | 0.01           | -0.00          | -0.01          | -0.03 | CO 1 |                         |
|            |     |          |                | Max V <sub>z</sub> | -2.96          | -0.03          | 0.01           | -0.00          | -0.01          | -0.03 | CO 1 |                         |
|            |     |          |                | Min V <sub>z</sub> | -13.17         | 0.78           | -1.95          | 0.14           | 3.33           | 0.93  | CO 2 |                         |
|            |     |          |                | Max M <sub>T</sub> | -13.17         | 0.78           | -1.95          | 0.14           | 3.33           | 0.93  | CO 2 |                         |
|            |     |          |                | Min M <sub>T</sub> | -2.96          | -0.03          | 0.01           | -0.00          | -0.01          | -0.03 | CO 1 |                         |
|            |     |          |                | Max M <sub>y</sub> | -13.17         | 0.78           | -1.95          | 0.14           | 3.33           | 0.93  | CO 2 |                         |
|            |     |          |                | Min M <sub>y</sub> | -2.96          | -0.03          | 0.01           | -0.00          | -0.01          | -0.03 | CO 1 |                         |
|            |     |          |                | Max M <sub>z</sub> | -13.17         | 0.78           | -1.95          | 0.14           | 3.33           | 0.93  | CO 2 |                         |
|            |     |          |                | Min M <sub>z</sub> | -2.96          | -0.03          | 0.01           | -0.00          | -0.01          | -0.03 | CO 1 |                         |
|            |     | 12       | 2.300          | Max N              | -2.60          | -0.03          | 0.01           | -0.00          | 0.01           | 0.04  | CO 1 |                         |
|            |     |          |                | Min N              | -12.80         | 0.78           | -2.02          | 0.14           | -1.29          | -0.89 | CO 2 |                         |
|            |     |          |                | Max V <sub>y</sub> | -12.80         | 0.78           | -2.02          | 0.14           | -1.29          | -0.89 | CO 2 |                         |
|            |     |          |                | Min V <sub>y</sub> | -2.60          | -0.03          | 0.01           | -0.00          | 0.01           | 0.04  | CO 1 |                         |
|            |     |          |                | Max V <sub>z</sub> | -2.60          | -0.03          | 0.01           | -0.00          | 0.01           | 0.04  | CO 1 |                         |
|            |     |          |                | Min V <sub>z</sub> | -12.80         | 0.78           | -2.02          | 0.14           | -1.29          | -0.89 | CO 2 |                         |
|            |     |          |                | Max M <sub>T</sub> | -12.80         | 0.78           | -2.02          | 0.14           | -1.29          | -0.89 | CO 2 |                         |
|            |     |          |                | Min M <sub>T</sub> | -2.60          | -0.03          | 0.01           | -0.00          | 0.01           | 0.04  | CO 1 |                         |
|            |     |          |                | Max M <sub>y</sub> | -2.60          | -0.03          | 0.01           | -0.00          | 0.01           | 0.04  | CO 1 |                         |
|            |     |          |                | Min M <sub>y</sub> | -12.80         | 0.78           | -2.02          | 0.14           | -1.29          | -0.89 | CO 2 |                         |
|            |     |          |                | Max M <sub>z</sub> | -2.60          | -0.03          | 0.01           | -0.00          | 0.01           | 0.04  | CO 1 |                         |
|            |     |          |                | Min M <sub>z</sub> | -12.80         | 0.78           | -2.02          | 0.14           | -1.29          | -0.89 | CO 2 |                         |
|            | RC2 | 7        | 0.000          | Max N              | -2.20          | -0.02          | 0.01           | -0.00          | -0.01          | -0.02 | CO 3 |                         |
|            |     |          |                | Min N              | -8.99          | 0.52           | -1.31          | 0.09           | 2.22           | 0.62  | CO 4 |                         |
|            |     |          |                | Max V <sub>y</sub> | -8.99          | 0.52           | -1.31          | 0.09           | 2.22           | 0.62  | CO 4 |                         |
|            |     |          |                | Min V <sub>y</sub> | -2.20          | -0.02          | 0.01           | -0.00          | -0.01          | -0.02 | CO 3 |                         |
|            |     |          |                | Max V <sub>z</sub> | -2.20          | -0.02          | 0.01           | -0.00          | -0.01          | -0.02 | CO 3 |                         |
|            |     |          |                | Min V <sub>z</sub> | -8.99          | 0.52           | -1.31          | 0.09           | 2.22           | 0.62  | CO 4 |                         |
|            |     |          |                | Max M <sub>T</sub> | -8.99          | 0.52           | -1.31          | 0.09           | 2.22           | 0.62  | CO 4 |                         |
|            |     |          |                | Min M <sub>T</sub> | -2.20          | -0.02          | 0.01           | -0.00          | -0.01          | -0.02 | CO 3 |                         |
|            |     |          |                | Max M <sub>y</sub> | -8.99          | 0.52           | -1.31          | 0.09           | 2.22           | 0.62  | CO 4 |                         |
|            |     |          |                | Min M <sub>y</sub> | -2.20          | -0.02          | 0.01           | -0.00          | -0.01          | -0.02 | CO 3 |                         |
|            |     |          |                | Max M <sub>z</sub> | -8.99          | 0.52           | -1.31          | 0.09           | 2.22           | 0.62  | CO 4 |                         |
|            |     |          |                | Min M <sub>z</sub> | -2.20          | -0.02          | 0.01           | -0.00          | -0.01          | -0.02 | CO 3 |                         |
|            |     | 12       | 2.300          | Max N              | -1.93          | -0.02          | 0.01           | -0.00          | 0.01           | 0.03  | CO 3 |                         |
|            |     |          |                | Min N              | -8.72          | 0.52           | -1.34          | 0.09           | -0.86          | -0.59 | CO 4 |                         |
|            |     |          |                | Max V <sub>y</sub> | -8.72          | 0.52           | -1.34          | 0.09           | -0.86          | -0.59 | CO 4 |                         |
|            |     |          |                | Min V <sub>y</sub> | -1.93          | -0.02          | 0.01           | -0.00          | 0.01           | 0.03  | CO 3 |                         |
|            |     |          |                | Max V <sub>z</sub> | -1.93          | -0.02          | 0.01           | -0.00          | 0.01           | 0.03  | CO 3 |                         |
|            |     |          |                | Min V <sub>z</sub> | -8.72          | 0.52           | -1.34          | 0.09           | -0.86          | -0.59 | CO 4 |                         |
|            |     |          |                | Max M <sub>T</sub> | -8.72          | 0.52           | -1.34          | 0.09           | -0.86          | -0.59 | CO 4 |                         |
|            |     |          |                | Min M <sub>T</sub> | -1.93          | -0.02          | 0.01           | -0.00          | 0.01           | 0.03  | CO 3 |                         |
|            |     |          |                | Max M <sub>y</sub> | -1.93          | -0.02          | 0.01           | -0.00          | 0.01           | 0.03  | CO 3 |                         |
|            |     |          |                | Min M <sub>y</sub> | -8.72          | 0.52           | -1.34          | 0.09           | -0.86          | -0.59 | CO 4 |                         |
|            |     |          |                | Max M <sub>z</sub> | -1.93          | -0.02          | 0.01           | -0.00          | 0.01           | 0.03  | CO 3 |                         |
|            |     |          |                | Min M <sub>z</sub> | -8.72          | 0.52           | -1.34          | 0.09           | -0.86          | -0.59 | CO 4 |                         |
|            | RC3 | 7        | 0.000          | Max N              | -2.20          | -0.02          | 0.01           | -0.00          | -0.01          | -0.02 | CO 5 |                         |
|            |     |          |                | Min N              | -5.59          | 0.25           | -0.66          | 0.04           | 1.11           | 0.30  | CO 6 |                         |
|            |     |          |                | Max V <sub>y</sub> | -5.59          | 0.25           | -0.66          | 0.04           | 1.11           | 0.30  | CO 6 |                         |
|            |     |          |                | Min V <sub>y</sub> | -2.20          | -0.02          | 0.01           | -0.00          | -0.01          | -0.02 | CO 5 |                         |
|            |     |          |                | Max V <sub>z</sub> | -2.20          | -0.02          | 0.01           | -0.00          | -0.01          | -0.02 | CO 5 |                         |
|            |     |          |                | Min V <sub>z</sub> | -5.59          | 0.25           | -0.66          | 0.04           | 1.11           | 0.30  | CO 6 |                         |
|            |     |          |                | Max M <sub>T</sub> | -5.59          | 0.25           | -0.66          | 0.04           | 1.11           | 0.30  | CO 6 |                         |
|            |     |          |                | Min M <sub>T</sub> | -2.20          | -0.02          | 0.01           | -0.00          | -0.01          | -0.02 | CO 5 |                         |
|            |     |          |                | Max M <sub>y</sub> | -5.59          | 0.25           | -0.66          | 0.04           | 1.11           | 0.30  | CO 6 |                         |
|            |     |          |                | Min M <sub>y</sub> | -2.20          | -0.02          | 0.01           | -0.00          | -0.01          | -0.02 | CO 5 |                         |
|            |     |          |                | Max M <sub>z</sub> | -5.59          | 0.25           | -0.66          | 0.04           | 1.11           | 0.30  | CO 6 |                         |
|            |     |          |                | Min M <sub>z</sub> | -2.20          | -0.02          | 0.01           | -0.00          | -0.01          | -0.02 | CO 5 |                         |
|            |     | 12       | 2.300          | Max N              | -1.93          | -0.02          | 0.01           | -0.00          | 0.01           | 0.03  | CO 5 |                         |
|            |     |          |                | Min N              | -5.32          | 0.25           | -0.67          | 0.04           | -0.42          | -0.28 | CO 6 |                         |
|            |     |          |                | Max V <sub>y</sub> | -5.32          | 0.25           | -0.67          | 0.04           | -0.42          | -0.28 | CO 6 |                         |
|            |     |          |                | Min V <sub>y</sub> | -1.93          | -0.02          | 0.01           | -0.00          | 0.01           | 0.03  | CO 5 |                         |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m] | Forces [kN]        |                |                |                    | Moments [kNm]  |                |       | Correspondin Load Cases |       |       |      |
|------------|--|----------|----------------|--------------------|----------------|----------------|--------------------|----------------|----------------|-------|-------------------------|-------|-------|------|
|            |  |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub>     | M <sub>y</sub> | M <sub>z</sub> |       |                         |       |       |      |
| 4          | RC3  |          |                | Max V <sub>z</sub> | -1.93          | -0.02          | 0.01               | -0.00          | 0.01           | 0.03  | CO 5                    |       |       |      |
|            |  |          |                | Min V <sub>z</sub> | -5.32          | 0.25           | -0.67              | 0.04           | -0.42          | -0.28 | CO 6                    |       |       |      |
|            |  |          |                | Max M <sub>T</sub> | -5.32          | 0.25           | -0.67              | 0.04           | -0.42          | -0.28 | CO 6                    |       |       |      |
|            |  |          |                | Min M <sub>T</sub> | -1.93          | -0.02          | 0.01               | -0.00          | 0.01           | 0.03  | CO 5                    |       |       |      |
|            |  |          |                | Max M <sub>y</sub> | -1.93          | -0.02          | 0.01               | -0.00          | 0.01           | 0.03  | CO 5                    |       |       |      |
|            |  |          |                | Min M <sub>y</sub> | -5.32          | 0.25           | -0.67              | 0.04           | -0.42          | -0.28 | CO 6                    |       |       |      |
|            |  |          |                | Max M <sub>z</sub> | -1.93          | -0.02          | 0.01               | -0.00          | 0.01           | 0.03  | CO 5                    |       |       |      |
|            |  |          |                | Min M <sub>z</sub> | -5.32          | 0.25           | -0.67              | 0.04           | -0.42          | -0.28 | CO 6                    |       |       |      |
|            |  |          |                | RC4                | 7              | 0.000          | Max N              | -2.20          | -0.02          | 0.01  | -0.00                   | -0.01 | -0.02 | CO 7 |
|            |  |          |                |                    |                |                | Min N              | -4.23          | 0.14           | -0.39 | 0.02                    | 0.66  | 0.17  | CO 8 |
|            |  |          |                |                    |                |                | Max V <sub>y</sub> | -4.23          | 0.14           | -0.39 | 0.02                    | 0.66  | 0.17  | CO 8 |
|            |  |          |                |                    |                |                | Min V <sub>y</sub> | -2.20          | -0.02          | 0.01  | -0.00                   | -0.01 | -0.02 | CO 7 |
|            | Max V <sub>z</sub>                           | -2.20    | -0.02          |                    |                |                | 0.01               | -0.00          | -0.01          | -0.02 | CO 7                    |       |       |      |
|            | Min V <sub>z</sub>                           | -4.23    | 0.14           |                    |                |                | -0.39              | 0.02           | 0.66           | 0.17  | CO 8                    |       |       |      |
|            | Max M <sub>T</sub>                           | -4.23    | 0.14           |                    |                |                | -0.39              | 0.02           | 0.66           | 0.17  | CO 8                    |       |       |      |
|            | Min M <sub>T</sub>                           | -2.20    | -0.02          |                    |                |                | 0.01               | -0.00          | -0.01          | -0.02 | CO 7                    |       |       |      |
|            | Max M <sub>y</sub>                           | -4.23    | 0.14           |                    |                |                | -0.39              | 0.02           | 0.66           | 0.17  | CO 8                    |       |       |      |
|            | Min M <sub>y</sub>                           | -2.20    | -0.02          |                    |                |                | 0.01               | -0.00          | -0.01          | -0.02 | CO 7                    |       |       |      |
|            | Max M <sub>z</sub>                           | -4.23    | 0.14           |                    |                |                | -0.39              | 0.02           | 0.66           | 0.17  | CO 8                    |       |       |      |
|            | Min M <sub>z</sub>                           | -2.20    | -0.02          |                    |                |                | 0.01               | -0.00          | -0.01          | -0.02 | CO 7                    |       |       |      |
|            |  | 12       | 2.300          | Max N              | -1.93          | -0.02          | 0.01               | -0.00          | 0.01           | 0.03  | CO 7                    |       |       |      |
|            |  |          |                | Min N              | -3.96          | 0.14           | -0.40              | 0.02           | -0.25          | -0.16 | CO 8                    |       |       |      |
|            |  |          |                | Max V <sub>y</sub> | -3.96          | 0.14           | -0.40              | 0.02           | -0.25          | -0.16 | CO 8                    |       |       |      |
|            |  |          |                | Min V <sub>y</sub> | -1.93          | -0.02          | 0.01               | -0.00          | 0.01           | 0.03  | CO 7                    |       |       |      |
|            |  |          |                | Max V <sub>z</sub> | -1.93          | -0.02          | 0.01               | -0.00          | 0.01           | 0.03  | CO 7                    |       |       |      |
|            |  |          |                | Min V <sub>z</sub> | -3.96          | 0.14           | -0.40              | 0.02           | -0.25          | -0.16 | CO 8                    |       |       |      |
|            |  |          |                | Max M <sub>T</sub> | -3.96          | 0.14           | -0.40              | 0.02           | -0.25          | -0.16 | CO 8                    |       |       |      |
|            |  |          |                | Min M <sub>T</sub> | -1.93          | -0.02          | 0.01               | -0.00          | 0.01           | 0.03  | CO 7                    |       |       |      |
|            |  |          |                | Max M <sub>y</sub> | -1.93          | -0.02          | 0.01               | -0.00          | 0.01           | 0.03  | CO 7                    |       |       |      |
|            |  |          |                | Min M <sub>y</sub> | -3.96          | 0.14           | -0.40              | 0.02           | -0.25          | -0.16 | CO 8                    |       |       |      |
|            |  |          |                | Max M <sub>z</sub> | -1.93          | -0.02          | 0.01               | -0.00          | 0.01           | 0.03  | CO 7                    |       |       |      |
|            |  |          |                | Min M <sub>z</sub> | -3.96          | 0.14           | -0.40              | 0.02           | -0.25          | -0.16 | CO 8                    |       |       |      |
|            | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                |                    |                |                |                    |                |                |       |                         |       |       |      |
|            | RC5  | 7        | 0.000          | Max N              | 1.57           | -0.16          | 0.20               | -0.02          | -0.33          | -0.19 |                         |       |       |      |
|            |  |          |                | Min N              | -1.57          | 0.16           | -0.20              | 0.02           | 0.33           | 0.19  |                         |       |       |      |
|            |  |          |                | Max V <sub>y</sub> | -1.47          | 0.17           | -0.18              | 0.02           | 0.30           | 0.21  |                         |       |       |      |
|            |  |          |                | Min V <sub>y</sub> | 1.47           | -0.17          | 0.18               | -0.02          | -0.30          | -0.21 |                         |       |       |      |
|            |  |          |                | Max V <sub>z</sub> | 1.31           | -0.10          | 0.22               | -0.02          | -0.36          | -0.11 |                         |       |       |      |
|            |  |          |                | Min V <sub>z</sub> | -1.31          | 0.10           | -0.22              | 0.02           | 0.36           | 0.11  |                         |       |       |      |
|            |  |          |                | Max M <sub>T</sub> | -1.49          | 0.17           | -0.19              | 0.02           | 0.31           | 0.20  |                         |       |       |      |
|            |  |          |                | Min M <sub>T</sub> | 1.49           | -0.17          | 0.19               | -0.02          | -0.31          | -0.20 |                         |       |       |      |
|            |  |          |                | Max M <sub>y</sub> | -1.33          | 0.10           | -0.22              | 0.02           | 0.36           | 0.11  |                         |       |       |      |
|            |  |          |                | Min M <sub>y</sub> | 1.33           | -0.10          | 0.22               | -0.02          | -0.36          | -0.11 |                         |       |       |      |
|            |  |          |                | Max M <sub>z</sub> | -1.46          | 0.17           | -0.18              | 0.02           | 0.30           | 0.21  |                         |       |       |      |
|            |  |          |                | Min M <sub>z</sub> | 1.46           | -0.17          | 0.18               | -0.02          | -0.30          | -0.21 |                         |       |       |      |
|            |  | 12       | 2.300          | Max N              | 1.57           | -0.16          | 0.20               | -0.02          | 0.12           | 0.17  |                         |       |       |      |
|            |  |          |                | Min N              | -1.57          | 0.16           | -0.20              | 0.02           | -0.12          | -0.17 |                         |       |       |      |
|            |  |          |                | Max V <sub>y</sub> | -1.47          | 0.17           | -0.18              | 0.02           | -0.11          | -0.19 |                         |       |       |      |
|            |  |          |                | Min V <sub>y</sub> | 1.47           | -0.17          | 0.18               | -0.02          | 0.11           | 0.19  |                         |       |       |      |
|            |  |          |                | Max V <sub>z</sub> | 1.31           | -0.10          | 0.22               | -0.02          | 0.14           | 0.11  |                         |       |       |      |
|            |  |          |                | Min V <sub>z</sub> | -1.31          | 0.10           | -0.22              | 0.02           | -0.14          | -0.11 |                         |       |       |      |
|            |  |          |                | Max M <sub>T</sub> | -1.49          | 0.17           | -0.19              | 0.02           | -0.12          | -0.18 |                         |       |       |      |
|            |  |          |                | Min M <sub>T</sub> | 1.49           | -0.17          | 0.19               | -0.02          | 0.12           | 0.18  |                         |       |       |      |
|            |  |          |                | Max M <sub>y</sub> | 1.28           | -0.09          | 0.22               | -0.02          | 0.14           | 0.11  |                         |       |       |      |
|            |  |          |                | Min M <sub>y</sub> | -1.28          | 0.09           | -0.22              | 0.02           | -0.14          | -0.11 |                         |       |       |      |
|            |  |          |                | Max M <sub>z</sub> | 1.48           | -0.17          | 0.18               | -0.02          | 0.11           | 0.19  |                         |       |       |      |
|            |  |          |                | Min M <sub>z</sub> | -1.48          | 0.17           | -0.18              | 0.02           | -0.11          | -0.19 |                         |       |       |      |
|            | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                |                    |                |                |                    |                |                |       |                         |       |       |      |
|            | RC6  | 7        | 0.000          | Max N              | 1.39           | -0.17          | 0.13               | -0.02          | -0.22          | -0.20 |                         |       |       |      |
|            |  |          |                | Min N              | -1.39          | 0.17           | -0.13              | 0.02           | 0.22           | 0.20  |                         |       |       |      |
|            |  |          |                | Max V <sub>y</sub> | -1.22          | 0.20           | -0.11              | 0.02           | 0.19           | 0.25  |                         |       |       |      |
|            |  |          |                | Min V <sub>y</sub> | 1.22           | -0.20          | 0.11               | -0.02          | -0.19          | -0.25 |                         |       |       |      |
|            |  |          |                | Max V <sub>z</sub> | 0.78           | -0.00          | 0.17               | -0.01          | -0.28          | 0.00  |                         |       |       |      |
|            |  |          |                | Min V <sub>z</sub> | -0.78          | 0.00           | -0.17              | 0.01           | 0.28           | -0.00 |                         |       |       |      |
|            |  |          |                | Max M <sub>T</sub> | -1.28          | 0.20           | -0.12              | 0.02           | 0.20           | 0.25  |                         |       |       |      |
|            |  |          |                | Min M <sub>T</sub> | 1.28           | -0.20          | 0.12               | -0.02          | -0.20          | -0.25 |                         |       |       |      |
|            |  |          |                | Max M <sub>y</sub> | -0.80          | 0.01           | -0.17              | 0.01           | 0.28           | -0.00 |                         |       |       |      |
|            |  |          |                | Min M <sub>y</sub> | 0.80           | -0.01          | 0.17               | -0.01          | -0.28          | 0.00  |                         |       |       |      |
|            |  |          |                | Max M <sub>z</sub> | -1.21          | 0.20           | -0.11              | 0.02           | 0.19           | 0.25  |                         |       |       |      |
|            |  |          |                | Min M <sub>z</sub> | 1.21           | -0.20          | 0.11               | -0.02          | -0.19          | -0.25 |                         |       |       |      |
|            |  | 12       | 2.300          | Max N              | 1.39           | -0.17          | 0.13               | -0.02          | 0.08           | 0.18  |                         |       |       |      |
|            |  |          |                | Min N              | -1.39          | 0.17           | -0.13              | 0.02           | -0.08          | -0.18 |                         |       |       |      |
|            |  |          |                | Max V <sub>y</sub> | -1.22          | 0.20           | -0.11              | 0.02           | -0.07          | -0.22 |                         |       |       |      |
|            |  |          |                | Min V <sub>y</sub> | 1.22           | -0.20          | 0.11               | -0.02          | 0.07           | 0.22  |                         |       |       |      |
|            |  |          |                | Max V <sub>z</sub> | 0.78           | -0.00          | 0.17               | -0.01          | 0.11           | 0.01  |                         |       |       |      |
|            |  |          |                | Min V <sub>z</sub> | -0.78          | 0.00           | -0.17              | 0.01           | -0.11          | -0.01 |                         |       |       |      |
|            |  |          |                | Max M <sub>T</sub> | -1.28          | 0.20           | -0.12              | 0.02           | -0.07          | -0.21 |                         |       |       |      |
|            |  |          |                | Min M <sub>T</sub> | 1.28           | -0.20          | 0.12               | -0.02          | 0.07           | 0.21  |                         |       |       |      |
|            |  |          |                | Max M <sub>y</sub> | 0.74           | 0.00           | 0.17               | -0.01          | 0.11           | 0.01  |                         |       |       |      |
|            |  |          |                | Min M <sub>y</sub> | -0.74          | -0.00          | -0.17              | 0.01           | -0.11          | -0.01 |                         |       |       |      |
|            |  |          |                | Max M <sub>z</sub> | 1.23           | -0.20          | 0.11               | -0.02          | 0.07           | 0.22  |                         |       |       |      |
|            |  |          |                | Min M <sub>z</sub> | -1.23          | 0.20           | -0.11              | 0.02           | -0.07          | -0.22 |                         |       |       |      |
|            | DLC1, Result Envelope X 30% / Y 30% / Z 100% |          |                |                    |                |                |                    |                |                |       |                         |       |       |      |
|            | RC7  | 7        | 0.000          | Max N              | 3.13           | -0.31          | 0.41               | -0.04          | -0.69          | -0.37 |                         |       |       |      |
|            |  |          |                | Min N              | -3.13          | 0.31           | -0.41              | 0.04           | 0.69           | 0.37  |                         |       |       |      |
|            |  |          |                | Max V <sub>y</sub> | -2.96          | 0.33           | -0.37              | 0.04           | 0.62           | 0.40  |                         |       |       |      |
|            |  |          |                | Min V <sub>y</sub> | 2.96           | -0.33          | 0.37               | -0.04          | -0.62          | -0.40 |                         |       |       |      |

# RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC                 | Node No. | Location x [m] |                    | Forces [kN] |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |       |
|------------|--------------------|----------|----------------|--------------------|-------------|----------------|----------------|----------------|----------------|----------------|-------------------------|-------|
|            |                    |          |                |                    | N           | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |       |
| 4          | RC7                | 12       | 2.300          | Max V <sub>z</sub> | 2.84        | -0.24          | ▷              | 0.44           | -0.04          | -0.73          | -0.28                   |       |
|            |                    |          |                | Min V <sub>z</sub> | -2.84       | 0.24           | ▷              | -0.44          | 0.04           | 0.73           | 0.28                    |       |
|            |                    |          |                | Max M <sub>T</sub> | -3.02       | 0.33           | ▷              | -0.39          | 0.04           | 0.64           | 0.39                    |       |
|            |                    |          |                | Min M <sub>T</sub> | 3.02        | -0.33          | ▷              | 0.39           | -0.04          | -0.64          | -0.39                   |       |
|            |                    |          |                | Max M <sub>y</sub> | -2.84       | 0.24           | ▷              | -0.44          | 0.04           | 0.73           | 0.28                    |       |
|            |                    |          |                | Min M <sub>y</sub> | 2.84        | -0.24          | ▷              | 0.44           | -0.04          | -0.73          | -0.28                   |       |
|            |                    |          |                | Max M <sub>z</sub> | -2.95       | 0.33           | ▷              | -0.37          | 0.04           | 0.62           | ▷                       | 0.40  |
|            |                    |          |                | Min M <sub>z</sub> | 2.95        | -0.33          | ▷              | 0.37           | -0.04          | -0.62          | ▷                       | -0.40 |
|            |                    |          |                | Max N              | 3.13        | -0.31          | ▷              | 0.41           | -0.04          | 0.26           | 0.34                    |       |
|            |                    |          |                | Min N              | -3.13       | 0.31           | ▷              | -0.41          | 0.04           | -0.26          | -0.34                   |       |
|            |                    |          |                | Max V <sub>y</sub> | -2.96       | ▷              | 0.33           | -0.37          | 0.04           | -0.24          | -0.37                   |       |
|            |                    |          |                | Min V <sub>y</sub> | 2.96        | ▷              | -0.33          | 0.37           | -0.04          | 0.24           | 0.37                    |       |
|            |                    |          |                | Max V <sub>z</sub> | 2.84        | ▷              | -0.24          | 0.44           | -0.04          | 0.28           | 0.26                    |       |
|            |                    |          |                | Min V <sub>z</sub> | -2.84       | ▷              | 0.24           | -0.44          | 0.04           | -0.28          | -0.26                   |       |
|            |                    |          |                | Max M <sub>T</sub> | -3.02       | 0.33           | ▷              | -0.39          | 0.04           | -0.25          | -0.36                   |       |
|            |                    |          |                | Min M <sub>T</sub> | 3.02        | -0.33          | ▷              | 0.39           | -0.04          | 0.25           | 0.36                    |       |
|            |                    |          |                | Max M <sub>y</sub> | 2.83        | -0.24          | ▷              | 0.44           | -0.04          | 0.28           | 0.26                    |       |
|            |                    |          |                | Min M <sub>y</sub> | -2.83       | 0.24           | ▷              | -0.44          | 0.04           | -0.28          | -0.26                   |       |
|            |                    |          |                | Max M <sub>z</sub> | 2.96        | -0.33          | ▷              | 0.37           | -0.04          | 0.24           | ▷                       | 0.37  |
|            |                    |          |                | Min M <sub>z</sub> | -2.96       | 0.33           | ▷              | -0.37          | 0.04           | -0.24          | ▷                       | -0.37 |
| 18         | RC1                | 9        | 0.000          | Max N              | 21.44       | -0.09          | ▷              | 1.43           | 0.10           | -1.71          | -0.18                   | CO 2  |
|            |                    |          |                | Min N              | -1.92       | 0.03           | ▷              | -0.03          | -0.00          | 0.01           | 0.03                    | CO 1  |
|            |                    |          |                | Max V <sub>y</sub> | -1.92       | 0.03           | ▷              | -0.03          | -0.00          | 0.01           | 0.03                    | CO 1  |
|            |                    |          |                | Min V <sub>y</sub> | 21.44       | ▷              | -0.09          | 1.43           | 0.10           | -1.71          | -0.18                   | CO 2  |
|            |                    |          |                | Max V <sub>z</sub> | 21.44       | -0.09          | ▷              | 1.43           | 0.10           | -1.71          | -0.18                   | CO 2  |
|            |                    |          |                | Min V <sub>z</sub> | -1.92       | 0.03           | ▷              | -0.03          | -0.00          | 0.01           | 0.03                    | CO 1  |
|            |                    |          |                | Max M <sub>T</sub> | 21.44       | -0.09          | ▷              | 1.43           | 0.10           | -1.71          | -0.18                   | CO 2  |
|            |                    |          |                | Min M <sub>T</sub> | -1.92       | 0.03           | ▷              | -0.03          | -0.00          | 0.01           | 0.03                    | CO 1  |
|            |                    |          |                | Max M <sub>y</sub> | -1.92       | 0.03           | ▷              | -0.03          | -0.00          | 0.01           | 0.03                    | CO 1  |
|            |                    |          |                | Min M <sub>y</sub> | 21.44       | -0.09          | ▷              | 1.43           | 0.10           | -1.71          | -0.18                   | CO 2  |
|            |                    |          |                | Max M <sub>z</sub> | -1.92       | 0.03           | ▷              | -0.03          | -0.00          | 0.01           | 0.03                    | CO 1  |
|            |                    |          |                | Min M <sub>z</sub> | 21.44       | ▷              | -0.09          | 1.43           | 0.10           | -1.71          | -0.18                   | CO 2  |
|            |                    |          |                | Max N              | 21.68       | -0.08          | ▷              | 1.38           | 0.10           | 0.45           | -0.04                   | CO 2  |
|            |                    |          |                | Min N              | -1.67       | 0.03           | ▷              | -0.03          | -0.00          | -0.03          | -0.01                   | CO 1  |
|            |                    |          |                | Max V <sub>y</sub> | -1.67       | 0.03           | ▷              | -0.03          | -0.00          | -0.03          | -0.01                   | CO 1  |
|            |                    |          |                | Min V <sub>y</sub> | 21.68       | -0.08          | ▷              | 1.38           | 0.10           | 0.45           | -0.04                   | CO 2  |
|            |                    |          |                | Max V <sub>z</sub> | 21.68       | -0.08          | ▷              | 1.38           | 0.10           | 0.45           | -0.04                   | CO 2  |
|            |                    |          |                | Min V <sub>z</sub> | -1.67       | 0.03           | ▷              | -0.03          | -0.00          | -0.03          | -0.01                   | CO 1  |
|            | Max M <sub>T</sub> | 21.68    | -0.08          | ▷                  | 1.38        | 0.10           | 0.45           | -0.04          | CO 2           |                |                         |       |
|            | Min M <sub>T</sub> | -1.67    | 0.03           | ▷                  | -0.03       | -0.00          | -0.03          | -0.01          | CO 1           |                |                         |       |
|            | Max M <sub>y</sub> | 21.68    | -0.08          | ▷                  | 1.38        | 0.10           | 0.45           | -0.04          | CO 2           |                |                         |       |
|            | Min M <sub>y</sub> | -1.67    | 0.03           | ▷                  | -0.03       | -0.00          | -0.03          | -0.01          | CO 1           |                |                         |       |
|            | Max M <sub>z</sub> | -1.67    | 0.03           | ▷                  | -0.03       | -0.00          | -0.03          | -0.01          | CO 1           |                |                         |       |
|            | Min M <sub>z</sub> | 21.68    | -0.08          | ▷                  | 1.38        | 0.10           | 0.45           | -0.04          | CO 2           |                |                         |       |
|            | RC2                | 9        | 0.000          | Max N              | 14.14       | -0.06          | ▷              | 0.94           | 0.07           | -1.13          | -0.11                   | CO 4  |
|            |                    |          |                | Min N              | -1.42       | 0.02           | ▷              | -0.02          | -0.00          | 0.01           | 0.02                    | CO 3  |
|            |                    |          |                | Max V <sub>y</sub> | -1.42       | 0.02           | ▷              | -0.02          | -0.00          | 0.01           | 0.02                    | CO 3  |
|            |                    |          |                | Min V <sub>y</sub> | 14.14       | ▷              | -0.06          | 0.94           | 0.07           | -1.13          | -0.11                   | CO 4  |
|            |                    |          |                | Max V <sub>z</sub> | 14.14       | -0.06          | ▷              | 0.94           | 0.07           | -1.13          | -0.11                   | CO 4  |
|            |                    |          |                | Min V <sub>z</sub> | -1.42       | 0.02           | ▷              | -0.02          | -0.00          | 0.01           | 0.02                    | CO 3  |
|            |                    |          |                | Max M <sub>T</sub> | 14.14       | -0.06          | ▷              | 0.94           | 0.07           | -1.13          | -0.11                   | CO 4  |
|            |                    |          |                | Min M <sub>T</sub> | -1.42       | 0.02           | ▷              | -0.02          | -0.00          | 0.01           | 0.02                    | CO 3  |
|            |                    |          |                | Max M <sub>y</sub> | -1.42       | 0.02           | ▷              | -0.02          | -0.00          | 0.01           | 0.02                    | CO 3  |
|            |                    |          |                | Min M <sub>y</sub> | 14.14       | -0.06          | ▷              | 0.94           | 0.07           | -1.13          | -0.11                   | CO 4  |
|            |                    |          |                | Max M <sub>z</sub> | -1.42       | 0.02           | ▷              | -0.02          | -0.00          | 0.01           | 0.02                    | CO 3  |
|            |                    |          |                | Min M <sub>z</sub> | 14.14       | -0.06          | ▷              | 0.94           | 0.07           | -1.13          | -0.11                   | CO 4  |
|            |                    |          |                | Max N              | 14.33       | -0.05          | ▷              | 0.92           | 0.07           | 0.30           | -0.03                   | CO 4  |
|            |                    |          |                | Min N              | -1.24       | 0.02           | ▷              | -0.02          | -0.00          | -0.02          | -0.01                   | CO 3  |
|            |                    |          |                | Max V <sub>y</sub> | -1.24       | 0.02           | ▷              | -0.02          | -0.00          | -0.02          | -0.01                   | CO 3  |
|            |                    |          |                | Min V <sub>y</sub> | 14.33       | ▷              | -0.05          | 0.92           | 0.07           | 0.30           | -0.03                   | CO 4  |
|            |                    |          |                | Max V <sub>z</sub> | 14.33       | -0.05          | ▷              | 0.92           | 0.07           | 0.30           | -0.03                   | CO 4  |
|            |                    |          |                | Min V <sub>z</sub> | -1.24       | 0.02           | ▷              | -0.02          | -0.00          | -0.02          | -0.01                   | CO 3  |
|            | Max M <sub>T</sub> | 14.33    | -0.05          | ▷                  | 0.92        | 0.07           | 0.30           | -0.03          | CO 4           |                |                         |       |
|            | Min M <sub>T</sub> | -1.24    | 0.02           | ▷                  | -0.02       | -0.00          | -0.02          | -0.01          | CO 3           |                |                         |       |
|            | Max M <sub>y</sub> | 14.33    | -0.05          | ▷                  | 0.92        | 0.07           | 0.30           | -0.03          | CO 4           |                |                         |       |
|            | Min M <sub>y</sub> | -1.24    | 0.02           | ▷                  | -0.02       | -0.00          | -0.02          | -0.01          | CO 3           |                |                         |       |
|            | Max M <sub>z</sub> | -1.24    | 0.02           | ▷                  | -0.02       | -0.00          | -0.02          | -0.01          | CO 3           |                |                         |       |
|            | Min M <sub>z</sub> | 14.33    | -0.05          | ▷                  | 0.92        | 0.07           | 0.30           | -0.03          | CO 4           |                |                         |       |
|            | RC3                | 9        | 0.000          | Max N              | 6.36        | -0.02          | ▷              | 0.45           | 0.03           | -0.56          | -0.05                   | CO 6  |
|            |                    |          |                | Min N              | -1.42       | 0.02           | ▷              | -0.02          | -0.00          | 0.01           | 0.02                    | CO 5  |
|            |                    |          |                | Max V <sub>y</sub> | -1.42       | 0.02           | ▷              | -0.02          | -0.00          | 0.01           | 0.02                    | CO 5  |
|            |                    |          |                | Min V <sub>y</sub> | 6.36        | -0.02          | ▷              | 0.45           | 0.03           | -0.56          | -0.05                   | CO 6  |
|            |                    |          |                | Max V <sub>z</sub> | 6.36        | -0.02          | ▷              | 0.45           | 0.03           | -0.56          | -0.05                   | CO 6  |
|            |                    |          |                | Min V <sub>z</sub> | -1.42       | 0.02           | ▷              | -0.02          | -0.00          | 0.01           | 0.02                    | CO 5  |
|            |                    |          |                | Max M <sub>T</sub> | 6.36        | -0.02          | ▷              | 0.45           | 0.03           | -0.56          | -0.05                   | CO 6  |
|            |                    |          |                | Min M <sub>T</sub> | -1.42       | 0.02           | ▷              | -0.02          | -0.00          | 0.01           | 0.02                    | CO 5  |
|            |                    |          |                | Max M <sub>y</sub> | -1.42       | 0.02           | ▷              | -0.02          | -0.00          | 0.01           | 0.02                    | CO 5  |
|            |                    |          |                | Min M <sub>y</sub> | 6.36        | -0.02          | ▷              | 0.45           | 0.03           | -0.56          | -0.05                   | CO 6  |
|            |                    |          |                | Max M <sub>z</sub> | -1.42       | 0.02           | ▷              | -0.02          | -0.00          | 0.01           | 0.02                    | CO 5  |
|            |                    |          |                | Min M <sub>z</sub> | 6.36        | -0.02          | ▷              | 0.45           | 0.03           | -0.56          | -0.05                   | CO 6  |
|            |                    |          |                | Max N              | 6.54        | -0.02          | ▷              | 0.45           | 0.03           | 0.14           | -0.02                   | CO 6  |
|            |                    |          |                | Min N              | -1.24       | 0.02           | ▷              | -0.02          | -0.00          | -0.02          | -0.01                   | CO 5  |
|            |                    |          |                | Max V <sub>y</sub> | -1.24       | 0.02           | ▷              | -0.02          | -0.00          | -0.02          | -0.01                   | CO 5  |
|            |                    |          |                | Min V <sub>y</sub> | 6.54        | -0.02          | ▷              | 0.45           | 0.03           | 0.14           | -0.02                   | CO 6  |
|            |                    |          |                | Max V <sub>z</sub> | 6.54        | -0.02          | ▷              | 0.45           | 0.03           | 0.14           | -0.02                   | CO 6  |
|            |                    |          |                | Min V <sub>z</sub> | -1.24       | 0.02           | ▷              | -0.02          | -0.00          | -0.02          | -0.01                   | CO 5  |
|            | Max M <sub>T</sub> | 6.54     | -0.02          | ▷                  | 0.45        | 0.03           | 0.14           | -0.02          | CO 6           |                |                         |       |

# RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m] | Forces [kN]                                  |                |                |                | Moments [kNm]  |                |       | Correspondin Load Cases |       |      |
|------------|--|----------|----------------|--|----------------|----------------|----------------|----------------|----------------|-------|-------------------------|-------|------|
|            |  |          |                | N  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |                         |       |      |
| 18         | RC3  |          |                | Min M <sub>T</sub>                           | -1.24          | 0.02           | -0.02          | ▷              | -0.00          | -0.02 | -0.01                   | CO 5  |      |
|            |  |          |                | Max M <sub>y</sub>                           | 6.54           | -0.02          | 0.45           | ▷              | 0.03           | ▷     | 0.14                    | -0.02 | CO 6 |
|            |  |          |                | Min M <sub>y</sub>                           | -1.24          | 0.02           | -0.02          | ▷              | -0.00          | ▷     | -0.02                   | -0.01 | CO 5 |
|            |  |          |                | Max M <sub>z</sub>                           | -1.24          | 0.02           | -0.02          | ▷              | -0.00          | -0.02 | -0.01                   | CO 5  |      |
|            |  |          |                | Min M <sub>z</sub>                           | 6.54           | -0.02          | 0.45           | ▷              | 0.03           | ▷     | 0.14                    | -0.02 | CO 6 |
|            |  |          |                | Max N  | 3.25           | -0.00          | 0.26           | ▷              | 0.02           | -0.33 | -0.02                   | CO 8  |      |
|            | RC4  | 9        | 0.000          | Min N  | -1.42          | 0.02           | -0.02          | ▷              | -0.00          | 0.01  | 0.02                    | CO 7  |      |
|            |  |          |                | Max V <sub>y</sub>                           | -1.42          | ▷              | 0.02           | -0.02          | -0.00          | 0.01  | 0.02                    | CO 7  |      |
|            |  |          |                | Min V <sub>y</sub>                           | 3.25           | -0.00          | 0.26           | ▷              | 0.02           | -0.33 | -0.02                   | CO 8  |      |
|            |  |          |                | Max V <sub>z</sub>                           | 3.25           | -0.00          | ▷              | 0.26           | 0.02           | -0.33 | -0.02                   | CO 8  |      |
|            |  |          |                | Min V <sub>z</sub>                           | -1.42          | 0.02           | ▷              | -0.02          | -0.00          | 0.01  | 0.02                    | CO 7  |      |
|            |  |          |                | Max M <sub>T</sub>                           | 3.25           | -0.00          | 0.26           | ▷              | 0.02           | -0.33 | -0.02                   | CO 8  |      |
|            |  |          |                | Min M <sub>T</sub>                           | -1.42          | 0.02           | -0.02          | ▷              | -0.00          | 0.01  | 0.02                    | CO 7  |      |
|            |  |          |                | Max M <sub>y</sub>                           | -1.42          | 0.02           | -0.02          | ▷              | -0.00          | 0.01  | 0.02                    | CO 7  |      |
|            |  |          |                | Min M <sub>y</sub>                           | 3.25           | -0.00          | 0.26           | ▷              | 0.02           | -0.33 | -0.02                   | CO 8  |      |
|            |  |          |                | Max M <sub>z</sub>                           | -1.42          | 0.02           | -0.02          | ▷              | -0.00          | 0.01  | ▷                       | 0.02  | CO 7 |
|            |  |          |                | Min M <sub>z</sub>                           | 3.25           | -0.00          | 0.26           | ▷              | 0.02           | -0.33 | ▷                       | -0.02 | CO 8 |
|            |  |          |                | Max N  | 3.43           | -0.00          | 0.26           | ▷              | 0.02           | 0.07  | -0.01                   | CO 8  |      |
|            |  | 13       | 1.550          | Min N  | -1.24          | 0.02           | -0.02          | ▷              | -0.00          | -0.02 | -0.01                   | CO 7  |      |
|            |  |          |                | Max V <sub>y</sub>                           | -1.24          | ▷              | 0.02           | -0.02          | -0.00          | -0.02 | -0.01                   | CO 7  |      |
|            |  |          |                | Min V <sub>y</sub>                           | 3.43           | ▷              | -0.00          | 0.26           | 0.02           | 0.07  | -0.01                   | CO 8  |      |
|            |  |          |                | Max V <sub>z</sub>                           | 3.43           | -0.00          | ▷              | 0.26           | 0.02           | 0.07  | -0.01                   | CO 8  |      |
|            |  |          |                | Min V <sub>z</sub>                           | -1.24          | 0.02           | ▷              | -0.02          | -0.00          | -0.02 | -0.01                   | CO 7  |      |
|            |  |          |                | Max M <sub>T</sub>                           | 3.43           | -0.00          | 0.26           | ▷              | 0.02           | 0.07  | -0.01                   | CO 8  |      |
|            |  |          |                | Min M <sub>T</sub>                           | -1.24          | 0.02           | -0.02          | ▷              | -0.00          | -0.02 | -0.01                   | CO 7  |      |
|            |  |          |                | Max M <sub>y</sub>                           | 3.43           | -0.00          | 0.26           | ▷              | 0.02           | 0.07  | -0.01                   | CO 8  |      |
|            |  |          |                | Min M <sub>y</sub>                           | -1.24          | 0.02           | -0.02          | ▷              | -0.00          | -0.02 | -0.01                   | CO 7  |      |
|            |  |          |                | Max M <sub>z</sub>                           | -1.24          | 0.02           | -0.02          | ▷              | -0.00          | -0.02 | -0.01                   | CO 7  |      |
|            |  |          |                | Min M <sub>z</sub>                           | 3.43           | -0.00          | 0.26           | ▷              | 0.02           | 0.07  | ▷                       | -0.01 | CO 8 |
|            |  |          |                | DLC1, Result Envelope X 100% / Y 30% / Z 30% |                |                |                |                |                |       |                         |       |      |
|            | RC5  | 9        | 0.000          | Max N  | 3.42           | -0.03          | 0.11           | ▷              | 0.01           | -0.13 | -0.05                   |       |      |
|            |  |          |                | Min N  | -3.42          | 0.03           | -0.11          | ▷              | -0.01          | 0.13  | 0.05                    |       |      |
|            |  |          |                | Max V <sub>y</sub>                           | -3.03          | ▷              | 0.04           | -0.11          | -0.01          | 0.13  | 0.05                    |       |      |
|            |  |          |                | Min V <sub>y</sub>                           | 3.03           | ▷              | -0.04          | 0.11           | 0.01           | -0.13 | -0.05                   |       |      |
|            |  |          |                | Max V <sub>z</sub>                           | 2.45           | -0.01          | 0.15           | ▷              | 0.01           | -0.18 | -0.02                   |       |      |
|            |  |          |                | Min V <sub>z</sub>                           | -2.45          | 0.01           | -0.15          | ▷              | -0.01          | 0.18  | 0.02                    |       |      |
|            |  |          |                | Max M <sub>T</sub>                           | 1.43           | -0.01          | 0.14           | ▷              | 0.01           | -0.17 | -0.01                   |       |      |
|            |  |          |                | Min M <sub>T</sub>                           | -1.43          | 0.01           | -0.14          | ▷              | -0.01          | 0.17  | 0.01                    |       |      |
|            |  |          |                | Max M <sub>y</sub>                           | -2.46          | 0.01           | -0.15          | ▷              | -0.01          | 0.18  | 0.02                    |       |      |
|            |  |          |                | Min M <sub>y</sub>                           | 2.46           | -0.01          | 0.15           | ▷              | 0.01           | -0.18 | -0.02                   |       |      |
|            |  |          |                | Max M <sub>z</sub>                           | -3.12          | 0.04           | -0.12          | ▷              | -0.01          | 0.14  | ▷                       | 0.05  |      |
|            |  |          |                | Min M <sub>z</sub>                           | 3.12           | -0.04          | 0.12           | ▷              | 0.01           | -0.14 | ▷                       | -0.05 |      |
|            |  | 13       | 1.550          | Max N  | 3.42           | -0.03          | 0.11           | ▷              | 0.01           | 0.04  | 0.00                    |       |      |
|            |  |          |                | Min N  | -3.42          | 0.03           | -0.11          | ▷              | -0.01          | -0.04 | -0.00                   |       |      |
|            |  |          |                | Max V <sub>y</sub>                           | -3.03          | ▷              | 0.04           | -0.11          | -0.01          | -0.04 | -0.01                   |       |      |
|            |  |          |                | Min V <sub>y</sub>                           | 3.03           | ▷              | -0.04          | 0.11           | 0.01           | 0.04  | 0.01                    |       |      |
|            |  |          |                | Max V <sub>z</sub>                           | 2.45           | -0.01          | ▷              | 0.15           | 0.01           | 0.05  | -0.00                   |       |      |
|            |  |          |                | Min V <sub>z</sub>                           | -2.45          | 0.01           | ▷              | -0.15          | -0.01          | -0.05 | 0.00                    |       |      |
|            |  |          |                | Max M <sub>T</sub>                           | 1.43           | -0.01          | 0.14           | ▷              | 0.01           | 0.05  | -0.00                   |       |      |
|            |  |          |                | Min M <sub>T</sub>                           | -1.43          | 0.01           | -0.14          | ▷              | -0.01          | -0.05 | 0.00                    |       |      |
|            |  |          |                | Max M <sub>y</sub>                           | 2.42           | -0.01          | 0.15           | ▷              | 0.01           | 0.05  | -0.00                   |       |      |
|            |  |          |                | Min M <sub>y</sub>                           | -2.42          | 0.01           | -0.15          | ▷              | -0.01          | -0.05 | 0.00                    |       |      |
|            |  |          |                | Max M <sub>z</sub>                           | 1.22           | -0.03          | 0.01           | ▷              | -0.00          | 0.00  | ▷                       | 0.01  |      |
|            |  |          |                | Min M <sub>z</sub>                           | -1.22          | 0.03           | -0.01          | ▷              | 0.00           | -0.00 | ▷                       | -0.01 |      |
|            | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                |  |                |                |                |                |                |       |                         |       |      |
|            | RC6  | 9        | 0.000          | Max N  | 2.84           | -0.05          | 0.07           | ▷              | 0.00           | -0.08 | -0.06                   |       |      |
|            |  |          |                | Min N  | -2.84          | 0.05           | -0.07          | ▷              | -0.00          | 0.08  | 0.06                    |       |      |
|            |  |          |                | Max V <sub>y</sub>                           | -2.50          | ▷              | 0.06           | -0.06          | -0.00          | 0.08  | 0.07                    |       |      |
|            |  |          |                | Min V <sub>y</sub>                           | 2.50           | -0.06          | 0.06           | ▷              | 0.00           | -0.08 | -0.07                   |       |      |
|            |  |          |                | Max V <sub>z</sub>                           | 1.66           | 0.02           | ▷              | 0.12           | 0.01           | -0.15 | 0.01                    |       |      |
|            |  |          |                | Min V <sub>z</sub>                           | -1.66          | -0.02          | ▷              | -0.12          | -0.01          | 0.15  | -0.01                   |       |      |
|            |  |          |                | Max M <sub>T</sub>                           | 0.84           | 0.02           | 0.11           | ▷              | 0.01           | -0.13 | 0.01                    |       |      |
|            |  |          |                | Min M <sub>T</sub>                           | -0.84          | -0.02          | -0.11          | ▷              | -0.01          | 0.13  | -0.01                   |       |      |
|            |  |          |                | Max M <sub>y</sub>                           | -1.66          | -0.02          | -0.12          | ▷              | -0.01          | 0.15  | -0.01                   |       |      |
|            |  |          |                | Min M <sub>y</sub>                           | 1.66           | 0.02           | 0.12           | ▷              | 0.01           | -0.15 | 0.01                    |       |      |
|            |  |          |                | Max M <sub>z</sub>                           | -2.56          | 0.06           | -0.07          | ▷              | -0.00          | 0.08  | ▷                       | 0.07  |      |
|            |  |          |                | Min M <sub>z</sub>                           | 2.56           | -0.06          | 0.07           | ▷              | 0.00           | -0.08 | ▷                       | -0.07 |      |
|            |  | 13       | 1.550          | Max N  | 2.84           | -0.05          | 0.07           | ▷              | 0.00           | 0.02  | 0.01                    |       |      |
|            |  |          |                | Min N  | -2.84          | 0.05           | -0.07          | ▷              | -0.00          | -0.02 | -0.01                   |       |      |
|            |  |          |                | Max V <sub>y</sub>                           | -2.50          | ▷              | 0.06           | -0.06          | -0.00          | -0.02 | -0.02                   |       |      |
|            |  |          |                | Min V <sub>y</sub>                           | 2.50           | -0.06          | 0.06           | ▷              | 0.00           | 0.02  | 0.02                    |       |      |
|            |  |          |                | Max V <sub>z</sub>                           | 1.66           | 0.02           | ▷              | 0.12           | 0.01           | 0.04  | -0.01                   |       |      |
|            |  |          |                | Min V <sub>z</sub>                           | -1.66          | -0.02          | ▷              | -0.12          | -0.01          | -0.04 | 0.01                    |       |      |
|            |  |          |                | Max M <sub>T</sub>                           | 0.84           | 0.02           | 0.11           | ▷              | 0.01           | 0.04  | -0.01                   |       |      |
|            |  |          |                | Min M <sub>T</sub>                           | -0.84          | -0.02          | -0.11          | ▷              | -0.01          | -0.04 | 0.01                    |       |      |
|            |  |          |                | Max M <sub>y</sub>                           | 1.65           | 0.02           | 0.12           | ▷              | 0.01           | 0.04  | -0.01                   |       |      |
|            |  |          |                | Min M <sub>y</sub>                           | -1.65          | -0.02          | -0.12          | ▷              | -0.01          | -0.04 | 0.01                    |       |      |
|            |  |          |                | Max M <sub>z</sub>                           | 1.26           | -0.05          | -0.00          | ▷              | -0.00          | -0.00 | ▷                       | 0.02  |      |
|            |  |          |                | Min M <sub>z</sub>                           | -1.26          | 0.05           | 0.00           | ▷              | 0.00           | 0.00  | ▷                       | -0.02 |      |
|            | DLC1, Result Envelope X 30% / Y 30% / Z 100% |          |                |  |                |                |                |                |                |       |                         |       |      |
|            | RC7  | 9        | 0.000          | Max N  | 7.57           | -0.06          | 0.22           | ▷              | 0.01           | -0.27 | -0.09                   |       |      |
|            |  |          |                | Min N  | -7.57          | 0.06           | -0.22          | ▷              | -0.01          | 0.27  | 0.09                    |       |      |
|            |  |          |                | Max V <sub>y</sub>                           | -6.82          | ▷              | 0.07           | -0.23          | -0.01          | 0.27  | 0.10                    |       |      |
|            |  |          |                | Min V <sub>y</sub>                           | 6.82           | ▷              | -0.07          | 0.23           | 0.01           | -0.27 | -0.10                   |       |      |
|            |  |          |                | Max V <sub>z</sub>                           | 5.37           | -0.04          | ▷              | 0.31           | 0.02           | -0.37 | -0.06                   |       |      |
|            |  |          |                | Min V <sub>z</sub>                           | -5.37          | 0.04           | ▷              | -0.31          | -0.02          | 0.37  | 0.06                    |       |      |
|            |  |          |                | Max M <sub>T</sub>                           | 2.65           | -0.02          | 0.28           | ▷              | 0.02           | -0.33 | -0.04                   |       |      |

# RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC    | Node No. | Location x [m]     |                    | Forces [kN] |                |                | Moments [kNm]      |                |                | Correspondin |      |
|--------------------|-------|----------|--------------------|--------------------|-------------|----------------|----------------|--------------------|----------------|----------------|--------------|------|
|                    |       |          |                    |                    | N           | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub>     | M <sub>y</sub> | M <sub>z</sub> | Load Cases   |      |
| 18                 | RC7   | 13       | 1.550              | Min M <sub>T</sub> | -2.65       | 0.02           | -0.28          | ▷                  | -0.02          | 0.33           | 0.04         |      |
|                    |       |          |                    | Max M <sub>y</sub> | -5.40       | 0.04           | -0.31          | ▷                  | -0.02          | 0.37           | 0.06         |      |
|                    |       |          |                    | Min M <sub>y</sub> | 5.40        | -0.04          | 0.31           | ▷                  | 0.02           | -0.37          | -0.06        |      |
|                    |       |          |                    | Max M <sub>z</sub> | -6.98       | 0.07           | -0.24          | ▷                  | -0.01          | 0.29           | 0.10         |      |
|                    |       |          |                    | Min M <sub>z</sub> | 6.98        | -0.07          | 0.24           | ▷                  | 0.01           | -0.29          | -0.10        |      |
|                    |       |          |                    | Max N              | 7.57        | -0.06          | 0.22           | ▷                  | 0.01           | 0.08           | 0.01         |      |
|                    |       |          |                    | Min N              | -7.57       | 0.06           | -0.22          | ▷                  | -0.01          | -0.08          | -0.01        |      |
|                    |       |          |                    | Max V <sub>y</sub> | -6.82       | 0.07           | -0.23          | ▷                  | -0.01          | -0.08          | -0.01        |      |
|                    |       |          |                    | Min V <sub>y</sub> | 6.82        | -0.07          | 0.23           | ▷                  | 0.01           | 0.08           | 0.01         |      |
|                    |       |          |                    | Max V <sub>z</sub> | 5.37        | -0.04          | 0.31           | ▷                  | 0.02           | 0.11           | -0.00        |      |
|                    |       |          |                    | Min V <sub>z</sub> | -5.37       | 0.04           | -0.31          | ▷                  | -0.02          | -0.11          | 0.00         |      |
|                    |       |          |                    | Max M <sub>T</sub> | 2.65        | -0.02          | 0.28           | ▷                  | 0.02           | 0.10           | -0.00        |      |
|                    |       |          |                    | Min M <sub>T</sub> | -2.65       | 0.02           | -0.28          | ▷                  | -0.02          | -0.10          | 0.00         |      |
|                    |       |          |                    | Max M <sub>y</sub> | 5.25        | -0.04          | 0.31           | ▷                  | 0.02           | 0.11           | -0.00        |      |
|                    |       |          |                    | Min M <sub>y</sub> | -5.25       | 0.04           | -0.31          | ▷                  | -0.02          | -0.11          | 0.00         |      |
|                    |       |          |                    | Max M <sub>z</sub> | 3.30        | -0.05          | 0.04           | ▷                  | -0.00          | 0.01           | 0.02         |      |
|                    |       |          |                    | 19                 | RC1         | 13             | 0.000          | Min M <sub>z</sub> | -3.30          | 0.05           | -0.04        | ▷    |
| Max N              | 10.24 | 0.00     | -0.38              |                    |             |                |                | ▷                  | -0.21          | 0.26           | 0.00         | CO 2 |
| Min N              | -1.24 | 0.03     | -0.02              |                    |             |                |                | ▷                  | 0.00           | 0.02           | 0.02         | CO 1 |
| Max V <sub>y</sub> | -1.24 | 0.03     | -0.02              |                    |             |                |                | ▷                  | 0.00           | 0.02           | 0.02         | CO 1 |
| Min V <sub>y</sub> | 10.24 | 0.00     | -0.38              |                    |             |                |                | ▷                  | -0.21          | 0.26           | 0.00         | CO 2 |
| Max V <sub>z</sub> | -1.24 | 0.03     | -0.02              |                    |             |                |                | ▷                  | 0.00           | 0.02           | 0.02         | CO 1 |
| Min V <sub>z</sub> | 10.24 | 0.00     | -0.38              |                    |             |                |                | ▷                  | -0.21          | 0.26           | 0.00         | CO 2 |
| Max M <sub>T</sub> | -1.24 | 0.03     | -0.02              |                    |             |                |                | ▷                  | 0.00           | 0.02           | 0.02         | CO 1 |
| Min M <sub>T</sub> | 10.24 | 0.00     | -0.38              |                    |             |                |                | ▷                  | -0.21          | 0.26           | 0.00         | CO 2 |
| Max M <sub>y</sub> | 10.24 | 0.00     | -0.38              |                    |             |                |                | ▷                  | -0.21          | 0.26           | 0.00         | CO 2 |
| Min M <sub>y</sub> | -1.24 | 0.03     | -0.02              |                    |             |                |                | ▷                  | 0.00           | 0.02           | 0.02         | CO 1 |
| Max M <sub>z</sub> | -1.24 | 0.03     | -0.02              |                    |             |                |                | ▷                  | 0.00           | 0.02           | 0.02         | CO 1 |
| Min M <sub>z</sub> | 10.24 | 0.00     | -0.38              |                    |             |                |                | ▷                  | -0.21          | 0.26           | 0.00         | CO 2 |
| Max N              | 10.47 | 0.00     | -0.38              |                    |             |                |                | ▷                  | -0.21          | -0.32          | -0.00        | CO 2 |
| Min N              | -1.01 | 0.03     | -0.02              |                    |             |                |                | ▷                  | 0.00           | -0.01          | -0.03        | CO 1 |
| Max V <sub>y</sub> | -1.01 | 0.03     | -0.02              |                    |             |                |                | ▷                  | 0.00           | -0.01          | -0.03        | CO 1 |
| Min V <sub>y</sub> | 10.47 | 0.00     | -0.38              |                    |             |                |                | ▷                  | -0.21          | -0.32          | -0.00        | CO 2 |
| Max V <sub>z</sub> | -1.01 | 0.03     | -0.02              |                    |             |                |                | ▷                  | 0.00           | -0.01          | -0.03        | CO 1 |
| Min V <sub>z</sub> | 10.47 | 0.00     | -0.38              |                    |             |                |                | ▷                  | -0.21          | -0.32          | -0.00        | CO 2 |
| Max M <sub>T</sub> | -1.01 | 0.03     | -0.02              |                    |             |                |                | ▷                  | 0.00           | -0.01          | -0.03        | CO 1 |
| Min M <sub>T</sub> | 10.47 | 0.00     | -0.38              |                    |             |                |                | ▷                  | -0.21          | -0.32          | -0.00        | CO 2 |
| Max M <sub>y</sub> | -1.01 | 0.03     | -0.02              |                    |             |                |                | ▷                  | 0.00           | -0.01          | -0.03        | CO 1 |
| Min M <sub>y</sub> | 10.47 | 0.00     | -0.38              |                    |             |                |                | ▷                  | -0.21          | -0.32          | -0.00        | CO 2 |
| Max M <sub>z</sub> | 10.47 | 0.00     | -0.38              |                    |             |                |                | ▷                  | -0.21          | -0.32          | -0.00        | CO 2 |
| RC2                | 13    | 0.000    | Min M <sub>z</sub> |                    | -1.01       | 0.03           | -0.02          | ▷                  | 0.00           | -0.01          | -0.03        | CO 1 |
|                    |       |          | Max N              |                    | 6.73        | 0.01           | -0.26          | ▷                  | -0.14          | 0.17           | 0.00         | CO 4 |
|                    |       |          | Min N              |                    | -0.92       | 0.02           | -0.02          | ▷                  | 0.00           | 0.02           | 0.01         | CO 3 |
|                    |       |          | Max V <sub>y</sub> |                    | -0.92       | 0.02           | -0.02          | ▷                  | 0.00           | 0.02           | 0.01         | CO 3 |
|                    |       |          | Min V <sub>y</sub> |                    | 6.73        | 0.01           | -0.26          | ▷                  | -0.14          | 0.17           | 0.00         | CO 4 |
|                    |       |          | Max V <sub>z</sub> |                    | -0.92       | 0.02           | -0.02          | ▷                  | 0.00           | 0.02           | 0.01         | CO 3 |
|                    |       |          | Min V <sub>z</sub> |                    | 6.73        | 0.01           | -0.26          | ▷                  | -0.14          | 0.17           | 0.00         | CO 4 |
|                    |       |          | Max M <sub>T</sub> |                    | -0.92       | 0.02           | -0.02          | ▷                  | 0.00           | 0.02           | 0.01         | CO 3 |
|                    |       |          | Min M <sub>T</sub> |                    | 6.73        | 0.01           | -0.26          | ▷                  | -0.14          | 0.17           | 0.00         | CO 4 |
|                    |       |          | Max M <sub>y</sub> |                    | 6.73        | 0.01           | -0.26          | ▷                  | -0.14          | 0.17           | 0.00         | CO 4 |
|                    |       |          | Min M <sub>y</sub> |                    | -0.92       | 0.02           | -0.02          | ▷                  | 0.00           | 0.02           | 0.01         | CO 3 |
|                    |       |          | Max M <sub>z</sub> |                    | -0.92       | 0.02           | -0.02          | ▷                  | 0.00           | 0.02           | 0.01         | CO 3 |
|                    |       |          | Min M <sub>z</sub> |                    | 6.73        | 0.01           | -0.26          | ▷                  | -0.14          | 0.17           | 0.00         | CO 4 |
|                    |       |          | Max N              |                    | 6.91        | 0.01           | -0.26          | ▷                  | -0.14          | -0.21          | -0.00        | CO 4 |
|                    |       |          | Min N              |                    | -0.75       | 0.02           | -0.02          | ▷                  | 0.00           | -0.01          | -0.02        | CO 3 |
|                    |       |          | Max V <sub>y</sub> |                    | -0.75       | 0.02           | -0.02          | ▷                  | 0.00           | -0.01          | -0.02        | CO 3 |
|                    |       |          | Min V <sub>y</sub> |                    | 6.91        | 0.01           | -0.26          | ▷                  | -0.14          | -0.21          | -0.00        | CO 4 |
|                    |       |          | Max V <sub>z</sub> |                    | -0.75       | 0.02           | -0.02          | ▷                  | 0.00           | -0.01          | -0.02        | CO 3 |
|                    |       |          | Min V <sub>z</sub> |                    | 6.91        | 0.01           | -0.26          | ▷                  | -0.14          | -0.21          | -0.00        | CO 4 |
|                    |       |          | Max M <sub>T</sub> |                    | -0.75       | 0.02           | -0.02          | ▷                  | 0.00           | -0.01          | -0.02        | CO 3 |
|                    |       |          | Min M <sub>T</sub> |                    | 6.91        | 0.01           | -0.26          | ▷                  | -0.14          | -0.21          | -0.00        | CO 4 |
|                    |       |          | Max M <sub>y</sub> |                    | -0.75       | 0.02           | -0.02          | ▷                  | 0.00           | -0.01          | -0.02        | CO 3 |
|                    |       |          | Min M <sub>y</sub> |                    | 6.91        | 0.01           | -0.26          | ▷                  | -0.14          | -0.21          | -0.00        | CO 4 |
|                    |       |          | Max M <sub>z</sub> |                    | 6.91        | 0.01           | -0.26          | ▷                  | -0.14          | -0.21          | -0.00        | CO 4 |
| RC3                | 13    | 0.000    | Min M <sub>z</sub> |                    | -0.75       | 0.02           | -0.02          | ▷                  | 0.00           | -0.01          | -0.02        | CO 3 |
|                    |       |          | Max N              |                    | 2.91        | 0.02           | -0.14          | ▷                  | -0.07          | 0.09           | 0.01         | CO 6 |
|                    |       |          | Min N              |                    | -0.92       | 0.02           | -0.02          | ▷                  | 0.00           | 0.02           | 0.01         | CO 5 |
|                    |       |          | Max V <sub>y</sub> |                    | -0.92       | 0.02           | -0.02          | ▷                  | 0.00           | 0.02           | 0.01         | CO 5 |
|                    |       |          | Min V <sub>y</sub> |                    | 2.91        | 0.02           | -0.14          | ▷                  | -0.07          | 0.09           | 0.01         | CO 6 |
|                    |       |          | Max V <sub>z</sub> |                    | -0.92       | 0.02           | -0.02          | ▷                  | 0.00           | 0.02           | 0.01         | CO 5 |
|                    |       |          | Min V <sub>z</sub> |                    | 2.91        | 0.02           | -0.14          | ▷                  | -0.07          | 0.09           | 0.01         | CO 6 |
|                    |       |          | Max M <sub>T</sub> |                    | -0.92       | 0.02           | -0.02          | ▷                  | 0.00           | 0.02           | 0.01         | CO 5 |
|                    |       |          | Min M <sub>T</sub> |                    | 2.91        | 0.02           | -0.14          | ▷                  | -0.07          | 0.09           | 0.01         | CO 6 |
|                    |       |          | Max M <sub>y</sub> |                    | 2.91        | 0.02           | -0.14          | ▷                  | -0.07          | 0.09           | 0.01         | CO 6 |
|                    |       |          | Min M <sub>y</sub> |                    | -0.92       | 0.02           | -0.02          | ▷                  | 0.00           | 0.02           | 0.01         | CO 5 |
|                    |       |          | Max M <sub>z</sub> |                    | -0.92       | 0.02           | -0.02          | ▷                  | 0.00           | 0.02           | 0.01         | CO 5 |
|                    |       |          | Min M <sub>z</sub> |                    | 2.91        | 0.02           | -0.14          | ▷                  | -0.07          | 0.09           | 0.01         | CO 6 |
|                    |       |          | Max N              |                    | 3.08        | 0.02           | -0.14          | ▷                  | -0.07          | -0.11          | -0.01        | CO 6 |
|                    |       |          | Min N              |                    | -0.75       | 0.02           | -0.02          | ▷                  | 0.00           | -0.01          | -0.02        | CO 5 |
|                    |       |          | Max V <sub>y</sub> |                    | -0.75       | 0.02           | -0.02          | ▷                  | 0.00           | -0.01          | -0.02        | CO 5 |
|                    |       |          | Min V <sub>y</sub> |                    | 3.08        | 0.02           | -0.14          | ▷                  | -0.07          | -0.11          | -0.01        | CO 6 |
|                    |       |          | Max V <sub>z</sub> |                    | -0.75       | 0.02           | -0.02          | ▷                  | 0.00           | -0.01          | -0.02        | CO 5 |
|                    |       |          | Min V <sub>z</sub> |                    | 3.08        | 0.02           | -0.14          | ▷                  | -0.07          | -0.11          | -0.01        | CO 6 |
|                    |       |          | Max M <sub>T</sub> |                    | -0.75       | 0.02           | -0.02          | ▷                  | 0.00           | -0.01          | -0.02        | CO 5 |
|                    |       |          | Min M <sub>T</sub> |                    | 3.08        | 0.02           | -0.14          | ▷                  | -0.07          | -0.11          | -0.01        | CO 6 |
|                    |       |          | Max M <sub>y</sub> |                    | -0.75       | 0.02           | -0.02          | ▷                  | 0.00           | -0.01          | -0.02        | CO 5 |
| Min M <sub>y</sub> | 3.08  | 0.02     | -0.14              | ▷                  | -0.07       | -0.11          | -0.01          | CO 6               |                |                |              |      |

# RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.                                   | RC   | Node No. | Location x [m]                               | Forces [kN]        |                |                |                |                | Moments [kNm]  |       |      | Correspondin Load Cases |  |  |
|--|--|----------|--|--------------------|----------------|----------------|----------------|----------------|----------------|-------|------|-------------------------|--|--|
|  |  |          |  | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |      |                         |  |  |
| 19   | RC3  | 13       | 0.000  | Max M <sub>z</sub> | 3.08           | 0.02           | -0.14          | -0.07          | -0.11          | -0.01 | CO 6 |                         |  |  |
|  | Min M <sub>z</sub>                           |          |  | -0.75              | 0.02           | -0.02          | 0.00           | -0.01          | -0.02          | CO 5  |      |                         |  |  |
|  | Max N  |          |  | 1.37               | 0.02           | -0.09          | -0.04          | 0.06           | 0.01           | CO 8  |      |                         |  |  |
|  | Min N  |          |  | -0.92              | 0.02           | -0.02          | 0.00           | 0.02           | 0.01           | CO 7  |      |                         |  |  |
|  | Max V <sub>y</sub>                           |          |  | -0.92              | 0.02           | -0.02          | 0.00           | 0.02           | 0.01           | CO 7  |      |                         |  |  |
|  | Min V <sub>y</sub>                           |          |  | 1.37               | 0.02           | -0.09          | -0.04          | 0.06           | 0.01           | CO 8  |      |                         |  |  |
|  | Max V <sub>z</sub>                           |          |  | -0.92              | 0.02           | -0.02          | 0.00           | 0.02           | 0.01           | CO 7  |      |                         |  |  |
|  | Min V <sub>z</sub>                           |          |  | 1.37               | 0.02           | -0.09          | -0.04          | 0.06           | 0.01           | CO 8  |      |                         |  |  |
|  | Max M <sub>T</sub>                           |          |  | -0.92              | 0.02           | -0.02          | 0.00           | 0.02           | 0.01           | CO 7  |      |                         |  |  |
|  | Min M <sub>T</sub>                           |          |  | 1.37               | 0.02           | -0.09          | -0.04          | 0.06           | 0.01           | CO 8  |      |                         |  |  |
|  | Max M <sub>y</sub>                           |          |  | 1.37               | 0.02           | -0.09          | -0.04          | 0.06           | 0.01           | CO 8  |      |                         |  |  |
|  | Min M <sub>y</sub>                           |          |  | -0.92              | 0.02           | -0.02          | 0.00           | 0.02           | 0.01           | CO 7  |      |                         |  |  |
|  | Max M <sub>z</sub>                           |          |  | -0.92              | 0.02           | -0.02          | 0.00           | 0.02           | 0.01           | CO 7  |      |                         |  |  |
|  | Min M <sub>z</sub>                           |          |  | 1.37               | 0.02           | -0.09          | -0.04          | 0.06           | 0.01           | CO 8  |      |                         |  |  |
|  | Max N  |          |  | 1.55               | 0.02           | -0.09          | -0.04          | -0.07          | -0.02          | CO 8  |      |                         |  |  |
|  | Min N  |          |  | -0.75              | 0.02           | -0.02          | 0.00           | -0.01          | -0.02          | CO 7  |      |                         |  |  |
|  | Max V <sub>y</sub>                           |          |  | -0.75              | 0.02           | -0.02          | 0.00           | -0.01          | -0.02          | CO 7  |      |                         |  |  |
|  | Min V <sub>y</sub>                           |          |  | 1.55               | 0.02           | -0.09          | -0.04          | -0.07          | -0.02          | CO 8  |      |                         |  |  |
|  | Max V <sub>z</sub>                           |          |  | -0.75              | 0.02           | -0.02          | 0.00           | -0.01          | -0.02          | CO 7  |      |                         |  |  |
|  | Min V <sub>z</sub>                           |          |  | 1.55               | 0.02           | -0.09          | -0.04          | -0.07          | -0.02          | CO 8  |      |                         |  |  |
|  | Max M <sub>T</sub>                           |          |  | -0.75              | 0.02           | -0.02          | 0.00           | -0.01          | -0.02          | CO 7  |      |                         |  |  |
|  | Min M <sub>T</sub>                           |          |  | 1.55               | 0.02           | -0.09          | -0.04          | -0.07          | -0.02          | CO 8  |      |                         |  |  |
|  | Max M <sub>y</sub>                           |          |  | -0.75              | 0.02           | -0.02          | 0.00           | -0.01          | -0.02          | CO 7  |      |                         |  |  |
|  | Min M <sub>y</sub>                           |          |  | 1.55               | 0.02           | -0.09          | -0.04          | -0.07          | -0.02          | CO 8  |      |                         |  |  |
|  | Max M <sub>z</sub>                           | 1.55     | 0.02   | -0.09              | -0.04          | -0.07          | -0.02          | CO 8           |                |       |      |                         |  |  |
|  | Min M <sub>z</sub>                           | -0.75    | 0.02   | -0.02              | 0.00           | -0.01          | -0.02          | CO 7           |                |       |      |                         |  |  |
|  | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |  |                    |                |                |                |                |                |       |      |                         |  |  |
|  | RC5  | 13       | 0.000  | Max N              | 1.47           | -0.01          | -0.03          | -0.03          | 0.02           | -0.01 |      |                         |  |  |
|  |  |          |  | Min N              | -1.47          | 0.01           | 0.03           | 0.03           | -0.02          | 0.01  |      |                         |  |  |
|  |  |          |  | Max V <sub>y</sub> | -1.19          | 0.02           | 0.01           | 0.02           | -0.01          | 0.02  |      |                         |  |  |
|  |  |          |  | Min V <sub>y</sub> | 1.19           | -0.02          | -0.01          | -0.02          | 0.01           | -0.02 |      |                         |  |  |
|  |  |          |  | Max V <sub>z</sub> | -1.17          | 0.01           | 0.04           | 0.03           | -0.03          | 0.01  |      |                         |  |  |
|  |  |          |  | Min V <sub>z</sub> | 1.17           | -0.01          | -0.04          | -0.03          | 0.03           | -0.01 |      |                         |  |  |
|  |  |          |  | Max M <sub>T</sub> | -1.28          | 0.01           | 0.03           | 0.03           | -0.02          | 0.01  |      |                         |  |  |
|  |  |          |  | Min M <sub>T</sub> | 1.28           | -0.01          | -0.03          | -0.03          | 0.02           | -0.01 |      |                         |  |  |
|  |  |          |  | Max M <sub>y</sub> | 1.04           | -0.01          | -0.04          | -0.02          | 0.03           | -0.00 |      |                         |  |  |
|  |  |          |  | Min M <sub>y</sub> | -1.04          | 0.01           | 0.04           | 0.02           | -0.03          | 0.00  |      |                         |  |  |
|  |  |          |  | Max M <sub>z</sub> | -1.09          | 0.02           | 0.01           | 0.02           | -0.00          | 0.02  |      |                         |  |  |
|  |  |          |  | Min M <sub>z</sub> | 1.09           | -0.02          | -0.01          | -0.02          | 0.00           | -0.02 |      |                         |  |  |
|  |  |          |  | Max N              | 1.47           | -0.01          | -0.03          | -0.03          | -0.03          | 0.01  |      |                         |  |  |
|  |  |          |  | Min N              | -1.47          | 0.01           | 0.03           | 0.03           | 0.03           | -0.01 |      |                         |  |  |
|  |  |          |  | Max V <sub>y</sub> | -1.19          | 0.02           | 0.01           | 0.02           | 0.01           | -0.01 |      |                         |  |  |
|  |  |          |  | Min V <sub>y</sub> | 1.19           | -0.02          | -0.01          | -0.02          | -0.01          | 0.01  |      |                         |  |  |
|  |  |          |  | Max V <sub>z</sub> | -1.17          | 0.01           | 0.04           | 0.03           | 0.03           | -0.01 |      |                         |  |  |
|  |  |          |  | Min V <sub>z</sub> | 1.17           | -0.01          | -0.04          | -0.03          | -0.03          | 0.01  |      |                         |  |  |
|  |  |          |  | Max M <sub>T</sub> | -1.28          | 0.01           | 0.03           | 0.03           | 0.03           | -0.01 |      |                         |  |  |
|  |  |          |  | Min M <sub>T</sub> | 1.28           | -0.01          | -0.03          | -0.03          | -0.03          | 0.01  |      |                         |  |  |
|  |  |          |  | Max M <sub>y</sub> | -1.27          | 0.01           | 0.04           | 0.03           | 0.03           | -0.01 |      |                         |  |  |
|  |  |          |  | Min M <sub>y</sub> | 1.27           | -0.01          | -0.04          | -0.03          | -0.03          | 0.01  |      |                         |  |  |
|  |  |          |  | Max M <sub>z</sub> | 1.30           | -0.02          | -0.02          | -0.02          | -0.02          | 0.01  |      |                         |  |  |
|  |  |          |  | Min M <sub>z</sub> | -1.30          | 0.02           | 0.02           | 0.02           | 0.02           | -0.01 |      |                         |  |  |
|  | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |  |                    |                |                |                |                |                |       |      |                         |  |  |
|  | RC6  | 13       | 0.000  | Max N              | 1.41           | -0.02          | -0.02          | -0.02          | 0.01           | -0.01 |      |                         |  |  |
|  |  |          |  | Min N              | -1.41          | 0.02           | 0.02           | 0.02           | -0.01          | 0.01  |      |                         |  |  |
|  |  |          |  | Max V <sub>y</sub> | -1.21          | 0.02           | 0.01           | 0.02           | -0.01          | 0.02  |      |                         |  |  |
|  |  |          |  | Min V <sub>y</sub> | 1.21           | -0.02          | -0.01          | -0.02          | 0.01           | -0.02 |      |                         |  |  |
|  |  |          |  | Max V <sub>z</sub> | -1.10          | 0.01           | 0.03           | 0.02           | -0.02          | 0.01  |      |                         |  |  |
|  |  |          |  | Min V <sub>z</sub> | 1.10           | -0.01          | -0.03          | -0.02          | 0.02           | -0.01 |      |                         |  |  |
|  |  |          |  | Max M <sub>T</sub> | -0.92          | 0.01           | 0.03           | 0.02           | -0.02          | 0.01  |      |                         |  |  |
|  |  |          |  | Min M <sub>T</sub> | 0.92           | -0.01          | -0.03          | -0.02          | 0.02           | -0.01 |      |                         |  |  |
|  |  |          |  | Max M <sub>y</sub> | 0.98           | -0.01          | -0.03          | -0.02          | 0.02           | -0.01 |      |                         |  |  |
|  |  |          |  | Min M <sub>y</sub> | -0.98          | 0.01           | 0.03           | 0.02           | -0.02          | 0.01  |      |                         |  |  |
|  |  |          |  | Max M <sub>z</sub> | -1.13          | 0.02           | 0.01           | 0.01           | -0.00          | 0.02  |      |                         |  |  |
|  |  |          |  | Min M <sub>z</sub> | 1.13           | -0.02          | -0.01          | -0.01          | 0.00           | -0.02 |      |                         |  |  |
|  |  |          |  | Max N              | 1.41           | -0.02          | -0.02          | -0.02          | -0.02          | 0.01  |      |                         |  |  |
|  |  |          |  | Min N              | -1.41          | 0.02           | 0.02           | 0.02           | 0.02           | -0.01 |      |                         |  |  |
|  |  |          |  | Max V <sub>y</sub> | -1.21          | 0.02           | 0.01           | 0.02           | 0.01           | -0.01 |      |                         |  |  |
|  |  |          |  | Min V <sub>y</sub> | 1.21           | -0.02          | -0.01          | -0.02          | -0.01          | 0.01  |      |                         |  |  |
|  |  |          |  | Max V <sub>z</sub> | -1.10          | 0.01           | 0.03           | 0.02           | 0.02           | -0.01 |      |                         |  |  |
|  |  |          |  | Min V <sub>z</sub> | 1.10           | -0.01          | -0.03          | -0.02          | -0.02          | 0.01  |      |                         |  |  |
|  |  |          |  | Max M <sub>T</sub> | -0.92          | 0.01           | 0.03           | 0.02           | 0.02           | -0.01 |      |                         |  |  |
|  |  |          |  | Min M <sub>T</sub> | 0.92           | -0.01          | -0.03          | -0.02          | -0.02          | 0.01  |      |                         |  |  |
|  |  |          |  | Max M <sub>y</sub> | -1.19          | 0.01           | 0.03           | 0.02           | 0.03           | -0.01 |      |                         |  |  |
| Min M <sub>y</sub>                           |  |          |  | 1.19               | -0.01          | -0.03          | -0.02          | -0.03          | 0.01           |       |      |                         |  |  |
| Max M <sub>z</sub>                           |  |          |  | 1.30               | -0.02          | -0.02          | -0.02          | -0.02          | 0.01           |       |      |                         |  |  |
| Min M <sub>z</sub>                           |  |          |  | -1.30              | 0.02           | 0.02           | 0.02           | 0.02           | -0.01          |       |      |                         |  |  |
| DLC1, Result Envelope X 30% / Y 30% / Z 100% |  |          |  |                    |                |                |                |                |                |       |      |                         |  |  |
| RC7  | 13   | 0.000    | Max N  | 3.12               | -0.03          | -0.06          | -0.06          | 0.04           | -0.02          |       |      |                         |  |  |
|  |  |          | Min N  | -3.12              | 0.03           | 0.06           | 0.06           | -0.04          | 0.02           |       |      |                         |  |  |
|  |  |          | Max V <sub>y</sub>                           | -2.67              | 0.04           | 0.03           | 0.05           | -0.01          | 0.03           |       |      |                         |  |  |
|  |  |          | Min V <sub>y</sub>                           | 2.67               | -0.04          | -0.03          | -0.05          | 0.01           | -0.03          |       |      |                         |  |  |
|  |  |          | Max V <sub>z</sub>                           | -2.45              | 0.01           | 0.08           | 0.06           | -0.05          | 0.01           |       |      |                         |  |  |
|  |  |          | Min V <sub>z</sub>                           | 2.45               | -0.01          | -0.08          | -0.06          | 0.05           | -0.01          |       |      |                         |  |  |
|  |  |          | Max M <sub>T</sub>                           | -2.92              | 0.03           | 0.07           | 0.06           | -0.04          | 0.02           |       |      |                         |  |  |
|  |  |          | Min M <sub>T</sub>                           | 2.92               | -0.03          | -0.07          | -0.06          | 0.04           | -0.02          |       |      |                         |  |  |
|  |  |          | Max M <sub>y</sub>                           | 2.10               | -0.01          | -0.08          | -0.05          | 0.05           | -0.01          |       |      |                         |  |  |
|  |  |          | Min M <sub>y</sub>                           | -2.10              | 0.01           | 0.08           | 0.05           | -0.05          | 0.01           |       |      |                         |  |  |
|  |  |          | DLC1, Result Envelope X 30% / Y 30% / Z 100% |                    |                |                |                |                |                |       |      |                         |  |  |

# RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC    | Node No. | Location x [m]     |                    | Forces [kN] |                |                    | Moments [kNm]  |                |                | Correspondin Load Cases |       |       |      |
|--------------------|-------|----------|--------------------|--------------------|-------------|----------------|--------------------|----------------|----------------|----------------|-------------------------|-------|-------|------|
|                    |       |          |                    |                    | N           | V <sub>y</sub> | V <sub>z</sub>     | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |       |       |      |
| 19                 | RC7   | 17       | 1.500              | Max M <sub>z</sub> | -2.49       | 0.04           | 0.02               | 0.04           | -0.01          | 0.03           |                         |       |       |      |
|                    |       |          |                    | Min M <sub>z</sub> | 2.49        | -0.04          | -0.02              | -0.04          | 0.01           | -0.03          |                         |       |       |      |
|                    |       |          |                    | Max N              | 3.12        | -0.03          | -0.06              | -0.06          | -0.06          | 0.02           |                         |       |       |      |
|                    |       |          |                    | Min N              | -3.12       | 0.03           | 0.06               | 0.06           | 0.06           | -0.02          |                         |       |       |      |
|                    |       |          |                    | Max V <sub>y</sub> | -2.67       | 0.04           | 0.03               | 0.05           | 0.03           | -0.02          |                         |       |       |      |
|                    |       |          |                    | Min V <sub>y</sub> | 2.67        | -0.04          | -0.03              | -0.05          | -0.03          | 0.02           |                         |       |       |      |
|                    |       |          |                    | Max V <sub>z</sub> | -2.45       | 0.01           | 0.08               | 0.06           | 0.07           | -0.01          |                         |       |       |      |
|                    |       |          |                    | Min V <sub>z</sub> | 2.45        | -0.01          | -0.08              | -0.06          | -0.07          | 0.01           |                         |       |       |      |
|                    |       |          |                    | Max M <sub>T</sub> | -2.92       | 0.03           | 0.07               | 0.06           | 0.06           | -0.02          |                         |       |       |      |
|                    |       |          |                    | Min M <sub>T</sub> | 2.92        | -0.03          | -0.07              | -0.06          | -0.06          | 0.02           |                         |       |       |      |
|                    |       |          |                    | Max M <sub>y</sub> | -2.69       | 0.02           | 0.08               | 0.06           | 0.07           | -0.01          |                         |       |       |      |
|                    |       |          |                    | Min M <sub>y</sub> | 2.69        | -0.02          | -0.08              | -0.06          | -0.07          | 0.01           |                         |       |       |      |
|                    |       |          |                    | Max M <sub>z</sub> | 2.85        | -0.03          | -0.04              | -0.05          | -0.04          | 0.02           |                         |       |       |      |
|                    |       |          |                    | Min M <sub>z</sub> | -2.85       | 0.03           | 0.04               | 0.05           | 0.04           | -0.02          |                         |       |       |      |
|                    |       |          |                    | 20                 | RC1         | 17             | 0.000              | Max N          | 8.96           | 0.01           | -0.10                   | -0.11 | 0.15  | 0.01 |
| Min N              | -0.56 | 0.04     | -0.04              |                    |             |                |                    | 0.00           | 0.02           | 0.03           | CO 1                    |       |       |      |
| Max V <sub>y</sub> | -0.56 | 0.04     | -0.04              |                    |             |                |                    | 0.00           | 0.02           | 0.03           | CO 1                    |       |       |      |
| Min V <sub>y</sub> | 8.96  | 0.01     | -0.10              |                    |             |                |                    | -0.11          | 0.15           | 0.01           | CO 2                    |       |       |      |
| Max V <sub>z</sub> | -0.56 | 0.04     | -0.04              |                    |             |                |                    | 0.00           | 0.02           | 0.03           | CO 1                    |       |       |      |
| Min V <sub>z</sub> | 8.96  | 0.01     | -0.10              |                    |             |                |                    | -0.11          | 0.15           | 0.01           | CO 2                    |       |       |      |
| Max M <sub>T</sub> | -0.56 | 0.04     | -0.04              |                    |             |                |                    | 0.00           | 0.02           | 0.03           | CO 1                    |       |       |      |
| Min M <sub>T</sub> | 8.96  | 0.01     | -0.10              |                    |             |                |                    | -0.11          | 0.15           | 0.01           | CO 2                    |       |       |      |
| Max M <sub>y</sub> | 8.96  | 0.01     | -0.10              |                    |             |                |                    | -0.11          | 0.15           | 0.01           | CO 2                    |       |       |      |
| Min M <sub>y</sub> | -0.56 | 0.04     | -0.04              |                    |             |                |                    | 0.00           | 0.02           | 0.03           | CO 1                    |       |       |      |
| Max M <sub>z</sub> | -0.56 | 0.04     | -0.04              |                    |             |                |                    | 0.00           | 0.02           | 0.03           | CO 1                    |       |       |      |
| Min M <sub>z</sub> | 8.96  | 0.01     | -0.10              |                    |             |                |                    | -0.11          | 0.15           | 0.01           | CO 2                    |       |       |      |
| Max N              | 9.18  | 0.01     | -0.10              |                    |             |                |                    | -0.11          | 0.01           | -0.01          | CO 2                    |       |       |      |
| Min N              | -0.34 | 0.04     | -0.04              |                    |             |                |                    | 0.00           | -0.03          | -0.03          | CO 1                    |       |       |      |
| Max V <sub>y</sub> | -0.34 | 0.04     | -0.04              |                    |             |                |                    | 0.00           | -0.03          | -0.03          | CO 1                    |       |       |      |
| Min V <sub>y</sub> | 9.18  | 0.01     | -0.10              |                    |             |                |                    | -0.11          | 0.01           | -0.01          | CO 2                    |       |       |      |
| Max V <sub>z</sub> | -0.34 | 0.04     | -0.04              |                    |             |                |                    | 0.00           | -0.03          | -0.03          | CO 1                    |       |       |      |
| Min V <sub>z</sub> | 9.18  | 0.01     | -0.10              |                    |             |                |                    | -0.11          | 0.01           | -0.01          | CO 2                    |       |       |      |
| Max M <sub>T</sub> | -0.34 | 0.04     | -0.04              |                    |             |                |                    | 0.00           | -0.03          | -0.03          | CO 1                    |       |       |      |
| Min M <sub>T</sub> | 9.18  | 0.01     | -0.10              |                    |             |                |                    | -0.11          | 0.01           | -0.01          | CO 2                    |       |       |      |
| Max M <sub>y</sub> | 9.18  | 0.01     | -0.10              |                    |             |                |                    | -0.11          | 0.01           | -0.01          | CO 2                    |       |       |      |
| Min M <sub>y</sub> | -0.34 | 0.04     | -0.04              |                    |             |                |                    | 0.00           | -0.03          | -0.03          | CO 1                    |       |       |      |
| Max M <sub>z</sub> | 9.18  | 0.01     | -0.10              |                    |             |                |                    | -0.11          | 0.01           | -0.01          | CO 2                    |       |       |      |
| Min M <sub>z</sub> | -0.34 | 0.04     | -0.04              |                    |             |                |                    | 0.00           | -0.03          | -0.03          | CO 1                    |       |       |      |
| RC2                | 17    | 0.000    | Max N              |                    |             |                |                    | 5.93           | 0.01           | -0.07          | -0.07                   | 0.10  | 0.01  | CO 4 |
|                    |       |          | Min N              |                    |             |                |                    | -0.42          | 0.03           | -0.03          | 0.00                    | 0.01  | 0.02  | CO 3 |
|                    |       |          | Max V <sub>y</sub> |                    |             |                |                    | -0.42          | 0.03           | -0.03          | 0.00                    | 0.01  | 0.02  | CO 3 |
|                    |       |          | Min V <sub>y</sub> |                    |             |                |                    | 5.93           | 0.01           | -0.07          | -0.07                   | 0.10  | 0.01  | CO 4 |
|                    |       |          | Max V <sub>z</sub> |                    |             |                |                    | -0.42          | 0.03           | -0.03          | 0.00                    | 0.01  | 0.02  | CO 3 |
|                    |       |          | Min V <sub>z</sub> |                    |             |                |                    | 5.93           | 0.01           | -0.07          | -0.07                   | 0.10  | 0.01  | CO 4 |
|                    |       |          | Max M <sub>T</sub> |                    |             |                |                    | -0.42          | 0.03           | -0.03          | 0.00                    | 0.01  | 0.02  | CO 3 |
|                    |       |          | Min M <sub>T</sub> |                    |             |                |                    | 5.93           | 0.01           | -0.07          | -0.07                   | 0.10  | 0.01  | CO 4 |
|                    |       |          | Max M <sub>y</sub> |                    |             |                |                    | 5.93           | 0.01           | -0.07          | -0.07                   | 0.10  | 0.01  | CO 4 |
|                    |       |          | Min M <sub>y</sub> |                    |             |                |                    | -0.42          | 0.03           | -0.03          | 0.00                    | 0.01  | 0.02  | CO 3 |
|                    |       |          | Max M <sub>z</sub> |                    |             |                |                    | -0.42          | 0.03           | -0.03          | 0.00                    | 0.01  | 0.02  | CO 3 |
|                    |       |          | Min M <sub>z</sub> |                    |             |                |                    | 5.93           | 0.01           | -0.07          | -0.07                   | 0.10  | 0.01  | CO 4 |
|                    |       |          | Max N              |                    |             |                |                    | 6.09           | 0.01           | -0.07          | -0.07                   | 0.00  | -0.01 | CO 4 |
|                    |       |          | Min N              |                    |             |                |                    | -0.25          | 0.03           | -0.03          | 0.00                    | -0.02 | -0.02 | CO 3 |
|                    |       |          | Max V <sub>y</sub> |                    |             |                |                    | -0.25          | 0.03           | -0.03          | 0.00                    | -0.02 | -0.02 | CO 3 |
|                    |       |          | Min V <sub>y</sub> |                    |             |                |                    | 6.09           | 0.01           | -0.07          | -0.07                   | 0.00  | -0.01 | CO 4 |
|                    |       |          | Max V <sub>z</sub> |                    |             |                |                    | -0.25          | 0.03           | -0.03          | 0.00                    | -0.02 | -0.02 | CO 3 |
|                    |       |          | Min V <sub>z</sub> |                    |             |                |                    | 6.09           | 0.01           | -0.07          | -0.07                   | 0.00  | -0.01 | CO 4 |
|                    |       |          | Max M <sub>T</sub> |                    |             |                |                    | -0.25          | 0.03           | -0.03          | 0.00                    | -0.02 | -0.02 | CO 3 |
|                    |       |          | Min M <sub>T</sub> |                    |             |                |                    | 6.09           | 0.01           | -0.07          | -0.07                   | 0.00  | -0.01 | CO 4 |
|                    |       |          | Max M <sub>y</sub> |                    |             |                |                    | 6.09           | 0.01           | -0.07          | -0.07                   | 0.00  | -0.01 | CO 4 |
|                    |       |          | Min M <sub>y</sub> |                    |             |                |                    | -0.25          | 0.03           | -0.03          | 0.00                    | -0.02 | -0.02 | CO 3 |
|                    |       |          | Max M <sub>z</sub> |                    |             |                |                    | 6.09           | 0.01           | -0.07          | -0.07                   | 0.00  | -0.01 | CO 4 |
|                    |       |          | Min M <sub>z</sub> |                    | -0.25       | 0.03           | -0.03              | 0.00           | -0.02          | -0.02          | CO 3                    |       |       |      |
|                    |       |          | RC3                |                    | 17          | 0.000          | Max N              | 2.75           | 0.02           | -0.05          | -0.04                   | 0.06  | 0.02  | CO 6 |
|                    |       |          |                    |                    |             |                | Min N              | -0.42          | 0.03           | -0.03          | 0.00                    | 0.01  | 0.02  | CO 5 |
|                    |       |          |                    |                    |             |                | Max V <sub>y</sub> | -0.42          | 0.03           | -0.03          | 0.00                    | 0.01  | 0.02  | CO 5 |
|                    |       |          |                    |                    |             |                | Min V <sub>y</sub> | 2.75           | 0.02           | -0.05          | -0.04                   | 0.06  | 0.02  | CO 6 |
|                    |       |          |                    |                    |             |                | Max V <sub>z</sub> | -0.42          | 0.03           | -0.03          | 0.00                    | 0.01  | 0.02  | CO 5 |
|                    |       |          |                    |                    |             |                | Min V <sub>z</sub> | 2.75           | 0.02           | -0.05          | -0.04                   | 0.06  | 0.02  | CO 6 |
|                    |       |          |                    |                    |             |                | Max M <sub>T</sub> | -0.42          | 0.03           | -0.03          | 0.00                    | 0.01  | 0.02  | CO 5 |
|                    |       |          |                    |                    |             |                | Min M <sub>T</sub> | 2.75           | 0.02           | -0.05          | -0.04                   | 0.06  | 0.02  | CO 6 |
|                    |       |          |                    |                    |             |                | Max M <sub>y</sub> | 2.75           | 0.02           | -0.05          | -0.04                   | 0.06  | 0.02  | CO 6 |
|                    |       |          |                    |                    |             |                | Min M <sub>y</sub> | -0.42          | 0.03           | -0.03          | 0.00                    | 0.01  | 0.02  | CO 5 |
|                    |       |          |                    |                    |             |                | Max M <sub>z</sub> | -0.42          | 0.03           | -0.03          | 0.00                    | 0.01  | 0.02  | CO 5 |
|                    |       |          |                    |                    |             |                | Min M <sub>z</sub> | 2.75           | 0.02           | -0.05          | -0.04                   | 0.06  | 0.02  | CO 6 |
|                    |       |          |                    |                    |             |                | Max N              | 2.92           | 0.02           | -0.05          | -0.04                   | -0.01 | -0.01 | CO 6 |
|                    |       |          |                    |                    |             |                | Min N              | -0.25          | 0.03           | -0.03          | 0.00                    | -0.02 | -0.02 | CO 5 |
|                    |       |          |                    |                    |             |                | Max V <sub>y</sub> | -0.25          | 0.03           | -0.03          | 0.00                    | -0.02 | -0.02 | CO 5 |
|                    |       |          |                    |                    |             |                | Min V <sub>y</sub> | 2.92           | 0.02           | -0.05          | -0.04                   | -0.01 | -0.01 | CO 6 |
|                    |       |          |                    |                    |             |                | Max V <sub>z</sub> | -0.25          | 0.03           | -0.03          | 0.00                    | -0.02 | -0.02 | CO 5 |
|                    |       |          |                    |                    |             |                | Min V <sub>z</sub> | 2.92           | 0.02           | -0.05          | -0.04                   | -0.01 | -0.01 | CO 6 |
|                    |       |          |                    |                    |             |                | Max M <sub>T</sub> | -0.25          | 0.03           | -0.03          | 0.00                    | -0.02 | -0.02 | CO 5 |
|                    |       |          |                    |                    |             |                | Min M <sub>T</sub> | 2.92           | 0.02           | -0.05          | -0.04                   | -0.01 | -0.01 | CO 6 |
|                    |       |          |                    |                    |             |                | Max M <sub>y</sub> | 2.92           | 0.02           | -0.05          | -0.04                   | -0.01 | -0.01 | CO 6 |
|                    |       |          |                    |                    |             |                | Min M <sub>y</sub> | -0.25          | 0.03           | -0.03          | 0.00                    | -0.02 | -0.02 | CO 5 |
|                    |       |          |                    |                    |             |                | Max M <sub>z</sub> | 2.92           | 0.02           | -0.05          | -0.04                   | -0.01 | -0.01 | CO 6 |
| Min M <sub>z</sub> | -0.25 | 0.03     |                    |                    |             |                | -0.03              | 0.00           | -0.02          | -0.02          | CO 5                    |       |       |      |
| RC4                | 17    | 0.000    |                    |                    |             |                | Max N              | 1.49           | 0.02           | -0.04          | -0.02                   | 0.04  | 0.02  | CO 8 |

RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m] | Forces [kN]        |                |                |                |                | Moments [kNm]  |       |       | Correspondin Load Cases |
|------------|--|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------|-------|-------------------------|
|            |  |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |       |                         |
| 20         | RC4  | 2        | 1.400          | Min N              | -0.42          | 0.03           | -0.03          | 0.00           | 0.01           | 0.02  | CO 7  |                         |
|            |  |          |                | Max V <sub>y</sub> | -0.42          | 0.03           | -0.03          | 0.00           | 0.01           | 0.02  | CO 7  |                         |
|            |  |          |                | Min V <sub>y</sub> | 1.49           | 0.02           | -0.04          | -0.02          | 0.04           | 0.02  | CO 8  |                         |
|            |  |          |                | Max V <sub>z</sub> | -0.42          | 0.03           | -0.03          | 0.00           | 0.01           | 0.02  | CO 7  |                         |
|            |  |          |                | Min V <sub>z</sub> | 1.49           | 0.02           | -0.04          | -0.02          | 0.04           | 0.02  | CO 8  |                         |
|            |  |          |                | Max M <sub>T</sub> | -0.42          | 0.03           | -0.03          | 0.00           | 0.01           | 0.02  | CO 7  |                         |
|            |  |          |                | Min M <sub>T</sub> | 1.49           | 0.02           | -0.04          | -0.02          | 0.04           | 0.02  | CO 8  |                         |
|            |  |          |                | Max M <sub>y</sub> | 1.49           | 0.02           | -0.04          | -0.02          | 0.04           | 0.02  | CO 8  |                         |
|            |  |          |                | Min M <sub>y</sub> | -0.42          | 0.03           | -0.03          | 0.00           | 0.01           | 0.02  | CO 7  |                         |
|            |  |          |                | Max M <sub>z</sub> | -0.42          | 0.03           | -0.03          | 0.00           | 0.01           | 0.02  | CO 7  |                         |
|            |  |          |                | Min M <sub>z</sub> | 1.49           | 0.02           | -0.04          | -0.02          | 0.04           | 0.02  | CO 8  |                         |
|            |  |          |                | Max N              | 1.65           | 0.02           | -0.04          | -0.02          | -0.02          | -0.02 | CO 8  |                         |
|            |  |          |                | Min N              | -0.25          | 0.03           | -0.03          | 0.00           | -0.02          | -0.02 | CO 7  |                         |
|            |  |          |                | Max V <sub>y</sub> | -0.25          | 0.03           | -0.03          | 0.00           | -0.02          | -0.02 | CO 7  |                         |
|            |  |          |                | Min V <sub>y</sub> | 1.65           | 0.02           | -0.04          | -0.02          | -0.02          | -0.02 | CO 8  |                         |
|            |  |          |                | Max V <sub>z</sub> | -0.25          | 0.03           | -0.03          | 0.00           | -0.02          | -0.02 | CO 7  |                         |
|            |  |          |                | Min V <sub>z</sub> | 1.65           | 0.02           | -0.04          | -0.02          | -0.02          | -0.02 | CO 8  |                         |
|            |  |          |                | Max M <sub>T</sub> | -0.25          | 0.03           | -0.03          | 0.00           | -0.02          | -0.02 | CO 7  |                         |
|            |  |          |                | Min M <sub>T</sub> | 1.65           | 0.02           | -0.04          | -0.02          | -0.02          | -0.02 | CO 8  |                         |
|            |  |          |                | Max M <sub>y</sub> | 1.65           | 0.02           | -0.04          | -0.02          | -0.02          | -0.02 | CO 8  |                         |
|            |  |          |                | Min M <sub>y</sub> | -0.25          | 0.03           | -0.03          | 0.00           | -0.02          | -0.02 | CO 7  |                         |
|            |  |          |                | Max M <sub>z</sub> | 1.65           | 0.02           | -0.04          | -0.02          | -0.02          | -0.02 | CO 8  |                         |
|            |  |          |                | Min M <sub>z</sub> | -0.25          | 0.03           | -0.03          | 0.00           | -0.02          | -0.02 | CO 7  |                         |
|            | DLC1, Result Envelope X 100% / Y 30% / Z 30% | RC5      | 17             | 0.000              | Max N          | 0.66           | -0.01          | -0.02          | -0.02          | 0.03  | -0.00 |                         |
|            | Min N  |          |                |                    | -0.66          | 0.01           | 0.02           | 0.02           | -0.03          | 0.00  |       |                         |
|            | Max V <sub>y</sub>                           |          |                |                    | -0.51          | 0.01           | 0.02           | 0.01           | -0.02          | 0.01  |       |                         |
|            | Min V <sub>y</sub>                           |          |                |                    | 0.51           | -0.01          | -0.02          | -0.01          | 0.02           | -0.01 |       |                         |
|            | Max V <sub>z</sub>                           |          |                |                    | -0.64          | 0.01           | 0.02           | 0.02           | -0.03          | 0.00  |       |                         |
|            | Min V <sub>z</sub>                           |          |                |                    | 0.64           | -0.01          | -0.02          | -0.02          | 0.03           | -0.00 |       |                         |
|            | Max M <sub>T</sub>                           |          |                |                    | -0.65          | 0.01           | 0.02           | 0.02           | -0.03          | 0.00  |       |                         |
|            | Min M <sub>T</sub>                           |          |                |                    | 0.65           | -0.01          | -0.02          | -0.02          | 0.03           | -0.00 |       |                         |
|            | Max M <sub>y</sub>                           |          |                |                    | 0.65           | -0.01          | -0.02          | -0.02          | 0.03           | -0.00 |       |                         |
|            | Min M <sub>y</sub>                           |          |                |                    | -0.65          | 0.01           | 0.02           | 0.02           | -0.03          | 0.00  |       |                         |
|            | Max M <sub>z</sub>                           |          |                |                    | -0.53          | 0.01           | 0.02           | 0.01           | -0.02          | 0.01  |       |                         |
|            | Min M <sub>z</sub>                           |          |                |                    | 0.53           | -0.01          | -0.02          | -0.01          | 0.02           | -0.01 |       |                         |
|            | Max N  |          |                |                    | 0.66           | -0.01          | -0.02          | -0.02          | -0.00          | 0.01  |       |                         |
|            | Min N  |          |                |                    | -0.66          | 0.01           | 0.02           | 0.02           | 0.00           | -0.01 |       |                         |
|            | Max V <sub>y</sub>                           |          |                |                    | -0.51          | 0.01           | 0.02           | 0.01           | 0.00           | -0.01 |       |                         |
|            | Min V <sub>y</sub>                           |          |                |                    | 0.51           | -0.01          | -0.02          | -0.01          | -0.00          | 0.01  |       |                         |
|            | Max V <sub>z</sub>                           |          |                |                    | -0.64          | 0.01           | 0.02           | 0.02           | 0.00           | -0.01 |       |                         |
|            | Min V <sub>z</sub>                           |          |                |                    | 0.64           | -0.01          | -0.02          | -0.02          | -0.00          | 0.01  |       |                         |
|            | Max M <sub>T</sub>                           |          |                |                    | -0.65          | 0.01           | 0.02           | 0.02           | 0.00           | -0.01 |       |                         |
|            | Min M <sub>T</sub>                           |          |                |                    | 0.65           | -0.01          | -0.02          | -0.02          | -0.00          | 0.01  |       |                         |
|            | Max M <sub>y</sub>                           |          |                |                    | -0.57          | 0.01           | 0.02           | 0.02           | 0.00           | -0.00 |       |                         |
|            | Min M <sub>y</sub>                           |          |                |                    | 0.57           | -0.01          | -0.02          | -0.02          | -0.00          | 0.00  |       |                         |
|            | Max M <sub>z</sub>                           |          |                |                    | 0.49           | -0.01          | -0.02          | -0.01          | -0.00          | 0.01  |       |                         |
|            | Min M <sub>z</sub>                           | -0.49    | 0.01           | 0.02               | 0.02           | 0.00           | -0.01          |                |                |       |       |                         |
|            | DLC1, Result Envelope X 30% / Y 100% / Z 30% | RC6      | 17             | 0.000              | Max N          | 0.52           | -0.01          | -0.02          | -0.01          | 0.02  | -0.00 |                         |
|            | Min N  |          |                |                    | -0.52          | 0.01           | 0.02           | 0.01           | -0.02          | 0.00  |       |                         |
|            | Max V <sub>y</sub>                           |          |                |                    | -0.37          | 0.01           | 0.01           | 0.01           | -0.02          | 0.01  |       |                         |
|            | Min V <sub>y</sub>                           |          |                |                    | 0.37           | -0.01          | -0.01          | -0.01          | 0.02           | -0.01 |       |                         |
|            | Max V <sub>z</sub>                           |          |                |                    | -0.50          | 0.01           | 0.02           | 0.01           | -0.02          | 0.00  |       |                         |
|            | Min V <sub>z</sub>                           |          |                |                    | 0.50           | -0.01          | -0.02          | -0.01          | 0.02           | -0.00 |       |                         |
|            | Max M <sub>T</sub>                           |          |                |                    | -0.51          | 0.01           | 0.02           | 0.01           | -0.02          | 0.00  |       |                         |
|            | Min M <sub>T</sub>                           |          |                |                    | 0.51           | -0.01          | -0.02          | -0.01          | 0.02           | -0.00 |       |                         |
|            | Max M <sub>y</sub>                           |          |                |                    | 0.51           | -0.01          | -0.02          | -0.01          | 0.02           | -0.00 |       |                         |
|            | Min M <sub>y</sub>                           |          |                |                    | -0.51          | 0.01           | 0.02           | 0.01           | -0.02          | 0.00  |       |                         |
|            | Max M <sub>z</sub>                           |          |                |                    | -0.38          | 0.01           | 0.01           | 0.01           | -0.02          | 0.01  |       |                         |
|            | Min M <sub>z</sub>                           |          |                |                    | 0.38           | -0.01          | -0.01          | -0.01          | 0.02           | -0.01 |       |                         |
|            | Max N  |          |                |                    | 0.52           | -0.01          | -0.02          | -0.01          | -0.00          | 0.01  |       |                         |
|            | Min N  |          |                |                    | -0.52          | 0.01           | 0.02           | 0.01           | 0.00           | -0.01 |       |                         |
|            | Max V <sub>y</sub>                           |          |                |                    | -0.37          | 0.01           | 0.01           | 0.01           | 0.00           | -0.01 |       |                         |
|            | Min V <sub>y</sub>                           |          |                |                    | 0.37           | -0.01          | -0.01          | -0.01          | -0.00          | 0.01  |       |                         |
|            | Max V <sub>z</sub>                           |          |                |                    | -0.50          | 0.01           | 0.02           | 0.01           | 0.00           | -0.00 |       |                         |
|            | Min V <sub>z</sub>                           |          |                |                    | 0.50           | -0.01          | -0.02          | -0.01          | -0.00          | 0.00  |       |                         |
|            | Max M <sub>T</sub>                           |          |                |                    | -0.51          | 0.01           | 0.02           | 0.01           | 0.00           | -0.01 |       |                         |
|            | Min M <sub>T</sub>                           |          |                |                    | 0.51           | -0.01          | -0.02          | -0.01          | -0.00          | 0.01  |       |                         |
|            | Max M <sub>y</sub>                           |          |                |                    | -0.41          | 0.00           | 0.02           | 0.01           | 0.00           | -0.00 |       |                         |
|            | Min M <sub>y</sub>                           |          |                |                    | 0.41           | -0.00          | -0.02          | -0.01          | -0.00          | 0.00  |       |                         |
|            | Max M <sub>z</sub>                           |          |                |                    | 0.37           | -0.01          | -0.01          | -0.01          | -0.00          | 0.01  |       |                         |
|            | Min M <sub>z</sub>                           | -0.37    | 0.01           | 0.01               | 0.01           | 0.00           | -0.01          |                |                |       |       |                         |
|            | DLC1, Result Envelope X 30% / Y 30% / Z 100% | RC7      | 17             | 0.000              | Max N          | 1.41           | -0.02          | -0.05          | -0.04          | 0.06  | -0.01 |                         |
|            | Min N  |          |                |                    | -1.41          | 0.02           | 0.05           | 0.04           | -0.06          | 0.01  |       |                         |
|            | Max V <sub>y</sub>                           |          |                |                    | -1.15          | 0.02           | 0.04           | 0.03           | -0.05          | 0.01  |       |                         |
|            | Min V <sub>y</sub>                           |          |                |                    | 1.15           | -0.02          | -0.04          | -0.03          | 0.05           | -0.01 |       |                         |
|            | Max V <sub>z</sub>                           |          |                |                    | -1.39          | 0.02           | 0.05           | 0.04           | -0.06          | 0.01  |       |                         |
|            | Min V <sub>z</sub>                           |          |                |                    | 1.39           | -0.02          | -0.05          | -0.04          | 0.06           | -0.01 |       |                         |
|            | Max M <sub>T</sub>                           |          |                |                    | -1.40          | 0.02           | 0.05           | 0.04           | -0.06          | 0.01  |       |                         |
|            | Min M <sub>T</sub>                           |          |                |                    | 1.40           | -0.02          | -0.05          | -0.04          | 0.06           | -0.01 |       |                         |
|            | Max M <sub>y</sub>                           |          |                |                    | 1.40           | -0.02          | -0.05          | -0.04          | 0.06           | -0.01 |       |                         |
|            | Min M <sub>y</sub>                           |          |                |                    | -1.40          | 0.02           | 0.05           | 0.04           | -0.06          | 0.01  |       |                         |
|            | Max M <sub>z</sub>                           |          |                |                    | -1.19          | 0.02           | 0.04           | 0.03           | -0.05          | 0.01  |       |                         |
|            | Min M <sub>z</sub>                           |          |                |                    | 1.19           | -0.02          | -0.04          | -0.03          | 0.05           | -0.01 |       |                         |
|            | Max N  |          |                |                    | 1.41           | -0.02          | -0.05          | -0.04          | -0.01          | 0.02  |       |                         |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] | Forces [kN]        |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |
|------------|-----|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------------------------|
|            |     |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |
| 20         | RC7 |          |                | Min N              | -1.41          | 0.02           | 0.05           | 0.04           | 0.01           | -0.02                   |
|            |     |          |                | Max V <sub>y</sub> | -1.15          | 0.02           | 0.04           | 0.03           | 0.00           | -0.02                   |
|            |     |          |                | Min V <sub>y</sub> | 1.15           | -0.02          | -0.04          | -0.03          | -0.00          | 0.02                    |
|            |     |          |                | Max V <sub>z</sub> | -1.39          | 0.02           | 0.05           | 0.04           | 0.01           | -0.02                   |
|            |     |          |                | Min V <sub>z</sub> | 1.39           | -0.02          | -0.05          | -0.04          | -0.01          | 0.02                    |
|            |     |          |                | Max M <sub>T</sub> | -1.40          | 0.02           | 0.05           | 0.04           | 0.01           | -0.02                   |
|            |     |          |                | Min M <sub>T</sub> | 1.40           | -0.02          | -0.05          | -0.04          | -0.01          | 0.02                    |
|            |     |          |                | Max M <sub>y</sub> | -1.22          | 0.01           | 0.05           | 0.03           | 0.01           | -0.01                   |
|            |     |          |                | Min M <sub>y</sub> | 1.22           | -0.01          | -0.05          | -0.03          | -0.01          | 0.01                    |
|            |     |          |                | Max M <sub>z</sub> | 1.13           | -0.02          | -0.04          | -0.03          | -0.00          | 0.02                    |
|            |     |          |                | Min M <sub>z</sub> | -1.13          | 0.02           | 0.04           | 0.03           | 0.00           | -0.02                   |
|            |     |          |                | Max N              | 3.53           | -0.68          | -2.52          | -0.04          | -0.61          | -0.44                   |
|            |     |          |                | Min N              | -2.29          | -0.04          | -0.04          | -0.01          | -0.02          | -0.02                   |
|            |     |          |                | Max V <sub>y</sub> | -2.29          | -0.04          | -0.04          | -0.01          | -0.02          | -0.02                   |
| 21         | RC1 | 10       | 0.000          | Min V <sub>y</sub> | 3.53           | -0.68          | -2.52          | -0.04          | -0.61          | -0.44                   |
|            |     |          |                | Max V <sub>z</sub> | -2.29          | -0.04          | -0.04          | -0.01          | -0.02          | -0.02                   |
|            |     |          |                | Min V <sub>z</sub> | 3.53           | -0.68          | -2.52          | -0.04          | -0.61          | -0.44                   |
|            |     |          |                | Max M <sub>T</sub> | -2.29          | -0.04          | -0.04          | -0.01          | -0.02          | -0.02                   |
|            |     |          |                | Min M <sub>T</sub> | 3.53           | -0.68          | -2.52          | -0.04          | -0.61          | -0.44                   |
|            |     |          |                | Max M <sub>y</sub> | -2.29          | -0.04          | -0.04          | -0.01          | -0.02          | -0.02                   |
|            |     |          |                | Min M <sub>y</sub> | 3.53           | -0.68          | -2.52          | -0.04          | -0.61          | -0.44                   |
|            |     |          |                | Max M <sub>z</sub> | -2.29          | -0.04          | -0.04          | -0.01          | -0.02          | -0.02                   |
|            |     |          |                | Min M <sub>z</sub> | 3.53           | -0.68          | -2.52          | -0.04          | -0.61          | -0.44                   |
|            |     |          |                | Max N              | 3.70           | -0.67          | -2.54          | -0.04          | -3.65          | 0.37                    |
|            |     |          |                | Min N              | -2.11          | -0.04          | -0.04          | -0.01          | -0.08          | 0.03                    |
|            |     |          |                | Max V <sub>y</sub> | -2.11          | -0.04          | -0.04          | -0.01          | -0.08          | 0.03                    |
|            |     |          |                | Min V <sub>y</sub> | 3.70           | -0.67          | -2.54          | -0.04          | -3.65          | 0.37                    |
|            |     |          |                | Max V <sub>z</sub> | -2.11          | -0.04          | -0.04          | -0.01          | -0.08          | 0.03                    |
|            |     |          |                | Min V <sub>z</sub> | 3.70           | -0.67          | -2.54          | -0.04          | -3.65          | 0.37                    |
|            |     |          |                | Max M <sub>T</sub> | -2.11          | -0.04          | -0.04          | -0.01          | -0.08          | 0.03                    |
|            |     |          |                | Min M <sub>T</sub> | 3.70           | -0.67          | -2.54          | -0.04          | -3.65          | 0.37                    |
|            |     |          |                | Max M <sub>y</sub> | -2.11          | -0.04          | -0.04          | -0.01          | -0.08          | 0.03                    |
|            |     |          |                | Min M <sub>y</sub> | 3.70           | -0.67          | -2.54          | -0.04          | -3.65          | 0.37                    |
|            |     |          |                | Max M <sub>z</sub> | -2.11          | -0.04          | -0.04          | -0.01          | -0.08          | 0.03                    |
|            |     |          |                | Min M <sub>z</sub> | 3.70           | -0.67          | -2.54          | -0.04          | -3.65          | 0.37                    |
|            | RC2 | 10       | 0.000          | Max N              | 2.18           | -0.45          | -1.68          | -0.03          | -0.41          | -0.29                   |
|            |     |          |                | Min N              | -1.70          | -0.03          | -0.03          | -0.01          | -0.02          | -0.02                   |
|            |     |          |                | Max V <sub>y</sub> | -1.70          | -0.03          | -0.03          | -0.01          | -0.02          | -0.02                   |
|            |     |          |                | Min V <sub>y</sub> | 2.18           | -0.45          | -1.68          | -0.03          | -0.41          | -0.29                   |
|            |     |          |                | Max V <sub>z</sub> | -1.70          | -0.03          | -0.03          | -0.01          | -0.02          | -0.02                   |
|            |     |          |                | Min V <sub>z</sub> | 2.18           | -0.45          | -1.68          | -0.03          | -0.41          | -0.29                   |
|            |     |          |                | Max M <sub>T</sub> | -1.70          | -0.03          | -0.03          | -0.01          | -0.02          | -0.02                   |
|            |     |          |                | Min M <sub>T</sub> | 2.18           | -0.45          | -1.68          | -0.03          | -0.41          | -0.29                   |
|            |     |          |                | Max M <sub>y</sub> | -1.70          | -0.03          | -0.03          | -0.01          | -0.02          | -0.02                   |
|            |     |          |                | Min M <sub>y</sub> | 2.18           | -0.45          | -1.68          | -0.03          | -0.41          | -0.29                   |
|            |     |          |                | Max M <sub>z</sub> | -1.70          | -0.03          | -0.03          | -0.01          | -0.02          | -0.02                   |
|            |     |          |                | Min M <sub>z</sub> | 2.18           | -0.45          | -1.68          | -0.03          | -0.41          | -0.29                   |
|            |     | 23       | 1.200          | Max N              | 2.31           | -0.45          | -1.69          | -0.03          | -2.43          | 0.25                    |
|            |     |          |                | Min N              | -1.56          | -0.03          | -0.03          | -0.01          | -0.06          | 0.02                    |
|            |     |          |                | Max V <sub>y</sub> | -1.56          | -0.03          | -0.03          | -0.01          | -0.06          | 0.02                    |
|            |     |          |                | Min V <sub>y</sub> | 2.31           | -0.45          | -1.69          | -0.03          | -2.43          | 0.25                    |
|            |     |          |                | Max V <sub>z</sub> | -1.56          | -0.03          | -0.03          | -0.01          | -0.06          | 0.02                    |
|            |     |          |                | Min V <sub>z</sub> | 2.31           | -0.45          | -1.69          | -0.03          | -2.43          | 0.25                    |
|            |     |          |                | Max M <sub>T</sub> | -1.56          | -0.03          | -0.03          | -0.01          | -0.06          | 0.02                    |
|            |     |          |                | Min M <sub>T</sub> | 2.31           | -0.45          | -1.69          | -0.03          | -2.43          | 0.25                    |
|            |     |          |                | Max M <sub>y</sub> | -1.56          | -0.03          | -0.03          | -0.01          | -0.06          | 0.02                    |
|            |     |          |                | Min M <sub>y</sub> | 2.31           | -0.45          | -1.69          | -0.03          | -2.43          | 0.25                    |
|            |     |          |                | Max M <sub>z</sub> | -1.56          | -0.03          | -0.03          | -0.01          | -0.06          | 0.02                    |
|            |     |          |                | Min M <sub>z</sub> | 2.31           | -0.45          | -1.69          | -0.03          | -2.43          | 0.25                    |
|            | RC3 | 10       | 0.000          | Max N              | 0.24           | -0.24          | -0.86          | -0.02          | -0.21          | -0.16                   |
|            |     |          |                | Min N              | -1.70          | -0.03          | -0.03          | -0.01          | -0.02          | -0.02                   |
|            |     |          |                | Max V <sub>y</sub> | -1.70          | -0.03          | -0.03          | -0.01          | -0.02          | -0.02                   |
|            |     |          |                | Min V <sub>y</sub> | 0.24           | -0.24          | -0.86          | -0.02          | -0.21          | -0.16                   |
|            |     |          |                | Max V <sub>z</sub> | -1.70          | -0.03          | -0.03          | -0.01          | -0.02          | -0.02                   |
|            |     |          |                | Min V <sub>z</sub> | 0.24           | -0.24          | -0.86          | -0.02          | -0.21          | -0.16                   |
|            |     |          |                | Max M <sub>T</sub> | -1.70          | -0.03          | -0.03          | -0.01          | -0.02          | -0.02                   |
|            |     |          |                | Min M <sub>T</sub> | 0.24           | -0.24          | -0.86          | -0.02          | -0.21          | -0.16                   |
|            |     |          |                | Max M <sub>y</sub> | -1.70          | -0.03          | -0.03          | -0.01          | -0.02          | -0.02                   |
|            |     |          |                | Min M <sub>y</sub> | 0.24           | -0.24          | -0.86          | -0.02          | -0.21          | -0.16                   |
|            |     |          |                | Max M <sub>z</sub> | -1.70          | -0.03          | -0.03          | -0.01          | -0.02          | -0.02                   |
|            |     |          |                | Min M <sub>z</sub> | 0.24           | -0.24          | -0.86          | -0.02          | -0.21          | -0.16                   |
|            |     | 23       | 1.200          | Max N              | 0.37           | -0.24          | -0.86          | -0.02          | -1.24          | 0.13                    |
|            |     |          |                | Min N              | -1.56          | -0.03          | -0.03          | -0.01          | -0.06          | 0.02                    |
|            |     |          |                | Max V <sub>y</sub> | -1.56          | -0.03          | -0.03          | -0.01          | -0.06          | 0.02                    |
|            |     |          |                | Min V <sub>y</sub> | 0.37           | -0.24          | -0.86          | -0.02          | -1.24          | 0.13                    |
|            |     |          |                | Max V <sub>z</sub> | -1.56          | -0.03          | -0.03          | -0.01          | -0.06          | 0.02                    |
|            |     |          |                | Min V <sub>z</sub> | 0.37           | -0.24          | -0.86          | -0.02          | -1.24          | 0.13                    |
|            |     |          |                | Max M <sub>T</sub> | -1.56          | -0.03          | -0.03          | -0.01          | -0.06          | 0.02                    |
|            |     |          |                | Min M <sub>T</sub> | 0.37           | -0.24          | -0.86          | -0.02          | -1.24          | 0.13                    |
|            |     |          |                | Max M <sub>y</sub> | -1.56          | -0.03          | -0.03          | -0.01          | -0.06          | 0.02                    |
|            |     |          |                | Min M <sub>y</sub> | 0.37           | -0.24          | -0.86          | -0.02          | -1.24          | 0.13                    |
|            |     |          |                | Max M <sub>z</sub> | -1.56          | -0.03          | -0.03          | -0.01          | -0.06          | 0.02                    |
|            |     |          |                | Min M <sub>z</sub> | 0.37           | -0.24          | -0.86          | -0.02          | -1.24          | 0.13                    |
|            | RC4 | 10       | 0.000          | Max N              | -0.54          | -0.16          | -0.53          | -0.01          | -0.14          | -0.10                   |
|            |     |          |                | Min N              | -1.70          | -0.03          | -0.03          | -0.01          | -0.02          | -0.02                   |
|            |     |          |                | Max V <sub>y</sub> | -1.70          | -0.03          | -0.03          | -0.01          | -0.02          | -0.02                   |
|            |     |          |                | Min V <sub>y</sub> | -0.54          | -0.16          | -0.53          | -0.01          | -0.14          | -0.10                   |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC   | Node No. | Location x [m] | Forces [kN]        |                |                |                |                | Moments [kNm]  |       |       | Correspondin Load Cases |
|--------------------|--|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------|-------|-------------------------|
|                    |  |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |       |                         |
| 21                 | RC4  | 23       | 1.200          | Max V <sub>z</sub> | -1.70          | -0.03          | ▷              | -0.03          | -0.01          | -0.02 | -0.02 | CO 7                    |
|                    |  |          |                | Min V <sub>z</sub> | -0.54          | -0.16          | ▷              | -0.53          | -0.01          | -0.14 | -0.10 | CO 8                    |
|                    |  |          |                | Max M <sub>T</sub> | -1.70          | -0.03          | ▷              | -0.03          | -0.01          | -0.02 | -0.02 | CO 7                    |
|                    |  |          |                | Min M <sub>T</sub> | -0.54          | -0.16          | ▷              | -0.53          | -0.01          | -0.14 | -0.10 | CO 8                    |
|                    |  |          |                | Max M <sub>y</sub> | -1.70          | -0.03          | -0.03          | -0.01          | ▷              | -0.02 | -0.02 | CO 7                    |
|                    |  |          |                | Min M <sub>y</sub> | -0.54          | -0.16          | -0.53          | -0.01          | ▷              | -0.14 | -0.10 | CO 8                    |
|                    |  |          |                | Max M <sub>z</sub> | -1.70          | -0.03          | -0.03          | -0.01          | -0.02          | ▷     | -0.02 | CO 7                    |
|                    |  |          |                | Min M <sub>z</sub> | -0.54          | -0.16          | -0.53          | -0.01          | -0.14          | ▷     | -0.10 | CO 8                    |
|                    |  |          |                | Max N              | -0.40          | -0.16          | -0.53          | -0.01          | -0.77          | 0.09  | CO 8  |                         |
|                    |  |          |                | Min N              | -1.56          | -0.03          | -0.03          | -0.01          | -0.06          | 0.02  | CO 7  |                         |
|                    |  |          |                | Max V <sub>y</sub> | -1.56          | -0.03          | -0.03          | -0.01          | -0.06          | 0.02  | CO 7  |                         |
|                    |  |          |                | Min V <sub>y</sub> | -0.40          | -0.16          | -0.53          | -0.01          | -0.77          | 0.09  | CO 8  |                         |
|                    |  |          |                | Max V <sub>z</sub> | -1.56          | -0.03          | ▷              | -0.03          | -0.01          | -0.06 | 0.02  | CO 7                    |
|                    |  |          |                | Min V <sub>z</sub> | -0.40          | -0.16          | ▷              | -0.53          | -0.01          | -0.77 | 0.09  | CO 8                    |
|                    |  |          |                | Max M <sub>T</sub> | -1.56          | -0.03          | -0.03          | -0.01          | -0.06          | 0.02  | CO 7  |                         |
|                    |  |          |                | Min M <sub>T</sub> | -0.40          | -0.16          | -0.53          | -0.01          | -0.77          | 0.09  | CO 8  |                         |
|                    |  |          |                | Max M <sub>y</sub> | -1.56          | -0.03          | -0.03          | -0.01          | -0.06          | 0.02  | CO 7  |                         |
|                    |  |          |                | Min M <sub>y</sub> | -0.40          | -0.16          | -0.53          | -0.01          | -0.77          | 0.09  | CO 8  |                         |
|                    |  |          |                | Max M <sub>z</sub> | -0.40          | -0.16          | -0.53          | -0.01          | -0.77          | ▷     | 0.09  | CO 8                    |
|                    |  |          |                | Min M <sub>z</sub> | -1.56          | -0.03          | -0.03          | -0.01          | -0.06          | ▷     | 0.02  | CO 7                    |
|                    | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                |                    |                |                |                |                |                |       |       |                         |
|                    | RC5  | 10       | 0.000          | Max N              | ▷              | 0.68           | -0.09          | -0.23          | -0.01          | -0.05 | -0.05 |                         |
|                    |  |          |                | Min N              | ▷              | -0.68          | 0.09           | 0.23           | 0.01           | 0.05  | 0.05  |                         |
|                    |  |          |                | Max V <sub>y</sub> | ▷              | -0.60          | 0.10           | 0.21           | 0.00           | 0.05  | 0.05  |                         |
|                    |  |          |                | Min V <sub>y</sub> | ▷              | 0.60           | -0.10          | -0.21          | -0.00          | -0.05 | -0.05 |                         |
|                    |  |          |                | Max V <sub>z</sub> | ▷              | -0.44          | 0.06           | 0.29           | 0.01           | 0.05  | 0.06  |                         |
|                    |  |          |                | Min V <sub>z</sub> | ▷              | 0.44           | -0.06          | -0.29          | -0.01          | -0.05 | -0.06 |                         |
|                    |  |          |                | Max M <sub>T</sub> | ▷              | -0.28          | 0.03           | 0.18           | 0.02           | 0.04  | 0.05  |                         |
|                    |  |          |                | Min M <sub>T</sub> | ▷              | 0.28           | -0.03          | -0.18          | -0.02          | -0.04 | -0.05 |                         |
|                    |  |          |                | Max M <sub>y</sub> | ▷              | -0.46          | 0.06           | 0.22           | 0.01           | 0.07  | 0.04  |                         |
|                    |  |          |                | Min M <sub>y</sub> | ▷              | 0.46           | -0.06          | -0.22          | -0.01          | -0.07 | -0.04 |                         |
|                    |  |          |                | Max M <sub>z</sub> | ▷              | -0.44          | 0.07           | 0.26           | 0.01           | 0.05  | 0.07  |                         |
|                    |  |          |                | Min M <sub>z</sub> | ▷              | 0.44           | -0.07          | -0.26          | -0.01          | -0.05 | -0.07 |                         |
|                    |  |          |                | Max N              | ▷              | 0.68           | -0.09          | -0.23          | -0.01          | -0.32 | 0.06  |                         |
|                    |  |          |                | Min N              | ▷              | -0.68          | 0.09           | 0.23           | 0.01           | 0.32  | -0.06 |                         |
|                    |  |          |                | Max V <sub>y</sub> | ▷              | -0.60          | 0.10           | 0.21           | 0.00           | 0.30  | -0.07 |                         |
|                    |  |          |                | Min V <sub>y</sub> | ▷              | 0.60           | -0.10          | -0.21          | -0.00          | -0.30 | 0.07  |                         |
|                    |  |          |                | Max V <sub>z</sub> | ▷              | -0.44          | 0.06           | 0.29           | 0.01           | 0.39  | -0.02 |                         |
|                    |  |          |                | Min V <sub>z</sub> | ▷              | 0.44           | -0.06          | -0.29          | -0.01          | -0.39 | 0.02  |                         |
|                    |  |          |                | Max M <sub>T</sub> | ▷              | -0.28          | 0.03           | 0.18           | 0.02           | 0.26  | 0.02  |                         |
|                    |  |          |                | Min M <sub>T</sub> | ▷              | 0.28           | -0.03          | -0.18          | -0.02          | -0.26 | -0.02 |                         |
|                    |  |          |                | Max M <sub>y</sub> | ▷              | -0.49          | 0.07           | 0.28           | 0.01           | 0.40  | -0.03 |                         |
|                    |  |          |                | Min M <sub>y</sub> | ▷              | 0.49           | -0.07          | -0.28          | -0.01          | -0.40 | 0.03  |                         |
|                    |  |          |                | Max M <sub>z</sub> | ▷              | 0.47           | -0.08          | -0.09          | 0.00           | -0.14 | 0.08  |                         |
|                    | Min M <sub>z</sub>                           | ▷        | -0.47          | 0.08               | 0.09           | -0.00          | 0.14           | -0.08          |                |       |       |                         |
|                    | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                |                    |                |                |                |                |                |       |       |                         |
|                    | RC6  | 10       | 0.000          | Max N              | ▷              | 0.79           | -0.09          | -0.17          | -0.00          | -0.04 | -0.02 |                         |
|                    |  |          |                | Min N              | ▷              | -0.79          | 0.09           | 0.17           | 0.00           | 0.04  | 0.02  |                         |
|                    |  |          |                | Max V <sub>y</sub> | ▷              | -0.70          | 0.10           | 0.16           | 0.00           | 0.04  | 0.03  |                         |
|                    |  |          |                | Min V <sub>y</sub> | ▷              | 0.70           | -0.10          | -0.16          | -0.00          | -0.04 | -0.03 |                         |
|                    |  |          |                | Max V <sub>z</sub> | ▷              | -0.29          | 0.05           | 0.22           | 0.01           | 0.03  | 0.06  |                         |
|                    |  |          |                | Min V <sub>z</sub> | ▷              | 0.29           | -0.05          | -0.22          | -0.01          | -0.03 | -0.06 |                         |
|                    |  |          |                | Max M <sub>T</sub> | ▷              | 0.03           | 0.00           | 0.15           | 0.02           | 0.01  | 0.06  |                         |
|                    |  |          |                | Min M <sub>T</sub> | ▷              | -0.03          | -0.00          | -0.15          | -0.02          | -0.01 | -0.06 |                         |
|                    |  |          |                | Max M <sub>y</sub> | ▷              | -0.51          | 0.05           | 0.17           | -0.00          | 0.06  | 0.01  |                         |
|                    |  |          |                | Min M <sub>y</sub> | ▷              | 0.51           | -0.05          | -0.17          | 0.00           | -0.06 | -0.01 |                         |
|                    |  |          |                | Max M <sub>z</sub> | ▷              | -0.16          | 0.04           | 0.20           | 0.02           | 0.02  | 0.07  |                         |
|                    |  |          |                | Min M <sub>z</sub> | ▷              | 0.16           | -0.04          | -0.20          | -0.02          | -0.02 | -0.07 |                         |
|                    |  |          |                | Max N              | ▷              | 0.79           | -0.09          | -0.17          | -0.00          | -0.24 | 0.08  |                         |
|                    |  |          |                | Min N              | ▷              | -0.79          | 0.09           | 0.17           | 0.00           | 0.24  | -0.08 |                         |
|                    |  |          |                | Max V <sub>y</sub> | ▷              | -0.70          | 0.10           | 0.16           | 0.00           | 0.23  | -0.09 |                         |
|                    |  |          |                | Min V <sub>y</sub> | ▷              | 0.70           | -0.10          | -0.16          | -0.00          | -0.23 | 0.09  |                         |
|                    |  |          |                | Max V <sub>z</sub> | ▷              | -0.29          | 0.05           | 0.22           | 0.01           | 0.29  | -0.00 |                         |
|                    |  |          |                | Min V <sub>z</sub> | ▷              | 0.29           | -0.05          | -0.22          | -0.01          | -0.29 | 0.00  |                         |
|                    |  |          |                | Max M <sub>T</sub> | ▷              | 0.03           | 0.00           | 0.15           | 0.02           | 0.19  | 0.05  |                         |
|                    |  |          |                | Min M <sub>T</sub> | ▷              | -0.03          | -0.00          | -0.15          | -0.02          | -0.19 | -0.05 |                         |
|                    |  |          |                | Max M <sub>y</sub> | ▷              | -0.47          | 0.06           | 0.21           | 0.01           | 0.30  | -0.03 |                         |
|                    |  |          |                | Min M <sub>y</sub> | ▷              | 0.47           | -0.06          | -0.21          | -0.01          | -0.30 | 0.03  |                         |
|                    |  |          |                | Max M <sub>z</sub> | ▷              | 0.61           | -0.09          | -0.06          | 0.01           | -0.10 | 0.10  |                         |
|                    | Min M <sub>z</sub>                           | ▷        | -0.61          | 0.09               | 0.06           | -0.01          | 0.10           | -0.10          |                |       |       |                         |
|                    | DLC1, Result Envelope X 30% / Y 30% / Z 100% |          |                |                    |                |                |                |                |                |       |       |                         |
|                    | RC7  | 10       | 0.000          | Max N              | ▷              | 1.21           | -0.14          | -0.50          | -0.02          | -0.10 | -0.10 |                         |
|                    |  |          |                | Min N              | ▷              | -1.21          | 0.14           | 0.50           | 0.02           | 0.10  | 0.10  |                         |
|                    |  |          |                | Max V <sub>y</sub> | ▷              | -1.03          | 0.17           | 0.46           | 0.01           | 0.10  | 0.09  |                         |
|                    |  |          |                | Min V <sub>y</sub> | ▷              | 1.03           | -0.17          | -0.46          | -0.01          | -0.10 | -0.09 |                         |
|                    |  |          |                | Max V <sub>z</sub> | ▷              | -0.93          | 0.12           | 0.58           | 0.02           | 0.11  | 0.12  |                         |
|                    |  |          |                | Min V <sub>z</sub> | ▷              | 0.93           | -0.12          | -0.58          | -0.02          | -0.11 | -0.12 |                         |
|                    |  |          |                | Max M <sub>T</sub> | ▷              | -0.57          | 0.03           | 0.41           | 0.03           | 0.07  | 0.09  |                         |
|                    |  |          |                | Min M <sub>T</sub> | ▷              | 0.57           | -0.03          | -0.41          | -0.03          | -0.07 | -0.09 |                         |
|                    |  |          |                | Max M <sub>y</sub> | ▷              | -0.96          | 0.13           | 0.54           | 0.02           | 0.13  | 0.10  |                         |
|                    |  |          |                | Min M <sub>y</sub> | ▷              | 0.96           | -0.13          | -0.54          | -0.02          | -0.13 | -0.10 |                         |
|                    |  |          |                | Max M <sub>z</sub> | ▷              | -0.90          | 0.13           | 0.56           | 0.03           | 0.11  | 0.12  |                         |
|                    |  |          |                | Min M <sub>z</sub> | ▷              | 0.90           | -0.13          | -0.56          | -0.03          | -0.11 | -0.12 |                         |
|                    |  |          |                | Max N              | ▷              | 1.21           | -0.14          | -0.50          | -0.02          | -0.70 | 0.07  |                         |
|                    |  |          |                | Min N              | ▷              | -1.21          | 0.14           | 0.50           | 0.02           | 0.70  | -0.07 |                         |
|                    |  |          |                | Max V <sub>y</sub> | ▷              | -1.03          | 0.17           | 0.46           | 0.01           | 0.65  | -0.11 |                         |
| Min V <sub>y</sub> |  |          |                | ▷                  | 1.03           | -0.17          | -0.46          | -0.01          | -0.65          | 0.11  |       |                         |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] | Forces [kN]        |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |
|------------|-----|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------------------------|
|            |     |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |
| 21         | RC7 |          |                | Max V <sub>z</sub> | -0.93          | 0.12           | 0.58           | 0.02           | 0.81           | -0.03                   |
|            |     |          |                | Min V <sub>z</sub> | 0.93           | -0.12          | -0.58          | -0.02          | -0.81          | 0.03                    |
|            |     |          |                | Max M <sub>T</sub> | -0.57          | 0.03           | 0.41           | 0.03           | 0.56           | 0.05                    |
|            |     |          |                | Min M <sub>T</sub> | 0.57           | -0.03          | -0.41          | -0.03          | -0.56          | -0.05                   |
|            |     |          |                | Max M <sub>y</sub> | -0.98          | 0.13           | 0.58           | 0.02           | 0.81           | -0.04                   |
|            |     |          |                | Min M <sub>y</sub> | 0.98           | -0.13          | -0.58          | -0.02          | -0.81          | 0.04                    |
| 22         | RC1 | 14       | 0.000          | Max M <sub>z</sub> | 0.65           | -0.13          | -0.17          | 0.01           | -0.26          | 0.13                    |
|            |     |          |                | Min M <sub>z</sub> | -0.65          | 0.13           | 0.17           | -0.01          | 0.26           | -0.13                   |
|            |     |          |                | Max N              | 3.72           | -0.22          | 2.49           | -0.51          | -2.23          | -0.22                   |
|            |     |          |                | Min N              | -1.05          | -0.03          | -0.05          | 0.00           | 0.06           | -0.02                   |
|            |     |          |                | Max V <sub>y</sub> | -1.05          | -0.03          | -0.05          | 0.00           | 0.06           | -0.02                   |
|            |     |          |                | Min V <sub>y</sub> | 3.72           | -0.22          | 2.49           | -0.51          | -2.23          | -0.22                   |
|            |     |          |                | Max V <sub>z</sub> | 3.72           | -0.22          | 2.49           | -0.51          | -2.23          | -0.22                   |
|            |     |          |                | Min V <sub>z</sub> | -1.05          | -0.03          | -0.05          | 0.00           | 0.06           | -0.02                   |
|            |     |          |                | Max M <sub>T</sub> | -1.05          | -0.03          | -0.05          | 0.00           | 0.06           | -0.02                   |
|            |     |          |                | Min M <sub>T</sub> | 3.72           | -0.22          | 2.49           | -0.51          | -2.23          | -0.22                   |
|            |     |          |                | Max M <sub>y</sub> | -1.05          | -0.03          | -0.05          | 0.00           | 0.06           | -0.02                   |
|            |     |          |                | Min M <sub>y</sub> | 3.72           | -0.22          | 2.49           | -0.51          | -2.23          | -0.22                   |
|            |     | 18       | 1.500          | Max M <sub>z</sub> | -1.05          | -0.03          | -0.05          | 0.00           | 0.06           | -0.02                   |
|            |     |          |                | Min M <sub>z</sub> | 3.72           | -0.22          | 2.49           | -0.51          | -2.23          | -0.22                   |
|            |     |          |                | Max N              | 3.96           | -0.23          | 2.48           | -0.51          | 1.50           | 0.12                    |
|            |     |          |                | Min N              | -0.81          | -0.03          | -0.05          | 0.00           | -0.01          | 0.01                    |
|            |     |          |                | Max V <sub>y</sub> | -0.81          | -0.03          | -0.05          | 0.00           | -0.01          | 0.01                    |
|            |     |          |                | Min V <sub>y</sub> | 3.96           | -0.23          | 2.48           | -0.51          | 1.50           | 0.12                    |
|            |     |          |                | Max V <sub>z</sub> | 3.96           | -0.23          | 2.48           | -0.51          | 1.50           | 0.12                    |
|            |     |          |                | Min V <sub>z</sub> | -0.81          | -0.03          | -0.05          | 0.00           | -0.01          | 0.01                    |
|            |     |          |                | Max M <sub>T</sub> | -0.81          | -0.03          | -0.05          | 0.00           | -0.01          | 0.01                    |
|            |     |          |                | Min M <sub>T</sub> | 3.96           | -0.23          | 2.48           | -0.51          | 1.50           | 0.12                    |
|            |     |          |                | Max M <sub>y</sub> | -0.81          | -0.03          | -0.05          | 0.00           | -0.01          | 0.01                    |
|            |     |          |                | Min M <sub>y</sub> | 3.96           | -0.23          | 2.48           | -0.51          | 1.50           | 0.12                    |
|            | RC2 | 14       | 0.000          | Max M <sub>z</sub> | -0.81          | -0.03          | -0.05          | 0.00           | -0.01          | 0.01                    |
|            |     |          |                | Min M <sub>z</sub> | 2.40           | -0.15          | 1.65           | -0.34          | -1.48          | -0.15                   |
|            |     |          |                | Max N              | -0.78          | -0.02          | -0.04          | 0.00           | 0.04           | -0.02                   |
|            |     |          |                | Min N              | -0.78          | -0.02          | -0.04          | 0.00           | 0.04           | -0.02                   |
|            |     |          |                | Max V <sub>y</sub> | 2.40           | -0.15          | 1.65           | -0.34          | -1.48          | -0.15                   |
|            |     |          |                | Min V <sub>y</sub> | -0.78          | -0.02          | -0.04          | 0.00           | 0.04           | -0.02                   |
|            |     |          |                | Max V <sub>z</sub> | -0.78          | -0.02          | -0.04          | 0.00           | 0.04           | -0.02                   |
|            |     |          |                | Min V <sub>z</sub> | 2.40           | -0.15          | 1.65           | -0.34          | -1.48          | -0.15                   |
|            |     |          |                | Max M <sub>T</sub> | -0.78          | -0.02          | -0.04          | 0.00           | 0.04           | -0.02                   |
|            |     |          |                | Min M <sub>T</sub> | 2.40           | -0.15          | 1.65           | -0.34          | -1.48          | -0.15                   |
|            |     |          |                | Max M <sub>y</sub> | -0.78          | -0.02          | -0.04          | 0.00           | 0.04           | -0.02                   |
|            |     |          |                | Min M <sub>y</sub> | 2.40           | -0.15          | 1.65           | -0.34          | -1.48          | -0.15                   |
|            |     | 18       | 1.500          | Max M <sub>z</sub> | -0.78          | -0.02          | -0.04          | 0.00           | 0.04           | -0.02                   |
|            |     |          |                | Min M <sub>z</sub> | 2.40           | -0.15          | 1.65           | -0.34          | -1.48          | -0.15                   |
|            |     |          |                | Max N              | 2.58           | -0.16          | 1.65           | -0.34          | 1.00           | 0.08                    |
|            |     |          |                | Min N              | -0.60          | -0.02          | -0.04          | 0.00           | -0.01          | 0.01                    |
|            |     |          |                | Max V <sub>y</sub> | -0.60          | -0.02          | -0.04          | 0.00           | -0.01          | 0.01                    |
|            |     |          |                | Min V <sub>y</sub> | 2.58           | -0.16          | 1.65           | -0.34          | 1.00           | 0.08                    |
|            |     |          |                | Max V <sub>z</sub> | 2.58           | -0.16          | 1.65           | -0.34          | 1.00           | 0.08                    |
|            |     |          |                | Min V <sub>z</sub> | -0.60          | -0.02          | -0.04          | 0.00           | -0.01          | 0.01                    |
|            |     |          |                | Max M <sub>T</sub> | -0.60          | -0.02          | -0.04          | 0.00           | -0.01          | 0.01                    |
|            |     |          |                | Min M <sub>T</sub> | 2.58           | -0.16          | 1.65           | -0.34          | 1.00           | 0.08                    |
|            |     |          |                | Max M <sub>y</sub> | -0.60          | -0.02          | -0.04          | 0.00           | -0.01          | 0.01                    |
|            |     |          |                | Min M <sub>y</sub> | 2.58           | -0.16          | 1.65           | -0.34          | 1.00           | 0.08                    |
| 23         | RC3 | 14       | 0.000          | Max M <sub>z</sub> | -0.60          | -0.02          | -0.04          | 0.00           | -0.01          | 0.01                    |
|            |     |          |                | Min M <sub>z</sub> | 0.81           | -0.09          | 0.81           | -0.17          | -0.72          | -0.09                   |
|            |     |          |                | Max N              | -0.78          | -0.02          | -0.04          | 0.00           | 0.04           | -0.02                   |
|            |     |          |                | Min N              | -0.78          | -0.02          | -0.04          | 0.00           | 0.04           | -0.02                   |
|            |     |          |                | Max V <sub>y</sub> | 0.81           | -0.09          | 0.81           | -0.17          | -0.72          | -0.09                   |
|            |     |          |                | Min V <sub>y</sub> | 0.81           | -0.09          | 0.81           | -0.17          | -0.72          | -0.09                   |
|            |     |          |                | Max V <sub>z</sub> | 0.81           | -0.09          | 0.81           | -0.17          | -0.72          | -0.09                   |
|            |     |          |                | Min V <sub>z</sub> | -0.78          | -0.02          | -0.04          | 0.00           | 0.04           | -0.02                   |
|            |     |          |                | Max M <sub>T</sub> | -0.78          | -0.02          | -0.04          | 0.00           | 0.04           | -0.02                   |
|            |     |          |                | Min M <sub>T</sub> | 0.81           | -0.09          | 0.81           | -0.17          | -0.72          | -0.09                   |
|            |     |          |                | Max M <sub>y</sub> | -0.78          | -0.02          | -0.04          | 0.00           | 0.04           | -0.02                   |
|            |     |          |                | Min M <sub>y</sub> | 0.81           | -0.09          | 0.81           | -0.17          | -0.72          | -0.09                   |
|            |     | 18       | 1.500          | Max M <sub>z</sub> | -0.78          | -0.02          | -0.04          | 0.00           | 0.04           | -0.02                   |
|            |     |          |                | Min M <sub>z</sub> | 0.81           | -0.09          | 0.81           | -0.17          | -0.72          | -0.09                   |
|            |     |          |                | Max N              | 0.99           | -0.09          | 0.81           | -0.17          | 0.49           | 0.04                    |
|            |     |          |                | Min N              | -0.60          | -0.02          | -0.04          | 0.00           | -0.01          | 0.01                    |
|            |     |          |                | Max V <sub>y</sub> | -0.60          | -0.02          | -0.04          | 0.00           | -0.01          | 0.01                    |
|            |     |          |                | Min V <sub>y</sub> | 0.99           | -0.09          | 0.81           | -0.17          | 0.49           | 0.04                    |
|            |     |          |                | Max V <sub>z</sub> | 0.99           | -0.09          | 0.81           | -0.17          | 0.49           | 0.04                    |
|            |     |          |                | Min V <sub>z</sub> | -0.60          | -0.02          | -0.04          | 0.00           | -0.01          | 0.01                    |
|            |     |          |                | Max M <sub>T</sub> | -0.60          | -0.02          | -0.04          | 0.00           | -0.01          | 0.01                    |
|            |     |          |                | Min M <sub>T</sub> | 0.99           | -0.09          | 0.81           | -0.17          | 0.49           | 0.04                    |
|            |     |          |                | Max M <sub>y</sub> | -0.60          | -0.02          | -0.04          | 0.00           | -0.01          | 0.01                    |
|            |     |          |                | Min M <sub>y</sub> | 0.99           | -0.09          | 0.81           | -0.17          | 0.49           | 0.04                    |
|            | RC4 | 14       | 0.000          | Max M <sub>z</sub> | -0.60          | -0.02          | -0.04          | 0.00           | -0.01          | 0.01                    |
|            |     |          |                | Min M <sub>z</sub> | 0.18           | -0.06          | 0.47           | -0.10          | -0.41          | -0.06                   |
|            |     |          |                | Max N              | -0.78          | -0.02          | -0.04          | 0.00           | 0.04           | -0.02                   |
|            |     |          |                | Min N              | -0.78          | -0.02          | -0.04          | 0.00           | 0.04           | -0.02                   |
|            |     |          |                | Max V <sub>y</sub> | 0.18           | -0.06          | 0.47           | -0.10          | -0.41          | -0.06                   |
|            |     |          |                | Min V <sub>y</sub> | 0.18           | -0.06          | 0.47           | -0.10          | -0.41          | -0.06                   |
|            |     |          |                | Max V <sub>z</sub> | 0.18           | -0.06          | 0.47           | -0.10          | -0.41          | -0.06                   |
|            |     |          |                | Min V <sub>z</sub> | -0.78          | -0.02          | -0.04          | 0.00           | 0.04           | -0.02                   |
|            |     |          |                | Max M <sub>T</sub> | -0.78          | -0.02          | -0.04          | 0.00           | 0.04           | -0.02                   |
|            |     |          |                | Min M <sub>T</sub> | 0.18           | -0.06          | 0.47           | -0.10          | -0.41          | -0.06                   |
|            |     |          |                | Max M <sub>y</sub> | -0.78          | -0.02          | -0.04          | 0.00           | 0.04           | -0.02                   |
|            |     |          |                | Min M <sub>y</sub> | 0.18           | -0.06          | 0.47           | -0.10          | -0.41          | -0.06                   |

## RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m] | Forces [kN]                                  |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |       |       |       |  |
|------------|--|----------|----------------|--|----------------|----------------|----------------|----------------|----------------|-------------------------|-------|-------|-------|--|
|            |  |          |                | N  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |       |       |       |  |
| 22         | RC4  | 18       | 1.500          | Min M <sub>T</sub>                           | 0.18           | -0.06          | 0.47           | ▷ -0.10        | -0.41          | -0.06                   | CO 8  |       |       |  |
|            |  |          |                | Max M <sub>y</sub>                           | -0.78          | -0.02          | -0.04          | ▷ 0.00         | 0.04           | -0.02                   | CO 7  |       |       |  |
|            |  |          |                | Min M <sub>y</sub>                           | 0.18           | -0.06          | 0.47           | ▷ -0.10        | -0.41          | -0.06                   | CO 8  |       |       |  |
|            |  |          |                | Max M <sub>z</sub>                           | -0.78          | -0.02          | -0.04          | ▷ 0.00         | 0.04           | -0.02                   | CO 7  |       |       |  |
|            |  |          |                | Min M <sub>z</sub>                           | 0.18           | -0.06          | 0.47           | ▷ -0.10        | -0.41          | -0.06                   | CO 8  |       |       |  |
|            |  |          |                | Max N  | ▷ 0.35         | -0.06          | 0.47           | ▷ -0.10        | 0.29           | 0.03                    | CO 8  |       |       |  |
|            |  |          |                | Min N  | ▷ -0.60        | -0.02          | -0.04          | ▷ 0.00         | -0.01          | 0.01                    | CO 7  |       |       |  |
|            |  |          |                | Max V <sub>y</sub>                           | ▷ -0.60        | ▷ -0.02        | -0.04          | ▷ 0.00         | -0.01          | 0.01                    | CO 7  |       |       |  |
|            |  |          |                | Min V <sub>y</sub>                           | 0.35           | -0.06          | 0.47           | ▷ -0.10        | 0.29           | 0.03                    | CO 8  |       |       |  |
|            |  |          |                | Max V <sub>z</sub>                           | 0.35           | -0.06          | ▷ 0.47         | ▷ -0.10        | 0.29           | 0.03                    | CO 8  |       |       |  |
|            |  |          |                | Min V <sub>z</sub>                           | -0.60          | -0.02          | ▷ -0.04        | ▷ 0.00         | -0.01          | 0.01                    | CO 7  |       |       |  |
|            |  |          |                | Max M <sub>T</sub>                           | -0.60          | -0.02          | -0.04          | ▷ 0.00         | -0.01          | 0.01                    | CO 7  |       |       |  |
|            |  |          |                | Min M <sub>T</sub>                           | 0.35           | -0.06          | ▷ 0.47         | ▷ -0.10        | 0.29           | 0.03                    | CO 8  |       |       |  |
|            |  |          |                | Max M <sub>y</sub>                           | 0.35           | -0.06          | 0.47           | ▷ -0.10        | 0.29           | 0.03                    | CO 8  |       |       |  |
|            |  |          |                | Min M <sub>y</sub>                           | -0.60          | -0.02          | -0.04          | ▷ 0.00         | -0.01          | 0.01                    | CO 7  |       |       |  |
|            |  |          |                | Max M <sub>z</sub>                           | 0.35           | -0.06          | 0.47           | ▷ -0.10        | 0.29           | ▷ 0.03                  | CO 8  |       |       |  |
|            |  |          |                | Min M <sub>z</sub>                           | -0.60          | -0.02          | -0.04          | ▷ 0.00         | -0.01          | ▷ 0.01                  | CO 7  |       |       |  |
|            |  |          |                | DLC1, Result Envelope X 100% / Y 30% / Z 30% |                |                |                |                |                |                         |       |       |       |  |
|            |  |          |                | RC5  | 14             | 0.000          | Max N          | ▷ 0.46         | -0.02          | 0.32                    | -0.06 | -0.27 | -0.02 |  |
|            |  |          |                |  |                |                | Min N          | -0.46          | 0.02           | -0.32                   | 0.06  | 0.27  | 0.02  |  |
|            | Max V <sub>y</sub>                           | -0.27    | ▷ 0.03         |  |                |                | -0.13          | 0.02           | 0.12           | 0.03                    |       |       |       |  |
|            | Min V <sub>y</sub>                           | 0.27     | -0.03          |  |                |                | 0.13           | -0.02          | -0.12          | -0.03                   |       |       |       |  |
|            | Max V <sub>z</sub>                           | 0.41     | -0.01          |  |                |                | ▷ 0.34         | -0.06          | -0.28          | -0.01                   |       |       |       |  |
|            | Min V <sub>z</sub>                           | -0.41    | 0.01           |  |                |                | ▷ -0.34        | 0.06           | 0.28           | 0.01                    |       |       |       |  |
|            | Max M <sub>T</sub>                           | -0.40    | 0.01           |  |                |                | -0.34          | 0.06           | 0.28           | 0.01                    |       |       |       |  |
|            | Min M <sub>T</sub>                           | 0.40     | -0.01          |  |                |                | ▷ 0.34         | -0.06          | -0.28          | -0.01                   |       |       |       |  |
|            | Max M <sub>y</sub>                           | -0.41    | 0.01           |  |                |                | -0.34          | 0.06           | ▷ 0.28         | 0.01                    |       |       |       |  |
|            | Min M <sub>y</sub>                           | 0.41     | -0.01          |  |                |                | 0.34           | -0.06          | -0.28          | -0.01                   |       |       |       |  |
|            | Max M <sub>z</sub>                           | -0.25    | ▷ 0.03         |  |                |                | -0.11          | 0.02           | 0.10           | ▷ 0.03                  |       |       |       |  |
|            | Min M <sub>z</sub>                           | 0.25     | -0.03          |  |                |                | 0.11           | -0.02          | -0.10          | ▷ -0.03                 |       |       |       |  |
|            | Max N  | ▷ 0.46   | -0.02          |  |                |                | 0.32           | -0.06          | 0.21           | 0.01                    |       |       |       |  |
|            | Min N  | -0.46    | 0.02           |  |                |                | -0.32          | 0.06           | -0.21          | -0.01                   |       |       |       |  |
|            | Max V <sub>y</sub>                           | -0.27    | ▷ 0.03         |  |                |                | -0.13          | 0.02           | -0.08          | -0.01                   |       |       |       |  |
|            | Min V <sub>y</sub>                           | 0.27     | ▷ -0.03        |  |                |                | 0.13           | -0.02          | 0.08           | 0.01                    |       |       |       |  |
|            | Max V <sub>z</sub>                           | 0.41     | -0.01          |  |                |                | ▷ 0.34         | -0.06          | 0.22           | 0.01                    |       |       |       |  |
|            | Min V <sub>z</sub>                           | -0.41    | 0.01           |  |                |                | ▷ -0.34        | 0.06           | -0.22          | -0.01                   |       |       |       |  |
|            | Max M <sub>T</sub>                           | -0.40    | 0.01           |  |                |                | -0.34          | 0.06           | -0.22          | -0.01                   |       |       |       |  |
|            | Min M <sub>T</sub>                           | 0.40     | -0.01          |  |                |                | ▷ 0.34         | -0.06          | 0.22           | 0.01                    |       |       |       |  |
|            | Max M <sub>y</sub>                           | 0.40     | -0.01          | 0.34   | -0.06          | ▷ 0.22         | 0.01           |                |                |                         |       |       |       |  |
|            | Min M <sub>y</sub>                           | -0.40    | 0.01           | -0.34  | 0.06           | -0.22          | -0.01          |                |                |                         |       |       |       |  |
|            | Max M <sub>z</sub>                           | 0.32     | -0.03          | 0.18   | -0.03          | 0.11           | ▷ 0.01         |                |                |                         |       |       |       |  |
|            | Min M <sub>z</sub>                           | -0.32    | 0.03           | -0.18  | 0.03           | -0.11          | ▷ -0.01        |                |                |                         |       |       |       |  |
|            | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                |  |                |                |                |                |                |                         |       |       |       |  |
|            | RC6  | 14       | 0.000          | Max N  | ▷ 0.48         | -0.03          | 0.24           | -0.05          | -0.20          | -0.04                   |       |       |       |  |
|            |  |          |                | Min N  | -0.48          | 0.03           | -0.24          | 0.05           | 0.20           | 0.04                    |       |       |       |  |
|            |  |          |                | Max V <sub>y</sub>                           | -0.33          | 0.04           | -0.09          | 0.02           | 0.08           | 0.04                    |       |       |       |  |
|            |  |          |                | Min V <sub>y</sub>                           | 0.33           | ▷ -0.04        | 0.09           | -0.02          | -0.08          | -0.04                   |       |       |       |  |
|            |  |          |                | Max V <sub>z</sub>                           | 0.36           | -0.01          | ▷ 0.26         | -0.05          | -0.22          | -0.01                   |       |       |       |  |
|            |  |          |                | Min V <sub>z</sub>                           | -0.36          | 0.01           | ▷ -0.26        | 0.05           | 0.22           | 0.01                    |       |       |       |  |
|            |  |          |                | Max M <sub>T</sub>                           | -0.33          | 0.01           | -0.26          | ▷ 0.05         | 0.22           | 0.01                    |       |       |       |  |
|            |  |          |                | Min M <sub>T</sub>                           | 0.33           | -0.01          | 0.26           | ▷ -0.05        | -0.22          | -0.01                   |       |       |       |  |
|            |  |          |                | Max M <sub>y</sub>                           | -0.37          | 0.01           | -0.26          | 0.05           | ▷ 0.22         | 0.02                    |       |       |       |  |
|            |  |          |                | Min M <sub>y</sub>                           | 0.37           | -0.01          | 0.26           | -0.05          | -0.22          | -0.02                   |       |       |       |  |
|            |  |          |                | Max M <sub>z</sub>                           | -0.31          | 0.04           | -0.08          | 0.01           | 0.07           | ▷ 0.04                  |       |       |       |  |
|            |  |          |                | Min M <sub>z</sub>                           | 0.31           | -0.04          | 0.08           | -0.01          | -0.07          | ▷ -0.04                 |       |       |       |  |
|            |  |          |                | Max N  | ▷ 0.48         | -0.03          | 0.24           | -0.05          | 0.16           | 0.01                    |       |       |       |  |
|            |  |          |                | Min N  | -0.48          | 0.03           | -0.24          | 0.05           | -0.16          | -0.01                   |       |       |       |  |
|            |  |          |                | Max V <sub>y</sub>                           | -0.33          | ▷ 0.04         | -0.09          | 0.02           | -0.06          | -0.02                   |       |       |       |  |
|            |  |          |                | Min V <sub>y</sub>                           | 0.33           | -0.04          | 0.09           | -0.02          | 0.06           | 0.02                    |       |       |       |  |
|            |  |          |                | Max V <sub>z</sub>                           | 0.36           | -0.01          | ▷ 0.26         | -0.05          | 0.17           | 0.01                    |       |       |       |  |
|            |  |          |                | Min V <sub>z</sub>                           | -0.36          | 0.01           | ▷ -0.26        | 0.05           | -0.17          | -0.01                   |       |       |       |  |
|            |  |          |                | Max M <sub>T</sub>                           | -0.33          | 0.01           | -0.26          | ▷ 0.05         | -0.17          | -0.00                   |       |       |       |  |
|            |  |          |                | Min M <sub>T</sub>                           | 0.33           | -0.01          | 0.26           | ▷ -0.05        | 0.17           | 0.00                    |       |       |       |  |
|            | Max M <sub>y</sub>                           | 0.34     | -0.01          | 0.26   | -0.05          | ▷ 0.17         | 0.01           |                |                |                         |       |       |       |  |
|            | Min M <sub>y</sub>                           | -0.34    | 0.01           | -0.26  | 0.05           | ▷ -0.17        | -0.01          |                |                |                         |       |       |       |  |
|            | Max M <sub>z</sub>                           | 0.37     | -0.04          | 0.13   | -0.02          | 0.08           | ▷ 0.02         |                |                |                         |       |       |       |  |
|            | Min M <sub>z</sub>                           | -0.37    | 0.04           | -0.13  | 0.02           | -0.08          | ▷ -0.02        |                |                |                         |       |       |       |  |
|            | DLC1, Result Envelope X 30% / Y 30% / Z 100% |          |                |  |                |                |                |                |                |                         |       |       |       |  |
|            | RC7  | 14       | 0.000          | Max N  | ▷ 0.90         | -0.03          | 0.69           | -0.13          | -0.58          | -0.03                   |       |       |       |  |
|            |  |          |                | Min N  | -0.90          | 0.03           | -0.69          | 0.13           | 0.58           | 0.03                    |       |       |       |  |
|            |  |          |                | Max V <sub>y</sub>                           | -0.45          | ▷ 0.05         | -0.25          | 0.05           | 0.22           | 0.05                    |       |       |       |  |
|            |  |          |                | Min V <sub>y</sub>                           | 0.45           | -0.05          | 0.25           | -0.05          | -0.22          | -0.05                   |       |       |       |  |
|            |  |          |                | Max V <sub>z</sub>                           | 0.84           | -0.02          | ▷ 0.71         | -0.14          | -0.60          | -0.02                   |       |       |       |  |
|            |  |          |                | Min V <sub>z</sub>                           | -0.84          | 0.02           | ▷ -0.71        | 0.14           | 0.60           | 0.02                    |       |       |       |  |
|            |  |          |                | Max M <sub>T</sub>                           | -0.83          | 0.02           | -0.71          | ▷ 0.14         | 0.60           | 0.01                    |       |       |       |  |
|            |  |          |                | Min M <sub>T</sub>                           | 0.83           | -0.02          | 0.71           | ▷ -0.14        | -0.60          | -0.01                   |       |       |       |  |
|            |  |          |                | Max M <sub>y</sub>                           | -0.85          | 0.02           | -0.71          | ▷ 0.14         | 0.60           | 0.02                    |       |       |       |  |
|            |  |          |                | Min M <sub>y</sub>                           | 0.85           | -0.02          | 0.71           | -0.14          | ▷ -0.60        | -0.02                   |       |       |       |  |
|            |  |          |                | Max M <sub>z</sub>                           | -0.40          | 0.05           | -0.21          | 0.04           | 0.18           | ▷ 0.05                  |       |       |       |  |
|            |  |          |                | Min M <sub>z</sub>                           | 0.40           | -0.05          | 0.21           | -0.04          | -0.18          | ▷ -0.05                 |       |       |       |  |
|            |  |          |                | Max N  | ▷ 0.90         | -0.03          | 0.69           | -0.13          | 0.45           | 0.01                    |       |       |       |  |
|            |  |          |                | Min N  | -0.90          | 0.03           | -0.69          | 0.13           | -0.45          | -0.01                   |       |       |       |  |
|            |  |          |                | Max V <sub>y</sub>                           | -0.45          | ▷ 0.05         | -0.25          | 0.05           | -0.16          | -0.02                   |       |       |       |  |
|            |  |          |                | Min V <sub>y</sub>                           | 0.45           | -0.05          | 0.25           | -0.05          | 0.16           | 0.02                    |       |       |       |  |
|            |  |          |                | Max V <sub>z</sub>                           | 0.84           | -0.02          | ▷ 0.71         | -0.14          | 0.47           | 0.01                    |       |       |       |  |
|            |  |          |                | Min V <sub>z</sub>                           | -0.84          | 0.02           | ▷ -0.71        | 0.14           | -0.47          | -0.01                   |       |       |       |  |
|            |  |          |                | Max M <sub>T</sub>                           | -0.83          | 0.02           | -0.71          | ▷ 0.14         | -0.47          | -0.01                   |       |       |       |  |

RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] | Forces [kN]        |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |
|------------|-----|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------------------------|
|            |     |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |
| 22         | RC7 |          |                | Min M <sub>T</sub> | 0.83           | -0.02          | 0.71           | ▷ -0.14        | 0.47           | 0.01                    |
|            |     |          |                | Max M <sub>y</sub> | 0.84           | -0.02          | 0.71           | ▷ -0.14        | 0.47           | 0.01                    |
|            |     |          |                | Min M <sub>y</sub> | -0.84          | 0.02           | -0.71          | ▷ 0.14         | -0.47          | -0.01                   |
|            |     |          |                | Max M <sub>z</sub> | 0.57           | -0.05          | 0.36           | ▷ -0.07        | 0.23           | 0.02                    |
| 23         | RC1 | 18       | 0.000          | Min M <sub>z</sub> | -0.57          | 0.05           | -0.36          | ▷ 0.07         | -0.23          | -0.02                   |
|            |     |          |                | Max N              | ▷ 4.11         | 0.23           | 2.44           | ▷ -0.45        | 1.01           | 0.07                    |
|            |     |          |                | Min N              | ▷ -0.67        | -0.04          | -0.05          | ▷ 0.00         | -0.01          | -0.02                   |
|            |     |          |                | Max V <sub>y</sub> | ▷ 4.11         | 0.23           | 2.44           | ▷ -0.45        | 1.01           | 0.07                    |
|            |     |          |                | Min V <sub>y</sub> | ▷ -0.67        | -0.04          | -0.05          | ▷ 0.00         | -0.01          | -0.02                   |
|            |     |          |                | Max V <sub>z</sub> | ▷ 4.11         | 0.23           | 2.44           | ▷ -0.45        | 1.01           | 0.07                    |
|            |     |          |                | Min V <sub>z</sub> | ▷ -0.67        | -0.04          | -0.05          | ▷ 0.00         | -0.01          | -0.02                   |
|            |     |          |                | Max M <sub>T</sub> | ▷ -0.67        | -0.04          | -0.05          | ▷ 0.00         | -0.01          | -0.02                   |
|            |     |          |                | Min M <sub>T</sub> | ▷ 4.11         | 0.23           | 2.44           | ▷ -0.45        | 1.01           | 0.07                    |
|            |     |          |                | Max M <sub>y</sub> | ▷ 4.11         | 0.23           | 2.44           | ▷ -0.45        | 1.01           | 0.07                    |
|            |     |          |                | Min M <sub>y</sub> | ▷ -0.67        | -0.04          | -0.05          | ▷ 0.00         | -0.01          | -0.02                   |
|            |     |          |                | Max M <sub>z</sub> | ▷ 4.11         | 0.23           | 2.44           | ▷ -0.45        | 1.01           | 0.07                    |
|            |     |          |                | Min M <sub>z</sub> | ▷ -0.67        | -0.04          | -0.05          | ▷ 0.00         | -0.01          | -0.02                   |
|            |     |          |                | Max N              | ▷ 4.18         | 0.23           | 2.45           | ▷ -0.45        | 2.11           | -0.04                   |
|            |     |          |                | Min N              | ▷ -0.60        | -0.04          | -0.05          | ▷ 0.00         | -0.03          | -0.00                   |
|            |     |          |                | Max V <sub>y</sub> | ▷ 4.18         | 0.23           | 2.45           | ▷ -0.45        | 2.11           | -0.04                   |
|            |     |          |                | Min V <sub>y</sub> | ▷ -0.60        | -0.04          | -0.05          | ▷ 0.00         | -0.03          | -0.00                   |
|            |     |          |                | Max V <sub>z</sub> | ▷ 4.18         | 0.23           | 2.45           | ▷ -0.45        | 2.11           | -0.04                   |
|            |     |          |                | Min V <sub>z</sub> | ▷ -0.60        | -0.04          | -0.05          | ▷ 0.00         | -0.03          | -0.00                   |
|            |     |          |                | Max M <sub>T</sub> | ▷ -0.60        | -0.04          | -0.05          | ▷ 0.00         | -0.03          | -0.00                   |
|            |     |          |                | Min M <sub>T</sub> | ▷ 4.18         | 0.23           | 2.45           | ▷ -0.45        | 2.11           | -0.04                   |
|            |     |          |                | Max M <sub>y</sub> | ▷ 4.18         | 0.23           | 2.45           | ▷ -0.45        | 2.11           | -0.04                   |
|            |     |          |                | Min M <sub>y</sub> | ▷ -0.60        | -0.04          | -0.05          | ▷ 0.00         | -0.03          | -0.00                   |
|            |     |          |                | Max M <sub>z</sub> | ▷ -0.60        | -0.04          | -0.05          | ▷ 0.00         | -0.03          | -0.00                   |
|            |     |          |                | Min M <sub>z</sub> | ▷ 4.18         | 0.23           | 2.45           | ▷ -0.45        | 2.11           | -0.04                   |
|            | RC2 | 18       | 0.000          | Max N              | ▷ 2.69         | 0.15           | 1.62           | ▷ -0.30        | 0.67           | 0.04                    |
|            |     |          |                | Min N              | ▷ -0.50        | -0.03          | -0.04          | ▷ 0.00         | -0.01          | -0.02                   |
|            |     |          |                | Max V <sub>y</sub> | ▷ 2.69         | 0.15           | 1.62           | ▷ -0.30        | 0.67           | 0.04                    |
|            |     |          |                | Min V <sub>y</sub> | ▷ -0.50        | -0.03          | -0.04          | ▷ 0.00         | -0.01          | -0.02                   |
|            |     |          |                | Max V <sub>z</sub> | ▷ 2.69         | 0.15           | 1.62           | ▷ -0.30        | 0.67           | 0.04                    |
|            |     |          |                | Min V <sub>z</sub> | ▷ -0.50        | -0.03          | -0.04          | ▷ 0.00         | -0.01          | -0.02                   |
|            |     |          |                | Max M <sub>T</sub> | ▷ -0.50        | -0.03          | -0.04          | ▷ 0.00         | -0.01          | -0.02                   |
|            |     |          |                | Min M <sub>T</sub> | ▷ 2.69         | 0.15           | 1.62           | ▷ -0.30        | 0.67           | 0.04                    |
|            |     |          |                | Max M <sub>y</sub> | ▷ 2.69         | 0.15           | 1.62           | ▷ -0.30        | 0.67           | 0.04                    |
|            |     |          |                | Min M <sub>y</sub> | ▷ -0.50        | -0.03          | -0.04          | ▷ 0.00         | -0.01          | -0.02                   |
|            |     |          |                | Max M <sub>z</sub> | ▷ 2.69         | 0.15           | 1.62           | ▷ -0.30        | 0.67           | 0.04                    |
|            |     |          |                | Min M <sub>z</sub> | ▷ -0.50        | -0.03          | -0.04          | ▷ 0.00         | -0.01          | -0.02                   |
|            |     | 21       | 0.450          | Max N              | ▷ 2.74         | 0.15           | 1.63           | ▷ -0.30        | 1.41           | -0.03                   |
|            |     |          |                | Min N              | ▷ -0.45        | -0.03          | -0.04          | ▷ 0.00         | -0.02          | -0.00                   |
|            |     |          |                | Max V <sub>y</sub> | ▷ 2.74         | 0.15           | 1.63           | ▷ -0.30        | 1.41           | -0.03                   |
|            |     |          |                | Min V <sub>y</sub> | ▷ -0.45        | -0.03          | -0.04          | ▷ 0.00         | -0.02          | -0.00                   |
|            |     |          |                | Max V <sub>z</sub> | ▷ 2.74         | 0.15           | 1.63           | ▷ -0.30        | 1.41           | -0.03                   |
|            |     |          |                | Min V <sub>z</sub> | ▷ -0.45        | -0.03          | -0.04          | ▷ 0.00         | -0.02          | -0.00                   |
|            |     |          |                | Max M <sub>T</sub> | ▷ -0.45        | -0.03          | -0.04          | ▷ 0.00         | -0.02          | -0.00                   |
|            |     |          |                | Min M <sub>T</sub> | ▷ 2.74         | 0.15           | 1.63           | ▷ -0.30        | 1.41           | -0.03                   |
|            |     |          |                | Max M <sub>y</sub> | ▷ 2.74         | 0.15           | 1.63           | ▷ -0.30        | 1.41           | -0.03                   |
|            |     |          |                | Min M <sub>y</sub> | ▷ -0.45        | -0.03          | -0.04          | ▷ 0.00         | -0.02          | -0.00                   |
|            |     |          |                | Max M <sub>z</sub> | ▷ -0.45        | -0.03          | -0.04          | ▷ 0.00         | -0.02          | -0.00                   |
|            |     |          |                | Min M <sub>z</sub> | ▷ 2.74         | 0.15           | 1.63           | ▷ -0.30        | 1.41           | -0.03                   |
|            | RC3 | 18       | 0.000          | Max N              | ▷ 1.10         | 0.06           | 0.79           | ▷ -0.15        | 0.33           | 0.01                    |
|            |     |          |                | Min N              | ▷ -0.50        | -0.03          | -0.04          | ▷ 0.00         | -0.01          | -0.02                   |
|            |     |          |                | Max V <sub>y</sub> | ▷ 1.10         | 0.06           | 0.79           | ▷ -0.15        | 0.33           | 0.01                    |
|            |     |          |                | Min V <sub>y</sub> | ▷ -0.50        | -0.03          | -0.04          | ▷ 0.00         | -0.01          | -0.02                   |
|            |     |          |                | Max V <sub>z</sub> | ▷ 1.10         | 0.06           | 0.79           | ▷ -0.15        | 0.33           | 0.01                    |
|            |     |          |                | Min V <sub>z</sub> | ▷ -0.50        | -0.03          | -0.04          | ▷ 0.00         | -0.01          | -0.02                   |
|            |     |          |                | Max M <sub>T</sub> | ▷ -0.50        | -0.03          | -0.04          | ▷ 0.00         | -0.01          | -0.02                   |
|            |     |          |                | Min M <sub>T</sub> | ▷ 1.10         | 0.06           | 0.79           | ▷ -0.15        | 0.33           | 0.01                    |
|            |     |          |                | Max M <sub>y</sub> | ▷ 1.10         | 0.06           | 0.79           | ▷ -0.15        | 0.33           | 0.01                    |
|            |     |          |                | Min M <sub>y</sub> | ▷ -0.50        | -0.03          | -0.04          | ▷ 0.00         | -0.01          | -0.02                   |
|            |     |          |                | Max M <sub>z</sub> | ▷ 1.10         | 0.06           | 0.79           | ▷ -0.15        | 0.33           | 0.01                    |
|            |     |          |                | Min M <sub>z</sub> | ▷ -0.50        | -0.03          | -0.04          | ▷ 0.00         | -0.01          | -0.02                   |
|            |     | 21       | 0.450          | Max N              | ▷ 1.15         | 0.06           | 0.79           | ▷ -0.15        | 0.69           | -0.02                   |
|            |     |          |                | Min N              | ▷ -0.45        | -0.03          | -0.04          | ▷ 0.00         | -0.02          | -0.00                   |
|            |     |          |                | Max V <sub>y</sub> | ▷ 1.15         | 0.06           | 0.79           | ▷ -0.15        | 0.69           | -0.02                   |
|            |     |          |                | Min V <sub>y</sub> | ▷ -0.45        | -0.03          | -0.04          | ▷ 0.00         | -0.02          | -0.00                   |
|            |     |          |                | Max V <sub>z</sub> | ▷ 1.15         | 0.06           | 0.79           | ▷ -0.15        | 0.69           | -0.02                   |
|            |     |          |                | Min V <sub>z</sub> | ▷ -0.45        | -0.03          | -0.04          | ▷ 0.00         | -0.02          | -0.00                   |
|            |     |          |                | Max M <sub>T</sub> | ▷ -0.45        | -0.03          | -0.04          | ▷ 0.00         | -0.02          | -0.00                   |
|            |     |          |                | Min M <sub>T</sub> | ▷ 1.15         | 0.06           | 0.79           | ▷ -0.15        | 0.69           | -0.02                   |
|            |     |          |                | Max M <sub>y</sub> | ▷ 1.15         | 0.06           | 0.79           | ▷ -0.15        | 0.69           | -0.02                   |
|            |     |          |                | Min M <sub>y</sub> | ▷ -0.45        | -0.03          | -0.04          | ▷ 0.00         | -0.02          | -0.00                   |
|            |     |          |                | Max M <sub>z</sub> | ▷ -0.45        | -0.03          | -0.04          | ▷ 0.00         | -0.02          | -0.00                   |
|            |     |          |                | Min M <sub>z</sub> | ▷ 1.15         | 0.06           | 0.79           | ▷ -0.15        | 0.69           | -0.02                   |
|            | RC4 | 18       | 0.000          | Max N              | ▷ 0.46         | 0.03           | 0.46           | ▷ -0.09        | 0.20           | 0.00                    |
|            |     |          |                | Min N              | ▷ -0.50        | -0.03          | -0.04          | ▷ 0.00         | -0.01          | -0.02                   |
|            |     |          |                | Max V <sub>y</sub> | ▷ 0.46         | 0.03           | 0.46           | ▷ -0.09        | 0.20           | 0.00                    |
|            |     |          |                | Min V <sub>y</sub> | ▷ -0.50        | -0.03          | -0.04          | ▷ 0.00         | -0.01          | -0.02                   |
|            |     |          |                | Max V <sub>z</sub> | ▷ 0.46         | 0.03           | 0.46           | ▷ -0.09        | 0.20           | 0.00                    |
|            |     |          |                | Min V <sub>z</sub> | ▷ -0.50        | -0.03          | -0.04          | ▷ 0.00         | -0.01          | -0.02                   |
|            |     |          |                | Max M <sub>T</sub> | ▷ -0.50        | -0.03          | -0.04          | ▷ 0.00         | -0.01          | -0.02                   |
|            |     |          |                | Min M <sub>T</sub> | ▷ 0.46         | 0.03           | 0.46           | ▷ -0.09        | 0.20           | 0.00                    |
|            |     |          |                | Max M <sub>y</sub> | ▷ 0.46         | 0.03           | 0.46           | ▷ -0.09        | 0.20           | 0.00                    |
|            |     |          |                | Min M <sub>y</sub> | ▷ -0.50        | -0.03          | -0.04          | ▷ 0.00         | -0.01          | -0.02                   |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] | Forces [kN]                                  |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |
|------------|-----|----------|----------------|--|----------------|----------------|----------------|----------------|----------------|-------------------------|
|            |     |          |                | N  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |
| 23         | RC4 | 21       | 0.450          | Max M <sub>z</sub>                           | 0.46           | 0.03           | 0.46           | -0.09          | 0.20           | 0.00                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.50          | -0.03          | -0.04          | 0.00           | -0.01          | -0.02                   |
|            |     |          |                | Max N  | 0.51           | 0.03           | 0.46           | -0.09          | 0.41           | -0.01                   |
|            |     |          |                | Min N  | -0.45          | -0.03          | -0.04          | 0.00           | -0.02          | -0.00                   |
|            |     |          |                | Max V <sub>y</sub>                           | 0.51           | 0.03           | 0.46           | -0.09          | 0.41           | -0.01                   |
|            |     |          |                | Min V <sub>y</sub>                           | -0.45          | -0.03          | -0.04          | 0.00           | -0.02          | -0.00                   |
|            |     |          |                | Max V <sub>z</sub>                           | 0.51           | 0.03           | 0.46           | -0.09          | 0.41           | -0.01                   |
|            |     |          |                | Min V <sub>z</sub>                           | -0.45          | -0.03          | -0.04          | 0.00           | -0.02          | -0.00                   |
|            |     |          |                | Max M <sub>T</sub>                           | -0.45          | -0.03          | -0.04          | 0.00           | -0.02          | -0.00                   |
|            |     |          |                | Min M <sub>T</sub>                           | 0.51           | 0.03           | 0.46           | -0.09          | 0.41           | -0.01                   |
|            |     |          |                | Max M <sub>y</sub>                           | 0.51           | 0.03           | 0.46           | -0.09          | 0.41           | -0.01                   |
|            |     |          |                | Min M <sub>y</sub>                           | -0.45          | -0.03          | -0.04          | 0.00           | -0.02          | -0.00                   |
|            |     |          |                | Max M <sub>z</sub>                           | -0.45          | -0.03          | -0.04          | 0.00           | -0.02          | -0.00                   |
|            |     |          |                | Min M <sub>z</sub>                           | 0.51           | 0.03           | 0.46           | -0.09          | 0.41           | -0.01                   |
|            |     |          |                | DLC1, Result Envelope X 100% / Y 30% / Z 30% |                |                |                |                |                |                         |
|            |     |          |                | Max N  | 0.44           | 0.01           | 0.24           | -0.03          | 0.15           | 0.00                    |
|            |     |          |                | Min N  | -0.44          | -0.01          | -0.24          | 0.03           | -0.15          | -0.00                   |
|            |     |          |                | Max V <sub>y</sub>                           | 0.04           | 0.05           | -0.06          | -0.01          | -0.03          | 0.01                    |
|            |     |          |                | Min V <sub>y</sub>                           | -0.04          | -0.05          | 0.06           | 0.01           | 0.03           | -0.01                   |
|            |     |          |                | Max V <sub>z</sub>                           | 0.40           | -0.01          | 0.25           | -0.03          | 0.16           | 0.00                    |
|            |     |          |                | Min V <sub>z</sub>                           | -0.40          | 0.01           | -0.25          | 0.03           | -0.16          | -0.00                   |
|            |     |          |                | Max M <sub>T</sub>                           | -0.30          | -0.01          | -0.19          | 0.04           | -0.13          | -0.00                   |
|            |     |          |                | Min M <sub>T</sub>                           | 0.30           | 0.01           | 0.19           | -0.04          | 0.13           | 0.00                    |
|            |     |          |                | Max M <sub>y</sub>                           | 0.39           | -0.01          | 0.25           | -0.03          | 0.16           | 0.00                    |
|            |     |          |                | Min M <sub>y</sub>                           | -0.39          | 0.01           | -0.25          | 0.03           | -0.16          | -0.00                   |
|            |     |          |                | Max M <sub>z</sub>                           | 0.10           | 0.05           | -0.02          | -0.02          | -0.01          | 0.01                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.10          | -0.05          | 0.02           | 0.02           | 0.01           | -0.01                   |
|            |     | 21       | 0.450          | Max N  | 0.44           | 0.01           | 0.24           | -0.03          | 0.26           | 0.00                    |
|            |     |          |                | Min N  | -0.44          | -0.01          | -0.24          | 0.03           | -0.26          | -0.00                   |
|            |     |          |                | Max V <sub>y</sub>                           | 0.04           | 0.05           | -0.06          | -0.01          | -0.06          | -0.01                   |
|            |     |          |                | Min V <sub>y</sub>                           | -0.04          | -0.05          | 0.06           | 0.01           | 0.06           | 0.01                    |
|            |     |          |                | Max V <sub>z</sub>                           | 0.40           | -0.01          | 0.25           | -0.03          | 0.28           | 0.00                    |
|            |     |          |                | Min V <sub>z</sub>                           | -0.40          | 0.01           | -0.25          | 0.03           | -0.28          | -0.00                   |
|            |     |          |                | Max M <sub>T</sub>                           | -0.30          | -0.01          | -0.19          | 0.04           | -0.21          | 0.00                    |
|            |     |          |                | Min M <sub>T</sub>                           | 0.30           | 0.01           | 0.19           | -0.04          | 0.21           | -0.00                   |
|            |     |          |                | Max M <sub>y</sub>                           | 0.39           | -0.01          | 0.25           | -0.03          | 0.28           | 0.00                    |
|            |     |          |                | Min M <sub>y</sub>                           | -0.39          | 0.01           | -0.25          | 0.03           | -0.28          | -0.00                   |
|            |     |          |                | Max M <sub>z</sub>                           | 0.07           | -0.05          | 0.11           | 0.01           | 0.11           | 0.01                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.07          | 0.05           | -0.11          | -0.01          | -0.11          | -0.01                   |
|            |     |          |                | DLC1, Result Envelope X 30% / Y 100% / Z 30% |                |                |                |                |                |                         |
|            |     |          |                | Max N  | 0.45           | 0.02           | 0.19           | -0.02          | 0.12           | 0.01                    |
|            |     |          |                | Min N  | -0.45          | -0.02          | -0.19          | 0.02           | -0.12          | -0.01                   |
|            |     |          |                | Max V <sub>y</sub>                           | 0.12           | 0.06           | -0.06          | -0.01          | -0.03          | 0.02                    |
|            |     |          |                | Min V <sub>y</sub>                           | -0.12          | -0.06          | 0.06           | 0.01           | 0.03           | -0.02                   |
|            |     |          |                | Max V <sub>z</sub>                           | 0.37           | -0.01          | 0.20           | -0.02          | 0.12           | 0.00                    |
|            |     |          |                | Min V <sub>z</sub>                           | -0.37          | 0.01           | -0.20          | 0.02           | -0.12          | -0.00                   |
|            |     |          |                | Max M <sub>T</sub>                           | -0.13          | -0.00          | -0.13          | 0.04           | -0.09          | 0.00                    |
|            |     |          |                | Min M <sub>T</sub>                           | 0.13           | 0.00           | 0.13           | -0.04          | 0.09           | -0.00                   |
|            |     |          |                | Max M <sub>y</sub>                           | 0.33           | -0.01          | 0.20           | -0.02          | 0.13           | 0.00                    |
|            |     |          |                | Min M <sub>y</sub>                           | -0.33          | 0.01           | -0.20          | 0.02           | -0.13          | -0.00                   |
|            |     |          |                | Max M <sub>z</sub>                           | 0.18           | 0.06           | -0.03          | -0.01          | -0.02          | 0.02                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.18          | -0.06          | 0.03           | 0.01           | 0.02           | -0.02                   |
|            |     | 21       | 0.450          | Max N  | 0.45           | 0.02           | 0.19           | -0.02          | 0.20           | 0.00                    |
|            |     |          |                | Min N  | -0.45          | -0.02          | -0.19          | 0.02           | -0.20          | -0.00                   |
|            |     |          |                | Max V <sub>y</sub>                           | 0.12           | 0.06           | -0.06          | -0.01          | -0.06          | -0.01                   |
|            |     |          |                | Min V <sub>y</sub>                           | -0.12          | -0.06          | 0.06           | 0.01           | 0.06           | 0.01                    |
|            |     |          |                | Max V <sub>z</sub>                           | 0.37           | -0.01          | 0.20           | -0.02          | 0.21           | 0.00                    |
|            |     |          |                | Min V <sub>z</sub>                           | -0.37          | 0.01           | -0.20          | 0.02           | -0.21          | -0.00                   |
|            |     |          |                | Max M <sub>T</sub>                           | -0.13          | -0.00          | -0.13          | 0.04           | -0.15          | 0.00                    |
|            |     |          |                | Min M <sub>T</sub>                           | 0.13           | 0.00           | 0.13           | -0.04          | 0.15           | -0.00                   |
|            |     |          |                | Max M <sub>y</sub>                           | 0.35           | -0.01          | 0.20           | -0.02          | 0.21           | 0.00                    |
|            |     |          |                | Min M <sub>y</sub>                           | -0.35          | 0.01           | -0.20          | 0.02           | -0.21          | -0.00                   |
|            |     |          |                | Max M <sub>z</sub>                           | 0.04           | -0.05          | 0.10           | 0.01           | 0.10           | 0.01                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.04          | 0.05           | -0.10          | -0.01          | -0.10          | -0.01                   |
|            |     |          |                | DLC1, Result Envelope X 30% / Y 30% / Z 100% |                |                |                |                |                |                         |
|            |     |          |                | Max N  | 0.86           | -0.01          | 0.52           | -0.06          | 0.33           | 0.00                    |
|            |     |          |                | Min N  | -0.86          | 0.01           | -0.52          | 0.06           | -0.33          | -0.00                   |
|            |     |          |                | Max V <sub>y</sub>                           | -0.11          | 0.10           | -0.20          | -0.02          | -0.12          | 0.02                    |
|            |     |          |                | Min V <sub>y</sub>                           | 0.11           | -0.10          | 0.20           | 0.02           | 0.12           | -0.02                   |
|            |     |          |                | Max V <sub>z</sub>                           | 0.81           | -0.04          | 0.54           | -0.06          | 0.35           | -0.00                   |
|            |     |          |                | Min V <sub>z</sub>                           | -0.81          | 0.04           | -0.54          | 0.06           | -0.35          | 0.00                    |
|            |     |          |                | Max M <sub>T</sub>                           | -0.64          | -0.03          | -0.40          | 0.08           | -0.27          | -0.01                   |
|            |     |          |                | Min M <sub>T</sub>                           | 0.64           | 0.03           | 0.40           | -0.08          | 0.27           | 0.01                    |
|            |     |          |                | Max M <sub>y</sub>                           | 0.80           | -0.03          | 0.54           | -0.06          | 0.35           | -0.00                   |
|            |     |          |                | Min M <sub>y</sub>                           | -0.80          | 0.03           | -0.54          | 0.06           | -0.35          | 0.00                    |
|            |     |          |                | Max M <sub>z</sub>                           | 0.04           | 0.10           | -0.12          | -0.03          | -0.07          | 0.03                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.04          | -0.10          | 0.12           | 0.03           | 0.07           | -0.03                   |
|            |     | 21       | 0.450          | Max N  | 0.86           | -0.01          | 0.52           | -0.06          | 0.57           | 0.01                    |
|            |     |          |                | Min N  | -0.86          | 0.01           | -0.52          | 0.06           | -0.57          | -0.01                   |
|            |     |          |                | Max V <sub>y</sub>                           | -0.11          | 0.10           | -0.20          | -0.02          | -0.21          | -0.02                   |
|            |     |          |                | Min V <sub>y</sub>                           | 0.11           | -0.10          | 0.20           | 0.02           | 0.21           | 0.02                    |
|            |     |          |                | Max V <sub>z</sub>                           | 0.81           | -0.04          | 0.54           | -0.06          | 0.59           | 0.01                    |
|            |     |          |                | Min V <sub>z</sub>                           | -0.81          | 0.04           | -0.54          | 0.06           | -0.59          | -0.01                   |
|            |     |          |                | Max M <sub>T</sub>                           | -0.64          | -0.03          | -0.40          | 0.08           | -0.45          | 0.00                    |
|            |     |          |                | Min M <sub>T</sub>                           | 0.64           | 0.03           | 0.40           | -0.08          | 0.45           | -0.00                   |
|            |     |          |                | Max M <sub>y</sub>                           | 0.81           | -0.03          | 0.54           | -0.06          | 0.59           | 0.01                    |
|            |     |          |                | Min M <sub>y</sub>                           | -0.81          | 0.03           | -0.54          | 0.06           | -0.59          | -0.01                   |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] | Forces [kN]        |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |
|------------|-----|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------------------------|
|            |     |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |
| 23         | RC7 |          |                | Max M <sub>z</sub> | 0.28           | -0.10          | 0.29           | 0.01           | 0.30           | 0.02                    |
|            |     |          |                | Min M <sub>z</sub> | -0.28          | 0.10           | -0.29          | -0.01          | -0.30          | -0.02                   |
| 24         | RC1 | 11       | 0.000          | Max N              | -1.84          | 0.08           | -0.02          | 0.00           | 0.03           | 0.09                    |
|            |     |          |                | Min N              | -24.41         | -0.26          | 1.20           | 0.15           | -1.50          | -0.23                   |
|            |     |          |                | Max V <sub>y</sub> | -1.84          | 0.08           | -0.02          | 0.00           | 0.03           | 0.09                    |
|            |     |          |                | Min V <sub>y</sub> | -24.41         | -0.26          | 1.20           | 0.15           | -1.50          | -0.23                   |
|            |     |          |                | Max V <sub>z</sub> | -24.41         | -0.26          | 1.20           | 0.15           | -1.50          | -0.23                   |
|            |     |          |                | Min V <sub>z</sub> | -1.84          | 0.08           | -0.02          | 0.00           | 0.03           | 0.09                    |
|            |     |          |                | Max M <sub>T</sub> | -24.41         | -0.26          | 1.20           | 0.15           | -1.50          | -0.23                   |
|            |     |          |                | Min M <sub>T</sub> | -1.84          | 0.08           | -0.02          | 0.00           | 0.03           | 0.09                    |
|            |     |          |                | Max M <sub>y</sub> | -1.84          | 0.08           | -0.02          | 0.00           | 0.03           | 0.09                    |
|            |     |          |                | Min M <sub>y</sub> | -24.41         | -0.26          | 1.20           | 0.15           | -1.50          | -0.23                   |
|            |     |          |                | Max M <sub>z</sub> | -1.84          | 0.08           | -0.02          | 0.00           | 0.03           | 0.09                    |
|            |     |          |                | Min M <sub>z</sub> | -24.41         | -0.26          | 1.20           | 0.15           | -1.50          | -0.23                   |
|            |     | 15       | 1.550          | Max N              | -1.59          | 0.08           | -0.02          | 0.00           | -0.00          | -0.04                   |
|            |     |          |                | Min N              | -24.17         | -0.26          | 1.25           | 0.15           | 0.42           | 0.17                    |
|            |     |          |                | Max V <sub>y</sub> | -1.59          | 0.08           | -0.02          | 0.00           | -0.00          | -0.04                   |
|            |     |          |                | Min V <sub>y</sub> | -24.17         | -0.26          | 1.25           | 0.15           | 0.42           | 0.17                    |
|            |     |          |                | Max V <sub>z</sub> | -24.17         | -0.26          | 1.25           | 0.15           | 0.42           | 0.17                    |
|            |     |          |                | Min V <sub>z</sub> | -1.59          | 0.08           | -0.02          | 0.00           | -0.00          | -0.04                   |
|            |     |          |                | Max M <sub>T</sub> | -24.17         | -0.26          | 1.25           | 0.15           | 0.42           | 0.17                    |
|            |     |          |                | Min M <sub>T</sub> | -1.59          | 0.08           | -0.02          | 0.00           | -0.00          | -0.04                   |
|            |     |          |                | Max M <sub>y</sub> | -24.17         | -0.26          | 1.25           | 0.15           | 0.42           | 0.17                    |
|            |     |          |                | Min M <sub>y</sub> | -1.59          | 0.08           | -0.02          | 0.00           | -0.00          | -0.04                   |
|            |     |          |                | Max M <sub>z</sub> | -24.17         | -0.26          | 1.25           | 0.15           | 0.42           | 0.17                    |
|            |     |          |                | Min M <sub>z</sub> | -1.59          | 0.08           | -0.02          | 0.00           | -0.00          | -0.04                   |
|            | RC2 | 11       | 0.000          | Max N              | -1.36          | 0.06           | -0.02          | 0.00           | 0.02           | 0.07                    |
|            |     |          |                | Min N              | -16.41         | -0.17          | 0.81           | 0.10           | -1.00          | -0.15                   |
|            |     |          |                | Max V <sub>y</sub> | -1.36          | 0.06           | -0.02          | 0.00           | 0.02           | 0.07                    |
|            |     |          |                | Min V <sub>y</sub> | -16.41         | -0.17          | 0.81           | 0.10           | -1.00          | -0.15                   |
|            |     |          |                | Max V <sub>z</sub> | -16.41         | -0.17          | 0.81           | 0.10           | -1.00          | -0.15                   |
|            |     |          |                | Min V <sub>z</sub> | -1.36          | 0.06           | -0.02          | 0.00           | 0.02           | 0.07                    |
|            |     |          |                | Max M <sub>T</sub> | -16.41         | -0.17          | 0.81           | 0.10           | -1.00          | -0.15                   |
|            |     |          |                | Min M <sub>T</sub> | -1.36          | 0.06           | -0.02          | 0.00           | 0.02           | 0.07                    |
|            |     |          |                | Max M <sub>y</sub> | -1.36          | 0.06           | -0.02          | 0.00           | 0.02           | 0.07                    |
|            |     |          |                | Min M <sub>y</sub> | -16.41         | -0.17          | 0.81           | 0.10           | -1.00          | -0.15                   |
|            |     |          |                | Max M <sub>z</sub> | -1.36          | 0.06           | -0.02          | 0.00           | 0.02           | 0.07                    |
|            |     |          |                | Min M <sub>z</sub> | -16.41         | -0.17          | 0.81           | 0.10           | -1.00          | -0.15                   |
|            |     | 15       | 1.550          | Max N              | -1.18          | 0.06           | -0.02          | 0.00           | -0.00          | -0.03                   |
|            |     |          |                | Min N              | -16.23         | -0.17          | 0.83           | 0.10           | 0.28           | 0.11                    |
|            |     |          |                | Max V <sub>y</sub> | -1.18          | 0.06           | -0.02          | 0.00           | -0.00          | -0.03                   |
|            |     |          |                | Min V <sub>y</sub> | -16.23         | -0.17          | 0.83           | 0.10           | 0.28           | 0.11                    |
|            |     |          |                | Max V <sub>z</sub> | -16.23         | -0.17          | 0.83           | 0.10           | 0.28           | 0.11                    |
|            |     |          |                | Min V <sub>z</sub> | -1.18          | 0.06           | -0.02          | 0.00           | -0.00          | -0.03                   |
|            |     |          |                | Max M <sub>T</sub> | -16.23         | -0.17          | 0.83           | 0.10           | 0.28           | 0.11                    |
|            |     |          |                | Min M <sub>T</sub> | -1.18          | 0.06           | -0.02          | 0.00           | -0.00          | -0.03                   |
|            |     |          |                | Max M <sub>y</sub> | -16.23         | -0.17          | 0.83           | 0.10           | 0.28           | 0.11                    |
|            |     |          |                | Min M <sub>y</sub> | -1.18          | 0.06           | -0.02          | 0.00           | -0.00          | -0.03                   |
|            |     |          |                | Max M <sub>z</sub> | -16.23         | -0.17          | 0.83           | 0.10           | 0.28           | 0.11                    |
|            |     |          |                | Min M <sub>z</sub> | -1.18          | 0.06           | -0.02          | 0.00           | -0.00          | -0.03                   |
|            | RC3 | 11       | 0.000          | Max N              | -1.36          | 0.06           | -0.02          | 0.00           | 0.02           | 0.07                    |
|            |     |          |                | Min N              | -8.89          | -0.05          | 0.40           | 0.05           | -0.49          | -0.04                   |
|            |     |          |                | Max V <sub>y</sub> | -1.36          | 0.06           | -0.02          | 0.00           | 0.02           | 0.07                    |
|            |     |          |                | Min V <sub>y</sub> | -8.89          | -0.05          | 0.40           | 0.05           | -0.49          | -0.04                   |
|            |     |          |                | Max V <sub>z</sub> | -8.89          | -0.05          | 0.40           | 0.05           | -0.49          | -0.04                   |
|            |     |          |                | Min V <sub>z</sub> | -1.36          | 0.06           | -0.02          | 0.00           | 0.02           | 0.07                    |
|            |     |          |                | Max M <sub>T</sub> | -8.89          | -0.05          | 0.40           | 0.05           | -0.49          | -0.04                   |
|            |     |          |                | Min M <sub>T</sub> | -1.36          | 0.06           | -0.02          | 0.00           | 0.02           | 0.07                    |
|            |     |          |                | Max M <sub>y</sub> | -1.36          | 0.06           | -0.02          | 0.00           | 0.02           | 0.07                    |
|            |     |          |                | Min M <sub>y</sub> | -8.89          | -0.05          | 0.40           | 0.05           | -0.49          | -0.04                   |
|            |     |          |                | Max M <sub>z</sub> | -1.36          | 0.06           | -0.02          | 0.00           | 0.02           | 0.07                    |
|            |     |          |                | Min M <sub>z</sub> | -8.89          | -0.05          | 0.40           | 0.05           | -0.49          | -0.04                   |
|            |     | 15       | 1.550          | Max N              | -1.18          | 0.06           | -0.02          | 0.00           | -0.00          | -0.03                   |
|            |     |          |                | Min N              | -8.71          | -0.05          | 0.41           | 0.05           | 0.14           | 0.04                    |
|            |     |          |                | Max V <sub>y</sub> | -1.18          | 0.06           | -0.02          | 0.00           | -0.00          | -0.03                   |
|            |     |          |                | Min V <sub>y</sub> | -8.71          | -0.05          | 0.41           | 0.05           | 0.14           | 0.04                    |
|            |     |          |                | Max V <sub>z</sub> | -8.71          | -0.05          | 0.41           | 0.05           | 0.14           | 0.04                    |
|            |     |          |                | Min V <sub>z</sub> | -1.18          | 0.06           | -0.02          | 0.00           | -0.00          | -0.03                   |
|            |     |          |                | Max M <sub>T</sub> | -8.71          | -0.05          | 0.41           | 0.05           | 0.14           | 0.04                    |
|            |     |          |                | Min M <sub>T</sub> | -1.18          | 0.06           | -0.02          | 0.00           | -0.00          | -0.03                   |
|            |     |          |                | Max M <sub>y</sub> | -8.71          | -0.05          | 0.41           | 0.05           | 0.14           | 0.04                    |
|            |     |          |                | Min M <sub>y</sub> | -1.18          | 0.06           | -0.02          | 0.00           | -0.00          | -0.03                   |
|            |     |          |                | Max M <sub>z</sub> | -8.71          | -0.05          | 0.41           | 0.05           | 0.14           | 0.04                    |
|            |     |          |                | Min M <sub>z</sub> | -1.18          | 0.06           | -0.02          | 0.00           | -0.00          | -0.03                   |
|            | RC4 | 11       | 0.000          | Max N              | -1.36          | 0.06           | -0.02          | 0.00           | 0.02           | 0.07                    |
|            |     |          |                | Min N              | -5.88          | -0.01          | 0.24           | 0.03           | -0.29          | 0.00                    |
|            |     |          |                | Max V <sub>y</sub> | -1.36          | 0.06           | -0.02          | 0.00           | 0.02           | 0.07                    |
|            |     |          |                | Min V <sub>y</sub> | -5.88          | -0.01          | 0.24           | 0.03           | -0.29          | 0.00                    |
|            |     |          |                | Max V <sub>z</sub> | -5.88          | -0.01          | 0.24           | 0.03           | -0.29          | 0.00                    |
|            |     |          |                | Min V <sub>z</sub> | -1.36          | 0.06           | -0.02          | 0.00           | 0.02           | 0.07                    |
|            |     |          |                | Max M <sub>T</sub> | -5.88          | -0.01          | 0.24           | 0.03           | -0.29          | 0.00                    |
|            |     |          |                | Min M <sub>T</sub> | -1.36          | 0.06           | -0.02          | 0.00           | 0.02           | 0.07                    |
|            |     |          |                | Max M <sub>y</sub> | -1.36          | 0.06           | -0.02          | 0.00           | 0.02           | 0.07                    |
|            |     |          |                | Min M <sub>y</sub> | -5.88          | -0.01          | 0.24           | 0.03           | -0.29          | 0.00                    |
|            |     |          |                | Max M <sub>z</sub> | -1.36          | 0.06           | -0.02          | 0.00           | 0.02           | 0.07                    |
|            |     |          |                | Min M <sub>z</sub> | -5.88          | -0.01          | 0.24           | 0.03           | -0.29          | 0.00                    |
|            |     | 15       | 1.550          | Max N              | -1.18          | 0.06           | -0.02          | 0.00           | -0.00          | -0.03                   |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] | Forces [kN]                                  |                |                | Moments [kNm]      |                |                | Correspondin Load Cases |
|------------|-----|----------|----------------|--|----------------|----------------|--------------------|----------------|----------------|-------------------------|
|            |     |          |                | N  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub>     | M <sub>y</sub> | M <sub>z</sub> |                         |
| 24         | RC4 |          |                | Min N  | ▷ -5.70        | ▷ -0.01        | ▷ 0.24             | ▷ 0.03         | ▷ 0.08         | ▷ 0.02                  |
|            |     |          |                | Max V <sub>y</sub>                           | ▷ -1.18        | ▷ 0.06         | ▷ -0.02            | ▷ 0.00         | ▷ -0.00        | ▷ -0.03                 |
|            |     |          |                | Min V <sub>y</sub>                           | ▷ -5.70        | ▷ -0.01        | ▷ 0.24             | ▷ 0.03         | ▷ 0.08         | ▷ 0.02                  |
|            |     |          |                | Max V <sub>z</sub>                           | ▷ -5.70        | ▷ -0.01        | ▷ 0.24             | ▷ 0.03         | ▷ 0.08         | ▷ 0.02                  |
|            |     |          |                | Min V <sub>z</sub>                           | ▷ -1.18        | ▷ 0.06         | ▷ -0.02            | ▷ 0.00         | ▷ -0.00        | ▷ -0.03                 |
|            |     |          |                | Max M <sub>T</sub>                           | ▷ -5.70        | ▷ -0.01        | ▷ 0.24             | ▷ 0.03         | ▷ 0.08         | ▷ 0.02                  |
|            |     |          |                | Min M <sub>T</sub>                           | ▷ -1.18        | ▷ 0.06         | ▷ -0.02            | ▷ 0.00         | ▷ -0.00        | ▷ -0.03                 |
|            |     |          |                | Max M <sub>y</sub>                           | ▷ -5.70        | ▷ -0.01        | ▷ 0.24             | ▷ 0.03         | ▷ 0.08         | ▷ 0.02                  |
|            |     |          |                | Min M <sub>y</sub>                           | ▷ -1.18        | ▷ 0.06         | ▷ -0.02            | ▷ 0.00         | ▷ -0.00        | ▷ -0.03                 |
|            |     |          |                | Max M <sub>z</sub>                           | ▷ -5.70        | ▷ -0.01        | ▷ 0.24             | ▷ 0.03         | ▷ 0.08         | ▷ 0.02                  |
|            |     |          |                | Min M <sub>z</sub>                           | ▷ -1.18        | ▷ 0.06         | ▷ -0.02            | ▷ 0.00         | ▷ -0.00        | ▷ -0.03                 |
|            |     |          |                | DLC1, Result Envelope X 100% / Y 30% / Z 30% |                |                |                    |                |                |                         |
|            |     |          |                | RC5  | 11             | 0.000          | Max N              | ▷ 2.42         | ▷ 0.03         | ▷ -0.11                 |
|            |     |          |                |  |                |                | Min N              | ▷ -2.42        | ▷ -0.03        | ▷ 0.11                  |
|            |     |          |                |  |                |                | Max V <sub>y</sub> | ▷ 1.71         | ▷ 0.06         | ▷ -0.10                 |
|            |     |          |                |  |                |                | Min V <sub>y</sub> | ▷ -1.71        | ▷ -0.06        | ▷ 0.10                  |
|            |     |          |                |  |                |                | Max V <sub>z</sub> | ▷ -2.14        | ▷ -0.03        | ▷ 0.13                  |
|            |     |          |                |  |                |                | Min V <sub>z</sub> | ▷ 2.14         | ▷ 0.03         | ▷ -0.13                 |
|            |     |          |                |  |                |                | Max M <sub>T</sub> | ▷ -1.81        | ▷ -0.03        | ▷ 0.12                  |
|            |     |          |                |  |                |                | Min M <sub>T</sub> | ▷ 1.81         | ▷ 0.03         | ▷ -0.12                 |
|            |     |          |                |  |                |                | Max M <sub>y</sub> | ▷ 2.16         | ▷ 0.03         | ▷ -0.13                 |
|            |     |          |                |  |                |                | Min M <sub>y</sub> | ▷ -2.16        | ▷ -0.03        | ▷ 0.13                  |
|            |     |          |                |  |                |                | Max M <sub>z</sub> | ▷ 1.67         | ▷ 0.06         | ▷ -0.10                 |
|            |     |          |                |  |                |                | Min M <sub>z</sub> | ▷ -1.67        | ▷ -0.06        | ▷ 0.10                  |
|            |     |          |                |  |                |                | Max N              | ▷ 2.42         | ▷ 0.03         | ▷ -0.11                 |
|            |     |          |                | 15   | 1.550          |                | Min N              | ▷ -2.42        | ▷ -0.03        | ▷ 0.11                  |
|            |     |          |                |  |                |                | Max V <sub>y</sub> | ▷ 1.71         | ▷ 0.06         | ▷ -0.10                 |
|            |     |          |                |  |                |                | Min V <sub>y</sub> | ▷ -1.71        | ▷ -0.06        | ▷ 0.10                  |
|            |     |          |                |  |                |                | Max V <sub>z</sub> | ▷ -2.14        | ▷ -0.03        | ▷ 0.13                  |
|            |     |          |                |  |                |                | Min V <sub>z</sub> | ▷ 2.14         | ▷ 0.03         | ▷ -0.13                 |
|            |     |          |                |  |                |                | Max M <sub>T</sub> | ▷ -1.81        | ▷ -0.03        | ▷ 0.12                  |
|            |     |          |                |  |                |                | Min M <sub>T</sub> | ▷ 1.81         | ▷ 0.03         | ▷ -0.12                 |
|            |     |          |                |  |                |                | Max M <sub>y</sub> | ▷ -2.08        | ▷ -0.03        | ▷ 0.13                  |
|            |     |          |                |  |                |                | Min M <sub>y</sub> | ▷ 2.08         | ▷ 0.03         | ▷ -0.13                 |
|            |     |          |                |  |                |                | Max M <sub>z</sub> | ▷ -1.78        | ▷ -0.06        | ▷ 0.11                  |
|            |     |          |                |  |                |                | Min M <sub>z</sub> | ▷ 1.78         | ▷ 0.06         | ▷ -0.11                 |
|            |     |          |                | DLC1, Result Envelope X 30% / Y 100% / Z 30% |                |                |                    |                |                |                         |
|            |     |          |                | RC6  | 11             | 0.000          | Max N              | ▷ 2.44         | ▷ 0.00         | ▷ -0.09                 |
|            |     |          |                |  |                |                | Min N              | ▷ -2.44        | ▷ -0.00        | ▷ 0.09                  |
|            |     |          |                |  |                |                | Max V <sub>y</sub> | ▷ 0.64         | ▷ 0.07         | ▷ -0.06                 |
|            |     |          |                |  |                |                | Min V <sub>y</sub> | ▷ -0.64        | ▷ -0.07        | ▷ 0.06                  |
|            |     |          |                |  |                |                | Max V <sub>z</sub> | ▷ -2.17        | ▷ 0.00         | ▷ 0.10                  |
|            |     |          |                |  |                |                | Min V <sub>z</sub> | ▷ 2.17         | ▷ -0.00        | ▷ -0.10                 |
|            |     |          |                |  |                |                | Max M <sub>T</sub> | ▷ -1.86        | ▷ 0.00         | ▷ 0.10                  |
|            |     |          |                |  |                |                | Min M <sub>T</sub> | ▷ 1.86         | ▷ -0.00        | ▷ -0.10                 |
|            |     |          |                |  |                |                | Max M <sub>y</sub> | ▷ 2.18         | ▷ -0.00        | ▷ -0.10                 |
|            |     |          |                |  |                |                | Min M <sub>y</sub> | ▷ -2.18        | ▷ 0.00         | ▷ 0.10                  |
|            |     |          |                |  |                |                | Max M <sub>z</sub> | ▷ 0.60         | ▷ 0.07         | ▷ -0.06                 |
|            |     |          |                |  |                |                | Min M <sub>z</sub> | ▷ -0.60        | ▷ -0.07        | ▷ 0.06                  |
|            |     |          |                |  |                |                | Max N              | ▷ 2.44         | ▷ 0.00         | ▷ -0.09                 |
|            |     |          |                | 15   | 1.550          |                | Min N              | ▷ -2.44        | ▷ -0.00        | ▷ 0.09                  |
|            |     |          |                |  |                |                | Max V <sub>y</sub> | ▷ 0.64         | ▷ 0.07         | ▷ -0.06                 |
|            |     |          |                |  |                |                | Min V <sub>y</sub> | ▷ -0.64        | ▷ -0.07        | ▷ 0.06                  |
|            |     |          |                |  |                |                | Max V <sub>z</sub> | ▷ -2.17        | ▷ 0.00         | ▷ 0.10                  |
|            |     |          |                |  |                |                | Min V <sub>z</sub> | ▷ 2.17         | ▷ -0.00        | ▷ -0.10                 |
|            |     |          |                |  |                |                | Max M <sub>T</sub> | ▷ -1.86        | ▷ 0.00         | ▷ 0.10                  |
|            |     |          |                |  |                |                | Min M <sub>T</sub> | ▷ 1.86         | ▷ -0.00        | ▷ -0.10                 |
|            |     |          |                |  |                |                | Max M <sub>y</sub> | ▷ -2.11        | ▷ 0.00         | ▷ 0.10                  |
|            |     |          |                |  |                |                | Min M <sub>y</sub> | ▷ 2.11         | ▷ -0.00        | ▷ -0.10                 |
|            |     |          |                |  |                |                | Max M <sub>z</sub> | ▷ -0.69        | ▷ -0.07        | ▷ 0.06                  |
|            |     |          |                |  |                |                | Min M <sub>z</sub> | ▷ 0.69         | ▷ 0.07         | ▷ -0.06                 |
|            |     |          |                | DLC1, Result Envelope X 30% / Y 30% / Z 100% |                |                |                    |                |                |                         |
|            |     |          |                | RC7  | 11             | 0.000          | Max N              | ▷ 4.95         | ▷ 0.08         | ▷ -0.22                 |
|            |     |          |                |  |                |                | Min N              | ▷ -4.95        | ▷ -0.08        | ▷ 0.22                  |
|            |     |          |                |  |                |                | Max V <sub>y</sub> | ▷ 4.02         | ▷ 0.11         | ▷ -0.21                 |
|            |     |          |                |  |                |                | Min V <sub>y</sub> | ▷ -4.02        | ▷ -0.11        | ▷ 0.21                  |
|            |     |          |                |  |                |                | Max V <sub>z</sub> | ▷ -4.26        | ▷ -0.07        | ▷ 0.26                  |
|            |     |          |                |  |                |                | Min V <sub>z</sub> | ▷ 4.26         | ▷ 0.07         | ▷ -0.26                 |
|            |     |          |                |  |                |                | Max M <sub>T</sub> | ▷ -3.38        | ▷ -0.06        | ▷ 0.25                  |
|            |     |          |                |  |                |                | Min M <sub>T</sub> | ▷ 3.38         | ▷ 0.06         | ▷ -0.25                 |
|            |     |          |                |  |                |                | Max M <sub>y</sub> | ▷ 4.30         | ▷ 0.07         | ▷ -0.26                 |
|            |     |          |                |  |                |                | Min M <sub>y</sub> | ▷ -4.30        | ▷ -0.07        | ▷ 0.26                  |
|            |     |          |                |  |                |                | Max M <sub>z</sub> | ▷ 3.94         | ▷ 0.11         | ▷ -0.20                 |
|            |     |          |                |  |                |                | Min M <sub>z</sub> | ▷ -3.94        | ▷ -0.11        | ▷ 0.20                  |
|            |     |          |                |  |                |                | Max N              | ▷ 4.95         | ▷ 0.08         | ▷ -0.22                 |
|            |     |          |                | 15   | 1.550          |                | Min N              | ▷ -4.95        | ▷ -0.08        | ▷ 0.22                  |
|            |     |          |                |  |                |                | Max V <sub>y</sub> | ▷ 4.02         | ▷ 0.11         | ▷ -0.21                 |
|            |     |          |                |  |                |                | Min V <sub>y</sub> | ▷ -4.02        | ▷ -0.11        | ▷ 0.21                  |
|            |     |          |                |  |                |                | Max V <sub>z</sub> | ▷ -4.26        | ▷ -0.07        | ▷ 0.26                  |
|            |     |          |                |  |                |                | Min V <sub>z</sub> | ▷ 4.26         | ▷ 0.07         | ▷ -0.26                 |
|            |     |          |                |  |                |                | Max M <sub>T</sub> | ▷ -3.38        | ▷ -0.06        | ▷ 0.25                  |
|            |     |          |                |  |                |                | Min M <sub>T</sub> | ▷ 3.38         | ▷ 0.06         | ▷ -0.25                 |
|            |     |          |                |  |                |                | Max M <sub>y</sub> | ▷ -4.09        | ▷ -0.07        | ▷ 0.26                  |
|            |     |          |                |  |                |                | Min M <sub>y</sub> | ▷ 4.09         | ▷ 0.07         | ▷ -0.26                 |
|            |     |          |                |  |                |                | Max M <sub>z</sub> | ▷ -4.14        | ▷ -0.11        | ▷ 0.22                  |
|            |     |          |                |  |                |                | Min M <sub>z</sub> | ▷ 4.14         | ▷ 0.11         | ▷ -0.22                 |
| 25         | RC1 | 15       | 0.000          | Max N  | ▷ -1.31        | ▷ 0.03         | ▷ 0.04             | ▷ -0.00        | ▷ -0.03        | ▷ 0.01                  |
|            |     |          |                |  |                |                |                    |                |                | CO 1                    |

## RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC                 | Node No. | Location x [m]     | Forces [kN]        |                |                |                |                | Moments [kNm]  |       |       | Corresponding Load Cases |
|--------------------|--------------------|----------|--------------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------|-------|--------------------------|
|                    |                    |          |                    | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |       |                          |
| 25                 | RC1                |          | 1.500              | Min N              | ▷              | -23.09         | 0.22           | -0.26          | -0.29          | 0.15  | 0.23  | CO 2                     |
|                    |                    |          |                    | Max V <sub>y</sub> | ▷              | -23.09         | 0.22           | -0.26          | -0.29          | 0.15  | 0.23  | CO 2                     |
|                    |                    |          |                    | Min V <sub>y</sub> | ▷              | -1.31          | 0.03           | 0.04           | -0.00          | -0.03 | 0.01  | CO 1                     |
|                    |                    |          |                    | Max V <sub>z</sub> | ▷              | -1.31          | 0.03           | 0.04           | -0.00          | -0.03 | 0.01  | CO 1                     |
|                    |                    |          |                    | Min V <sub>z</sub> | ▷              | -23.09         | 0.22           | -0.26          | -0.29          | 0.15  | 0.23  | CO 2                     |
|                    |                    |          |                    | Max M <sub>T</sub> | ▷              | -1.31          | 0.03           | 0.04           | -0.00          | -0.03 | 0.01  | CO 1                     |
|                    |                    |          |                    | Min M <sub>T</sub> | ▷              | -23.09         | 0.22           | -0.26          | -0.29          | 0.15  | 0.23  | CO 2                     |
|                    |                    |          |                    | Max M <sub>y</sub> | ▷              | -23.09         | 0.22           | -0.26          | -0.29          | 0.15  | 0.23  | CO 2                     |
|                    |                    |          |                    | Min M <sub>y</sub> | ▷              | -1.31          | 0.03           | 0.04           | -0.00          | -0.03 | 0.01  | CO 1                     |
|                    |                    |          |                    | Max M <sub>z</sub> | ▷              | -23.09         | 0.22           | -0.26          | -0.29          | 0.15  | 0.23  | CO 2                     |
|                    |                    |          |                    | Min M <sub>z</sub> | ▷              | -1.31          | 0.03           | 0.04           | -0.00          | -0.03 | 0.01  | CO 1                     |
|                    |                    |          |                    | Max N              | ▷              | -1.07          | 0.03           | 0.04           | -0.00          | 0.03  | -0.03 | CO 1                     |
|                    |                    |          |                    | Min N              | ▷              | -22.85         | 0.23           | -0.26          | -0.29          | -0.25 | -0.11 | CO 2                     |
|                    |                    |          |                    | Max V <sub>y</sub> | ▷              | -22.85         | 0.23           | -0.26          | -0.29          | -0.25 | -0.11 | CO 2                     |
|                    |                    |          |                    | Min V <sub>y</sub> | ▷              | -1.07          | 0.03           | 0.04           | -0.00          | 0.03  | -0.03 | CO 1                     |
|                    |                    |          |                    | Max V <sub>z</sub> | ▷              | -1.07          | 0.03           | 0.04           | -0.00          | 0.03  | -0.03 | CO 1                     |
|                    |                    |          |                    | Min V <sub>z</sub> | ▷              | -22.85         | 0.23           | -0.26          | -0.29          | -0.25 | -0.11 | CO 2                     |
|                    |                    |          |                    | Max M <sub>T</sub> | ▷              | -1.07          | 0.03           | 0.04           | -0.00          | 0.03  | -0.03 | CO 1                     |
|                    |                    |          |                    | Min M <sub>T</sub> | ▷              | -22.85         | 0.23           | -0.26          | -0.29          | -0.25 | -0.11 | CO 2                     |
|                    |                    |          |                    | Max M <sub>y</sub> | ▷              | -1.07          | 0.03           | 0.04           | -0.00          | 0.03  | -0.03 | CO 1                     |
|                    |                    |          |                    | Min M <sub>y</sub> | ▷              | -22.85         | 0.23           | -0.26          | -0.29          | -0.25 | -0.11 | CO 2                     |
|                    |                    |          |                    | Max M <sub>z</sub> | ▷              | -1.07          | 0.03           | 0.04           | -0.00          | 0.03  | -0.03 | CO 1                     |
|                    |                    |          |                    | Min M <sub>z</sub> | ▷              | -22.85         | 0.23           | -0.26          | -0.29          | -0.25 | -0.11 | CO 2                     |
|                    |                    |          |                    | RC2                | 15             | 0.000          | Max N          | ▷              | -0.97          | 0.02  | 0.03  | -0.00                    |
|                    | Min N              | ▷        | -15.49             |                    |                |                | 0.15           | -0.17          | -0.20          | 0.10  | 0.15  | CO 4                     |
|                    | Max V <sub>y</sub> | ▷        | -15.49             |                    |                |                | 0.15           | -0.17          | -0.20          | 0.10  | 0.15  | CO 4                     |
|                    | Min V <sub>y</sub> | ▷        | -0.97              |                    |                |                | 0.02           | 0.03           | -0.00          | -0.02 | 0.01  | CO 3                     |
|                    | Max V <sub>z</sub> | ▷        | -0.97              |                    |                |                | 0.02           | 0.03           | -0.00          | -0.02 | 0.01  | CO 3                     |
|                    | Min V <sub>z</sub> | ▷        | -15.49             |                    |                |                | 0.15           | -0.17          | -0.20          | 0.10  | 0.15  | CO 4                     |
|                    | Max M <sub>T</sub> | ▷        | -0.97              |                    |                |                | 0.02           | 0.03           | -0.00          | -0.02 | 0.01  | CO 3                     |
|                    | Min M <sub>T</sub> | ▷        | -15.49             |                    |                |                | 0.15           | -0.17          | -0.20          | 0.10  | 0.15  | CO 4                     |
|                    | Max M <sub>y</sub> | ▷        | -15.49             |                    |                |                | 0.15           | -0.17          | -0.20          | 0.10  | 0.15  | CO 4                     |
|                    | Min M <sub>y</sub> | ▷        | -0.97              |                    |                |                | 0.02           | 0.03           | -0.00          | -0.02 | 0.01  | CO 3                     |
|                    | Max M <sub>z</sub> | ▷        | -15.49             |                    |                |                | 0.15           | -0.17          | -0.20          | 0.10  | 0.15  | CO 4                     |
|                    | Min M <sub>z</sub> | ▷        | -0.97              |                    |                |                | 0.02           | 0.03           | -0.00          | -0.02 | 0.01  | CO 3                     |
|                    | Max N              | ▷        | -0.79              |                    |                |                | 0.02           | 0.03           | -0.00          | 0.02  | -0.02 | CO 3                     |
|                    | Min N              | ▷        | -15.32             |                    |                |                | 0.15           | -0.17          | -0.20          | -0.16 | -0.08 | CO 4                     |
|                    | Max V <sub>y</sub> | ▷        | -15.32             |                    |                |                | 0.15           | -0.17          | -0.20          | -0.16 | -0.08 | CO 4                     |
|                    | Min V <sub>y</sub> | ▷        | -0.79              |                    |                |                | 0.02           | 0.03           | -0.00          | 0.02  | -0.02 | CO 3                     |
|                    | Max V <sub>z</sub> | ▷        | -0.79              |                    |                |                | 0.02           | 0.03           | -0.00          | 0.02  | -0.02 | CO 3                     |
|                    | Min V <sub>z</sub> | ▷        | -15.32             |                    |                |                | 0.15           | -0.17          | -0.20          | -0.16 | -0.08 | CO 4                     |
|                    | Max M <sub>T</sub> | ▷        | -0.79              |                    |                |                | 0.02           | 0.03           | -0.00          | 0.02  | -0.02 | CO 3                     |
|                    | Min M <sub>T</sub> | ▷        | -15.32             |                    |                |                | 0.15           | -0.17          | -0.20          | -0.16 | -0.08 | CO 4                     |
|                    | Max M <sub>y</sub> | ▷        | -0.79              |                    |                |                | 0.02           | 0.03           | -0.00          | 0.02  | -0.02 | CO 3                     |
|                    | Min M <sub>y</sub> | ▷        | -15.32             |                    |                |                | 0.15           | -0.17          | -0.20          | -0.16 | -0.08 | CO 4                     |
|                    | Max M <sub>z</sub> | ▷        | -0.79              |                    |                |                | 0.02           | 0.03           | -0.00          | 0.02  | -0.02 | CO 3                     |
|                    | Min M <sub>z</sub> | ▷        | -15.32             |                    |                |                | 0.15           | -0.17          | -0.20          | -0.16 | -0.08 | CO 4                     |
|                    | RC3                | 15       | 0.000              | Max N              | ▷              | -0.97          | 0.02           | 0.03           | -0.00          | -0.02 | 0.01  | CO 5                     |
|                    |                    |          |                    | Min N              | ▷              | -8.24          | 0.09           | -0.07          | -0.10          | 0.04  | 0.08  | CO 6                     |
|                    |                    |          |                    | Max V <sub>y</sub> | ▷              | -8.24          | 0.09           | -0.07          | -0.10          | 0.04  | 0.08  | CO 6                     |
|                    |                    |          |                    | Min V <sub>y</sub> | ▷              | -0.97          | 0.02           | 0.03           | -0.00          | -0.02 | 0.01  | CO 5                     |
|                    |                    |          |                    | Max V <sub>z</sub> | ▷              | -0.97          | 0.02           | 0.03           | -0.00          | -0.02 | 0.01  | CO 5                     |
|                    |                    |          |                    | Min V <sub>z</sub> | ▷              | -8.24          | 0.09           | -0.07          | -0.10          | 0.04  | 0.08  | CO 6                     |
|                    |                    |          |                    | Max M <sub>T</sub> | ▷              | -0.97          | 0.02           | 0.03           | -0.00          | -0.02 | 0.01  | CO 5                     |
|                    |                    |          |                    | Min M <sub>T</sub> | ▷              | -8.24          | 0.09           | -0.07          | -0.10          | 0.04  | 0.08  | CO 6                     |
|                    |                    |          |                    | Max M <sub>y</sub> | ▷              | -8.24          | 0.09           | -0.07          | -0.10          | 0.04  | 0.08  | CO 6                     |
|                    |                    |          |                    | Min M <sub>y</sub> | ▷              | -0.97          | 0.02           | 0.03           | -0.00          | -0.02 | 0.01  | CO 5                     |
|                    |                    |          |                    | Max M <sub>z</sub> | ▷              | -8.24          | 0.09           | -0.07          | -0.10          | 0.04  | 0.08  | CO 6                     |
|                    |                    |          |                    | Min M <sub>z</sub> | ▷              | -0.97          | 0.02           | 0.03           | -0.00          | -0.02 | 0.01  | CO 5                     |
|                    |                    |          |                    | Max N              | ▷              | -0.79          | 0.02           | 0.03           | -0.00          | 0.02  | -0.02 | CO 5                     |
| Min N              |                    |          |                    | ▷                  | -8.06          | 0.09           | -0.07          | -0.10          | -0.07          | -0.05 | CO 6  |                          |
| Max V <sub>y</sub> |                    |          |                    | ▷                  | -8.06          | 0.09           | -0.07          | -0.10          | -0.07          | -0.05 | CO 6  |                          |
| Min V <sub>y</sub> |                    |          |                    | ▷                  | -0.79          | 0.02           | 0.03           | -0.00          | 0.02           | -0.02 | CO 5  |                          |
| Max V <sub>z</sub> |                    |          |                    | ▷                  | -0.79          | 0.02           | 0.03           | -0.00          | 0.02           | -0.02 | CO 5  |                          |
| Min V <sub>z</sub> |                    |          |                    | ▷                  | -8.06          | 0.09           | -0.07          | -0.10          | -0.07          | -0.05 | CO 6  |                          |
| Max M <sub>T</sub> |                    |          |                    | ▷                  | -0.79          | 0.02           | 0.03           | -0.00          | 0.02           | -0.02 | CO 5  |                          |
| Min M <sub>T</sub> |                    |          |                    | ▷                  | -8.06          | 0.09           | -0.07          | -0.10          | -0.07          | -0.05 | CO 6  |                          |
| Max M <sub>y</sub> |                    |          |                    | ▷                  | -0.79          | 0.02           | 0.03           | -0.00          | 0.02           | -0.02 | CO 5  |                          |
| Min M <sub>y</sub> |                    |          |                    | ▷                  | -8.06          | 0.09           | -0.07          | -0.10          | -0.07          | -0.05 | CO 6  |                          |
| Max M <sub>z</sub> |                    |          |                    | ▷                  | -0.79          | 0.02           | 0.03           | -0.00          | 0.02           | -0.02 | CO 5  |                          |
| Min M <sub>z</sub> |                    |          |                    | ▷                  | -8.06          | 0.09           | -0.07          | -0.10          | -0.07          | -0.05 | CO 6  |                          |
| RC4                | 15                 | 0.000    | Max N              | ▷                  | -0.97          | 0.02           | 0.03           | -0.00          | -0.02          | 0.01  | CO 7  |                          |
|                    |                    |          | Min N              | ▷                  | -5.33          | 0.06           | -0.03          | -0.06          | 0.01           | 0.05  | CO 8  |                          |
|                    |                    |          | Max V <sub>y</sub> | ▷                  | -5.33          | 0.06           | -0.03          | -0.06          | 0.01           | 0.05  | CO 8  |                          |
|                    |                    |          | Min V <sub>y</sub> | ▷                  | -0.97          | 0.02           | 0.03           | -0.00          | -0.02          | 0.01  | CO 7  |                          |
|                    |                    |          | Max V <sub>z</sub> | ▷                  | -0.97          | 0.02           | 0.03           | -0.00          | -0.02          | 0.01  | CO 7  |                          |
|                    |                    |          | Min V <sub>z</sub> | ▷                  | -5.33          | 0.06           | -0.03          | -0.06          | 0.01           | 0.05  | CO 8  |                          |
|                    |                    |          | Max M <sub>T</sub> | ▷                  | -0.97          | 0.02           | 0.03           | -0.00          | -0.02          | 0.01  | CO 7  |                          |
|                    |                    |          | Min M <sub>T</sub> | ▷                  | -5.33          | 0.06           | -0.03          | -0.06          | 0.01           | 0.05  | CO 8  |                          |
|                    |                    |          | Max M <sub>y</sub> | ▷                  | -5.33          | 0.06           | -0.03          | -0.06          | 0.01           | 0.05  | CO 8  |                          |
|                    |                    |          | Min M <sub>y</sub> | ▷                  | -0.97          | 0.02           | 0.03           | -0.00          | -0.02          | 0.01  | CO 7  |                          |
|                    |                    |          | Max M <sub>z</sub> | ▷                  | -5.33          | 0.06           | -0.03          | -0.06          | 0.01           | 0.05  | CO 8  |                          |
|                    |                    |          | Min M <sub>z</sub> | ▷                  | -0.97          | 0.02           | 0.03           | -0.00          | -0.02          | 0.01  | CO 7  |                          |
|                    |                    |          | Max N              | ▷                  | -0.79          | 0.02           | 0.03           | -0.00          | 0.02           | -0.02 | CO 7  |                          |
|                    |                    |          | Min N              | ▷                  | -5.16          | 0.06           | -0.03          | -0.06          | -0.03          | -0.04 | CO 8  |                          |
|                    |                    |          | Max V <sub>y</sub> | ▷                  | -5.16          | 0.06           | -0.03          | -0.06          | -0.03          | -0.04 | CO 8  |                          |
|                    |                    |          | Min V <sub>y</sub> | ▷                  | -0.79          | 0.02           | 0.03           | -0.00          | 0.02           | -0.02 | CO 7  |                          |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date:

2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.                                   | RC                 | Node No. | Location x [m]     | Forces [kN]                                  |                |                    |                    |                | Moments [kNm]  |       |       | Correspondin Load Cases |       |       |      |
|--|--------------------|----------|--------------------|--|----------------|--------------------|--------------------|----------------|----------------|-------|-------|-------------------------|-------|-------|------|
|  |                    |          |                    | N  | V <sub>y</sub> | V <sub>z</sub>     | M <sub>T</sub>     | M <sub>y</sub> | M <sub>z</sub> |       |       |                         |       |       |      |
| 25   | RC4                |          |                    | Max V <sub>z</sub>                           | -0.79          | 0.02               | ▷                  | 0.03           | -0.00          | 0.02  | -0.02 | CO 7                    |       |       |      |
|  |                    |          |                    | Min V <sub>z</sub>                           | -5.16          | 0.06               |                    | -0.03          | -0.06          | -0.03 | -0.04 | CO 8                    |       |       |      |
|  |                    |          |                    | Max M <sub>T</sub>                           | -0.79          | 0.02               |                    | 0.03           | -0.00          | 0.02  | -0.02 | CO 7                    |       |       |      |
|  |                    |          |                    | Min M <sub>T</sub>                           | -5.16          | 0.06               |                    | -0.03          | -0.06          | -0.03 | -0.04 | CO 8                    |       |       |      |
|  |                    |          |                    | Max M <sub>y</sub>                           | -0.79          | 0.02               |                    | 0.03           | -0.00          | ▷     | 0.02  | -0.02                   | CO 7  |       |      |
|  |                    |          |                    | Min M <sub>y</sub>                           | -5.16          | 0.06               |                    | -0.03          | -0.06          | ▷     | -0.03 | -0.04                   | CO 8  |       |      |
|  |                    |          |                    | Max M <sub>z</sub>                           | -0.79          | 0.02               |                    | 0.03           | -0.00          |       | 0.02  | -0.02                   | CO 7  |       |      |
|  |                    |          |                    | Min M <sub>z</sub>                           | -5.16          | 0.06               |                    | -0.03          | -0.06          | ▷     | -0.03 | -0.04                   | CO 8  |       |      |
|  |                    |          |                    | DLC1, Result Envelope X 100% / Y 30% / Z 30% |                |                    |                    |                |                |       |       |                         |       |       |      |
|  |                    |          |                    | RC5  | 15             | 0.000              | Max N              | 2.29           | -0.03          |       | 0.03  | 0.03                    | -0.02 | -0.03 |      |
|  | Min N              | -2.29    | 0.03               |  |                |                    | ▷                  | -0.03          | -0.03          | 0.02  | 0.03  |                         |       |       |      |
|  | Max V <sub>y</sub> | -2.16    | 0.03               |  |                |                    | ▷                  | -0.02          | -0.03          | 0.01  | 0.03  |                         |       |       |      |
|  | Min V <sub>y</sub> | 2.16     | -0.03              |  |                |                    | ▷                  | 0.02           | 0.03           | -0.01 | -0.03 |                         |       |       |      |
|  | Max V <sub>z</sub> | 1.76     | -0.02              |  |                |                    | ▷                  | 0.03           | 0.03           | -0.02 | -0.02 |                         |       |       |      |
|  | Min V <sub>z</sub> | -1.76    | 0.02               |  |                |                    | ▷                  | -0.03          | -0.03          | 0.02  | 0.02  |                         |       |       |      |
|  | Max M <sub>T</sub> | 2.14     | -0.03              |  |                |                    |                    | 0.03           | 0.03           | -0.02 | -0.03 |                         |       |       |      |
|  | Min M <sub>T</sub> | -2.14    | 0.03               |  |                |                    |                    | -0.03          | -0.03          | 0.02  | 0.03  |                         |       |       |      |
|  | Max M <sub>y</sub> | -1.63    | 0.01               |  |                |                    |                    | -0.03          | -0.03          | ▷     | 0.02  | 0.02                    |       |       |      |
|  | Min M <sub>y</sub> | 1.63     | -0.01              |  |                |                    |                    | 0.03           | 0.03           | ▷     | -0.02 | -0.02                   |       |       |      |
|  |                    |          |                    | Max M <sub>z</sub>                           | -2.20          | 0.03               |                    | -0.02          | -0.03          | 0.01  | ▷     | 0.03                    |       |       |      |
|  |                    |          |                    | Min M <sub>z</sub>                           | 2.20           | -0.03              |                    | 0.02           | 0.03           | -0.01 | ▷     | -0.03                   |       |       |      |
|  |                    |          |                    | Max N  | 2.29           | -0.03              |                    | 0.03           | 0.03           | 0.02  | 0.01  |                         |       |       |      |
|  |                    |          |                    | Min N  | -2.29          | 0.03               |                    | -0.03          | -0.03          | -0.02 | -0.01 |                         |       |       |      |
|  |                    |          |                    | Max V <sub>y</sub>                           | -2.16          | ▷                  | 0.03               | -0.02          | -0.03          | -0.02 | -0.02 |                         |       |       |      |
|  |                    |          |                    | Min V <sub>y</sub>                           | 2.16           | ▷                  | -0.03              | 0.02           | 0.03           | 0.02  | 0.02  |                         |       |       |      |
|  |                    |          |                    | Max V <sub>z</sub>                           | 1.76           | ▷                  | -0.02              | 0.03           | 0.03           | 0.02  | 0.01  |                         |       |       |      |
|  |                    |          |                    | Min V <sub>z</sub>                           | -1.76          | ▷                  | 0.02               | -0.03          | -0.03          | -0.02 | -0.01 |                         |       |       |      |
|  |                    |          |                    | Max M <sub>T</sub>                           | 2.14           | -0.03              |                    | 0.03           | 0.03           | 0.02  | 0.01  |                         |       |       |      |
|  |                    |          |                    | Min M <sub>T</sub>                           | -2.14          | 0.03               |                    | -0.03          | -0.03          | -0.02 | -0.01 |                         |       |       |      |
|  |                    |          |                    | Max M <sub>y</sub>                           | 1.83           | -0.02              |                    | 0.03           | 0.03           | ▷     | 0.02  | 0.01                    |       |       |      |
|  |                    |          |                    | Min M <sub>y</sub>                           | -1.83          | 0.02               |                    | -0.03          | -0.03          | ▷     | -0.02 | -0.01                   |       |       |      |
|  |                    |          |                    | Max M <sub>z</sub>                           | 2.00           | -0.03              |                    | 0.02           | 0.03           | 0.02  | ▷     | 0.02                    |       |       |      |
|  |                    |          |                    | Min M <sub>z</sub>                           | -2.00          | 0.03               |                    | -0.02          | -0.03          | -0.02 | ▷     | -0.02                   |       |       |      |
|  |                    |          |                    | DLC1, Result Envelope X 30% / Y 100% / Z 30% |                |                    |                    |                |                |       |       |                         |       |       |      |
|  |                    |          |                    | RC6  | 15             | 0.000              | Max N              | 2.28           | -0.04          |       | 0.02  | 0.03                    | -0.01 | -0.04 |      |
|  |                    |          |                    |  |                |                    | Min N              | -2.28          | 0.04           |       | -0.02 | -0.03                   | 0.01  | 0.04  |      |
|  |                    |          |                    |  |                |                    | Max V <sub>y</sub> | -2.19          | ▷              | 0.04  | -0.01 | -0.02                   | 0.01  | 0.04  |      |
|  |                    |          |                    |  |                |                    | Min V <sub>y</sub> | 2.19           | ▷              | -0.04 | 0.01  | 0.02                    | -0.01 | -0.04 |      |
|  |                    |          |                    |  |                |                    | Max V <sub>z</sub> | 0.94           | -0.00          | ▷     | 0.02  | 0.02                    | -0.02 | -0.00 |      |
|  | Min V <sub>z</sub> | -0.94    | 0.00               |  |                |                    | ▷                  | -0.02          | -0.02          | 0.02  | 0.00  |                         |       |       |      |
|  | Max M <sub>T</sub> | 1.83     | -0.02              |  |                |                    |                    | 0.02           | 0.03           | -0.01 | -0.02 |                         |       |       |      |
|  | Min M <sub>T</sub> | -1.83    | 0.02               |  |                |                    |                    | -0.02          | -0.03          | 0.01  | 0.02  |                         |       |       |      |
|  | Max M <sub>y</sub> | -0.81    | -0.00              |  |                |                    |                    | -0.02          | -0.02          | ▷     | 0.02  | 0.00                    |       |       |      |
|  | Min M <sub>y</sub> | 0.81     | 0.00               |  |                |                    |                    | 0.02           | 0.02           | ▷     | -0.02 | -0.00                   |       |       |      |
|  |                    |          |                    | Max M <sub>z</sub>                           | -2.22          | 0.04               |                    | -0.01          | -0.02          | 0.01  | ▷     | 0.04                    |       |       |      |
|  |                    |          |                    | Min M <sub>z</sub>                           | 2.22           | -0.04              |                    | 0.01           | 0.02           | -0.01 | ▷     | -0.04                   |       |       |      |
|  |                    |          |                    | Max N  | 2.28           | -0.04              |                    | 0.02           | 0.03           | 0.01  | 0.02  |                         |       |       |      |
|  |                    |          |                    | Min N  | -2.28          | 0.04               |                    | -0.02          | -0.03          | -0.01 | -0.02 |                         |       |       |      |
|  |                    |          |                    | Max V <sub>y</sub>                           | -2.19          | ▷                  | 0.04               | -0.01          | -0.02          | -0.01 | -0.02 |                         |       |       |      |
|  |                    |          |                    | Min V <sub>y</sub>                           | 2.19           | ▷                  | -0.04              | 0.01           | 0.02           | 0.01  | 0.02  |                         |       |       |      |
|  |                    |          |                    | Max V <sub>z</sub>                           | 0.94           | -0.00              | ▷                  | 0.02           | 0.02           | 0.02  | -0.00 |                         |       |       |      |
|  |                    |          |                    | Min V <sub>z</sub>                           | -0.94          | 0.00               | ▷                  | -0.02          | -0.02          | -0.02 | 0.00  |                         |       |       |      |
|  |                    |          |                    | Max M <sub>T</sub>                           | 1.83           | -0.02              |                    | 0.02           | 0.03           | 0.02  | 0.01  |                         |       |       |      |
|  |                    |          |                    | Min M <sub>T</sub>                           | -1.83          | 0.02               |                    | -0.02          | -0.03          | -0.02 | -0.01 |                         |       |       |      |
|  |                    |          |                    | Max M <sub>y</sub>                           | 1.03           | -0.00              |                    | 0.02           | 0.03           | ▷     | 0.02  | 0.00                    |       |       |      |
|  |                    |          |                    | Min M <sub>y</sub>                           | -1.03          | 0.00               |                    | -0.02          | -0.03          | -0.02 | -0.02 | -0.00                   |       |       |      |
| Max M <sub>z</sub>                           |                    |          |                    | 2.08   | -0.04          |                    | 0.01               | 0.02           | 0.01           | ▷     | 0.02  |                         |       |       |      |
| Min M <sub>z</sub>                           |                    |          |                    | -2.08  | 0.04           |                    | -0.01              | -0.02          | -0.01          | ▷     | -0.02 |                         |       |       |      |
| DLC1, Result Envelope X 30% / Y 30% / Z 100% |                    |          |                    |  |                |                    |                    |                |                |       |       |                         |       |       |      |
| RC7  |                    |          |                    | 15   | 0.000          | Max N              | 4.71               | -0.06          |                | 0.05  | 0.07  | -0.03                   | -0.06 |       |      |
|  |                    |          |                    |  |                | Min N              | -4.71              | 0.06           |                | -0.05 | -0.07 | 0.03                    | 0.06  |       |      |
|  |                    |          |                    |  |                | Max V <sub>y</sub> | -4.47              | ▷              | 0.07           | -0.04 | -0.07 | 0.02                    | 0.07  |       |      |
|  |                    |          |                    |  |                | Min V <sub>y</sub> | 4.47               | ▷              | -0.07          | 0.04  | 0.07  | -0.02                   | -0.07 |       |      |
|  |                    |          |                    |  |                | Max V <sub>z</sub> | 3.98               | -0.04          | ▷              | 0.06  | 0.07  | -0.04                   | -0.05 |       |      |
|  | Min V <sub>z</sub> | -3.98    | 0.04               |  |                | ▷                  | -0.06              | -0.07          | 0.04           | 0.05  |       |                         |       |       |      |
|  | Max M <sub>T</sub> | 4.55     | -0.06              |  |                |                    | 0.06               | 0.07           | -0.03          | -0.06 |       |                         |       |       |      |
|  | Min M <sub>T</sub> | -4.55    | 0.06               |  |                |                    | -0.06              | -0.07          | 0.03           | 0.06  |       |                         |       |       |      |
|  | Max M <sub>y</sub> | -3.66    | 0.03               |  |                |                    | -0.06              | -0.07          | ▷              | 0.04  | 0.04  |                         |       |       |      |
|  | Min M <sub>y</sub> | 3.66     | -0.03              |  |                |                    | 0.06               | 0.07           | ▷              | -0.04 | -0.04 |                         |       |       |      |
|  |                    |          | Max M <sub>z</sub> | -4.57  | 0.07           |                    | -0.05              | -0.07          | 0.03           | ▷     | 0.07  |                         |       |       |      |
|  |                    |          | Min M <sub>z</sub> | 4.57   | -0.07          |                    | 0.05               | 0.07           | -0.03          | ▷     | -0.07 |                         |       |       |      |
|  |                    |          | Max N              | 4.71   | -0.06          |                    | 0.05               | 0.07           | 0.05           | 0.03  |       |                         |       |       |      |
|  |                    |          | Min N              | -4.71  | 0.06           |                    | -0.05              | -0.07          | -0.05          | -0.03 |       |                         |       |       |      |
|  |                    |          | Max V <sub>y</sub> | -4.47  | ▷              | 0.07               | -0.04              | -0.07          | -0.04          | -0.03 |       |                         |       |       |      |
|  |                    |          | Min V <sub>y</sub> | 4.47   | ▷              | -0.07              | 0.04               | 0.07           | 0.04           | 0.03  |       |                         |       |       |      |
|  |                    |          | Max V <sub>z</sub> | 3.98   | -0.04          | ▷                  | 0.06               | 0.07           | 0.05           | 0.02  |       |                         |       |       |      |
|  |                    |          | Min V <sub>z</sub> | -3.98  | 0.04           | ▷                  | -0.06              | -0.07          | -0.05          | -0.02 |       |                         |       |       |      |
|  |                    |          | Max M <sub>T</sub> | 4.55   | -0.06          |                    | 0.06               | 0.07           | 0.05           | 0.03  |       |                         |       |       |      |
|  |                    |          | Min M <sub>T</sub> | -4.55  | 0.06           |                    | -0.06              | -0.07          | -0.05          | -0.03 |       |                         |       |       |      |
|  |                    |          | Max M <sub>y</sub> | 4.16   | -0.05          |                    | 0.06               | 0.07           | ▷              | 0.05  | 0.02  |                         |       |       |      |
|  |                    |          | Min M <sub>y</sub> | -4.16  | 0.05           |                    | -0.06              | -0.07          | ▷              | -0.05 | -0.02 |                         |       |       |      |
|  |                    |          | Max M <sub>z</sub> | 4.15   | -0.06          |                    | 0.04               | 0.06           | 0.03           | ▷     | 0.03  |                         |       |       |      |
|  |                    |          | Min M <sub>z</sub> | -4.15  | 0.06           |                    | -0.04              | -0.06          | -0.03          | ▷     | -0.03 |                         |       |       |      |
|  |                    |          | 26                 | RC1  | 19             | 0.000              | Max N              | -0.48          | 0.04           |       | 0.03  | -0.00                   | -0.02 | 0.03  | CO 1 |
|  |                    |          |                    |  |                |                    | Min N              | -0.61          | 0.07           |       | -0.02 | -0.41                   | 0.09  | 0.03  | CO 2 |
|  |                    |          |                    |  |                |                    | Max V <sub>y</sub> | -0.61          | ▷              | 0.07  | -0.02 | -0.41                   | 0.09  | 0.03  | CO 2 |
|  |                    |          |                    |  |                |                    | Min V <sub>y</sub> | -0.48          | ▷              | 0.04  | 0.03  | -0.00                   | -0.02 | 0.03  | CO 1 |
|  |                    |          |                    |  |                |                    |                    |                |                |       |       |                         |       |       |      |
|  |                    |          |                    |  |                |                    |                    |                |                |       |       |                         |       |       |      |

RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] | Forces [kN]        |                |                |                |                | Moments [kNm]  |       |      | Correspondin Load Cases |
|------------|-----|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------|------|-------------------------|
|            |     |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |      |                         |
| 26         | RC1 | 6        | 1.400          | Max V <sub>z</sub> | -0.48          | 0.04           | 0.03           | -0.00          | -0.02          | 0.03  | CO 1 |                         |
|            |     |          |                | Min V <sub>z</sub> | -0.61          | 0.07           | -0.02          | -0.41          | 0.09           | 0.03  | CO 2 |                         |
|            |     |          |                | Max M <sub>T</sub> | -0.48          | 0.04           | 0.03           | -0.00          | -0.02          | 0.03  | CO 1 |                         |
|            |     |          |                | Min M <sub>T</sub> | -0.61          | 0.07           | -0.02          | -0.41          | 0.09           | 0.03  | CO 2 |                         |
|            |     |          |                | Max M <sub>y</sub> | -0.61          | 0.07           | -0.02          | -0.41          | 0.09           | 0.03  | CO 2 |                         |
|            |     |          |                | Min M <sub>y</sub> | -0.48          | 0.04           | 0.03           | -0.00          | -0.02          | 0.03  | CO 1 |                         |
|            |     |          |                | Max M <sub>z</sub> | -0.48          | 0.04           | 0.03           | -0.00          | -0.02          | 0.03  | CO 1 |                         |
|            |     |          |                | Min M <sub>z</sub> | -0.61          | 0.07           | -0.02          | -0.41          | 0.09           | 0.03  | CO 2 |                         |
|            |     |          |                | Max N              | -0.26          | 0.04           | 0.03           | -0.00          | 0.03           | -0.03 | CO 1 |                         |
|            |     |          |                | Min N              | -0.39          | 0.07           | -0.03          | -0.41          | 0.06           | -0.07 | CO 2 |                         |
|            |     |          |                | Max V <sub>y</sub> | -0.39          | 0.07           | -0.03          | -0.41          | 0.06           | -0.07 | CO 2 |                         |
|            |     |          |                | Min V <sub>y</sub> | -0.26          | 0.04           | 0.03           | -0.00          | 0.03           | -0.03 | CO 1 |                         |
|            |     |          |                | Max V <sub>z</sub> | -0.26          | 0.04           | 0.03           | -0.00          | 0.03           | -0.03 | CO 1 |                         |
|            |     |          |                | Min V <sub>z</sub> | -0.39          | 0.07           | -0.03          | -0.41          | 0.06           | -0.07 | CO 2 |                         |
|            |     |          |                | Max M <sub>T</sub> | -0.26          | 0.04           | 0.03           | -0.00          | 0.03           | -0.03 | CO 1 |                         |
|            |     |          |                | Min M <sub>T</sub> | -0.39          | 0.07           | -0.03          | -0.41          | 0.06           | -0.07 | CO 2 |                         |
|            |     |          |                | Max M <sub>y</sub> | -0.39          | 0.07           | -0.03          | -0.41          | 0.06           | -0.07 | CO 2 |                         |
|            |     |          |                | Min M <sub>y</sub> | -0.26          | 0.04           | 0.03           | -0.00          | 0.03           | -0.03 | CO 1 |                         |
|            |     |          |                | Max M <sub>z</sub> | -0.26          | 0.04           | 0.03           | -0.00          | 0.03           | -0.03 | CO 1 |                         |
|            |     |          |                | Min M <sub>z</sub> | -0.39          | 0.07           | -0.03          | -0.41          | 0.06           | -0.07 | CO 2 |                         |
|            | RC2 | 19       | 0.000          | Max N              | -0.36          | 0.03           | 0.03           | -0.00          | -0.02          | 0.02  | CO 3 |                         |
|            |     |          |                | Min N              | -0.45          | 0.05           | -0.01          | -0.27          | 0.06           | 0.02  | CO 4 |                         |
|            |     |          |                | Max V <sub>y</sub> | -0.45          | 0.05           | -0.01          | -0.27          | 0.06           | 0.02  | CO 4 |                         |
|            |     |          |                | Min V <sub>y</sub> | -0.36          | 0.03           | 0.03           | -0.00          | -0.02          | 0.02  | CO 3 |                         |
|            |     |          |                | Max V <sub>z</sub> | -0.36          | 0.03           | 0.03           | -0.00          | -0.02          | 0.02  | CO 3 |                         |
|            |     |          |                | Min V <sub>z</sub> | -0.45          | 0.05           | -0.01          | -0.27          | 0.06           | 0.02  | CO 4 |                         |
|            |     |          |                | Max M <sub>T</sub> | -0.36          | 0.03           | 0.03           | -0.00          | -0.02          | 0.02  | CO 3 |                         |
|            |     |          |                | Min M <sub>T</sub> | -0.45          | 0.05           | -0.01          | -0.27          | 0.06           | 0.02  | CO 4 |                         |
|            |     |          |                | Max M <sub>y</sub> | -0.45          | 0.05           | -0.01          | -0.27          | 0.06           | 0.02  | CO 4 |                         |
|            |     |          |                | Min M <sub>y</sub> | -0.36          | 0.03           | 0.03           | -0.00          | -0.02          | 0.02  | CO 3 |                         |
|            |     |          |                | Max M <sub>z</sub> | -0.36          | 0.03           | 0.03           | -0.00          | -0.02          | 0.02  | CO 3 |                         |
|            |     |          |                | Min M <sub>z</sub> | -0.45          | 0.05           | -0.01          | -0.27          | 0.06           | 0.02  | CO 4 |                         |
|            |     | 6        | 1.400          | Max N              | -0.19          | 0.03           | 0.03           | -0.00          | 0.02           | -0.02 | CO 3 |                         |
|            |     |          |                | Min N              | -0.29          | 0.05           | -0.01          | -0.27          | 0.04           | -0.05 | CO 4 |                         |
|            |     |          |                | Max V <sub>y</sub> | -0.29          | 0.05           | -0.01          | -0.27          | 0.04           | -0.05 | CO 4 |                         |
|            |     |          |                | Min V <sub>y</sub> | -0.19          | 0.03           | 0.03           | -0.00          | 0.02           | -0.02 | CO 3 |                         |
|            |     |          |                | Max V <sub>z</sub> | -0.19          | 0.03           | 0.03           | -0.00          | 0.02           | -0.02 | CO 3 |                         |
|            |     |          |                | Min V <sub>z</sub> | -0.29          | 0.05           | -0.01          | -0.27          | 0.04           | -0.05 | CO 4 |                         |
|            |     |          |                | Max M <sub>T</sub> | -0.19          | 0.03           | 0.03           | -0.00          | 0.02           | -0.02 | CO 3 |                         |
|            |     |          |                | Min M <sub>T</sub> | -0.29          | 0.05           | -0.01          | -0.27          | 0.04           | -0.05 | CO 4 |                         |
|            |     |          |                | Max M <sub>y</sub> | -0.29          | 0.05           | -0.01          | -0.27          | 0.04           | -0.05 | CO 4 |                         |
|            |     |          |                | Min M <sub>y</sub> | -0.19          | 0.03           | 0.03           | -0.00          | 0.02           | -0.02 | CO 3 |                         |
|            |     |          |                | Max M <sub>z</sub> | -0.19          | 0.03           | 0.03           | -0.00          | 0.02           | -0.02 | CO 3 |                         |
|            |     |          |                | Min M <sub>z</sub> | -0.29          | 0.05           | -0.01          | -0.27          | 0.04           | -0.05 | CO 4 |                         |
|            | RC3 | 19       | 0.000          | Max N              | -0.36          | 0.03           | 0.03           | -0.00          | -0.02          | 0.02  | CO 5 |                         |
|            |     |          |                | Min N              | -0.41          | 0.04           | 0.01           | -0.14          | 0.02           | 0.02  | CO 6 |                         |
|            |     |          |                | Max V <sub>y</sub> | -0.41          | 0.04           | 0.01           | -0.14          | 0.02           | 0.02  | CO 6 |                         |
|            |     |          |                | Min V <sub>y</sub> | -0.36          | 0.03           | 0.03           | -0.00          | -0.02          | 0.02  | CO 5 |                         |
|            |     |          |                | Max V <sub>z</sub> | -0.36          | 0.03           | 0.03           | -0.00          | -0.02          | 0.02  | CO 5 |                         |
|            |     |          |                | Min V <sub>z</sub> | -0.41          | 0.04           | 0.01           | -0.14          | 0.02           | 0.02  | CO 6 |                         |
|            |     |          |                | Max M <sub>T</sub> | -0.36          | 0.03           | 0.03           | -0.00          | -0.02          | 0.02  | CO 5 |                         |
|            |     |          |                | Min M <sub>T</sub> | -0.41          | 0.04           | 0.01           | -0.14          | 0.02           | 0.02  | CO 6 |                         |
|            |     |          |                | Max M <sub>y</sub> | -0.41          | 0.04           | 0.01           | -0.14          | 0.02           | 0.02  | CO 6 |                         |
|            |     |          |                | Min M <sub>y</sub> | -0.36          | 0.03           | 0.03           | -0.00          | -0.02          | 0.02  | CO 5 |                         |
|            |     |          |                | Max M <sub>z</sub> | -0.36          | 0.03           | 0.03           | -0.00          | -0.02          | 0.02  | CO 5 |                         |
|            |     |          |                | Min M <sub>z</sub> | -0.41          | 0.04           | 0.01           | -0.14          | 0.02           | 0.02  | CO 6 |                         |
|            |     | 6        | 1.400          | Max N              | -0.19          | 0.03           | 0.03           | -0.00          | 0.02           | -0.02 | CO 5 |                         |
|            |     |          |                | Min N              | -0.24          | 0.04           | 0.01           | -0.14          | 0.03           | -0.03 | CO 6 |                         |
|            |     |          |                | Max V <sub>y</sub> | -0.24          | 0.04           | 0.01           | -0.14          | 0.03           | -0.03 | CO 6 |                         |
|            |     |          |                | Min V <sub>y</sub> | -0.19          | 0.03           | 0.03           | -0.00          | 0.02           | -0.02 | CO 5 |                         |
|            |     |          |                | Max V <sub>z</sub> | -0.19          | 0.03           | 0.03           | -0.00          | 0.02           | -0.02 | CO 5 |                         |
|            |     |          |                | Min V <sub>z</sub> | -0.24          | 0.04           | 0.01           | -0.14          | 0.03           | -0.03 | CO 6 |                         |
|            |     |          |                | Max M <sub>T</sub> | -0.19          | 0.03           | 0.03           | -0.00          | 0.02           | -0.02 | CO 5 |                         |
|            |     |          |                | Min M <sub>T</sub> | -0.24          | 0.04           | 0.01           | -0.14          | 0.03           | -0.03 | CO 6 |                         |
|            |     |          |                | Max M <sub>y</sub> | -0.24          | 0.04           | 0.01           | -0.14          | 0.03           | -0.03 | CO 6 |                         |
|            |     |          |                | Min M <sub>y</sub> | -0.19          | 0.03           | 0.03           | -0.00          | 0.02           | -0.02 | CO 5 |                         |
|            |     |          |                | Max M <sub>z</sub> | -0.19          | 0.03           | 0.03           | -0.00          | 0.02           | -0.02 | CO 5 |                         |
|            |     |          |                | Min M <sub>z</sub> | -0.24          | 0.04           | 0.01           | -0.14          | 0.03           | -0.03 | CO 6 |                         |
|            | RC4 | 19       | 0.000          | Max N              | -0.36          | 0.03           | 0.03           | -0.00          | -0.02          | 0.02  | CO 7 |                         |
|            |     |          |                | Min N              | -0.39          | 0.03           | 0.01           | -0.08          | 0.01           | 0.02  | CO 8 |                         |
|            |     |          |                | Max V <sub>y</sub> | -0.39          | 0.03           | 0.01           | -0.08          | 0.01           | 0.02  | CO 8 |                         |
|            |     |          |                | Min V <sub>y</sub> | -0.36          | 0.03           | 0.03           | -0.00          | -0.02          | 0.02  | CO 7 |                         |
|            |     |          |                | Max V <sub>z</sub> | -0.36          | 0.03           | 0.03           | -0.00          | -0.02          | 0.02  | CO 7 |                         |
|            |     |          |                | Min V <sub>z</sub> | -0.39          | 0.03           | 0.01           | -0.08          | 0.01           | 0.02  | CO 8 |                         |
|            |     |          |                | Max M <sub>T</sub> | -0.36          | 0.03           | 0.03           | -0.00          | -0.02          | 0.02  | CO 7 |                         |
|            |     |          |                | Min M <sub>T</sub> | -0.39          | 0.03           | 0.01           | -0.08          | 0.01           | 0.02  | CO 8 |                         |
|            |     |          |                | Max M <sub>y</sub> | -0.39          | 0.03           | 0.01           | -0.08          | 0.01           | 0.02  | CO 8 |                         |
|            |     |          |                | Min M <sub>y</sub> | -0.36          | 0.03           | 0.03           | -0.00          | -0.02          | 0.02  | CO 7 |                         |
|            |     |          |                | Max M <sub>z</sub> | -0.36          | 0.03           | 0.03           | -0.00          | -0.02          | 0.02  | CO 7 |                         |
|            |     |          |                | Min M <sub>z</sub> | -0.39          | 0.03           | 0.01           | -0.08          | 0.01           | 0.02  | CO 8 |                         |
|            |     | 6        | 1.400          | Max N              | -0.19          | 0.03           | 0.03           | -0.00          | 0.02           | -0.02 | CO 7 |                         |
|            |     |          |                | Min N              | -0.23          | 0.03           | 0.01           | -0.08          | 0.02           | -0.03 | CO 8 |                         |
|            |     |          |                | Max V <sub>y</sub> | -0.23          | 0.03           | 0.01           | -0.08          | 0.02           | -0.03 | CO 8 |                         |
|            |     |          |                | Min V <sub>y</sub> | -0.19          | 0.03           | 0.03           | -0.00          | 0.02           | -0.02 | CO 7 |                         |
|            |     |          |                | Max V <sub>z</sub> | -0.19          | 0.03           | 0.03           | -0.00          | 0.02           | -0.02 | CO 7 |                         |
|            |     |          |                | Min V <sub>z</sub> | -0.23          | 0.03           | 0.01           | -0.08          | 0.02           | -0.03 | CO 8 |                         |
|            |     |          |                | Max M <sub>T</sub> | -0.19          | 0.03           | 0.03           | -0.00          | 0.02           | -0.02 | CO 7 |                         |

# RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] |  | Forces [kN] |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |
|------------|-----|----------|----------------|--|-------------|----------------|----------------|----------------|----------------|----------------|-------------------------|
|            |     |          |                |  | N           | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |
| 26         | RC4 | 19       | 0.000          | Min M <sub>T</sub>                           | -0.23       | 0.03           | 0.01           | ▷ -0.08        | 0.02           | -0.03          | CO 8                    |
|            |     |          |                | Max M <sub>y</sub>                           | -0.23       | 0.03           | 0.01           | ▷ -0.08        | 0.02           | -0.03          | CO 8                    |
|            |     |          |                | Min M <sub>y</sub>                           | -0.19       | 0.03           | 0.03           | ▷ -0.00        | 0.02           | -0.02          | CO 7                    |
|            |     |          |                | Max M <sub>z</sub>                           | -0.19       | 0.03           | 0.03           | ▷ -0.00        | 0.02           | -0.02          | CO 7                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.23       | 0.03           | 0.01           | ▷ -0.08        | 0.02           | -0.03          | CO 8                    |
|            |     |          |                | DLC1, Result Envelope X 100% / Y 30% / Z 30% |             |                |                |                |                |                |                         |
|            |     |          |                | RC5  |             |                |                |                |                |                |                         |
|            |     |          |                | Max N  | ▷ 0.05      | 0.00           | 0.01           | 0.00           | -0.01          | 0.00           |                         |
|            |     |          |                | Min N  | ▷ -0.05     | -0.00          | -0.01          | -0.00          | 0.01           | -0.00          |                         |
|            |     |          |                | Max V <sub>y</sub>                           | ▷ 0.02      | ▷ 0.01         | -0.00          | -0.00          | 0.00           | 0.00           |                         |
|            |     |          |                | Min V <sub>y</sub>                           | ▷ -0.02     | ▷ -0.01        | 0.00           | 0.00           | -0.00          | -0.00          |                         |
|            |     |          |                | Max V <sub>z</sub>                           | 0.02        | -0.00          | ▷ 0.02         | 0.02           | -0.02          | 0.00           |                         |
|            |     |          |                | Min V <sub>z</sub>                           | -0.02       | 0.00           | ▷ -0.02        | -0.02          | 0.02           | -0.00          |                         |
|            |     |          |                | Max M <sub>T</sub>                           | 0.01        | -0.00          | ▷ 0.02         | ▷ 0.02         | -0.02          | 0.00           |                         |
|            |     |          |                | Min M <sub>T</sub>                           | -0.01       | 0.00           | -0.02          | ▷ -0.02        | 0.02           | -0.00          |                         |
|            |     |          |                | Max M <sub>y</sub>                           | -0.02       | 0.00           | -0.02          | ▷ -0.02        | 0.02           | -0.00          |                         |
|            |     |          |                | Min M <sub>y</sub>                           | 0.02        | -0.00          | 0.02           | ▷ 0.02         | -0.02          | 0.00           |                         |
|            |     |          |                | Max M <sub>z</sub>                           | 0.03        | 0.00           | 0.01           | 0.01           | -0.01          | ▷ 0.01         |                         |
|            |     |          |                | Min M <sub>z</sub>                           | -0.03       | -0.00          | -0.01          | -0.01          | 0.01           | ▷ -0.01        |                         |
|            |     | 6        | 1.400          | Max N  | ▷ 0.05      | 0.00           | 0.01           | 0.00           | 0.00           | -0.00          |                         |
|            |     |          |                | Min N  | ▷ -0.05     | -0.00          | -0.01          | -0.00          | -0.00          | 0.00           |                         |
|            |     |          |                | Max V <sub>y</sub>                           | ▷ 0.02      | ▷ 0.01         | -0.00          | -0.00          | 0.00           | -0.00          |                         |
|            |     |          |                | Min V <sub>y</sub>                           | ▷ -0.02     | ▷ -0.01        | 0.00           | 0.00           | -0.00          | 0.00           |                         |
|            |     |          |                | Max V <sub>z</sub>                           | 0.02        | -0.00          | ▷ 0.02         | 0.02           | 0.00           | 0.00           |                         |
|            |     |          |                | Min V <sub>z</sub>                           | -0.02       | 0.00           | ▷ -0.02        | -0.02          | -0.00          | -0.00          |                         |
|            |     |          |                | Max M <sub>T</sub>                           | 0.01        | -0.00          | ▷ 0.02         | ▷ 0.02         | 0.00           | 0.00           |                         |
|            |     |          |                | Min M <sub>T</sub>                           | -0.01       | 0.00           | -0.02          | ▷ -0.02        | -0.00          | -0.00          |                         |
|            |     |          |                | Max M <sub>y</sub>                           | 0.03        | 0.00           | 0.02           | 0.01           | ▷ 0.00         | 0.00           |                         |
|            |     |          |                | Min M <sub>y</sub>                           | -0.03       | -0.00          | -0.02          | -0.01          | ▷ -0.00        | -0.00          |                         |
|            |     |          |                | Max M <sub>z</sub>                           | -0.00       | -0.00          | 0.01           | 0.01           | 0.00           | ▷ 0.00         |                         |
|            |     |          |                | Min M <sub>z</sub>                           | 0.00        | 0.00           | -0.01          | -0.01          | -0.00          | ▷ -0.00        |                         |
|            |     |          |                | DLC1, Result Envelope X 30% / Y 100% / Z 30% |             |                |                |                |                |                |                         |
|            |     |          |                | RC6  |             |                |                |                |                |                |                         |
|            |     |          |                | Max N  | ▷ 0.05      | -0.00          | 0.00           | 0.00           | -0.00          | 0.00           |                         |
|            |     |          |                | Min N  | ▷ -0.05     | 0.00           | -0.00          | -0.00          | 0.00           | -0.00          |                         |
|            |     |          |                | Max V <sub>y</sub>                           | 0.00        | ▷ 0.01         | -0.00          | -0.00          | 0.00           | 0.00           |                         |
|            |     |          |                | Min V <sub>y</sub>                           | -0.00       | ▷ -0.01        | 0.00           | 0.00           | -0.00          | -0.00          |                         |
|            |     |          |                | Max V <sub>z</sub>                           | 0.01        | -0.00          | ▷ 0.01         | 0.01           | -0.02          | 0.00           |                         |
|            |     |          |                | Min V <sub>z</sub>                           | -0.01       | 0.00           | ▷ -0.01        | -0.01          | 0.02           | -0.00          |                         |
|            |     |          |                | Max M <sub>T</sub>                           | 0.01        | -0.00          | 0.01           | ▷ 0.01         | -0.02          | -0.00          |                         |
|            |     |          |                | Min M <sub>T</sub>                           | -0.01       | 0.00           | -0.01          | ▷ -0.01        | 0.02           | 0.00           |                         |
|            |     |          |                | Max M <sub>y</sub>                           | -0.01       | 0.00           | -0.01          | ▷ -0.01        | 0.02           | -0.00          |                         |
|            |     |          |                | Min M <sub>y</sub>                           | 0.01        | -0.00          | 0.01           | ▷ 0.01         | -0.02          | 0.00           |                         |
|            |     |          |                | Max M <sub>z</sub>                           | 0.01        | 0.01           | 0.01           | 0.00           | -0.01          | ▷ 0.01         |                         |
|            |     |          |                | Min M <sub>z</sub>                           | -0.01       | -0.01          | -0.01          | -0.00          | 0.01           | ▷ -0.01        |                         |
|            |     | 6        | 1.400          | Max N  | ▷ 0.05      | -0.00          | 0.00           | 0.00           | 0.00           | 0.00           |                         |
|            |     |          |                | Min N  | ▷ -0.05     | 0.00           | -0.00          | -0.00          | -0.00          | -0.00          |                         |
|            |     |          |                | Max V <sub>y</sub>                           | 0.00        | ▷ 0.01         | -0.00          | -0.00          | 0.00           | -0.01          |                         |
|            |     |          |                | Min V <sub>y</sub>                           | -0.00       | ▷ -0.01        | 0.00           | 0.00           | -0.00          | 0.01           |                         |
|            |     |          |                | Max V <sub>z</sub>                           | 0.01        | -0.00          | ▷ 0.01         | 0.01           | -0.00          | 0.00           |                         |
|            |     |          |                | Min V <sub>z</sub>                           | -0.01       | 0.00           | ▷ -0.01        | -0.01          | 0.00           | -0.00          |                         |
|            |     |          |                | Max M <sub>T</sub>                           | 0.01        | -0.00          | 0.01           | ▷ 0.01         | -0.00          | 0.00           |                         |
|            |     |          |                | Min M <sub>T</sub>                           | -0.01       | 0.00           | -0.01          | ▷ -0.01        | 0.00           | -0.00          |                         |
|            |     |          |                | Max M <sub>y</sub>                           | 0.00        | 0.00           | 0.01           | ▷ 0.01         | 0.00           | -0.00          |                         |
|            |     |          |                | Min M <sub>y</sub>                           | -0.00       | -0.00          | -0.01          | -0.01          | -0.00          | 0.00           |                         |
|            |     |          |                | Max M <sub>z</sub>                           | 0.01        | -0.01          | 0.01           | 0.01           | 0.00           | ▷ 0.01         |                         |
|            |     |          |                | Min M <sub>z</sub>                           | -0.01       | 0.01           | -0.01          | -0.01          | -0.00          | ▷ -0.01        |                         |
|            |     |          |                | DLC1, Result Envelope X 30% / Y 30% / Z 100% |             |                |                |                |                |                |                         |
|            |     |          |                | RC7  |             |                |                |                |                |                |                         |
|            |     |          |                | Max N  | ▷ 0.09      | 0.01           | 0.01           | 0.00           | -0.01          | 0.01           |                         |
|            |     |          |                | Min N  | ▷ -0.09     | -0.01          | -0.01          | -0.00          | 0.01           | -0.01          |                         |
|            |     |          |                | Max V <sub>y</sub>                           | 0.06        | ▷ 0.01         | -0.00          | -0.01          | 0.01           | 0.01           |                         |
|            |     |          |                | Min V <sub>y</sub>                           | -0.06       | ▷ -0.01        | 0.00           | 0.01           | -0.01          | -0.01          |                         |
|            |     |          |                | Max V <sub>z</sub>                           | 0.03        | -0.00          | ▷ 0.04         | 0.04           | -0.05          | 0.00           |                         |
|            |     |          |                | Min V <sub>z</sub>                           | -0.03       | 0.00           | ▷ -0.04        | -0.04          | 0.05           | -0.00          |                         |
|            |     |          |                | Max M <sub>T</sub>                           | 0.01        | -0.00          | ▷ 0.04         | ▷ 0.04         | -0.04          | 0.00           |                         |
|            |     |          |                | Min M <sub>T</sub>                           | -0.01       | 0.00           | -0.04          | ▷ -0.04        | 0.04           | -0.00          |                         |
|            |     |          |                | Max M <sub>y</sub>                           | -0.02       | 0.00           | -0.04          | ▷ -0.04        | 0.05           | -0.00          |                         |
|            |     |          |                | Min M <sub>y</sub>                           | 0.02        | -0.00          | 0.04           | ▷ 0.04         | -0.05          | 0.00           |                         |
|            |     |          |                | Max M <sub>z</sub>                           | 0.07        | 0.01           | 0.02           | 0.01           | -0.02          | ▷ 0.01         |                         |
|            |     |          |                | Min M <sub>z</sub>                           | -0.07       | -0.01          | -0.02          | -0.01          | 0.02           | ▷ -0.01        |                         |
|            |     | 6        | 1.400          | Max N  | ▷ 0.09      | 0.01           | 0.01           | 0.00           | 0.01           | -0.00          |                         |
|            |     |          |                | Min N  | ▷ -0.09     | -0.01          | -0.01          | -0.00          | -0.01          | 0.00           |                         |
|            |     |          |                | Max V <sub>y</sub>                           | 0.06        | ▷ 0.01         | -0.00          | -0.01          | 0.00           | -0.01          |                         |
|            |     |          |                | Min V <sub>y</sub>                           | -0.06       | ▷ -0.01        | 0.00           | 0.01           | -0.00          | 0.01           |                         |
|            |     |          |                | Max V <sub>z</sub>                           | 0.03        | -0.00          | ▷ 0.04         | 0.04           | -0.01          | 0.01           |                         |
|            |     |          |                | Min V <sub>z</sub>                           | -0.03       | 0.00           | ▷ -0.04        | -0.04          | -0.01          | -0.01          |                         |
|            |     |          |                | Max M <sub>T</sub>                           | 0.01        | -0.00          | ▷ 0.04         | ▷ 0.04         | 0.01           | 0.01           |                         |
|            |     |          |                | Min M <sub>T</sub>                           | -0.01       | 0.00           | -0.04          | ▷ -0.04        | -0.01          | -0.01          |                         |
|            |     |          |                | Max M <sub>y</sub>                           | 0.06        | 0.00           | 0.03           | ▷ 0.03         | 0.01           | 0.00           |                         |
|            |     |          |                | Min M <sub>y</sub>                           | -0.06       | -0.00          | -0.03          | -0.03          | -0.01          | -0.00          |                         |
|            |     |          |                | Max M <sub>z</sub>                           | -0.03       | -0.01          | 0.02           | 0.03           | 0.00           | ▷ 0.01         |                         |
|            |     |          |                | Min M <sub>z</sub>                           | 0.03        | 0.01           | -0.02          | -0.03          | -0.00          | ▷ -0.01        |                         |
| 27         | RC1 | 12       | 0.000          | Max N  | ▷ -2.38     | -0.06          | 0.04           | 0.01           | 0.02           | -0.04          | CO 1                    |
|            |     |          |                | Min N  | ▷ -12.82    | -1.33          | -2.45          | -0.03          | -0.57          | -0.79          | CO 2                    |
|            |     |          |                | Max V <sub>y</sub>                           | -2.38       | ▷ -0.06        | 0.04           | 0.01           | 0.02           | -0.04          | CO 1                    |
|            |     |          |                | Min V <sub>y</sub>                           | -12.82      | ▷ -1.33        | -2.45          | -0.03          | -0.57          | -0.79          | CO 2                    |
|            |     |          |                | Max V <sub>z</sub>                           | -2.38       | -0.06          | ▷ 0.04         | 0.01           | 0.02           | -0.04          | CO 1                    |
|            |     |          |                | Min V <sub>z</sub>                           | -12.82      | -1.33          | ▷ -2.45        | -0.03          | -0.57          | -0.79          | CO 2                    |
|            |     |          |                | Max M <sub>T</sub>                           | -2.38       | -0.06          | 0.04           | ▷ 0.01         | 0.02           | -0.04          | CO 1                    |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] | Forces [kN]        |                |                |                | Moments [kNm]  |                |        | Correspondin Load Cases |
|------------|-----|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|--------|-------------------------|
|            |     |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |        |                         |
| 27         | RC1 | 24       | 1.200          | Min M <sub>T</sub> | -12.82         | -1.33          | -2.45          | ▷ -0.03        | -0.57          | -0.79  | CO 2                    |
|            |     |          |                | Max M <sub>y</sub> | -2.38          | -0.06          | 0.04           | ▷ 0.01         | 0.02           | -0.04  | CO 1                    |
|            |     |          |                | Min M <sub>y</sub> | -12.82         | -1.33          | -2.45          | ▷ -0.03        | -0.57          | -0.79  | CO 2                    |
|            |     |          |                | Max M <sub>z</sub> | -2.38          | -0.06          | 0.04           | ▷ 0.01         | 0.02           | -0.04  | CO 1                    |
|            |     |          |                | Min M <sub>z</sub> | -12.82         | -1.33          | -2.45          | ▷ -0.03        | -0.57          | -0.79  | CO 2                    |
|            |     |          |                | Max N              | ▷ -2.19        | -0.06          | 0.04           | ▷ 0.01         | 0.06           | 0.03   | CO 1                    |
|            |     |          |                | Min N              | ▷ -12.64       | -1.33          | -2.39          | ▷ -0.03        | -3.48          | 0.81   | CO 2                    |
|            |     |          |                | Max V <sub>y</sub> | ▷ -2.19        | ▷ -0.06        | 0.04           | ▷ 0.01         | 0.06           | 0.03   | CO 1                    |
|            |     |          |                | Min V <sub>y</sub> | ▷ -12.64       | ▷ -1.33        | -2.39          | ▷ -0.03        | -3.48          | 0.81   | CO 2                    |
|            |     |          |                | Max V <sub>z</sub> | -2.19          | -0.06          | ▷ 0.04         | ▷ 0.01         | 0.06           | 0.03   | CO 1                    |
|            |     |          |                | Min V <sub>z</sub> | -12.64         | -1.33          | ▷ -2.39        | ▷ -0.03        | -3.48          | 0.81   | CO 2                    |
|            |     |          |                | Max M <sub>T</sub> | -2.19          | -0.06          | 0.04           | ▷ 0.01         | 0.06           | 0.03   | CO 1                    |
|            |     |          |                | Min M <sub>T</sub> | -12.64         | -1.33          | -2.39          | ▷ -0.03        | -3.48          | 0.81   | CO 2                    |
|            |     |          |                | Max M <sub>y</sub> | -2.19          | -0.06          | 0.04           | ▷ 0.01         | 0.06           | 0.03   | CO 1                    |
|            |     |          |                | Min M <sub>y</sub> | -12.64         | -1.33          | -2.39          | ▷ -0.03        | -3.48          | 0.81   | CO 2                    |
|            |     |          |                | Max M <sub>z</sub> | -12.64         | -1.33          | -2.39          | ▷ -0.03        | -3.48          | ▷ 0.81 | CO 2                    |
|            |     |          |                | Min M <sub>z</sub> | -2.19          | -0.06          | 0.04           | ▷ 0.01         | 0.06           | ▷ 0.03 | CO 1                    |
|            | RC2 | 12       | 0.000          | Max N              | ▷ -1.76        | -0.04          | 0.03           | ▷ 0.01         | 0.01           | -0.03  | CO 3                    |
|            |     |          |                | Min N              | ▷ -8.71        | -0.89          | -1.63          | ▷ -0.02        | -0.38          | -0.53  | CO 4                    |
|            |     |          |                | Max V <sub>y</sub> | ▷ -1.76        | ▷ -0.04        | 0.03           | ▷ 0.01         | 0.01           | -0.03  | CO 3                    |
|            |     |          |                | Min V <sub>y</sub> | ▷ -8.71        | ▷ -0.89        | -1.63          | ▷ -0.02        | -0.38          | -0.53  | CO 4                    |
|            |     |          |                | Max V <sub>z</sub> | -1.76          | -0.04          | ▷ 0.03         | ▷ 0.01         | 0.01           | -0.03  | CO 3                    |
|            |     |          |                | Min V <sub>z</sub> | -8.71          | -0.89          | ▷ -1.63        | ▷ -0.02        | -0.38          | -0.53  | CO 4                    |
|            |     |          |                | Max M <sub>T</sub> | -1.76          | -0.04          | 0.03           | ▷ 0.01         | 0.01           | -0.03  | CO 3                    |
|            |     |          |                | Min M <sub>T</sub> | -8.71          | -0.89          | -1.63          | ▷ -0.02        | -0.38          | -0.53  | CO 4                    |
|            |     |          |                | Max M <sub>y</sub> | -1.76          | -0.04          | 0.03           | ▷ 0.01         | ▷ 0.01         | -0.03  | CO 3                    |
|            |     |          |                | Min M <sub>y</sub> | -8.71          | -0.89          | -1.63          | ▷ -0.02        | ▷ -0.38        | -0.53  | CO 4                    |
|            |     |          |                | Max M <sub>z</sub> | -1.76          | -0.04          | 0.03           | ▷ 0.01         | ▷ 0.01         | -0.03  | CO 3                    |
|            |     |          |                | Min M <sub>z</sub> | -8.71          | -0.89          | -1.63          | ▷ -0.02        | ▷ -0.38        | -0.53  | CO 4                    |
|            |     | 24       | 1.200          | Max N              | ▷ -1.62        | -0.04          | 0.03           | ▷ 0.01         | 0.05           | 0.02   | CO 3                    |
|            |     |          |                | Min N              | ▷ -8.58        | -0.89          | -1.60          | ▷ -0.02        | -2.32          | 0.54   | CO 4                    |
|            |     |          |                | Max V <sub>y</sub> | ▷ -1.62        | ▷ -0.04        | 0.03           | ▷ 0.01         | 0.05           | 0.02   | CO 3                    |
|            |     |          |                | Min V <sub>y</sub> | ▷ -8.58        | -0.89          | -1.60          | ▷ -0.02        | -2.32          | 0.54   | CO 4                    |
|            |     |          |                | Max V <sub>z</sub> | -1.62          | -0.04          | ▷ 0.03         | ▷ 0.01         | 0.05           | 0.02   | CO 3                    |
|            |     |          |                | Min V <sub>z</sub> | -8.58          | -0.89          | ▷ -1.60        | ▷ -0.02        | -2.32          | 0.54   | CO 4                    |
|            |     |          |                | Max M <sub>T</sub> | -1.62          | -0.04          | 0.03           | ▷ 0.01         | 0.05           | 0.02   | CO 3                    |
|            |     |          |                | Min M <sub>T</sub> | -8.58          | -0.89          | -1.60          | ▷ -0.02        | -2.32          | 0.54   | CO 4                    |
|            |     |          |                | Max M <sub>y</sub> | -1.62          | -0.04          | 0.03           | ▷ 0.01         | ▷ 0.05         | 0.02   | CO 3                    |
|            |     |          |                | Min M <sub>y</sub> | -8.58          | -0.89          | -1.60          | ▷ -0.02        | ▷ -2.32        | 0.54   | CO 4                    |
|            |     |          |                | Max M <sub>z</sub> | -8.58          | -0.89          | -1.60          | ▷ -0.02        | ▷ -2.32        | ▷ 0.54 | CO 4                    |
|            |     |          |                | Min M <sub>z</sub> | -1.62          | -0.04          | 0.03           | ▷ 0.01         | ▷ 0.05         | ▷ 0.02 | CO 3                    |
|            | RC3 | 12       | 0.000          | Max N              | ▷ -1.76        | -0.04          | 0.03           | ▷ 0.01         | 0.01           | -0.03  | CO 5                    |
|            |     |          |                | Min N              | ▷ -5.24        | -0.47          | -0.80          | ▷ -0.01        | -0.18          | -0.28  | CO 6                    |
|            |     |          |                | Max V <sub>y</sub> | ▷ -1.76        | ▷ -0.04        | 0.03           | ▷ 0.01         | 0.01           | -0.03  | CO 5                    |
|            |     |          |                | Min V <sub>y</sub> | ▷ -5.24        | ▷ -0.47        | -0.80          | ▷ -0.01        | -0.18          | -0.28  | CO 6                    |
|            |     |          |                | Max V <sub>z</sub> | -1.76          | -0.04          | ▷ 0.03         | ▷ 0.01         | 0.01           | -0.03  | CO 5                    |
|            |     |          |                | Min V <sub>z</sub> | -5.24          | -0.47          | ▷ -0.80        | ▷ -0.01        | -0.18          | -0.28  | CO 6                    |
|            |     |          |                | Max M <sub>T</sub> | -1.76          | -0.04          | 0.03           | ▷ 0.01         | 0.01           | -0.03  | CO 5                    |
|            |     |          |                | Min M <sub>T</sub> | -5.24          | -0.47          | -0.80          | ▷ -0.01        | -0.18          | -0.28  | CO 6                    |
|            |     |          |                | Max M <sub>y</sub> | -1.76          | -0.04          | 0.03           | ▷ 0.01         | ▷ 0.01         | -0.03  | CO 5                    |
|            |     |          |                | Min M <sub>y</sub> | -5.24          | -0.47          | -0.80          | ▷ -0.01        | ▷ -0.18        | -0.28  | CO 6                    |
|            |     |          |                | Max M <sub>z</sub> | -1.76          | -0.04          | 0.03           | ▷ 0.01         | ▷ 0.01         | -0.03  | CO 5                    |
|            |     |          |                | Min M <sub>z</sub> | -5.24          | -0.47          | -0.80          | ▷ -0.01        | ▷ -0.18        | -0.28  | CO 6                    |
|            |     | 24       | 1.200          | Max N              | ▷ -1.62        | -0.04          | 0.03           | ▷ 0.01         | 0.05           | 0.02   | CO 5                    |
|            |     |          |                | Min N              | ▷ -5.10        | -0.47          | -0.79          | ▷ -0.01        | -1.14          | 0.28   | CO 6                    |
|            |     |          |                | Max V <sub>y</sub> | ▷ -1.62        | ▷ -0.04        | 0.03           | ▷ 0.01         | 0.05           | 0.02   | CO 5                    |
|            |     |          |                | Min V <sub>y</sub> | ▷ -5.10        | ▷ -0.47        | -0.79          | ▷ -0.01        | -1.14          | 0.28   | CO 6                    |
|            |     |          |                | Max V <sub>z</sub> | -1.62          | -0.04          | ▷ 0.03         | ▷ 0.01         | -1.14          | 0.28   | CO 6                    |
|            |     |          |                | Min V <sub>z</sub> | -5.10          | -0.47          | ▷ -0.79        | ▷ -0.01        | -1.14          | 0.28   | CO 6                    |
|            |     |          |                | Max M <sub>T</sub> | -1.62          | -0.04          | 0.03           | ▷ 0.01         | 0.05           | 0.02   | CO 5                    |
|            |     |          |                | Min M <sub>T</sub> | -5.10          | -0.47          | -0.79          | ▷ -0.01        | -1.14          | 0.28   | CO 6                    |
|            |     |          |                | Max M <sub>y</sub> | -1.62          | -0.04          | 0.03           | ▷ 0.01         | ▷ 0.05         | 0.02   | CO 5                    |
|            |     |          |                | Min M <sub>y</sub> | -5.10          | -0.47          | -0.79          | ▷ -0.01        | ▷ -1.14        | 0.28   | CO 6                    |
|            |     |          |                | Max M <sub>z</sub> | -5.10          | -0.47          | -0.79          | ▷ -0.01        | ▷ -1.14        | ▷ 0.28 | CO 6                    |
|            |     |          |                | Min M <sub>z</sub> | -1.62          | -0.04          | 0.03           | ▷ 0.01         | ▷ 0.05         | ▷ 0.02 | CO 5                    |
|            | RC4 | 12       | 0.000          | Max N              | ▷ -1.76        | -0.04          | 0.03           | ▷ 0.01         | 0.01           | -0.03  | CO 7                    |
|            |     |          |                | Min N              | ▷ -3.85        | -0.30          | -0.47          | ▷ -0.00        | -0.10          | -0.18  | CO 8                    |
|            |     |          |                | Max V <sub>y</sub> | ▷ -1.76        | ▷ -0.04        | 0.03           | ▷ 0.01         | 0.01           | -0.03  | CO 7                    |
|            |     |          |                | Min V <sub>y</sub> | ▷ -3.85        | -0.30          | -0.47          | ▷ -0.00        | -0.10          | -0.18  | CO 8                    |
|            |     |          |                | Max V <sub>z</sub> | -1.76          | -0.04          | ▷ 0.03         | ▷ 0.01         | 0.01           | -0.03  | CO 7                    |
|            |     |          |                | Min V <sub>z</sub> | -3.85          | -0.30          | ▷ -0.47        | ▷ -0.00        | -0.10          | -0.18  | CO 8                    |
|            |     |          |                | Max M <sub>T</sub> | -1.76          | -0.04          | 0.03           | ▷ 0.01         | 0.01           | -0.03  | CO 7                    |
|            |     |          |                | Min M <sub>T</sub> | -3.85          | -0.30          | -0.47          | ▷ -0.00        | -0.10          | -0.18  | CO 8                    |
|            |     |          |                | Max M <sub>y</sub> | -1.76          | -0.04          | 0.03           | ▷ 0.01         | ▷ 0.01         | -0.03  | CO 7                    |
|            |     |          |                | Min M <sub>y</sub> | -3.85          | -0.30          | -0.47          | ▷ -0.00        | ▷ -0.10        | -0.18  | CO 8                    |
|            |     |          |                | Max M <sub>z</sub> | -1.76          | -0.04          | 0.03           | ▷ 0.01         | ▷ 0.01         | -0.03  | CO 7                    |
|            |     |          |                | Min M <sub>z</sub> | -3.85          | -0.30          | -0.47          | ▷ -0.00        | ▷ -0.10        | -0.18  | CO 8                    |
|            |     | 24       | 1.200          | Max N              | ▷ -1.62        | -0.04          | 0.03           | ▷ 0.01         | 0.05           | 0.02   | CO 7                    |
|            |     |          |                | Min N              | ▷ -3.71        | -0.30          | -0.47          | ▷ -0.00        | -0.66          | 0.18   | CO 8                    |
|            |     |          |                | Max V <sub>y</sub> | ▷ -1.62        | ▷ -0.04        | 0.03           | ▷ 0.01         | 0.05           | 0.02   | CO 7                    |
|            |     |          |                | Min V <sub>y</sub> | ▷ -3.71        | ▷ -0.30        | -0.47          | ▷ -0.00        | -0.66          | 0.18   | CO 8                    |
|            |     |          |                | Max V <sub>z</sub> | -1.62          | -0.04          | ▷ 0.03         | ▷ 0.01         | 0.05           | 0.02   | CO 7                    |
|            |     |          |                | Min V <sub>z</sub> | -3.71          | -0.30          | ▷ -0.47        | ▷ -0.00        | -0.66          | 0.18   | CO 8                    |
|            |     |          |                | Max M <sub>T</sub> | -1.62          | -0.04          | 0.03           | ▷ 0.01         | 0.05           | 0.02   | CO 7                    |
|            |     |          |                | Min M <sub>T</sub> | -3.71          | -0.30          | -0.47          | ▷ -0.00        | -0.66          | 0.18   | CO 8                    |
|            |     |          |                | Max M <sub>y</sub> | -1.62          | -0.04          | 0.03           | ▷ 0.01         | ▷ 0.05         | 0.02   | CO 7                    |
|            |     |          |                | Min M <sub>y</sub> | -3.71          | -0.30          | -0.47          | ▷ -0.00        | ▷ -0.66        | 0.18   | CO 8                    |
|            |     |          |                | Max M <sub>z</sub> | -3.71          | -0.30          | -0.47          | ▷ -0.00        | ▷ -0.66        | ▷ 0.18 | CO 8                    |
|            |     |          |                | Min M <sub>z</sub> | -1.62          | -0.04          | 0.03           | ▷ 0.01         | ▷ 0.05         | ▷ 0.02 | CO 7                    |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] | Forces [kN]                                  |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |
|------------|-----|----------|----------------|--|----------------|----------------|----------------|----------------|----------------|-------------------------|
|            |     |          |                | N  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |
| 27         | RC4 | 12       | 0.000          | Max M <sub>z</sub>                           | -3.71          | -0.30          | -0.47          | -0.00          | -0.66          | 0.18                    |
|            |     |          |                | Min M <sub>z</sub>                           | -1.62          | -0.04          | 0.03           | 0.01           | 0.05           | 0.02                    |
|            |     |          |                | DLC1, Result Envelope X 100% / Y 30% / Z 30% |                |                |                |                |                |                         |
|            |     |          |                | Max N  | 1.61           | 0.16           | 0.27           | 0.01           | 0.05           | 0.11                    |
|            |     |          |                | Min N  | -1.61          | -0.16          | -0.27          | -0.01          | -0.05          | -0.11                   |
|            |     |          |                | Max V <sub>y</sub>                           | 1.24           | 0.24           | 0.23           | 0.01           | 0.04           | 0.12                    |
|            |     |          |                | Min V <sub>y</sub>                           | -1.24          | -0.24          | -0.23          | -0.01          | -0.04          | -0.12                   |
|            |     |          |                | Max V <sub>z</sub>                           | 1.52           | 0.16           | 0.29           | 0.01           | 0.05           | 0.11                    |
|            |     |          |                | Min V <sub>z</sub>                           | -1.52          | -0.16          | -0.29          | -0.01          | -0.05          | -0.11                   |
|            |     |          |                | Max M <sub>T</sub>                           | 1.25           | 0.14           | 0.18           | 0.02           | 0.04           | 0.10                    |
|            |     |          |                | Min M <sub>T</sub>                           | -1.25          | -0.14          | -0.18          | -0.02          | -0.04          | -0.10                   |
|            |     |          |                | Max M <sub>y</sub>                           | 1.10           | 0.15           | 0.22           | 0.01           | 0.07           | 0.08                    |
|            |     |          |                | Min M <sub>y</sub>                           | -1.10          | -0.15          | -0.22          | -0.01          | -0.07          | -0.08                   |
|            |     |          |                | Max M <sub>z</sub>                           | 1.43           | 0.23           | 0.25           | 0.01           | 0.05           | 0.13                    |
|            |     |          |                | Min M <sub>z</sub>                           | -1.43          | -0.23          | -0.25          | -0.01          | -0.05          | -0.13                   |
|            |     | 24       | 1.200          | Max N  | 1.61           | 0.16           | 0.27           | 0.01           | 0.38           | -0.08                   |
|            |     |          |                | Min N  | -1.61          | -0.16          | -0.27          | -0.01          | -0.38          | 0.08                    |
|            |     |          |                | Max V <sub>y</sub>                           | 1.24           | 0.24           | 0.23           | 0.01           | 0.32           | -0.17                   |
|            |     |          |                | Min V <sub>y</sub>                           | -1.24          | -0.24          | -0.23          | -0.01          | -0.32          | 0.17                    |
|            |     |          |                | Max V <sub>z</sub>                           | 1.52           | 0.16           | 0.29           | 0.01           | 0.39           | -0.09                   |
|            |     |          |                | Min V <sub>z</sub>                           | -1.52          | -0.16          | -0.29          | -0.01          | -0.39          | 0.09                    |
|            |     |          |                | Max M <sub>T</sub>                           | 1.25           | 0.14           | 0.18           | 0.02           | 0.25           | -0.07                   |
|            |     |          |                | Min M <sub>T</sub>                           | -1.25          | -0.14          | -0.18          | -0.02          | -0.25          | 0.07                    |
|            |     |          |                | Max M <sub>y</sub>                           | 1.45           | 0.18           | 0.28           | 0.01           | 0.40           | -0.10                   |
|            |     |          |                | Min M <sub>y</sub>                           | -1.45          | -0.18          | -0.28          | -0.01          | -0.40          | 0.10                    |
|            |     |          |                | Max M <sub>z</sub>                           | -1.07          | -0.24          | -0.20          | -0.01          | -0.27          | 0.17                    |
|            |     |          |                | Min M <sub>z</sub>                           | 1.07           | 0.24           | 0.20           | 0.01           | 0.27           | -0.17                   |
|            |     |          |                | DLC1, Result Envelope X 30% / Y 100% / Z 30% |                |                |                |                |                |                         |
|            |     |          |                | Max N  | 1.48           | 0.07           | 0.20           | 0.02           | 0.02           | 0.09                    |
|            |     |          |                | Min N  | -1.48          | -0.07          | -0.20          | -0.02          | -0.02          | -0.09                   |
|            |     |          |                | Max V <sub>y</sub>                           | 0.73           | 0.27           | 0.16           | 0.00           | 0.04           | 0.10                    |
|            |     |          |                | Min V <sub>y</sub>                           | -0.73          | -0.27          | -0.16          | -0.00          | -0.04          | -0.10                   |
|            |     |          |                | Max V <sub>z</sub>                           | 1.33           | 0.12           | 0.21           | 0.01           | 0.03           | 0.09                    |
|            |     |          |                | Min V <sub>z</sub>                           | -1.33          | -0.12          | -0.21          | -0.01          | -0.03          | -0.09                   |
|            |     |          |                | Max M <sub>T</sub>                           | 1.20           | 0.04           | 0.14           | 0.02           | 0.01           | 0.08                    |
|            |     |          |                | Min M <sub>T</sub>                           | -1.20          | -0.04          | -0.14          | -0.02          | -0.01          | -0.08                   |
|            |     |          |                | Max M <sub>y</sub>                           | 0.56           | 0.18           | 0.17           | -0.00          | 0.06           | 0.07                    |
|            |     |          |                | Min M <sub>y</sub>                           | -0.56          | -0.18          | -0.17          | 0.00           | -0.06          | -0.07                   |
|            |     |          |                | Max M <sub>z</sub>                           | 1.09           | 0.23           | 0.19           | 0.01           | 0.03           | 0.11                    |
|            |     |          |                | Min M <sub>z</sub>                           | -1.09          | -0.23          | -0.19          | -0.01          | -0.03          | -0.11                   |
|            |     | 24       | 1.200          | Max N  | 1.48           | 0.07           | 0.20           | 0.02           | 0.27           | 0.00                    |
|            |     |          |                | Min N  | -1.48          | -0.07          | -0.20          | -0.02          | -0.27          | -0.00                   |
|            |     |          |                | Max V <sub>y</sub>                           | 0.73           | 0.27           | 0.16           | 0.00           | 0.23           | -0.22                   |
|            |     |          |                | Min V <sub>y</sub>                           | -0.73          | -0.27          | -0.16          | -0.00          | -0.23          | 0.22                    |
|            |     |          |                | Max V <sub>z</sub>                           | 1.33           | 0.12           | 0.21           | 0.01           | 0.29           | -0.05                   |
|            |     |          |                | Min V <sub>z</sub>                           | -1.33          | -0.12          | -0.21          | -0.01          | -0.29          | 0.05                    |
|            |     |          |                | Max M <sub>T</sub>                           | 1.20           | 0.04           | 0.14           | 0.02           | 0.19           | 0.03                    |
|            |     |          |                | Min M <sub>T</sub>                           | -1.20          | -0.04          | -0.14          | -0.02          | -0.19          | -0.03                   |
|            |     |          |                | Max M <sub>y</sub>                           | 1.07           | 0.17           | 0.21           | 0.01           | 0.29           | -0.11                   |
|            |     |          |                | Min M <sub>y</sub>                           | -1.07          | -0.17          | -0.21          | -0.01          | -0.29          | 0.11                    |
|            |     |          |                | Max M <sub>z</sub>                           | -0.58          | -0.26          | -0.14          | -0.00          | -0.20          | 0.22                    |
|            |     |          |                | Min M <sub>z</sub>                           | 0.58           | 0.26           | 0.14           | 0.00           | 0.20           | -0.22                   |
|            |     |          |                | DLC1, Result Envelope X 30% / Y 30% / Z 100% |                |                |                |                |                |                         |
|            |     |          |                | Max N  | 3.20           | 0.35           | 0.57           | 0.03           | 0.11           | 0.24                    |
|            |     |          |                | Min N  | -3.20          | -0.35          | -0.57          | -0.03          | -0.11          | -0.24                   |
|            |     |          |                | Max V <sub>y</sub>                           | 2.61           | 0.46           | 0.48           | 0.03           | 0.09           | 0.25                    |
|            |     |          |                | Min V <sub>y</sub>                           | -2.61          | -0.46          | -0.48          | -0.03          | -0.09          | -0.25                   |
|            |     |          |                | Max V <sub>z</sub>                           | 3.11           | 0.35           | 0.58           | 0.02           | 0.11           | 0.23                    |
|            |     |          |                | Min V <sub>z</sub>                           | -3.11          | -0.35          | -0.58          | -0.02          | -0.11          | -0.23                   |
|            |     |          |                | Max M <sub>T</sub>                           | 2.55           | 0.36           | 0.41           | 0.04           | 0.07           | 0.23                    |
|            |     |          |                | Min M <sub>T</sub>                           | -2.55          | -0.36          | -0.41          | -0.04          | -0.07          | -0.23                   |
|            |     |          |                | Max M <sub>y</sub>                           | 2.71           | 0.34           | 0.54           | 0.02           | 0.13           | 0.20                    |
|            |     |          |                | Min M <sub>y</sub>                           | -2.71          | -0.34          | -0.54          | -0.02          | -0.13          | -0.20                   |
|            |     |          |                | Max M <sub>z</sub>                           | 2.92           | 0.44           | 0.52           | 0.03           | 0.10           | 0.26                    |
|            |     |          |                | Min M <sub>z</sub>                           | -2.92          | -0.44          | -0.52          | -0.03          | -0.10          | -0.26                   |
|            |     | 24       | 1.200          | Max N  | 3.20           | 0.35           | 0.57           | 0.03           | 0.78           | -0.18                   |
|            |     |          |                | Min N  | -3.20          | -0.35          | -0.57          | -0.03          | -0.78          | 0.18                    |
|            |     |          |                | Max V <sub>y</sub>                           | 2.61           | 0.46           | 0.48           | 0.03           | 0.67           | -0.30                   |
|            |     |          |                | Min V <sub>y</sub>                           | -2.61          | -0.46          | -0.48          | -0.03          | -0.67          | 0.30                    |
|            |     |          |                | Max V <sub>z</sub>                           | 3.11           | 0.35           | 0.58           | 0.02           | 0.81           | -0.19                   |
|            |     |          |                | Min V <sub>z</sub>                           | -3.11          | -0.35          | -0.58          | -0.02          | -0.81          | 0.19                    |
|            |     |          |                | Max M <sub>T</sub>                           | 2.55           | 0.36           | 0.41           | 0.04           | 0.56           | -0.20                   |
|            |     |          |                | Min M <sub>T</sub>                           | -2.55          | -0.36          | -0.41          | -0.04          | -0.56          | 0.20                    |
|            |     |          |                | Max M <sub>y</sub>                           | 3.02           | 0.36           | 0.58           | 0.02           | 0.81           | -0.21                   |
|            |     |          |                | Min M <sub>y</sub>                           | -3.02          | -0.36          | -0.58          | -0.02          | -0.81          | 0.21                    |
|            |     |          |                | Max M <sub>z</sub>                           | -2.29          | -0.45          | -0.42          | -0.03          | -0.59          | 0.30                    |
|            |     |          |                | Min M <sub>z</sub>                           | 2.29           | 0.45           | 0.42           | 0.03           | 0.59           | -0.30                   |
| 28         | RC1 | 16       | 0.000          | Max N  | -1.06          | -0.03          | 0.05           | -0.00          | -0.06          | -0.02                   |
|            |     |          |                | Min N  | -5.80          | -0.10          | 2.59           | -0.47          | -2.36          | -0.14                   |
|            |     |          |                | Max V <sub>y</sub>                           | -1.06          | -0.03          | 0.05           | -0.00          | -0.06          | -0.02                   |
|            |     |          |                | Min V <sub>y</sub>                           | -5.80          | -0.10          | 2.59           | -0.47          | -2.36          | -0.14                   |
|            |     |          |                | Max V <sub>z</sub>                           | -5.80          | -0.10          | 2.59           | -0.47          | -2.36          | -0.14                   |
|            |     |          |                | Min V <sub>z</sub>                           | -1.06          | -0.03          | 0.05           | -0.00          | -0.06          | -0.02                   |
|            |     |          |                | Max M <sub>T</sub>                           | -1.06          | -0.03          | 0.05           | -0.00          | -0.06          | -0.02                   |
|            |     |          |                | Min M <sub>T</sub>                           | -5.80          | -0.10          | 2.59           | -0.47          | -2.36          | -0.14                   |
|            |     |          |                | Max M <sub>y</sub>                           | -1.06          | -0.03          | 0.05           | -0.00          | -0.06          | -0.02                   |
|            |     |          |                | Min M <sub>y</sub>                           | -5.80          | -0.10          | 2.59           | -0.47          | -2.36          | -0.14                   |
|            |     |          |                | Max M <sub>z</sub>                           | -1.06          | -0.03          | 0.05           | -0.00          | -0.06          | -0.02                   |
|            |     |          |                | Min M <sub>z</sub>                           | -5.80          | -0.10          | 2.59           | -0.47          | -2.36          | -0.14                   |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] | Forces [kN]                                 |                |                |                | Moments [kNm]  |                |       | Correspondin Load Cases |
|------------|-----|----------|----------------|---|----------------|----------------|----------------|----------------|----------------|-------|-------------------------|
|            |     |          |                | N   | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |                         |
| 28         | RC1 | 20       | 1.500          | Max M <sub>z</sub>                          | -1.06          | -0.03          | 0.05           | -0.00          | -0.06          | -0.02 | CO 1                    |
|            |     |          |                | Min M <sub>z</sub>                          | -5.80          | -0.10          | 2.59           | -0.47          | -2.36          | -0.14 | CO 2                    |
|            |     |          |                | Max N                                       | -0.82          | -0.03          | 0.05           | -0.00          | 0.02           | 0.01  | CO 1                    |
|            |     |          |                | Min N                                       | -5.56          | -0.11          | 2.60           | -0.47          | 1.55           | 0.02  | CO 2                    |
|            |     |          |                | Max V <sub>y</sub>                          | -0.82          | -0.03          | 0.05           | -0.00          | 0.02           | 0.01  | CO 1                    |
|            |     |          |                | Min V <sub>y</sub>                          | -5.56          | -0.11          | 2.60           | -0.47          | 1.55           | 0.02  | CO 2                    |
|            |     |          |                | Max V <sub>z</sub>                          | -5.56          | -0.11          | 2.60           | -0.47          | 1.55           | 0.02  | CO 2                    |
|            |     |          |                | Min V <sub>z</sub>                          | -0.82          | -0.03          | 0.05           | -0.00          | 0.02           | 0.01  | CO 1                    |
|            |     |          |                | Max M <sub>T</sub>                          | -0.82          | -0.03          | 0.05           | -0.00          | 0.02           | 0.01  | CO 1                    |
|            |     |          |                | Min M <sub>T</sub>                          | -5.56          | -0.11          | 2.60           | -0.47          | 1.55           | 0.02  | CO 2                    |
|            | RC2 | 16       | 0.000          | Max M <sub>y</sub>                          | -5.56          | -0.11          | 2.60           | -0.47          | 1.55           | 0.02  | CO 2                    |
|            |     |          |                | Min M <sub>y</sub>                          | -0.82          | -0.03          | 0.05           | -0.00          | 0.02           | 0.01  | CO 1                    |
|            |     |          |                | Max M <sub>z</sub>                          | -5.56          | -0.11          | 2.60           | -0.47          | 1.55           | 0.02  | CO 2                    |
|            |     |          |                | Min M <sub>z</sub>                          | -0.82          | -0.03          | 0.05           | -0.00          | 0.02           | 0.01  | CO 1                    |
|            |     |          |                | Max N                                       | -0.78          | -0.02          | 0.04           | -0.00          | -0.05          | -0.02 | CO 3                    |
|            |     |          |                | Min N                                       | -3.95          | -0.07          | 1.74           | -0.31          | -1.58          | -0.10 | CO 4                    |
|            |     |          |                | Max V <sub>y</sub>                          | -0.78          | -0.02          | 0.04           | -0.00          | -0.05          | -0.02 | CO 3                    |
|            |     |          |                | Min V <sub>y</sub>                          | -3.95          | -0.07          | 1.74           | -0.31          | -1.58          | -0.10 | CO 4                    |
|            |     |          |                | Max V <sub>z</sub>                          | -3.95          | -0.07          | 1.74           | -0.31          | -1.58          | -0.10 | CO 4                    |
|            |     |          |                | Min V <sub>z</sub>                          | -0.78          | -0.02          | 0.04           | -0.00          | -0.05          | -0.02 | CO 3                    |
|            |     |          |                | Max M <sub>T</sub>                          | -0.78          | -0.02          | 0.04           | -0.00          | -0.05          | -0.02 | CO 3                    |
|            |     |          |                | Min M <sub>T</sub>                          | -3.95          | -0.07          | 1.74           | -0.31          | -1.58          | -0.10 | CO 4                    |
|            |     |          |                | Max M <sub>y</sub>                          | -0.78          | -0.02          | 0.04           | -0.00          | -0.05          | -0.02 | CO 3                    |
|            |     |          |                | Min M <sub>y</sub>                          | -3.95          | -0.07          | 1.74           | -0.31          | -1.58          | -0.10 | CO 4                    |
|            |     |          |                | Max M <sub>z</sub>                          | -0.78          | -0.02          | 0.04           | -0.00          | -0.05          | -0.02 | CO 3                    |
|            |     |          |                | Min M <sub>z</sub>                          | -3.95          | -0.07          | 1.74           | -0.31          | -1.58          | -0.10 | CO 4                    |
|            |     |          |                | Max N                                       | -0.61          | -0.02          | 0.04           | -0.00          | 0.01           | 0.01  | CO 3                    |
|            |     |          |                | Min N                                       | -3.77          | -0.08          | 1.74           | -0.31          | 1.03           | 0.01  | CO 4                    |
|            |     |          |                | Max V <sub>y</sub>                          | -0.61          | -0.02          | 0.04           | -0.00          | 0.01           | 0.01  | CO 3                    |
|            |     |          |                | Min V <sub>y</sub>                          | -3.77          | -0.08          | 1.74           | -0.31          | 1.03           | 0.01  | CO 4                    |
|            |     |          |                | Max V <sub>z</sub>                          | -3.77          | -0.08          | 1.74           | -0.31          | 1.03           | 0.01  | CO 4                    |
|            |     |          |                | Min V <sub>z</sub>                          | -0.61          | -0.02          | 0.04           | -0.00          | 0.01           | 0.01  | CO 3                    |
|            |     |          |                | Max M <sub>T</sub>                          | -0.61          | -0.02          | 0.04           | -0.00          | 0.01           | 0.01  | CO 3                    |
|            |     |          |                | Min M <sub>T</sub>                          | -3.77          | -0.08          | 1.74           | -0.31          | 1.03           | 0.01  | CO 4                    |
|            |     |          |                | Max M <sub>y</sub>                          | -3.77          | -0.08          | 1.74           | -0.31          | 1.03           | 0.01  | CO 4                    |
|            |     |          |                | Min M <sub>y</sub>                          | -0.61          | -0.02          | 0.04           | -0.00          | 0.01           | 0.01  | CO 3                    |
|            |     |          |                | Max M <sub>z</sub>                          | -3.77          | -0.08          | 1.74           | -0.31          | 1.03           | 0.01  | CO 4                    |
|            |     |          |                | Min M <sub>z</sub>                          | -0.61          | -0.02          | 0.04           | -0.00          | 0.01           | 0.01  | CO 3                    |
|            |     |          |                | Max N                                       | -0.78          | -0.02          | 0.04           | -0.00          | -0.05          | -0.02 | CO 5                    |
|            |     |          |                | Min N                                       | -2.37          | -0.05          | 0.89           | -0.16          | -0.81          | -0.06 | CO 6                    |
|            |     |          |                | Max V <sub>y</sub>                          | -0.78          | -0.02          | 0.04           | -0.00          | -0.05          | -0.02 | CO 5                    |
|            |     |          |                | Min V <sub>y</sub>                          | -2.37          | -0.05          | 0.89           | -0.16          | -0.81          | -0.06 | CO 6                    |
|            |     |          |                | Max V <sub>z</sub>                          | -2.37          | -0.05          | 0.89           | -0.16          | -0.81          | -0.06 | CO 6                    |
|            |     |          |                | Min V <sub>z</sub>                          | -0.78          | -0.02          | 0.04           | -0.00          | -0.05          | -0.02 | CO 5                    |
|            |     |          |                | Max M <sub>T</sub>                          | -0.78          | -0.02          | 0.04           | -0.00          | -0.05          | -0.02 | CO 5                    |
|            |     |          |                | Min M <sub>T</sub>                          | -2.37          | -0.05          | 0.89           | -0.16          | -0.81          | -0.06 | CO 6                    |
|            |     |          |                | Max M <sub>y</sub>                          | -0.78          | -0.02          | 0.04           | -0.00          | -0.05          | -0.02 | CO 5                    |
|            |     |          |                | Min M <sub>y</sub>                          | -2.37          | -0.05          | 0.89           | -0.16          | -0.81          | -0.06 | CO 6                    |
|            |     |          |                | Max M <sub>z</sub>                          | -0.78          | -0.02          | 0.04           | -0.00          | -0.05          | -0.02 | CO 5                    |
|            |     |          |                | Min M <sub>z</sub>                          | -2.37          | -0.05          | 0.89           | -0.16          | -0.81          | -0.06 | CO 6                    |
|            |     |          |                | Max N                                       | -0.61          | -0.02          | 0.04           | -0.00          | 0.01           | 0.01  | CO 5                    |
|            |     |          |                | Min N                                       | -2.19          | -0.05          | 0.89           | -0.16          | 0.52           | 0.01  | CO 6                    |
|            |     |          |                | Max V <sub>y</sub>                          | -0.61          | -0.02          | 0.04           | -0.00          | 0.01           | 0.01  | CO 5                    |
|            |     |          |                | Min V <sub>y</sub>                          | -2.19          | -0.05          | 0.89           | -0.16          | 0.52           | 0.01  | CO 6                    |
|            |     |          |                | Max V <sub>z</sub>                          | -2.19          | -0.05          | 0.89           | -0.16          | 0.52           | 0.01  | CO 6                    |
|            |     |          |                | Min V <sub>z</sub>                          | -0.61          | -0.02          | 0.04           | -0.00          | 0.01           | 0.01  | CO 5                    |
|            |     |          |                | Max M <sub>T</sub>                          | -0.61          | -0.02          | 0.04           | -0.00          | 0.01           | 0.01  | CO 5                    |
|            |     |          |                | Min M <sub>T</sub>                          | -2.19          | -0.05          | 0.89           | -0.16          | 0.52           | 0.01  | CO 6                    |
|            |     |          |                | Max M <sub>y</sub>                          | -2.19          | -0.05          | 0.89           | -0.16          | 0.52           | 0.01  | CO 6                    |
|            |     |          |                | Min M <sub>y</sub>                          | -0.61          | -0.02          | 0.04           | -0.00          | 0.01           | 0.01  | CO 5                    |
|            |     |          |                | Max M <sub>z</sub>                          | -2.19          | -0.05          | 0.89           | -0.16          | 0.52           | 0.01  | CO 6                    |
|            |     |          |                | Min M <sub>z</sub>                          | -0.61          | -0.02          | 0.04           | -0.00          | 0.01           | 0.01  | CO 5                    |
|            |     |          |                | Max N                                       | -0.78          | -0.02          | 0.04           | -0.00          | -0.05          | -0.02 | CO 7                    |
|            |     |          |                | Min N                                       | -1.73          | -0.04          | 0.55           | -0.09          | -0.50          | -0.04 | CO 8                    |
|            |     |          |                | Max V <sub>y</sub>                          | -0.78          | -0.02          | 0.04           | -0.00          | -0.05          | -0.02 | CO 7                    |
|            |     |          |                | Min V <sub>y</sub>                          | -1.73          | -0.04          | 0.55           | -0.09          | -0.50          | -0.04 | CO 8                    |
|            |     |          |                | Max V <sub>z</sub>                          | -1.73          | -0.04          | 0.55           | -0.09          | -0.50          | -0.04 | CO 8                    |
|            |     |          |                | Min V <sub>z</sub>                          | -0.78          | -0.02          | 0.04           | -0.00          | -0.05          | -0.02 | CO 7                    |
|            |     |          |                | Max M <sub>T</sub>                          | -0.78          | -0.02          | 0.04           | -0.00          | -0.05          | -0.02 | CO 7                    |
|            |     |          |                | Min M <sub>T</sub>                          | -1.73          | -0.04          | 0.55           | -0.09          | -0.50          | -0.04 | CO 8                    |
|            |     |          |                | Max M <sub>y</sub>                          | -0.78          | -0.02          | 0.04           | -0.00          | -0.05          | -0.02 | CO 7                    |
|            |     |          |                | Min M <sub>y</sub>                          | -1.73          | -0.04          | 0.55           | -0.09          | -0.50          | -0.04 | CO 8                    |
|            |     |          |                | Max M <sub>z</sub>                          | -0.78          | -0.02          | 0.04           | -0.00          | -0.05          | -0.02 | CO 7                    |
|            |     |          |                | Min M <sub>z</sub>                          | -1.73          | -0.04          | 0.55           | -0.09          | -0.50          | -0.04 | CO 8                    |
|            |     |          |                | Max N                                       | -0.61          | -0.02          | 0.04           | -0.00          | 0.01           | 0.01  | CO 7                    |
|            |     |          |                | Min N                                       | -1.56          | -0.04          | 0.55           | -0.09          | 0.32           | 0.01  | CO 8                    |
|            |     |          |                | Max V <sub>y</sub>                          | -0.61          | -0.02          | 0.04           | -0.00          | 0.01           | 0.01  | CO 7                    |
|            |     |          |                | Min V <sub>y</sub>                          | -1.56          | -0.04          | 0.55           | -0.09          | 0.32           | 0.01  | CO 8                    |
|            |     |          |                | Max V <sub>z</sub>                          | -1.56          | -0.04          | 0.55           | -0.09          | 0.32           | 0.01  | CO 8                    |
|            |     |          |                | Min V <sub>z</sub>                          | -0.61          | -0.02          | 0.04           | -0.00          | 0.01           | 0.01  | CO 7                    |
|            |     |          |                | Max M <sub>T</sub>                          | -0.61          | -0.02          | 0.04           | -0.00          | 0.01           | 0.01  | CO 7                    |
|            |     |          |                | Min M <sub>T</sub>                          | -1.56          | -0.04          | 0.55           | -0.09          | 0.32           | 0.01  | CO 8                    |
|            |     |          |                | Max M <sub>y</sub>                          | -1.56          | -0.04          | 0.55           | -0.09          | 0.32           | 0.01  | CO 8                    |
|            |     |          |                | Min M <sub>y</sub>                          | -0.61          | -0.02          | 0.04           | -0.00          | 0.01           | 0.01  | CO 7                    |
|            |     |          |                | Max M <sub>z</sub>                          | -1.56          | -0.04          | 0.55           | -0.09          | 0.32           | 0.01  | CO 8                    |
|            |     |          |                | Min M <sub>z</sub>                          | -0.61          | -0.02          | 0.04           | -0.00          | 0.01           | 0.01  | CO 7                    |
|            |     |          |                | DLC1 Result Envelope X 100% / Y 30% / Z 30% |                |                |                |                |                |       |                         |

## RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC   | Node No.                                     | Location x [m]     | Forces [kN]        |                    |                |                | Moments [kNm]  |                |       | Correspondin Load Cases |      |
|--------------------|--|--|--------------------|--------------------|--------------------|----------------|----------------|----------------|----------------|-------|-------------------------|------|
|                    |  |  |                    | N                  | V <sub>y</sub>     | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |                         |      |
| 28                 | RC5  | 16   | 0.000              | Max N              | 0.57               | -0.00          | -0.32          | 0.06           | 0.27           | 0.00  |                         |      |
|                    |  |  |                    | Min N              | -0.57              | 0.00           | 0.32           | -0.06          | -0.27          | -0.00 |                         |      |
|                    |  |  |                    | Max V <sub>y</sub> | 0.15               | 0.05           | -0.18          | 0.03           | 0.15           | 0.05  |                         |      |
|                    |  |  |                    | Min V <sub>y</sub> | -0.15              | -0.05          | 0.18           | -0.03          | -0.15          | -0.05 |                         |      |
|                    |  |  |                    | Max V <sub>z</sub> | -0.49              | -0.02          | 0.34           | -0.06          | -0.29          | -0.03 |                         |      |
|                    |  |  |                    | Min V <sub>z</sub> | 0.49               | 0.02           | -0.34          | 0.06           | 0.29           | 0.03  |                         |      |
|                    |  |  |                    | Max M <sub>T</sub> | 0.49               | 0.02           | -0.34          | 0.06           | 0.29           | 0.03  |                         |      |
|                    |  |  |                    | Min M <sub>T</sub> | -0.49              | -0.02          | 0.34           | -0.06          | -0.29          | -0.03 |                         |      |
|                    |  |  |                    | Max M <sub>y</sub> | 0.48               | 0.02           | -0.34          | 0.06           | 0.29           | 0.03  |                         |      |
|                    |  |  |                    | Min M <sub>y</sub> | -0.48              | -0.02          | 0.34           | -0.06          | -0.29          | -0.03 |                         |      |
|                    |  |  |                    | Max M <sub>z</sub> | 0.17               | 0.05           | -0.19          | 0.04           | 0.16           | 0.05  |                         |      |
|                    |  |  |                    | Min M <sub>z</sub> | -0.17              | -0.05          | 0.19           | -0.04          | -0.16          | -0.05 |                         |      |
|                    |  | 20   | 1.500              | Max N              | 0.57               | -0.00          | -0.32          | 0.06           | -0.21          | 0.00  |                         |      |
|                    |  |  |                    | Min N              | -0.57              | 0.00           | 0.32           | -0.06          | 0.21           | -0.00 |                         |      |
|                    |  |  |                    | Max V <sub>y</sub> | 0.15               | 0.05           | -0.18          | 0.03           | -0.12          | -0.02 |                         |      |
|                    |  |  |                    | Min V <sub>y</sub> | -0.15              | -0.05          | 0.18           | -0.03          | 0.12           | 0.02  |                         |      |
|                    |  |  |                    | Max V <sub>z</sub> | -0.49              | -0.02          | 0.34           | -0.06          | 0.22           | 0.01  |                         |      |
|                    |  |  |                    | Min V <sub>z</sub> | 0.49               | 0.02           | -0.34          | 0.06           | -0.22          | -0.01 |                         |      |
|                    |  |  |                    | Max M <sub>T</sub> | 0.49               | 0.02           | -0.34          | 0.06           | -0.22          | -0.01 |                         |      |
|                    |  |  |                    | Min M <sub>T</sub> | -0.49              | -0.02          | 0.34           | -0.06          | 0.22           | 0.01  |                         |      |
|                    |  |  |                    | Max M <sub>y</sub> | -0.49              | -0.02          | 0.34           | -0.06          | 0.22           | 0.01  |                         |      |
|                    |  |  |                    | Min M <sub>y</sub> | 0.49               | 0.02           | -0.34          | 0.06           | -0.22          | -0.01 |                         |      |
|                    |  |  |                    | Max M <sub>z</sub> | -0.07              | -0.05          | 0.13           | -0.03          | 0.09           | 0.02  |                         |      |
|                    |  |  |                    | Min M <sub>z</sub> | 0.07               | 0.05           | -0.13          | 0.03           | -0.09          | -0.02 |                         |      |
|                    |  | DLC1, Result Envelope X 30% / Y 100% / Z 30% |                    |                    |                    |                |                |                |                |       |                         |      |
|                    |  | RC6  | 16                 | 0.000              | Max N              | 0.55           | -0.04          | -0.23          | 0.04           | 0.19  | -0.04                   |      |
|                    |  |  |                    |                    | Min N              | -0.55          | 0.04           | 0.23           | -0.04          | -0.19 | 0.04                    |      |
|                    |  |  |                    |                    | Max V <sub>y</sub> | -0.01          | 0.07           | -0.15          | 0.03           | 0.13  | 0.08                    |      |
|                    |  |  |                    |                    | Min V <sub>y</sub> | 0.01           | -0.07          | 0.15           | -0.03          | -0.13 | -0.08                   |      |
|                    |  |  |                    |                    | Max V <sub>z</sub> | -0.31          | -0.03          | 0.26           | -0.05          | -0.22 | -0.04                   |      |
|                    | Min V <sub>z</sub>                           |  |                    |                    | 0.31               | 0.03           | -0.26          | 0.05           | 0.22           | 0.04  |                         |      |
|                    | Max M <sub>T</sub>                           |  |                    |                    | 0.33               | 0.03           | -0.26          | 0.05           | 0.22           | 0.03  |                         |      |
|                    | Min M <sub>T</sub>                           |  |                    |                    | -0.33              | -0.03          | 0.26           | -0.05          | -0.22          | -0.03 |                         |      |
|                    | Max M <sub>y</sub>                           |  |                    |                    | 0.30               | 0.03           | -0.26          | 0.05           | 0.22           | 0.04  |                         |      |
|                    | Min M <sub>y</sub>                           |  |                    |                    | -0.30              | -0.03          | 0.26           | -0.05          | -0.22          | -0.04 |                         |      |
|                    | Max M <sub>z</sub>                           |  |                    |                    | 0.01               | 0.07           | -0.16          | 0.03           | 0.14           | 0.08  |                         |      |
|                    | Min M <sub>z</sub>                           |  |                    |                    | -0.01              | -0.07          | 0.16           | -0.03          | -0.14          | -0.08 |                         |      |
|                    | 20   |  | 1.500              | Max N              | 0.55               | -0.04          | -0.23          | 0.04           | -0.15          | 0.01  |                         |      |
|                    |  |  |                    | Min N              | -0.55              | 0.04           | 0.23           | -0.04          | 0.15           | -0.01 |                         |      |
|                    |  |  |                    | Max V <sub>y</sub> | -0.01              | 0.07           | -0.15          | 0.03           | -0.10          | -0.03 |                         |      |
|                    |  |  |                    | Min V <sub>y</sub> | 0.01               | -0.07          | 0.15           | -0.03          | 0.10           | 0.03  |                         |      |
|                    |  |  |                    | Max V <sub>z</sub> | -0.31              | -0.03          | 0.26           | -0.05          | 0.17           | 0.01  |                         |      |
|                    |  |  |                    | Min V <sub>z</sub> | 0.31               | 0.03           | -0.26          | 0.05           | -0.17          | -0.01 |                         |      |
|                    |  |  |                    | Max M <sub>T</sub> | 0.33               | 0.03           | -0.26          | 0.05           | -0.17          | -0.01 |                         |      |
|                    |  |  |                    | Min M <sub>T</sub> | -0.33              | -0.03          | 0.26           | -0.05          | 0.17           | 0.01  |                         |      |
|                    |  |  |                    | Max M <sub>y</sub> | -0.33              | -0.03          | 0.26           | -0.05          | 0.17           | 0.01  |                         |      |
|                    |  |  |                    | Min M <sub>y</sub> | 0.33               | 0.03           | -0.26          | 0.05           | -0.17          | -0.01 |                         |      |
|                    |  |  |                    | Max M <sub>z</sub> | 0.07               | -0.07          | 0.12           | -0.02          | 0.08           | 0.03  |                         |      |
|                    |  |  |                    | Min M <sub>z</sub> | -0.07              | 0.07           | -0.12          | 0.02           | -0.08          | -0.03 |                         |      |
|                    | DLC1, Result Envelope X 30% / Y 30% / Z 100% |  |                    |                    |                    |                |                |                |                |       |                         |      |
|                    | RC7  |  | 16                 | 0.000              | Max N              | 1.13           | 0.01           | -0.69          | 0.13           | 0.58  | 0.02                    |      |
|                    |  |  |                    |                    | Min N              | -1.13          | -0.01          | 0.69           | -0.13          | -0.58 | -0.02                   |      |
|                    |  |  |                    |                    | Max V <sub>y</sub> | 0.43           | 0.08           | -0.45          | 0.09           | 0.38  | 0.09                    |      |
|                    |  |  |                    |                    | Min V <sub>y</sub> | -0.43          | -0.08          | 0.45           | -0.09          | -0.38 | -0.09                   |      |
| Max V <sub>z</sub> |  |  |                    |                    | -1.03              | -0.04          | 0.72           | -0.13          | -0.61          | -0.05 |                         |      |
| Min V <sub>z</sub> |  | 1.03   |                    |                    | 0.04               | -0.72          | 0.13           | 0.61           | 0.05           |       |                         |      |
| Max M <sub>T</sub> |  | 1.03   |                    |                    | 0.04               | -0.72          | 0.13           | 0.61           | 0.05           |       |                         |      |
| Min M <sub>T</sub> |  | -1.03  |                    |                    | -0.04              | 0.72           | -0.13          | -0.61          | -0.05          |       |                         |      |
| Max M <sub>y</sub> |  | 1.03   |                    |                    | 0.05               | -0.72          | 0.13           | 0.61           | 0.05           |       |                         |      |
| Min M <sub>y</sub> |  | -1.03  |                    |                    | -0.05              | 0.72           | -0.13          | -0.61          | -0.05          |       |                         |      |
| Max M <sub>z</sub> |  | 0.48   |                    |                    | 0.08               | -0.48          | 0.09           | 0.40           | 0.09           |       |                         |      |
| Min M <sub>z</sub> |  | -0.48  |                    |                    | -0.08              | 0.48           | -0.09          | -0.40          | -0.09          |       |                         |      |
| 20                 |  | 1.500  | Max N              | 1.13               | 0.01               | -0.69          | 0.13           | -0.45          | -0.00          |       |                         |      |
|                    |  |  | Min N              | -1.13              | -0.01              | 0.69           | -0.13          | 0.45           | 0.00           |       |                         |      |
|                    |  |  | Max V <sub>y</sub> | 0.43               | 0.08               | -0.45          | 0.09           | -0.30          | -0.03          |       |                         |      |
|                    |  |  | Min V <sub>y</sub> | -0.43              | -0.08              | 0.45           | -0.09          | 0.30           | 0.03           |       |                         |      |
|                    |  |  | Max V <sub>z</sub> | -1.03              | -0.04              | 0.72           | -0.13          | 0.47           | 0.01           |       |                         |      |
|                    |  |  | Min V <sub>z</sub> | 1.03               | 0.04               | -0.72          | 0.13           | -0.47          | -0.01          |       |                         |      |
|                    |  |  | Max M <sub>T</sub> | 1.03               | 0.04               | -0.72          | 0.13           | -0.47          | -0.01          |       |                         |      |
|                    |  |  | Min M <sub>T</sub> | -1.03              | -0.04              | 0.72           | -0.13          | 0.47           | 0.01           |       |                         |      |
|                    |  |  | Max M <sub>y</sub> | -1.03              | -0.04              | 0.72           | -0.13          | 0.47           | 0.01           |       |                         |      |
|                    |  |  | Min M <sub>y</sub> | 1.03               | 0.04               | -0.72          | 0.13           | -0.47          | -0.01          |       |                         |      |
|                    |  |  | Max M <sub>z</sub> | -0.25              | -0.08              | 0.35           | -0.07          | 0.24           | 0.03           |       |                         |      |
|                    |  |  | Min M <sub>z</sub> | 0.25               | 0.08               | -0.35          | 0.07           | -0.24          | -0.03          |       |                         |      |
| 29                 |  | RC1  | 20                 | 0.000              | Max N              | -0.68          | -0.04          | 0.05           | -0.00          | 0.01  | -0.02                   | CO 1 |
|                    |  |  |                    |                    | Min N              | -5.42          | -0.24          | 2.50           | -0.34          | 1.05  | -0.04                   | CO 2 |
|                    |  |  |                    |                    | Max V <sub>y</sub> | -0.68          | -0.04          | 0.05           | -0.00          | 0.01  | -0.02                   | CO 1 |
|                    |  |  |                    |                    | Min V <sub>y</sub> | -5.42          | -0.24          | 2.50           | -0.34          | 1.05  | -0.04                   | CO 2 |
|                    |  |  |                    |                    | Max V <sub>z</sub> | -5.42          | -0.24          | 2.50           | -0.34          | 1.05  | -0.04                   | CO 2 |
|                    |  |  |                    |                    | Min V <sub>z</sub> | -0.68          | -0.04          | 0.05           | -0.00          | 0.01  | -0.02                   | CO 1 |
|                    | Max M <sub>T</sub>                           |  |                    |                    | -0.68              | -0.04          | 0.05           | -0.00          | 0.01           | -0.02 | CO 1                    |      |
|                    | Min M <sub>T</sub>                           |  |                    |                    | -5.42              | -0.24          | 2.50           | -0.34          | 1.05           | -0.04 | CO 2                    |      |
|                    | Max M <sub>y</sub>                           |  |                    |                    | -5.42              | -0.24          | 2.50           | -0.34          | 1.05           | -0.04 | CO 2                    |      |
|                    | Min M <sub>y</sub>                           |  |                    |                    | -0.68              | -0.04          | 0.05           | -0.00          | 0.01           | -0.02 | CO 1                    |      |
|                    | Max M <sub>z</sub>                           |  |                    |                    | -0.68              | -0.04          | 0.05           | -0.00          | 0.01           | -0.02 | CO 1                    |      |
|                    | Min M <sub>z</sub>                           |  |                    |                    | -5.42              | -0.24          | 2.50           | -0.34          | 1.05           | -0.04 | CO 2                    |      |
| 22                 | 0.450  | Max N  | -0.61              | -0.04              | 0.05               | -0.00          | 0.03           | -0.00          | CO 1           |       |                         |      |

RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC  | Node No. | Location x [m] | Forces [kN]        |                |                |                |                | Moments [kNm]  |      |       | Correspondin Load Cases |       |      |       |       |      |
|--------------------|-----|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|------|-------|-------------------------|-------|------|-------|-------|------|
|                    |     |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |      |       |                         |       |      |       |       |      |
| 29                 | RC1 |          |                | Min N              | ▷              | -5.36          |                | -0.24          |                | 2.49 |       | -0.34                   |       | 2.17 |       | 0.07  | CO 2 |
|                    |     |          |                | Max V <sub>y</sub> | ▷              | -0.61          |                | -0.04          |                | 0.05 |       | -0.00                   |       | 0.03 |       | -0.00 | CO 1 |
|                    |     |          |                | Min V <sub>y</sub> | ▷              | -5.36          |                | -0.24          |                | 2.49 |       | -0.34                   |       | 2.17 |       | 0.07  | CO 2 |
|                    |     |          |                | Max V <sub>z</sub> |                | -5.36          |                | -0.24          |                | 2.49 |       | -0.34                   |       | 2.17 |       | 0.07  | CO 2 |
|                    |     |          |                | Min V <sub>z</sub> |                | -0.61          |                | -0.04          | ▷              | 0.05 |       | -0.00                   |       | 0.03 |       | -0.00 | CO 1 |
|                    |     |          |                | Max M <sub>T</sub> |                | -0.61          |                | -0.04          |                | 0.05 |       | -0.00                   |       | 0.03 |       | -0.00 | CO 1 |
|                    |     |          |                | Min M <sub>T</sub> |                | -5.36          |                | -0.24          |                | 2.49 | ▷     | -0.34                   |       | 2.17 |       | 0.07  | CO 2 |
|                    |     |          |                | Max M <sub>y</sub> |                | -5.36          |                | -0.24          |                | 2.49 |       | -0.34                   |       | 2.17 |       | 0.07  | CO 2 |
|                    |     |          |                | Min M <sub>y</sub> |                | -0.61          |                | -0.04          |                | 0.05 |       | -0.00                   | ▷     | 0.03 |       | -0.00 | CO 1 |
|                    |     |          |                | Max M <sub>z</sub> |                | -5.36          |                | -0.24          |                | 2.49 |       | -0.34                   |       | 2.17 | ▷     | 0.07  | CO 2 |
|                    |     |          |                | Min M <sub>z</sub> |                | -0.61          |                | -0.04          |                | 0.05 |       | -0.00                   |       | 0.03 | ▷     | -0.00 | CO 1 |
|                    |     |          |                | Max N              | ▷              | -0.51          |                | -0.03          |                | 0.04 |       | -0.00                   |       | 0.01 |       | -0.02 | CO 3 |
|                    |     |          |                | Min N              | ▷              | -3.67          |                | -0.16          |                | 1.67 |       | -0.22                   |       | 0.70 |       | -0.03 | CO 4 |
|                    |     |          |                | Max V <sub>y</sub> | ▷              | -0.51          |                | -0.03          |                | 0.04 |       | -0.00                   |       | 0.01 |       | -0.02 | CO 3 |
|                    |     |          |                | Min V <sub>y</sub> | ▷              | -3.67          |                | -0.16          |                | 1.67 |       | -0.22                   |       | 0.70 |       | -0.03 | CO 4 |
|                    |     |          |                | Max V <sub>z</sub> |                | -3.67          |                | -0.16          | ▷              | 1.67 |       | -0.22                   |       | 0.70 |       | -0.03 | CO 4 |
|                    |     |          |                | Min V <sub>z</sub> |                | -0.51          |                | -0.03          | ▷              | 0.04 |       | -0.00                   |       | 0.01 |       | -0.02 | CO 3 |
|                    |     |          |                | Max M <sub>T</sub> |                | -0.51          |                | -0.03          |                | 0.04 |       | -0.00                   |       | 0.01 |       | -0.02 | CO 3 |
|                    |     |          |                | Min M <sub>T</sub> |                | -3.67          |                | -0.16          |                | 1.67 |       | -0.22                   |       | 0.70 |       | -0.03 | CO 4 |
|                    |     |          |                | Max M <sub>y</sub> |                | -3.67          |                | -0.16          |                | 1.67 |       | -0.22                   | ▷     | 0.70 |       | -0.03 | CO 4 |
|                    |     |          |                | Min M <sub>y</sub> |                | -0.51          |                | -0.03          |                | 0.04 |       | -0.00                   | ▷     | 0.01 |       | -0.02 | CO 3 |
|                    |     |          |                | Max M <sub>z</sub> |                | -0.51          |                | -0.03          |                | 0.04 |       | -0.00                   |       | 0.01 | ▷     | -0.02 | CO 3 |
|                    |     |          |                | Min M <sub>z</sub> |                | -3.67          |                | -0.16          |                | 1.67 |       | -0.22                   |       | 0.70 | ▷     | -0.03 | CO 4 |
|                    |     |          |                | Max N              | ▷              | -0.45          |                | -0.03          |                | 0.04 |       | -0.00                   |       | 0.02 |       | -0.00 | CO 3 |
|                    |     |          |                | Min N              | ▷              | -3.62          |                | -0.16          |                | 1.66 |       | -0.22                   |       | 1.45 |       | 0.05  | CO 4 |
|                    |     |          |                | Max V <sub>y</sub> | ▷              | -0.45          |                | -0.03          |                | 0.04 |       | -0.00                   |       | 0.02 |       | -0.00 | CO 3 |
|                    |     |          |                | Min V <sub>y</sub> |                | -3.62          |                | -0.16          |                | 1.66 |       | -0.22                   |       | 1.45 |       | 0.05  | CO 4 |
|                    |     |          |                | Max V <sub>z</sub> |                | -3.62          |                | -0.16          | ▷              | 1.66 |       | -0.22                   |       | 1.45 |       | 0.05  | CO 4 |
|                    |     |          |                | Min V <sub>z</sub> |                | -0.45          |                | -0.03          | ▷              | 0.04 |       | -0.00                   |       | 0.02 |       | -0.00 | CO 3 |
|                    |     |          |                | Max M <sub>T</sub> |                | -0.45          |                | -0.03          |                | 0.04 | ▷     | -0.00                   |       | 0.02 |       | -0.00 | CO 3 |
|                    |     |          |                | Min M <sub>T</sub> |                | -3.62          |                | -0.16          |                | 1.66 |       | -0.22                   |       | 1.45 |       | 0.05  | CO 4 |
|                    |     |          |                | Max M <sub>y</sub> |                | -3.62          |                | -0.16          |                | 1.66 |       | -0.22                   | ▷     | 1.45 |       | 0.05  | CO 4 |
|                    |     |          |                | Min M <sub>y</sub> |                | -0.45          |                | -0.03          |                | 0.04 |       | -0.00                   |       | 0.02 |       | -0.00 | CO 3 |
|                    |     |          |                | Max M <sub>z</sub> |                | -3.62          |                | -0.16          |                | 1.66 |       | -0.22                   |       | 1.45 | ▷     | 0.05  | CO 4 |
|                    |     |          |                | Min M <sub>z</sub> |                | -0.45          |                | -0.03          |                | 0.04 |       | -0.00                   |       | 0.02 | ▷     | -0.00 | CO 3 |
|                    |     |          |                | Max N              | ▷              | -0.51          |                | -0.03          |                | 0.04 |       | -0.00                   |       | 0.01 |       | -0.02 | CO 5 |
|                    |     |          |                | Min N              | ▷              | -2.09          |                | -0.10          |                | 0.85 |       | -0.11                   |       | 0.36 |       | -0.02 | CO 6 |
|                    |     |          |                | Max V <sub>y</sub> | ▷              | -0.51          |                | -0.03          |                | 0.04 |       | -0.00                   |       | 0.01 |       | -0.02 | CO 5 |
|                    |     |          |                | Min V <sub>y</sub> |                | -2.09          |                | -0.10          |                | 0.85 |       | -0.11                   |       | 0.36 |       | -0.02 | CO 6 |
|                    |     |          |                | Max V <sub>z</sub> |                | -2.09          |                | -0.10          | ▷              | 0.85 |       | -0.11                   |       | 0.36 |       | -0.02 | CO 6 |
|                    |     |          |                | Min V <sub>z</sub> |                | -0.51          |                | -0.03          |                | 0.04 |       | -0.00                   |       | 0.01 |       | -0.02 | CO 5 |
|                    |     |          |                | Max M <sub>T</sub> |                | -0.51          |                | -0.03          |                | 0.04 | ▷     | -0.00                   |       | 0.01 |       | -0.02 | CO 5 |
|                    |     |          |                | Min M <sub>T</sub> |                | -2.09          |                | -0.10          |                | 0.85 | ▷     | -0.11                   |       | 0.36 |       | -0.02 | CO 6 |
|                    |     |          |                | Max M <sub>y</sub> |                | -2.09          |                | -0.10          |                | 0.85 |       | -0.11                   | ▷     | 0.36 |       | -0.02 | CO 6 |
|                    |     |          |                | Min M <sub>y</sub> |                | -0.51          |                | -0.03          |                | 0.04 |       | -0.00                   | ▷     | 0.01 |       | -0.02 | CO 5 |
|                    |     |          |                | Max M <sub>z</sub> |                | -0.51          |                | -0.03          |                | 0.04 |       | -0.00                   |       | 0.01 | ▷     | -0.02 | CO 5 |
|                    |     |          |                | Min M <sub>z</sub> |                | -2.09          |                | -0.10          |                | 0.85 |       | -0.11                   |       | 0.36 | ▷     | -0.02 | CO 6 |
|                    |     |          |                | Max N              | ▷              | -0.45          |                | -0.03          |                | 0.04 |       | -0.00                   |       | 0.02 |       | -0.00 | CO 5 |
|                    |     |          |                | Min N              | ▷              | -2.04          |                | -0.10          |                | 0.85 |       | -0.11                   |       | 0.74 |       | 0.02  | CO 6 |
|                    |     |          |                | Max V <sub>y</sub> |                | -0.45          |                | -0.03          |                | 0.04 |       | -0.00                   |       | 0.02 |       | -0.00 | CO 5 |
|                    |     |          |                | Min V <sub>y</sub> |                | -2.04          |                | -0.10          |                | 0.85 |       | -0.11                   |       | 0.74 |       | 0.02  | CO 6 |
|                    |     |          |                | Max V <sub>z</sub> |                | -2.04          |                | -0.10          | ▷              | 0.85 |       | -0.11                   |       | 0.74 |       | 0.02  | CO 6 |
|                    |     |          |                | Min V <sub>z</sub> |                | -0.45          |                | -0.03          | ▷              | 0.04 |       | -0.00                   |       | 0.02 |       | -0.00 | CO 5 |
|                    |     |          |                | Max M <sub>T</sub> |                | -0.45          |                | -0.03          |                | 0.04 | ▷     | -0.00                   |       | 0.02 |       | -0.00 | CO 5 |
|                    |     |          |                | Min M <sub>T</sub> |                | -2.04          |                | -0.10          |                | 0.85 | ▷     | -0.11                   |       | 0.74 |       | 0.02  | CO 6 |
|                    |     |          |                | Max M <sub>y</sub> |                | -2.04          |                | -0.10          |                | 0.85 |       | -0.11                   | ▷     | 0.74 |       | 0.02  | CO 6 |
|                    |     |          |                | Min M <sub>y</sub> |                | -0.45          |                | -0.03          |                | 0.04 |       | -0.00                   | ▷     | 0.02 |       | -0.00 | CO 5 |
|                    |     |          |                | Max M <sub>z</sub> |                | -2.04          |                | -0.10          |                | 0.85 |       | -0.11                   |       | 0.74 | ▷     | 0.02  | CO 6 |
|                    |     |          |                | Min M <sub>z</sub> |                | -0.45          |                | -0.03          |                | 0.04 |       | -0.00                   |       | 0.02 | ▷     | -0.00 | CO 5 |
|                    |     |          |                | Max N              | ▷              | -0.51          |                | -0.03          |                | 0.04 |       | -0.00                   |       | 0.01 |       | -0.02 | CO 7 |
|                    |     |          |                | Min N              | ▷              | -1.46          |                | -0.07          |                | 0.53 |       | -0.07                   |       | 0.22 |       | -0.02 | CO 8 |
|                    |     |          |                | Max V <sub>y</sub> | ▷              | -0.51          |                | -0.03          |                | 0.04 |       | -0.00                   |       | 0.01 |       | -0.02 | CO 7 |
|                    |     |          |                | Min V <sub>y</sub> | ▷              | -1.46          |                | -0.07          |                | 0.53 |       | -0.07                   |       | 0.22 |       | -0.02 | CO 8 |
|                    |     |          |                | Max V <sub>z</sub> |                | -1.46          |                | -0.07          | ▷              | 0.53 |       | -0.07                   |       | 0.22 |       | -0.02 | CO 8 |
|                    |     |          |                | Min V <sub>z</sub> |                | -0.51          |                | -0.03          | ▷              | 0.04 |       | -0.00                   |       | 0.01 |       | -0.02 | CO 7 |
|                    |     |          |                | Max M <sub>T</sub> |                | -0.51          |                | -0.03          |                | 0.04 | ▷     | -0.00                   |       | 0.01 |       | -0.02 | CO 7 |
|                    |     |          |                | Min M <sub>T</sub> |                | -1.46          |                | -0.07          |                | 0.53 | ▷     | -0.07                   |       | 0.22 |       | -0.02 | CO 8 |
|                    |     |          |                | Max M <sub>y</sub> |                | -1.46          |                | -0.07          |                | 0.53 |       | -0.07                   | ▷     | 0.22 |       | -0.02 | CO 8 |
|                    |     |          |                | Min M <sub>y</sub> |                | -0.51          |                | -0.03          |                | 0.04 |       | -0.00                   |       | 0.01 |       | -0.02 | CO 7 |
|                    |     |          |                | Max M <sub>z</sub> |                | -0.51          |                | -0.03          |                | 0.04 |       | -0.00                   |       | 0.01 | ▷     | -0.02 | CO 7 |
|                    |     |          |                | Min M <sub>z</sub> |                | -1.46          |                | -0.07          |                | 0.53 |       | -0.07                   |       | 0.22 | ▷     | -0.02 | CO 8 |
|                    |     |          |                | Max N              | ▷              | -0.45          |                | -0.03          |                | 0.04 |       | -0.00                   |       | 0.02 |       | -0.00 | CO 7 |
|                    |     |          |                | Min N              | ▷              | -1.41          |                | -0.07          |                | 0.53 |       | -0.07                   |       | 0.45 |       | 0.01  | CO 8 |
|                    |     |          |                | Max V <sub>y</sub> | ▷              | -0.45          |                | -0.03          |                | 0.04 |       | -0.00                   |       | 0.02 |       | -0.00 | CO 7 |
|                    |     |          |                | Min V <sub>y</sub> | ▷              | -1.41          |                | -0.07          |                | 0.53 |       | -0.07                   |       | 0.45 |       | 0.01  | CO 8 |
|                    |     |          |                | Max V <sub>z</sub> |                | -1.41          |                | -0.07          | ▷              | 0.53 |       | -0.07                   |       | 0.45 |       | 0.01  | CO 8 |
|                    |     |          |                | Min V <sub>z</sub> |                | -0.45          |                | -0.03          | ▷              | 0.04 |       | -0.00                   |       | 0.02 |       | -0.00 | CO 7 |
|                    |     |          |                | Max M <sub>T</sub> |                | -0.45          |                | -0.03          |                | 0.04 | ▷     | -0.00                   |       | 0.02 |       | -0.00 | CO 7 |
|                    |     |          |                | Min M <sub>T</sub> |                | -1.41          |                | -0.07          |                | 0.53 | ▷     | -0.07                   |       | 0.45 |       | 0.01  | CO 8 |
|                    |     |          |                | Max M <sub>y</sub> |                | -1.41          |                | -0.07          |                | 0.53 |       | -0.07                   | ▷     | 0.45 |       | 0.01  | CO 8 |
|                    |     |          |                | Min M <sub>y</sub> |                | -0.45          |                | -0.03          |                | 0.04 |       | -0.00                   |       | 0.02 |       | -0.00 | CO 7 |
|                    |     |          |                | Max M <sub>z</sub> |                | -1.41          |                | -0.07          |                | 0.53 |       | -0.07                   |       | 0.45 | ▷     | 0.01  | CO 8 |
|                    |     |          |                | Min M <sub>z</sub> |                | -0.45          |                | -0.03          |                | 0.04 |       | -0.00                   |       | 0.02 | ▷     | -0.00 | CO 7 |
| Max N              |     |          |                | ▷                  | -0.45          |                | -0.03          |                | 0.04           |      | -0.00 |                         | 0.02  |      | -0.00 | CO 7  |      |
| Min N              |     |          |                | ▷                  | -0.54          |                | -0.02          |                | 0.24           |      | -0.04 |                         | 0.16  |      | -0.00 |       |      |
| Max V <sub>y</sub> |     |          |                | ▷                  | 0.21           |                | 0.05           |                | -0.01          |      | 0.03  |                         | -0.02 |      | 0.01  |       |      |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC   | Node No. | Location x [m] | Forces [kN]                                  |                |                |                    |                |                | Moments [kNm] |       |       | Correspondin Load Cases |       |       |      |
|--------------------|--|----------|----------------|--|----------------|----------------|--------------------|----------------|----------------|---------------|-------|-------|-------------------------|-------|-------|------|
|                    |  |          |                | N  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub>     | M <sub>y</sub> | M <sub>z</sub> |               |       |       |                         |       |       |      |
| 29                 | RC5  | 22       | 0.450          | Min V <sub>y</sub>                           | -0.21          | ▷              | -0.05              | 0.01           | -0.03          | 0.02          | -0.01 |       |                         |       |       |      |
|                    |  |          |                | Max V <sub>z</sub>                           | -0.45          | ▷              | 0.01               | 0.25           | -0.03          | 0.16          | 0.01  |       |                         |       |       |      |
|                    |  |          |                | Min V <sub>z</sub>                           | 0.45           | ▷              | -0.01              | -0.25          | 0.03           | -0.16         | -0.01 |       |                         |       |       |      |
|                    |  |          |                | Max M <sub>T</sub>                           | 0.48           | 0.03           | -0.19              | ▷              | 0.04           | -0.13         | 0.01  |       |                         |       |       |      |
|                    |  |          |                | Min M <sub>T</sub>                           | -0.48          | -0.03          | 0.19               | ▷              | -0.04          | 0.13          | -0.01 |       |                         |       |       |      |
|                    |  |          |                | Max M <sub>y</sub>                           | -0.47          | 0.00           | 0.25               | ▷              | -0.03          | 0.16          | 0.00  |       |                         |       |       |      |
|                    |  |          |                | Min M <sub>y</sub>                           | 0.47           | -0.00          | -0.25              | ▷              | 0.03           | -0.16         | -0.00 |       |                         |       |       |      |
|                    |  |          |                | Max M <sub>z</sub>                           | 0.06           | 0.05           | 0.06               | ▷              | 0.01           | 0.03          | 0.01  |       |                         |       |       |      |
|                    |  |          |                | Min M <sub>z</sub>                           | -0.06          | -0.05          | -0.06              | ▷              | -0.01          | -0.03         | -0.01 |       |                         |       |       |      |
|                    |  |          |                | Max N  | 0.54           | 0.02           | -0.24              | 0.04           | -0.26          | -0.01         |       |       |                         |       |       |      |
|                    |  |          |                | Min N  | -0.54          | -0.02          | 0.24               | -0.04          | 0.26           | 0.01          |       |       |                         |       |       |      |
|                    |  |          |                | Max V <sub>y</sub>                           | 0.21           | ▷              | 0.05               | -0.01          | 0.03           | -0.02         | -0.01 |       |                         |       |       |      |
|                    |  |          |                | Min V <sub>y</sub>                           | -0.21          | ▷              | -0.05              | 0.01           | -0.03          | 0.02          | 0.01  |       |                         |       |       |      |
|                    |  |          |                | Max V <sub>z</sub>                           | -0.45          | 0.01           | ▷                  | 0.25           | -0.03          | 0.28          | 0.00  |       |                         |       |       |      |
|                    |  |          |                | Min V <sub>z</sub>                           | 0.45           | -0.01          | ▷                  | -0.25          | 0.03           | -0.28         | -0.00 |       |                         |       |       |      |
|                    |  |          |                | Max M <sub>T</sub>                           | 0.48           | 0.03           | ▷                  | -0.19          | ▷              | 0.04          | -0.21 | -0.01 |                         |       |       |      |
|                    |  |          |                | Min M <sub>T</sub>                           | -0.48          | -0.03          | 0.19               | ▷              | -0.04          | 0.21          | 0.01  |       |                         |       |       |      |
|                    |  |          |                | Max M <sub>y</sub>                           | -0.46          | 0.00           | 0.25               | ▷              | -0.03          | 0.28          | 0.00  |       |                         |       |       |      |
|                    |  |          |                | Min M <sub>y</sub>                           | 0.46           | -0.00          | -0.25              | ▷              | 0.03           | -0.28         | -0.00 |       |                         |       |       |      |
|                    |  |          |                | Max M <sub>z</sub>                           | -0.31          | -0.04          | 0.08               | -0.04          | ▷              | 0.10          | ▷     | 0.01  |                         |       |       |      |
|                    |  |          |                | Min M <sub>z</sub>                           | 0.31           | 0.04           | -0.08              | 0.04           | ▷              | -0.10         | ▷     | -0.01 |                         |       |       |      |
|                    |  |          |                | DLC1, Result Envelope X 30% / Y 100% / Z 30% |                |                |                    |                |                |               |       |       |                         |       |       |      |
|                    |  |          |                | RC6  | 20             | 0.000          | Max N              | ▷              | 0.52           | 0.05          | -0.16 | 0.03  | -0.11                   | 0.02  |       |      |
|                    |  |          |                |  |                |                | Min N              | ▷              | -0.52          | -0.05         | 0.16  | -0.03 | 0.11                    | -0.02 |       |      |
|                    |  |          |                |  |                |                | Max V <sub>y</sub> | ▷              | 0.26           | 0.07          | 0.02  | 0.02  | -0.00                   | 0.02  |       |      |
|                    |  |          |                |  |                |                | Min V <sub>y</sub> | ▷              | -0.26          | -0.07         | -0.02 | -0.02 | 0.00                    | -0.02 |       |      |
|                    | Max V <sub>z</sub>                           | ▷        | -0.25          |  |                |                | 0.03               | 0.20           | -0.02          | 0.12          | 0.01  |       |                         |       |       |      |
|                    | Min V <sub>z</sub>                           | ▷        | 0.25           |  |                |                | -0.03              | -0.20          | 0.02           | -0.12         | -0.01 |       |                         |       |       |      |
|                    | Max M <sub>T</sub>                           | ▷        | 0.45           |  |                |                | 0.05               | -0.12          | ▷              | 0.04          | -0.09 | 0.01  |                         |       |       |      |
|                    | Min M <sub>T</sub>                           | ▷        | -0.45          |  |                |                | -0.05              | 0.12           | ▷              | -0.04         | 0.09  | -0.01 |                         |       |       |      |
|                    | Max M <sub>y</sub>                           | ▷        | -0.31          |  |                |                | 0.01               | 0.20           | -0.02          | ▷             | 0.13  | 0.01  |                         |       |       |      |
|                    | Min M <sub>y</sub>                           | ▷        | 0.31           |  |                |                | -0.01              | -0.20          | 0.02           | ▷             | -0.13 | -0.01 |                         |       |       |      |
|                    | Max M <sub>z</sub>                           | ▷        | 0.15           |  |                |                | 0.07               | 0.07           | 0.01           | 0.03          | ▷     | 0.02  |                         |       |       |      |
|                    | Min M <sub>z</sub>                           | ▷        | -0.15          |  |                |                | -0.07              | -0.07          | -0.01          | -0.03         | ▷     | -0.02 |                         |       |       |      |
|                    | Max N  | ▷        | 0.52           |  |                |                | 0.05               | -0.16          | 0.03           | -0.19         | -0.01 |       |                         |       |       |      |
|                    | Min N  | ▷        | -0.52          |  |                |                | -0.05              | 0.16           | -0.03          | 0.19          | 0.01  |       |                         |       |       |      |
|                    | Max V <sub>y</sub>                           | ▷        | 0.26           |  |                |                | 0.07               | 0.02           | 0.02           | 0.01          | -0.01 |       |                         |       |       |      |
|                    | Min V <sub>y</sub>                           | ▷        | -0.26          |  |                |                | -0.07              | -0.02          | -0.02          | -0.01         | 0.01  |       |                         |       |       |      |
|                    | Max V <sub>z</sub>                           | ▷        | -0.25          |  |                |                | 0.03               | 0.20           | -0.02          | 0.21          | -0.00 |       |                         |       |       |      |
|                    | Min V <sub>z</sub>                           | ▷        | 0.25           |  |                |                | -0.03              | -0.20          | 0.02           | -0.21         | 0.00  |       |                         |       |       |      |
|                    | Max M <sub>T</sub>                           | ▷        | 0.45           |  |                |                | 0.05               | -0.12          | ▷              | 0.04          | -0.14 | -0.01 |                         |       |       |      |
|                    | Min M <sub>T</sub>                           | ▷        | -0.45          |  |                |                | -0.05              | 0.12           | ▷              | -0.04         | 0.14  | 0.01  |                         |       |       |      |
|                    | Max M <sub>y</sub>                           | ▷        | -0.28          |  |                |                | 0.02               | 0.20           | -0.02          | ▷             | 0.22  | -0.00 |                         |       |       |      |
|                    | Min M <sub>y</sub>                           | ▷        | 0.28           |  |                |                | -0.02              | -0.20          | 0.02           | ▷             | -0.22 | 0.00  |                         |       |       |      |
|                    | Max M <sub>z</sub>                           | ▷        | -0.31          |  |                |                | -0.06              | 0.04           | -0.03          | 0.05          | ▷     | 0.01  |                         |       |       |      |
|                    | Min M <sub>z</sub>                           | ▷        | 0.31           |  |                |                | 0.06               | -0.04          | 0.03           | -0.05         | ▷     | -0.01 |                         |       |       |      |
|                    | DLC1, Result Envelope X 30% / Y 30% / Z 100% |          |                |  |                |                |                    |                |                |               |       |       |                         |       |       |      |
|                    | RC7  | 20       | 0.000          |  |                |                | Max N              | ▷              | 1.09           | 0.03          | -0.51 | 0.07  | -0.33                   | 0.00  |       |      |
|                    |  |          |                | Min N  | ▷              | -1.09          | -0.03              | 0.51           | -0.07          | 0.33          | -0.00 |       |                         |       |       |      |
|                    |  |          |                | Max V <sub>y</sub>                           | ▷              | 0.28           | 0.10               | 0.04           | 0.05           | 0.01          | 0.03  |       |                         |       |       |      |
| Min V <sub>y</sub> |  |          |                | ▷  | -0.28          | -0.10          | -0.04              | -0.05          | -0.01          | -0.03         |       |       |                         |       |       |      |
| Max V <sub>z</sub> |  |          |                | ▷  | -0.97          | 0.01           | 0.54               | -0.06          | 0.35           | 0.01          |       |       |                         |       |       |      |
| Min V <sub>z</sub> |  |          |                | ▷  | 0.97           | -0.01          | -0.54              | 0.06           | -0.35          | -0.01         |       |       |                         |       |       |      |
| Max M <sub>T</sub> |  |          |                | ▷  | 0.95           | 0.06           | -0.39              | ▷              | 0.08           | -0.26         | 0.01  |       |                         |       |       |      |
| Min M <sub>T</sub> |  |          |                | ▷  | -0.95          | -0.06          | 0.39               | ▷              | -0.08          | 0.26          | -0.01 |       |                         |       |       |      |
| Max M <sub>y</sub> |  |          |                | ▷  | -1.00          | 0.01           | 0.54               | -0.06          | ▷              | 0.35          | 0.01  |       |                         |       |       |      |
| Min M <sub>y</sub> |  |          |                | ▷  | 1.00           | -0.01          | -0.54              | 0.06           | ▷              | -0.35         | -0.01 |       |                         |       |       |      |
| Max M <sub>z</sub> |  |          |                | ▷  | -0.01          | 0.09           | 0.18               | 0.03           | 0.10           | ▷             | 0.03  |       |                         |       |       |      |
| Min M <sub>z</sub> |  |          |                | ▷  | 0.01           | -0.09          | -0.18              | -0.03          | -0.10          | ▷             | -0.03 |       |                         |       |       |      |
| Max N              |  |          |                | ▷  | 1.09           | 0.03           | -0.51              | 0.07           | -0.56          | -0.01         |       |       |                         |       |       |      |
| Min N              |  |          |                | ▷  | -1.09          | -0.03          | 0.51               | -0.07          | 0.56           | 0.01          |       |       |                         |       |       |      |
| Max V <sub>y</sub> |  |          |                | ▷  | 0.28           | 0.10           | 0.04               | 0.05           | 0.02           | -0.02         |       |       |                         |       |       |      |
| Min V <sub>y</sub> |  |          |                | ▷  | -0.28          | -0.10          | -0.04              | -0.05          | -0.02          | 0.02          |       |       |                         |       |       |      |
| Max V <sub>z</sub> |  |          |                | ▷  | -0.97          | 0.01           | 0.54               | -0.06          | 0.59           | 0.00          |       |       |                         |       |       |      |
| Min V <sub>z</sub> |  |          |                | ▷  | 0.97           | -0.01          | -0.54              | 0.06           | -0.59          | -0.00         |       |       |                         |       |       |      |
| Max M <sub>T</sub> |  |          |                | ▷  | 0.95           | 0.06           | -0.39              | ▷              | 0.08           | -0.44         | -0.02 |       |                         |       |       |      |
| Min M <sub>T</sub> |  |          |                | ▷  | -0.95          | -0.06          | 0.39               | ▷              | -0.08          | 0.44          | 0.02  |       |                         |       |       |      |
| Max M <sub>y</sub> |  |          |                | ▷  | -0.98          | 0.01           | 0.54               | -0.06          | ▷              | 0.59          | 0.00  |       |                         |       |       |      |
| Min M <sub>y</sub> |  |          |                | ▷  | 0.98           | -0.01          | -0.54              | 0.06           | ▷              | -0.59         | -0.00 |       |                         |       |       |      |
| Max M <sub>z</sub> |  |          |                | ▷  | -0.55          | -0.09          | 0.13               | -0.07          | 0.16           | ▷             | 0.02  |       |                         |       |       |      |
| Min M <sub>z</sub> |  |          |                | ▷  | 0.55           | 0.09           | -0.13              | 0.07           | -0.16          | ▷             | -0.02 |       |                         |       |       |      |
| 45                 |  |          |                | RC1  | 23             | 0.000          | Max N              | ▷              | 4.19           | 2.21          | 6.40  | 1.63  | -3.63                   | 0.35  | CO 2  |      |
|                    |  |          |                |  |                |                | Min N              | ▷              | -1.44          | -0.01         | -0.07 | -0.01 | 0.10                    | 0.03  | CO 1  |      |
|                    | Max V <sub>y</sub>                           | ▷        | 4.19           |  |                |                | 2.21               | 6.40           | 1.63           | -3.63         | 0.35  | CO 2  |                         |       |       |      |
|                    | Min V <sub>y</sub>                           | ▷        | -1.44          |  |                |                | -0.01              | -0.07          | -0.01          | 0.10          | 0.03  | CO 1  |                         |       |       |      |
|                    | Max V <sub>z</sub>                           | ▷        | 4.19           |  |                |                | 2.21               | 6.40           | 1.63           | -3.63         | 0.35  | CO 2  |                         |       |       |      |
|                    | Min V <sub>z</sub>                           | ▷        | -1.44          |  |                |                | -0.01              | -0.07          | -0.01          | 0.10          | 0.03  | CO 1  |                         |       |       |      |
|                    | Max M <sub>T</sub>                           | ▷        | 4.19           |  |                |                | 2.21               | 6.40           | 1.63           | -3.63         | 0.35  | CO 2  |                         |       |       |      |
|                    | Min M <sub>T</sub>                           | ▷        | -1.44          |  |                |                | -0.01              | -0.07          | -0.01          | 0.10          | 0.03  | CO 1  |                         |       |       |      |
|                    | Max M <sub>y</sub>                           | ▷        | -1.44          |  |                |                | -0.01              | -0.07          | -0.01          | 0.10          | 0.03  | CO 1  |                         |       |       |      |
|                    | Min M <sub>y</sub>                           | ▷        | 4.19           |  |                |                | 2.21               | 6.40           | 1.63           | -3.63         | 0.35  | CO 2  |                         |       |       |      |
|                    | Max M <sub>z</sub>                           | ▷        | 4.19           |  |                |                | 2.21               | 6.40           | 1.63           | -3.63         | 0.35  | CO 2  |                         |       |       |      |
|                    | Min M <sub>z</sub>                           | ▷        | -1.44          |  |                |                | -0.01              | -0.07          | -0.01          | 0.10          | 0.03  | CO 1  |                         |       |       |      |
|                    | Max N  | ▷        | 4.25           |  |                |                | 2.22               | 6.38           | 1.62           | -1.40         | -0.42 | CO 2  |                         |       |       |      |
|                    | Min N  | ▷        | -1.38          |  |                |                | -0.01              | -0.07          | -0.01          | 0.08          | 0.03  | CO 1  |                         |       |       |      |
|                    | Max V <sub>y</sub>                           | ▷        | 4.25           |  |                |                | 2.22               | 6.38           | 1.62           | -1.40         | -0.42 | CO 2  |                         |       |       |      |
|                    | Min V <sub>y</sub>                           | ▷        | -1.38          |  |                |                | -0.01              | -0.07          | -0.01          | 0.08          | 0.03  | CO 1  |                         |       |       |      |
|                    | 14   |          | 0.350          |  |                |                |                    | Max N          | ▷              | 4.25          | 2.22  | 6.38  | 1.62                    | -1.40 | -0.42 | CO 2 |
|                    |  |          |                |  |                |                |                    | Min N          | ▷              | -1.38         | -0.01 | -0.07 | -0.01                   | 0.08  | 0.03  | CO 1 |
| Max V <sub>y</sub> |  |          |                | ▷  | 4.25           | 2.22           |                    | 6.38           | 1.62           | -1.40         | -0.42 | CO 2  |                         |       |       |      |
| Min V <sub>y</sub> |  |          |                | ▷  | -1.38          | -0.01          |                    | -0.07          | -0.01          | 0.08          | 0.03  | CO 1  |                         |       |       |      |
| Max V <sub>z</sub> |  |          |                | ▷  | 4.25           | 2.22           |                    | 6.38           | 1.62           | -1.40         | -0.42 | CO 2  |                         |       |       |      |
| Min V <sub>z</sub> |  |          |                | ▷  | -1.38          | -0.01          |                    | -0.07          | -0.01          | 0.08          | 0.03  | CO 1  |                         |       |       |      |
| Max M <sub>T</sub> |  |          |                | ▷  | 4.25           | 2.22           |                    | 6.38           | 1.62           | -1.40         | -0.42 | CO 2  |                         |       |       |      |
| Min M <sub>T</sub> |  |          |                | ▷  | -1.38          | -0.01          |                    | -0.07          | -0.01          | 0.08          | 0.03  | CO 1  |                         |       |       |      |

RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m] | Forces [kN]        |                |                |                |                | Moments [kNm]  |       |      | Correspondin Load Cases |
|------------|--|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------|------|-------------------------|
|            |  |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |      |                         |
| 45         | RC1  |          |                | Max V <sub>z</sub> | 4.25           | 2.22           | 6.38           | 1.62           | -1.40          | -0.42 | CO 2 |                         |
|            |  |          |                | Min V <sub>z</sub> | -1.38          | -0.01          | -0.07          | -0.01          | 0.08           | 0.03  | CO 1 |                         |
|            |  |          |                | Max M <sub>T</sub> | 4.25           | 2.22           | 6.38           | 1.62           | -1.40          | -0.42 | CO 2 |                         |
|            |  |          |                | Min M <sub>T</sub> | -1.38          | -0.01          | -0.07          | -0.01          | 0.08           | 0.03  | CO 1 |                         |
|            |  |          |                | Max M <sub>y</sub> | -1.38          | -0.01          | -0.07          | -0.01          | 0.08           | 0.03  | CO 1 |                         |
|            |  |          |                | Min M <sub>y</sub> | 4.25           | 2.22           | 6.38           | 1.62           | -1.40          | -0.42 | CO 2 |                         |
|            |  |          |                | Max M <sub>z</sub> | -1.38          | -0.01          | -0.07          | -0.01          | 0.08           | 0.03  | CO 1 |                         |
|            |  |          |                | Min M <sub>z</sub> | 4.25           | 2.22           | 6.38           | 1.62           | -1.40          | -0.42 | CO 2 |                         |
|            |  |          |                | RC2                | 23             | 0.000          | Max N          | 2.68           | 1.47           | 4.25  | 1.08 | -2.41                   |
|            | Min N  | -1.07    | -0.00          |                    |                |                | -0.05          | -0.01          | 0.07           | 0.02  | CO 3 |                         |
|            | Max V <sub>y</sub>                           | 2.68     | 1.47           |                    |                |                | 4.25           | 1.08           | -2.41          | 0.24  | CO 4 |                         |
|            | Min V <sub>y</sub>                           | -1.07    | -0.00          |                    |                |                | -0.05          | -0.01          | 0.07           | 0.02  | CO 3 |                         |
|            | Max V <sub>z</sub>                           | 2.68     | 1.47           |                    |                |                | 4.25           | 1.08           | -2.41          | 0.24  | CO 4 |                         |
|            | Min V <sub>z</sub>                           | -1.07    | -0.00          |                    |                |                | -0.05          | -0.01          | 0.07           | 0.02  | CO 3 |                         |
|            | Max M <sub>T</sub>                           | 2.68     | 1.47           |                    |                |                | 4.25           | 1.08           | -2.41          | 0.24  | CO 4 |                         |
|            | Min M <sub>T</sub>                           | -1.07    | -0.00          |                    |                |                | -0.05          | -0.01          | 0.07           | 0.02  | CO 3 |                         |
|            | Max M <sub>y</sub>                           | -1.07    | -0.00          |                    |                |                | -0.05          | -0.01          | 0.07           | 0.02  | CO 3 |                         |
|            | Min M <sub>y</sub>                           | 2.68     | 1.47           |                    |                |                | 4.25           | 1.08           | -2.41          | 0.24  | CO 4 |                         |
|            | Max M <sub>z</sub>                           | 2.68     | 1.47           |                    |                |                | 4.25           | 1.08           | -2.41          | 0.24  | CO 4 |                         |
|            | Min M <sub>z</sub>                           | -1.07    | -0.00          |                    |                |                | -0.05          | -0.01          | 0.07           | 0.02  | CO 3 |                         |
|            |  | 14       | 0.350          | Max N              | 2.72           | 1.48           | 4.25           | 1.08           | -0.93          | -0.28 | CO 4 |                         |
|            |  |          |                | Min N              | -1.02          | -0.00          | -0.05          | -0.01          | 0.06           | 0.02  | CO 3 |                         |
|            |  |          |                | Max V <sub>y</sub> | 2.72           | 1.48           | 4.25           | 1.08           | -0.93          | -0.28 | CO 4 |                         |
|            |  |          |                | Min V <sub>y</sub> | -1.02          | -0.00          | -0.05          | -0.01          | 0.06           | 0.02  | CO 3 |                         |
|            |  |          |                | Max V <sub>z</sub> | 2.72           | 1.48           | 4.25           | 1.08           | -0.93          | -0.28 | CO 4 |                         |
|            |  |          |                | Min V <sub>z</sub> | -1.02          | -0.00          | -0.05          | -0.01          | 0.06           | 0.02  | CO 3 |                         |
|            |  |          |                | Max M <sub>T</sub> | 2.72           | 1.48           | 4.25           | 1.08           | -0.93          | -0.28 | CO 4 |                         |
|            |  |          |                | Min M <sub>T</sub> | -1.02          | -0.00          | -0.05          | -0.01          | 0.06           | 0.02  | CO 3 |                         |
|            |  |          |                | Max M <sub>y</sub> | -1.02          | -0.00          | -0.05          | -0.01          | 0.06           | 0.02  | CO 3 |                         |
|            |  |          |                | Min M <sub>y</sub> | 2.72           | 1.48           | 4.25           | 1.08           | -0.93          | -0.28 | CO 4 |                         |
|            |  |          |                | Max M <sub>z</sub> | -1.02          | -0.00          | -0.05          | -0.01          | 0.06           | 0.02  | CO 3 |                         |
|            |  |          |                | Min M <sub>z</sub> | 2.72           | 1.48           | 4.25           | 1.08           | -0.93          | -0.28 | CO 4 |                         |
|            | RC3  | 23       | 0.000          | Max N              | 0.80           | 0.73           | 2.10           | 0.54           | -1.17          | 0.13  | CO 6 |                         |
|            |  |          |                | Min N              | -1.07          | -0.00          | -0.05          | -0.01          | 0.07           | 0.02  | CO 5 |                         |
|            |  |          |                | Max V <sub>y</sub> | 0.80           | 0.73           | 2.10           | 0.54           | -1.17          | 0.13  | CO 6 |                         |
|            |  |          |                | Min V <sub>y</sub> | -1.07          | -0.00          | -0.05          | -0.01          | 0.07           | 0.02  | CO 5 |                         |
|            |  |          |                | Max V <sub>z</sub> | 0.80           | 0.73           | 2.10           | 0.54           | -1.17          | 0.13  | CO 6 |                         |
|            |  |          |                | Min V <sub>z</sub> | -1.07          | -0.00          | -0.05          | -0.01          | 0.07           | 0.02  | CO 5 |                         |
|            |  |          |                | Max M <sub>T</sub> | 0.80           | 0.73           | 2.10           | 0.54           | -1.17          | 0.13  | CO 6 |                         |
|            |  |          |                | Min M <sub>T</sub> | -1.07          | -0.00          | -0.05          | -0.01          | 0.07           | 0.02  | CO 5 |                         |
|            |  |          |                | Max M <sub>y</sub> | -1.07          | -0.00          | -0.05          | -0.01          | 0.07           | 0.02  | CO 5 |                         |
|            |  |          |                | Min M <sub>y</sub> | 0.80           | 0.73           | 2.10           | 0.54           | -1.17          | 0.13  | CO 6 |                         |
|            |  |          |                | Max M <sub>z</sub> | 0.80           | 0.73           | 2.10           | 0.54           | -1.17          | 0.13  | CO 6 |                         |
|            |  |          |                | Min M <sub>z</sub> | -1.07          | -0.00          | -0.05          | -0.01          | 0.07           | 0.02  | CO 5 |                         |
|            |  | 14       | 0.350          | Max N              | 0.84           | 0.74           | 2.10           | 0.54           | -0.43          | -0.13 | CO 6 |                         |
|            |  |          |                | Min N              | -1.02          | -0.00          | -0.05          | -0.01          | 0.06           | 0.02  | CO 5 |                         |
|            |  |          |                | Max V <sub>y</sub> | 0.84           | 0.74           | 2.10           | 0.54           | -0.43          | -0.13 | CO 6 |                         |
|            |  |          |                | Min V <sub>y</sub> | -1.02          | -0.00          | -0.05          | -0.01          | 0.06           | 0.02  | CO 5 |                         |
|            |  |          |                | Max V <sub>z</sub> | 0.84           | 0.74           | 2.10           | 0.54           | -0.43          | -0.13 | CO 6 |                         |
|            |  |          |                | Min V <sub>z</sub> | -1.02          | -0.00          | -0.05          | -0.01          | 0.06           | 0.02  | CO 5 |                         |
|            |  |          |                | Max M <sub>T</sub> | 0.84           | 0.74           | 2.10           | 0.54           | -0.43          | -0.13 | CO 6 |                         |
|            |  |          |                | Min M <sub>T</sub> | -1.02          | -0.00          | -0.05          | -0.01          | 0.06           | 0.02  | CO 5 |                         |
|            |  |          |                | Max M <sub>y</sub> | -1.02          | -0.00          | -0.05          | -0.01          | 0.06           | 0.02  | CO 5 |                         |
|            |  |          |                | Min M <sub>y</sub> | 0.84           | 0.74           | 2.10           | 0.54           | -0.43          | -0.13 | CO 6 |                         |
|            |  |          |                | Max M <sub>z</sub> | -1.02          | -0.00          | -0.05          | -0.01          | 0.06           | 0.02  | CO 5 |                         |
|            |  |          |                | Min M <sub>z</sub> | 0.84           | 0.74           | 2.10           | 0.54           | -0.43          | -0.13 | CO 6 |                         |
|            | RC4  | 23       | 0.000          | Max N              | 0.05           | 0.44           | 1.24           | 0.32           | -0.67          | 0.09  | CO 8 |                         |
|            |  |          |                | Min N              | -1.07          | -0.00          | -0.05          | -0.01          | 0.07           | 0.02  | CO 7 |                         |
|            |  |          |                | Max V <sub>y</sub> | 0.05           | 0.44           | 1.24           | 0.32           | -0.67          | 0.09  | CO 8 |                         |
|            |  |          |                | Min V <sub>y</sub> | -1.07          | -0.00          | -0.05          | -0.01          | 0.07           | 0.02  | CO 7 |                         |
|            |  |          |                | Max V <sub>z</sub> | 0.05           | 0.44           | 1.24           | 0.32           | -0.67          | 0.09  | CO 8 |                         |
|            |  |          |                | Min V <sub>z</sub> | -1.07          | -0.00          | -0.05          | -0.01          | 0.07           | 0.02  | CO 7 |                         |
|            |  |          |                | Max M <sub>T</sub> | 0.05           | 0.44           | 1.24           | 0.32           | -0.67          | 0.09  | CO 8 |                         |
|            |  |          |                | Min M <sub>T</sub> | -1.07          | -0.00          | -0.05          | -0.01          | 0.07           | 0.02  | CO 7 |                         |
|            |  |          |                | Max M <sub>y</sub> | -1.07          | -0.00          | -0.05          | -0.01          | 0.07           | 0.02  | CO 7 |                         |
|            |  |          |                | Min M <sub>y</sub> | 0.05           | 0.44           | 1.24           | 0.32           | -0.67          | 0.09  | CO 8 |                         |
|            |  |          |                | Max M <sub>z</sub> | 0.05           | 0.44           | 1.24           | 0.32           | -0.67          | 0.09  | CO 8 |                         |
|            |  |          |                | Min M <sub>z</sub> | -1.07          | -0.00          | -0.05          | -0.01          | 0.07           | 0.02  | CO 7 |                         |
|            |  | 14       | 0.350          | Max N              | 0.09           | 0.44           | 1.24           | 0.32           | -0.24          | -0.07 | CO 8 |                         |
|            |  |          |                | Min N              | -1.02          | -0.00          | -0.05          | -0.01          | 0.06           | 0.02  | CO 7 |                         |
|            |  |          |                | Max V <sub>y</sub> | 0.09           | 0.44           | 1.24           | 0.32           | -0.24          | -0.07 | CO 8 |                         |
|            |  |          |                | Min V <sub>y</sub> | -1.02          | -0.00          | -0.05          | -0.01          | 0.06           | 0.02  | CO 7 |                         |
|            |  |          |                | Max V <sub>z</sub> | 0.09           | 0.44           | 1.24           | 0.32           | -0.24          | -0.07 | CO 8 |                         |
|            |  |          |                | Min V <sub>z</sub> | -1.02          | -0.00          | -0.05          | -0.01          | 0.06           | 0.02  | CO 7 |                         |
|            |  |          |                | Max M <sub>T</sub> | 0.09           | 0.44           | 1.24           | 0.32           | -0.24          | -0.07 | CO 8 |                         |
|            |  |          |                | Min M <sub>T</sub> | -1.02          | -0.00          | -0.05          | -0.01          | 0.06           | 0.02  | CO 7 |                         |
|            |  |          |                | Max M <sub>y</sub> | -1.02          | -0.00          | -0.05          | -0.01          | 0.06           | 0.02  | CO 7 |                         |
|            |  |          |                | Min M <sub>y</sub> | 0.09           | 0.44           | 1.24           | 0.32           | -0.24          | -0.07 | CO 8 |                         |
|            |  |          |                | Max M <sub>z</sub> | -1.02          | -0.00          | -0.05          | -0.01          | 0.06           | 0.02  | CO 7 |                         |
|            |  |          |                | Min M <sub>z</sub> | 0.09           | 0.44           | 1.24           | 0.32           | -0.24          | -0.07 | CO 8 |                         |
|            | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                |                    |                |                |                |                |                |       |      |                         |
|            | RC5  | 23       | 0.000          | Max N              | 0.62           | 0.45           | 0.49           | 0.13           | -0.27          | 0.07  |      |                         |
|            |  |          |                | Min N              | -0.62          | -0.45          | -0.49          | -0.13          | 0.27           | -0.07 |      |                         |
|            |  |          |                | Max V <sub>y</sub> | 0.54           | 0.51           | 0.12           | 0.05           | -0.06          | 0.08  |      |                         |
|            |  |          |                | Min V <sub>y</sub> | -0.54          | -0.51          | -0.12          | -0.05          | 0.06           | -0.08 |      |                         |
|            |  |          |                | Max V <sub>z</sub> | 0.30           | 0.04           | 0.81           | 0.19           | -0.46          | 0.01  |      |                         |
|            |  |          |                | Min V <sub>z</sub> | -0.30          | -0.04          | -0.81          | -0.19          | 0.46           | -0.01 |      |                         |

## RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] | Forces [kN]                                  |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |
|------------|-----|----------|----------------|--|----------------|----------------|----------------|----------------|----------------|-------------------------|
|            |     |          |                | N  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |
| 45         | RC5 | 14       | 0.350          | Max M <sub>T</sub>                           | 0.31           | 0.06           | 0.80           | 0.19           | -0.44          | 0.01                    |
|            |     |          |                | Min M <sub>T</sub>                           | -0.31          | -0.06          | -0.80          | -0.19          | 0.44           | -0.01                   |
|            |     |          |                | Max M <sub>y</sub>                           | -0.32          | -0.07          | -0.81          | -0.18          | 0.46           | -0.01                   |
|            |     |          |                | Min M <sub>y</sub>                           | 0.32           | 0.07           | 0.81           | 0.18           | -0.46          | 0.01                    |
|            |     |          |                | Max M <sub>z</sub>                           | 0.52           | 0.51           | 0.09           | 0.05           | -0.04          | 0.08                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.52          | -0.51          | -0.09          | -0.05          | 0.04           | -0.08                   |
|            |     |          |                | Max N  | 0.62           | 0.45           | 0.49           | 0.13           | -0.10          | -0.08                   |
|            |     |          |                | Min N  | -0.62          | -0.45          | -0.49          | -0.13          | 0.10           | 0.08                    |
|            |     |          |                | Max V <sub>y</sub>                           | 0.54           | 0.51           | 0.12           | 0.05           | -0.01          | -0.09                   |
|            |     |          |                | Min V <sub>y</sub>                           | -0.54          | -0.51          | -0.12          | -0.05          | 0.01           | 0.09                    |
|            |     |          |                | Max V <sub>z</sub>                           | 0.30           | 0.04           | 0.81           | 0.19           | -0.17          | -0.01                   |
|            |     |          |                | Min V <sub>z</sub>                           | -0.30          | -0.04          | -0.81          | -0.19          | 0.17           | 0.01                    |
|            |     |          |                | Max M <sub>T</sub>                           | 0.31           | 0.06           | 0.80           | 0.19           | -0.16          | -0.01                   |
|            |     |          |                | Min M <sub>T</sub>                           | -0.31          | -0.06          | -0.80          | -0.19          | 0.16           | 0.01                    |
|            |     |          |                | Max M <sub>y</sub>                           | -0.33          | -0.10          | -0.80          | -0.17          | 0.17           | 0.02                    |
|            |     |          |                | Min M <sub>y</sub>                           | 0.33           | 0.10           | 0.80           | 0.17           | -0.17          | -0.02                   |
|            |     |          |                | Max M <sub>z</sub>                           | -0.55          | -0.51          | -0.15          | -0.06          | 0.02           | 0.09                    |
|            |     |          |                | Min M <sub>z</sub>                           | 0.55           | 0.51           | 0.15           | 0.06           | -0.02          | -0.09                   |
|            |     | 14       | 0.350          | DLC1, Result Envelope X 30% / Y 100% / Z 30% |                |                |                |                |                |                         |
|            |     |          |                | Max N  | 0.72           | 0.61           | 0.34           | 0.09           | -0.19          | 0.09                    |
|            |     |          |                | Min N  | -0.72          | -0.61          | -0.34          | -0.09          | 0.19           | -0.09                   |
|            |     |          |                | Max V <sub>y</sub>                           | 0.65           | 0.66           | 0.04           | 0.02           | -0.02          | 0.10                    |
|            |     |          |                | Min V <sub>y</sub>                           | -0.65          | -0.66          | -0.04          | -0.02          | 0.02           | -0.10                   |
|            |     |          |                | Max V <sub>z</sub>                           | 0.16           | -0.05          | 0.62           | 0.14           | -0.34          | -0.01                   |
|            |     |          |                | Min V <sub>z</sub>                           | -0.16          | 0.05           | -0.62          | -0.14          | 0.34           | 0.01                    |
|            |     |          |                | Max M <sub>T</sub>                           | 0.09           | -0.14          | 0.60           | 0.15           | -0.32          | -0.02                   |
|            |     |          |                | Min M <sub>T</sub>                           | -0.09          | 0.14           | -0.60          | -0.15          | 0.32           | 0.02                    |
|            |     |          |                | Max M <sub>y</sub>                           | -0.27          | -0.08          | -0.61          | -0.13          | 0.35           | -0.01                   |
|            |     |          |                | Min M <sub>y</sub>                           | 0.27           | 0.08           | 0.61           | 0.13           | -0.35          | 0.01                    |
|            |     |          |                | Max M <sub>z</sub>                           | 0.64           | 0.66           | 0.02           | 0.02           | -0.01          | 0.10                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.64          | -0.66          | -0.02          | -0.02          | 0.01           | -0.10                   |
|            |     |          |                | Max N  | 0.72           | 0.61           | 0.34           | 0.09           | -0.07          | -0.12                   |
|            |     |          |                | Min N  | -0.72          | -0.61          | -0.34          | -0.09          | 0.07           | 0.12                    |
|            |     |          |                | Max V <sub>y</sub>                           | 0.65           | 0.66           | 0.04           | 0.02           | -0.01          | -0.13                   |
|            |     |          |                | Min V <sub>y</sub>                           | -0.65          | -0.66          | -0.04          | -0.02          | 0.01           | 0.13                    |
|            |     |          |                | Max V <sub>z</sub>                           | 0.16           | -0.05          | 0.62           | 0.14           | -0.13          | 0.01                    |
|            |     |          |                | Min V <sub>z</sub>                           | -0.16          | 0.05           | -0.62          | -0.14          | 0.13           | -0.01                   |
|            |     |          |                | Max M <sub>T</sub>                           | 0.09           | -0.14          | 0.60           | 0.15           | -0.11          | 0.03                    |
|            |     |          |                | Min M <sub>T</sub>                           | -0.09          | 0.14           | -0.60          | -0.15          | 0.11           | -0.03                   |
|            |     |          |                | Max M <sub>y</sub>                           | -0.36          | -0.22          | -0.58          | -0.12          | 0.14           | 0.05                    |
|            |     |          |                | Min M <sub>y</sub>                           | 0.36           | 0.22           | 0.58           | 0.12           | -0.14          | -0.05                   |
|            |     |          |                | Max M <sub>z</sub>                           | -0.65          | -0.66          | -0.07          | -0.03          | 0.02           | 0.13                    |
|            |     |          |                | Min M <sub>z</sub>                           | 0.65           | 0.66           | 0.07           | 0.03           | -0.02          | -0.13                   |
|            |     | 14       | 0.350          | DLC1, Result Envelope X 30% / Y 30% / Z 100% |                |                |                |                |                |                         |
|            |     |          |                | Max N  | 1.08           | 0.71           | 1.00           | 0.27           | -0.55          | 0.12                    |
|            |     |          |                | Min N  | -1.08          | -0.71          | -1.00          | -0.27          | 0.55           | -0.12                   |
|            |     |          |                | Max V <sub>y</sub>                           | 0.88           | 0.86           | 0.10           | 0.09           | -0.03          | 0.15                    |
|            |     |          |                | Min V <sub>y</sub>                           | -0.88          | -0.86          | -0.10          | -0.09          | 0.03           | -0.15                   |
|            |     |          |                | Max V <sub>z</sub>                           | 0.56           | 0.03           | 1.70           | 0.38           | -0.96          | -0.00                   |
|            |     |          |                | Min V <sub>z</sub>                           | -0.56          | -0.03          | -1.70          | -0.38          | 0.96           | 0.00                    |
|            |     |          |                | Max M <sub>T</sub>                           | 0.65           | 0.12           | 1.66           | 0.39           | -0.93          | 0.02                    |
|            |     |          |                | Min M <sub>T</sub>                           | -0.65          | -0.12          | -1.66          | -0.39          | 0.93           | -0.02                   |
|            |     |          |                | Max M <sub>y</sub>                           | -0.57          | -0.05          | -1.70          | -0.37          | 0.96           | -0.00                   |
|            |     |          |                | Min M <sub>y</sub>                           | 0.57           | 0.05           | 1.70           | 0.37           | -0.96          | 0.00                    |
|            |     |          |                | Max M <sub>z</sub>                           | 0.84           | 0.86           | 0.01           | 0.07           | 0.02           | 0.15                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.84          | -0.86          | -0.01          | -0.07          | -0.02          | -0.15                   |
|            |     |          |                | Max N  | 1.08           | 0.71           | 1.00           | 0.27           | -0.19          | -0.13                   |
|            |     |          |                | Min N  | -1.08          | -0.71          | -1.00          | -0.27          | 0.19           | 0.13                    |
|            |     |          |                | Max V <sub>y</sub>                           | 0.88           | 0.86           | 0.10           | 0.09           | 0.00           | -0.15                   |
|            |     |          |                | Min V <sub>y</sub>                           | -0.88          | -0.86          | -0.10          | -0.09          | -0.00          | 0.15                    |
|            |     |          |                | Max V <sub>z</sub>                           | 0.56           | 0.03           | 1.70           | 0.38           | -0.36          | -0.01                   |
|            |     |          |                | Min V <sub>z</sub>                           | -0.56          | -0.03          | -1.70          | -0.38          | 0.36           | 0.01                    |
|            |     |          |                | Max M <sub>T</sub>                           | 0.65           | 0.12           | 1.66           | 0.39           | -0.35          | -0.02                   |
|            |     |          |                | Min M <sub>T</sub>                           | -0.65          | -0.12          | -1.66          | -0.39          | 0.35           | 0.02                    |
|            |     |          |                | Max M <sub>y</sub>                           | -0.57          | -0.06          | -1.68          | -0.36          | 0.37           | 0.02                    |
|            |     |          |                | Min M <sub>y</sub>                           | 0.57           | 0.06           | 1.68           | 0.36           | -0.37          | -0.02                   |
|            |     |          |                | Max M <sub>z</sub>                           | -0.90          | -0.86          | -0.20          | -0.11          | 0.02           | 0.15                    |
|            |     |          |                | Min M <sub>z</sub>                           | 0.90           | 0.86           | 0.20           | 0.11           | -0.02          | -0.15                   |
| 46         | RC1 | 21       | 0.000          | Max N  | 0.52           | -0.18          | 2.50           | -0.25          | -0.79          | -0.08                   |
|            |     |          |                | Min N  | -0.48          | -0.04          | -0.02          | 0.00           | 0.00           | -0.00                   |
|            |     |          |                | Max V <sub>y</sub>                           | -0.48          | -0.04          | -0.02          | 0.00           | 0.00           | -0.00                   |
|            |     |          |                | Min V <sub>y</sub>                           | 0.52           | -0.18          | 2.50           | -0.25          | -0.79          | -0.08                   |
|            |     |          |                | Max V <sub>z</sub>                           | 0.52           | -0.18          | 2.50           | -0.25          | -0.79          | -0.08                   |
|            |     |          |                | Min V <sub>z</sub>                           | -0.48          | -0.04          | -0.02          | 0.00           | 0.00           | -0.00                   |
|            |     |          |                | Max M <sub>T</sub>                           | -0.48          | -0.04          | -0.02          | 0.00           | 0.00           | -0.00                   |
|            |     |          |                | Min M <sub>T</sub>                           | 0.52           | -0.18          | 2.50           | -0.25          | -0.79          | -0.08                   |
|            |     |          |                | Max M <sub>y</sub>                           | -0.48          | -0.04          | -0.02          | 0.00           | 0.00           | -0.00                   |
|            |     |          |                | Min M <sub>y</sub>                           | 0.52           | -0.18          | 2.50           | -0.25          | -0.79          | -0.08                   |
|            |     | 4        | 0.950          | Max M <sub>z</sub>                           | -0.48          | -0.04          | -0.02          | 0.00           | 0.00           | -0.00                   |
|            |     |          |                | Min M <sub>z</sub>                           | 0.52           | -0.18          | 2.50           | -0.25          | -0.79          | -0.08                   |
|            |     |          |                | Max N  | 0.66           | -0.18          | 2.50           | -0.25          | 1.59           | 0.09                    |
|            |     |          |                | Min N  | -0.33          | -0.04          | -0.02          | 0.00           | -0.02          | 0.03                    |
|            |     |          |                | Max V <sub>y</sub>                           | -0.33          | -0.04          | -0.02          | 0.00           | -0.02          | 0.03                    |
|            |     |          |                | Min V <sub>y</sub>                           | 0.66           | -0.18          | 2.50           | -0.25          | 1.59           | 0.09                    |
|            |     |          |                | Max V <sub>z</sub>                           | 0.66           | -0.18          | 2.50           | -0.25          | 1.59           | 0.09                    |
|            |     |          |                | Min V <sub>z</sub>                           | -0.33          | -0.04          | -0.02          | 0.00           | -0.02          | 0.03                    |
|            |     |          |                | Max M <sub>T</sub>                           | -0.33          | -0.04          | -0.02          | 0.00           | -0.02          | 0.03                    |
|            |     |          |                | Min M <sub>T</sub>                           | -0.33          | -0.04          | -0.02          | 0.00           | -0.02          | 0.03                    |

## RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m] | Forces [kN]        |                |                | Moments [kNm]      |                |                | Correspondin Load Cases |         |        |       |      |
|------------|--|----------|----------------|--------------------|----------------|----------------|--------------------|----------------|----------------|-------------------------|---------|--------|-------|------|
|            |  |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub>     | M <sub>y</sub> | M <sub>z</sub> |                         |         |        |       |      |
| 46         | RC1  |          |                | Min M <sub>T</sub> | 0.66           | -0.18          | 2.50               | ▷ -0.25        | 1.59           | 0.09                    | CO 2    |        |       |      |
|            |  |          |                | Max M <sub>y</sub> | 0.66           | -0.18          | 2.50               | ▷ -0.25        | 1.59           | 0.09                    | CO 2    |        |       |      |
|            |  |          |                | Min M <sub>y</sub> | -0.33          | -0.04          | -0.02              | 0.00           | ▷ -0.02        | 0.03                    | CO 1    |        |       |      |
|            |  |          |                | Max M <sub>z</sub> | 0.66           | -0.18          | 2.50               | ▷ -0.25        | 1.59           | 0.09                    | CO 2    |        |       |      |
|            |  |          |                | Min M <sub>z</sub> | -0.33          | -0.04          | -0.02              | 0.00           | ▷ -0.02        | 0.03                    | CO 1    |        |       |      |
|            |  |          |                | RC2                | 21             | 0.000          | Max N              | ▷ 0.31         | -0.12          | 1.67                    | ▷ -0.16 | -0.53  | -0.06 | CO 4 |
|            |  |          |                |                    |                |                | Min N              | ▷ -0.36        | -0.03          | -0.02                   | 0.00    | 0.00   | -0.00 | CO 3 |
|            |  |          |                |                    |                |                | Max V <sub>y</sub> | ▷ -0.36        | ▷ -0.03        | -0.02                   | 0.00    | 0.00   | -0.00 | CO 3 |
|            |  |          |                |                    |                |                | Min V <sub>y</sub> | ▷ 0.31         | -0.12          | 1.67                    | ▷ -0.16 | -0.53  | -0.06 | CO 4 |
|            |  |          |                |                    |                |                | Max V <sub>z</sub> | ▷ 0.31         | -0.12          | 1.67                    | ▷ -0.16 | -0.53  | -0.06 | CO 4 |
|            |  |          |                |                    |                |                | Min V <sub>z</sub> | ▷ -0.36        | -0.03          | ▷ -0.02                 | 0.00    | 0.00   | -0.00 | CO 3 |
|            |  |          |                |                    |                |                | Max M <sub>T</sub> | ▷ -0.36        | -0.03          | -0.02                   | ▷ 0.00  | 0.00   | -0.00 | CO 3 |
|            |  |          |                |                    |                |                | Min M <sub>T</sub> | ▷ 0.31         | -0.12          | 1.67                    | ▷ -0.16 | -0.53  | -0.06 | CO 4 |
|            |  |          |                |                    |                |                | Max M <sub>y</sub> | ▷ -0.36        | -0.03          | -0.02                   | ▷ 0.00  | 0.00   | -0.00 | CO 3 |
|            |  |          |                |                    |                |                | Min M <sub>y</sub> | ▷ 0.31         | -0.12          | 1.67                    | ▷ -0.16 | -0.53  | -0.06 | CO 4 |
|            |  | 4        | 0.950          | Max M <sub>z</sub> | ▷ -0.36        | -0.03          | -0.02              | 0.00           | ▷ 0.00         | -0.00                   | CO 3    |        |       |      |
|            |  |          |                | Min M <sub>z</sub> | ▷ 0.31         | -0.12          | 1.67               | ▷ -0.16        | -0.53          | ▷ -0.06                 | CO 4    |        |       |      |
|            |  |          |                | Max N              | ▷ 0.42         | -0.12          | 1.67               | ▷ -0.16        | 1.06           | 0.06                    | CO 4    |        |       |      |
|            |  |          |                | Min N              | ▷ -0.24        | -0.03          | -0.02              | 0.00           | -0.02          | 0.03                    | CO 3    |        |       |      |
|            |  |          |                | Max V <sub>y</sub> | ▷ -0.24        | ▷ -0.03        | -0.02              | 0.00           | -0.02          | 0.03                    | CO 3    |        |       |      |
|            |  |          |                | Min V <sub>y</sub> | ▷ 0.42         | ▷ -0.12        | 1.67               | ▷ -0.16        | 1.06           | 0.06                    | CO 4    |        |       |      |
|            |  |          |                | Max V <sub>z</sub> | ▷ 0.42         | -0.12          | 1.67               | ▷ -0.16        | 1.06           | 0.06                    | CO 4    |        |       |      |
|            |  |          |                | Min V <sub>z</sub> | ▷ -0.24        | -0.03          | -0.02              | 0.00           | -0.02          | 0.03                    | CO 3    |        |       |      |
|            |  |          |                | Max M <sub>T</sub> | ▷ -0.24        | -0.03          | -0.02              | ▷ 0.00         | -0.02          | 0.03                    | CO 3    |        |       |      |
|            |  |          |                | Min M <sub>T</sub> | ▷ 0.42         | -0.12          | 1.67               | ▷ -0.16        | 1.06           | 0.06                    | CO 4    |        |       |      |
|            | RC3  | 21       | 0.000          | Max M <sub>y</sub> | ▷ 0.42         | -0.12          | 1.67               | ▷ -0.16        | 1.06           | 0.06                    | CO 4    |        |       |      |
|            |  |          |                | Min M <sub>y</sub> | ▷ -0.24        | -0.03          | -0.02              | ▷ 0.00         | -0.02          | 0.03                    | CO 3    |        |       |      |
|            |  |          |                | Max M <sub>z</sub> | ▷ 0.42         | -0.12          | 1.67               | ▷ -0.16        | 1.06           | ▷ 0.06                  | CO 4    |        |       |      |
|            |  |          |                | Min M <sub>z</sub> | ▷ -0.24        | -0.03          | -0.02              | 0.00           | -0.02          | ▷ 0.03                  | CO 3    |        |       |      |
|            |  |          |                | Max N              | ▷ -0.02        | -0.07          | 0.82               | -0.08          | -0.26          | -0.03                   | CO 6    |        |       |      |
|            |  |          |                | Min N              | ▷ -0.36        | -0.03          | -0.02              | 0.00           | 0.00           | -0.00                   | CO 5    |        |       |      |
|            |  |          |                | Max V <sub>y</sub> | ▷ -0.36        | ▷ -0.03        | -0.02              | 0.00           | 0.00           | -0.00                   | CO 5    |        |       |      |
|            |  |          |                | Min V <sub>y</sub> | ▷ -0.02        | ▷ -0.07        | 0.82               | -0.08          | -0.26          | -0.03                   | CO 6    |        |       |      |
|            |  |          |                | Max V <sub>z</sub> | ▷ -0.02        | ▷ -0.07        | 0.82               | -0.08          | -0.26          | -0.03                   | CO 6    |        |       |      |
|            |  |          |                | Min V <sub>z</sub> | ▷ -0.36        | -0.03          | ▷ -0.02            | 0.00           | 0.00           | -0.00                   | CO 5    |        |       |      |
|            |  |          |                | Max M <sub>T</sub> | ▷ -0.36        | -0.03          | -0.02              | ▷ 0.00         | 0.00           | -0.00                   | CO 5    |        |       |      |
|            |  |          |                | Min M <sub>T</sub> | ▷ -0.02        | -0.07          | 0.82               | ▷ -0.08        | -0.26          | -0.03                   | CO 6    |        |       |      |
|            |  |          |                | Max M <sub>y</sub> | ▷ -0.36        | -0.03          | -0.02              | ▷ 0.00         | 0.00           | -0.00                   | CO 5    |        |       |      |
|            |  |          |                | Min M <sub>y</sub> | ▷ -0.02        | -0.07          | 0.82               | ▷ -0.08        | -0.26          | -0.03                   | CO 6    |        |       |      |
|            |  |          |                |                    | 4              | 0.950          | Max M <sub>z</sub> | ▷ -0.36        | -0.03          | -0.02                   | 0.00    | ▷ 0.00 | -0.00 | CO 5 |
|            | Min M <sub>z</sub>                           | ▷ -0.02  | -0.07          |                    |                |                | 0.82               | -0.08          | -0.26          | ▷ -0.03                 | CO 6    |        |       |      |
|            | Max N  | ▷ 0.09   | -0.08          |                    |                |                | 0.82               | -0.08          | 0.52           | 0.04                    | CO 6    |        |       |      |
|            | Min N  | ▷ -0.24  | -0.03          |                    |                |                | -0.02              | 0.00           | -0.02          | 0.03                    | CO 5    |        |       |      |
|            | Max V <sub>y</sub>                           | ▷ -0.24  | -0.03          |                    |                |                | -0.02              | 0.00           | -0.02          | 0.03                    | CO 5    |        |       |      |
|            | Min V <sub>y</sub>                           | ▷ 0.09   | -0.08          |                    |                |                | 0.82               | -0.08          | 0.52           | 0.04                    | CO 6    |        |       |      |
|            | Max V <sub>z</sub>                           | ▷ 0.09   | -0.08          |                    |                |                | 0.82               | -0.08          | 0.52           | 0.04                    | CO 6    |        |       |      |
|            | Min V <sub>z</sub>                           | ▷ -0.24  | -0.03          |                    |                |                | ▷ -0.02            | 0.00           | -0.02          | 0.03                    | CO 5    |        |       |      |
|            | Max M <sub>T</sub>                           | ▷ -0.24  | -0.03          |                    |                |                | -0.02              | ▷ 0.00         | -0.02          | 0.03                    | CO 5    |        |       |      |
|            | Min M <sub>T</sub>                           | ▷ 0.09   | -0.08          |                    |                |                | 0.82               | ▷ -0.08        | 0.52           | 0.04                    | CO 6    |        |       |      |
|            | Max M <sub>y</sub>                           | ▷ 0.09   | -0.08          |                    |                |                | 0.82               | ▷ -0.08        | 0.52           | 0.04                    | CO 6    |        |       |      |
|            | Min M <sub>y</sub>                           | ▷ -0.24  | -0.03          |                    |                |                | -0.02              | ▷ 0.00         | -0.02          | 0.03                    | CO 5    |        |       |      |
|            | Max M <sub>z</sub>                           | ▷ 0.09   | -0.08          |                    |                |                | 0.82               | -0.08          | 0.52           | ▷ 0.04                  | CO 6    |        |       |      |
|            | Min M <sub>z</sub>                           | ▷ -0.24  | -0.03          |                    |                |                | -0.02              | 0.00           | -0.02          | ▷ 0.03                  | CO 5    |        |       |      |
|            | RC4  | 21       | 0.000          |                    |                |                | Max N              | ▷ -0.16        | -0.06          | 0.49                    | -0.05   | -0.16  | -0.02 | CO 8 |
|            |  |          |                | Min N              | ▷ -0.36        | -0.03          | -0.02              | 0.00           | 0.00           | -0.00                   | CO 7    |        |       |      |
|            |  |          |                | Max V <sub>y</sub> | ▷ -0.36        | ▷ -0.03        | -0.02              | 0.00           | 0.00           | -0.00                   | CO 7    |        |       |      |
|            |  |          |                | Min V <sub>y</sub> | ▷ -0.16        | ▷ -0.06        | 0.49               | -0.05          | -0.16          | -0.02                   | CO 8    |        |       |      |
|            |  |          |                | Max V <sub>z</sub> | ▷ -0.16        | -0.06          | ▷ 0.49             | -0.05          | -0.16          | -0.02                   | CO 8    |        |       |      |
|            |  |          |                | Min V <sub>z</sub> | ▷ -0.36        | -0.03          | ▷ -0.02            | 0.00           | 0.00           | -0.00                   | CO 7    |        |       |      |
|            |  |          |                | Max M <sub>T</sub> | ▷ -0.36        | -0.03          | -0.02              | ▷ 0.00         | 0.00           | -0.00                   | CO 7    |        |       |      |
|            |  |          |                | Min M <sub>T</sub> | ▷ -0.16        | -0.06          | 0.49               | ▷ -0.05        | -0.16          | -0.02                   | CO 8    |        |       |      |
|            |  |          |                | Max M <sub>y</sub> | ▷ -0.36        | -0.03          | -0.02              | ▷ 0.00         | 0.00           | -0.00                   | CO 7    |        |       |      |
|            |  |          |                | Min M <sub>y</sub> | ▷ -0.16        | -0.06          | 0.49               | ▷ -0.05        | -0.16          | -0.02                   | CO 8    |        |       |      |
|            |  |          |                | Max M <sub>z</sub> | ▷ -0.36        | -0.03          | -0.02              | ▷ 0.00         | 0.00           | -0.00                   | CO 7    |        |       |      |
|            |  |          |                | Min M <sub>z</sub> | ▷ -0.16        | -0.06          | 0.49               | -0.05          | -0.16          | ▷ -0.02                 | CO 8    |        |       |      |
|            |  |          |                | Max N              | ▷ -0.05        | -0.06          | 0.49               | -0.05          | 0.31           | 0.03                    | CO 8    |        |       |      |
|            |  |          |                | Min N              | ▷ -0.24        | -0.03          | -0.02              | 0.00           | -0.02          | 0.03                    | CO 7    |        |       |      |
|            |  |          |                |                    | 4              | 0.950          | Max V <sub>y</sub> | ▷ -0.24        | -0.03          | -0.02                   | 0.00    | -0.02  | 0.03  | CO 7 |
|            | Min V <sub>y</sub>                           | ▷ -0.05  | -0.06          |                    |                |                | 0.49               | -0.05          | 0.31           | 0.03                    | CO 8    |        |       |      |
|            | Max V <sub>z</sub>                           | ▷ -0.05  | -0.06          |                    |                |                | ▷ 0.49             | -0.05          | 0.31           | 0.03                    | CO 8    |        |       |      |
|            | Min V <sub>z</sub>                           | ▷ -0.24  | -0.03          |                    |                |                | ▷ -0.02            | 0.00           | -0.02          | 0.03                    | CO 7    |        |       |      |
|            | Max M <sub>T</sub>                           | ▷ -0.24  | -0.03          |                    |                |                | -0.02              | ▷ 0.00         | -0.02          | 0.03                    | CO 7    |        |       |      |
|            | Min M <sub>T</sub>                           | ▷ -0.05  | -0.06          |                    |                |                | 0.49               | ▷ -0.05        | 0.31           | 0.03                    | CO 8    |        |       |      |
|            | Max M <sub>y</sub>                           | ▷ -0.05  | -0.06          |                    |                |                | 0.49               | -0.05          | 0.31           | 0.03                    | CO 8    |        |       |      |
|            | Min M <sub>y</sub>                           | ▷ -0.24  | -0.03          |                    |                |                | -0.02              | ▷ 0.00         | -0.02          | 0.03                    | CO 7    |        |       |      |
|            | Max M <sub>z</sub>                           | ▷ -0.05  | -0.06          |                    |                |                | 0.49               | -0.05          | 0.31           | ▷ 0.03                  | CO 8    |        |       |      |
|            | Min M <sub>z</sub>                           | ▷ -0.24  | -0.03          |                    |                |                | -0.02              | ▷ 0.00         | -0.02          | ▷ 0.03                  | CO 7    |        |       |      |
|            | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                |                    |                |                |                    |                |                |                         |         |        |       |      |
|            | RC5  | 21       | 0.000          |                    |                |                | Max N              | ▷ 0.15         | -0.00          | -0.02                   | 0.01    | 0.00   | -0.00 |      |
|            |  |          |                |                    |                |                | Min N              | ▷ -0.15        | 0.00           | 0.02                    | -0.01   | -0.00  | 0.00  |      |
|            |  |          |                |                    |                |                | Max V <sub>y</sub> | ▷ -0.04        | ▷ 0.01         | -0.12                   | 0.02    | 0.02   | 0.00  |      |
|            |  |          |                |                    |                |                | Min V <sub>y</sub> | ▷ 0.04         | ▷ -0.01        | 0.12                    | -0.02   | -0.02  | -0.00 |      |
|            |  |          |                | Max V <sub>z</sub> | -0.00          | -0.01          | ▷ 0.14             | -0.02          | -0.02          | -0.00                   |         |        |       |      |
|            |  |          |                | Min V <sub>z</sub> | 0.00           | 0.01           | ▷ -0.14            | 0.02           | 0.02           | 0.00                    |         |        |       |      |
|            |  |          |                | Max M <sub>T</sub> | 0.01           | 0.01           | ▷ -0.14            | ▷ 0.02         | 0.02           | 0.00                    |         |        |       |      |
|            |  |          |                | Min M <sub>T</sub> | -0.01          | -0.01          | ▷ 0.14             | ▷ -0.02        | -0.02          | -0.00                   |         |        |       |      |
|            |  |          |                | Max M <sub>y</sub> | -0.01          | 0.01           | -0.14              | ▷ 0.02         | 0.02           | 0.00                    |         |        |       |      |
|            |  |          |                | Min M <sub>y</sub> | -0.01          | 0.01           | -0.14              | ▷ 0.02         | 0.02           | 0.00                    |         |        |       |      |

## RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] | Forces [kN]                                  |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |
|------------|-----|----------|----------------|--|----------------|----------------|----------------|----------------|----------------|-------------------------|
|            |     |          |                | N  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |
| 46         | RC5 | 4        | 0.950          | Min M <sub>y</sub>                           | 0.01           | -0.01          | 0.14           | -0.02          | -0.02          | -0.00                   |
|            |     |          |                | Max M <sub>y</sub>                           | -0.10          | 0.01           | -0.08          | 0.01           | 0.01           | 0.01                    |
|            |     |          |                | Min M <sub>z</sub>                           | 0.10           | -0.01          | 0.08           | -0.01          | -0.01          | -0.01                   |
|            |     |          |                | Max N  | 0.15           | -0.00          | -0.02          | 0.01           | -0.02          | -0.00                   |
|            |     |          |                | Min N  | -0.15          | 0.00           | 0.02           | -0.01          | 0.02           | 0.00                    |
|            |     |          |                | Max V <sub>y</sub>                           | -0.04          | 0.01           | -0.12          | 0.02           | -0.10          | -0.00                   |
|            |     |          |                | Min V <sub>y</sub>                           | 0.04           | -0.01          | 0.12           | -0.02          | 0.10           | 0.00                    |
|            |     |          |                | Max V <sub>z</sub>                           | -0.00          | -0.01          | 0.14           | -0.02          | 0.11           | 0.00                    |
|            |     |          |                | Min V <sub>z</sub>                           | 0.00           | 0.01           | -0.14          | 0.02           | -0.11          | -0.00                   |
|            |     |          |                | Max M <sub>T</sub>                           | 0.01           | 0.01           | -0.14          | 0.02           | -0.11          | -0.00                   |
|            |     |          |                | Min M <sub>T</sub>                           | -0.01          | -0.01          | 0.14           | -0.02          | 0.11           | 0.00                    |
|            |     |          |                | Max M <sub>y</sub>                           | -0.00          | -0.01          | 0.14           | -0.02          | 0.11           | 0.00                    |
|            |     |          |                | Min M <sub>y</sub>                           | 0.00           | 0.01           | -0.14          | 0.02           | -0.11          | -0.00                   |
|            |     |          |                | Max M <sub>z</sub>                           | -0.07          | -0.01          | 0.14           | -0.02          | 0.11           | 0.00                    |
|            |     |          |                | Min M <sub>z</sub>                           | 0.07           | 0.01           | -0.14          | 0.02           | -0.11          | -0.00                   |
|            |     | 21       | 0.000          | DLC1, Result Envelope X 30% / Y 100% / Z 30% |                |                |                |                |                |                         |
|            |     |          |                | RC6  |                |                |                |                |                |                         |
|            |     |          |                | Max N  | 0.22           | -0.00          | -0.02          | 0.00           | 0.00           | -0.00                   |
|            |     |          |                | Min N  | -0.22          | 0.00           | 0.02           | -0.00          | -0.00          | 0.00                    |
|            |     |          |                | Max V <sub>y</sub>                           | -0.09          | 0.01           | -0.09          | 0.01           | -0.01          | 0.00                    |
|            |     |          |                | Min V <sub>y</sub>                           | 0.09           | -0.01          | 0.09           | -0.01          | -0.01          | -0.00                   |
|            |     |          |                | Max V <sub>z</sub>                           | 0.03           | -0.01          | 0.11           | -0.02          | -0.01          | -0.00                   |
|            |     |          |                | Min V <sub>z</sub>                           | -0.03          | 0.01           | -0.11          | 0.02           | 0.01           | 0.00                    |
|            |     |          |                | Max M <sub>T</sub>                           | -0.05          | 0.00           | -0.10          | 0.02           | 0.01           | 0.00                    |
|            |     |          |                | Min M <sub>T</sub>                           | 0.05           | -0.00          | 0.10           | -0.02          | -0.01          | -0.00                   |
|            |     |          |                | Max M <sub>y</sub>                           | -0.05          | 0.01           | -0.11          | 0.02           | 0.01           | 0.00                    |
|            |     |          |                | Min M <sub>y</sub>                           | 0.05           | -0.01          | 0.11           | -0.02          | -0.01          | -0.00                   |
|            |     |          |                | Max M <sub>z</sub>                           | -0.17          | 0.01           | -0.05          | 0.01           | 0.01           | 0.01                    |
|            |     |          |                | Min M <sub>z</sub>                           | 0.17           | -0.01          | 0.05           | -0.01          | -0.01          | -0.01                   |
|            |     | 4        | 0.950          | Max N  | 0.22           | -0.00          | -0.02          | 0.00           | -0.02          | -0.00                   |
|            |     |          |                | Min N  | -0.22          | 0.00           | 0.02           | -0.00          | 0.02           | 0.00                    |
|            |     |          |                | Max V <sub>y</sub>                           | -0.09          | 0.01           | -0.09          | 0.01           | -0.07          | -0.00                   |
|            |     |          |                | Min V <sub>y</sub>                           | 0.09           | -0.01          | 0.09           | -0.01          | 0.07           | 0.00                    |
|            |     |          |                | Max V <sub>z</sub>                           | 0.03           | -0.01          | 0.11           | -0.02          | 0.09           | 0.00                    |
|            |     |          |                | Min V <sub>z</sub>                           | -0.03          | 0.01           | -0.11          | 0.02           | -0.09          | -0.00                   |
|            |     |          |                | Max M <sub>T</sub>                           | -0.05          | 0.00           | -0.10          | 0.02           | -0.09          | -0.00                   |
|            |     |          |                | Min M <sub>T</sub>                           | 0.05           | -0.00          | 0.10           | -0.02          | 0.09           | 0.00                    |
|            |     |          |                | Max M <sub>y</sub>                           | -0.03          | 0.01           | -0.11          | 0.02           | -0.09          | -0.00                   |
|            |     |          |                | Min M <sub>y</sub>                           | 0.03           | -0.01          | 0.11           | -0.02          | 0.09           | 0.00                    |
|            |     |          |                | Max M <sub>z</sub>                           | -0.17          | 0.00           | 0.10           | -0.01          | 0.08           | 0.00                    |
|            |     |          |                | Min M <sub>z</sub>                           | 0.17           | 0.00           | -0.10          | 0.01           | -0.08          | -0.00                   |
|            |     | 21       | 0.000          | DLC1, Result Envelope X 30% / Y 30% / Z 100% |                |                |                |                |                |                         |
|            |     |          |                | RC7  |                |                |                |                |                |                         |
|            |     |          |                | Max N  | 0.24           | -0.00          | -0.08          | 0.02           | 0.01           | -0.01                   |
|            |     |          |                | Min N  | -0.24          | 0.00           | 0.08           | -0.02          | -0.01          | 0.01                    |
|            |     |          |                | Max V <sub>y</sub>                           | -0.04          | 0.02           | -0.26          | 0.04           | 0.03           | 0.01                    |
|            |     |          |                | Min V <sub>y</sub>                           | 0.04           | -0.02          | 0.26           | -0.04          | -0.03          | -0.01                   |
|            |     |          |                | Max V <sub>z</sub>                           | -0.04          | -0.01          | 0.30           | -0.05          | -0.04          | -0.00                   |
|            |     |          |                | Min V <sub>z</sub>                           | 0.04           | 0.01           | -0.30          | 0.05           | 0.04           | 0.00                    |
|            |     |          |                | Max M <sub>T</sub>                           | 0.05           | 0.01           | -0.29          | 0.05           | 0.04           | 0.00                    |
|            |     |          |                | Min M <sub>T</sub>                           | -0.05          | -0.01          | 0.29           | -0.05          | -0.04          | -0.00                   |
|            |     |          |                | Max M <sub>y</sub>                           | 0.02           | 0.01           | -0.29          | 0.04           | 0.04           | 0.01                    |
|            |     |          |                | Min M <sub>y</sub>                           | -0.02          | -0.01          | 0.29           | -0.04          | -0.04          | -0.01                   |
|            |     |          |                | Max M <sub>z</sub>                           | -0.14          | 0.01           | -0.15          | 0.02           | 0.02           | 0.01                    |
|            |     |          |                | Min M <sub>z</sub>                           | 0.14           | -0.01          | 0.15           | -0.02          | -0.02          | -0.01                   |
|            |     | 4        | 0.950          | Max N  | 0.24           | -0.00          | -0.08          | 0.02           | -0.07          | -0.00                   |
|            |     |          |                | Min N  | -0.24          | 0.00           | 0.08           | -0.02          | 0.07           | 0.00                    |
|            |     |          |                | Max V <sub>y</sub>                           | -0.04          | 0.02           | -0.26          | 0.04           | -0.21          | -0.01                   |
|            |     |          |                | Min V <sub>y</sub>                           | 0.04           | -0.02          | 0.26           | -0.04          | 0.21           | 0.01                    |
|            |     |          |                | Max V <sub>z</sub>                           | -0.04          | -0.01          | 0.30           | -0.05          | 0.24           | 0.01                    |
|            |     |          |                | Min V <sub>z</sub>                           | 0.04           | 0.01           | -0.30          | 0.05           | -0.24          | -0.01                   |
|            |     |          |                | Max M <sub>T</sub>                           | 0.05           | 0.01           | -0.29          | 0.05           | -0.24          | -0.01                   |
|            |     |          |                | Min M <sub>T</sub>                           | -0.05          | -0.01          | 0.29           | -0.05          | 0.24           | 0.01                    |
|            |     |          |                | Max M <sub>y</sub>                           | -0.04          | -0.01          | 0.30           | -0.05          | 0.24           | 0.01                    |
|            |     |          |                | Min M <sub>y</sub>                           | 0.04           | 0.01           | -0.30          | 0.05           | -0.24          | -0.01                   |
|            |     |          |                | Max M <sub>z</sub>                           | -0.11          | -0.01          | 0.29           | -0.04          | 0.24           | 0.01                    |
|            |     |          |                | Min M <sub>z</sub>                           | 0.11           | 0.01           | -0.29          | 0.04           | -0.24          | -0.01                   |
|            |     | 24       | 0.000          | Max N  | -1.53          | -0.00          | 0.08           | 0.01           | -0.11          | 0.03                    |
|            |     |          |                | Min N  | 1.53           | 0.00           | -0.08          | -0.01          | 0.11           | -0.03                   |
|            |     |          |                | Max V <sub>y</sub>                           | -1.74          | 3.65           | 6.38           | 1.64           | -3.82          | 0.83                    |
|            |     |          |                | Min V <sub>y</sub>                           | 1.74           | -3.65          | -6.38          | -1.64          | 3.82           | -0.83                   |
|            |     |          |                | Max V <sub>z</sub>                           | -1.53          | -0.00          | 0.08           | 0.01           | -0.11          | 0.03                    |
|            |     |          |                | Min V <sub>z</sub>                           | 1.53           | 0.00           | -0.08          | -0.01          | 0.11           | -0.03                   |
|            |     |          |                | Max M <sub>T</sub>                           | -1.74          | 3.65           | 6.38           | 1.64           | -3.82          | 0.83                    |
|            |     |          |                | Min M <sub>T</sub>                           | 1.74           | -3.65          | -6.38          | -1.64          | 3.82           | -0.83                   |
|            |     |          |                | Max M <sub>y</sub>                           | -1.53          | -0.00          | 0.08           | 0.01           | -0.11          | 0.03                    |
|            |     |          |                | Min M <sub>y</sub>                           | 1.53           | 0.00           | -0.08          | -0.01          | 0.11           | -0.03                   |
|            |     |          |                | Max M <sub>z</sub>                           | -1.74          | 3.65           | 6.38           | 1.64           | -3.82          | 0.83                    |
|            |     |          |                | Min M <sub>z</sub>                           | 1.74           | -3.65          | -6.38          | -1.64          | 3.82           | -0.83                   |
|            |     | 16       | 0.350          | Max N  | -1.48          | -0.00          | 0.08           | 0.01           | -0.08          | 0.03                    |
|            |     |          |                | Min N  | 1.48           | 0.00           | -0.08          | -0.01          | 0.08           | -0.03                   |
|            |     |          |                | Max V <sub>y</sub>                           | -1.67          | 3.67           | 6.39           | 1.63           | -1.58          | -0.45                   |
|            |     |          |                | Min V <sub>y</sub>                           | 1.67           | -3.67          | -6.39          | -1.63          | 1.58           | 0.45                    |
|            |     |          |                | Max V <sub>z</sub>                           | -1.48          | -0.00          | 0.08           | 0.01           | -0.08          | 0.03                    |
|            |     |          |                | Min V <sub>z</sub>                           | 1.48           | 0.00           | -0.08          | -0.01          | 0.08           | -0.03                   |
|            |     |          |                | Max M <sub>T</sub>                           | -1.67          | 3.67           | 6.39           | 1.63           | -1.58          | -0.45                   |
|            |     |          |                | Min M <sub>T</sub>                           | 1.67           | -3.67          | -6.39          | -1.63          | 1.58           | 0.45                    |
|            |     |          |                | Max M <sub>y</sub>                           | -1.48          | -0.00          | 0.08           | 0.01           | -0.08          | 0.03                    |
|            |     |          |                | Min M <sub>y</sub>                           | 1.48           | 0.00           | -0.08          | -0.01          | 0.08           | -0.03                   |
|            |     |          |                | Max M <sub>z</sub>                           | -1.67          | 3.67           | 6.39           | 1.63           | -1.58          | -0.45                   |
|            |     |          |                | Min M <sub>z</sub>                           | 1.67           | -3.67          | -6.39          | -1.63          | 1.58           | 0.45                    |
| 47         | RC1 | 24       | 0.000          | Max N  | -1.53          | -0.00          | 0.08           | 0.01           | -0.11          | 0.03                    |
|            |     |          |                | Min N  | 1.53           | 0.00           | -0.08          | -0.01          | 0.11           | -0.03                   |
|            |     |          |                | Max V <sub>y</sub>                           | -1.74          | 3.65           | 6.38           | 1.64           | -3.82          | 0.83                    |
|            |     |          |                | Min V <sub>y</sub>                           | 1.74           | -3.65          | -6.38          | -1.64          | 3.82           | -0.83                   |
|            |     |          |                | Max V <sub>z</sub>                           | -1.53          | -0.00          | 0.08           | 0.01           | -0.11          | 0.03                    |
|            |     |          |                | Min V <sub>z</sub>                           | 1.53           | 0.00           | -0.08          | -0.01          | 0.11           | -0.03                   |
|            |     |          |                | Max M <sub>T</sub>                           | -1.74          | 3.65           | 6.38           | 1.64           | -3.82          | 0.83                    |
|            |     |          |                | Min M <sub>T</sub>                           | 1.74           | -3.65          | -6.38          | -1.64          | 3.82           | -0.83                   |
|            |     |          |                | Max M <sub>y</sub>                           | -1.53          | -0.00          | 0.08           | 0.01           | -0.11          | 0.03                    |
|            |     |          |                | Min M <sub>y</sub>                           | 1.53           | 0.00           | -0.08          | -0.01          | 0.11           | -0.03                   |
|            |     | 16       | 0.350          | Max N  | -1.48          | -0.00          | 0.08           | 0.01           | -0.08          | 0.03                    |
|            |     |          |                | Min N  | 1.48           | 0.00           | -0.08          | -0.01          | 0.08           | -0.03                   |
|            |     |          |                | Max V <sub>y</sub>                           | -1.67          | 3.67           | 6.39           | 1.63           | -1.58          | -0.45                   |
|            |     |          |                | Min V <sub>y</sub>                           | 1.67           | -3.67          | -6.39          | -1.63          | 1.58           | 0.45                    |
|            |     |          |                | Max V <sub>z</sub>                           | -1.48          | -0.00          | 0.08           | 0.01           | -0.08          | 0.03                    |
|            |     |          |                | Min V <sub>z</sub>                           | 1.48           | 0.00           | -0.08          | -0.01          | 0.08           | -0.03                   |
|            |     |          |                | Max M <sub>T</sub>                           | -1.67          | 3.67           | 6.39           | 1.63           | -1.58          | -0.45                   |
|            |     |          |                | Min M <sub>T</sub>                           | 1.67           | -3.67          | -6.39          | -1.63          | 1.58           | 0.45                    |
|            |     |          |                | Max M <sub>y</sub>                           | -1.48          | -0.00          | 0.08           | 0.01           | -0.08          | 0.03                    |
|            |     |          |                | Min M <sub>y</sub>                           | 1.48           | 0.00           | -0.08          | -0.01          | 0.08           | -0.03                   |

RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.                                   | RC                 | Node No. | Location x [m] | Forces [kN]        |                |                |                | Moments [kNm]  |                |       | Correspondin Load Cases |
|--|--------------------|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------|-------------------------|
|  |                    |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |                         |
| 47   | RC1                | 24       | 0.000          | Max M <sub>z</sub> | -1.48          | -0.00          | 0.08           | 0.01           | -0.08          | 0.03  | CO 1                    |
|  | Min M <sub>z</sub> |          |                | -11.67             | 3.67           | 6.39           | 1.63           | -1.58          | -0.45          | CO 2  |                         |
|  | Max N              |          |                | -1.14              | -0.00          | 0.06           | 0.01           | -0.08          | 0.02           | CO 3  |                         |
|  | Min N              |          |                | -7.94              | 2.43           | 4.26           | 1.09           | -2.55          | 0.55           | CO 4  |                         |
|  | Max V <sub>y</sub> |          |                | -7.94              | 2.43           | 4.26           | 1.09           | -2.55          | 0.55           | CO 4  |                         |
|  | Min V <sub>y</sub> |          |                | -1.14              | -0.00          | 0.06           | 0.01           | -0.08          | 0.02           | CO 3  |                         |
|  | Max V <sub>z</sub> |          |                | -7.94              | 2.43           | 4.26           | 1.09           | -2.55          | 0.55           | CO 4  |                         |
|  | Min V <sub>z</sub> |          |                | -1.14              | -0.00          | 0.06           | 0.01           | -0.08          | 0.02           | CO 3  |                         |
|  | Max M <sub>T</sub> |          |                | -7.94              | 2.43           | 4.26           | 1.09           | -2.55          | 0.55           | CO 4  |                         |
|  | Min M <sub>T</sub> |          |                | -1.14              | -0.00          | 0.06           | 0.01           | -0.08          | 0.02           | CO 3  |                         |
|  | Max M <sub>y</sub> |          |                | -1.14              | -0.00          | 0.06           | 0.01           | -0.08          | 0.02           | CO 3  |                         |
|  | Min M <sub>y</sub> |          |                | -7.94              | 2.43           | 4.26           | 1.09           | -2.55          | 0.55           | CO 4  |                         |
|  | Max M <sub>z</sub> |          |                | -7.94              | 2.43           | 4.26           | 1.09           | -2.55          | 0.55           | CO 4  |                         |
|  | Min M <sub>z</sub> |          |                | -1.14              | -0.00          | 0.06           | 0.01           | -0.08          | 0.02           | CO 3  |                         |
|  | Max N              |          |                | -1.09              | -0.00          | 0.06           | 0.01           | -0.06          | 0.02           | CO 3  |                         |
|  | Min N              |          |                | -7.89              | 2.44           | 4.26           | 1.09           | -1.06          | -0.30          | CO 4  |                         |
|  | Max V <sub>y</sub> |          |                | -7.89              | 2.44           | 4.26           | 1.09           | -1.06          | -0.30          | CO 4  |                         |
|  | Min V <sub>y</sub> |          |                | -1.09              | -0.00          | 0.06           | 0.01           | -0.06          | 0.02           | CO 3  |                         |
|  | Max V <sub>z</sub> |          |                | -7.89              | 2.44           | 4.26           | 1.09           | -1.06          | -0.30          | CO 4  |                         |
|  | Min V <sub>z</sub> |          |                | -1.09              | -0.00          | 0.06           | 0.01           | -0.06          | 0.02           | CO 3  |                         |
|  | Max M <sub>T</sub> |          |                | -7.89              | 2.44           | 4.26           | 1.09           | -1.06          | -0.30          | CO 4  |                         |
|  | Min M <sub>T</sub> |          |                | -1.09              | -0.00          | 0.06           | 0.01           | -0.06          | 0.02           | CO 3  |                         |
|  | Max M <sub>y</sub> |          |                | -1.09              | -0.00          | 0.06           | 0.01           | -0.06          | 0.02           | CO 3  |                         |
|  | Min M <sub>y</sub> |          |                | -7.89              | 2.44           | 4.26           | 1.09           | -1.06          | -0.30          | CO 4  |                         |
|  | Max M <sub>z</sub> |          |                | -1.09              | -0.00          | 0.06           | 0.01           | -0.06          | 0.02           | CO 3  |                         |
|  | Min M <sub>z</sub> |          |                | -7.89              | 2.44           | 4.26           | 1.09           | -1.06          | -0.30          | CO 4  |                         |
|  | Max N              |          |                | -1.14              | -0.00          | 0.06           | 0.01           | -0.08          | 0.02           | CO 5  |                         |
|  | Min N              |          |                | -4.54              | 1.21           | 2.16           | 0.55           | -1.32          | 0.29           | CO 6  |                         |
|  | Max V <sub>y</sub> | -4.54    | 1.21           | 2.16               | 0.55           | -1.32          | 0.29           | CO 6           |                |       |                         |
|  | Min V <sub>y</sub> | -1.14    | -0.00          | 0.06               | 0.01           | -0.08          | 0.02           | CO 5           |                |       |                         |
|  | Max V <sub>z</sub> | -4.54    | 1.21           | 2.16               | 0.55           | -1.32          | 0.29           | CO 6           |                |       |                         |
|  | Min V <sub>z</sub> | -1.14    | -0.00          | 0.06               | 0.01           | -0.08          | 0.02           | CO 5           |                |       |                         |
|  | Max M <sub>T</sub> | -4.54    | 1.21           | 2.16               | 0.55           | -1.32          | 0.29           | CO 6           |                |       |                         |
|  | Min M <sub>T</sub> | -1.14    | -0.00          | 0.06               | 0.01           | -0.08          | 0.02           | CO 5           |                |       |                         |
|  | Max M <sub>y</sub> | -1.14    | -0.00          | 0.06               | 0.01           | -0.08          | 0.02           | CO 5           |                |       |                         |
|  | Min M <sub>y</sub> | -4.54    | 1.21           | 2.16               | 0.55           | -1.32          | 0.29           | CO 6           |                |       |                         |
|  | Max M <sub>z</sub> | -4.54    | 1.21           | 2.16               | 0.55           | -1.32          | 0.29           | CO 6           |                |       |                         |
|  | Min M <sub>z</sub> | -1.14    | -0.00          | 0.06               | 0.01           | -0.08          | 0.02           | CO 5           |                |       |                         |
|  | Max N              | -1.09    | -0.00          | 0.06               | 0.01           | -0.06          | 0.02           | CO 5           |                |       |                         |
|  | Min N              | -4.49    | 1.22           | 2.16               | 0.55           | -0.56          | -0.14          | CO 6           |                |       |                         |
|  | Max V <sub>y</sub> | -4.49    | 1.22           | 2.16               | 0.55           | -0.56          | -0.14          | CO 6           |                |       |                         |
|  | Min V <sub>y</sub> | -1.09    | -0.00          | 0.06               | 0.01           | -0.06          | 0.02           | CO 5           |                |       |                         |
|  | Max V <sub>z</sub> | -4.49    | 1.22           | 2.16               | 0.55           | -0.56          | -0.14          | CO 6           |                |       |                         |
|  | Min V <sub>z</sub> | -1.09    | -0.00          | 0.06               | 0.01           | -0.06          | 0.02           | CO 5           |                |       |                         |
|  | Max M <sub>T</sub> | -4.49    | 1.22           | 2.16               | 0.55           | -0.56          | -0.14          | CO 6           |                |       |                         |
|  | Min M <sub>T</sub> | -1.09    | -0.00          | 0.06               | 0.01           | -0.06          | 0.02           | CO 5           |                |       |                         |
|  | Max M <sub>y</sub> | -1.09    | -0.00          | 0.06               | 0.01           | -0.06          | 0.02           | CO 5           |                |       |                         |
|  | Min M <sub>y</sub> | -4.49    | 1.22           | 2.16               | 0.55           | -0.56          | -0.14          | CO 6           |                |       |                         |
|  | Max M <sub>z</sub> | -1.09    | -0.00          | 0.06               | 0.01           | -0.06          | 0.02           | CO 5           |                |       |                         |
|  | Min M <sub>z</sub> | -4.49    | 1.22           | 2.16               | 0.55           | -0.56          | -0.14          | CO 6           |                |       |                         |
|  | Max N              | -1.14    | -0.00          | 0.06               | 0.01           | -0.08          | 0.02           | CO 7           |                |       |                         |
|  | Min N              | -3.18    | 0.73           | 1.32               | 0.33           | -0.82          | 0.18           | CO 8           |                |       |                         |
|  | Max V <sub>y</sub> | -3.18    | 0.73           | 1.32               | 0.33           | -0.82          | 0.18           | CO 8           |                |       |                         |
|  | Min V <sub>y</sub> | -1.14    | -0.00          | 0.06               | 0.01           | -0.08          | 0.02           | CO 7           |                |       |                         |
|  | Max V <sub>z</sub> | -3.18    | 0.73           | 1.32               | 0.33           | -0.82          | 0.18           | CO 8           |                |       |                         |
|  | Min V <sub>z</sub> | -1.14    | -0.00          | 0.06               | 0.01           | -0.08          | 0.02           | CO 7           |                |       |                         |
|  | Max M <sub>T</sub> | -3.18    | 0.73           | 1.32               | 0.33           | -0.82          | 0.18           | CO 8           |                |       |                         |
|  | Min M <sub>T</sub> | -1.14    | -0.00          | 0.06               | 0.01           | -0.08          | 0.02           | CO 7           |                |       |                         |
|  | Max M <sub>y</sub> | -1.14    | -0.00          | 0.06               | 0.01           | -0.08          | 0.02           | CO 7           |                |       |                         |
|  | Min M <sub>y</sub> | -3.18    | 0.73           | 1.32               | 0.33           | -0.82          | 0.18           | CO 8           |                |       |                         |
|  | Max M <sub>z</sub> | -3.18    | 0.73           | 1.32               | 0.33           | -0.82          | 0.18           | CO 8           |                |       |                         |
|  | Min M <sub>z</sub> | -1.14    | -0.00          | 0.06               | 0.01           | -0.08          | 0.02           | CO 7           |                |       |                         |
|  | Max N              | -1.09    | -0.00          | 0.06               | 0.01           | -0.06          | 0.02           | CO 7           |                |       |                         |
|  | Min N              | -3.14    | 0.73           | 1.32               | 0.33           | -0.36          | -0.07          | CO 8           |                |       |                         |
|  | Max V <sub>y</sub> | -3.14    | 0.73           | 1.32               | 0.33           | -0.36          | -0.07          | CO 8           |                |       |                         |
|  | Min V <sub>y</sub> | -1.09    | -0.00          | 0.06               | 0.01           | -0.06          | 0.02           | CO 7           |                |       |                         |
|  | Max V <sub>z</sub> | -3.14    | 0.73           | 1.32               | 0.33           | -0.36          | -0.07          | CO 8           |                |       |                         |
|  | Min V <sub>z</sub> | -1.09    | -0.00          | 0.06               | 0.01           | -0.06          | 0.02           | CO 7           |                |       |                         |
|  | Max M <sub>T</sub> | -3.14    | 0.73           | 1.32               | 0.33           | -0.36          | -0.07          | CO 8           |                |       |                         |
|  | Min M <sub>T</sub> | -1.09    | -0.00          | 0.06               | 0.01           | -0.06          | 0.02           | CO 7           |                |       |                         |
|  | Max M <sub>y</sub> | -1.09    | -0.00          | 0.06               | 0.01           | -0.06          | 0.02           | CO 7           |                |       |                         |
|  | Min M <sub>y</sub> | -3.14    | 0.73           | 1.32               | 0.33           | -0.36          | -0.07          | CO 8           |                |       |                         |
|  | Max M <sub>z</sub> | -1.09    | -0.00          | 0.06               | 0.01           | -0.06          | 0.02           | CO 7           |                |       |                         |
|  | Min M <sub>z</sub> | -3.14    | 0.73           | 1.32               | 0.33           | -0.36          | -0.07          | CO 8           |                |       |                         |
| DLC1, Result Envelope X 100% / Y 30% / Z 30% |                    |          |                |                    |                |                |                |                |                |       |                         |
| RC5  | 24                 | 0.000    | 0.000          | Max N              | 1.48           | -0.32          | -0.76          | -0.18          | 0.43           | -0.08 |                         |
|  |                    |          |                | Min N              | -1.48          | 0.32           | 0.76           | 0.18           | -0.43          | 0.08  |                         |
|  |                    |          |                | Max V <sub>y</sub> | -0.81          | 0.95           | 0.54           | 0.10           | -0.32          | 0.18  |                         |
|  |                    |          |                | Min V <sub>y</sub> | 0.81           | -0.95          | -0.54          | -0.10          | 0.32           | -0.18 |                         |
|  |                    |          |                | Max V <sub>z</sub> | -1.36          | 0.43           | 0.80           | 0.18           | -0.45          | 0.10  |                         |
|  |                    |          |                | Min V <sub>z</sub> | 1.36           | -0.43          | -0.80          | -0.18          | 0.45           | -0.10 |                         |
|  |                    |          |                | Max M <sub>T</sub> | -1.43          | 0.26           | 0.78           | 0.19           | -0.44          | 0.07  |                         |
|  |                    |          |                | Min M <sub>T</sub> | 1.43           | -0.26          | -0.78          | -0.19          | 0.44           | -0.07 |                         |
|  |                    |          |                | Max M <sub>y</sub> | 1.30           | -0.55          | -0.79          | -0.18          | 0.45           | -0.12 |                         |
|  |                    |          |                | Min M <sub>y</sub> | -1.30          | 0.55           | 0.79           | 0.18           | -0.45          | 0.12  |                         |
|  |                    |          |                | Max M <sub>z</sub> | -0.92          | 0.94           | 0.60           | 0.12           | -0.35          | 0.18  |                         |
|  |                    |          |                | Min M <sub>z</sub> | 0.92           | -0.94          | -0.60          | -0.12          | 0.35           | -0.18 |                         |

## RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] | Forces [kN]                                  |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |
|------------|-----|----------|----------------|--|----------------|----------------|----------------|----------------|----------------|-------------------------|
|            |     |          |                | N  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |
| 47         | RC5 | 16       | 0.350          | Max N  | 1.48           | -0.32          | -0.76          | -0.18          | 0.16           | 0.03                    |
|            |     |          |                | Min N  | -1.48          | 0.32           | 0.76           | 0.18           | -0.16          | -0.03                   |
|            |     |          |                | Max V <sub>y</sub>                           | -0.81          | 0.95           | 0.54           | 0.10           | -0.13          | -0.15                   |
|            |     |          |                | Min V <sub>y</sub>                           | 0.81           | -0.95          | -0.54          | -0.10          | 0.13           | 0.15                    |
|            |     |          |                | Max V <sub>z</sub>                           | -1.36          | 0.43           | 0.80           | 0.18           | -0.17          | -0.05                   |
|            |     |          |                | Min V <sub>z</sub>                           | 1.36           | -0.43          | -0.80          | -0.18          | 0.17           | 0.05                    |
|            |     |          |                | Max M <sub>T</sub>                           | -1.43          | 0.26           | 0.78           | 0.19           | -0.17          | -0.02                   |
|            |     |          |                | Min M <sub>T</sub>                           | 1.43           | -0.26          | -0.78          | -0.19          | 0.17           | 0.02                    |
|            |     |          |                | Max M <sub>y</sub>                           | 1.21           | -0.66          | -0.78          | -0.17          | 0.18           | 0.10                    |
|            |     |          |                | Min M <sub>y</sub>                           | -1.21          | 0.66           | 0.78           | 0.17           | -0.18          | -0.10                   |
|            |     |          |                | Max M <sub>z</sub>                           | 0.66           | -0.94          | -0.45          | -0.08          | 0.11           | 0.16                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.66          | 0.94           | 0.45           | 0.08           | -0.11          | -0.16                   |
|            |     | 24       | 0.000          | DLC1, Result Envelope X 30% / Y 100% / Z 30% |                |                |                |                |                |                         |
|            |     |          |                | Max N  | 1.36           | 0.13           | -0.56          | -0.14          | 0.31           | -0.00                   |
|            |     |          |                | Min N  | -1.36          | -0.13          | 0.56           | 0.14           | -0.31          | 0.00                    |
|            |     |          |                | Max V <sub>y</sub>                           | -0.39          | 1.32           | 0.40           | 0.07           | -0.25          | 0.23                    |
|            |     |          |                | Min V <sub>y</sub>                           | 0.39           | -1.32          | -0.40          | -0.07          | 0.25           | -0.23                   |
|            |     |          |                | Max V <sub>z</sub>                           | -1.13          | 0.20           | 0.61           | 0.14           | -0.34          | 0.06                    |
|            |     |          |                | Min V <sub>z</sub>                           | 1.13           | -0.20          | -0.61          | -0.14          | 0.34           | -0.06                   |
|            |     |          |                | Max M <sub>T</sub>                           | -1.30          | -0.22          | 0.58           | 0.15           | -0.32          | -0.01                   |
|            |     |          |                | Min M <sub>T</sub>                           | 1.30           | 0.22           | -0.58          | -0.15          | 0.32           | 0.01                    |
|            |     |          |                | Max M <sub>y</sub>                           | 0.94           | -0.56          | -0.60          | -0.13          | 0.34           | -0.11                   |
|            |     |          |                | Min M <sub>y</sub>                           | -0.94          | 0.56           | 0.60           | 0.13           | -0.34          | 0.11                    |
|            |     |          |                | Max M <sub>z</sub>                           | -0.47          | 1.32           | 0.44           | 0.08           | -0.27          | 0.23                    |
|            |     |          |                | Min M <sub>z</sub>                           | 0.47           | -1.32          | -0.44          | -0.08          | 0.27           | -0.23                   |
|            | 16  | 0.350    |                | Max N  | 1.36           | 0.13           | -0.56          | -0.14          | 0.11           | -0.05                   |
|            |     |          |                | Min N  | -1.36          | -0.13          | 0.56           | 0.14           | -0.11          | 0.05                    |
|            |     |          |                | Max V <sub>y</sub>                           | -0.39          | 1.32           | 0.40           | 0.07           | -0.10          | -0.23                   |
|            |     |          |                | Min V <sub>y</sub>                           | 0.39           | -1.32          | -0.40          | -0.07          | 0.10           | 0.23                    |
|            |     |          |                | Max V <sub>z</sub>                           | -1.13          | 0.20           | 0.61           | 0.14           | -0.13          | -0.02                   |
|            |     |          |                | Min V <sub>z</sub>                           | 1.13           | -0.20          | -0.61          | -0.14          | 0.13           | 0.02                    |
|            |     |          |                | Max M <sub>T</sub>                           | -1.30          | -0.22          | 0.58           | 0.15           | -0.12          | 0.06                    |
|            |     |          |                | Min M <sub>T</sub>                           | 1.30           | 0.22           | -0.58          | -0.15          | 0.12           | -0.06                   |
|            |     |          |                | Max M <sub>y</sub>                           | 0.70           | -0.91          | -0.58          | -0.12          | 0.14           | 0.15                    |
|            |     |          |                | Min M <sub>y</sub>                           | -0.70          | 0.91           | 0.58           | 0.12           | -0.14          | -0.15                   |
|            |     |          |                | Max M <sub>z</sub>                           | 0.28           | -1.32          | -0.34          | -0.05          | 0.09           | 0.23                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.28          | 1.32           | 0.34           | 0.05           | -0.09          | -0.23                   |
|            | 24  | 0.000    |                | DLC1, Result Envelope X 30% / Y 30% / Z 100% |                |                |                |                |                |                         |
|            |     |          |                | Max N  | 2.91           | -0.77          | -1.61          | -0.37          | 0.91           | -0.18                   |
|            |     |          |                | Min N  | -2.91          | 0.77           | 1.61           | 0.37           | -0.91          | 0.18                    |
|            |     |          |                | Max V <sub>y</sub>                           | -1.69          | 1.69           | 1.23           | 0.23           | -0.73          | 0.33                    |
|            |     |          |                | Min V <sub>y</sub>                           | 1.69           | -1.69          | -1.23          | -0.23          | 0.73           | -0.33                   |
|            |     |          |                | Max V <sub>z</sub>                           | -2.76          | 1.03           | 1.66           | 0.37           | -0.95          | 0.23                    |
|            |     |          |                | Min V <sub>z</sub>                           | 2.76           | -1.03          | -1.66          | -0.37          | 0.95           | -0.23                   |
|            |     |          |                | Max M <sub>T</sub>                           | -2.86          | 0.73           | 1.62           | 0.38           | -0.92          | 0.18                    |
|            |     |          |                | Min M <sub>T</sub>                           | 2.86           | -0.73          | -1.62          | -0.38          | 0.92           | -0.18                   |
|            |     |          |                | Max M <sub>y</sub>                           | 2.69           | -1.16          | -1.66          | -0.37          | 0.95           | -0.25                   |
|            |     |          |                | Min M <sub>y</sub>                           | -2.69          | 1.16           | 1.66           | 0.37           | -0.95          | 0.25                    |
|            |     |          |                | Max M <sub>z</sub>                           | -1.90          | 1.68           | 1.34           | 0.26           | -0.79          | 0.33                    |
| 48         | RC1 | 16       | 0.350          | Min M <sub>z</sub>                           | 1.90           | -1.68          | -1.34          | -0.26          | 0.79           | -0.33                   |
|            |     |          |                | Max N  | 2.91           | -0.77          | -1.61          | -0.37          | 0.35           | 0.09                    |
|            |     |          |                | Min N  | -2.91          | 0.77           | 1.61           | 0.37           | -0.35          | -0.09                   |
|            |     |          |                | Max V <sub>y</sub>                           | -1.69          | 1.69           | 1.23           | 0.23           | -0.30          | -0.26                   |
|            |     |          |                | Min V <sub>y</sub>                           | 1.69           | -1.69          | -1.23          | -0.23          | 0.30           | 0.26                    |
|            |     |          |                | Max V <sub>z</sub>                           | -2.76          | 1.03           | 1.66           | 0.37           | -0.37          | -0.13                   |
|            |     |          |                | Min V <sub>z</sub>                           | 2.76           | -1.03          | -1.66          | -0.37          | 0.37           | 0.13                    |
|            |     |          |                | Max M <sub>T</sub>                           | -2.86          | 0.73           | 1.62           | 0.38           | -0.35          | -0.08                   |
|            |     |          |                | Min M <sub>T</sub>                           | 2.86           | -0.73          | -1.62          | -0.38          | 0.35           | 0.08                    |
|            |     |          |                | Max M <sub>y</sub>                           | 2.58           | -1.30          | -1.65          | -0.36          | 0.37           | 0.18                    |
|            |     |          |                | Min M <sub>y</sub>                           | -2.58          | 1.30           | 1.65           | 0.36           | -0.37          | -0.18                   |
|            |     |          |                | Max M <sub>z</sub>                           | 1.38           | -1.68          | -1.07          | -0.19          | 0.26           | 0.27                    |
|            |     |          |                | Min M <sub>z</sub>                           | -1.38          | 1.68           | 1.07           | 0.19           | -0.26          | -0.27                   |
|            |     | 8        | 0.950          | Max N  | -0.49          | -0.04          | 0.03           | -0.00          | -0.00          | CO 1                    |
|            |     |          |                | Min N  | 1.44           | 0.17           | 2.43           | 0.09           | -0.79          | 0.11                    |
|            |     |          |                | Max V <sub>y</sub>                           | -1.44          | 0.17           | 2.43           | 0.09           | -0.79          | 0.11                    |
|            |     |          |                | Min V <sub>y</sub>                           | 0.49           | -0.04          | 0.03           | -0.00          | -0.00          | CO 1                    |
|            |     |          |                | Max V <sub>z</sub>                           | -1.44          | 0.17           | 2.43           | 0.09           | -0.79          | 0.11                    |
|            |     |          |                | Min V <sub>z</sub>                           | 0.49           | -0.04          | 0.03           | -0.00          | -0.00          | CO 1                    |
|            |     |          |                | Max M <sub>T</sub>                           | -1.44          | 0.17           | 2.43           | 0.09           | -0.79          | 0.11                    |
|            |     |          |                | Min M <sub>T</sub>                           | 0.49           | -0.04          | 0.03           | -0.00          | -0.00          | CO 1                    |
|            |     |          |                | Max M <sub>y</sub>                           | -0.49          | -0.04          | 0.03           | -0.00          | -0.00          | CO 1                    |
|            |     |          |                | Min M <sub>y</sub>                           | 1.44           | 0.17           | 2.43           | 0.09           | -0.79          | 0.11                    |
|            |     |          |                | Max M <sub>z</sub>                           | -1.44          | 0.17           | 2.43           | 0.09           | -0.79          | 0.11                    |
|            |     |          |                | Min M <sub>z</sub>                           | 0.49           | -0.04          | 0.03           | -0.00          | -0.00          | CO 1                    |
|            | 22  | 0.000    |                | Max N  | -0.34          | -0.04          | 0.03           | -0.00          | 0.02           | CO 1                    |
|            |     |          |                | Min N  | 1.30           | 0.17           | 2.43           | 0.09           | 1.52           | -0.05                   |
|            |     |          |                | Max V <sub>y</sub>                           | -1.30          | 0.17           | 2.43           | 0.09           | 1.52           | -0.05                   |
|            |     |          |                | Min V <sub>y</sub>                           | 0.34           | -0.04          | 0.03           | -0.00          | 0.02           | CO 1                    |
|            |     |          |                | Max V <sub>z</sub>                           | -1.30          | 0.17           | 2.43           | 0.09           | 1.52           | -0.05                   |
|            |     |          |                | Min V <sub>z</sub>                           | 0.34           | -0.04          | 0.03           | -0.00          | 0.02           | CO 1                    |
|            |     |          |                | Max M <sub>T</sub>                           | -1.30          | 0.17           | 2.43           | 0.09           | 1.52           | -0.05                   |
|            |     |          |                | Min M <sub>T</sub>                           | 0.34           | -0.04          | 0.03           | -0.00          | 0.02           | CO 1                    |
|            |     |          |                | Max M <sub>y</sub>                           | -1.30          | 0.17           | 2.43           | 0.09           | 1.52           | -0.05                   |
|            |     |          |                | Min M <sub>y</sub>                           | 0.34           | -0.04          | 0.03           | -0.00          | 0.02           | CO 1                    |
|            |     |          |                | Max M <sub>z</sub>                           | -0.34          | -0.04          | 0.03           | -0.00          | 0.02           | CO 1                    |
|            |     |          |                | Min M <sub>z</sub>                           | 1.30           | 0.17           | 2.43           | 0.09           | 1.52           | -0.05                   |
|            | RC2 | 22       | 0.000          | Max N  | -0.36          | -0.03          | 0.02           | -0.00          | -0.00          | CO 3                    |

RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m]     | Forces [kN]        |                |                |                |                |                | Moments [kNm] |       |       | Correspondin Load Cases |       |       |       |      |      |
|------------|--|----------|--------------------|--------------------|----------------|----------------|----------------|----------------|----------------|---------------|-------|-------|-------------------------|-------|-------|-------|------|------|
|            |  |          |                    | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |               |       |       |                         |       |       |       |      |      |
| 48         | RC2  |          |                    | Min N              | ▷              | -1.00          |                | 0.11           |                | 1.62          |       | 0.06  |                         | -0.53 |       | 0.07  | CO 4 |      |
|            |  |          |                    | Max V <sub>y</sub> | ▷              | -1.00          |                | 0.11           |                | 1.62          |       | 0.06  |                         | -0.53 |       | 0.07  | CO 4 |      |
|            |  |          |                    | Min V <sub>y</sub> | ▷              | -0.36          |                | -0.03          |                | 0.02          |       | -0.00 |                         | -0.00 |       | -0.00 |      | CO 3 |
|            |  |          |                    | Max V <sub>z</sub> |                | -1.00          |                | 0.11           | ▷              | 1.62          |       | 0.06  |                         | -0.53 |       | 0.07  | CO 4 |      |
|            |  |          |                    | Min V <sub>z</sub> |                | -0.36          |                | -0.03          | ▷              | 0.02          |       | -0.00 |                         | -0.00 |       | -0.00 |      | CO 3 |
|            |  |          |                    | Max M <sub>T</sub> |                | -1.00          |                | 0.11           |                | 1.62          | ▷     | 0.06  |                         | -0.53 |       | 0.07  | CO 4 |      |
|            |  |          |                    | Min M <sub>T</sub> |                | -0.36          |                | -0.03          |                | 0.02          | ▷     | -0.00 |                         | -0.00 |       | -0.00 |      | CO 3 |
|            |  |          |                    | Max M <sub>y</sub> |                | -0.36          |                | -0.03          |                | 0.02          |       | -0.00 | ▷                       | -0.00 |       | -0.00 |      | CO 3 |
|            |  |          |                    | Min M <sub>y</sub> |                | -1.00          |                | 0.11           |                | 1.62          |       | 0.06  |                         | -0.53 |       | 0.07  | CO 4 |      |
|            |  |          |                    | Max M <sub>z</sub> |                | -1.00          |                | 0.11           |                | 1.62          |       | 0.06  |                         | -0.53 | ▷     | 0.07  | CO 4 |      |
|            |  |          |                    | Min M <sub>z</sub> |                | -0.36          |                | -0.03          |                | 0.02          |       | -0.00 |                         | -0.00 | ▷     | -0.00 |      | CO 3 |
|            |  |          |                    | Max N              | ▷              | -0.25          |                | -0.03          |                | 0.02          |       | -0.00 |                         | 0.02  |       | 0.03  |      | CO 3 |
|            |  |          |                    | Min N              | ▷              | -0.89          |                | 0.11           |                | 1.62          |       | 0.06  |                         | 1.01  |       | -0.03 |      | CO 4 |
|            |  |          |                    | Max V <sub>y</sub> | ▷              | -0.89          |                | 0.11           |                | 1.62          |       | 0.06  |                         | 1.01  |       | -0.03 |      | CO 4 |
|            |  |          |                    | Min V <sub>y</sub> | ▷              | -0.25          |                | -0.03          |                | 0.02          |       | -0.00 |                         | 0.02  |       | 0.03  |      | CO 3 |
|            |  |          |                    | Max V <sub>z</sub> |                | -0.89          |                | 0.11           | ▷              | 1.62          |       | 0.06  |                         | 1.01  |       | -0.03 |      | CO 4 |
|            |  |          |                    | Min V <sub>z</sub> |                | -0.25          |                | -0.03          | ▷              | 0.02          |       | -0.00 |                         | 0.02  |       | 0.03  |      | CO 3 |
|            |  |          |                    | Max M <sub>T</sub> |                | -0.89          |                | 0.11           |                | 1.62          |       | 0.06  |                         | 1.01  |       | -0.03 |      | CO 4 |
|            |  |          |                    | Min M <sub>T</sub> |                | -0.25          |                | -0.03          |                | 0.02          | ▷     | -0.00 |                         | 0.02  |       | 0.03  |      | CO 3 |
|            |  |          |                    | Max M <sub>y</sub> |                | -0.89          |                | 0.11           |                | 1.62          |       | 0.06  | ▷                       | 1.01  |       | -0.03 |      | CO 4 |
|            |  |          |                    | Min M <sub>y</sub> |                | -0.25          |                | -0.03          |                | 0.02          |       | -0.00 | ▷                       | 0.02  |       | 0.03  |      | CO 3 |
|            |  |          |                    | Max M <sub>z</sub> |                | -0.25          |                | -0.03          |                | 0.02          |       | -0.00 |                         | 0.02  |       | 0.03  |      | CO 3 |
|            |  |          |                    | Min M <sub>z</sub> |                | -0.89          |                | 0.11           |                | 1.62          |       | 0.06  |                         | 1.01  | ▷     | -0.03 |      | CO 4 |
|            | RC3  | 22       | 0.000              | Max N              | ▷              | -0.36          |                | -0.03          |                | 0.02          |       | -0.00 |                         | -0.00 |       | -0.00 | CO 5 |      |
|            |  |          |                    | Min N              | ▷              | -0.69          |                | 0.04           |                | 0.82          |       | 0.03  |                         | -0.26 |       | 0.03  | CO 6 |      |
|            |  |          |                    | Max V <sub>y</sub> | ▷              | -0.69          |                | 0.04           |                | 0.82          |       | 0.03  |                         | -0.26 |       | 0.03  | CO 6 |      |
|            |  |          |                    | Min V <sub>y</sub> |                | -0.36          |                | -0.03          |                | 0.02          |       | -0.00 |                         | -0.00 |       | -0.00 |      | CO 5 |
|            |  |          |                    | Max V <sub>z</sub> |                | -0.69          |                | 0.04           | ▷              | 0.82          |       | 0.03  |                         | -0.26 |       | 0.03  | CO 6 |      |
|            |  |          |                    | Min V <sub>z</sub> |                | -0.36          |                | -0.03          | ▷              | 0.02          |       | -0.00 |                         | -0.00 |       | -0.00 |      | CO 5 |
|            |  |          |                    | Max M <sub>T</sub> |                | -0.69          |                | 0.04           |                | 0.82          | ▷     | 0.03  |                         | -0.26 |       | 0.03  | CO 6 |      |
|            |  |          |                    | Min M <sub>T</sub> |                | -0.36          |                | -0.03          |                | 0.02          | ▷     | -0.00 |                         | -0.00 |       | -0.00 |      | CO 5 |
|            |  |          |                    | Max M <sub>y</sub> |                | -0.36          |                | -0.03          |                | 0.02          |       | -0.00 |                         | -0.00 |       | -0.00 |      | CO 5 |
|            |  |          |                    | Min M <sub>y</sub> |                | -0.69          |                | 0.04           |                | 0.82          |       | 0.03  | ▷                       | -0.26 |       | 0.03  | CO 6 |      |
|            |  |          |                    | Max M <sub>z</sub> |                | -0.69          |                | 0.04           |                | 0.82          |       | 0.03  |                         | -0.26 | ▷     | 0.03  | CO 6 |      |
|            |  |          |                    | Min M <sub>z</sub> |                | -0.36          |                | -0.03          |                | 0.02          |       | -0.00 |                         | -0.00 | ▷     | -0.00 |      | CO 5 |
|            |  |          |                    | Max N              | ▷              | -0.25          |                | -0.03          |                | 0.02          |       | -0.00 |                         | 0.02  |       | 0.03  |      | CO 5 |
|            |  |          |                    | Min N              | ▷              | -0.57          |                | 0.04           |                | 0.82          |       | 0.03  |                         | 0.52  |       | -0.00 |      | CO 6 |
|            |  |          |                    | Max V <sub>y</sub> | ▷              | -0.57          |                | 0.04           |                | 0.82          |       | 0.03  |                         | 0.52  |       | -0.00 |      | CO 6 |
|            |  |          |                    | Min V <sub>y</sub> | ▷              | -0.25          |                | -0.03          |                | 0.02          |       | -0.00 |                         | 0.02  |       | 0.03  |      | CO 5 |
|            |  |          |                    | Max V <sub>z</sub> |                | -0.57          |                | 0.04           | ▷              | 0.82          |       | 0.03  |                         | 0.52  |       | -0.00 |      | CO 6 |
|            |  |          |                    | Min V <sub>z</sub> |                | -0.25          |                | -0.03          | ▷              | 0.02          |       | -0.00 |                         | 0.02  |       | 0.03  |      | CO 5 |
|            |  |          |                    | Max M <sub>T</sub> |                | -0.57          |                | 0.04           |                | 0.82          | ▷     | 0.03  |                         | 0.52  |       | -0.00 |      | CO 6 |
|            |  |          |                    | Min M <sub>T</sub> |                | -0.25          |                | -0.03          |                | 0.02          | ▷     | -0.00 |                         | 0.02  |       | 0.03  |      | CO 5 |
|            |  |          |                    | Max M <sub>y</sub> |                | -0.57          |                | 0.04           |                | 0.82          |       | 0.03  | ▷                       | 0.52  |       | -0.00 |      | CO 6 |
|            |  |          |                    | Min M <sub>y</sub> |                | -0.25          |                | -0.03          |                | 0.02          |       | -0.00 | ▷                       | 0.02  |       | 0.03  |      | CO 5 |
|            |  |          |                    | Max M <sub>z</sub> |                | -0.25          |                | -0.03          |                | 0.02          |       | -0.00 |                         | 0.02  | ▷     | 0.03  |      | CO 5 |
|            | Min M <sub>z</sub>                           |          | -0.57              |                    | 0.04           |                | 0.82           |                | 0.03           |               | 0.52  | ▷     | -0.00                   |       | CO 6  |       |      |      |
|            | RC4  | 22       | 0.000              | Max N              | ▷              | -0.36          |                | -0.03          |                | 0.02          |       | -0.00 |                         | -0.00 |       | -0.00 | CO 7 |      |
|            |  |          |                    | Min N              | ▷              | -0.56          |                | 0.01           |                | 0.50          |       | 0.02  |                         | -0.16 |       | 0.02  |      | CO 8 |
|            |  |          |                    | Max V <sub>y</sub> | ▷              | -0.56          |                | 0.01           |                | 0.50          |       | 0.02  |                         | -0.16 |       | 0.02  |      | CO 8 |
|            |  |          |                    | Min V <sub>y</sub> | ▷              | -0.36          |                | -0.03          |                | 0.02          |       | -0.00 |                         | -0.00 |       | -0.00 |      | CO 7 |
|            |  |          |                    | Max V <sub>z</sub> |                | -0.56          |                | 0.01           | ▷              | 0.50          |       | 0.02  |                         | -0.16 |       | 0.02  |      | CO 8 |
|            |  |          |                    | Min V <sub>z</sub> |                | -0.36          |                | -0.03          | ▷              | 0.02          |       | -0.00 |                         | -0.00 |       | -0.00 |      | CO 7 |
|            |  |          |                    | Max M <sub>T</sub> |                | -0.56          |                | 0.01           |                | 0.50          | ▷     | 0.02  |                         | -0.16 |       | 0.02  |      | CO 8 |
|            |  |          |                    | Min M <sub>T</sub> |                | -0.36          |                | -0.03          |                | 0.02          | ▷     | -0.00 |                         | -0.00 |       | -0.00 |      | CO 7 |
|            |  |          |                    | Max M <sub>y</sub> |                | -0.36          |                | -0.03          |                | 0.02          |       | -0.00 | ▷                       | -0.00 |       | -0.00 |      | CO 7 |
|            |  |          |                    | Min M <sub>y</sub> |                | -0.56          |                | 0.01           |                | 0.50          |       | 0.02  | ▷                       | -0.16 |       | 0.02  |      | CO 8 |
|            |  |          |                    | Max M <sub>z</sub> |                | -0.56          |                | 0.01           |                | 0.50          |       | 0.02  |                         | -0.16 | ▷     | 0.02  |      | CO 8 |
|            |  |          |                    | Min M <sub>z</sub> |                | -0.36          |                | -0.03          |                | 0.02          |       | -0.00 |                         | -0.00 | ▷     | -0.00 |      | CO 7 |
|            |  |          |                    | Max N              | ▷              | -0.25          |                | -0.03          |                | 0.02          |       | -0.00 |                         | 0.02  |       | 0.03  |      | CO 7 |
|            |  |          |                    | Min N              | ▷              | -0.45          |                | 0.01           |                | 0.50          |       | 0.02  |                         | 0.32  |       | 0.01  |      | CO 8 |
|            |  |          |                    | Max V <sub>y</sub> | ▷              | -0.45          |                | 0.01           |                | 0.50          |       | 0.02  |                         | 0.32  |       | 0.01  |      | CO 8 |
|            |  |          |                    | Min V <sub>y</sub> | ▷              | -0.25          |                | -0.03          |                | 0.02          |       | -0.00 |                         | 0.02  |       | 0.03  |      | CO 7 |
|            |  |          |                    | Max V <sub>z</sub> |                | -0.45          |                | 0.01           | ▷              | 0.50          |       | 0.02  |                         | 0.32  |       | 0.01  |      | CO 8 |
|            |  |          |                    | Min V <sub>z</sub> |                | -0.25          |                | -0.03          | ▷              | 0.02          |       | -0.00 |                         | 0.02  |       | 0.03  |      | CO 7 |
|            |  |          |                    | Max M <sub>T</sub> |                | -0.45          |                | 0.01           |                | 0.50          | ▷     | 0.02  |                         | 0.32  |       | 0.01  |      | CO 8 |
|            |  |          |                    | Min M <sub>T</sub> |                | -0.25          |                | -0.03          |                | 0.02          | ▷     | -0.00 |                         | 0.02  |       | 0.03  |      | CO 7 |
|            |  |          |                    | Max M <sub>y</sub> |                | -0.45          |                | 0.01           |                | 0.50          |       | 0.02  | ▷                       | 0.32  |       | 0.01  |      | CO 8 |
|            |  |          |                    | Min M <sub>y</sub> |                | -0.25          |                | -0.03          |                | 0.02          |       | -0.00 | ▷                       | 0.02  |       | 0.03  |      | CO 7 |
|            |  |          |                    | Max M <sub>z</sub> |                | -0.25          |                | -0.03          |                | 0.02          |       | -0.00 |                         | 0.02  | ▷     | 0.03  |      | CO 7 |
|            | Min M <sub>z</sub>                           |          | -0.45              |                    | 0.01           |                | 0.50           |                | 0.02           |               | 0.32  | ▷     | 0.01                    |       | CO 8  |       |      |      |
|            | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                    |                    |                |                |                |                |                |               |       |       |                         |       |       |       |      |      |
| RC5        | 22   | 0.000    | Max N              | ▷                  | 0.19           |                | -0.01          |                | -0.10          |               | 0.01  |       | 0.01                    |       | -0.01 |       |      |      |
|            |  |          | Min N              | ▷                  | -0.19          |                | 0.01           |                | 0.10           |               | -0.01 |       | -0.01                   |       | 0.01  |       |      |      |
|            |  |          | Max V <sub>y</sub> | ▷                  | -0.12          |                | 0.02           |                | 0.13           |               | -0.02 |       | -0.02                   |       | 0.01  |       |      |      |
|            |  |          | Min V <sub>y</sub> | ▷                  | 0.12           |                | -0.02          |                | -0.13          |               | 0.02  |       | 0.02                    |       | -0.01 |       |      |      |
|            |  |          | Max V <sub>z</sub> |                    | -0.08          |                | 0.02           | ▷              | 0.14           |               | -0.02 |       | -0.02                   |       | 0.01  |       |      |      |
|            |  |          | Min V <sub>z</sub> |                    | 0.08           |                | -0.02          | ▷              | -0.14          |               | 0.02  |       | 0.02                    |       | -0.01 |       |      |      |
|            |  |          | Max M <sub>T</sub> |                    | 0.04           |                | -0.02          |                | -0.13          | ▷             | 0.02  |       | 0.02                    |       | -0.01 |       |      |      |
|            |  |          | Min M <sub>T</sub> |                    | -0.04          |                | 0.02           |                | 0.13           | ▷             | -0.02 |       | -0.02                   |       | 0.01  |       |      |      |
|            |  |          | Max M <sub>y</sub> |                    | 0.09           |                | -0.02          |                | -0.14          |               | 0.02  | ▷     | 0.02                    |       | -0.01 |       |      |      |
|            |  |          | Min M <sub>y</sub> |                    | -0.09          |                | 0.02           |                | 0.14           |               | -0.02 | ▷     | -0.02                   |       | 0.01  |       |      |      |
|            |  |          | Max M <sub>z</sub> |                    | -0.15          |                | 0.02           |                | 0.13           |               | -0.02 |       | -0.02                   | ▷     | 0.01  |       |      |      |
|            |  |          | Min M <sub>z</sub> |                    | 0.15           |                | -0.02          |                | -0.13          |               | 0.02  |       | 0.02                    | ▷     | -0.01 |       |      |      |
|            |  |          | Max N              | ▷                  | 0.19           |                | -0.01          |                | -0.10          |               | 0.01  |       | -0.08                   |       | 0.00  |       |      |      |
|            |  |          | Min N              | ▷                  | -0.19          |                | 0.01           |                | 0.10           |               | -0.01 |       | 0.08                    |       | -0.00 |       |      |      |
|            |  |          | Max V <sub>y</sub> | ▷                  | -0.12          |                | 0.02           |                | 0.13           |               | -0.02 |       | 0.11                    |       | -0.01 |       |      |      |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.                                 | RC                 | Node No. | Location x [m]                               | Forces [kN]                                  |                |                    |                    |                | Moments [kNm]  |       |       | Correspondin Load Cases |       |       |      |
|--|--------------------|----------|--|--|----------------|--------------------|--------------------|----------------|----------------|-------|-------|-------------------------|-------|-------|------|
|  |                    |          |  | N  | V <sub>y</sub> | V <sub>z</sub>     | M <sub>T</sub>     | M <sub>y</sub> | M <sub>z</sub> |       |       |                         |       |       |      |
| 48   | RC5                |          |  | Min V <sub>y</sub>                           | 0.12           | ▷                  | -0.02              | -0.13          | 0.02           | -0.11 | 0.01  |                         |       |       |      |
|  |                    |          |  | Max V <sub>z</sub>                           | -0.08          |                    | 0.02               | ▷              | 0.14           | -0.02 | 0.11  | -0.01                   |       |       |      |
|  |                    |          |  | Min V <sub>z</sub>                           | 0.08           |                    | -0.02              | ▷              | -0.14          | 0.02  | -0.11 | 0.01                    |       |       |      |
|  |                    |          |  | Max M <sub>T</sub>                           | 0.04           |                    | -0.02              |                | -0.13          | ▷     | 0.02  | -0.11                   | 0.01  |       |      |
|  |                    |          |  | Min M <sub>T</sub>                           | -0.04          |                    | 0.02               |                | 0.13           | ▷     | -0.02 | 0.11                    | -0.01 |       |      |
|  |                    |          |  | Max M <sub>y</sub>                           | -0.08          |                    | 0.02               |                | 0.14           | ▷     | -0.02 | 0.11                    | -0.01 |       |      |
|  |                    |          |  | Min M <sub>y</sub>                           | 0.08           |                    | -0.02              |                | -0.14          | ▷     | 0.02  | -0.11                   | 0.01  |       |      |
|  |                    |          |  | Max M <sub>z</sub>                           | 0.04           |                    | -0.02              |                | -0.14          | ▷     | 0.02  | -0.11                   | 0.01  |       |      |
|  |                    |          |  | Min M <sub>z</sub>                           | -0.04          |                    | 0.02               |                | 0.14           | ▷     | -0.02 | 0.11                    | -0.01 |       |      |
|  |                    |          |  | DLC1, Result Envelope X 30% / Y 100% / Z 30% |                |                    |                    |                |                |       |       |                         |       |       |      |
|  |                    |          |  | RC6  | 22             | 0.000              | Max N              | ▷              | 0.27           | -0.01 | -0.07 | 0.01                    | 0.01  | -0.01 |      |
|  |                    |          |  |  |                |                    | Min N              | ▷              | -0.27          | 0.01  | 0.07  | -0.01                   | -0.01 | 0.01  |      |
|  |                    |          |  |  |                |                    | Max V <sub>y</sub> | ▷              | -0.12          | 0.02  | 0.10  | -0.01                   | -0.01 | 0.01  |      |
|  |                    |          |  |  |                |                    | Min V <sub>y</sub> | ▷              | 0.12           | -0.02 | -0.10 | 0.01                    | 0.01  | -0.01 |      |
|  | Max V <sub>z</sub> |          | -0.01  |  |                |                    | ▷                  | 0.11           | -0.02          | -0.01 | 0.01  |                         |       |       |      |
|  | Min V <sub>z</sub> |          | 0.01   |  |                |                    | ▷                  | -0.11          | 0.02           | 0.01  | -0.01 |                         |       |       |      |
|  | Max M <sub>T</sub> |          | -0.07  |  |                |                    | -0.01              | -0.10          | 0.02           | 0.01  | -0.00 |                         |       |       |      |
|  | Min M <sub>T</sub> |          | 0.07   |  |                |                    | 0.01               | 0.10           | -0.02          | -0.01 | 0.00  |                         |       |       |      |
|  | Max M <sub>y</sub> |          | 0.05   |  |                |                    | -0.02              | -0.10          | 0.02           | ▷     | 0.01  | -0.01                   |       |       |      |
|  | Min M <sub>y</sub> |          | -0.05  |  |                |                    | 0.02               | 0.10           | -0.02          | ▷     | -0.01 | 0.01                    |       |       |      |
|  | Max M <sub>z</sub> |          | -0.21  |  |                |                    | 0.02               | 0.09           | -0.01          | -0.01 | ▷     | 0.01                    |       |       |      |
|  | Min M <sub>z</sub> |          | 0.21   |  |                |                    | -0.02              | -0.09          | 0.01           | 0.01  | ▷     | -0.01                   |       |       |      |
|  | 8                  | 0.950    | Max N  |  |                |                    | ▷                  | 0.27           | -0.01          | -0.07 | 0.01  | -0.05                   | 0.00  |       |      |
|  |                    |          | Min N  |  |                |                    | ▷                  | -0.27          | 0.01           | 0.07  | -0.01 | 0.05                    | -0.00 |       |      |
|  |                    |          | Max V <sub>y</sub>                           | ▷  | -0.12          | 0.02               | 0.10               | -0.01          | 0.08           | -0.01 |       |                         |       |       |      |
|  |                    |          | Min V <sub>y</sub>                           | ▷  | 0.12           | -0.02              | -0.10              | 0.01           | -0.08          | 0.01  |       |                         |       |       |      |
|  |                    |          | Max V <sub>z</sub>                           |  | -0.01          | 0.01               | 0.11               | -0.02          | 0.09           | -0.01 |       |                         |       |       |      |
|  |                    |          | Min V <sub>z</sub>                           |  | 0.01           | -0.01              | -0.11              | 0.02           | -0.09          | 0.01  |       |                         |       |       |      |
|  |                    |          | Max M <sub>T</sub>                           |  | -0.07          | -0.01              | -0.10              | 0.02           | -0.08          | 0.01  |       |                         |       |       |      |
|  |                    |          | Min M <sub>T</sub>                           |  | 0.07           | 0.01               | 0.10               | -0.02          | 0.08           | -0.01 |       |                         |       |       |      |
|  |                    |          | Max M <sub>y</sub>                           |  | -0.01          | 0.01               | 0.11               | -0.02          | ▷              | 0.09  | -0.01 |                         |       |       |      |
|  |                    |          | Min M <sub>y</sub>                           |  | 0.01           | -0.01              | -0.11              | 0.02           | ▷              | -0.09 | 0.01  |                         |       |       |      |
|  |                    |          | Max M <sub>z</sub>                           |  | -0.09          | -0.01              | -0.10              | 0.02           | -0.08          | ▷     | 0.01  |                         |       |       |      |
|  |                    |          | Min M <sub>z</sub>                           |  | 0.09           | 0.01               | 0.10               | -0.02          | 0.08           | ▷     | -0.01 |                         |       |       |      |
|  |                    |          | DLC1, Result Envelope X 30% / Y 30% / Z 100% |  |                |                    |                    |                |                |       |       |                         |       |       |      |
|  |                    |          | RC7  | 22   | 0.000          | Max N              | ▷                  | 0.33           | -0.03          | -0.20 | 0.02  | 0.03                    | -0.02 |       |      |
|  | Min N              | ▷        |  |  |                | -0.33              | 0.03               | 0.20           | -0.02          | -0.03 | 0.02  |                         |       |       |      |
|  | Max V <sub>y</sub> | ▷        |  |  |                | -0.23              | 0.04               | 0.29           | -0.04          | -0.04 | 0.02  |                         |       |       |      |
|  | Min V <sub>y</sub> | ▷        |  |  |                | 0.23               | -0.04              | -0.29          | 0.04           | 0.04  | -0.02 |                         |       |       |      |
|  | Max V <sub>z</sub> |          |  |  |                | -0.18              | 0.04               | 0.29           | -0.04          | -0.04 | 0.02  |                         |       |       |      |
|  | Min V <sub>z</sub> |          |  |  |                | 0.18               | -0.04              | -0.29          | 0.04           | 0.04  | -0.02 |                         |       |       |      |
|  | Max M <sub>T</sub> |          |  |  |                | 0.11               | -0.04              | -0.29          | ▷              | 0.05  | 0.03  | -0.02                   |       |       |      |
|  | Min M <sub>T</sub> |          |  |  |                | -0.11              | 0.04               | 0.29           | ▷              | -0.05 | -0.03 | 0.02                    |       |       |      |
|  | Max M <sub>y</sub> |          |  |  |                | 0.20               | -0.04              | -0.29          | ▷              | 0.04  | 0.04  | -0.02                   |       |       |      |
|  | Min M <sub>y</sub> |          |  |  |                | -0.20              | 0.04               | 0.29           | ▷              | -0.04 | -0.04 | 0.02                    |       |       |      |
|  | Max M <sub>z</sub> |          |  |  |                | -0.28              | 0.04               | 0.28           | -0.04          | -0.04 | ▷     | 0.02                    |       |       |      |
|  | Min M <sub>z</sub> |          |  |  |                | 0.28               | -0.04              | -0.28          | 0.04           | 0.04  | ▷     | -0.02                   |       |       |      |
|  | 8                  | 0.950    |  |  |                | Max N              | ▷                  | 0.33           | -0.03          | -0.20 | 0.02  | -0.16                   | 0.01  |       |      |
|  |                    |          |  |  |                | Min N              | ▷                  | -0.33          | 0.03           | 0.20  | -0.02 | 0.16                    | -0.01 |       |      |
|  |                    |          |  |  |                | Max V <sub>y</sub> | ▷                  | -0.23          | 0.04           | 0.29  | -0.04 | 0.24                    | -0.02 |       |      |
| Min V <sub>y</sub>                         |                    |          |  |  |                | ▷                  | 0.23               | -0.04          | -0.29          | 0.04  | -0.24 | 0.02                    |       |       |      |
| Max V <sub>z</sub>                         |                    |          |  |  |                |                    | -0.18              | 0.04           | 0.29           | -0.04 | 0.24  | -0.02                   |       |       |      |
| Min V <sub>z</sub>                         |                    |          |  |  |                |                    | 0.18               | -0.04          | -0.29          | 0.04  | -0.24 | 0.02                    |       |       |      |
| Max M <sub>T</sub>                         |                    |          |  |  |                |                    | 0.11               | -0.04          | -0.29          | ▷     | 0.05  | -0.24                   | 0.02  |       |      |
| Min M <sub>T</sub>                         |                    |          |  |  |                |                    | -0.11              | 0.04           | 0.29           | ▷     | -0.05 | 0.24                    | -0.02 |       |      |
| Max M <sub>y</sub>                         |                    |          |  |  |                |                    | -0.17              | 0.04           | 0.29           | -0.04 | ▷     | 0.24                    | -0.02 |       |      |
| Min M <sub>y</sub>                         |                    |          |  |  |                |                    | 0.17               | -0.04          | -0.29          | 0.04  | ▷     | -0.24                   | 0.02  |       |      |
| Max M <sub>z</sub>                         |                    |          |  |  |                |                    | 0.12               | -0.04          | -0.29          | 0.04  | -0.24 | ▷                       | 0.02  |       |      |
| Min M <sub>z</sub>                         |                    |          |  |  |                |                    | -0.12              | 0.04           | 0.29           | -0.04 | 0.24  | ▷                       | -0.02 |       |      |
| Section No. 2: QRO 100x4   EN 10219-2:2006 |                    |          |  |  |                |                    |                    |                |                |       |       |                         |       |       |      |
| 5  | RC1                | 1        | 0.000  | Max N  | ▷              | 0.53               | 0.08               | 0.05           | 0.02           | -0.01 | 0.01  | CO 2                    |       |       |      |
|  |                    |          |  | Min N  | ▷              | 0.22               | -0.01              | -0.01          | 0.00           | -0.00 | -0.00 | CO 1                    |       |       |      |
|  |                    |          |  | Max V <sub>y</sub>                           | ▷              | 0.53               | 0.08               | 0.05           | 0.02           | -0.01 | 0.01  | CO 2                    |       |       |      |
|  |                    |          |  | Min V <sub>y</sub>                           | ▷              | 0.22               | -0.01              | -0.01          | 0.00           | -0.00 | -0.00 | CO 1                    |       |       |      |
|  |                    |          |  | Max V <sub>z</sub>                           |                | 0.53               | 0.08               | ▷              | 0.05           | 0.02  | -0.01 | 0.01                    | CO 2  |       |      |
|  |                    |          |  | Min V <sub>z</sub>                           |                | 0.22               | -0.01              | ▷              | -0.01          | 0.00  | -0.00 | -0.00                   | CO 1  |       |      |
|  |                    |          |  | Max M <sub>T</sub>                           |                | 0.53               | 0.08               | ▷              | 0.05           | 0.02  | -0.01 | 0.01                    | CO 2  |       |      |
|  |                    |          |  | Min M <sub>T</sub>                           |                | 0.22               | -0.01              | ▷              | -0.01          | 0.00  | -0.00 | -0.00                   | CO 1  |       |      |
|  |                    |          |  | Max M <sub>y</sub>                           |                | 0.22               | -0.01              | -0.01          | 0.00           | ▷     | -0.00 | -0.00                   | CO 1  |       |      |
|  |                    |          |  | Min M <sub>y</sub>                           |                | 0.53               | 0.08               | 0.05           | 0.02           | ▷     | -0.01 | 0.01                    | CO 2  |       |      |
|  |                    |          |  | Max M <sub>z</sub>                           |                | 0.53               | 0.08               | 0.05           | 0.02           | -0.01 | ▷     | 0.01                    | CO 2  |       |      |
|  |                    |          |  | Min M <sub>z</sub>                           |                | 0.22               | -0.01              | -0.01          | 0.00           | -0.00 | ▷     | -0.00                   | CO 1  |       |      |
|  |                    |          |  | 3  | 1.550          | Max N              | ▷                  | 0.26           | 0.01           | 0.01  | -0.00 | -0.00                   | -0.00 | CO 1  |      |
|  |                    |          |  |  |                | Min N              | ▷                  | -0.65          | -0.11          | 0.11  | -0.02 | 0.01                    | 0.02  | CO 2  |      |
|  |                    |          |  |  |                | Max V <sub>y</sub> | ▷                  | 0.26           | 0.01           | 0.01  | -0.00 | -0.00                   | -0.00 | CO 1  |      |
|  |                    |          |  |  |                | Min V <sub>y</sub> | ▷                  | -0.65          | -0.11          | 0.11  | -0.02 | 0.01                    | 0.02  | CO 2  |      |
|  |                    |          |  |  |                | Max V <sub>z</sub> |                    | -0.65          | -0.11          | ▷     | 0.11  | -0.02                   | 0.01  | 0.02  | CO 2 |
|  |                    |          |  |  |                | Min V <sub>z</sub> |                    | 0.26           | 0.01           | ▷     | 0.01  | -0.00                   | -0.00 | -0.00 | CO 1 |
|  |                    |          |  |  |                | Max M <sub>T</sub> |                    | 0.26           | 0.01           | ▷     | 0.01  | -0.00                   | -0.00 | -0.00 | CO 1 |
|  |                    |          |  |  |                | Min M <sub>T</sub> |                    | -0.65          | -0.11          | ▷     | 0.11  | -0.02                   | 0.01  | 0.02  | CO 2 |
|  |                    |          |  |  |                | Max M <sub>y</sub> |                    | -0.65          | -0.11          | ▷     | 0.11  | -0.02                   | 0.01  | 0.02  | CO 2 |
|  |                    |          |  |  |                | Min M <sub>y</sub> |                    | 0.26           | 0.01           | 0.01  | -0.00 | ▷                       | -0.00 | -0.00 | CO 1 |
|  |                    |          |  |  |                | Max M <sub>z</sub> |                    | -0.65          | -0.11          | 0.11  | -0.02 | 0.01                    | ▷     | 0.02  | CO 2 |
|  |                    |          |  |  |                | Min M <sub>z</sub> |                    | 0.26           | 0.01           | 0.01  | -0.00 | -0.00                   | ▷     | -0.00 | CO 1 |
|  | RC2                | 1        | 0.000  | Max N  | ▷              | 0.37               | 0.06               | 0.03           | 0.01           | -0.01 | 0.01  | CO 4                    |       |       |      |
|  |                    |          |  | Min N  | ▷              | 0.17               | -0.01              | -0.01          | 0.00           | -0.00 | -0.00 | CO 3                    |       |       |      |
|  |                    |          |  | Max V <sub>y</sub>                           | ▷              | 0.37               | 0.06               | 0.03           | 0.01           | -0.01 | 0.01  | CO 4                    |       |       |      |
|  |                    |          |  | Min V <sub>y</sub>                           | ▷              | 0.37               | 0.06               | 0.03           | 0.01           | -0.01 | 0.01  | CO 4                    |       |       |      |
|  |                    |          |  | Max V <sub>z</sub>                           |                | 0.37               | 0.06               | 0.03           | 0.01           | -0.01 | 0.01  | CO 4                    |       |       |      |
|  |                    |          |  | Min V <sub>z</sub>                           |                | 0.37               | 0.06               | 0.03           | 0.01           | -0.01 | 0.01  | CO 4                    |       |       |      |
|  |                    |          |  | Max M <sub>T</sub>                           |                | 0.37               | 0.06               | 0.03           | 0.01           | -0.01 | 0.01  | CO 4                    |       |       |      |
|  |                    |          |  | Min M <sub>T</sub>                           |                | 0.37               | 0.06               | 0.03           | 0.01           | -0.01 | 0.01  | CO 4                    |       |       |      |

RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC   | Node No. | Location x [m] | Forces [kN]        |                |                | Moments [kNm]      |                |                | Correspondin Load Cases |       |       |       |       |
|--------------------|--|----------|----------------|--------------------|----------------|----------------|--------------------|----------------|----------------|-------------------------|-------|-------|-------|-------|
|                    |  |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub>     | M <sub>y</sub> | M <sub>z</sub> |                         |       |       |       |       |
| 5                  | RC2  | 3        | 1.550          | Min V <sub>y</sub> | 0.17           | ▷              | -0.01              | -0.01          | 0.00           | -0.00                   | -0.00 | CO 3  |       |       |
|                    |  |          |                | Max V <sub>z</sub> | 0.37           |                | 0.06               | ▷              | 0.03           | 0.01                    | -0.01 | 0.01  | CO 4  |       |
|                    |  |          |                | Min V <sub>z</sub> | 0.17           |                | -0.01              | ▷              | -0.01          | 0.00                    | -0.00 | -0.00 | CO 3  |       |
|                    |  |          |                | Max M <sub>T</sub> | 0.37           |                | 0.06               |                | 0.03           | ▷                       | 0.01  | -0.01 | 0.01  | CO 4  |
|                    |  |          |                | Min M <sub>T</sub> | 0.17           |                | -0.01              |                | -0.01          | ▷                       | 0.00  | -0.00 | -0.00 | CO 3  |
|                    |  |          |                | Max M <sub>y</sub> | 0.17           |                | -0.01              |                | -0.01          | 0.00                    | ▷     | -0.00 | -0.00 | CO 3  |
|                    |  |          |                | Min M <sub>y</sub> | 0.37           |                | 0.06               |                | 0.03           | 0.01                    | ▷     | -0.01 | 0.01  | CO 4  |
|                    |  |          |                | Max M <sub>z</sub> | 0.37           |                | 0.06               |                | 0.03           | 0.01                    | ▷     | -0.01 | 0.01  | CO 4  |
|                    |  |          |                | Min M <sub>z</sub> | 0.17           |                | -0.01              |                | -0.01          | 0.00                    | ▷     | -0.00 | -0.00 | CO 3  |
|                    |  |          |                | Max N              | 0.20           |                | 0.01               |                | 0.00           | -0.00                   |       | -0.00 | -0.00 | CO 3  |
|                    |  |          |                | Min N              | -0.41          | ▷              | -0.07              |                | 0.07           | -0.01                   |       | 0.01  | 0.01  | CO 4  |
|                    |  |          |                | Max V <sub>y</sub> | 0.20           | ▷              | 0.01               |                | 0.00           | -0.00                   |       | -0.00 | -0.00 | CO 3  |
|                    |  |          |                | Min V <sub>y</sub> | -0.41          | ▷              | -0.07              |                | 0.07           | -0.01                   |       | 0.01  | 0.01  | CO 4  |
|                    |  |          |                | Max V <sub>z</sub> | -0.41          |                | -0.07              | ▷              | 0.07           | -0.01                   |       | 0.01  | 0.01  | CO 4  |
|                    |  |          |                | Min V <sub>z</sub> | 0.20           |                | 0.01               | ▷              | 0.00           | -0.00                   |       | -0.00 | -0.00 | CO 3  |
|                    |  |          |                | Max M <sub>T</sub> | 0.20           |                | 0.01               |                | 0.00           | ▷                       | -0.00 | -0.00 | -0.00 | CO 3  |
|                    |  |          |                | Min M <sub>T</sub> | -0.41          |                | -0.07              |                | 0.07           | -0.01                   |       | 0.01  | 0.01  | CO 4  |
|                    |  |          |                | Max M <sub>y</sub> | -0.41          |                | -0.07              |                | 0.07           | -0.01                   | ▷     | 0.01  | 0.01  | CO 4  |
|                    |  |          |                | Min M <sub>y</sub> | 0.20           |                | 0.01               |                | 0.00           | ▷                       | -0.00 | -0.00 | -0.00 | CO 3  |
|                    |  |          |                | Max M <sub>z</sub> | -0.41          |                | -0.07              |                | 0.07           | -0.01                   |       | 0.01  | 0.01  | CO 4  |
|                    |  |          |                | RC3                | 1              | 0.000          | Min M <sub>z</sub> | 0.20           |                | 0.01                    |       | 0.00  | -0.00 | -0.00 |
|                    | Max N  | 0.26     |                |                    |                |                | 0.02               |                | 0.01           | 0.01                    | -0.01 | 0.00  | 0.00  | CO 6  |
|                    | Min N  | 0.17     |                |                    |                |                | -0.01              |                | -0.01          | 0.00                    | -0.00 | -0.00 | 0.00  | CO 5  |
|                    | Max V <sub>y</sub>                           | 0.26     |                |                    |                |                | 0.02               |                | 0.01           | 0.01                    | -0.01 | 0.00  | 0.00  | CO 6  |
|                    | Min V <sub>y</sub>                           | 0.17     |                |                    |                |                | -0.01              |                | -0.01          | 0.00                    | -0.00 | -0.00 | 0.00  | CO 5  |
|                    | Max V <sub>z</sub>                           | 0.26     |                |                    |                |                | 0.02               |                | 0.01           | 0.01                    | -0.01 | 0.00  | 0.00  | CO 6  |
|                    | Min V <sub>z</sub>                           | 0.17     |                |                    |                |                | -0.01              |                | -0.01          | 0.00                    | -0.00 | -0.00 | 0.00  | CO 5  |
|                    | Max M <sub>T</sub>                           | 0.26     |                |                    |                |                | 0.02               |                | 0.01           | 0.01                    | -0.01 | 0.00  | 0.00  | CO 6  |
|                    | Min M <sub>T</sub>                           | 0.17     |                |                    |                |                | -0.01              |                | -0.01          | 0.00                    | -0.00 | -0.00 | 0.00  | CO 5  |
|                    | Max M <sub>y</sub>                           | 0.17     |                |                    |                |                | -0.01              |                | -0.01          | 0.00                    | ▷     | -0.00 | -0.00 | CO 5  |
|                    | Min M <sub>y</sub>                           | 0.26     |                |                    |                |                | 0.02               |                | 0.01           | 0.01                    | ▷     | -0.01 | 0.00  | CO 6  |
|                    | Max M <sub>z</sub>                           | 0.26     |                |                    |                |                | 0.02               |                | 0.01           | 0.01                    |       | -0.01 | 0.00  | CO 6  |
|                    | Min M <sub>z</sub>                           | 0.17     |                |                    |                |                | -0.01              |                | -0.01          | 0.00                    |       | -0.00 | -0.00 | CO 5  |
|                    | Max N  | 0.20     |                |                    |                |                | 0.01               |                | 0.00           | -0.00                   |       | -0.00 | -0.00 | CO 5  |
|                    | Min N  | -0.11    | ▷              |                    |                |                | -0.03              |                | 0.04           | -0.01                   |       | 0.00  | 0.01  | CO 6  |
|                    | Max V <sub>y</sub>                           | 0.20     |                |                    |                |                | 0.01               |                | 0.00           | -0.00                   |       | -0.00 | -0.00 | CO 5  |
|                    | Min V <sub>y</sub>                           | -0.11    | ▷              |                    |                |                | -0.03              |                | 0.04           | -0.01                   |       | 0.00  | 0.01  | CO 6  |
|                    | Max V <sub>z</sub>                           | -0.11    |                |                    |                |                | -0.03              | ▷              | 0.04           | -0.01                   |       | 0.00  | 0.01  | CO 6  |
|                    | Min V <sub>z</sub>                           | 0.20     |                |                    |                |                | 0.01               | ▷              | 0.00           | -0.00                   |       | -0.00 | -0.00 | CO 5  |
|                    | Max M <sub>T</sub>                           | 0.20     |                |                    |                |                | 0.01               |                | 0.00           | ▷                       | -0.00 | -0.00 | -0.00 | CO 5  |
|                    | Min M <sub>T</sub>                           | -0.11    |                |                    |                |                | -0.03              |                | 0.04           | -0.01                   |       | 0.00  | 0.01  | CO 6  |
|                    | Max M <sub>y</sub>                           | -0.11    |                | -0.03              |                | 0.04           | -0.01              | ▷              | 0.00           | 0.01                    | CO 6  |       |       |       |
|                    | Min M <sub>y</sub>                           | 0.20     |                | 0.01               |                | 0.00           | -0.00              | ▷              | -0.00          | -0.00                   | CO 5  |       |       |       |
|                    | Max M <sub>z</sub>                           | -0.11    |                | -0.03              |                | 0.04           | -0.01              |                | 0.00           | 0.01                    | CO 6  |       |       |       |
|                    | Min M <sub>z</sub>                           | 0.20     |                | 0.01               |                | 0.00           | -0.00              |                | -0.00          | -0.00                   | CO 5  |       |       |       |
|                    | RC4  | 1        | 0.000          | Max N              | 0.22           |                | 0.01               |                | 0.01           | 0.00                    | -0.00 | 0.00  | CO 8  |       |
|                    |  |          |                | Min N              | 0.17           |                | -0.01              |                | -0.01          | 0.00                    | -0.00 | -0.00 | 0.00  | CO 7  |
|                    |  |          |                | Max V <sub>y</sub> | 0.22           |                | 0.01               |                | 0.01           | 0.00                    | -0.00 | 0.00  | 0.00  | CO 8  |
|                    |  |          |                | Min V <sub>y</sub> | 0.17           |                | -0.01              |                | -0.01          | 0.00                    | -0.00 | -0.00 | 0.00  | CO 7  |
|                    |  |          |                | Max V <sub>z</sub> | 0.22           |                | 0.01               |                | 0.01           | 0.00                    | -0.00 | 0.00  | 0.00  | CO 8  |
|                    |  |          |                | Min V <sub>z</sub> | 0.17           |                | -0.01              |                | -0.01          | 0.00                    | -0.00 | -0.00 | 0.00  | CO 7  |
|                    |  |          |                | Max M <sub>T</sub> | 0.22           |                | 0.01               |                | 0.01           | ▷                       | 0.00  | -0.00 | 0.00  | CO 8  |
|                    |  |          |                | Min M <sub>T</sub> | 0.17           |                | -0.01              |                | -0.01          | ▷                       | 0.00  | -0.00 | -0.00 | CO 7  |
|                    |  |          |                | Max M <sub>y</sub> | 0.17           |                | -0.01              |                | -0.01          |                         | ▷     | -0.00 | -0.00 | CO 7  |
|                    |  |          |                | Min M <sub>y</sub> | 0.22           |                | 0.01               |                | 0.01           |                         | ▷     | -0.00 | 0.00  | CO 8  |
|                    |  |          |                | Max M <sub>z</sub> | 0.22           |                | 0.01               |                | 0.01           |                         |       | -0.00 | 0.00  | CO 8  |
|                    |  |          |                | Min M <sub>z</sub> | 0.17           |                | -0.01              |                | -0.01          |                         |       | -0.00 | -0.00 | CO 7  |
|                    |  |          |                | Max N              | 0.20           |                | 0.01               |                | 0.00           | -0.00                   |       | -0.00 | -0.00 | CO 7  |
|                    |  |          |                | Min N              | 0.01           |                | -0.02              |                | 0.02           | -0.00                   |       | 0.00  | 0.00  | CO 8  |
|                    |  |          |                | Max V <sub>y</sub> | 0.20           |                | 0.01               |                | 0.00           | -0.00                   |       | -0.00 | -0.00 | CO 7  |
|                    |  |          |                | Min V <sub>y</sub> | 0.01           |                | -0.02              |                | 0.02           | -0.00                   |       | 0.00  | 0.00  | CO 8  |
|                    |  |          |                | Max V <sub>z</sub> | 0.01           |                | -0.02              |                | 0.02           | -0.00                   |       | 0.00  | 0.00  | CO 8  |
|                    |  |          |                | Min V <sub>z</sub> | 0.20           |                | 0.01               |                | 0.00           | -0.00                   |       | -0.00 | -0.00 | CO 7  |
|                    |  |          |                | Max M <sub>T</sub> | 0.20           |                | 0.01               |                | 0.00           | ▷                       | -0.00 | -0.00 | -0.00 | CO 7  |
|                    |  |          |                | Min M <sub>T</sub> | 0.01           |                | -0.02              |                | 0.02           | ▷                       | -0.00 | 0.00  | 0.00  | CO 8  |
|                    |  |          |                | Max M <sub>y</sub> | 0.01           |                | -0.02              |                | 0.02           |                         | ▷     | 0.00  | 0.00  | CO 8  |
|                    | Min M <sub>y</sub>                           | 0.20     |                | 0.01               |                | 0.00           | -0.00              | ▷              | -0.00          | -0.00                   | CO 7  |       |       |       |
|                    | Max M <sub>z</sub>                           | 0.01     |                | -0.02              |                | 0.02           | -0.00              |                | 0.00           | 0.00                    | CO 8  |       |       |       |
|                    | Min M <sub>z</sub>                           | 0.20     |                | 0.01               |                | 0.00           | -0.00              |                | -0.00          | -0.00                   | CO 7  |       |       |       |
|                    | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                |                    |                |                |                    |                |                |                         |       |       |       |       |
|                    | RC5  | 1        | 0.000          | Max N              | 0.10           |                | 0.01               |                | 0.01           | 0.00                    | -0.00 | 0.00  |       |       |
|                    |  |          |                | Min N              | -0.10          |                | -0.01              |                | -0.01          | -0.00                   | -0.00 | -0.00 |       |       |
|                    |  |          |                | Max V <sub>y</sub> | 0.03           |                | 0.02               |                | -0.01          | 0.00                    | -0.00 | 0.00  |       |       |
|                    |  |          |                | Min V <sub>y</sub> | -0.03          |                | -0.02              |                | 0.01           | -0.00                   | 0.00  | -0.00 |       |       |
|                    |  |          |                | Max V <sub>z</sub> | 0.07           |                | -0.00              | ▷              | 0.02           | 0.00                    | -0.00 | -0.00 |       |       |
|                    |  |          |                | Min V <sub>z</sub> | -0.07          |                | 0.00               | ▷              | -0.02          | -0.00                   | 0.00  | 0.00  |       |       |
|                    |  |          |                | Max M <sub>T</sub> | 0.04           |                | 0.02               |                | -0.00          | ▷                       | 0.00  | -0.00 | 0.00  |       |
|                    |  |          |                | Min M <sub>T</sub> | -0.04          |                | -0.02              |                | 0.00           | ▷                       | -0.00 | 0.00  | -0.00 |       |
|                    |  |          |                | Max M <sub>y</sub> | -0.09          |                | -0.00              |                | -0.02          | -0.00                   | ▷     | 0.00  | -0.00 |       |
|                    |  |          |                | Min M <sub>y</sub> | 0.09           |                | 0.00               |                | 0.02           | 0.00                    | ▷     | -0.00 | 0.00  |       |
|                    |  |          |                | Max M <sub>z</sub> | 0.02           |                | 0.02               |                | -0.01          | 0.00                    |       | 0.00  | 0.00  |       |
|                    |  |          |                | Min M <sub>z</sub> | -0.02          |                | -0.02              |                | 0.01           | -0.00                   |       | -0.00 | -0.00 |       |
|                    |  |          |                | Max N              | 0.19           |                | 0.01               |                | -0.02          | 0.00                    |       | -0.00 | -0.00 |       |
|                    |  |          |                | Min N              | -0.19          |                | -0.01              |                | 0.02           | -0.00                   |       | 0.00  | 0.00  |       |
|                    |  |          |                | Max V <sub>y</sub> | 0.14           |                | 0.02               |                | -0.01          | 0.00                    |       | -0.00 | -0.00 |       |
|                    |  |          |                | Min V <sub>y</sub> | -0.14          |                | -0.02              |                | 0.01           | -0.00                   |       | 0.00  | 0.00  |       |
| Max V <sub>z</sub> | -0.17  |          | -0.01          | ▷                  | 0.02           | -0.00          |                    | 0.00           | 0.00           |                         |       |       |       |       |

## RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC   | Node No.           | Location x [m]     | Forces [kN]                                  |                |                    |                    |                | Moments [kNm]  |       |       | Correspondin Load Cases |       |       |       |
|--------------------|--|--------------------|--------------------|--|----------------|--------------------|--------------------|----------------|----------------|-------|-------|-------------------------|-------|-------|-------|
|                    |  |                    |                    | N  | V <sub>y</sub> | V <sub>z</sub>     | M <sub>T</sub>     | M <sub>y</sub> | M <sub>z</sub> |       |       |                         |       |       |       |
| 5                  | RC5  |                    |                    | Min V <sub>z</sub>                           | 0.17           | 0.01               | ▷                  | -0.02          | 0.00           | -0.00 | -0.00 |                         |       |       |       |
|                    |  |                    |                    | Max M <sub>T</sub>                           | 0.11           | 0.01               |                    | -0.01          | ▷              | 0.00  | -0.00 |                         |       |       |       |
|                    |  |                    |                    | Min M <sub>T</sub>                           | -0.11          | -0.01              |                    | 0.01           | ▷              | -0.00 | 0.00  |                         |       |       |       |
|                    |  |                    |                    | Max M <sub>y</sub>                           | -0.18          | -0.01              |                    | 0.02           | -0.00          | 0.00  | 0.00  |                         |       |       |       |
|                    |  |                    |                    | Min M <sub>y</sub>                           | 0.18           | 0.01               |                    | -0.02          | 0.00           | ▷     | -0.00 | -0.00                   |       |       |       |
|                    |  |                    |                    | Max M <sub>z</sub>                           | -0.14          | -0.02              |                    | 0.01           | -0.00          | 0.00  | ▷     | 0.00                    |       |       |       |
|                    |  |                    |                    | Min M <sub>z</sub>                           | 0.14           | 0.02               |                    | -0.01          | 0.00           | ▷     | -0.00 | -0.00                   |       |       |       |
|                    |  |                    |                    | DLC1, Result Envelope X 30% / Y 100% / Z 30% |                |                    |                    |                |                |       |       |                         |       |       |       |
|                    |  |                    |                    | RC6  | 1              | 0.000              | Max N              | ▷              | 0.15           | 0.01  | 0.02  | 0.00                    | -0.00 | 0.00  |       |
|                    |  |                    |                    |  |                |                    | Min N              | ▷              | -0.15          | -0.01 | -0.02 | -0.00                   | 0.00  | -0.00 | -0.00 |
|                    |  |                    |                    |  |                |                    | Max V <sub>y</sub> | ▷              | -0.03          | 0.01  | -0.01 | 0.00                    | 0.00  | 0.00  | 0.00  |
|                    |  |                    |                    |  |                |                    | Min V <sub>y</sub> | ▷              | 0.03           | -0.01 | 0.01  | -0.00                   | -0.00 | -0.00 | -0.00 |
|                    |  |                    |                    |  |                |                    | Max V <sub>z</sub> | ▷              | 0.12           | -0.01 | 0.03  | -0.00                   | -0.00 | -0.00 | -0.00 |
|                    |  |                    |                    |  |                |                    | Min V <sub>z</sub> | ▷              | -0.12          | 0.01  | -0.03 | 0.00                    | 0.00  | 0.00  | 0.00  |
|                    |  |                    |                    |  |                |                    | Max M <sub>T</sub> | ▷              | -0.04          | 0.01  | -0.01 | 0.00                    | 0.00  | 0.00  | 0.00  |
|                    |  |                    |                    |  |                |                    | Min M <sub>T</sub> | ▷              | 0.04           | -0.01 | 0.01  | -0.00                   | -0.00 | -0.00 | -0.00 |
|                    |  |                    |                    |  |                |                    | Max M <sub>y</sub> | ▷              | -0.14          | -0.00 | -0.02 | -0.00                   | 0.00  | 0.00  | 0.00  |
|                    |  |                    |                    |  |                |                    | Min M <sub>y</sub> | ▷              | 0.14           | 0.00  | 0.02  | 0.00                    | ▷     | -0.00 | -0.00 |
|                    |  |                    |                    |  |                |                    | Max M <sub>z</sub> | ▷              | -0.05          | 0.01  | -0.02 | 0.00                    | 0.00  | ▷     | 0.00  |
|                    |  |                    |                    |  |                |                    | Min M <sub>z</sub> | ▷              | 0.05           | -0.01 | 0.02  | -0.00                   | -0.00 | ▷     | -0.00 |
|                    |  |                    |                    | 3  | 1.550          | Max N              | ▷                  | 0.22           | 0.01           | -0.02 | 0.00  | -0.00                   | -0.00 | -0.00 |       |
|                    | Min N  | ▷                  | -0.22              |  |                | -0.01              | 0.02               | -0.00          | 0.00           | 0.00  | 0.00  |                         |       |       |       |
|                    | Max V <sub>y</sub>                           | ▷                  | 0.05               |  |                | 0.01               | -0.00              | 0.00           | -0.00          | -0.00 | -0.00 |                         |       |       |       |
|                    | Min V <sub>y</sub>                           | ▷                  | -0.05              |  |                | -0.01              | 0.00               | -0.00          | 0.00           | 0.00  | 0.00  |                         |       |       |       |
|                    | Max V <sub>z</sub>                           | ▷                  | -0.19              |  |                | -0.01              | 0.02               | -0.00          | 0.00           | 0.00  | 0.00  |                         |       |       |       |
|                    | Min V <sub>z</sub>                           | ▷                  | 0.19               |  |                | 0.01               | -0.02              | 0.00           | -0.00          | -0.00 | -0.00 |                         |       |       |       |
|                    | Max M <sub>T</sub>                           | ▷                  | 0.03               |  |                | 0.01               | -0.00              | 0.00           | 0.00           | -0.00 | -0.00 |                         |       |       |       |
|                    | Min M <sub>T</sub>                           | ▷                  | -0.03              |  |                | -0.01              | 0.00               | -0.00          | -0.00          | 0.00  | 0.00  |                         |       |       |       |
|                    | Max M <sub>y</sub>                           | ▷                  | -0.21              |  |                | -0.01              | 0.02               | -0.00          | ▷              | 0.00  | 0.00  |                         |       |       |       |
|                    | Min M <sub>y</sub>                           | ▷                  | 0.21               |  |                | 0.01               | -0.02              | 0.00           | ▷              | -0.00 | -0.00 |                         |       |       |       |
|                    | Max M <sub>z</sub>                           | ▷                  | -0.07              |  |                | -0.01              | 0.00               | -0.00          | 0.00           | ▷     | 0.00  |                         |       |       |       |
|                    | Min M <sub>z</sub>                           | ▷                  | 0.07               |  |                | 0.01               | -0.00              | 0.00           | -0.00          | ▷     | -0.00 |                         |       |       |       |
|                    | DLC1, Result Envelope X 30% / Y 30% / Z 100% |                    |                    |  |                |                    |                    |                |                |       |       |                         |       |       |       |
|                    | RC7  | 1                  | 0.000              | Max N  | ▷              | 0.18               | 0.02               | 0.02           | 0.00           | -0.00 | 0.00  |                         |       |       |       |
|                    |  |                    |                    | Min N  | ▷              | -0.18              | -0.02              | -0.02          | -0.00          | 0.00  | -0.00 | -0.00                   |       |       |       |
|                    |  |                    |                    | Max V <sub>y</sub>                           | ▷              | 0.07               | 0.04               | -0.02          | 0.01           | -0.00 | 0.01  | 0.01                    |       |       |       |
|                    |  |                    |                    | Min V <sub>y</sub>                           | ▷              | -0.07              | -0.04              | 0.02           | -0.01          | 0.00  | 0.00  | -0.01                   |       |       |       |
|                    |  |                    |                    | Max V <sub>z</sub>                           | ▷              | 0.10               | -0.01              | 0.04           | 0.00           | -0.00 | -0.00 | -0.00                   |       |       |       |
|                    |  |                    |                    | Min V <sub>z</sub>                           | ▷              | -0.10              | 0.01               | -0.04          | -0.00          | 0.00  | 0.00  | 0.00                    |       |       |       |
|                    |  |                    |                    | Max M <sub>T</sub>                           | ▷              | 0.10               | 0.03               | -0.00          | 0.01           | -0.00 | 0.01  | 0.01                    |       |       |       |
|                    |  |                    |                    | Min M <sub>T</sub>                           | ▷              | -0.10              | -0.03              | 0.00           | -0.01          | 0.00  | -0.01 | -0.01                   |       |       |       |
|                    |  |                    |                    | Max M <sub>y</sub>                           | ▷              | -0.16              | -0.01              | -0.04          | -0.00          | ▷     | 0.01  | -0.00                   |       |       |       |
|                    |  |                    |                    | Min M <sub>y</sub>                           | ▷              | 0.16               | 0.01               | 0.04           | 0.00           | ▷     | -0.01 | 0.00                    |       |       |       |
|                    |  |                    |                    | Max M <sub>z</sub>                           | ▷              | 0.05               | 0.04               | -0.02          | 0.00           | ▷     | 0.00  | 0.01                    |       |       |       |
|                    |  |                    |                    | Min M <sub>z</sub>                           | ▷              | -0.05              | -0.04              | 0.02           | -0.00          | ▷     | -0.00 | -0.01                   |       |       |       |
|                    |  |                    |                    | 3  | 1.550          | Max N              | ▷                  | 0.41           | 0.03           | -0.03 | 0.00  | -0.01                   | -0.01 | -0.01 |       |
|                    |  |                    |                    |  |                | Min N              | ▷                  | -0.41          | -0.03          | 0.03  | -0.00 | 0.01                    | 0.01  | 0.01  |       |
|                    |  |                    |                    |  |                | Max V <sub>y</sub> | ▷                  | 0.34           | 0.03           | -0.02 | 0.00  | -0.01                   | -0.01 | -0.01 |       |
|                    |  |                    |                    |  |                | Min V <sub>y</sub> | ▷                  | -0.34          | -0.03          | 0.02  | -0.00 | 0.01                    | 0.01  | 0.01  |       |
|                    |  |                    |                    |  |                | Max V <sub>z</sub> | ▷                  | -0.35          | -0.03          | 0.03  | -0.00 | 0.01                    | 0.01  | 0.01  |       |
|                    |  |                    |                    |  |                | Min V <sub>z</sub> | ▷                  | 0.35           | 0.03           | -0.03 | 0.00  | -0.01                   | -0.01 | -0.01 |       |
|                    |  |                    |                    |  |                | Max M <sub>T</sub> | ▷                  | 0.28           | 0.03           | -0.03 | 0.01  | -0.01                   | -0.01 | -0.01 |       |
|                    |  |                    |                    |  |                | Min M <sub>T</sub> | ▷                  | -0.28          | -0.03          | 0.03  | -0.01 | 0.01                    | 0.01  | 0.01  |       |
|                    |  |                    |                    |  |                | Max M <sub>y</sub> | ▷                  | -0.38          | -0.03          | 0.03  | -0.00 | ▷                       | 0.01  | 0.01  |       |
|                    |  |                    |                    |  |                | Min M <sub>y</sub> | ▷                  | 0.38           | 0.03           | -0.03 | 0.00  | ▷                       | -0.01 | -0.01 |       |
|                    |  |                    |                    |  |                | Max M <sub>z</sub> | ▷                  | -0.35          | -0.03          | 0.02  | -0.00 | ▷                       | 0.01  | 0.01  |       |
|                    |  |                    |                    |  |                | Min M <sub>z</sub> | ▷                  | 0.35           | 0.03           | -0.02 | 0.00  | ▷                       | -0.01 | -0.01 |       |
|                    |  |                    |                    | RC1  | 5              | 0.000              | Max N              | ▷              | 0.82           | 0.05  | 0.09  | 0.02                    | -0.03 | 0.01  | CO 2  |
|                    |  |                    |                    |  |                |                    | Min N              | ▷              | 0.25           | 0.01  | -0.01 | 0.00                    | -0.00 | 0.00  | CO 1  |
| Max V <sub>y</sub> |  |                    |                    |  |                |                    | ▷                  | 0.82           | 0.05           | 0.09  | 0.02  | -0.03                   | 0.01  | CO 2  |       |
| Min V <sub>y</sub> |  |                    |                    |  |                |                    | ▷                  | 0.25           | 0.01           | -0.01 | 0.00  | -0.00                   | 0.00  | CO 1  |       |
| Max V <sub>z</sub> |  |                    |                    |  |                |                    | ▷                  | 0.82           | 0.05           | 0.09  | 0.02  | -0.03                   | 0.01  | CO 2  |       |
| Min V <sub>z</sub> |  |                    |                    |  |                |                    | ▷                  | 0.25           | 0.01           | -0.01 | 0.00  | -0.00                   | 0.00  | CO 1  |       |
| Max M <sub>T</sub> | ▷  | 0.82               | 0.05               |  |                |                    | 0.09               | 0.02           | -0.03          | 0.01  | CO 2  |                         |       |       |       |
| Min M <sub>T</sub> | ▷  | 0.25               | 0.01               |  |                |                    | -0.01              | 0.00           | -0.00          | 0.00  | CO 1  |                         |       |       |       |
| Max M <sub>y</sub> | ▷  | 0.25               | 0.01               |  |                |                    | -0.01              | 0.00           | ▷              | -0.00 | 0.00  |                         |       |       |       |
| Min M <sub>y</sub> | ▷  | 0.82               | 0.05               |  |                |                    | 0.09               | 0.02           | ▷              | -0.03 | 0.01  |                         |       |       |       |
| Max M <sub>z</sub> | ▷  | 0.82               | 0.05               |  |                |                    | 0.09               | 0.02           | -0.03          | ▷     | 0.01  |                         |       |       |       |
| Min M <sub>z</sub> | ▷  | 0.25               | 0.01               |  |                |                    | -0.01              | 0.00           | -0.00          | ▷     | 0.00  |                         |       |       |       |
| 7                  | 1.550  | Max N              | ▷                  |  |                |                    | 0.28               | -0.01          | 0.01           | 0.00  | -0.00 | 0.00                    | CO 1  |       |       |
|                    |  | Min N              | ▷                  |  |                |                    | -0.83              | -0.05          | 0.07           | -0.02 | 0.01  | 0.01                    | CO 2  |       |       |
|                    |  | Max V <sub>y</sub> | ▷                  |  |                |                    | 0.28               | -0.01          | 0.01           | 0.00  | -0.00 | 0.00                    | CO 1  |       |       |
|                    |  | Min V <sub>y</sub> | ▷                  |  |                |                    | -0.83              | -0.05          | 0.07           | -0.02 | 0.01  | 0.01                    | CO 2  |       |       |
|                    |  | Max V <sub>z</sub> | ▷                  |  |                |                    | -0.83              | -0.05          | 0.07           | -0.02 | 0.01  | 0.01                    | CO 2  |       |       |
|                    |  | Min V <sub>z</sub> | ▷                  |  |                |                    | 0.28               | -0.01          | 0.01           | 0.00  | -0.00 | 0.00                    | CO 1  |       |       |
|                    |  | Max M <sub>T</sub> | ▷                  |  |                |                    | 0.28               | -0.01          | 0.01           | 0.00  | -0.00 | 0.00                    | CO 1  |       |       |
|                    |  | Min M <sub>T</sub> | ▷                  |  |                |                    | -0.83              | -0.05          | 0.07           | -0.02 | 0.01  | 0.01                    | CO 2  |       |       |
|                    |  | Max M <sub>y</sub> | ▷                  |  |                |                    | -0.83              | -0.05          | 0.07           | -0.02 | ▷     | 0.01                    | CO 2  |       |       |
|                    |  | Min M <sub>y</sub> | ▷                  |  |                |                    | 0.28               | -0.01          | 0.01           | 0.00  | ▷     | -0.00                   | 0.00  |       |       |
|                    |  | Max M <sub>z</sub> | ▷                  |  |                |                    | -0.83              | -0.05          | 0.07           | -0.02 | ▷     | 0.01                    | CO 2  |       |       |
|                    |  | Min M <sub>z</sub> | ▷                  |  |                |                    | 0.28               | -0.01          | 0.01           | 0.00  | -0.00 | ▷                       | 0.00  |       |       |
| RC2                | 5  | 0.000              | Max N              | ▷  | 0.56           | 0.04               | 0.06               | 0.01           | -0.02          | 0.01  | CO 4  |                         |       |       |       |
|                    |  |                    | Min N              | ▷  | 0.18           | 0.01               | -0.01              | 0.00           | -0.00          | 0.00  | CO 3  |                         |       |       |       |
|                    |  |                    | Max V <sub>y</sub> | ▷  | 0.56           | 0.04               | 0.06               | 0.01           | -0.02          | 0.01  | CO 4  |                         |       |       |       |
|                    |  |                    | Min V <sub>y</sub> | ▷  | 0.18           | 0.01               | -0.01              | 0.00           | -0.00          | 0.00  | CO 3  |                         |       |       |       |
|                    |  |                    | Max V <sub>z</sub> | ▷  | 0.56           | 0.04               | 0.06               | 0.01           | -0.02          | 0.01  | CO 4  |                         |       |       |       |
|                    |  |                    | Min V <sub>z</sub> | ▷  | 0.18           | 0.01               | -0.01              | 0.00           | -0.00          | 0.00  | CO 3  |                         |       |       |       |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.                                   | RC                 | Node No. | Location x [m]     | Forces [kN]        |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |      |
|--|--------------------|----------|--------------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------------------------|------|
|  |                    |          |                    | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |      |
| 6  | RC2                | 7        | 1.550              | Max M <sub>T</sub> | 0.56           | 0.04           | 0.06           | 0.01           | -0.02          | 0.01                    | CO 4 |
|  |                    |          |                    | Min M <sub>T</sub> | 0.18           | 0.01           | -0.01          | 0.00           | -0.00          | 0.00                    | CO 3 |
|  |                    |          |                    | Max M <sub>y</sub> | 0.18           | 0.01           | -0.01          | 0.00           | -0.00          | 0.00                    | CO 3 |
|  |                    |          |                    | Min M <sub>y</sub> | 0.56           | 0.04           | 0.06           | 0.01           | -0.02          | 0.01                    | CO 4 |
|  |                    |          |                    | Max M <sub>z</sub> | 0.56           | 0.04           | 0.06           | 0.01           | -0.02          | 0.01                    | CO 4 |
|  |                    |          |                    | Min M <sub>z</sub> | 0.18           | 0.01           | -0.01          | 0.00           | -0.00          | 0.00                    | CO 3 |
|  |                    |          |                    | Max N              | 0.20           | -0.01          | 0.00           | 0.00           | -0.00          | 0.00                    | CO 3 |
|  |                    |          |                    | Min N              | -0.53          | -0.03          | 0.05           | -0.01          | 0.00           | 0.00                    | CO 4 |
|  |                    |          |                    | Max V <sub>y</sub> | 0.20           | -0.01          | 0.00           | 0.00           | -0.00          | 0.00                    | CO 3 |
|  |                    |          |                    | Min V <sub>y</sub> | -0.53          | -0.03          | 0.05           | -0.01          | 0.00           | 0.00                    | CO 4 |
|  |                    |          |                    | Max V <sub>z</sub> | -0.53          | -0.03          | 0.05           | -0.01          | 0.00           | 0.00                    | CO 4 |
|  |                    |          |                    | Min V <sub>z</sub> | 0.20           | -0.01          | 0.00           | 0.00           | -0.00          | 0.00                    | CO 3 |
|  |                    |          |                    | Max M <sub>T</sub> | 0.20           | -0.01          | 0.00           | 0.00           | -0.00          | 0.00                    | CO 3 |
|  |                    |          |                    | Min M <sub>T</sub> | -0.53          | -0.03          | 0.05           | -0.01          | 0.00           | 0.00                    | CO 4 |
|  |                    |          |                    | Max M <sub>y</sub> | -0.53          | -0.03          | 0.05           | -0.01          | 0.00           | 0.00                    | CO 4 |
|  |                    |          |                    | Min M <sub>y</sub> | 0.20           | -0.01          | 0.00           | 0.00           | -0.00          | 0.00                    | CO 3 |
|  |                    |          |                    | Max M <sub>z</sub> | -0.53          | -0.03          | 0.05           | -0.01          | 0.00           | 0.00                    | CO 4 |
|  |                    |          |                    | Min M <sub>z</sub> | 0.20           | -0.01          | 0.00           | 0.00           | -0.00          | 0.00                    | CO 3 |
|  | RC3                | 5        | 0.000              | Max N              | 0.37           | 0.02           | 0.03           | 0.01           | -0.01          | 0.00                    | CO 6 |
|  |                    |          |                    | Min N              | 0.18           | 0.01           | -0.01          | 0.00           | -0.00          | 0.00                    | CO 5 |
|  |                    |          |                    | Max V <sub>y</sub> | 0.37           | 0.02           | 0.03           | 0.01           | -0.01          | 0.00                    | CO 6 |
|  |                    |          |                    | Min V <sub>y</sub> | 0.18           | 0.01           | -0.01          | 0.00           | -0.00          | 0.00                    | CO 5 |
|  |                    |          |                    | Max V <sub>z</sub> | 0.37           | 0.02           | 0.03           | 0.01           | -0.01          | 0.00                    | CO 6 |
|  |                    |          |                    | Min V <sub>z</sub> | 0.18           | 0.01           | -0.01          | 0.00           | -0.00          | 0.00                    | CO 5 |
|  |                    |          |                    | Max M <sub>T</sub> | 0.37           | 0.02           | 0.03           | 0.01           | -0.01          | 0.00                    | CO 6 |
|  |                    |          |                    | Min M <sub>T</sub> | 0.18           | 0.01           | -0.01          | 0.00           | -0.00          | 0.00                    | CO 5 |
|  |                    |          |                    | Max M <sub>y</sub> | 0.18           | 0.01           | -0.01          | 0.00           | -0.00          | 0.00                    | CO 5 |
|  |                    |          |                    | Min M <sub>y</sub> | 0.37           | 0.02           | 0.03           | 0.01           | -0.01          | 0.00                    | CO 6 |
|  |                    |          |                    | Max M <sub>z</sub> | 0.37           | 0.02           | 0.03           | 0.01           | -0.01          | 0.00                    | CO 6 |
|  |                    |          |                    | Min M <sub>z</sub> | 0.18           | 0.01           | -0.01          | 0.00           | -0.00          | 0.00                    | CO 5 |
|  |                    |          |                    | Max N              | 0.20           | -0.01          | 0.00           | 0.00           | -0.00          | 0.00                    | CO 5 |
|  |                    |          |                    | Min N              | -0.17          | -0.02          | 0.03           | -0.01          | 0.00           | 0.00                    | CO 6 |
|  |                    |          |                    | Max V <sub>y</sub> | 0.20           | -0.01          | 0.00           | 0.00           | -0.00          | 0.00                    | CO 5 |
|  |                    |          |                    | Min V <sub>y</sub> | -0.17          | -0.02          | 0.03           | -0.01          | 0.00           | 0.00                    | CO 6 |
|  |                    |          |                    | Max V <sub>z</sub> | -0.17          | -0.02          | 0.03           | -0.01          | 0.00           | 0.00                    | CO 6 |
|  |                    |          |                    | Min V <sub>z</sub> | 0.20           | -0.01          | 0.00           | 0.00           | -0.00          | 0.00                    | CO 5 |
|  | Max M <sub>T</sub> | 0.20     | -0.01              | 0.00               | 0.00           | -0.00          | 0.00           | CO 5           |                |                         |      |
|  | Min M <sub>T</sub> | -0.17    | -0.02              | 0.03               | -0.01          | 0.00           | 0.00           | CO 6           |                |                         |      |
|  | Max M <sub>y</sub> | -0.17    | -0.02              | 0.03               | -0.01          | 0.00           | 0.00           | CO 6           |                |                         |      |
|  | Min M <sub>y</sub> | 0.20     | -0.01              | 0.00               | 0.00           | -0.00          | 0.00           | CO 5           |                |                         |      |
|  | Max M <sub>z</sub> | -0.17    | -0.02              | 0.03               | -0.01          | 0.00           | 0.00           | CO 6           |                |                         |      |
|  | Min M <sub>z</sub> | 0.20     | -0.01              | 0.00               | 0.00           | -0.00          | 0.00           | CO 5           |                |                         |      |
|  | RC4                | 5        | 0.000              | Max N              | 0.30           | 0.02           | 0.01           | 0.00           | -0.01          | 0.00                    | CO 8 |
|  |                    |          |                    | Min N              | 0.18           | 0.01           | -0.01          | 0.00           | -0.00          | 0.00                    | CO 7 |
|  |                    |          |                    | Max V <sub>y</sub> | 0.30           | 0.02           | 0.01           | 0.00           | -0.01          | 0.00                    | CO 8 |
|  |                    |          |                    | Min V <sub>y</sub> | 0.18           | 0.01           | -0.01          | 0.00           | -0.00          | 0.00                    | CO 7 |
|  |                    |          |                    | Max V <sub>z</sub> | 0.30           | 0.02           | 0.01           | 0.00           | -0.01          | 0.00                    | CO 8 |
|  |                    |          |                    | Min V <sub>z</sub> | 0.18           | 0.01           | -0.01          | 0.00           | -0.00          | 0.00                    | CO 7 |
|  |                    |          |                    | Max M <sub>T</sub> | 0.30           | 0.02           | 0.01           | 0.00           | -0.01          | 0.00                    | CO 8 |
|  |                    |          |                    | Min M <sub>T</sub> | 0.18           | 0.01           | -0.01          | 0.00           | -0.00          | 0.00                    | CO 7 |
|  |                    |          |                    | Max M <sub>y</sub> | 0.18           | 0.01           | -0.01          | 0.00           | -0.00          | 0.00                    | CO 7 |
|  |                    |          |                    | Min M <sub>y</sub> | 0.30           | 0.02           | 0.01           | 0.00           | -0.01          | 0.00                    | CO 8 |
|  |                    |          |                    | Max M <sub>z</sub> | 0.30           | 0.02           | 0.01           | 0.00           | -0.01          | 0.00                    | CO 8 |
|  |                    |          |                    | Min M <sub>z</sub> | 0.18           | 0.01           | -0.01          | 0.00           | -0.00          | 0.00                    | CO 7 |
|  |                    |          |                    | Max N              | 0.20           | -0.01          | 0.00           | 0.00           | -0.00          | 0.00                    | CO 7 |
|  |                    |          |                    | Min N              | -0.02          | -0.02          | 0.02           | -0.00          | -0.00          | 0.00                    | CO 8 |
|  |                    |          |                    | Max V <sub>y</sub> | 0.20           | -0.01          | 0.00           | 0.00           | -0.00          | 0.00                    | CO 7 |
|  |                    |          |                    | Min V <sub>y</sub> | -0.02          | -0.02          | 0.02           | -0.00          | -0.00          | 0.00                    | CO 8 |
|  |                    |          |                    | Max V <sub>z</sub> | -0.02          | -0.02          | 0.02           | -0.00          | -0.00          | 0.00                    | CO 8 |
|  |                    |          |                    | Min V <sub>z</sub> | 0.20           | -0.01          | 0.00           | 0.00           | -0.00          | 0.00                    | CO 7 |
| Max M <sub>T</sub>                           | 0.20               | -0.01    | 0.00               | 0.00               | -0.00          | 0.00           | CO 7           |                |                |                         |      |
| Min M <sub>T</sub>                           | -0.02              | -0.02    | 0.02               | -0.00              | -0.00          | 0.00           | CO 8           |                |                |                         |      |
| Max M <sub>y</sub>                           | -0.02              | -0.02    | 0.02               | -0.00              | -0.00          | 0.00           | CO 8           |                |                |                         |      |
| Min M <sub>y</sub>                           | 0.20               | -0.01    | 0.00               | 0.00               | -0.00          | 0.00           | CO 7           |                |                |                         |      |
| Max M <sub>z</sub>                           | -0.02              | -0.02    | 0.02               | -0.00              | -0.00          | 0.00           | CO 8           |                |                |                         |      |
| Min M <sub>z</sub>                           | 0.20               | -0.01    | 0.00               | 0.00               | -0.00          | 0.00           | CO 7           |                |                |                         |      |
| DLC1, Result Envelope X 100% / Y 30% / Z 30% |                    |          |                    |                    |                |                |                |                |                |                         |      |
| RC5  | 5                  | 0.000    | Max N              | 0.19               | 0.01           | 0.02           | 0.00           | -0.00          | 0.00           |                         |      |
|  |                    |          | Min N              | -0.19              | -0.01          | -0.02          | -0.00          | 0.00           | -0.00          |                         |      |
|  |                    |          | Max V <sub>y</sub> | 0.07               | 0.02           | 0.01           | 0.00           | -0.00          | 0.00           |                         |      |
|  |                    |          | Min V <sub>y</sub> | -0.07              | -0.02          | -0.01          | -0.00          | 0.00           | -0.00          |                         |      |
|  |                    |          | Max V <sub>z</sub> | 0.17               | 0.01           | 0.02           | 0.00           | -0.00          | 0.00           |                         |      |
|  |                    |          | Min V <sub>z</sub> | -0.17              | -0.01          | -0.02          | -0.00          | 0.00           | -0.00          |                         |      |
|  |                    |          | Max M <sub>T</sub> | 0.05               | 0.01           | 0.01           | 0.00           | -0.00          | 0.00           |                         |      |
|  |                    |          | Min M <sub>T</sub> | -0.05              | -0.01          | -0.01          | -0.00          | 0.00           | -0.00          |                         |      |
|  |                    |          | Max M <sub>y</sub> | -0.18              | -0.01          | -0.02          | -0.00          | 0.00           | -0.00          |                         |      |
|  |                    |          | Min M <sub>y</sub> | 0.18               | 0.01           | 0.02           | 0.00           | -0.00          | 0.00           |                         |      |
|  |                    |          | Max M <sub>z</sub> | 0.08               | 0.02           | 0.01           | 0.00           | -0.00          | 0.00           |                         |      |
|  |                    |          | Min M <sub>z</sub> | -0.08              | -0.02          | -0.01          | -0.00          | 0.00           | -0.00          |                         |      |
|  |                    |          | Max N              | 0.15               | 0.00           | -0.01          | 0.00           | -0.00          | 0.00           |                         |      |
|  |                    |          | Min N              | -0.15              | -0.00          | 0.01           | -0.00          | 0.00           | -0.00          |                         |      |
|  |                    |          | Max V <sub>y</sub> | 0.00               | 0.02           | -0.01          | 0.00           | -0.00          | -0.00          |                         |      |
|  |                    |          | Min V <sub>y</sub> | -0.00              | -0.02          | 0.01           | -0.00          | 0.00           | 0.00           |                         |      |
|  |                    |          | Max V <sub>z</sub> | -0.10              | -0.01          | 0.02           | -0.00          | 0.00           | 0.00           |                         |      |
|  |                    |          | Min V <sub>z</sub> | 0.10               | 0.01           | -0.02          | 0.00           | -0.00          | -0.00          |                         |      |
| Max M <sub>T</sub>                           | 0.06               | 0.01     | -0.01              | 0.00               | -0.00          | -0.00          |                |                |                |                         |      |
| Min M <sub>T</sub>                           | -0.06              | -0.01    | 0.01               | -0.00              | 0.00           | 0.00           |                |                |                |                         |      |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC   | Node No. | Location x [m]     | Forces [kN]        |                |                |                | Moments [kNm]  |                |       | Correspondin Load Cases |       |       |      |      |
|--------------------|--|----------|--------------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------|-------------------------|-------|-------|------|------|
|                    |  |          |                    | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |                         |       |       |      |      |
| 6                  | RC5  |          |                    | Max M <sub>y</sub> | -0.11          | -0.01          | 0.02           | -0.00          | 0.00           | 0.00  |                         |       |       |      |      |
|                    |  |          |                    | Min M <sub>y</sub> | 0.11           | 0.01           | -0.02          | 0.00           | -0.00          | -0.00 |                         |       |       |      |      |
|                    |  |          |                    | Max M <sub>z</sub> | 0.03           | -0.02          | 0.01           | -0.00          | 0.00           | 0.00  |                         |       |       |      |      |
|                    |  |          |                    | Min M <sub>z</sub> | -0.03          | 0.02           | -0.01          | 0.00           | -0.00          | -0.00 |                         |       |       |      |      |
|                    | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                    |                    |                |                |                |                |                |       |                         |       |       |      |      |
|                    | RC6  | 5        | 0.000              | Max N              | 0.23           | 0.00           | 0.02           | 0.00           | -0.01          | 0.00  |                         |       |       |      |      |
|                    |  |          |                    | Min N              | -0.23          | -0.00          | -0.02          | -0.00          | 0.01           | -0.00 |                         |       |       |      |      |
|                    |  |          |                    | Max V <sub>y</sub> | 0.09           | 0.01           | 0.01           | 0.00           | -0.00          | 0.00  |                         |       |       |      |      |
|                    |  |          |                    | Min V <sub>y</sub> | -0.09          | -0.01          | -0.01          | -0.00          | 0.00           | -0.00 |                         |       |       |      |      |
|                    |  |          |                    | Max V <sub>z</sub> | 0.22           | 0.01           | 0.02           | 0.00           | -0.01          | 0.00  |                         |       |       |      |      |
|                    |  |          |                    | Min V <sub>z</sub> | -0.22          | -0.01          | -0.02          | -0.00          | 0.01           | -0.00 |                         |       |       |      |      |
|                    |  |          |                    | Max M <sub>T</sub> | -0.06          | 0.01           | -0.00          | 0.00           | 0.00           | 0.00  |                         |       |       |      |      |
|                    |  |          |                    | Min M <sub>T</sub> | 0.06           | -0.01          | 0.00           | -0.00          | -0.00          | -0.00 |                         |       |       |      |      |
|                    |  |          |                    | Max M <sub>y</sub> | -0.23          | -0.01          | -0.02          | -0.00          | 0.01           | -0.00 |                         |       |       |      |      |
|                    |  |          |                    | Min M <sub>y</sub> | 0.23           | 0.01           | 0.02           | 0.00           | -0.01          | 0.00  |                         |       |       |      |      |
|                    |  |          |                    | Max M <sub>z</sub> | 0.14           | 0.01           | 0.02           | 0.00           | -0.00          | 0.00  |                         |       |       |      |      |
|                    |  |          |                    | Min M <sub>z</sub> | -0.14          | -0.01          | -0.02          | -0.00          | 0.00           | -0.00 |                         |       |       |      |      |
|                    |  |          |                    | Max N              | 0.19           | -0.00          | -0.02          | 0.00           | -0.00          | 0.00  |                         |       |       |      |      |
|                    |  |          |                    | Min N              | -0.19          | 0.00           | 0.02           | -0.00          | 0.00           | -0.00 |                         |       |       |      |      |
|                    |  |          |                    | Max V <sub>y</sub> | -0.07          | 0.02           | 0.00           | 0.00           | 0.00           | -0.00 |                         |       |       |      |      |
|                    |  |          |                    | Min V <sub>y</sub> | 0.07           | -0.02          | -0.00          | -0.00          | -0.00          | 0.00  |                         |       |       |      |      |
|                    |  |          |                    | Max V <sub>z</sub> | -0.15          | -0.01          | 0.02           | -0.00          | 0.00           | 0.00  |                         |       |       |      |      |
|                    |  |          |                    | Min V <sub>z</sub> | 0.15           | 0.01           | -0.02          | 0.00           | -0.00          | -0.00 |                         |       |       |      |      |
|                    |  |          |                    | Max M <sub>T</sub> | -0.02          | 0.01           | -0.00          | 0.00           | 0.00           | -0.00 |                         |       |       |      |      |
|                    |  |          |                    | Min M <sub>T</sub> | 0.02           | -0.01          | 0.00           | -0.00          | -0.00          | 0.00  |                         |       |       |      |      |
|                    |  |          |                    | Max M <sub>y</sub> | -0.15          | -0.01          | 0.02           | -0.00          | 0.00           | 0.00  |                         |       |       |      |      |
|                    |  |          |                    | Min M <sub>y</sub> | 0.15           | 0.01           | -0.02          | 0.00           | -0.00          | -0.00 |                         |       |       |      |      |
|                    |  |          |                    | Max M <sub>z</sub> | 0.10           | -0.02          | -0.00          | -0.00          | -0.00          | 0.00  |                         |       |       |      |      |
|                    |  |          |                    | Min M <sub>z</sub> | -0.10          | 0.02           | 0.00           | 0.00           | 0.00           | -0.00 |                         |       |       |      |      |
|                    | DLC1, Result Envelope X 30% / Y 30% / Z 100% |          |                    |                    |                |                |                |                |                |       |                         |       |       |      |      |
|                    | RC7  | 5        | 0.000              | Max N              | 0.36           | 0.01           | 0.03           | 0.00           | -0.01          | 0.00  |                         |       |       |      |      |
|                    |  |          |                    | Min N              | -0.36          | -0.01          | -0.03          | -0.00          | 0.01           | -0.00 |                         |       |       |      |      |
|                    |  |          |                    | Max V <sub>y</sub> | 0.08           | 0.03           | 0.02           | 0.00           | -0.00          | 0.01  |                         |       |       |      |      |
|                    |  |          |                    | Min V <sub>y</sub> | -0.08          | -0.03          | -0.02          | -0.00          | 0.00           | -0.01 |                         |       |       |      |      |
|                    |  |          |                    | Max V <sub>z</sub> | 0.32           | 0.02           | 0.03           | 0.00           | -0.01          | 0.00  |                         |       |       |      |      |
|                    |  |          |                    | Min V <sub>z</sub> | -0.32          | -0.02          | -0.03          | -0.00          | 0.01           | -0.00 |                         |       |       |      |      |
|                    |  |          |                    | Max M <sub>T</sub> | 0.13           | 0.03           | 0.02           | 0.01           | -0.00          | 0.01  |                         |       |       |      |      |
|                    |  |          |                    | Min M <sub>T</sub> | -0.13          | -0.03          | -0.02          | -0.01          | 0.00           | -0.01 |                         |       |       |      |      |
|                    |  |          |                    | Max M <sub>y</sub> | -0.35          | -0.01          | -0.03          | -0.00          | 0.01           | -0.00 |                         |       |       |      |      |
|                    |  |          |                    | Min M <sub>y</sub> | 0.35           | 0.01           | 0.03           | 0.00           | -0.01          | 0.00  |                         |       |       |      |      |
|                    |  |          |                    | Max M <sub>z</sub> | 0.10           | 0.03           | 0.02           | 0.00           | -0.00          | 0.01  |                         |       |       |      |      |
|                    |  |          |                    | Min M <sub>z</sub> | -0.10          | -0.03          | -0.02          | -0.00          | 0.00           | -0.01 |                         |       |       |      |      |
|                    |  |          |                    | Max N              | 0.28           | 0.00           | -0.02          | 0.00           | -0.00          | 0.00  |                         |       |       |      |      |
|                    |  |          |                    | Min N              | -0.28          | -0.00          | 0.02           | -0.00          | 0.00           | -0.00 |                         |       |       |      |      |
|                    |  |          |                    | Max V <sub>y</sub> | 0.02           | 0.03           | -0.03          | 0.00           | -0.00          | -0.01 |                         |       |       |      |      |
|                    |  |          |                    | Min V <sub>y</sub> | -0.02          | -0.03          | 0.03           | -0.00          | 0.00           | 0.01  |                         |       |       |      |      |
|                    |  |          |                    | Max V <sub>z</sub> | -0.16          | -0.03          | 0.04           | -0.00          | 0.01           | 0.00  |                         |       |       |      |      |
|                    |  |          |                    | Min V <sub>z</sub> | 0.16           | 0.03           | -0.04          | 0.00           | -0.01          | -0.00 |                         |       |       |      |      |
|                    |  |          |                    | Max M <sub>T</sub> | 0.14           | 0.03           | -0.03          | 0.00           | -0.00          | -0.00 |                         |       |       |      |      |
|                    |  |          |                    | Min M <sub>T</sub> | -0.14          | -0.03          | 0.03           | -0.00          | 0.00           | 0.00  |                         |       |       |      |      |
|                    |  |          |                    | Max M <sub>y</sub> | -0.16          | -0.03          | 0.04           | -0.00          | 0.01           | 0.00  |                         |       |       |      |      |
|                    |  |          |                    | Min M <sub>y</sub> | 0.16           | 0.03           | -0.04          | 0.00           | -0.01          | -0.00 |                         |       |       |      |      |
|                    |  |          |                    | Max M <sub>z</sub> | 0.04           | -0.03          | 0.02           | -0.00          | 0.00           | 0.01  |                         |       |       |      |      |
|                    |  |          |                    | Min M <sub>z</sub> | -0.04          | 0.03           | -0.02          | 0.00           | -0.00          | -0.01 |                         |       |       |      |      |
|                    |  |          |                    | 7                  | RC1            | 1              | 0.000          | Max N          | 3.02           | 0.02  | 0.09                    | -0.00 | -0.04 | 0.01 | CO 2 |
|                    |  |          |                    |                    |                |                |                | Min N          | 0.27           | 0.01  | -0.28                   | 0.00  | 0.03  | 0.00 | CO 1 |
| Max V <sub>y</sub> |  |          |                    |                    |                |                |                | 3.02           | 0.02           | 0.09  | -0.00                   | -0.04 | 0.01  | CO 2 |      |
| Min V <sub>y</sub> |  |          |                    |                    |                |                |                | 0.27           | 0.01           | -0.28 | 0.00                    | 0.03  | 0.00  | CO 1 |      |
| Max V <sub>z</sub> |  |          |                    |                    |                |                |                | 3.02           | 0.02           | 0.09  | -0.00                   | -0.04 | 0.01  | CO 2 |      |
| Min V <sub>z</sub> |  |          |                    |                    |                |                |                | 0.27           | 0.01           | -0.28 | 0.00                    | 0.03  | 0.00  | CO 1 |      |
| Max M <sub>T</sub> |  |          |                    |                    |                |                |                | 0.27           | 0.01           | -0.28 | 0.00                    | 0.03  | 0.00  | CO 1 |      |
| Min M <sub>T</sub> |  |          |                    |                    |                |                |                | 3.02           | 0.02           | 0.09  | -0.00                   | -0.04 | 0.01  | CO 2 |      |
| Max M <sub>y</sub> | 0.27   | 0.01     | -0.28              |                    |                |                |                | 0.00           | 0.03           | 0.00  | CO 1                    |       |       |      |      |
| Min M <sub>y</sub> | 3.02   | 0.02     | 0.09               |                    |                |                |                | -0.00          | -0.04          | 0.01  | CO 2                    |       |       |      |      |
| Max M <sub>z</sub> | 3.02   | 0.02     | 0.09               |                    |                |                |                | -0.00          | -0.04          | 0.01  | CO 2                    |       |       |      |      |
| Min M <sub>z</sub> | 0.27   | 0.01     | -0.28              |                    |                |                |                | 0.00           | 0.03           | 0.00  | CO 1                    |       |       |      |      |
| Max N              | 0.25   | -0.01    | 0.28               |                    |                |                |                | 0.00           | 0.03           | 0.00  | CO 1                    |       |       |      |      |
| Min N              | -2.19  | 0.12     | 0.68               |                    |                |                |                | 0.01           | 0.10           | -0.02 | CO 2                    |       |       |      |      |
| Max V <sub>y</sub> | -2.19  | 0.12     | 0.68               |                    |                |                |                | 0.01           | 0.10           | -0.02 | CO 2                    |       |       |      |      |
| Min V <sub>y</sub> | 0.25   | -0.01    | 0.28               |                    |                |                |                | 0.00           | 0.03           | 0.00  | CO 1                    |       |       |      |      |
| Max V <sub>z</sub> | -2.19  | 0.12     | 0.68               |                    |                |                |                | 0.01           | 0.10           | -0.02 | CO 2                    |       |       |      |      |
| Min V <sub>z</sub> | 0.25   | -0.01    | 0.28               |                    |                |                |                | 0.00           | 0.03           | 0.00  | CO 1                    |       |       |      |      |
| Max M <sub>T</sub> | -2.19  | 0.12     | 0.68               |                    |                |                |                | 0.01           | 0.10           | -0.02 | CO 2                    |       |       |      |      |
| Min M <sub>T</sub> | 0.25   | -0.01    | 0.28               |                    |                |                |                | 0.00           | 0.03           | 0.00  | CO 1                    |       |       |      |      |
| Max M <sub>y</sub> | -2.19  | 0.12     | 0.68               |                    |                |                |                | 0.01           | 0.10           | -0.02 | CO 2                    |       |       |      |      |
| Min M <sub>y</sub> | 0.25   | -0.01    | 0.28               |                    |                |                |                | 0.00           | 0.03           | 0.00  | CO 1                    |       |       |      |      |
| Max M <sub>z</sub> | 0.25   | -0.01    | 0.28               |                    |                |                |                | 0.00           | 0.03           | 0.00  | CO 1                    |       |       |      |      |
| Min M <sub>z</sub> | -2.19  | 0.12     | 0.68               |                    |                |                |                | 0.01           | 0.10           | -0.02 | CO 2                    |       |       |      |      |
| RC2                | 1  | 0.000    | Max N              |                    | 2.03           | 0.01           | 0.04           | -0.00          | -0.02          | 0.01  | CO 4                    |       |       |      |      |
|                    |  |          | Min N              |                    | 0.20           | 0.01           | -0.21          | 0.00           | 0.02           | 0.00  | CO 3                    |       |       |      |      |
|                    |  |          | Max V <sub>y</sub> |                    | 2.03           | 0.01           | 0.04           | -0.00          | -0.02          | 0.01  | CO 4                    |       |       |      |      |
|                    |  |          | Min V <sub>y</sub> |                    | 0.20           | 0.01           | -0.21          | 0.00           | 0.02           | 0.00  | CO 3                    |       |       |      |      |
|                    |  |          | Max V <sub>z</sub> |                    | 2.03           | 0.01           | 0.04           | -0.00          | -0.02          | 0.01  | CO 4                    |       |       |      |      |
|                    |  |          | Min V <sub>z</sub> |                    | 0.20           | 0.01           | -0.21          | 0.00           | 0.02           | 0.00  | CO 3                    |       |       |      |      |
|                    |  |          | Max M <sub>T</sub> |                    | 0.20           | 0.01           | -0.21          | 0.00           | 0.02           | 0.00  | CO 3                    |       |       |      |      |
|                    |  |          | Min M <sub>T</sub> |                    | 2.03           | 0.01           | 0.04           | -0.00          | -0.02          | 0.01  | CO 4                    |       |       |      |      |
|                    |  |          | Max M <sub>y</sub> |                    | 0.20           | 0.01           | -0.21          | 0.00           | 0.02           | 0.00  | CO 3                    |       |       |      |      |
|                    |  |          | Min M <sub>y</sub> |                    | 2.03           | 0.01           | 0.04           | -0.00          | -0.02          | 0.01  | CO 4                    |       |       |      |      |
|                    |  |          | Max M <sub>z</sub> |                    | 0.20           | 0.01           | -0.21          | 0.00           | 0.02           | 0.00  | CO 3                    |       |       |      |      |
|                    |  |          | Min M <sub>z</sub> |                    | -2.19          | 0.12           | 0.68           | 0.01           | 0.10           | -0.02 | CO 2                    |       |       |      |      |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m] | Forces [kN]        |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |      |
|------------|--|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------------------------|------|
|            |  |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |      |
| 7          | RC2  | 5        | 1.550          | Min M <sub>y</sub> | 2.03           | 0.01           | 0.04           | -0.00          | ▷ -0.02        | 0.01                    | CO 4 |
|            |  |          |                | Max M <sub>y</sub> | 2.03           | 0.01           | 0.04           | -0.00          | ▷ -0.02        | ▷ 0.01                  | CO 4 |
|            |  |          |                | Min M <sub>z</sub> | 0.20           | 0.01           | -0.21          | 0.00           | ▷ 0.02         | ▷ 0.00                  | CO 3 |
|            |  |          |                | Max N              | 0.18           | -0.01          | 0.21           | 0.00           | ▷ 0.02         | ▷ 0.00                  | CO 3 |
|            |  |          |                | Min N              | -1.44          | 0.08           | 0.47           | 0.01           | ▷ 0.07         | -0.02                   | CO 4 |
|            |  |          |                | Max V <sub>y</sub> | -1.44          | ▷ 0.08         | 0.47           | 0.01           | ▷ 0.07         | -0.02                   | CO 4 |
|            |  |          |                | Min V <sub>y</sub> | 0.18           | -0.01          | 0.21           | 0.00           | ▷ 0.02         | ▷ 0.00                  | CO 3 |
|            |  |          |                | Max V <sub>z</sub> | -1.44          | ▷ 0.08         | ▷ 0.47         | 0.01           | ▷ 0.07         | -0.02                   | CO 4 |
|            |  |          |                | Min V <sub>z</sub> | 0.18           | -0.01          | ▷ 0.21         | 0.00           | ▷ 0.02         | ▷ 0.00                  | CO 3 |
|            |  |          |                | Max M <sub>T</sub> | -1.44          | 0.08           | 0.47           | ▷ 0.01         | ▷ 0.07         | -0.02                   | CO 4 |
|            |  |          |                | Min M <sub>T</sub> | 0.18           | -0.01          | ▷ 0.21         | ▷ 0.00         | ▷ 0.02         | ▷ 0.00                  | CO 3 |
|            |  |          |                | Max M <sub>y</sub> | -1.44          | 0.08           | 0.47           | ▷ 0.01         | ▷ 0.07         | -0.02                   | CO 4 |
|            |  |          |                | Min M <sub>y</sub> | 0.18           | -0.01          | 0.21           | ▷ 0.00         | ▷ 0.02         | ▷ 0.00                  | CO 3 |
|            |  |          |                | Max M <sub>z</sub> | 0.18           | -0.01          | 0.21           | ▷ 0.00         | ▷ 0.02         | ▷ 0.00                  | CO 3 |
|            |  |          |                | Min M <sub>z</sub> | -1.44          | 0.08           | 0.47           | ▷ 0.01         | ▷ 0.07         | -0.02                   | CO 4 |
|            | RC3  | 1        | 0.000          | Max N              | ▷ 1.11         | 0.01           | -0.08          | -0.00          | -0.00          | ▷ 0.01                  | CO 6 |
|            |  |          |                | Min N              | ▷ 0.20         | 0.01           | -0.21          | 0.00           | 0.02           | ▷ 0.00                  | CO 5 |
|            |  |          |                | Max V <sub>y</sub> | ▷ 1.11         | 0.01           | -0.08          | -0.00          | -0.00          | ▷ 0.01                  | CO 6 |
|            |  |          |                | Min V <sub>y</sub> | ▷ 0.20         | 0.01           | -0.21          | 0.00           | 0.02           | ▷ 0.00                  | CO 5 |
|            |  |          |                | Max V <sub>z</sub> | ▷ 1.11         | 0.01           | -0.08          | -0.00          | -0.00          | ▷ 0.01                  | CO 6 |
|            |  |          |                | Min V <sub>z</sub> | ▷ 0.20         | 0.01           | -0.21          | 0.00           | 0.02           | ▷ 0.00                  | CO 5 |
|            |  |          |                | Max M <sub>T</sub> | ▷ 0.20         | 0.01           | -0.21          | ▷ 0.00         | 0.02           | ▷ 0.00                  | CO 5 |
|            |  |          |                | Min M <sub>T</sub> | ▷ 1.11         | 0.01           | -0.08          | -0.00          | -0.00          | ▷ 0.01                  | CO 6 |
|            |  |          |                | Max M <sub>y</sub> | ▷ 0.20         | 0.01           | -0.21          | ▷ 0.00         | 0.02           | ▷ 0.00                  | CO 5 |
|            |  |          |                | Min M <sub>y</sub> | ▷ 1.11         | 0.01           | -0.08          | -0.00          | -0.00          | ▷ 0.01                  | CO 6 |
|            |  |          |                | Max M <sub>z</sub> | ▷ 1.11         | 0.01           | -0.08          | -0.00          | -0.00          | ▷ 0.01                  | CO 6 |
|            |  |          |                | Min M <sub>z</sub> | ▷ 0.20         | 0.01           | -0.21          | 0.00           | 0.02           | ▷ 0.00                  | CO 5 |
|            |  | 5        | 1.550          | Max N              | ▷ 0.18         | -0.01          | 0.21           | 0.00           | 0.02           | ▷ 0.00                  | CO 5 |
|            |  |          |                | Min N              | ▷ -0.63        | 0.03           | 0.34           | 0.00           | 0.04           | -0.01                   | CO 6 |
|            |  |          |                | Max V <sub>y</sub> | ▷ -0.63        | ▷ 0.03         | 0.34           | 0.00           | 0.04           | -0.01                   | CO 6 |
|            |  |          |                | Min V <sub>y</sub> | ▷ 0.18         | -0.01          | 0.21           | 0.00           | 0.02           | ▷ 0.00                  | CO 5 |
|            |  |          |                | Max V <sub>z</sub> | ▷ -0.63        | ▷ 0.03         | 0.34           | 0.00           | 0.04           | -0.01                   | CO 6 |
|            |  |          |                | Min V <sub>z</sub> | ▷ 0.18         | -0.01          | 0.21           | 0.00           | 0.02           | ▷ 0.00                  | CO 5 |
|            |  |          |                | Max M <sub>T</sub> | ▷ -0.63        | ▷ 0.03         | 0.34           | ▷ 0.00         | 0.04           | -0.01                   | CO 6 |
|            |  |          |                | Min M <sub>T</sub> | ▷ 0.18         | -0.01          | 0.21           | ▷ 0.00         | 0.02           | ▷ 0.00                  | CO 5 |
|            |  |          |                | Max M <sub>y</sub> | ▷ -0.63        | 0.03           | 0.34           | ▷ 0.00         | 0.04           | -0.01                   | CO 6 |
|            |  |          |                | Min M <sub>y</sub> | ▷ 0.18         | -0.01          | 0.21           | ▷ 0.00         | 0.02           | ▷ 0.00                  | CO 5 |
|            |  |          |                | Max M <sub>z</sub> | ▷ 0.18         | -0.01          | 0.21           | 0.00           | 0.02           | ▷ 0.00                  | CO 5 |
|            |  |          |                | Min M <sub>z</sub> | ▷ -0.63        | 0.03           | 0.34           | 0.00           | 0.04           | ▷ -0.01                 | CO 6 |
|            | RC4  | 1        | 0.000          | Max N              | ▷ 0.75         | 0.01           | -0.13          | -0.00          | 0.01           | ▷ 0.00                  | CO 8 |
|            |  |          |                | Min N              | ▷ 0.20         | 0.01           | -0.21          | 0.00           | 0.02           | ▷ 0.00                  | CO 7 |
|            |  |          |                | Max V <sub>y</sub> | ▷ 0.75         | 0.01           | -0.13          | -0.00          | 0.01           | ▷ 0.00                  | CO 8 |
|            |  |          |                | Min V <sub>y</sub> | ▷ 0.20         | 0.01           | -0.21          | 0.00           | 0.02           | ▷ 0.00                  | CO 7 |
|            |  |          |                | Max V <sub>z</sub> | ▷ 0.75         | 0.01           | -0.13          | -0.00          | 0.01           | ▷ 0.00                  | CO 8 |
|            |  |          |                | Min V <sub>z</sub> | ▷ 0.20         | 0.01           | -0.21          | 0.00           | 0.02           | ▷ 0.00                  | CO 7 |
|            |  |          |                | Max M <sub>T</sub> | ▷ 0.20         | 0.01           | -0.21          | ▷ 0.00         | 0.02           | ▷ 0.00                  | CO 7 |
|            |  |          |                | Min M <sub>T</sub> | ▷ 0.75         | 0.01           | -0.13          | ▷ -0.00        | 0.01           | ▷ 0.00                  | CO 8 |
|            |  |          |                | Max M <sub>y</sub> | ▷ 0.20         | 0.01           | -0.21          | ▷ 0.00         | 0.02           | ▷ 0.00                  | CO 7 |
|            |  |          |                | Min M <sub>y</sub> | ▷ 0.75         | 0.01           | -0.13          | ▷ -0.00        | 0.01           | ▷ 0.00                  | CO 8 |
|            |  |          |                | Max M <sub>z</sub> | ▷ 0.75         | 0.01           | -0.13          | -0.00          | 0.01           | ▷ 0.00                  | CO 8 |
|            |  |          |                | Min M <sub>z</sub> | ▷ 0.20         | 0.01           | -0.21          | 0.00           | 0.02           | ▷ 0.00                  | CO 7 |
|            |  | 5        | 1.550          | Max N              | ▷ 0.18         | -0.01          | 0.21           | 0.00           | 0.02           | ▷ 0.00                  | CO 7 |
|            |  |          |                | Min N              | ▷ -0.31        | 0.02           | 0.29           | 0.00           | 0.04           | -0.00                   | CO 8 |
|            |  |          |                | Max V <sub>y</sub> | ▷ -0.31        | 0.02           | 0.29           | 0.00           | 0.04           | -0.00                   | CO 8 |
|            |  |          |                | Min V <sub>y</sub> | ▷ 0.18         | -0.01          | 0.21           | 0.00           | 0.02           | ▷ 0.00                  | CO 7 |
|            |  |          |                | Max V <sub>z</sub> | ▷ -0.31        | 0.02           | 0.29           | 0.00           | 0.04           | -0.00                   | CO 8 |
|            |  |          |                | Min V <sub>z</sub> | ▷ 0.18         | -0.01          | 0.21           | 0.00           | 0.02           | ▷ 0.00                  | CO 7 |
|            |  |          |                | Max M <sub>T</sub> | ▷ -0.31        | 0.02           | 0.29           | ▷ 0.00         | 0.04           | -0.00                   | CO 8 |
|            |  |          |                | Min M <sub>T</sub> | ▷ 0.18         | -0.01          | 0.21           | ▷ 0.00         | 0.02           | ▷ 0.00                  | CO 7 |
|            |  |          |                | Max M <sub>y</sub> | ▷ -0.31        | 0.02           | 0.29           | ▷ 0.00         | 0.04           | -0.00                   | CO 8 |
|            |  |          |                | Min M <sub>y</sub> | ▷ 0.18         | -0.01          | 0.21           | ▷ 0.00         | 0.02           | ▷ 0.00                  | CO 7 |
|            |  |          |                | Max M <sub>z</sub> | ▷ 0.18         | -0.01          | 0.21           | 0.00           | 0.02           | ▷ 0.00                  | CO 7 |
|            |  |          |                | Min M <sub>z</sub> | ▷ -0.31        | 0.02           | 0.29           | 0.00           | 0.04           | ▷ -0.00                 | CO 8 |
|            | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                |                    |                |                |                |                |                |                         |      |
|            | RC5  | 1        | 0.000          | Max N              | ▷ 0.29         | -0.00          | 0.04           | -0.00          | -0.01          | 0.00                    |      |
|            |  |          |                | Min N              | ▷ -0.29        | 0.00           | -0.04          | 0.00           | 0.01           | -0.00                   |      |
|            |  |          |                | Max V <sub>y</sub> | ▷ -0.04        | 0.02           | 0.01           | 0.00           | 0.00           | 0.00                    |      |
|            |  |          |                | Min V <sub>y</sub> | ▷ 0.04         | -0.02          | -0.01          | -0.00          | -0.00          | -0.00                   |      |
|            |  |          |                | Max V <sub>z</sub> | ▷ 0.27         | 0.00           | 0.04           | -0.00          | -0.01          | 0.00                    |      |
|            |  |          |                | Min V <sub>z</sub> | ▷ -0.27        | -0.00          | -0.04          | 0.00           | 0.01           | -0.00                   |      |
|            |  |          |                | Max M <sub>T</sub> | ▷ -0.17        | 0.01           | -0.01          | ▷ 0.00         | 0.00           | 0.00                    |      |
|            |  |          |                | Min M <sub>T</sub> | ▷ 0.17         | -0.01          | 0.01           | ▷ -0.00        | -0.00          | -0.00                   |      |
|            |  |          |                | Max M <sub>y</sub> | ▷ -0.28        | -0.00          | -0.04          | 0.00           | ▷ 0.01         | -0.00                   |      |
|            |  |          |                | Min M <sub>y</sub> | ▷ 0.28         | 0.00           | 0.04           | -0.00          | ▷ -0.01        | 0.00                    |      |
|            |  |          |                | Max M <sub>z</sub> | ▷ 0.05         | 0.01           | 0.02           | 0.00           | ▷ -0.00        | ▷ 0.00                  |      |
|            |  |          |                | Min M <sub>z</sub> | ▷ -0.05        | -0.01          | -0.02          | -0.00          | ▷ 0.00         | -0.00                   |      |
|            |  | 5        | 1.550          | Max N              | ▷ 0.24         | -0.01          | -0.04          | -0.00          | -0.01          | 0.00                    |      |
|            |  |          |                | Min N              | ▷ -0.24        | 0.01           | 0.04           | 0.00           | 0.01           | -0.00                   |      |
|            |  |          |                | Max V <sub>y</sub> | ▷ -0.11        | 0.02           | 0.02           | 0.00           | 0.00           | -0.00                   |      |
|            |  |          |                | Min V <sub>y</sub> | ▷ 0.11         | -0.02          | -0.02          | -0.00          | -0.00          | 0.00                    |      |
|            |  |          |                | Max V <sub>z</sub> | ▷ -0.24        | 0.01           | 0.04           | 0.00           | 0.01           | -0.00                   |      |
|            |  |          |                | Min V <sub>z</sub> | ▷ 0.24         | -0.01          | -0.04          | -0.00          | -0.01          | 0.00                    |      |
|            |  |          |                | Max M <sub>T</sub> | ▷ -0.11        | 0.02           | 0.02           | ▷ 0.00         | 0.00           | -0.00                   |      |
|            |  |          |                | Min M <sub>T</sub> | ▷ 0.11         | -0.02          | -0.02          | ▷ -0.00        | -0.00          | 0.00                    |      |
|            |  |          |                | Max M <sub>y</sub> | ▷ -0.24        | 0.01           | 0.04           | 0.00           | ▷ 0.01         | -0.00                   |      |
|            |  |          |                | Min M <sub>y</sub> | ▷ 0.24         | -0.01          | -0.04          | -0.00          | ▷ -0.01        | 0.00                    |      |
|            |  |          |                | Max M <sub>z</sub> | ▷ 0.12         | -0.02          | -0.03          | -0.00          | ▷ -0.00        | ▷ 0.00                  |      |

RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No.                                     | Location x [m] | Forces [kN]        |                    |                |                |                | Moments [kNm]  |       |       | Correspondin Load Cases |      |
|------------|--|--|----------------|--------------------|--------------------|----------------|----------------|----------------|----------------|-------|-------|-------------------------|------|
|            |  |  |                | N                  | V <sub>y</sub>     | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |       |                         |      |
| 7          | RC5  |  |                | Min M <sub>z</sub> |                    | -0.12          | 0.02           | 0.03           | 0.00           | 0.00  | -0.00 |                         |      |
|            | DLC1, Result Envelope X 30% / Y 100% / Z 30% |  |                | Max N              |                    | 0.24           | 0.01           | 0.03           | 0.00           | -0.01 | 0.00  |                         |      |
|            | RC6  | 1  | 0.000          | Min N              |                    | -0.24          | -0.01          | -0.03          | -0.00          | 0.01  | -0.00 |                         |      |
|            |  |  |                | Max V <sub>y</sub> |                    | 0.01           | 0.02           | 0.01           | 0.00           | -0.00 | 0.00  |                         |      |
|            |  |  |                | Min V <sub>y</sub> |                    | -0.01          | -0.02          | -0.01          | -0.00          | 0.00  | -0.00 |                         |      |
|            |  |  |                | Max V <sub>z</sub> |                    | 0.22           | 0.01           | 0.03           | 0.00           | -0.01 | 0.00  |                         |      |
|            |  |  |                | Min V <sub>z</sub> |                    | -0.22          | -0.01          | -0.03          | -0.00          | 0.01  | -0.00 |                         |      |
|            |  |  |                | Max M <sub>T</sub> |                    | -0.08          | 0.02           | -0.00          | 0.00           | 0.00  | 0.00  |                         |      |
|            |  |  |                | Min M <sub>T</sub> |                    | 0.08           | -0.02          | 0.00           | -0.00          | -0.00 | -0.00 |                         |      |
|            |  |  |                | Max M <sub>y</sub> |                    | -0.24          | -0.01          | -0.03          | -0.00          | 0.01  | -0.00 |                         |      |
|            |  |  |                | Min M <sub>y</sub> |                    | 0.24           | 0.01           | 0.03           | 0.00           | -0.01 | 0.00  |                         |      |
|            |  |  |                | Max M <sub>z</sub> |                    | 0.06           | 0.02           | 0.02           | 0.00           | -0.00 | 0.00  |                         |      |
|            |  |  |                | Min M <sub>z</sub> |                    | -0.06          | -0.02          | -0.02          | -0.00          | 0.00  | -0.00 |                         |      |
|            |  | 5  | 1.550          | Max N              |                    | 0.22           | -0.00          | -0.03          | 0.00           | -0.01 | 0.00  |                         |      |
|            |  |  |                | Min N              |                    | -0.22          | 0.00           | 0.03           | -0.00          | 0.01  | -0.00 |                         |      |
|            |  |  |                | Max V <sub>y</sub> |                    | -0.03          | 0.02           | 0.01           | 0.00           | 0.00  | -0.00 |                         |      |
|            |  |  |                | Min V <sub>y</sub> |                    | 0.03           | -0.02          | -0.01          | -0.00          | -0.00 | 0.00  |                         |      |
|            |  |  |                | Max V <sub>z</sub> |                    | -0.22          | 0.01           | 0.03           | 0.00           | 0.01  | -0.00 |                         |      |
|            |  |  |                | Min V <sub>z</sub> |                    | 0.22           | -0.01          | -0.03          | -0.00          | -0.01 | 0.00  |                         |      |
|            |  |  |                | Max M <sub>T</sub> |                    | -0.02          | 0.02           | 0.01           | 0.00           | 0.00  | -0.00 |                         |      |
|            |  |  |                | Min M <sub>T</sub> |                    | 0.02           | -0.02          | -0.01          | -0.00          | -0.00 | 0.00  |                         |      |
|            |  |  |                | Max M <sub>y</sub> |                    | -0.22          | 0.00           | 0.03           | -0.00          | 0.01  | -0.00 |                         |      |
|            |  |  |                | Min M <sub>y</sub> |                    | 0.22           | -0.00          | -0.03          | 0.00           | -0.01 | 0.00  |                         |      |
|            |  |  |                | Max M <sub>z</sub> |                    | 0.04           | -0.02          | -0.01          | -0.00          | -0.00 | 0.00  |                         |      |
|            |  |  |                | Min M <sub>z</sub> |                    | -0.04          | 0.02           | 0.01           | 0.00           | 0.00  | -0.00 |                         |      |
|            |  | DLC1, Result Envelope X 30% / Y 30% / Z 100% |                |                    | Max N              |                | 0.57           | -0.00          | 0.07           | -0.00 | -0.01 | 0.00                    |      |
|            |  | RC7  | 1              | 0.000              | Min N              |                | -0.57          | 0.00           | -0.07          | 0.00  | 0.01  | -0.00                   |      |
|            |  |  |                |                    | Max V <sub>y</sub> |                | -0.10          | 0.03           | 0.02           | 0.00  | 0.00  | 0.01                    |      |
|            |  |  |                |                    | Min V <sub>y</sub> |                | 0.10           | -0.03          | -0.02          | -0.00 | -0.00 | -0.01                   |      |
|            |  |  |                |                    | Max V <sub>z</sub> |                | 0.52           | 0.01           | 0.08           | -0.00 | -0.01 | 0.00                    |      |
|            |  |  |                |                    | Min V <sub>z</sub> |                | -0.52          | -0.01          | -0.08          | 0.00  | 0.01  | -0.00                   |      |
|            |  |  |                |                    | Max M <sub>T</sub> |                | -0.35          | 0.03           | -0.02          | 0.00  | 0.01  | 0.00                    |      |
|            |  |  |                |                    | Min M <sub>T</sub> |                | 0.35           | -0.03          | 0.02           | -0.00 | -0.01 | -0.00                   |      |
|            |  |  |                |                    | Max M <sub>y</sub> |                | -0.57          | 0.00           | -0.07          | 0.00  | 0.01  | -0.00                   |      |
|            |  |  |                |                    | Min M <sub>y</sub> |                | 0.57           | -0.00          | 0.07           | -0.00 | -0.01 | 0.00                    |      |
|            |  |  |                |                    | Max M <sub>z</sub> |                | 0.04           | 0.03           | 0.03           | 0.00  | -0.00 | 0.01                    |      |
|            |  |  |                |                    | Min M <sub>z</sub> |                | -0.04          | -0.03          | -0.03          | -0.00 | 0.00  | -0.01                   |      |
|            |  | 5  | 1.550          | Max N              |                    | 0.48           | -0.02          | -0.08          | -0.00          | -0.01 | 0.00  |                         |      |
|            |  |  |                | Min N              |                    | -0.48          | 0.02           | 0.08           | 0.00           | 0.01  | -0.00 |                         |      |
|            |  |  |                | Max V <sub>y</sub> |                    | -0.22          | 0.04           | 0.05           | 0.00           | 0.01  | -0.01 |                         |      |
|            |  |  |                | Min V <sub>y</sub> |                    | 0.22           | -0.04          | -0.05          | -0.00          | -0.01 | 0.01  |                         |      |
|            |  |  |                | Max V <sub>z</sub> |                    | -0.47          | 0.02           | 0.08           | 0.00           | 0.01  | -0.00 |                         |      |
|            |  |  |                | Min V <sub>z</sub> |                    | 0.47           | -0.02          | -0.08          | -0.00          | -0.01 | 0.00  |                         |      |
|            |  |  |                | Max M <sub>T</sub> |                    | -0.22          | 0.04           | 0.05           | 0.00           | 0.01  | -0.01 |                         |      |
|            |  |  |                | Min M <sub>T</sub> |                    | 0.22           | -0.04          | -0.05          | -0.00          | -0.01 | 0.01  |                         |      |
|            |  |  |                | Max M <sub>y</sub> |                    | -0.48          | 0.02           | 0.08           | 0.00           | 0.01  | -0.00 |                         |      |
|            |  |  |                | Min M <sub>y</sub> |                    | 0.48           | -0.02          | -0.08          | -0.00          | -0.01 | 0.00  |                         |      |
|            |  |  |                | Max M <sub>z</sub> |                    | 0.24           | -0.04          | -0.05          | -0.00          | -0.01 | 0.01  |                         |      |
|            |  |  |                | Min M <sub>z</sub> |                    | -0.24          | 0.04           | 0.05           | 0.00           | 0.01  | -0.01 |                         |      |
| 8          | RC1  | 3  | 0.000          | Max N              |                    | 2.52           | -0.01          | 0.30           | -0.00          | -0.06 | -0.01 | CO 2                    |      |
|            |  |  |                | Min N              |                    | 0.26           | -0.01          | -0.01          | 0.00           | -0.00 | -0.00 | CO 1                    |      |
|            |  |  |                | Max V <sub>y</sub> |                    | 2.52           | -0.01          | 0.30           | -0.00          | -0.06 | -0.01 | CO 2                    |      |
|            |  |  |                | Min V <sub>y</sub> |                    | 0.26           | -0.01          | -0.01          | 0.00           | -0.00 | -0.00 | CO 1                    |      |
|            |  |  |                | Max V <sub>z</sub> |                    | 2.52           | -0.01          | 0.30           | -0.00          | -0.06 | -0.01 | CO 2                    |      |
|            |  |  |                | Min V <sub>z</sub> |                    | 0.26           | -0.01          | -0.01          | 0.00           | -0.00 | -0.00 | CO 1                    |      |
|            |  |  |                | Max M <sub>T</sub> |                    | 0.26           | -0.01          | -0.01          | 0.00           | -0.00 | -0.00 | CO 1                    |      |
|            |  |  |                | Min M <sub>T</sub> |                    | 2.52           | -0.01          | 0.30           | -0.00          | -0.06 | -0.01 | CO 2                    |      |
|            |  |  |                | Max M <sub>y</sub> |                    | 0.26           | -0.01          | -0.01          | 0.00           | -0.00 | -0.00 | CO 1                    |      |
|            |  |  |                | Min M <sub>y</sub> |                    | 2.52           | -0.01          | 0.30           | -0.00          | -0.06 | -0.01 | CO 2                    |      |
|            |  |  |                | Max M <sub>z</sub> |                    | 0.26           | -0.01          | -0.01          | 0.00           | -0.00 | -0.00 | CO 1                    |      |
|            |  |  |                | Min M <sub>z</sub> |                    | 2.52           | -0.01          | 0.30           | -0.00          | -0.06 | -0.01 | CO 2                    |      |
|            |  | 7  | 1.550          | Max N              |                    | 0.26           | 0.01           | 0.01           | -0.00          | -0.00 | -0.00 | CO 1                    |      |
|            |  |  |                | Min N              |                    | -1.90          | -0.01          | 0.30           | 0.01           | 0.05  | 0.00  | CO 2                    |      |
|            |  |  |                | Max V <sub>y</sub> |                    | 0.26           | 0.01           | 0.01           | -0.00          | -0.00 | -0.00 | CO 1                    |      |
|            |  |  |                | Min V <sub>y</sub> |                    | -1.90          | -0.01          | 0.30           | 0.01           | 0.05  | 0.00  | CO 2                    |      |
|            |  |  |                | Max V <sub>z</sub> |                    | -1.90          | -0.01          | 0.30           | 0.01           | 0.05  | 0.00  | CO 2                    |      |
|            |  |  |                | Min V <sub>z</sub> |                    | 0.26           | 0.01           | 0.01           | -0.00          | -0.00 | -0.00 | CO 1                    |      |
|            |  |  |                | Max M <sub>T</sub> |                    | -1.90          | -0.01          | 0.30           | 0.01           | 0.05  | 0.00  | CO 2                    |      |
|            |  |  |                | Min M <sub>T</sub> |                    | 0.26           | 0.01           | 0.01           | -0.00          | -0.00 | -0.00 | CO 1                    |      |
|            |  |  |                | Max M <sub>y</sub> |                    | -1.90          | -0.01          | 0.30           | 0.01           | 0.05  | 0.00  | CO 2                    |      |
|            |  |  |                | Min M <sub>y</sub> |                    | 0.26           | 0.01           | 0.01           | -0.00          | -0.00 | -0.00 | CO 1                    |      |
|            |  |  |                | Max M <sub>z</sub> |                    | -1.90          | -0.01          | 0.30           | 0.01           | 0.05  | 0.00  | CO 2                    |      |
|            |  |  |                | Min M <sub>z</sub> |                    | 0.26           | 0.01           | 0.01           | -0.00          | -0.00 | -0.00 | CO 1                    |      |
|            |  | RC2  | 3              | 0.000              | Max N              |                | 1.70           | -0.01          | 0.20           | -0.00 | -0.04 | -0.00                   | CO 4 |
|            |  |  |                | Min N              |                    | 0.20           | -0.01          | -0.00          | 0.00           | -0.00 | -0.00 | CO 3                    |      |
|            |  |  |                | Max V <sub>y</sub> |                    | 1.70           | -0.01          | 0.20           | -0.00          | -0.04 | -0.00 | CO 4                    |      |
|            |  |  |                | Min V <sub>y</sub> |                    | 0.20           | -0.01          | -0.00          | 0.00           | -0.00 | -0.00 | CO 3                    |      |
|            |  |  |                | Max V <sub>z</sub> |                    | 1.70           | -0.01          | 0.20           | -0.00          | -0.04 | -0.00 | CO 4                    |      |
|            |  |  |                | Min V <sub>z</sub> |                    | 0.20           | -0.01          | -0.00          | 0.00           | -0.00 | -0.00 | CO 3                    |      |
|            |  |  |                | Max M <sub>T</sub> |                    | 0.20           | -0.01          | -0.00          | 0.00           | -0.00 | -0.00 | CO 3                    |      |
|            |  |  |                | Min M <sub>T</sub> |                    | 1.70           | -0.01          | 0.20           | -0.00          | -0.04 | -0.00 | CO 4                    |      |
|            |  |  |                | Max M <sub>y</sub> |                    | 0.20           | -0.01          | -0.00          | 0.00           | -0.00 | -0.00 | CO 3                    |      |
|            |  |  |                | Min M <sub>y</sub> |                    | 1.70           | -0.01          | 0.20           | -0.00          | -0.04 | -0.00 | CO 4                    |      |
|            |  |  |                | Max M <sub>z</sub> |                    | 0.20           | -0.01          | -0.00          | 0.00           | -0.00 | -0.00 | CO 3                    |      |
|            |  |  |                | Min M <sub>z</sub> |                    | 1.70           | -0.01          | 0.20           | -0.00          | -0.04 | -0.00 | CO 4                    |      |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m] | Forces [kN]        |                |                |                |                | Moments [kNm]  |       |      | Correspondin Load Cases |
|------------|--|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------|------|-------------------------|
|            |  |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |      |                         |
| 8          | RC2  | 7        | 1.550          | Max N              | 0.19           | 0.01           | 0.01           | -0.00          | -0.00          | -0.00 | CO 3 |                         |
|            |  |          |                | Min N              | -1.25          | -0.01          | 0.20           | 0.00           | 0.03           | 0.00  | CO 4 |                         |
|            |  |          |                | Max V <sub>y</sub> | 0.19           | 0.01           | 0.01           | -0.00          | -0.00          | -0.00 | CO 3 |                         |
|            |  |          |                | Min V <sub>y</sub> | -1.25          | -0.01          | 0.20           | 0.00           | 0.03           | 0.00  | CO 4 |                         |
|            |  |          |                | Max V <sub>z</sub> | -1.25          | -0.01          | 0.20           | 0.00           | 0.03           | 0.00  | CO 4 |                         |
|            |  |          |                | Min V <sub>z</sub> | 0.19           | 0.01           | 0.01           | -0.00          | -0.00          | -0.00 | CO 3 |                         |
|            |  |          |                | Max M <sub>T</sub> | -1.25          | -0.01          | 0.20           | 0.00           | 0.03           | 0.00  | CO 4 |                         |
|            |  |          |                | Min M <sub>T</sub> | 0.19           | 0.01           | 0.01           | -0.00          | -0.00          | -0.00 | CO 3 |                         |
|            |  |          |                | Max M <sub>y</sub> | -1.25          | -0.01          | 0.20           | 0.00           | 0.03           | 0.00  | CO 4 |                         |
|            |  |          |                | Min M <sub>y</sub> | 0.19           | 0.01           | 0.01           | -0.00          | -0.00          | -0.00 | CO 3 |                         |
|            |  |          |                | Max M <sub>z</sub> | -1.25          | -0.01          | 0.20           | 0.00           | 0.03           | 0.00  | CO 4 |                         |
|            |  |          |                | Min M <sub>z</sub> | 0.19           | 0.01           | 0.01           | -0.00          | -0.00          | -0.00 | CO 3 |                         |
|            | RC3  | 3        | 0.000          | Max N              | 0.95           | -0.01          | 0.10           | -0.00          | -0.02          | -0.00 | CO 6 |                         |
|            |  |          |                | Min N              | 0.20           | -0.01          | -0.00          | 0.00           | -0.00          | -0.00 | CO 5 |                         |
|            |  |          |                | Max V <sub>y</sub> | 0.95           | -0.01          | 0.10           | -0.00          | -0.02          | -0.00 | CO 6 |                         |
|            |  |          |                | Min V <sub>y</sub> | 0.20           | -0.01          | -0.00          | 0.00           | -0.00          | -0.00 | CO 5 |                         |
|            |  |          |                | Max V <sub>z</sub> | 0.95           | -0.01          | 0.10           | -0.00          | -0.02          | -0.00 | CO 6 |                         |
|            |  |          |                | Min V <sub>z</sub> | 0.20           | -0.01          | -0.00          | 0.00           | -0.00          | -0.00 | CO 5 |                         |
|            |  |          |                | Max M <sub>T</sub> | 0.20           | -0.01          | -0.00          | 0.00           | -0.00          | -0.00 | CO 5 |                         |
|            |  |          |                | Min M <sub>T</sub> | 0.95           | -0.01          | 0.10           | -0.00          | -0.02          | -0.00 | CO 6 |                         |
|            |  |          |                | Max M <sub>y</sub> | 0.20           | -0.01          | -0.00          | 0.00           | -0.00          | -0.00 | CO 5 |                         |
|            |  |          |                | Min M <sub>y</sub> | 0.95           | -0.01          | 0.10           | -0.00          | -0.02          | -0.00 | CO 6 |                         |
|            |  |          |                | Max M <sub>z</sub> | 0.20           | -0.01          | -0.00          | 0.00           | -0.00          | -0.00 | CO 5 |                         |
|            |  |          |                | Min M <sub>z</sub> | 0.95           | -0.01          | 0.10           | -0.00          | -0.02          | -0.00 | CO 6 |                         |
|            |  | 7        | 1.550          | Max N              | 0.19           | 0.01           | 0.01           | -0.00          | -0.00          | -0.00 | CO 5 |                         |
|            |  |          |                | Min N              | -0.53          | -0.00          | 0.10           | 0.00           | 0.02           | 0.00  | CO 6 |                         |
|            |  |          |                | Max V <sub>y</sub> | 0.19           | 0.01           | 0.01           | -0.00          | -0.00          | -0.00 | CO 5 |                         |
|            |  |          |                | Min V <sub>y</sub> | -0.53          | -0.00          | 0.10           | 0.00           | 0.02           | 0.00  | CO 6 |                         |
|            |  |          |                | Max V <sub>z</sub> | -0.53          | -0.00          | 0.10           | 0.00           | 0.02           | 0.00  | CO 6 |                         |
|            |  |          |                | Min V <sub>z</sub> | 0.19           | 0.01           | 0.01           | -0.00          | -0.00          | -0.00 | CO 5 |                         |
|            |  |          |                | Max M <sub>T</sub> | -0.53          | -0.00          | 0.10           | 0.00           | 0.02           | 0.00  | CO 6 |                         |
|            |  |          |                | Min M <sub>T</sub> | 0.19           | 0.01           | 0.01           | -0.00          | -0.00          | -0.00 | CO 5 |                         |
|            |  |          |                | Max M <sub>y</sub> | -0.53          | -0.00          | 0.10           | 0.00           | 0.02           | 0.00  | CO 6 |                         |
|            |  |          |                | Min M <sub>y</sub> | 0.19           | 0.01           | 0.01           | -0.00          | -0.00          | -0.00 | CO 5 |                         |
|            |  |          |                | Max M <sub>z</sub> | -0.53          | -0.00          | 0.10           | 0.00           | 0.02           | 0.00  | CO 6 |                         |
|            |  |          |                | Min M <sub>z</sub> | 0.19           | 0.01           | 0.01           | -0.00          | -0.00          | -0.00 | CO 5 |                         |
|            | RC4  | 3        | 0.000          | Max N              | 0.65           | -0.01          | 0.06           | -0.00          | -0.02          | -0.00 | CO 8 |                         |
|            |  |          |                | Min N              | 0.20           | -0.01          | -0.00          | 0.00           | -0.00          | -0.00 | CO 7 |                         |
|            |  |          |                | Max V <sub>y</sub> | 0.65           | -0.01          | 0.06           | -0.00          | -0.02          | -0.00 | CO 8 |                         |
|            |  |          |                | Min V <sub>y</sub> | 0.20           | -0.01          | -0.00          | 0.00           | -0.00          | -0.00 | CO 7 |                         |
|            |  |          |                | Max V <sub>z</sub> | 0.65           | -0.01          | 0.06           | -0.00          | -0.02          | -0.00 | CO 8 |                         |
|            |  |          |                | Min V <sub>z</sub> | 0.20           | -0.01          | -0.00          | 0.00           | -0.00          | -0.00 | CO 7 |                         |
|            |  |          |                | Max M <sub>T</sub> | 0.20           | -0.01          | -0.00          | 0.00           | -0.00          | -0.00 | CO 7 |                         |
|            |  |          |                | Min M <sub>T</sub> | 0.65           | -0.01          | 0.06           | -0.00          | -0.02          | -0.00 | CO 8 |                         |
|            |  |          |                | Max M <sub>y</sub> | 0.20           | -0.01          | -0.00          | 0.00           | -0.00          | -0.00 | CO 7 |                         |
|            |  |          |                | Min M <sub>y</sub> | 0.65           | -0.01          | 0.06           | -0.00          | -0.02          | -0.00 | CO 8 |                         |
|            |  |          |                | Max M <sub>z</sub> | 0.20           | -0.01          | -0.00          | 0.00           | -0.00          | -0.00 | CO 7 |                         |
|            |  |          |                | Min M <sub>z</sub> | 0.65           | -0.01          | 0.06           | -0.00          | -0.02          | -0.00 | CO 8 |                         |
|            |  | 7        | 1.550          | Max N              | 0.19           | 0.01           | 0.01           | -0.00          | -0.00          | -0.00 | CO 7 |                         |
|            |  |          |                | Min N              | -0.24          | 0.00           | 0.06           | 0.00           | 0.01           | -0.00 | CO 8 |                         |
|            |  |          |                | Max V <sub>y</sub> | 0.19           | 0.01           | 0.01           | -0.00          | -0.00          | -0.00 | CO 7 |                         |
|            |  |          |                | Min V <sub>y</sub> | -0.24          | 0.00           | 0.06           | 0.00           | 0.01           | -0.00 | CO 8 |                         |
|            |  |          |                | Max V <sub>z</sub> | -0.24          | 0.00           | 0.06           | 0.00           | 0.01           | -0.00 | CO 8 |                         |
|            |  |          |                | Min V <sub>z</sub> | 0.19           | 0.01           | 0.01           | -0.00          | -0.00          | -0.00 | CO 7 |                         |
|            |  |          |                | Max M <sub>T</sub> | -0.24          | 0.00           | 0.06           | 0.00           | 0.01           | -0.00 | CO 8 |                         |
|            |  |          |                | Min M <sub>T</sub> | 0.19           | 0.01           | 0.01           | -0.00          | -0.00          | -0.00 | CO 7 |                         |
|            |  |          |                | Max M <sub>y</sub> | -0.24          | 0.00           | 0.06           | 0.00           | 0.01           | -0.00 | CO 8 |                         |
|            |  |          |                | Min M <sub>y</sub> | 0.19           | 0.01           | 0.01           | -0.00          | -0.00          | -0.00 | CO 7 |                         |
|            |  |          |                | Max M <sub>z</sub> | -0.24          | 0.00           | 0.06           | 0.00           | 0.01           | -0.00 | CO 8 |                         |
|            |  |          |                | Min M <sub>z</sub> | 0.19           | 0.01           | 0.01           | -0.00          | -0.00          | -0.00 | CO 7 |                         |
|            | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                |                    |                |                |                |                |                |       |      |                         |
|            | RC5  | 3        | 0.000          | Max N              | 0.24           | -0.00          | 0.03           | -0.00          | -0.01          | -0.00 |      |                         |
|            |  |          |                | Min N              | -0.24          | 0.00           | -0.03          | 0.00           | 0.01           | 0.00  |      |                         |
|            |  |          |                | Max V <sub>y</sub> | -0.18          | 0.01           | -0.02          | 0.00           | 0.00           | 0.00  |      |                         |
|            |  |          |                | Min V <sub>y</sub> | 0.18           | -0.01          | 0.02           | -0.00          | -0.00          | -0.00 |      |                         |
|            |  |          |                | Max V <sub>z</sub> | 0.22           | -0.00          | 0.03           | -0.00          | -0.01          | -0.00 |      |                         |
|            |  |          |                | Min V <sub>z</sub> | -0.22          | 0.00           | -0.03          | 0.00           | 0.01           | 0.00  |      |                         |
|            |  |          |                | Max M <sub>T</sub> | -0.15          | 0.01           | -0.03          | 0.00           | 0.00           | 0.00  |      |                         |
|            |  |          |                | Min M <sub>T</sub> | 0.15           | -0.01          | 0.03           | -0.00          | -0.00          | -0.00 |      |                         |
|            |  |          |                | Max M <sub>y</sub> | -0.23          | 0.00           | -0.03          | 0.00           | 0.01           | 0.00  |      |                         |
|            |  |          |                | Min M <sub>y</sub> | 0.23           | -0.00          | 0.03           | -0.00          | -0.01          | -0.00 |      |                         |
|            |  |          |                | Max M <sub>z</sub> | -0.19          | 0.01           | -0.02          | 0.00           | 0.00           | 0.00  |      |                         |
|            |  |          |                | Min M <sub>z</sub> | 0.19           | -0.01          | 0.02           | -0.00          | -0.00          | -0.00 |      |                         |
|            |  | 7        | 1.550          | Max N              | 0.20           | 0.00           | -0.03          | -0.00          | -0.01          | -0.00 |      |                         |
|            |  |          |                | Min N              | -0.20          | -0.00          | 0.03           | 0.00           | 0.01           | 0.00  |      |                         |
|            |  |          |                | Max V <sub>y</sub> | 0.00           | 0.01           | 0.01           | 0.00           | 0.00           | -0.00 |      |                         |
|            |  |          |                | Min V <sub>y</sub> | -0.00          | -0.01          | -0.01          | -0.00          | -0.00          | 0.00  |      |                         |
|            |  |          |                | Max V <sub>z</sub> | -0.19          | 0.00           | 0.03           | 0.00           | 0.01           | -0.00 |      |                         |
|            |  |          |                | Min V <sub>z</sub> | 0.19           | -0.00          | -0.03          | -0.00          | -0.01          | 0.00  |      |                         |
|            |  |          |                | Max M <sub>T</sub> | -0.11          | 0.01           | 0.02           | 0.00           | 0.00           | -0.00 |      |                         |
|            |  |          |                | Min M <sub>T</sub> | 0.11           | -0.01          | -0.02          | -0.00          | -0.00          | 0.00  |      |                         |
|            |  |          |                | Max M <sub>y</sub> | -0.19          | 0.00           | 0.03           | 0.00           | 0.01           | -0.00 |      |                         |
|            |  |          |                | Min M <sub>y</sub> | 0.19           | -0.00          | -0.03          | -0.00          | -0.01          | 0.00  |      |                         |
|            |  |          |                | Max M <sub>z</sub> | -0.03          | -0.01          | -0.00          | -0.00          | -0.00          | 0.00  |      |                         |
|            |  |          |                | Min M <sub>z</sub> | 0.03           | 0.01           | 0.00           | 0.00           | 0.00           | -0.00 |      |                         |
|            | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                |                    |                |                |                |                |                |       |      |                         |
|            | RC6  | 3        | 0.000          | Max N              | 0.19           | 0.00           | 0.02           | 0.00           | -0.00          | -0.00 |      |                         |
|            |  |          |                |                    |                |                |                |                |                |       |      |                         |

RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC                 | Node No. | Location x [m]     | Forces [kN]                                  |                |                |                |                    | Moments [kNm]  |       |       | Correspondin Load Cases |       |       |       |       |       |       |  |       |  |
|--------------------|--------------------|----------|--------------------|--|----------------|----------------|----------------|--------------------|----------------|-------|-------|-------------------------|-------|-------|-------|-------|-------|-------|--|-------|--|
|                    |                    |          |                    | N  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub>     | M <sub>z</sub> |       |       |                         |       |       |       |       |       |       |  |       |  |
| 8                  | RC6                | 7        | 1.550              | Min N  | ▷              | -0.19          |                | -0.00              |                | -0.02 |       | -0.00                   |       | 0.00  |       |       |       |       |  |       |  |
|                    |                    |          |                    | Max V <sub>y</sub>                           | ▷              | -0.12          |                | 0.01               |                | -0.01 |       | 0.00                    |       | 0.00  |       | 0.00  |       |       |  |       |  |
|                    |                    |          |                    | Min V <sub>y</sub>                           |                | 0.12           | ▷              | -0.01              |                | 0.01  |       | -0.00                   |       | -0.00 |       | -0.00 |       |       |  |       |  |
|                    |                    |          |                    | Max V <sub>z</sub>                           |                | 0.16           |                | 0.00               |                | 0.02  |       | 0.00                    |       | -0.00 |       | -0.00 |       |       |  |       |  |
|                    |                    |          |                    | Min V <sub>z</sub>                           |                | -0.16          |                | -0.00              | ▷              | -0.02 |       | -0.00                   |       | 0.00  |       | 0.00  |       |       |  |       |  |
|                    |                    |          |                    | Max M <sub>T</sub>                           |                | -0.09          |                | 0.01               |                | -0.02 |       | 0.00                    |       | 0.00  |       | 0.00  |       |       |  |       |  |
|                    |                    |          |                    | Min M <sub>T</sub>                           |                | 0.09           |                | -0.01              |                | 0.02  | ▷     | -0.00                   |       | -0.00 |       | -0.00 |       |       |  |       |  |
|                    |                    |          |                    | Max M <sub>y</sub>                           |                | -0.18          |                | -0.00              |                | -0.02 |       | -0.00                   | ▷     | 0.00  |       | 0.00  |       |       |  |       |  |
|                    |                    |          |                    | Min M <sub>y</sub>                           |                | 0.18           |                | 0.00               |                | 0.02  |       | 0.00                    | ▷     | -0.00 |       | -0.00 |       |       |  |       |  |
|                    |                    |          |                    | Max M <sub>z</sub>                           |                | -0.13          |                | 0.01               |                | -0.01 |       | 0.00                    |       | 0.00  | ▷     | 0.00  |       |       |  |       |  |
|                    |                    |          |                    | Min M <sub>z</sub>                           |                | 0.13           |                | -0.01              |                | 0.01  |       | -0.00                   |       | -0.00 | ▷     | -0.00 |       |       |  |       |  |
|                    |                    |          |                    | Max N  |                | 0.15           |                | -0.00              |                | -0.02 |       | -0.00                   |       | -0.00 |       | -0.00 |       |       |  |       |  |
|                    |                    |          |                    | Min N  | ▷              | -0.15          |                | 0.00               |                | 0.02  |       | 0.00                    |       | 0.00  |       | 0.00  |       |       |  |       |  |
|                    |                    |          |                    | Max V <sub>y</sub>                           |                | -0.00          |                | 0.01               |                | 0.00  |       | 0.00                    |       | 0.00  |       | -0.00 |       |       |  |       |  |
|                    |                    |          |                    | Min V <sub>y</sub>                           |                | 0.00           |                | -0.01              |                | -0.00 |       | -0.00                   |       | -0.00 |       | 0.00  |       |       |  |       |  |
|                    |                    |          |                    | Max V <sub>z</sub>                           |                | -0.13          |                | -0.00              | ▷              | 0.02  |       | -0.00                   |       | 0.00  |       | 0.00  |       |       |  |       |  |
|                    |                    |          |                    | Min V <sub>z</sub>                           |                | 0.13           |                | 0.00               |                | -0.02 |       | 0.00                    |       | -0.00 |       | -0.00 |       |       |  |       |  |
|                    |                    |          |                    | Max M <sub>T</sub>                           |                | -0.08          |                | 0.01               |                | 0.01  | ▷     | 0.00                    |       | 0.00  |       | -0.00 |       |       |  |       |  |
|                    |                    |          |                    | Min M <sub>T</sub>                           |                | 0.08           |                | -0.01              |                | -0.01 | ▷     | -0.00                   |       | -0.00 |       | 0.00  |       |       |  |       |  |
|                    |                    |          |                    | Max M <sub>y</sub>                           |                | -0.14          |                | -0.00              |                | 0.02  |       | 0.00                    | ▷     | 0.00  |       | 0.00  |       |       |  |       |  |
|                    |                    |          |                    | Min M <sub>y</sub>                           |                | 0.14           |                | 0.00               |                | -0.02 |       | -0.00                   | ▷     | -0.00 |       | -0.00 |       |       |  |       |  |
|                    |                    |          |                    | Max M <sub>z</sub>                           |                | -0.01          |                | -0.01              |                | 0.00  |       | -0.00                   |       | -0.00 | ▷     | 0.00  |       |       |  |       |  |
|                    |                    |          |                    | Min M <sub>z</sub>                           |                | 0.01           |                | 0.01               |                | -0.00 |       | 0.00                    |       | 0.00  | ▷     | -0.00 |       |       |  |       |  |
|                    |                    |          |                    | DLC1, Result Envelope X 30% / Y 30% / Z 100% |                |                |                |                    |                |       |       |                         |       |       |       |       |       |       |  |       |  |
|                    |                    |          |                    | 9  | RC7            | 3              | 0.000          | Max N              | ▷              | 0.50  |       | -0.01                   |       | 0.06  |       | -0.00 |       | -0.01 |  | -0.00 |  |
|                    |                    |          |                    |  |                |                |                | Min N              | ▷              | -0.50 |       | 0.01                    |       | -0.06 |       | 0.00  |       | 0.01  |  | 0.00  |  |
|                    |                    |          |                    |  |                |                |                | Max V <sub>y</sub> |                | -0.38 |       | 0.02                    |       | -0.03 |       | 0.00  |       | 0.01  |  | 0.00  |  |
|                    |                    |          |                    |  |                |                |                | Min V <sub>y</sub> |                | 0.38  |       | -0.02                   |       | 0.03  |       | -0.00 |       | -0.01 |  | -0.00 |  |
|                    | Max V <sub>z</sub> |          | 0.44               |  |                |                |                |                    | -0.01          | ▷     | 0.06  |                         | -0.00 |       | -0.01 |       | -0.00 |       |  |       |  |
|                    | Min V <sub>z</sub> |          | -0.44              |  |                |                |                |                    | 0.01           | ▷     | -0.06 |                         | 0.00  |       | 0.01  |       | 0.00  |       |  |       |  |
|                    | Max M <sub>T</sub> |          | -0.29              |  |                |                |                |                    | 0.01           |       | -0.05 | ▷                       | 0.00  |       | 0.01  |       | 0.00  |       |  |       |  |
|                    | Min M <sub>T</sub> |          | 0.29               |  |                |                |                |                    | -0.01          |       | 0.05  | ▷                       | -0.00 |       | -0.01 |       | -0.00 |       |  |       |  |
|                    | Max M <sub>y</sub> |          | -0.47              |  |                |                |                |                    | 0.01           |       | -0.06 |                         | 0.00  | ▷     | 0.01  |       | 0.00  |       |  |       |  |
|                    | Min M <sub>y</sub> |          | 0.47               |  |                |                |                |                    | -0.01          |       | 0.06  |                         | -0.00 | ▷     | -0.01 |       | -0.00 |       |  |       |  |
|                    | Max M <sub>z</sub> |          | -0.40              |  |                |                |                |                    | 0.02           |       | -0.03 |                         | 0.00  |       | 0.01  | ▷     | 0.00  |       |  |       |  |
|                    | Min M <sub>z</sub> |          | 0.40               |  |                |                |                |                    | -0.02          |       | 0.03  |                         | -0.00 |       | -0.01 | ▷     | -0.00 |       |  |       |  |
|                    | Max N              | ▷        | 0.40               |  |                |                |                |                    | 0.00           |       | -0.06 |                         | -0.00 |       | -0.01 |       | -0.00 |       |  |       |  |
|                    | Min N              | ▷        | -0.40              |  |                |                |                |                    | -0.00          |       | 0.06  |                         | 0.00  |       | 0.01  |       | 0.00  |       |  |       |  |
|                    | Max V <sub>y</sub> | ▷        | 0.02               |  |                |                |                |                    | 0.03           |       | 0.01  |                         | 0.00  |       | 0.00  |       | -0.01 |       |  |       |  |
|                    | Min V <sub>y</sub> | ▷        | -0.02              |  |                |                |                |                    | -0.03          |       | -0.01 |                         | -0.00 |       | -0.00 |       | 0.01  |       |  |       |  |
|                    | Max V <sub>z</sub> | ▷        | -0.38              |  |                |                |                |                    | 0.01           |       | 0.06  |                         | 0.00  |       | 0.01  |       | -0.00 |       |  |       |  |
|                    | Min V <sub>z</sub> | ▷        | 0.38               |  |                |                |                |                    | -0.01          | ▷     | -0.06 |                         | -0.00 |       | -0.01 |       | 0.00  |       |  |       |  |
|                    | Max M <sub>T</sub> |          | -0.20              |  |                |                |                |                    | 0.03           |       | 0.04  | ▷                       | 0.00  |       | 0.01  |       | -0.00 |       |  |       |  |
|                    | Min M <sub>T</sub> |          | 0.20               |  |                |                |                |                    | -0.03          |       | -0.04 | ▷                       | -0.00 |       | -0.01 |       | 0.00  |       |  |       |  |
|                    | Max M <sub>y</sub> |          | -0.39              |  |                | 0.00           |                | 0.06               |                | 0.00  | ▷     | 0.01                    |       | -0.00 |       |       |       |       |  |       |  |
|                    | Min M <sub>y</sub> |          | 0.39               |  |                | -0.00          |                | -0.06              |                | -0.00 | ▷     | -0.01                   |       | 0.00  |       |       |       |       |  |       |  |
|                    | Max M <sub>z</sub> |          | -0.06              |  |                | -0.03          |                | -0.01              |                | -0.00 |       | -0.00                   | ▷     | 0.01  |       |       |       |       |  |       |  |
|                    | Min M <sub>z</sub> |          | 0.06               |  |                | 0.03           |                | 0.01               |                | 0.00  |       | 0.00                    | ▷     | -0.01 |       |       |       |       |  |       |  |
| RC1                | 9                  | 0.000    | Max N              |  | ▷              | 1.39           |                | -0.48              |                | 0.64  |       | -0.69                   |       | -0.45 |       | -0.55 | CO 2  |       |  |       |  |
|                    |                    |          | Min N              |  | ▷              | 0.02           |                | -0.02              |                | 0.08  |       | -0.00                   |       | 0.01  |       | -0.02 | CO 1  |       |  |       |  |
|                    |                    |          | Max V <sub>y</sub> |  | ▷              | 0.02           |                | -0.02              |                | 0.08  |       | -0.00                   |       | 0.01  |       | -0.02 | CO 1  |       |  |       |  |
|                    |                    |          | Min V <sub>y</sub> |  | ▷              | 1.39           |                | -0.48              |                | 0.64  |       | -0.69                   |       | -0.45 |       | -0.55 | CO 2  |       |  |       |  |
|                    |                    |          | Max V <sub>z</sub> |  |                | 1.39           |                | -0.48              |                | 0.64  |       | -0.69                   |       | -0.45 |       | -0.55 | CO 2  |       |  |       |  |
|                    |                    |          | Min V <sub>z</sub> |  |                | 0.02           |                | -0.02              | ▷              | 0.08  |       | -0.00                   |       | 0.01  |       | -0.02 | CO 1  |       |  |       |  |
|                    |                    |          | Max M <sub>T</sub> |  |                | 0.02           |                | -0.02              |                | 0.08  | ▷     | -0.00                   |       | 0.01  |       | -0.02 | CO 1  |       |  |       |  |
|                    |                    |          | Min M <sub>T</sub> |  |                | 1.39           |                | -0.48              |                | 0.64  | ▷     | -0.69                   |       | -0.45 |       | -0.55 | CO 2  |       |  |       |  |
|                    |                    |          | Max M <sub>y</sub> |  |                | 0.02           |                | -0.02              |                | 0.08  |       | -0.00                   | ▷     | 0.01  |       | -0.02 | CO 1  |       |  |       |  |
|                    |                    |          | Min M <sub>y</sub> |  |                | 1.39           |                | -0.48              |                | 0.64  |       | -0.69                   |       | -0.45 |       | -0.55 | CO 2  |       |  |       |  |
|                    |                    |          | Max M <sub>z</sub> |  |                | 0.02           |                | -0.02              |                | 0.08  |       | -0.00                   |       | 0.01  | ▷     | -0.02 | CO 1  |       |  |       |  |
|                    |                    |          | Min M <sub>z</sub> |  |                | 1.39           |                | -0.48              |                | 0.64  |       | -0.69                   |       | -0.45 | ▷     | -0.55 | CO 2  |       |  |       |  |
|                    |                    |          | Max N              |  | ▷              | 1.39           |                | -0.48              |                | 0.39  |       | -0.69                   |       | 0.35  |       | 0.19  | CO 2  |       |  |       |  |
|                    |                    |          | Min N              |  | ▷              | 0.02           |                | -0.02              |                | -0.16 |       | -0.00                   |       | -0.05 |       | 0.01  | CO 1  |       |  |       |  |
|                    |                    |          | Max V <sub>y</sub> |  |                | 0.02           |                | -0.02              |                | -0.16 |       | -0.00                   |       | -0.05 |       | 0.01  | CO 1  |       |  |       |  |
|                    |                    |          | Min V <sub>y</sub> |  | ▷              | 1.39           |                | -0.48              |                | 0.39  |       | -0.69                   |       | 0.35  |       | 0.19  | CO 2  |       |  |       |  |
|                    |                    |          | Max V <sub>z</sub> |  | 1.39           |                | -0.48          | ▷                  | 0.39           |       | -0.69 |                         | 0.35  |       | 0.19  | CO 2  |       |       |  |       |  |
|                    |                    |          | Min V <sub>z</sub> |  | 0.02           |                | -0.02          | ▷                  | -0.16          |       | -0.00 |                         | -0.05 |       | 0.01  | CO 1  |       |       |  |       |  |
|                    |                    |          | Max M <sub>T</sub> |  | 0.02           |                | -0.02          |                    | -0.16          | ▷     | -0.00 |                         | -0.05 |       | 0.01  | CO 1  |       |       |  |       |  |
|                    |                    |          | Min M <sub>T</sub> |  | 1.39           |                | -0.48          |                    | 0.39           | ▷     | -0.69 |                         | 0.35  |       | 0.19  | CO 2  |       |       |  |       |  |
| Max M <sub>y</sub> |                    | 1.39     |                    | -0.48  |                | 0.39           |                | -0.69              | ▷              | 0.35  |       | 0.19                    | CO 2  |       |       |       |       |       |  |       |  |
| Min M <sub>y</sub> |                    | 0.02     |                    | -0.02  |                | -0.16          |                | -0.00              | ▷              | -0.05 |       | 0.01                    | CO 1  |       |       |       |       |       |  |       |  |
| Max M <sub>z</sub> |                    | 1.39     |                    | -0.48  |                | 0.39           |                | -0.69              |                | 0.35  | ▷     | 0.19                    | CO 2  |       |       |       |       |       |  |       |  |
| Min M <sub>z</sub> |                    | 0.02     |                    | -0.02  |                | -0.16          |                | -0.00              |                | -0.05 | ▷     | 0.01                    | CO 1  |       |       |       |       |       |  |       |  |
| RC2                | 9                  | 0.000    | Max N              | ▷  | 0.93           |                | -0.32          |                    | 0.43           |       | -0.46 |                         | -0.30 |       | -0.37 | CO 4  |       |       |  |       |  |
|                    |                    |          | Min N              | ▷  | 0.01           |                | -0.01          |                    | 0.06           |       | -0.00 |                         | 0.01  |       | -0.01 | CO 3  |       |       |  |       |  |
|                    |                    |          | Max V <sub>y</sub> | ▷  | 0.01           |                | -0.01          |                    | 0.06           |       | -0.00 |                         | 0.01  |       | -0.01 | CO 3  |       |       |  |       |  |
|                    |                    |          | Min V <sub>y</sub> | ▷  | 0.93           |                | -0.32          |                    | 0.43           |       | -0.46 |                         | -0.30 |       | -0.37 | CO 4  |       |       |  |       |  |
|                    |                    |          | Max V <sub>z</sub> |  | 0.93           |                | -0.32          | ▷                  | 0.43           |       | -0.46 |                         | -0.30 |       | -0.37 | CO 4  |       |       |  |       |  |
|                    |                    |          | Min V <sub>z</sub> |  | 0.01           |                | -0.01          | ▷                  | 0.06           |       | -0.00 |                         | 0.01  |       | -0.01 | CO 3  |       |       |  |       |  |
|                    |                    |          | Max M <sub>T</sub> |  | 0.01           |                | -0.01          |                    | 0.06           | ▷     | -0.00 |                         | 0.01  |       | -0.01 | CO 3  |       |       |  |       |  |
|                    |                    |          | Min M <sub>T</sub> |  | 0.93           |                | -0.32          |                    | 0.43           | ▷     | -0.46 |                         | -0.30 |       | -0.37 | CO 4  |       |       |  |       |  |
|                    |                    |          | Max M <sub>y</sub> |  | 0.01           |                | -0.01          |                    | 0.06           |       | -0.00 | ▷                       | 0.01  |       | -0.01 | CO 3  |       |       |  |       |  |
|                    |                    |          | Min M <sub>y</sub> |  | 0.93           |                | -0.32          |                    | 0.43           |       | -0.46 | ▷                       | -0.30 |       | -0.37 | CO 4  |       |       |  |       |  |
|                    |                    |          | Max M <sub>z</sub> |  | 0.01           |                | -0.01          |                    | 0.06           |       | -0.00 |                         | 0.01  | ▷     | -0.01 | CO 3  |       |       |  |       |  |
|                    |                    |          | Min M <sub>z</sub> |  | 0.93           |                | -0.32          |                    | 0.43           |       | -0.46 |                         | -0.30 | ▷     | -0.37 | CO 4  |       |       |  |       |  |
|                    |                    |          | Max N              | ▷  | 0.93           |                | -0.32          |                    | 0.25           |       | -0.46 |                         | 0.23  |       | 0.13  | CO 4  |       |       |  |       |  |
|                    |                    |          | Min N              | ▷  | 0.01           |                | -0.01          |                    | -0.12          |       | -0.00 |                         | -0.04 |       | 0.01  | CO 3  |       |       |  |       |  |
|                    |                    |          | Max V <sub>y</sub> | ▷  | 0.01           |                | -0.01          |                    | -0.12          |       | -0.00 |                         | -0.04 |       | 0.01  | CO 3  |       |       |  |       |  |

# RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.                                   | RC  | Node No. | Location x [m] | Forces [kN]        |                |                |                |                | Moments [kNm]  |       |       | Correspondin Load Cases |       |      |
|--|-----|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------|-------|-------------------------|-------|------|
|  |     |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |       |                         |       |      |
| 9  | RC2 |          |                | Min V <sub>y</sub> | 0.93           | ▷              | -0.32          | 0.25           | -0.46          | 0.23  | 0.13  | CO 4                    |       |      |
|  |     |          |                | Max V <sub>z</sub> | 0.93           |                | -0.32          | ▷              | 0.25           | -0.46 | 0.23  | 0.13                    | CO 4  |      |
|  |     |          |                | Min V <sub>z</sub> | 0.01           |                | -0.01          | ▷              | -0.12          | -0.00 | -0.04 | 0.01                    | CO 3  |      |
|  |     |          |                | Max M <sub>T</sub> | 0.01           |                | -0.01          |                | -0.12          | ▷     | -0.00 | -0.04                   | 0.01  | CO 3 |
|  |     |          |                | Min M <sub>T</sub> | 0.93           |                | -0.32          | 0.25           | ▷              | -0.46 | 0.23  | 0.13                    | CO 4  |      |
|  |     |          |                | Max M <sub>y</sub> | 0.93           |                | -0.32          | 0.25           |                | -0.46 | ▷     | 0.23                    | 0.13  | CO 4 |
|  |     |          |                | Min M <sub>y</sub> | 0.01           |                | -0.01          | -0.12          | -0.00          | ▷     | -0.04 | 0.01                    | CO 3  |      |
|  |     |          |                | Max M <sub>z</sub> | 0.93           |                | -0.32          | 0.25           | -0.46          | ▷     | 0.23  | 0.13                    | CO 4  |      |
|  |     |          |                | Min M <sub>z</sub> | 0.01           |                | -0.01          | -0.12          | -0.00          |       | -0.04 | ▷                       | 0.01  | CO 3 |
|  |     |          |                | Max N              | 0.47           |                | -0.17          | 0.25           | -0.23          | -0.14 |       | -0.19                   | CO 6  |      |
|  |     |          |                | Min N              | 0.01           | ▷              | -0.01          | 0.06           | -0.00          | 0.01  | -0.01 |                         | CO 5  |      |
|  |     |          |                | Max V <sub>y</sub> | 0.01           | ▷              | -0.01          | 0.06           | -0.00          | 0.01  | -0.01 |                         | CO 5  |      |
|  |     | 9        | 0.000          | Min V <sub>y</sub> | 0.47           | ▷              | -0.17          | 0.25           | -0.23          | -0.14 | -0.19 | CO 6                    |       |      |
|  |     |          |                | Max V <sub>z</sub> | 0.47           |                | -0.17          | ▷              | 0.25           | -0.23 | -0.14 | -0.19                   | CO 6  |      |
|  |     |          |                | Min V <sub>z</sub> | 0.01           |                | -0.01          | ▷              | 0.06           | -0.00 | 0.01  | -0.01                   | CO 5  |      |
|  |     |          |                | Max M <sub>T</sub> | 0.01           |                | -0.01          | 0.06           | ▷              | -0.00 | 0.01  | -0.01                   | CO 5  |      |
|  |     |          |                | Min M <sub>T</sub> | 0.47           |                | -0.17          | 0.25           | ▷              | -0.23 | -0.14 | -0.19                   | CO 6  |      |
|  |     |          |                | Max M <sub>y</sub> | 0.01           |                | -0.01          | 0.06           |                | -0.00 | ▷     | 0.01                    | -0.01 | CO 5 |
|  |     |          |                | Min M <sub>y</sub> | 0.47           |                | -0.17          | 0.25           |                | -0.23 | ▷     | -0.14                   | -0.19 | CO 6 |
|  |     |          |                | Max M <sub>z</sub> | 0.01           |                | -0.01          | 0.06           | -0.00          | 0.01  | ▷     | -0.01                   | -0.01 | CO 5 |
|  |     |          |                | Min M <sub>z</sub> | 0.47           |                | -0.17          | 0.25           | -0.23          | -0.14 | ▷     | -0.19                   | CO 6  |      |
|  |     |          |                | Max N              | 0.47           |                | -0.17          | 0.06           | -0.23          | 0.10  |       | 0.07                    | CO 6  |      |
|  |     |          |                | Min N              | 0.01           | ▷              | -0.01          | -0.12          | -0.00          | -0.04 | 0.01  |                         | CO 5  |      |
|  |     |          |                | Max V <sub>y</sub> | 0.01           | ▷              | -0.01          | -0.12          | -0.00          | -0.04 | 0.01  |                         | CO 5  |      |
|  |     | 10       | 1.550          | Min V <sub>y</sub> | 0.47           | ▷              | -0.17          | 0.06           | -0.23          | 0.10  |       | 0.07                    | CO 6  |      |
|  |     |          |                | Max V <sub>z</sub> | 0.47           |                | -0.17          | ▷              | 0.06           | -0.23 | 0.10  |                         | 0.07  | CO 6 |
|  |     |          |                | Min V <sub>z</sub> | 0.01           |                | -0.01          | -0.12          | -0.00          | -0.04 | 0.01  |                         | CO 5  |      |
|  |     |          |                | Max M <sub>T</sub> | 0.01           |                | -0.01          | -0.12          | -0.00          | -0.04 | 0.01  |                         | CO 5  |      |
|  |     |          |                | Min M <sub>T</sub> | 0.47           |                | -0.17          | 0.06           | ▷              | -0.23 | 0.10  |                         | 0.07  | CO 6 |
|  |     |          |                | Max M <sub>y</sub> | 0.47           |                | -0.17          | 0.06           | ▷              | -0.23 | 0.10  |                         | 0.07  | CO 6 |
|  |     |          |                | Min M <sub>y</sub> | 0.01           |                | -0.01          | -0.12          | -0.00          | -0.04 | 0.01  |                         | CO 5  |      |
|  |     |          |                | Max M <sub>z</sub> | 0.47           |                | -0.17          | 0.06           | -0.23          | 0.10  | ▷     | 0.07                    | CO 6  |      |
|  |     |          |                | Min M <sub>z</sub> | 0.01           |                | -0.01          | -0.12          | -0.00          | -0.04 | 0.01  |                         | CO 5  |      |
|  |     |          |                | Max N              | 0.29           |                | -0.11          | 0.17           | -0.14          | -0.08 | -0.12 |                         | CO 8  |      |
|  |     |          |                | Min N              | 0.01           | ▷              | -0.01          | 0.06           | -0.00          | 0.01  | -0.01 |                         | CO 7  |      |
|  |     |          |                | Max V <sub>y</sub> | 0.01           | ▷              | -0.01          | 0.06           | -0.00          | 0.01  | -0.01 |                         | CO 7  |      |
|  |     | 9        | 0.000          | Min V <sub>y</sub> | 0.29           |                | -0.11          | 0.17           | -0.14          | -0.08 | -0.12 | CO 8                    |       |      |
|  |     |          |                | Max V <sub>z</sub> | 0.29           |                | -0.11          | ▷              | 0.17           | -0.14 | -0.08 | -0.12                   | CO 8  |      |
|  |     |          |                | Min V <sub>z</sub> | 0.01           |                | -0.01          | ▷              | 0.06           | -0.00 | 0.01  | -0.01                   | CO 7  |      |
|  |     |          |                | Max M <sub>T</sub> | 0.01           |                | -0.01          | 0.06           | ▷              | -0.00 | 0.01  | -0.01                   | CO 7  |      |
|  |     |          |                | Min M <sub>T</sub> | 0.29           |                | -0.11          | 0.17           | ▷              | -0.14 | -0.08 | -0.12                   | CO 8  |      |
|  |     |          |                | Max M <sub>y</sub> | 0.01           |                | -0.01          | 0.06           |                | -0.00 | ▷     | 0.01                    | -0.01 | CO 7 |
|  |     |          |                | Min M <sub>y</sub> | 0.29           |                | -0.11          | 0.17           |                | -0.14 | ▷     | -0.08                   | -0.12 | CO 8 |
|  |     |          |                | Max M <sub>z</sub> | 0.01           |                | -0.01          | 0.06           | -0.00          | 0.01  | ▷     | -0.01                   | -0.01 | CO 7 |
|  |     |          |                | Min M <sub>z</sub> | 0.29           |                | -0.11          | 0.17           | -0.14          | -0.08 | ▷     | -0.12                   | CO 8  |      |
|  |     |          |                | Max N              | 0.29           |                | -0.11          | -0.01          | -0.14          | 0.04  |       | 0.04                    | CO 8  |      |
|  |     |          |                | Min N              | 0.01           | ▷              | -0.01          | -0.12          | -0.00          | -0.04 | 0.01  |                         | CO 7  |      |
|  |     |          |                | Max V <sub>y</sub> | 0.01           | ▷              | -0.01          | -0.12          | -0.00          | -0.04 | 0.01  |                         | CO 7  |      |
|  |     | 10       | 1.550          | Min V <sub>y</sub> | 0.29           | ▷              | -0.11          | -0.01          | -0.14          | 0.04  |       | 0.04                    | CO 8  |      |
|  |     |          |                | Max V <sub>z</sub> | 0.29           |                | -0.11          | ▷              | -0.01          | -0.14 | 0.04  |                         | 0.04  | CO 8 |
|  |     |          |                | Min V <sub>z</sub> | 0.01           |                | -0.01          | ▷              | -0.12          | -0.00 | -0.04 | 0.01                    |       | CO 7 |
|  |     |          |                | Max M <sub>T</sub> | 0.01           |                | -0.01          | -0.12          | ▷              | -0.00 | -0.04 | 0.01                    |       | CO 7 |
|  |     |          |                | Min M <sub>T</sub> | 0.29           |                | -0.11          | -0.01          | ▷              | -0.14 | 0.04  |                         | 0.04  | CO 8 |
|  |     |          |                | Max M <sub>y</sub> | 0.29           |                | -0.11          | -0.01          | -0.14          | ▷     | 0.04  |                         | 0.04  | CO 8 |
| Min M <sub>y</sub>                           |     |          |                | 0.01               |                | -0.01          | -0.12          |                | -0.00          | ▷     | -0.04 | 0.01                    | CO 7  |      |
| Max M <sub>z</sub>                           |     |          |                | 0.29               |                | -0.11          | -0.01          | -0.14          | ▷              | 0.04  | ▷     | 0.04                    | CO 8  |      |
| Min M <sub>z</sub>                           |     |          |                | 0.01               |                | -0.01          | -0.12          |                | -0.00          | ▷     | -0.04 | 0.01                    | CO 7  |      |
| Max N  |     |          |                | 0.01               |                | -0.01          | -0.12          | -0.00          | -0.04          | 0.01  |       | CO 7                    |       |      |
| Min N  |     |          |                | 0.29               |                | -0.11          | -0.01          | -0.14          | ▷              | 0.04  |       | 0.04                    | CO 8  |      |
| Max V <sub>y</sub>                           |     |          |                | 0.01               |                | -0.01          | -0.12          | -0.00          | -0.04          | 0.01  |       | CO 7                    |       |      |
| DLC1, Result Envelope X 100% / Y 30% / Z 30% | RC5 | 9        | 0.000          | Max N              | ▷              | 0.20           | -0.08          | 0.12           | -0.07          | -0.10 | -0.09 |                         |       |      |
|  |     |          |                | Min N              | ▷              | -0.20          | 0.08           | -0.12          | 0.07           | 0.10  | 0.09  |                         |       |      |
|  |     |          |                | Max V <sub>y</sub> | ▷              | -0.18          | 0.09           | -0.13          | 0.06           | 0.10  | 0.10  |                         |       |      |
|  |     |          |                | Min V <sub>y</sub> | ▷              | 0.18           | -0.09          | 0.13           | -0.06          | -0.10 | -0.10 |                         |       |      |
|  |     |          |                | Max V <sub>z</sub> |                | 0.17           | -0.08          | ▷              | 0.15           | -0.06 | -0.11 | -0.09                   |       |      |
|  |     |          |                | Min V <sub>z</sub> |                | -0.17          | 0.08           | ▷              | -0.15          | 0.06  | 0.11  | 0.09                    |       |      |
|  |     |          |                | Max M <sub>T</sub> |                | -0.16          | 0.07           | ▷              | -0.08          | 0.07  | 0.06  | 0.08                    |       |      |
|  |     |          |                | Min M <sub>T</sub> |                | 0.16           | -0.07          | ▷              | 0.08           | -0.07 | -0.06 | -0.08                   |       |      |
|  |     |          |                | Max M <sub>y</sub> |                | -0.17          | 0.08           |                | -0.15          | 0.06  | ▷     | 0.11                    | 0.09  |      |
|  |     |          |                | Min M <sub>y</sub> |                | 0.17           | -0.08          |                | 0.15           | -0.06 | ▷     | -0.11                   | -0.09 |      |
|  |     |          |                | Max M <sub>z</sub> |                | -0.18          | 0.09           | -0.13          | 0.06           | 0.10  | ▷     | 0.10                    | 0.10  |      |
|  |     |          |                | Min M <sub>z</sub> |                | 0.18           | -0.09          | 0.13           | -0.06          | -0.10 | ▷     | -0.10                   | -0.10 |      |
| DLC1, Result Envelope X 30% / Y 100% / Z 30% | RC6 | 9        | 0.000          | Max N              | ▷              | 0.20           | -0.08          | 0.17           | -0.05          | -0.13 | -0.09 |                         |       |      |
|  |     |          |                | Min N              | ▷              | -0.20          | 0.08           | -0.17          | 0.05           | 0.13  | 0.09  |                         |       |      |
|  |     |          |                | Max V <sub>y</sub> | ▷              | -0.19          | 0.09           | -0.18          | 0.04           | 0.14  | 0.09  |                         |       |      |
|  |     |          |                | Min V <sub>y</sub> | ▷              | 0.19           | -0.09          | 0.18           | -0.04          | -0.14 | -0.09 |                         |       |      |

# RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.                                   | RC  | Node No. | Location x [m] | Forces [kN]        |                    |                    |                    | Moments [kNm]  |                |       | Correspondin Load Cases |       |       |      |
|--|-----|----------|----------------|--------------------|--------------------|--------------------|--------------------|----------------|----------------|-------|-------------------------|-------|-------|------|
|  |     |          |                | N                  | V <sub>y</sub>     | V <sub>z</sub>     | M <sub>T</sub>     | M <sub>y</sub> | M <sub>z</sub> |       |                         |       |       |      |
| 9  | RC6 | 10       | 1.550          | Max V <sub>z</sub> | 0.18               | -0.08              | 0.20               | -0.04          | -0.15          | -0.09 |                         |       |       |      |
|  |     |          |                | Min V <sub>z</sub> | -0.18              | 0.08               | -0.20              | 0.04           | 0.15           | 0.09  |                         |       |       |      |
|  |     |          |                | Max M <sub>T</sub> | -0.11              | 0.05               | -0.03              | 0.06           | 0.03           | 0.06  |                         |       |       |      |
|  |     |          |                | Min M <sub>T</sub> | 0.11               | -0.05              | 0.03               | -0.06          | -0.03          | -0.06 |                         |       |       |      |
|  |     |          |                | Max M <sub>y</sub> | -0.18              | 0.08               | -0.20              | 0.04           | 0.15           | 0.09  |                         |       |       |      |
|  |     |          |                | Min M <sub>y</sub> | 0.18               | -0.08              | 0.20               | -0.04          | -0.15          | -0.09 |                         |       |       |      |
|  |     |          |                | Max M <sub>z</sub> | -0.19              | 0.09               | -0.18              | 0.05           | 0.13           | 0.09  |                         |       |       |      |
|  |     |          |                | Min M <sub>z</sub> | 0.19               | -0.09              | 0.18               | -0.05          | -0.13          | -0.09 |                         |       |       |      |
|  |     |          |                | Max N              | 0.20               | -0.08              | 0.17               | -0.05          | 0.14           | 0.03  |                         |       |       |      |
|  |     |          |                | Min N              | -0.20              | 0.08               | -0.17              | 0.05           | -0.14          | -0.03 |                         |       |       |      |
|  |     |          |                | Max V <sub>y</sub> | -0.19              | 0.09               | -0.18              | 0.04           | -0.15          | -0.04 |                         |       |       |      |
|  |     |          |                | Min V <sub>y</sub> | 0.19               | -0.09              | 0.18               | -0.04          | 0.15           | 0.04  |                         |       |       |      |
|  |     |          |                | Max V <sub>z</sub> | 0.18               | -0.08              | 0.20               | -0.04          | 0.16           | 0.04  |                         |       |       |      |
|  |     |          |                | Min V <sub>z</sub> | -0.18              | 0.08               | -0.20              | 0.04           | -0.16          | -0.04 |                         |       |       |      |
|  |     |          |                | Max M <sub>T</sub> | -0.11              | 0.05               | -0.03              | 0.06           | -0.02          | -0.02 |                         |       |       |      |
|  |     |          |                | Min M <sub>T</sub> | 0.11               | -0.05              | 0.03               | -0.06          | 0.02           | 0.02  |                         |       |       |      |
|  |     |          |                | Max M <sub>y</sub> | 0.17               | -0.08              | 0.20               | -0.04          | 0.16           | 0.04  |                         |       |       |      |
|  |     |          |                | Min M <sub>y</sub> | -0.17              | 0.08               | -0.20              | 0.04           | -0.16          | -0.04 |                         |       |       |      |
|  |     |          |                | Max M <sub>z</sub> | 0.19               | -0.09              | 0.19               | -0.04          | 0.15           | 0.04  |                         |       |       |      |
|  |     |          |                | Min M <sub>z</sub> | -0.19              | 0.09               | -0.19              | 0.04           | -0.15          | -0.04 |                         |       |       |      |
| DLC1, Result Envelope X 30% / Y 30% / Z 100% |     |          |                |                    |                    |                    |                    |                |                |       |                         |       |       |      |
| 10   | RC7 | 9        | 0.000          | Max N              | 0.38               | -0.16              | 0.24               | -0.15          | -0.18          | -0.18 |                         |       |       |      |
|  |     |          |                | Min N              | -0.38              | 0.16               | -0.24              | 0.15           | 0.18           | 0.18  |                         |       |       |      |
|  |     |          |                | Max V <sub>y</sub> | -0.34              | 0.18               | -0.27              | 0.13           | 0.20           | 0.21  |                         |       |       |      |
|  |     |          |                | Min V <sub>y</sub> | 0.34               | -0.18              | 0.27               | -0.13          | -0.20          | -0.21 |                         |       |       |      |
|  |     |          |                | Max V <sub>z</sub> | 0.33               | -0.18              | 0.28               | -0.12          | -0.21          | -0.20 |                         |       |       |      |
|  |     |          |                | Min V <sub>z</sub> | -0.33              | 0.18               | -0.28              | 0.12           | 0.21           | 0.20  |                         |       |       |      |
|  |     |          |                | Max M <sub>T</sub> | -0.34              | 0.15               | -0.19              | 0.15           | 0.15           | 0.17  |                         |       |       |      |
|  |     |          |                | Min M <sub>T</sub> | 0.34               | -0.15              | 0.19               | -0.15          | -0.15          | -0.17 |                         |       |       |      |
|  |     |          |                | Max M <sub>y</sub> | -0.33              | 0.18               | -0.28              | 0.13           | 0.21           | 0.20  |                         |       |       |      |
|  |     |          |                | Min M <sub>y</sub> | 0.33               | -0.18              | 0.28               | -0.13          | -0.21          | -0.20 |                         |       |       |      |
|  |     |          |                | Max M <sub>z</sub> | -0.34              | 0.18               | -0.26              | 0.13           | 0.20           | 0.21  |                         |       |       |      |
|  |     |          |                | Min M <sub>z</sub> | 0.34               | -0.18              | 0.26               | -0.13          | -0.20          | -0.21 |                         |       |       |      |
|  |     |          |                | Max N              | 0.38               | -0.16              | 0.24               | -0.15          | 0.19           | 0.07  |                         |       |       |      |
|  |     |          |                | Min N              | -0.38              | 0.16               | -0.24              | 0.15           | -0.19          | -0.07 |                         |       |       |      |
|  |     |          |                | Max V <sub>y</sub> | -0.34              | 0.18               | -0.27              | 0.13           | -0.21          | -0.08 |                         |       |       |      |
|  |     |          |                | Min V <sub>y</sub> | 0.34               | -0.18              | 0.27               | -0.13          | 0.21           | 0.08  |                         |       |       |      |
|  |     |          |                | Max V <sub>z</sub> | 0.33               | -0.18              | 0.28               | -0.12          | 0.22           | 0.08  |                         |       |       |      |
|  |     |          |                | Min V <sub>z</sub> | -0.33              | 0.18               | -0.28              | 0.12           | -0.22          | -0.08 |                         |       |       |      |
|  |     |          |                | Max M <sub>T</sub> | -0.34              | 0.15               | -0.19              | 0.15           | -0.14          | -0.06 |                         |       |       |      |
|  |     |          |                | Min M <sub>T</sub> | 0.34               | -0.15              | 0.19               | -0.15          | 0.14           | 0.06  |                         |       |       |      |
|  |     |          |                | Max M <sub>y</sub> | 0.32               | -0.18              | 0.28               | -0.12          | 0.22           | 0.08  |                         |       |       |      |
|  |     |          |                | Min M <sub>y</sub> | -0.32              | 0.18               | -0.28              | 0.12           | -0.22          | -0.08 |                         |       |       |      |
|  |     |          |                | Max M <sub>z</sub> | 0.33               | -0.18              | 0.27               | -0.13          | 0.21           | 0.08  |                         |       |       |      |
|  |     |          |                | Min M <sub>z</sub> | -0.33              | 0.18               | -0.27              | 0.13           | -0.21          | -0.08 |                         |       |       |      |
|  | RC1 | 11       | 0.000          | Max N              | 2.12               | -0.43              | 0.26               | -0.72          | -0.12          | -0.51 | CO 2                    |       |       |      |
|  |     |          |                | Min N              | 0.03               | 0.03               | 0.03               | -0.01          | 0.07           | 0.03  | CO 1                    |       |       |      |
|  |     |          |                | Max V <sub>y</sub> | 0.03               | 0.03               | 0.03               | -0.01          | 0.07           | 0.03  | CO 1                    |       |       |      |
|  |     |          |                | Min V <sub>y</sub> | 2.12               | -0.43              | 0.26               | -0.72          | -0.12          | -0.51 | CO 2                    |       |       |      |
|  |     |          |                | Max V <sub>z</sub> | 2.12               | -0.43              | 0.26               | -0.72          | -0.12          | -0.51 | CO 2                    |       |       |      |
|  |     |          |                | Min V <sub>z</sub> | 0.03               | 0.03               | 0.03               | -0.01          | 0.07           | 0.03  | CO 1                    |       |       |      |
|  |     |          |                | Max M <sub>T</sub> | 0.03               | 0.03               | 0.03               | -0.01          | 0.07           | 0.03  | CO 1                    |       |       |      |
|  |     |          |                | Min M <sub>T</sub> | 2.12               | -0.43              | 0.26               | -0.72          | -0.12          | -0.51 | CO 2                    |       |       |      |
|  |     |          |                | Max M <sub>y</sub> | 0.03               | 0.03               | 0.03               | -0.01          | 0.07           | 0.03  | CO 1                    |       |       |      |
|  |     |          |                | Min M <sub>y</sub> | 2.12               | -0.43              | 0.26               | -0.72          | -0.12          | -0.51 | CO 2                    |       |       |      |
|  |     |          |                | Max M <sub>z</sub> | 0.03               | 0.03               | 0.03               | -0.01          | 0.07           | 0.03  | CO 1                    |       |       |      |
|  |     |          |                | Min M <sub>z</sub> | 2.12               | -0.43              | 0.26               | -0.72          | -0.12          | -0.51 | CO 2                    |       |       |      |
|  |     |          |                | 12                 | 1.550              | Max N              | 2.12               | -0.43          | 0.02           | -0.72 | 0.10                    | 0.17  | CO 2  |      |
|  |     |          |                |                    |                    | Min N              | 0.03               | 0.03           | -0.22          | -0.01 | -0.08                   | -0.01 | CO 1  |      |
|  |     |          |                |                    |                    | Max V <sub>y</sub> | 0.03               | 0.03           | -0.22          | -0.01 | -0.08                   | -0.01 | CO 1  |      |
|  |     |          |                |                    |                    | Min V <sub>y</sub> | 2.12               | -0.43          | 0.02           | -0.72 | 0.10                    | 0.17  | CO 2  |      |
|  |     |          |                |                    |                    | Max V <sub>z</sub> | 2.12               | -0.43          | 0.02           | -0.72 | 0.10                    | 0.17  | CO 2  |      |
|  |     |          |                |                    |                    | Min V <sub>z</sub> | 0.03               | 0.03           | -0.22          | -0.01 | -0.08                   | -0.01 | CO 1  |      |
|  |     |          |                |                    |                    | Max M <sub>T</sub> | 0.03               | 0.03           | -0.22          | -0.01 | -0.08                   | -0.01 | CO 1  |      |
|  |     |          |                |                    |                    | Min M <sub>T</sub> | 2.12               | -0.43          | 0.02           | -0.72 | 0.10                    | 0.17  | CO 2  |      |
|  |     |          |                |                    |                    | Max M <sub>y</sub> | 2.12               | -0.43          | 0.02           | -0.72 | 0.10                    | 0.17  | CO 2  |      |
|  |     |          |                |                    |                    | Min M <sub>y</sub> | 0.03               | 0.03           | -0.22          | -0.01 | -0.08                   | -0.01 | CO 1  |      |
|  |     |          |                |                    |                    | Max M <sub>z</sub> | 2.12               | -0.43          | 0.02           | -0.72 | 0.10                    | 0.17  | CO 2  |      |
|  |     |          |                |                    |                    | Min M <sub>z</sub> | 0.03               | 0.03           | -0.22          | -0.01 | -0.08                   | -0.01 | CO 1  |      |
|  |     | RC2      | 11             | 0.000              | Max N              | 1.41               | -0.29              | 0.18           | -0.48          | -0.08 | -0.33                   | CO 4  |       |      |
|  |     |          |                |                    | Min N              | 0.02               | 0.02               | 0.02           | -0.00          | 0.06  | 0.02                    | CO 3  |       |      |
|  |     |          |                |                    | Max V <sub>y</sub> | 0.02               | 0.02               | 0.02           | -0.00          | 0.06  | 0.02                    | CO 3  |       |      |
|  |     |          |                |                    | Min V <sub>y</sub> | 1.41               | -0.29              | 0.18           | -0.48          | -0.08 | -0.33                   | CO 4  |       |      |
|  |     |          |                |                    | Max V <sub>z</sub> | 1.41               | -0.29              | 0.18           | -0.48          | -0.08 | -0.33                   | CO 4  |       |      |
|  |     |          |                |                    | Min V <sub>z</sub> | 0.02               | 0.02               | 0.02           | -0.00          | 0.06  | 0.02                    | CO 3  |       |      |
|  |     |          |                |                    | Max M <sub>T</sub> | 0.02               | 0.02               | 0.02           | -0.00          | 0.06  | 0.02                    | CO 3  |       |      |
|  |     |          |                |                    | Min M <sub>T</sub> | 1.41               | -0.29              | 0.18           | -0.48          | -0.08 | -0.33                   | CO 4  |       |      |
|  |     |          |                |                    | Max M <sub>y</sub> | 0.02               | 0.02               | 0.02           | -0.00          | 0.06  | 0.02                    | CO 3  |       |      |
|  |     |          |                |                    | Min M <sub>y</sub> | 1.41               | -0.29              | 0.18           | -0.48          | -0.08 | -0.33                   | CO 4  |       |      |
|  |     |          |                |                    | Max M <sub>z</sub> | 0.02               | 0.02               | 0.02           | -0.00          | 0.06  | 0.02                    | CO 3  |       |      |
|  |     |          |                |                    | Min M <sub>z</sub> | 1.41               | -0.29              | 0.18           | -0.48          | -0.08 | -0.33                   | CO 4  |       |      |
|  |     |          |                |                    | 12                 | 1.550              | Max N              | 1.41           | -0.29          | -0.00 | -0.48                   | 0.06  | 0.11  | CO 4 |
|  |     |          |                |                    |                    |                    | Min N              | 0.02           | 0.02           | -0.16 | -0.00                   | -0.06 | -0.01 | CO 3 |
|  |     |          |                |                    |                    |                    | Max V <sub>y</sub> | 0.02           | 0.02           | -0.16 | -0.00                   | -0.06 | -0.01 | CO 3 |
|  |     |          |                |                    |                    |                    | Min V <sub>y</sub> | 1.41           | -0.29          | -0.00 | -0.48                   | 0.06  | 0.11  | CO 4 |
|  |     |          |                |                    |                    |                    | Max V <sub>z</sub> | 1.41           | -0.29          | -0.00 | -0.48                   | 0.06  | 0.11  | CO 4 |
|  |     |          |                |                    |                    |                    | Min V <sub>z</sub> | 0.02           | 0.02           | -0.16 | -0.00                   | -0.06 | -0.01 | CO 3 |

RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m] | Forces [kN]        |                |                |                | Moments [kNm]  |                |       | Correspondin Load Cases |       |      |      |
|------------|--|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------|-------------------------|-------|------|------|
|            |  |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |                         |       |      |      |
| 10         | RC2  |          |                | Max M <sub>T</sub> | 0.02           | 0.02           | -0.16          | ▷              | -0.00          | -0.06 | -0.01                   | CO 3  |      |      |
|            |  |          |                | Min M <sub>T</sub> | 1.41           | -0.29          | -0.00          | ▷              | -0.48          | 0.06  | 0.11                    | CO 4  |      |      |
|            |  |          |                | Max M <sub>y</sub> | 1.41           | -0.29          | -0.00          | ▷              | -0.48          | 0.06  | 0.11                    | CO 4  |      |      |
|            |  |          |                | Min M <sub>y</sub> | 0.02           | 0.02           | -0.16          | ▷              | -0.00          | -0.06 | -0.01                   | CO 3  |      |      |
|            |  |          |                | Max M <sub>z</sub> | 1.41           | -0.29          | -0.00          | ▷              | -0.48          | 0.06  | 0.11                    | CO 4  |      |      |
|            |  |          |                | Min M <sub>z</sub> | 0.02           | 0.02           | -0.16          | ▷              | -0.00          | -0.06 | -0.01                   | CO 3  |      |      |
|            | RC3  | 11       | 0.000          | Max N              | 0.72           | -0.13          | 0.10           | ▷              | -0.24          | -0.01 | -0.16                   | CO 6  |      |      |
|            |  |          |                | Min N              | 0.02           | 0.02           | 0.02           | ▷              | -0.00          | 0.06  | 0.02                    | CO 5  |      |      |
|            |  |          |                | Max V <sub>y</sub> | 0.02           | 0.02           | 0.02           | ▷              | -0.00          | 0.06  | 0.02                    | CO 5  |      |      |
|            |  |          |                | Min V <sub>y</sub> | 0.72           | -0.13          | 0.10           | ▷              | -0.24          | -0.01 | -0.16                   | CO 6  |      |      |
|            |  |          |                | Max V <sub>z</sub> | 0.72           | -0.13          | ▷              | 0.10           | -0.24          | -0.01 | -0.16                   | CO 6  |      |      |
|            |  |          |                | Min V <sub>z</sub> | 0.02           | 0.02           | ▷              | 0.02           | -0.00          | 0.06  | 0.02                    | CO 5  |      |      |
|            |  |          |                | Max M <sub>T</sub> | 0.02           | 0.02           | ▷              | 0.02           | -0.00          | 0.06  | 0.02                    | CO 5  |      |      |
|            |  |          |                | Min M <sub>T</sub> | 0.72           | -0.13          | ▷              | 0.10           | -0.24          | -0.01 | -0.16                   | CO 6  |      |      |
|            |  |          |                | Max M <sub>y</sub> | 0.02           | 0.02           | ▷              | 0.02           | -0.00          | 0.06  | 0.02                    | CO 5  |      |      |
|            |  |          |                | Min M <sub>y</sub> | 0.72           | -0.13          | ▷              | 0.10           | -0.24          | -0.01 | -0.16                   | CO 6  |      |      |
|            |  |          |                | Max M <sub>z</sub> | 0.02           | 0.02           | ▷              | 0.02           | -0.00          | 0.06  | 0.02                    | CO 5  |      |      |
|            |  |          |                | Min M <sub>z</sub> | 0.72           | -0.13          | ▷              | 0.10           | -0.24          | -0.01 | -0.16                   | CO 6  |      |      |
|            |  | 12       | 1.550          | Max N              | 0.72           | -0.13          | -0.08          | ▷              | -0.24          | 0.00  | 0.05                    | CO 6  |      |      |
|            |  |          |                | Min N              | 0.02           | 0.02           | -0.16          | ▷              | -0.00          | -0.06 | -0.01                   | CO 5  |      |      |
|            |  |          |                | Max V <sub>y</sub> | 0.02           | ▷              | 0.02           | -0.16          | -0.00          | -0.06 | -0.01                   | CO 5  |      |      |
|            |  |          |                | Min V <sub>y</sub> | 0.72           | ▷              | -0.13          | -0.08          | -0.24          | 0.00  | 0.05                    | CO 6  |      |      |
|            |  |          |                | Max V <sub>z</sub> | 0.72           | ▷              | -0.13          | -0.08          | -0.24          | 0.00  | 0.05                    | CO 6  |      |      |
|            |  |          |                | Min V <sub>z</sub> | 0.02           | ▷              | 0.02           | -0.16          | -0.00          | -0.06 | -0.01                   | CO 5  |      |      |
|            |  |          |                | Max M <sub>T</sub> | 0.02           | ▷              | 0.02           | -0.16          | -0.00          | -0.06 | -0.01                   | CO 5  |      |      |
|            |  |          |                | Min M <sub>T</sub> | 0.72           | ▷              | -0.13          | -0.08          | -0.24          | 0.00  | 0.05                    | CO 6  |      |      |
|            |  |          |                | Max M <sub>y</sub> | 0.72           | ▷              | -0.13          | -0.08          | -0.24          | 0.00  | 0.05                    | CO 6  |      |      |
|            |  |          |                | Min M <sub>y</sub> | 0.02           | ▷              | 0.02           | -0.16          | -0.00          | -0.06 | -0.01                   | CO 5  |      |      |
|            |  |          |                | Max M <sub>z</sub> | 0.72           | ▷              | -0.13          | -0.08          | -0.24          | 0.00  | 0.05                    | CO 6  |      |      |
|            |  |          |                | Min M <sub>z</sub> | 0.02           | ▷              | 0.02           | -0.16          | -0.00          | -0.06 | -0.01                   | CO 5  |      |      |
|            | RC4  | 11       | 0.000          | Max N              | 0.44           | -0.07          | 0.07           | ▷              | -0.15          | 0.01  | -0.09                   | CO 8  |      |      |
|            |  |          |                | Min N              | 0.02           | 0.02           | 0.02           | ▷              | -0.00          | 0.06  | 0.02                    | CO 7  |      |      |
|            |  |          |                | Max V <sub>y</sub> | 0.02           | ▷              | 0.02           | 0.02           | -0.00          | 0.06  | 0.02                    | CO 7  |      |      |
|            |  |          |                | Min V <sub>y</sub> | 0.44           | ▷              | -0.07          | 0.07           | -0.15          | 0.01  | -0.09                   | CO 8  |      |      |
|            |  |          |                | Max V <sub>z</sub> | 0.44           | ▷              | -0.07          | ▷              | 0.07           | -0.15 | 0.01                    | -0.09 | CO 8 |      |
|            |  |          |                | Min V <sub>z</sub> | 0.02           | ▷              | 0.02           | 0.02           | -0.00          | 0.06  | 0.02                    | CO 7  |      |      |
|            |  |          |                | Max M <sub>T</sub> | 0.02           | ▷              | 0.02           | 0.02           | -0.00          | 0.06  | 0.02                    | CO 7  |      |      |
|            |  |          |                | Min M <sub>T</sub> | 0.44           | ▷              | -0.07          | 0.07           | -0.15          | 0.01  | -0.09                   | CO 8  |      |      |
|            |  |          |                | Max M <sub>y</sub> | 0.02           | ▷              | 0.02           | 0.02           | -0.00          | 0.06  | 0.02                    | CO 7  |      |      |
|            |  |          |                | Min M <sub>y</sub> | 0.44           | ▷              | -0.07          | 0.07           | -0.15          | ▷     | 0.01                    | -0.09 | CO 8 |      |
|            |  |          |                | Max M <sub>z</sub> | 0.02           | ▷              | 0.02           | 0.02           | -0.00          | 0.06  | ▷                       | 0.02  | CO 7 |      |
|            |  |          |                | Min M <sub>z</sub> | 0.44           | ▷              | -0.07          | 0.07           | -0.15          | ▷     | 0.01                    | -0.09 | CO 8 |      |
|            |  | 12       | 1.550          | Max N              | 0.44           | -0.07          | -0.11          | ▷              | -0.15          | -0.02 | 0.03                    | CO 8  |      |      |
|            |  |          |                | Min N              | 0.02           | 0.02           | -0.16          | ▷              | -0.00          | -0.06 | -0.01                   | CO 7  |      |      |
|            |  |          |                | Max V <sub>y</sub> | 0.02           | ▷              | 0.02           | -0.16          | -0.00          | -0.06 | -0.01                   | CO 7  |      |      |
|            |  |          |                | Min V <sub>y</sub> | 0.44           | ▷              | -0.07          | -0.11          | -0.15          | -0.02 | 0.03                    | CO 8  |      |      |
|            |  |          |                | Max V <sub>z</sub> | 0.44           | ▷              | -0.07          | ▷              | -0.11          | -0.15 | -0.02                   | 0.03  | CO 8 |      |
|            |  |          |                | Min V <sub>z</sub> | 0.02           | ▷              | 0.02           | -0.16          | -0.00          | -0.06 | -0.01                   | CO 7  |      |      |
|            |  |          |                | Max M <sub>T</sub> | 0.02           | ▷              | 0.02           | -0.16          | ▷              | -0.00 | -0.06                   | -0.01 | CO 7 |      |
|            |  |          |                | Min M <sub>T</sub> | 0.44           | ▷              | -0.07          | ▷              | -0.11          | -0.15 | -0.02                   | 0.03  | CO 8 |      |
|            |  |          |                | Max M <sub>y</sub> | 0.44           | ▷              | -0.07          | -0.11          | -0.15          | ▷     | -0.02                   | 0.03  | CO 8 |      |
|            |  |          |                | Min M <sub>y</sub> | 0.02           | ▷              | 0.02           | -0.16          | -0.00          | ▷     | -0.06                   | -0.01 | CO 7 |      |
|            |  |          |                | Max M <sub>z</sub> | 0.44           | ▷              | -0.07          | -0.11          | -0.15          | ▷     | -0.02                   | ▷     | 0.03 | CO 8 |
|            |  |          |                | Min M <sub>z</sub> | 0.02           | ▷              | 0.02           | -0.16          | -0.00          | ▷     | -0.06                   | -0.01 | CO 7 |      |
|            | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                |                    |                |                |                |                |                |       |                         |       |      |      |
|            | RC5  | 11       | 0.000          | Max N              | 0.33           | -0.08          | 0.02           | ▷              | -0.07          | -0.02 | -0.09                   |       |      |      |
|            |  |          |                | Min N              | -0.33          | 0.08           | -0.02          | ▷              | 0.07           | 0.02  | 0.09                    |       |      |      |
|            |  |          |                | Max V <sub>y</sub> | -0.30          | 0.09           | -0.08          | ▷              | 0.07           | 0.06  | 0.09                    |       |      |      |
|            |  |          |                | Min V <sub>y</sub> | 0.30           | -0.09          | 0.08           | ▷              | -0.07          | -0.06 | -0.09                   |       |      |      |
|            |  |          |                | Max V <sub>z</sub> | 0.19           | -0.06          | ▷              | 0.10           | -0.05          | -0.07 | -0.07                   |       |      |      |
|            |  |          |                | Min V <sub>z</sub> | -0.19          | 0.06           | ▷              | -0.10          | 0.05           | 0.07  | 0.07                    |       |      |      |
|            |  |          |                | Max M <sub>T</sub> | -0.28          | 0.07           | -0.03          | ▷              | 0.08           | 0.02  | 0.07                    |       |      |      |
|            |  |          |                | Min M <sub>T</sub> | 0.28           | -0.07          | ▷              | 0.03           | -0.08          | -0.02 | -0.07                   |       |      |      |
|            |  |          |                | Max M <sub>y</sub> | -0.21          | 0.07           | -0.10          | ▷              | 0.05           | 0.07  | 0.07                    |       |      |      |
|            |  |          |                | Min M <sub>y</sub> | 0.21           | -0.07          | ▷              | 0.10           | -0.05          | -0.07 | -0.07                   |       |      |      |
|            |  |          |                | Max M <sub>z</sub> | -0.30          | 0.09           | -0.08          | ▷              | 0.07           | 0.06  | 0.09                    |       |      |      |
|            |  |          |                | Min M <sub>z</sub> | 0.30           | -0.09          | ▷              | 0.08           | -0.07          | -0.06 | -0.09                   |       |      |      |
|            |  | 12       | 1.550          | Max N              | 0.33           | -0.08          | 0.02           | ▷              | -0.07          | 0.02  | 0.03                    |       |      |      |
|            |  |          |                | Min N              | -0.33          | 0.08           | -0.02          | ▷              | 0.07           | -0.02 | -0.03                   |       |      |      |
|            |  |          |                | Max V <sub>y</sub> | -0.30          | 0.09           | -0.08          | ▷              | 0.07           | -0.07 | -0.04                   |       |      |      |
|            |  |          |                | Min V <sub>y</sub> | 0.30           | -0.09          | ▷              | 0.08           | -0.07          | 0.07  | 0.04                    |       |      |      |
|            |  |          |                | Max V <sub>z</sub> | 0.19           | -0.06          | ▷              | 0.10           | -0.05          | 0.09  | 0.03                    |       |      |      |
|            |  |          |                | Min V <sub>z</sub> | -0.19          | 0.06           | ▷              | -0.10          | 0.05           | -0.09 | -0.03                   |       |      |      |
|            |  |          |                | Max M <sub>T</sub> | -0.28          | 0.07           | -0.03          | ▷              | 0.08           | -0.03 | -0.03                   |       |      |      |
|            |  |          |                | Min M <sub>T</sub> | 0.28           | -0.07          | ▷              | 0.03           | -0.08          | 0.03  | 0.03                    |       |      |      |
|            |  |          |                | Max M <sub>y</sub> | 0.18           | -0.06          | ▷              | 0.10           | -0.05          | ▷     | 0.09                    | 0.03  |      |      |
|            |  |          |                | Min M <sub>y</sub> | -0.18          | 0.06           | ▷              | -0.10          | 0.05           | ▷     | -0.09                   | -0.03 |      |      |
|            |  |          |                | Max M <sub>z</sub> | 0.30           | -0.09          | ▷              | 0.08           | -0.06          | ▷     | 0.07                    | 0.04  |      |      |
|            |  |          |                | Min M <sub>z</sub> | -0.30          | 0.09           | ▷              | -0.08          | 0.06           | ▷     | -0.07                   | -0.04 |      |      |
|            | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                |                    |                |                |                |                |                |       |                         |       |      |      |
|            | RC6  | 11       | 0.000          | Max N              | 0.28           | -0.06          | -0.02          | ▷              | -0.05          | 0.01  | -0.06                   |       |      |      |
|            |  |          |                | Min N              | -0.28          | 0.06           | 0.02           | ▷              | 0.05           | -0.01 | 0.06                    |       |      |      |
|            |  |          |                | Max V <sub>y</sub> | -0.22          | 0.08           | -0.15          | ▷              | 0.05           | 0.10  | 0.09                    |       |      |      |
|            |  |          |                | Min V <sub>y</sub> | 0.22           | -0.08          | 0.15           | ▷              | -0.05          | -0.10 | -0.09                   |       |      |      |
|            |  |          |                | Max V <sub>z</sub> | 0.13           | -0.06          | ▷              | 0.17           | -0.04          | -0.12 | -0.07                   |       |      |      |
|            |  |          |                | Min V <sub>z</sub> | -0.13          | 0.06           | ▷              | -0.17          | 0.04           | 0.12  | 0.07                    |       |      |      |
|            |  |          |                | Max M <sub>T</sub> | -0.22          | 0.04           | 0.02           | ▷              | 0.06           | -0.01 | 0.05                    |       |      |      |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC                 | Node No.           | Location x [m] | Forces [kN]                                  |                |                |                    |                | Moments [kNm]  |         |       | Correspondin Load Cases |
|--------------------|--------------------|--------------------|----------------|--|----------------|----------------|--------------------|----------------|----------------|---------|-------|-------------------------|
|                    |                    |                    |                | N  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub>     | M <sub>y</sub> | M <sub>z</sub> |         |       |                         |
| 10                 | RC6                | 12                 | 1.550          | Min M <sub>T</sub>                           | 0.22           | -0.04          | -0.02              | ▷ -0.06        | 0.01           | -0.05   |       |                         |
|                    |                    |                    |                | Max M <sub>y</sub>                           | -0.14          | 0.07           | -0.17              | ▷ 0.04         | 0.12           | 0.07    |       |                         |
|                    |                    |                    |                | Min M <sub>y</sub>                           | 0.14           | -0.07          | 0.17               | ▷ -0.04        | -0.12          | -0.07   |       |                         |
|                    |                    |                    |                | Max M <sub>z</sub>                           | -0.23          | 0.08           | -0.14              | ▷ 0.05         | 0.10           | 0.09    |       |                         |
|                    |                    |                    |                | Min M <sub>z</sub>                           | 0.23           | -0.08          | 0.14               | ▷ -0.05        | -0.10          | -0.09   |       |                         |
|                    |                    |                    |                | Max N  | ▷ 0.28         | -0.06          | -0.02              | ▷ -0.05        | -0.03          | 0.02    |       |                         |
|                    |                    |                    |                | Min N  | ▷ -0.28        | 0.06           | 0.02               | ▷ 0.05         | 0.03           | -0.02   |       |                         |
|                    |                    |                    |                | Max V <sub>y</sub>                           | ▷ -0.22        | ▷ 0.08         | -0.15              | ▷ 0.05         | -0.12          | -0.04   |       |                         |
|                    |                    |                    |                | Min V <sub>y</sub>                           | ▷ 0.22         | -0.08          | 0.15               | ▷ -0.05        | 0.12           | 0.04    |       |                         |
|                    |                    |                    |                | Max V <sub>z</sub>                           | ▷ 0.13         | -0.06          | ▷ 0.17             | ▷ -0.04        | 0.15           | 0.03    |       |                         |
|                    |                    |                    |                | Min V <sub>z</sub>                           | ▷ -0.13        | 0.06           | ▷ -0.17            | ▷ 0.04         | -0.15          | -0.03   |       |                         |
|                    |                    |                    |                | Max M <sub>T</sub>                           | ▷ -0.22        | 0.04           | ▷ 0.02             | ▷ 0.06         | 0.02           | -0.02   |       |                         |
|                    |                    |                    |                | Min M <sub>T</sub>                           | ▷ 0.22         | -0.04          | -0.02              | ▷ -0.06        | -0.02          | 0.02    |       |                         |
|                    |                    |                    |                | Max M <sub>y</sub>                           | ▷ 0.12         | -0.06          | 0.17               | ▷ -0.04        | 0.15           | 0.03    |       |                         |
|                    |                    |                    |                | Min M <sub>y</sub>                           | ▷ -0.12        | 0.06           | -0.17              | ▷ 0.04         | -0.15          | -0.03   |       |                         |
|                    |                    |                    |                | Max M <sub>z</sub>                           | ▷ 0.22         | -0.08          | 0.15               | ▷ -0.04        | 0.13           | ▷ 0.04  |       |                         |
|                    |                    |                    |                | Min M <sub>z</sub>                           | ▷ -0.22        | 0.08           | -0.15              | ▷ 0.04         | -0.13          | ▷ -0.04 |       |                         |
|                    |                    |                    |                | DLC1, Result Envelope X 30% / Y 30% / Z 100% |                |                |                    |                |                |         |       |                         |
|                    | RC7                | 11                 | 0.000          | Max N  | ▷ 0.69         | -0.17          | 0.08               | -0.14          | -0.06          | -0.19   |       |                         |
|                    |                    |                    |                | Min N  | ▷ -0.69        | 0.17           | -0.08              | ▷ 0.14         | 0.06           | 0.19    |       |                         |
|                    |                    |                    |                | Max V <sub>y</sub>                           | ▷ -0.66        | ▷ 0.18         | -0.14              | ▷ 0.14         | 0.10           | 0.19    |       |                         |
|                    |                    |                    |                | Min V <sub>y</sub>                           | ▷ 0.66         | ▷ -0.18        | ▷ 0.14             | ▷ -0.14        | -0.10          | -0.19   |       |                         |
|                    |                    |                    |                | Max V <sub>z</sub>                           | ▷ 0.46         | -0.14          | ▷ 0.17             | ▷ -0.11        | -0.12          | -0.15   |       |                         |
|                    |                    |                    |                | Min V <sub>z</sub>                           | ▷ -0.46        | ▷ 0.14         | ▷ -0.17            | ▷ 0.11         | 0.12           | 0.15    |       |                         |
|                    |                    |                    |                | Max M <sub>T</sub>                           | ▷ -0.58        | ▷ 0.14         | -0.08              | ▷ 0.16         | 0.06           | 0.16    |       |                         |
|                    |                    |                    |                | Min M <sub>T</sub>                           | ▷ 0.58         | -0.14          | ▷ 0.08             | ▷ -0.16        | -0.06          | -0.16   |       |                         |
|                    |                    |                    |                | Max M <sub>y</sub>                           | ▷ -0.48        | ▷ 0.14         | -0.17              | ▷ 0.11         | ▷ 0.12         | 0.16    |       |                         |
|                    |                    |                    |                | Min M <sub>y</sub>                           | ▷ 0.48         | -0.14          | ▷ 0.17             | ▷ -0.11        | ▷ -0.12        | -0.16   |       |                         |
|                    |                    |                    |                | Max M <sub>z</sub>                           | ▷ -0.66        | ▷ 0.18         | -0.14              | ▷ 0.14         | 0.10           | ▷ 0.19  |       |                         |
|                    |                    |                    |                | Min M <sub>z</sub>                           | ▷ 0.66         | ▷ -0.18        | ▷ 0.14             | ▷ -0.14        | -0.10          | -0.19   |       |                         |
|                    |                    | 12                 | 1.550          | Max N  | ▷ 0.69         | -0.17          | 0.08               | -0.14          | 0.06           | 0.07    |       |                         |
|                    |                    |                    |                | Min N  | ▷ -0.69        | 0.17           | -0.08              | ▷ 0.14         | -0.06          | -0.07   |       |                         |
| Max V <sub>y</sub> |                    |                    |                | ▷ -0.66                                      | ▷ 0.18         | -0.14          | ▷ 0.14             | -0.11          | -0.08          |         |       |                         |
| Min V <sub>y</sub> |                    |                    |                | ▷ 0.66                                       | ▷ -0.18        | ▷ 0.14         | ▷ -0.14            | 0.11           | 0.08           |         |       |                         |
| Max V <sub>z</sub> |                    |                    |                | ▷ 0.46                                       | -0.14          | ▷ 0.17         | ▷ -0.11            | 0.15           | 0.06           |         |       |                         |
| Min V <sub>z</sub> |                    |                    |                | ▷ -0.46                                      | ▷ 0.14         | ▷ -0.17        | ▷ 0.11             | -0.15          | -0.06          |         |       |                         |
| Max M <sub>T</sub> |                    |                    |                | ▷ -0.58                                      | ▷ 0.14         | -0.08          | ▷ 0.16             | -0.07          | -0.06          |         |       |                         |
| Min M <sub>T</sub> |                    |                    |                | ▷ 0.58                                       | -0.14          | ▷ 0.08         | ▷ -0.16            | 0.07           | 0.06           |         |       |                         |
| Max M <sub>y</sub> |                    |                    |                | ▷ 0.42                                       | -0.13          | ▷ 0.17         | ▷ -0.11            | ▷ 0.15         | 0.06           |         |       |                         |
| Min M <sub>y</sub> |                    |                    |                | ▷ -0.42                                      | ▷ 0.13         | -0.17          | ▷ 0.11             | ▷ -0.15        | -0.06          |         |       |                         |
| Max M <sub>z</sub> |                    |                    |                | ▷ 0.66                                       | -0.17          | ▷ 0.14         | ▷ -0.13            | ▷ 0.11         | ▷ 0.08         |         |       |                         |
| Min M <sub>z</sub> |                    |                    |                | ▷ -0.66                                      | ▷ 0.17         | -0.14          | ▷ 0.13             | ▷ -0.11        | ▷ -0.08        |         |       |                         |
| 11                 | RC1                | 9                  | 0.000          | Max N  | ▷ 0.04         | 0.01           | 0.10               | -0.01          | -0.03          | 0.01    | CO 1  |                         |
|                    |                    |                    |                | Min N  | ▷ -3.67        | 1.44           | 3.43               | -0.02          | -2.66          | 1.13    | CO 2  |                         |
|                    |                    |                    |                | Max V <sub>y</sub>                           | ▷ -3.67        | ▷ 1.44         | 3.43               | -0.02          | -2.66          | 1.13    | CO 2  |                         |
|                    |                    |                    |                | Min V <sub>y</sub>                           | ▷ 0.04         | ▷ 0.01         | 0.10               | -0.01          | -0.03          | 0.01    | CO 1  |                         |
|                    |                    |                    |                | Max V <sub>z</sub>                           | ▷ -3.67        | ▷ 1.44         | 3.43               | -0.02          | -2.66          | 1.13    | CO 2  |                         |
|                    |                    |                    |                | Min V <sub>z</sub>                           | ▷ 0.04         | ▷ 0.01         | 0.10               | -0.01          | -0.03          | 0.01    | CO 1  |                         |
|                    |                    |                    |                | Max M <sub>T</sub>                           | ▷ 0.04         | ▷ 0.01         | 0.10               | -0.01          | -0.03          | 0.01    | CO 1  |                         |
|                    |                    |                    |                | Min M <sub>T</sub>                           | ▷ -3.67        | ▷ 1.44         | 3.43               | -0.02          | -2.66          | 1.13    | CO 2  |                         |
|                    |                    |                    |                | Max M <sub>y</sub>                           | ▷ 0.04         | ▷ 0.01         | 0.10               | -0.01          | -0.03          | 0.01    | CO 1  |                         |
|                    |                    |                    |                | Min M <sub>y</sub>                           | ▷ -3.67        | ▷ 1.44         | 3.43               | -0.02          | -2.66          | 1.13    | CO 2  |                         |
|                    |                    |                    |                | Max M <sub>z</sub>                           | ▷ -3.67        | ▷ 1.44         | 3.43               | -0.02          | -2.66          | 1.13    | CO 2  |                         |
|                    |                    |                    |                | Min M <sub>z</sub>                           | ▷ 0.04         | ▷ 0.01         | 0.10               | -0.01          | -0.03          | 0.01    | CO 1  |                         |
|                    |                    | 11                 | 1.550          | Max N  | ▷ 0.04         | 0.01           | -0.14              | -0.01          | -0.06          | 0.00    | CO 1  |                         |
|                    |                    |                    |                | Min N  | ▷ -3.67        | ▷ 1.44         | 3.19               | -0.03          | 2.48           | -1.11   | CO 2  |                         |
|                    |                    |                    |                | Max V <sub>y</sub>                           | ▷ -3.67        | ▷ 1.44         | 3.19               | -0.03          | 2.48           | -1.11   | CO 2  |                         |
|                    |                    |                    |                | Min V <sub>y</sub>                           | ▷ 0.04         | ▷ 0.01         | -0.14              | -0.01          | -0.06          | 0.00    | CO 1  |                         |
|                    |                    |                    |                | Max V <sub>z</sub>                           | ▷ -3.67        | ▷ 1.44         | 3.19               | -0.03          | 2.48           | -1.11   | CO 2  |                         |
|                    |                    |                    |                | Min V <sub>z</sub>                           | ▷ 0.04         | ▷ 0.01         | -0.14              | -0.01          | -0.06          | 0.00    | CO 1  |                         |
|                    |                    |                    |                | Max M <sub>T</sub>                           | ▷ 0.04         | ▷ 0.01         | -0.14              | -0.01          | -0.06          | 0.00    | CO 1  |                         |
|                    |                    |                    |                | Min M <sub>T</sub>                           | ▷ -3.67        | ▷ 1.44         | 3.19               | -0.03          | 2.48           | -1.11   | CO 2  |                         |
|                    |                    |                    |                | Max M <sub>y</sub>                           | ▷ -3.67        | ▷ 1.44         | 3.19               | -0.03          | 2.48           | -1.11   | CO 2  |                         |
|                    |                    |                    |                | Min M <sub>y</sub>                           | ▷ 0.04         | ▷ 0.01         | -0.14              | -0.01          | -0.06          | 0.00    | CO 1  |                         |
|                    |                    |                    |                | Max M <sub>z</sub>                           | ▷ 0.04         | ▷ 0.01         | -0.14              | -0.01          | -0.06          | 0.00    | CO 1  |                         |
|                    |                    |                    |                | RC2  | 9              | 0.000          | Min M <sub>z</sub> | ▷ -3.67        | ▷ 1.44         | 3.19    | -0.03 | 2.48                    |
|                    | Max N              | ▷ 0.03             | 0.00           |  |                |                | 0.08               | -0.01          | -0.02          | 0.01    | CO 3  |                         |
|                    | Min N              | ▷ -2.42            | ▷ 0.96         |  |                |                | 2.30               | -0.02          | -1.77          | 0.75    | CO 4  |                         |
|                    | Max V <sub>y</sub> | ▷ -2.42            | ▷ 0.96         |  |                |                | 2.30               | -0.02          | -1.77          | 0.75    | CO 4  |                         |
|                    | Min V <sub>y</sub> | ▷ 0.03             | ▷ 0.00         |  |                |                | 0.08               | -0.01          | -0.02          | 0.01    | CO 3  |                         |
| Max V <sub>z</sub> | ▷ -2.42            | ▷ 0.96             | ▷ 2.30         |  |                |                | ▷ -0.02            | -1.77          | 0.75           | CO 4    |       |                         |
| Min V <sub>z</sub> | ▷ 0.03             | ▷ 0.00             | ▷ 0.08         |  |                |                | ▷ -0.01            | -0.02          | 0.01           | CO 3    |       |                         |
| Max M <sub>T</sub> | ▷ 0.03             | 0.00               | 0.08           |  |                |                | -0.01              | -0.02          | 0.01           | CO 3    |       |                         |
| Min M <sub>T</sub> | ▷ -2.42            | ▷ 0.96             | 2.30           |  |                |                | -0.02              | -1.77          | 0.75           | CO 4    |       |                         |
| Max M <sub>y</sub> | ▷ 0.03             | 0.00               | 0.08           |  |                |                | -0.01              | -0.02          | 0.01           | CO 3    |       |                         |
| Min M <sub>y</sub> | ▷ -2.42            | ▷ 0.96             | 2.30           |  |                |                | -0.02              | -1.77          | 0.75           | CO 4    |       |                         |
| Max M <sub>z</sub> | ▷ -2.42            | ▷ 0.96             | 2.30           |  |                |                | -0.02              | -1.77          | ▷ 0.75         | CO 4    |       |                         |
| 11                 | 1.550              | Min M <sub>z</sub> | ▷ 0.03         | 0.00   | 0.08           | -0.01          | -0.02              | ▷ 0.01         | CO 3           |         |       |                         |
|                    |                    | Max N              | ▷ 0.03         | 0.00   | -0.11          | -0.01          | -0.04              | 0.00           | CO 3           |         |       |                         |
|                    |                    | Min N              | ▷ -2.42        | ▷ 0.96                                       | 2.12           | -0.02          | 1.65               | -0.74          | CO 4           |         |       |                         |
|                    |                    | Max V <sub>y</sub> | ▷ -2.42        | ▷ 0.96                                       | 2.12           | -0.02          | 1.65               | -0.74          | CO 4           |         |       |                         |
|                    |                    | Min V <sub>y</sub> | ▷ 0.03         | ▷ 0.00                                       | -0.11          | -0.01          | -0.04              | 0.00           | CO 3           |         |       |                         |
|                    |                    | Max V <sub>z</sub> | ▷ -2.42        | ▷ 0.96                                       | 2.12           | -0.02          | 1.65               | -0.74          | CO 4           |         |       |                         |
|                    |                    | Min V <sub>z</sub> | ▷ 0.03         | ▷ 0.00                                       | -0.11          | -0.01          | -0.04              | 0.00           | CO 3           |         |       |                         |
|                    |                    | Max M <sub>T</sub> | ▷ 0.03         | 0.00   | -0.11          | -0.01          | -0.04              | 0.00           | CO 3           |         |       |                         |
|                    |                    | Min M <sub>T</sub> | ▷ -2.42        | ▷ 0.96                                       | 2.12           | -0.02          | 1.65               | -0.74          | CO 4           |         |       |                         |
|                    |                    | Max M <sub>y</sub> | ▷ -2.42        | ▷ 0.96                                       | 2.12           | -0.02          | 1.65               | -0.74          | CO 4           |         |       |                         |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.                                   | RC   | Node No. | Location x [m]     | Forces [kN]        |                |                    |                |                | Moments [kNm]  |       |       | Correspondin Load Cases |       |       |      |
|--|--|----------|--------------------|--------------------|----------------|--------------------|----------------|----------------|----------------|-------|-------|-------------------------|-------|-------|------|
|  |  |          |                    | N                  | V <sub>y</sub> | V <sub>z</sub>     | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |       |                         |       |       |      |
| 11   | RC2  |          |                    | Min M <sub>y</sub> | 0.03           | 0.00               | -0.11          | -0.01          | ▷              | -0.04 | 0.00  | CO 3                    |       |       |      |
|  |  |          |                    | Max M <sub>y</sub> | 0.03           | 0.00               | -0.11          | -0.01          |                | -0.04 | 0.00  | CO 3                    |       |       |      |
|  |  |          |                    | Min M <sub>z</sub> | -2.42          | 0.96               | 2.12           | -0.02          | ▷              | 1.65  | -0.74 | CO 4                    |       |       |      |
|  | RC3  | 9        | 0.000              | Max N              | 0.03           | 0.00               | 0.08           | -0.01          |                | -0.02 | 0.01  | CO 5                    |       |       |      |
|  |  |          |                    | Min N              | -1.19          | 0.48               | 1.19           | -0.01          |                | -0.90 | 0.38  | CO 6                    |       |       |      |
|  |  |          |                    | Max V <sub>y</sub> | -1.19          | ▷                  | 0.48           | 1.19           | -0.01          |       | -0.90 | 0.38                    | CO 6  |       |      |
|  |  |          |                    | Min V <sub>y</sub> | 0.03           | ▷                  | 0.00           | 0.08           | -0.01          |       | -0.02 | 0.01                    | CO 5  |       |      |
|  |  |          |                    | Max V <sub>z</sub> | -1.19          | ▷                  | 0.48           | 1.19           | -0.01          |       | -0.90 | 0.38                    | CO 6  |       |      |
|  |  |          |                    | Min V <sub>z</sub> | 0.03           | ▷                  | 0.00           | 0.08           | -0.01          |       | -0.02 | 0.01                    | CO 5  |       |      |
|  |  |          |                    | Max M <sub>T</sub> | 0.03           | ▷                  | 0.00           | 0.08           | -0.01          |       | -0.02 | 0.01                    | CO 5  |       |      |
|  |  |          |                    | Min M <sub>T</sub> | -1.19          | ▷                  | 0.48           | 1.19           | -0.01          |       | -0.90 | 0.38                    | CO 6  |       |      |
|  |  |          |                    | Max M <sub>y</sub> | 0.03           | ▷                  | 0.00           | 0.08           | -0.01          |       | -0.02 | 0.01                    | CO 5  |       |      |
|  |  |          |                    | Min M <sub>y</sub> | -1.19          | ▷                  | 0.48           | 1.19           | -0.01          | ▷     | -0.90 | 0.38                    | CO 6  |       |      |
|  |  |          |                    | Max M <sub>z</sub> | -1.19          | ▷                  | 0.48           | 1.19           | -0.01          |       | -0.90 | 0.38                    | CO 6  |       |      |
|  |  |          |                    | Min M <sub>z</sub> | 0.03           | ▷                  | 0.00           | 0.08           | -0.01          |       | -0.02 | 0.01                    | CO 5  |       |      |
|  |  |          |                    | 11                 | 1.550          | Max N              | 0.03           | ▷              | 0.00           | -0.11 | -0.01 |                         | -0.04 | 0.00  | CO 5 |
|  |  |          |                    |                    |                | Min N              | -1.19          | ▷              | 0.48           | 1.01  | -0.01 |                         | 0.81  | -0.37 | CO 6 |
|  |  |          |                    |                    |                | Max V <sub>y</sub> | -1.19          | ▷              | 0.48           | 1.01  | -0.01 |                         | 0.81  | -0.37 | CO 6 |
|  |  |          |                    |                    |                | Min V <sub>y</sub> | 0.03           | ▷              | 0.00           | -0.11 | -0.01 |                         | -0.04 | 0.00  | CO 5 |
|  | Max V <sub>z</sub>                           | -1.19    | ▷                  |                    |                | 0.48               | 1.01           | -0.01          |                | 0.81  | -0.37 | CO 6                    |       |       |      |
|  | Min V <sub>z</sub>                           | 0.03     | ▷                  |                    |                | 0.00               | -0.11          | -0.01          |                | -0.04 | 0.00  | CO 5                    |       |       |      |
|  | Max M <sub>T</sub>                           | 0.03     | ▷                  |                    |                | 0.00               | -0.11          | -0.01          |                | -0.04 | 0.00  | CO 5                    |       |       |      |
|  | Min M <sub>T</sub>                           | -1.19    | ▷                  |                    |                | 0.48               | 1.01           | -0.01          |                | 0.81  | -0.37 | CO 6                    |       |       |      |
|  | Max M <sub>y</sub>                           | -1.19    | ▷                  |                    |                | 0.48               | 1.01           | -0.01          | ▷              | 0.81  | -0.37 | CO 6                    |       |       |      |
|  | Min M <sub>y</sub>                           | 0.03     | ▷                  |                    |                | 0.00               | -0.11          | -0.01          | ▷              | -0.04 | 0.00  | CO 5                    |       |       |      |
|  | Max M <sub>z</sub>                           | 0.03     | ▷                  |                    |                | 0.00               | -0.11          | -0.01          |                | -0.04 | ▷     | 0.00                    | CO 5  |       |      |
|  | Min M <sub>z</sub>                           | -1.19    | ▷                  |                    |                | 0.48               | 1.01           | -0.01          |                | 0.81  | ▷     | -0.37                   | CO 6  |       |      |
|  | RC4  | 9        | 0.000              |                    |                | Max N              | 0.03           | ▷              | 0.00           | 0.08  | -0.01 |                         | -0.02 | 0.01  | CO 7 |
|  |  |          |                    |                    |                | Min N              | -0.70          | ▷              | 0.29           | 0.74  | -0.01 |                         | -0.55 | 0.23  | CO 8 |
|  |  |          |                    |                    |                | Max V <sub>y</sub> | -0.70          | ▷              | 0.29           | 0.74  | -0.01 |                         | -0.55 | 0.23  | CO 8 |
|  |  |          |                    |                    |                | Min V <sub>y</sub> | 0.03           | ▷              | 0.00           | 0.08  | -0.01 |                         | -0.02 | 0.01  | CO 7 |
|  |  |          |                    | Max V <sub>z</sub> | -0.70          | ▷                  | 0.29           | 0.74           | -0.01          |       | -0.55 | 0.23                    | CO 8  |       |      |
|  |  |          |                    | Min V <sub>z</sub> | 0.03           | ▷                  | 0.00           | 0.08           | -0.01          |       | -0.02 | 0.01                    | CO 7  |       |      |
|  |  |          |                    | Max M <sub>T</sub> | 0.03           | ▷                  | 0.00           | 0.08           | -0.01          |       | -0.02 | 0.01                    | CO 7  |       |      |
|  |  |          |                    | Min M <sub>T</sub> | -0.70          | ▷                  | 0.29           | 0.74           | -0.01          |       | -0.55 | 0.23                    | CO 8  |       |      |
|  |  |          |                    | Max M <sub>y</sub> | 0.03           | ▷                  | 0.00           | 0.08           | -0.01          | ▷     | -0.02 | 0.01                    | CO 7  |       |      |
|  |  |          |                    | Min M <sub>y</sub> | -0.70          | ▷                  | 0.29           | 0.74           | -0.01          | ▷     | -0.55 | 0.23                    | CO 8  |       |      |
|  |  |          |                    | Max M <sub>z</sub> | -0.70          | ▷                  | 0.29           | 0.74           | -0.01          |       | -0.55 | ▷                       | 0.23  | CO 8  |      |
|  |  |          |                    | Min M <sub>z</sub> | 0.03           | ▷                  | 0.00           | 0.08           | -0.01          |       | -0.02 | ▷                       | 0.01  | CO 7  |      |
|  |  |          |                    | 11                 | 1.550          | Max N              | 0.03           | ▷              | 0.00           | -0.11 | -0.01 |                         | -0.04 | 0.00  | CO 7 |
|  |  |          |                    |                    |                | Min N              | -0.70          | ▷              | 0.29           | 0.56  | -0.01 |                         | 0.47  | -0.22 | CO 8 |
|  |  |          |                    |                    |                | Max V <sub>y</sub> | -0.70          | ▷              | 0.29           | 0.56  | -0.01 |                         | 0.47  | -0.22 | CO 8 |
|  |  |          |                    |                    |                | Min V <sub>y</sub> | 0.03           | ▷              | 0.00           | -0.11 | -0.01 |                         | -0.04 | 0.00  | CO 7 |
|  | Max V <sub>z</sub>                           | -0.70    | ▷                  |                    |                | 0.29               | 0.56           | -0.01          |                | 0.47  | -0.22 | CO 8                    |       |       |      |
|  | Min V <sub>z</sub>                           | 0.03     | ▷                  |                    |                | 0.00               | -0.11          | -0.01          |                | -0.04 | 0.00  | CO 7                    |       |       |      |
|  | Max M <sub>T</sub>                           | 0.03     | ▷                  |                    |                | 0.00               | -0.11          | -0.01          |                | -0.04 | 0.00  | CO 7                    |       |       |      |
|  | Min M <sub>T</sub>                           | -0.70    | ▷                  |                    |                | 0.29               | 0.56           | -0.01          |                | 0.47  | -0.22 | CO 8                    |       |       |      |
|  | Max M <sub>y</sub>                           | -0.70    | ▷                  |                    |                | 0.29               | 0.56           | -0.01          | ▷              | 0.47  | -0.22 | CO 8                    |       |       |      |
|  | Min M <sub>y</sub>                           | 0.03     | ▷                  |                    |                | 0.00               | -0.11          | -0.01          | ▷              | -0.04 | 0.00  | CO 7                    |       |       |      |
|  | Max M <sub>z</sub>                           | 0.03     | ▷                  |                    |                | 0.00               | -0.11          | -0.01          |                | -0.04 | ▷     | 0.00                    | CO 7  |       |      |
|  | Min M <sub>z</sub>                           | -0.70    | ▷                  |                    |                | 0.29               | 0.56           | -0.01          |                | 0.47  | ▷     | -0.22                   | CO 8  |       |      |
|  | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                    |                    |                |                    |                |                |                |       |       |                         |       |       |      |
|  | RC5  | 9        | 0.000              |                    |                | Max N              | 0.39           | ▷              | -0.17          | -0.34 | 0.00  |                         | 0.27  | -0.13 |      |
|  |  |          |                    |                    |                | Min N              | -0.39          | ▷              | 0.17           | 0.34  | -0.00 |                         | -0.27 | 0.13  |      |
|  |  |          |                    |                    |                | Max V <sub>y</sub> | -0.30          | ▷              | 0.21           | 0.28  | -0.00 |                         | -0.23 | 0.16  |      |
|  |  |          |                    | Min V <sub>y</sub> | 0.30           | ▷                  | -0.21          | -0.28          | 0.00           |       | 0.23  | -0.16                   |       |       |      |
|  |  |          |                    | Max V <sub>z</sub> | -0.38          | ▷                  | 0.17           | 0.34           | -0.00          |       | -0.27 | 0.13                    |       |       |      |
|  |  |          |                    | Min V <sub>z</sub> | 0.38           | ▷                  | -0.17          | -0.34          | 0.00           |       | 0.27  | -0.13                   |       |       |      |
|  |  |          |                    | Max M <sub>T</sub> | 0.31           | ▷                  | -0.13          | -0.26          | 0.01           |       | 0.21  | -0.10                   |       |       |      |
|  |  |          |                    | Min M <sub>T</sub> | -0.31          | ▷                  | 0.13           | 0.26           | -0.01          |       | -0.21 | 0.10                    |       |       |      |
|  |  |          |                    | Max M <sub>y</sub> | 0.38           | ▷                  | -0.17          | -0.34          | 0.00           | ▷     | 0.27  | -0.13                   |       |       |      |
|  |  |          |                    | Min M <sub>y</sub> | -0.38          | ▷                  | 0.17           | 0.34           | -0.00          | ▷     | -0.27 | 0.13                    |       |       |      |
|  |  |          |                    | Max M <sub>z</sub> | -0.30          | ▷                  | 0.21           | 0.28           | -0.00          |       | -0.23 | ▷                       | 0.16  |       |      |
|  |  |          |                    | Min M <sub>z</sub> | 0.30           | ▷                  | -0.21          | -0.28          | 0.00           |       | 0.23  | ▷                       | -0.16 |       |      |
|  |  |          |                    | 11                 | 1.550          | Max N              | 0.39           | ▷              | -0.17          | -0.34 | 0.00  |                         | -0.25 | 0.13  |      |
|  |  |          |                    |                    |                | Min N              | -0.39          | ▷              | 0.17           | 0.34  | -0.00 |                         | 0.25  | -0.13 |      |
|  |  |          |                    |                    |                | Max V <sub>y</sub> | -0.30          | ▷              | 0.21           | 0.28  | -0.00 |                         | 0.21  | -0.17 |      |
|  |  |          |                    |                    |                | Min V <sub>y</sub> | 0.30           | ▷              | -0.21          | -0.28 | 0.00  |                         | -0.21 | 0.17  |      |
|  | Max V <sub>z</sub>                           | -0.38    | ▷                  |                    |                | 0.17               | 0.34           | -0.00          |                | 0.26  | -0.13 |                         |       |       |      |
|  | Min V <sub>z</sub>                           | 0.38     | ▷                  |                    |                | -0.17              | -0.34          | 0.00           |                | -0.26 | 0.13  |                         |       |       |      |
|  | Max M <sub>T</sub>                           | 0.31     | ▷                  |                    |                | -0.13              | -0.26          | 0.01           |                | -0.19 | 0.10  |                         |       |       |      |
|  | Min M <sub>T</sub>                           | -0.31    | ▷                  |                    |                | 0.13               | 0.26           | -0.01          |                | 0.19  | -0.10 |                         |       |       |      |
|  | Max M <sub>y</sub>                           | -0.38    | ▷                  |                    |                | 0.17               | 0.34           | -0.00          | ▷              | 0.26  | -0.13 |                         |       |       |      |
|  | Min M <sub>y</sub>                           | 0.38     | ▷                  |                    |                | -0.17              | -0.34          | 0.00           | ▷              | -0.26 | 0.13  |                         |       |       |      |
|  | Max M <sub>z</sub>                           | 0.30     | ▷                  |                    |                | -0.21              | -0.28          | 0.00           |                | -0.21 | ▷     | 0.17                    |       |       |      |
| Min M <sub>z</sub>                           | -0.30  | ▷        | 0.21               |                    |                | 0.28               | -0.00          |                | 0.21           | ▷     | -0.17 |                         |       |       |      |
| DLC1, Result Envelope X 30% / Y 100% / Z 30% |  |          |                    |                    |                |                    |                |                |                |       |       |                         |       |       |      |
| RC6  | 9  | 0.000    | Max N              |                    |                | 0.33               | ▷              | -0.10          | -0.27          | 0.00  |       | 0.21                    | -0.08 |       |      |
|  |  |          | Min N              |                    |                | -0.33              | ▷              | 0.10           | 0.27           | -0.00 |       | -0.21                   | 0.08  |       |      |
|  |  |          | Max V <sub>y</sub> |                    |                | -0.17              | ▷              | 0.19           | 0.17           | -0.00 |       | -0.13                   | 0.14  |       |      |
|  |  |          | Min V <sub>y</sub> | 0.17               | ▷              | -0.19              | -0.17          | 0.00           |                | 0.13  | -0.14 |                         |       |       |      |
|  |  |          | Max V <sub>z</sub> | -0.32              | ▷              | 0.10               | 0.28           | -0.00          |                | -0.22 | 0.07  |                         |       |       |      |
|  |  |          | Min V <sub>z</sub> | 0.32               | ▷              | -0.10              | -0.28          | 0.00           |                | 0.22  | -0.07 |                         |       |       |      |
|  |  |          | Max M <sub>T</sub> | 0.17               | ▷              | -0.12              | -0.15          | 0.00           |                | 0.12  | -0.09 |                         |       |       |      |
|  |  |          | Min M <sub>T</sub> | -0.17              | ▷              | 0.12               | 0.15           | -0.00          |                | -0.12 | 0.09  |                         |       |       |      |
|  |  |          | Max M <sub>y</sub> | 0.32               | ▷              | -0.10              | -0.28          | 0.00           | ▷              | 0.22  | -0.07 |                         |       |       |      |
|  |  |          | Min M <sub>y</sub> | -0.32              | ▷              | 0.10               | 0.28           | -0.00          | ▷              | -0.22 | 0.07  |                         |       |       |      |
|  |  |          |                    |                    |                |                    |                |                |                |       |       |                         |       |       |      |

RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC                 | Node No.                                     | Location x [m]     | Forces [kN]        |                    |                |                |                | Moments [kNm]  |       |       | Correspondin Load Cases |
|--------------------|--------------------|--|--------------------|--------------------|--------------------|----------------|----------------|----------------|----------------|-------|-------|-------------------------|
|                    |                    |  |                    | N                  | V <sub>y</sub>     | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |       |                         |
| 11                 | RC6                | 11   | 1.550              | Max M <sub>z</sub> | -0.18              | 0.19           | 0.17           | -0.00          | -0.14          | 0.14  |       |                         |
|                    |                    |  |                    | Min M <sub>z</sub> | 0.18               | -0.19          | -0.17          | 0.00           | 0.14           | -0.14 |       |                         |
|                    |                    |  |                    | Max N              | 0.33               | -0.10          | -0.27          | 0.00           | -0.20          | 0.08  |       |                         |
|                    |                    |  |                    | Min N              | -0.33              | 0.10           | 0.27           | -0.00          | 0.20           | -0.08 |       |                         |
|                    |                    |  |                    | Max V <sub>y</sub> | -0.17              | 0.19           | 0.17           | -0.00          | 0.13           | -0.15 |       |                         |
|                    |                    |  |                    | Min V <sub>y</sub> | 0.17               | -0.19          | -0.17          | 0.00           | -0.13          | 0.15  |       |                         |
|                    |                    |  |                    | Max V <sub>z</sub> | -0.32              | 0.10           | 0.28           | -0.00          | 0.21           | -0.07 |       |                         |
|                    |                    |  |                    | Min V <sub>z</sub> | 0.32               | -0.10          | -0.28          | 0.00           | -0.21          | 0.07  |       |                         |
|                    |                    |  |                    | Max M <sub>T</sub> | 0.17               | -0.12          | -0.15          | 0.00           | -0.11          | 0.09  |       |                         |
|                    |                    |  |                    | Min M <sub>T</sub> | -0.17              | 0.12           | 0.15           | -0.00          | 0.11           | -0.09 |       |                         |
|                    |                    | Max M <sub>y</sub>                           | -0.32              | 0.10               | 0.28               | -0.00          | 0.21           | -0.07          |                |       |       |                         |
|                    |                    | Min M <sub>y</sub>                           | 0.32               | -0.10              | -0.28              | 0.00           | -0.21          | 0.07           |                |       |       |                         |
|                    |                    | Max M <sub>z</sub>                           | 0.17               | -0.19              | -0.17              | 0.00           | -0.13          | 0.15           |                |       |       |                         |
|                    |                    | Min M <sub>z</sub>                           | -0.17              | 0.19               | 0.17               | -0.00          | 0.13           | -0.15          |                |       |       |                         |
|                    |                    | DLC1, Result Envelope X 30% / Y 30% / Z 100% |                    |                    |                    |                |                |                |                |       |       |                         |
|                    |                    | RC7  | 9                  | 0.000              | Max N              | 0.77           | -0.35          | -0.68          | 0.01           | 0.54  | -0.27 |                         |
|                    |                    |  |                    |                    | Min N              | -0.77          | 0.35           | 0.68           | -0.01          | -0.54 | 0.27  |                         |
|                    |                    |  |                    |                    | Max V <sub>y</sub> | -0.61          | 0.44           | 0.58           | -0.01          | -0.47 | 0.34  |                         |
|                    |                    |  |                    |                    | Min V <sub>y</sub> | 0.61           | -0.44          | -0.58          | 0.01           | 0.47  | -0.34 |                         |
|                    |                    |  |                    |                    | Max V <sub>z</sub> | -0.76          | 0.37           | 0.69           | -0.01          | -0.55 | 0.28  |                         |
|                    | Min V <sub>z</sub> |  |                    |                    | 0.76               | -0.37          | -0.69          | 0.01           | 0.55           | -0.28 |       |                         |
|                    | Max M <sub>T</sub> |  |                    |                    | 0.64               | -0.23          | -0.54          | 0.01           | 0.43           | -0.18 |       |                         |
|                    | Min M <sub>T</sub> |  |                    |                    | -0.64              | 0.23           | 0.54           | -0.01          | -0.43          | 0.18  |       |                         |
|                    | Max M <sub>y</sub> |  |                    |                    | 0.76               | -0.37          | -0.69          | 0.01           | 0.55           | -0.28 |       |                         |
|                    | Min M <sub>y</sub> |  |                    |                    | -0.76              | 0.37           | 0.69           | -0.01          | -0.55          | 0.28  |       |                         |
|                    | Max M <sub>z</sub> |  | -0.61              | 0.44               | 0.58               | -0.01          | -0.47          | 0.34           |                |       |       |                         |
|                    | Min M <sub>z</sub> |  | 0.61               | -0.44              | -0.58              | 0.01           | 0.47           | -0.34          |                |       |       |                         |
|                    | 11                 |  | 1.550              | Max N              | 0.77               | -0.35          | -0.68          | 0.01           | -0.51          | 0.27  |       |                         |
|                    |                    |  |                    | Min N              | -0.77              | 0.35           | 0.68           | -0.01          | 0.51           | -0.27 |       |                         |
|                    |                    |  |                    | Max V <sub>y</sub> | -0.61              | 0.44           | 0.58           | -0.01          | 0.44           | -0.34 |       |                         |
|                    |                    |  |                    | Min V <sub>y</sub> | 0.61               | -0.44          | -0.58          | 0.01           | -0.44          | 0.34  |       |                         |
|                    |                    |  |                    | Max V <sub>z</sub> | -0.76              | 0.37           | 0.69           | -0.01          | 0.51           | -0.29 |       |                         |
|                    |                    |  |                    | Min V <sub>z</sub> | 0.76               | -0.37          | -0.69          | 0.01           | -0.51          | 0.29  |       |                         |
|                    |                    |  |                    | Max M <sub>T</sub> | 0.64               | -0.23          | -0.54          | 0.01           | -0.40          | 0.18  |       |                         |
|                    |                    |  |                    | Min M <sub>T</sub> | -0.64              | 0.23           | 0.54           | -0.01          | 0.40           | -0.18 |       |                         |
|                    |                    | Max M <sub>y</sub>                           |                    | -0.76              | 0.37               | 0.69           | -0.01          | 0.51           | -0.29          |       |       |                         |
|                    |                    | Min M <sub>y</sub>                           |                    | 0.76               | -0.37              | -0.69          | 0.01           | -0.51          | 0.29           |       |       |                         |
|                    | 12                 | RC1  | 13                 | 0.000              | Max M <sub>z</sub> | 0.61           | -0.44          | -0.58          | 0.01           | -0.44 | 0.34  |                         |
|                    |                    |  |                    |                    | Min M <sub>z</sub> | -0.61          | 0.44           | 0.58           | -0.01          | 0.44  | -0.34 |                         |
|                    |                    |  |                    |                    | Max N              | 3.35           | -3.02          | 0.25           | 0.29           | -0.07 | -2.89 | CO 2                    |
| Min N              |                    |  |                    |                    | -0.00              | 0.01           | 0.14           | 0.00           | -0.04          | 0.01  | CO 1  |                         |
| Max V <sub>y</sub> |                    |  |                    |                    | -0.00              | 0.01           | 0.14           | 0.00           | -0.04          | 0.01  | CO 1  |                         |
| Min V <sub>y</sub> |                    |  |                    |                    | 3.35               | -3.02          | 0.25           | 0.29           | -0.07          | -2.89 | CO 2  |                         |
| Max V <sub>z</sub> |                    |  |                    |                    | 3.35               | -3.02          | 0.25           | 0.29           | -0.07          | -2.89 | CO 2  |                         |
| Min V <sub>z</sub> |                    |  |                    |                    | -0.00              | 0.01           | 0.14           | 0.00           | -0.04          | 0.01  | CO 1  |                         |
| Max M <sub>T</sub> |                    |  |                    |                    | 3.35               | -3.02          | 0.25           | 0.29           | -0.07          | -2.89 | CO 2  |                         |
| Min M <sub>T</sub> |                    |  |                    |                    | -0.00              | 0.01           | 0.14           | 0.00           | -0.04          | 0.01  | CO 1  |                         |
| Max M <sub>y</sub> |                    |  |                    |                    | -0.00              | 0.01           | 0.14           | 0.00           | -0.04          | 0.01  | CO 1  |                         |
| Min M <sub>y</sub> |                    |  |                    |                    | 3.35               | -3.02          | 0.25           | 0.29           | -0.07          | -2.89 | CO 2  |                         |
| 14                 |                    |  | 1.550              | Max M <sub>z</sub> | -0.00              | 0.01           | 0.14           | 0.00           | -0.04          | 0.01  | CO 1  |                         |
|                    |                    |  |                    | Min M <sub>z</sub> | 3.35               | -3.02          | 0.25           | 0.29           | -0.07          | -2.89 | CO 2  |                         |
|                    |                    |  |                    | Max N              | 3.36               | -3.01          | 0.01           | 0.29           | 0.13           | 1.77  | CO 2  |                         |
|                    |                    |  |                    | Min N              | -0.00              | 0.01           | -0.10          | 0.00           | -0.01          | -0.01 | CO 1  |                         |
|                    |                    |  |                    | Max V <sub>y</sub> | -0.00              | 0.01           | -0.10          | 0.00           | -0.01          | -0.01 | CO 1  |                         |
|                    |                    |  |                    | Min V <sub>y</sub> | 3.36               | -3.01          | 0.01           | 0.29           | 0.13           | 1.77  | CO 2  |                         |
|                    |                    |  |                    | Max V <sub>z</sub> | 3.36               | -3.01          | 0.01           | 0.29           | 0.13           | 1.77  | CO 2  |                         |
|                    |                    |  |                    | Min V <sub>z</sub> | -0.00              | 0.01           | -0.10          | 0.00           | -0.01          | -0.01 | CO 1  |                         |
|                    | Max M <sub>T</sub> |  |                    | 3.36               | -3.01              | 0.01           | 0.29           | 0.13           | 1.77           | CO 2  |       |                         |
|                    | Min M <sub>T</sub> |  |                    | -0.00              | 0.01               | -0.10          | 0.00           | -0.01          | -0.01          | CO 1  |       |                         |
|                    | Max M <sub>y</sub> |  |                    | 3.36               | -3.01              | 0.01           | 0.29           | 0.13           | 1.77           | CO 2  |       |                         |
|                    | Min M <sub>y</sub> |  |                    | -0.00              | 0.01               | -0.10          | 0.00           | -0.01          | -0.01          | CO 1  |       |                         |
| RC2                | 13                 |  | 0.000              | Max M <sub>z</sub> | 3.36               | -3.01          | 0.01           | 0.29           | 0.13           | 1.77  | CO 2  |                         |
|                    |                    |  |                    | Min M <sub>z</sub> | -0.00              | 0.01           | -0.10          | 0.00           | -0.01          | -0.01 | CO 1  |                         |
|                    |                    |  |                    | Max N              | 2.23               | -2.01          | 0.18           | 0.19           | -0.05          | -1.93 | CO 4  |                         |
|                    |                    |  |                    | Min N              | -0.00              | 0.01           | 0.11           | 0.00           | -0.03          | 0.01  | CO 3  |                         |
|                    |                    |  |                    | Max V <sub>y</sub> | -0.00              | 0.01           | 0.11           | 0.00           | -0.03          | 0.01  | CO 3  |                         |
|                    |                    |  |                    | Min V <sub>y</sub> | 2.23               | -2.01          | 0.18           | 0.19           | -0.05          | -1.93 | CO 4  |                         |
|                    |                    |  |                    | Max V <sub>z</sub> | 2.23               | -2.01          | 0.18           | 0.19           | -0.05          | -1.93 | CO 4  |                         |
|                    |                    |  |                    | Min V <sub>z</sub> | -0.00              | 0.01           | 0.11           | 0.00           | -0.03          | 0.01  | CO 3  |                         |
|                    |                    |  |                    | Max M <sub>T</sub> | 2.23               | -2.01          | 0.18           | 0.19           | -0.05          | -1.93 | CO 4  |                         |
|                    |                    |  |                    | Min M <sub>T</sub> | -0.00              | 0.01           | 0.11           | 0.00           | -0.03          | 0.01  | CO 3  |                         |
|                    |                    |  |                    | Max M <sub>y</sub> | -0.00              | 0.01           | 0.11           | 0.00           | -0.03          | 0.01  | CO 3  |                         |
|                    |                    |  |                    | Min M <sub>y</sub> | 2.23               | -2.01          | 0.18           | 0.19           | -0.05          | -1.93 | CO 4  |                         |
|                    | 14                 |  | 1.550              | Max M <sub>z</sub> | -0.00              | 0.01           | 0.11           | 0.00           | -0.03          | 0.01  | CO 3  |                         |
|                    |                    |  |                    | Min M <sub>z</sub> | 2.23               | -2.01          | 0.18           | 0.19           | -0.05          | -1.93 | CO 4  |                         |
|                    |                    |  |                    | Max N              | 2.24               | -2.00          | -0.00          | 0.19           | 0.08           | 1.18  | CO 4  |                         |
|                    |                    |  |                    | Min N              | -0.00              | 0.01           | -0.07          | 0.00           | -0.01          | -0.01 | CO 3  |                         |
| RC2                | 13                 | 0.000  | Max V <sub>y</sub> | -0.00              | 0.01               | -0.07          | 0.00           | -0.01          | -0.01          | CO 3  |       |                         |
|                    |                    |  | Min V <sub>y</sub> | 2.24               | -2.00              | -0.00          | 0.19           | 0.08           | 1.18           | CO 4  |       |                         |
|                    |                    |  | Max V <sub>z</sub> | 2.24               | -2.00              | -0.00          | 0.19           | 0.08           | 1.18           | CO 4  |       |                         |
|                    |                    |  | Min V <sub>z</sub> | -0.00              | 0.01               | -0.07          | 0.00           | -0.01          | -0.01          | CO 3  |       |                         |
|                    |                    |  | Max M <sub>T</sub> | 2.24               | -2.00              | -0.00          | 0.19           | 0.08           | 1.18           | CO 4  |       |                         |
|                    |                    |  | Min M <sub>T</sub> | -0.00              | 0.01               | -0.07          | 0.00           | -0.01          | -0.01          | CO 3  |       |                         |
|                    |                    |  | Max M <sub>y</sub> | 2.24               | -2.00              | -0.00          | 0.19           | 0.08           | 1.18           | CO 4  |       |                         |
|                    |                    |  | Min M <sub>y</sub> | -0.00              | 0.01               | -0.07          | 0.00           | -0.01          | -0.01          | CO 3  |       |                         |
|                    |                    |  | Max M <sub>z</sub> | 2.24               | -2.00              | -0.00          | 0.19           | 0.08           | 1.18           | CO 4  |       |                         |
|                    |                    |  | Min M <sub>z</sub> | -0.00              | 0.01               | -0.07          | 0.00           | -0.01          | -0.01          | CO 3  |       |                         |
|                    |                    |  | 14                 | 1.550              | Max N              | 2.24           | -2.00          | -0.00          | 0.19           | 0.08  | 1.18  | CO 4                    |
|                    |                    |  |                    |                    | Min N              | -0.00          | 0.01           | -0.07          | 0.00           | -0.01 | -0.01 | CO 3                    |
|                    | Max V <sub>y</sub> | -0.00  |                    |                    | 0.01               | -0.07          | 0.00           | -0.01          | -0.01          | CO 3  |       |                         |
|                    | Min V <sub>y</sub> | 2.24   |                    |                    | -2.00              | -0.00          | 0.19           | 0.08           | 1.18           | CO 4  |       |                         |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date:

2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m] | Forces [kN]        |                |                |                |                | Moments [kNm]  |       |      | Correspondin Load Cases |
|------------|--|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------|------|-------------------------|
|            |  |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |      |                         |
| 12         | RC3  | 13       | 0.000          | Max N              | 1.12           | -1.00          | 0.14           | 0.10           | -0.04          | -0.96 | CO 6 |                         |
|            |  |          |                | Min N              | -0.00          | 0.01           | 0.11           | 0.00           | -0.03          | 0.01  | CO 5 |                         |
|            |  |          |                | Max V <sub>y</sub> | -0.00          | 0.01           | 0.11           | 0.00           | -0.03          | 0.01  | CO 5 |                         |
|            |  |          |                | Min V <sub>y</sub> | 1.12           | -1.00          | 0.14           | 0.10           | -0.04          | -0.96 | CO 6 |                         |
|            |  |          |                | Max V <sub>z</sub> | 1.12           | -1.00          | 0.14           | 0.10           | -0.04          | -0.96 | CO 6 |                         |
|            |  |          |                | Min V <sub>z</sub> | -0.00          | 0.01           | 0.11           | 0.00           | -0.03          | 0.01  | CO 5 |                         |
|            |  |          |                | Max M <sub>T</sub> | 1.12           | -1.00          | 0.14           | 0.10           | -0.04          | -0.96 | CO 6 |                         |
|            |  |          |                | Min M <sub>T</sub> | -0.00          | 0.01           | 0.11           | 0.00           | -0.03          | 0.01  | CO 5 |                         |
|            |  |          |                | Max M <sub>y</sub> | -0.00          | 0.01           | 0.11           | 0.00           | -0.03          | 0.01  | CO 5 |                         |
|            |  |          |                | Min M <sub>y</sub> | 1.12           | -1.00          | 0.14           | 0.10           | -0.04          | -0.96 | CO 6 |                         |
|            |  |          |                | Max M <sub>z</sub> | -0.00          | 0.01           | 0.11           | 0.00           | -0.03          | 0.01  | CO 5 |                         |
|            |  |          |                | Min M <sub>z</sub> | 1.12           | -1.00          | 0.14           | 0.10           | -0.04          | -0.96 | CO 6 |                         |
|            |  | 14       | 1.550          | Max N              | 1.12           | -1.00          | -0.04          | 0.10           | 0.04           | 0.59  | CO 6 |                         |
|            |  |          |                | Min N              | -0.00          | 0.01           | -0.07          | 0.00           | -0.01          | -0.01 | CO 5 |                         |
|            |  |          |                | Max V <sub>y</sub> | -0.00          | 0.01           | -0.07          | 0.00           | -0.01          | -0.01 | CO 5 |                         |
|            |  |          |                | Min V <sub>y</sub> | 1.12           | -1.00          | -0.04          | 0.10           | 0.04           | 0.59  | CO 6 |                         |
|            |  |          |                | Max V <sub>z</sub> | 1.12           | -1.00          | -0.04          | 0.10           | 0.04           | 0.59  | CO 6 |                         |
|            |  |          |                | Min V <sub>z</sub> | -0.00          | 0.01           | -0.07          | 0.00           | -0.01          | -0.01 | CO 5 |                         |
|            |  |          |                | Max M <sub>T</sub> | 1.12           | -1.00          | -0.04          | 0.10           | 0.04           | 0.59  | CO 6 |                         |
|            |  |          |                | Min M <sub>T</sub> | -0.00          | 0.01           | -0.07          | 0.00           | -0.01          | -0.01 | CO 5 |                         |
|            |  |          |                | Max M <sub>y</sub> | 1.12           | -1.00          | -0.04          | 0.10           | 0.04           | 0.59  | CO 6 |                         |
|            |  |          |                | Min M <sub>y</sub> | -0.00          | 0.01           | -0.07          | 0.00           | -0.01          | -0.01 | CO 5 |                         |
|            |  |          |                | Max M <sub>z</sub> | 1.12           | -1.00          | -0.04          | 0.10           | 0.04           | 0.59  | CO 6 |                         |
|            |  |          |                | Min M <sub>z</sub> | -0.00          | 0.01           | -0.07          | 0.00           | -0.01          | -0.01 | CO 5 |                         |
|            | RC4  | 13       | 0.000          | Max N              | 0.67           | -0.59          | 0.13           | 0.06           | -0.03          | -0.57 | CO 8 |                         |
|            |  |          |                | Min N              | -0.00          | 0.01           | 0.11           | 0.00           | -0.03          | 0.01  | CO 7 |                         |
|            |  |          |                | Max V <sub>y</sub> | -0.00          | 0.01           | 0.11           | 0.00           | -0.03          | 0.01  | CO 7 |                         |
|            |  |          |                | Min V <sub>y</sub> | 0.67           | -0.59          | 0.13           | 0.06           | -0.03          | -0.57 | CO 8 |                         |
|            |  |          |                | Max V <sub>z</sub> | 0.67           | -0.59          | 0.13           | 0.06           | -0.03          | -0.57 | CO 8 |                         |
|            |  |          |                | Min V <sub>z</sub> | -0.00          | 0.01           | 0.11           | 0.00           | -0.03          | 0.01  | CO 7 |                         |
|            |  |          |                | Max M <sub>T</sub> | 0.67           | -0.59          | 0.13           | 0.06           | -0.03          | -0.57 | CO 8 |                         |
|            |  |          |                | Min M <sub>T</sub> | -0.00          | 0.01           | 0.11           | 0.00           | -0.03          | 0.01  | CO 7 |                         |
|            |  |          |                | Max M <sub>y</sub> | -0.00          | 0.01           | 0.11           | 0.00           | -0.03          | 0.01  | CO 7 |                         |
|            |  |          |                | Min M <sub>y</sub> | 0.67           | -0.59          | 0.13           | 0.06           | -0.03          | -0.57 | CO 8 |                         |
|            |  |          |                | Max M <sub>z</sub> | -0.00          | 0.01           | 0.11           | 0.00           | -0.03          | 0.01  | CO 7 |                         |
|            |  |          |                | Min M <sub>z</sub> | 0.67           | -0.59          | 0.13           | 0.06           | -0.03          | -0.57 | CO 8 |                         |
|            |  | 14       | 1.550          | Max N              | 0.67           | -0.59          | -0.06          | 0.06           | 0.02           | 0.35  | CO 8 |                         |
|            |  |          |                | Min N              | -0.00          | 0.01           | -0.07          | 0.00           | -0.01          | -0.01 | CO 7 |                         |
|            |  |          |                | Max V <sub>y</sub> | -0.00          | 0.01           | -0.07          | 0.00           | -0.01          | -0.01 | CO 7 |                         |
|            |  |          |                | Min V <sub>y</sub> | 0.67           | -0.59          | -0.06          | 0.06           | 0.02           | 0.35  | CO 8 |                         |
|            |  |          |                | Max V <sub>z</sub> | 0.67           | -0.59          | -0.06          | 0.06           | 0.02           | 0.35  | CO 8 |                         |
|            |  |          |                | Min V <sub>z</sub> | -0.00          | 0.01           | -0.07          | 0.00           | -0.01          | -0.01 | CO 7 |                         |
|            |  |          |                | Max M <sub>T</sub> | 0.67           | -0.59          | -0.06          | 0.06           | 0.02           | 0.35  | CO 8 |                         |
|            |  |          |                | Min M <sub>T</sub> | -0.00          | 0.01           | -0.07          | 0.00           | -0.01          | -0.01 | CO 7 |                         |
|            |  |          |                | Max M <sub>y</sub> | 0.67           | -0.59          | -0.06          | 0.06           | 0.02           | 0.35  | CO 8 |                         |
|            |  |          |                | Min M <sub>y</sub> | -0.00          | 0.01           | -0.07          | 0.00           | -0.01          | -0.01 | CO 7 |                         |
|            |  |          |                | Max M <sub>z</sub> | 0.67           | -0.59          | -0.06          | 0.06           | 0.02           | 0.35  | CO 8 |                         |
|            |  |          |                | Min M <sub>z</sub> | -0.00          | 0.01           | -0.07          | 0.00           | -0.01          | -0.01 | CO 7 |                         |
|            | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                |                    |                |                |                |                |                |       |      |                         |
|            | RC5  | 13       | 0.000          | Max N              | 0.41           | -0.35          | -0.01          | 0.04           | 0.01           | -0.34 |      |                         |
|            |  |          |                | Min N              | -0.41          | 0.35           | 0.01           | -0.04          | -0.01          | 0.34  |      |                         |
|            |  |          |                | Max V <sub>y</sub> | -0.41          | 0.35           | 0.01           | -0.04          | -0.01          | 0.34  |      |                         |
|            |  |          |                | Min V <sub>y</sub> | 0.41           | -0.35          | -0.01          | 0.04           | 0.01           | -0.34 |      |                         |
|            |  |          |                | Max V <sub>z</sub> | -0.03          | 0.05           | 0.04           | -0.01          | -0.02          | 0.05  |      |                         |
|            |  |          |                | Min V <sub>z</sub> | 0.03           | -0.05          | -0.04          | 0.01           | 0.02           | -0.05 |      |                         |
|            |  |          |                | Max M <sub>T</sub> | 0.38           | -0.33          | -0.01          | 0.04           | 0.01           | -0.32 |      |                         |
|            |  |          |                | Min M <sub>T</sub> | -0.38          | 0.33           | 0.01           | -0.04          | -0.01          | 0.32  |      |                         |
|            |  |          |                | Max M <sub>y</sub> | 0.14           | -0.14          | -0.04          | 0.02           | 0.02           | -0.13 |      |                         |
|            |  |          |                | Min M <sub>y</sub> | -0.14          | 0.14           | 0.04           | -0.02          | -0.02          | 0.13  |      |                         |
|            |  |          |                | Max M <sub>z</sub> | -0.41          | 0.35           | 0.01           | -0.04          | -0.01          | 0.34  |      |                         |
|            |  |          |                | Min M <sub>z</sub> | 0.41           | -0.35          | -0.01          | 0.04           | 0.01           | -0.34 |      |                         |
|            |  | 14       | 1.550          | Max N              | 0.41           | -0.35          | -0.01          | 0.04           | -0.00          | 0.21  |      |                         |
|            |  |          |                | Min N              | -0.41          | 0.35           | 0.01           | -0.04          | 0.00           | -0.21 |      |                         |
|            |  |          |                | Max V <sub>y</sub> | -0.41          | 0.35           | 0.01           | -0.04          | 0.01           | -0.21 |      |                         |
|            |  |          |                | Min V <sub>y</sub> | 0.41           | -0.35          | -0.01          | 0.04           | -0.01          | 0.21  |      |                         |
|            |  |          |                | Max V <sub>z</sub> | -0.03          | 0.05           | 0.04           | -0.01          | 0.04           | -0.03 |      |                         |
|            |  |          |                | Min V <sub>z</sub> | 0.03           | -0.05          | -0.04          | 0.01           | -0.04          | 0.03  |      |                         |
|            |  |          |                | Max M <sub>T</sub> | 0.38           | -0.33          | -0.01          | 0.04           | -0.01          | 0.20  |      |                         |
|            |  |          |                | Min M <sub>T</sub> | -0.38          | 0.33           | 0.01           | -0.04          | 0.01           | -0.20 |      |                         |
|            |  |          |                | Max M <sub>y</sub> | 0.02           | 0.00           | 0.04           | -0.01          | 0.04           | -0.00 |      |                         |
|            |  |          |                | Min M <sub>y</sub> | -0.02          | -0.00          | -0.04          | 0.01           | -0.04          | 0.00  |      |                         |
|            |  |          |                | Max M <sub>z</sub> | 0.41           | -0.35          | -0.01          | 0.04           | -0.01          | 0.21  |      |                         |
|            |  |          |                | Min M <sub>z</sub> | -0.41          | 0.35           | 0.01           | -0.04          | 0.01           | -0.21 |      |                         |
|            | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                |                    |                |                |                |                |                |       |      |                         |
|            | RC6  | 13       | 0.000          | Max N              | 0.35           | -0.27          | -0.02          | 0.03           | 0.01           | -0.26 |      |                         |
|            |  |          |                | Min N              | -0.35          | 0.27           | 0.02           | -0.03          | -0.01          | 0.26  |      |                         |
|            |  |          |                | Max V <sub>y</sub> | -0.34          | 0.27           | 0.02           | -0.03          | -0.02          | 0.27  |      |                         |
|            |  |          |                | Min V <sub>y</sub> | 0.34           | -0.27          | -0.02          | 0.03           | 0.02           | -0.27 |      |                         |
|            |  |          |                | Max V <sub>z</sub> | -0.07          | 0.06           | 0.06           | -0.01          | -0.03          | 0.06  |      |                         |
|            |  |          |                | Min V <sub>z</sub> | 0.07           | -0.06          | -0.06          | 0.01           | 0.03           | -0.06 |      |                         |
|            |  |          |                | Max M <sub>T</sub> | 0.29           | -0.25          | -0.02          | 0.03           | 0.01           | -0.24 |      |                         |
|            |  |          |                | Min M <sub>T</sub> | -0.29          | 0.25           | 0.02           | -0.03          | -0.01          | 0.24  |      |                         |
|            |  |          |                | Max M <sub>y</sub> | 0.14           | -0.13          | -0.06          | 0.02           | 0.03           | -0.12 |      |                         |
|            |  |          |                | Min M <sub>y</sub> | -0.14          | 0.13           | 0.06           | -0.02          | -0.03          | 0.12  |      |                         |
|            |  |          |                | Max M <sub>z</sub> | -0.34          | 0.27           | 0.02           | -0.03          | -0.02          | 0.27  |      |                         |
|            |  |          |                | Min M <sub>z</sub> | 0.34           | -0.27          | -0.02          | 0.03           | 0.02           | -0.27 |      |                         |
|            |  | 14       | 1.550          | Max N              | 0.35           | -0.27          | -0.02          | 0.03           | -0.02          | 0.16  |      |                         |

## RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] | Forces [kN]                                  |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |
|------------|-----|----------|----------------|--|----------------|----------------|----------------|----------------|----------------|-------------------------|
|            |     |          |                | N  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |
| 12         | RC6 |          |                | Min N  | -0.35          | 0.27           | 0.02           | -0.03          | 0.02           | -0.16                   |
|            |     |          |                | Max V <sub>y</sub>                           | -0.34          | 0.27           | 0.02           | -0.03          | 0.02           | -0.16                   |
|            |     |          |                | Min V <sub>y</sub>                           | 0.34           | -0.27          | -0.02          | 0.03           | -0.02          | 0.16                    |
|            |     |          |                | Max V <sub>z</sub>                           | -0.07          | 0.06           | 0.06           | -0.01          | 0.06           | -0.04                   |
|            |     |          |                | Min V <sub>z</sub>                           | 0.07           | -0.06          | -0.06          | 0.01           | -0.06          | 0.04                    |
|            |     |          |                | Max M <sub>T</sub>                           | 0.29           | -0.25          | -0.02          | 0.03           | -0.02          | 0.15                    |
|            |     |          |                | Min M <sub>T</sub>                           | -0.29          | 0.25           | 0.02           | -0.03          | 0.02           | -0.15                   |
|            |     |          |                | Max M <sub>y</sub>                           | -0.03          | 0.03           | 0.06           | -0.01          | 0.06           | -0.02                   |
|            |     |          |                | Min M <sub>y</sub>                           | 0.03           | -0.03          | -0.06          | 0.01           | -0.06          | 0.02                    |
|            |     |          |                | Max M <sub>z</sub>                           | 0.34           | -0.27          | -0.02          | 0.03           | -0.02          | 0.16                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.34          | 0.27           | 0.02           | -0.03          | 0.02           | -0.16                   |
|            |     |          |                | DLC1, Result Envelope X 30% / Y 30% / Z 100% |                |                |                |                |                |                         |
|            | RC7 | 13       | 0.000          | Max N  | 0.83           | -0.73          | -0.02          | 0.08           | 0.02           | -0.70                   |
|            |     |          |                | Min N  | -0.83          | 0.73           | 0.02           | -0.08          | -0.02          | 0.70                    |
|            |     |          |                | Max V <sub>y</sub>                           | -0.83          | 0.73           | 0.02           | -0.08          | -0.02          | 0.70                    |
|            |     |          |                | Min V <sub>y</sub>                           | 0.83           | -0.73          | -0.02          | 0.08           | 0.02           | -0.70                   |
|            |     |          |                | Max V <sub>z</sub>                           | -0.15          | 0.16           | 0.07           | -0.04          | -0.04          | 0.16                    |
|            |     |          |                | Min V <sub>z</sub>                           | 0.15           | -0.16          | -0.07          | 0.04           | 0.04           | -0.16                   |
|            |     |          |                | Max M <sub>T</sub>                           | 0.76           | -0.69          | -0.03          | 0.09           | 0.02           | -0.66                   |
|            |     |          |                | Min M <sub>T</sub>                           | -0.76          | 0.69           | 0.03           | -0.09          | -0.02          | 0.66                    |
|            |     |          |                | Max M <sub>y</sub>                           | 0.36           | -0.34          | -0.07          | 0.06           | 0.04           | -0.33                   |
|            |     |          |                | Min M <sub>y</sub>                           | -0.36          | 0.34           | 0.07           | -0.06          | -0.04          | 0.33                    |
|            |     |          |                | Max M <sub>z</sub>                           | -0.83          | 0.73           | 0.02           | -0.08          | -0.02          | 0.70                    |
|            |     |          |                | Min M <sub>z</sub>                           | 0.83           | -0.73          | -0.02          | 0.08           | 0.02           | -0.70                   |
| 13         | RC1 | 15       | 0.000          | Max N  | -0.06          | -0.01          | 0.15           | -0.00          | -0.05          | -0.01                   |
|            |     |          |                | Min N  | -2.28          | -2.80          | 0.26           | 0.28           | -0.04          | -2.66                   |
|            |     |          |                | Max V <sub>y</sub>                           | -0.06          | -0.01          | 0.15           | -0.00          | -0.05          | -0.01                   |
|            |     |          |                | Min V <sub>y</sub>                           | -2.28          | -2.80          | 0.26           | 0.28           | -0.04          | -2.66                   |
|            |     |          |                | Max V <sub>z</sub>                           | -2.28          | -2.80          | 0.26           | 0.28           | -0.04          | -2.66                   |
|            |     |          |                | Min V <sub>z</sub>                           | -0.06          | -0.01          | 0.15           | -0.00          | -0.05          | -0.01                   |
|            |     |          |                | Max M <sub>T</sub>                           | -2.28          | -2.80          | 0.26           | 0.28           | -0.04          | -2.66                   |
|            |     |          |                | Min M <sub>T</sub>                           | -0.06          | -0.01          | 0.15           | -0.00          | -0.05          | -0.01                   |
|            |     |          |                | Max M <sub>y</sub>                           | -2.28          | -2.80          | 0.26           | 0.28           | -0.04          | -2.66                   |
|            |     |          |                | Min M <sub>y</sub>                           | -0.06          | -0.01          | 0.15           | -0.00          | -0.05          | -0.01                   |
|            |     |          |                | Max M <sub>z</sub>                           | -0.06          | -0.01          | 0.15           | -0.00          | -0.05          | -0.01                   |
|            |     |          |                | Min M <sub>z</sub>                           | -2.28          | -2.80          | 0.26           | 0.28           | -0.04          | -2.66                   |
|            |     | 16       | 1.550          | Max N  | -0.06          | -0.01          | -0.09          | -0.00          | -0.00          | 0.01                    |
|            |     |          |                | Min N  | -2.28          | -2.80          | 0.02           | 0.28           | 0.18           | 1.68                    |
|            |     |          |                | Max V <sub>y</sub>                           | -0.06          | -0.01          | -0.09          | -0.00          | -0.00          | 0.01                    |
|            |     |          |                | Min V <sub>y</sub>                           | -2.28          | -2.80          | 0.02           | 0.28           | 0.18           | 1.68                    |
|            |     |          |                | Max V <sub>z</sub>                           | -2.28          | -2.80          | 0.02           | 0.28           | 0.18           | 1.68                    |
|            |     |          |                | Min V <sub>z</sub>                           | -0.06          | -0.01          | -0.09          | -0.00          | -0.00          | 0.01                    |
|            |     |          |                | Max M <sub>T</sub>                           | -2.28          | -2.80          | 0.02           | 0.28           | 0.18           | 1.68                    |
|            |     |          |                | Min M <sub>T</sub>                           | -0.06          | -0.01          | -0.09          | -0.00          | -0.00          | 0.01                    |
|            |     |          |                | Max M <sub>y</sub>                           | -2.28          | -2.80          | 0.02           | 0.28           | 0.18           | 1.68                    |
|            |     |          |                | Min M <sub>y</sub>                           | -0.06          | -0.01          | -0.09          | -0.00          | -0.00          | 0.01                    |
|            |     |          |                | Max M <sub>z</sub>                           | -2.28          | -2.80          | 0.02           | 0.28           | 0.18           | 1.68                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.06          | -0.01          | -0.09          | -0.00          | -0.00          | 0.01                    |
|            | RC2 | 15       | 0.000          | Max N  | -0.05          | -0.01          | 0.11           | -0.00          | -0.04          | -0.01                   |
|            |     |          |                | Min N  | -1.52          | -1.87          | 0.18           | 0.19           | -0.03          | -1.77                   |
|            |     |          |                | Max V <sub>y</sub>                           | -0.05          | -0.01          | 0.11           | -0.00          | -0.04          | -0.01                   |
|            |     |          |                | Min V <sub>y</sub>                           | -1.52          | -1.87          | 0.18           | 0.19           | -0.03          | -1.77                   |
|            |     |          |                | Max V <sub>z</sub>                           | -1.52          | -1.87          | 0.18           | 0.19           | -0.03          | -1.77                   |
|            |     |          |                | Min V <sub>z</sub>                           | -0.05          | -0.01          | 0.11           | -0.00          | -0.04          | -0.01                   |
|            |     |          |                | Max M <sub>T</sub>                           | -1.52          | -1.87          | 0.18           | 0.19           | -0.03          | -1.77                   |
|            |     |          |                | Min M <sub>T</sub>                           | -0.05          | -0.01          | 0.11           | -0.00          | -0.04          | -0.01                   |
|            |     |          |                | Max M <sub>y</sub>                           | -1.52          | -1.87          | 0.18           | 0.19           | -0.03          | -1.77                   |
|            |     |          |                | Min M <sub>y</sub>                           | -0.05          | -0.01          | 0.11           | -0.00          | -0.04          | -0.01                   |
|            |     |          |                | Max M <sub>z</sub>                           | -0.05          | -0.01          | 0.11           | -0.00          | -0.04          | -0.01                   |
|            |     |          |                | Min M <sub>z</sub>                           | -1.52          | -1.87          | 0.18           | 0.19           | -0.03          | -1.77                   |
|            |     | 16       | 1.550          | Max N  | -0.05          | -0.01          | -0.07          | -0.00          | -0.00          | 0.00                    |
|            |     |          |                | Min N  | -1.52          | -1.87          | 0.00           | 0.19           | 0.12           | 1.12                    |
|            |     |          |                | Max V <sub>y</sub>                           | -0.05          | -0.01          | -0.07          | -0.00          | -0.00          | 0.00                    |
|            |     |          |                | Min V <sub>y</sub>                           | -1.52          | -1.87          | 0.00           | 0.19           | 0.12           | 1.12                    |
|            |     |          |                | Max V <sub>z</sub>                           | -1.52          | -1.87          | 0.00           | 0.19           | 0.12           | 1.12                    |
|            |     |          |                | Min V <sub>z</sub>                           | -0.05          | -0.01          | -0.07          | -0.00          | -0.00          | 0.00                    |
|            |     |          |                | Max M <sub>T</sub>                           | -1.52          | -1.87          | 0.00           | 0.19           | 0.12           | 1.12                    |
|            |     |          |                | Min M <sub>T</sub>                           | -0.05          | -0.01          | -0.07          | -0.00          | -0.00          | 0.00                    |
|            |     |          |                | Max M <sub>y</sub>                           | -1.52          | -1.87          | 0.00           | 0.19           | 0.12           | 1.12                    |
|            |     |          |                | Min M <sub>y</sub>                           | -0.05          | -0.01          | -0.07          | -0.00          | -0.00          | 0.00                    |
|            |     |          |                | Max M <sub>z</sub>                           | -1.52          | -1.87          | 0.00           | 0.19           | 0.12           | 1.12                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.05          | -0.01          | -0.07          | -0.00          | -0.00          | 0.00                    |
|            | RC3 | 15       | 0.000          | Max N  | -0.05          | -0.01          | 0.11           | -0.00          | -0.04          | -0.01                   |
|            |     |          |                | Min N  | -0.78          | -0.94          | 0.15           | 0.09           | -0.03          | -0.89                   |
|            |     |          |                | Max V <sub>y</sub>                           | -0.05          | -0.01          | 0.11           | -0.00          | -0.04          | -0.01                   |

RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m]     | Forces [kN]        |                |                |                    |                | Moments [kNm]  |       |       | Correspondin Load Cases |       |
|------------|--|----------|--------------------|--------------------|----------------|----------------|--------------------|----------------|----------------|-------|-------|-------------------------|-------|
|            |  |          |                    | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub>     | M <sub>y</sub> | M <sub>z</sub> |       |       |                         |       |
| 13         | RC3  | 16       | 1.550              | Min V <sub>y</sub> | -0.78          | ▷              | -0.94              | 0.15           | 0.09           | -0.03 | -0.89 | CO 6                    |       |
|            |  |          |                    | Max V <sub>z</sub> | -0.78          | ▷              | -0.94              | 0.15           | 0.09           | -0.03 | -0.89 | CO 6                    |       |
|            |  |          |                    | Min V <sub>z</sub> | -0.05          | ▷              | -0.01              | 0.11           | -0.00          | -0.04 | -0.01 | CO 5                    |       |
|            |  |          |                    | Max M <sub>T</sub> | -0.78          | ▷              | -0.94              | 0.15           | 0.09           | -0.03 | -0.89 | CO 6                    |       |
|            |  |          |                    | Min M <sub>T</sub> | -0.05          | ▷              | -0.01              | 0.11           | -0.00          | -0.04 | -0.01 | CO 5                    |       |
|            |  |          |                    | Max M <sub>y</sub> | -0.78          | ▷              | -0.94              | 0.15           | 0.09           | -0.03 | -0.89 | CO 6                    |       |
|            |  |          |                    | Min M <sub>y</sub> | -0.05          | ▷              | -0.01              | 0.11           | -0.00          | -0.04 | -0.01 | CO 5                    |       |
|            |  |          |                    | Max M <sub>z</sub> | -0.05          | ▷              | -0.01              | 0.11           | -0.00          | -0.04 | -0.01 | CO 5                    |       |
|            |  |          |                    | Min M <sub>z</sub> | -0.78          | ▷              | -0.94              | 0.15           | 0.09           | -0.03 | -0.89 | CO 6                    |       |
|            |  |          |                    | Max N              | -0.05          | ▷              | -0.01              | -0.07          | -0.00          | 0.00  | 0.00  | CO 5                    |       |
|            |  |          |                    | Min N              | -0.78          | ▷              | -0.94              | -0.03          | 0.09           | 0.06  | 0.56  | CO 6                    |       |
|            |  |          |                    | Max V <sub>y</sub> | -0.05          | ▷              | -0.01              | -0.07          | -0.00          | 0.00  | 0.00  | CO 5                    |       |
|            |  |          |                    | Min V <sub>y</sub> | -0.78          | ▷              | -0.94              | -0.03          | 0.09           | 0.06  | 0.56  | CO 6                    |       |
|            |  |          |                    | Max V <sub>z</sub> | -0.78          | ▷              | -0.94              | -0.03          | 0.09           | 0.06  | 0.56  | CO 6                    |       |
|            |  |          |                    | Min V <sub>z</sub> | -0.05          | ▷              | -0.01              | -0.07          | -0.00          | 0.00  | 0.00  | CO 5                    |       |
|            |  |          |                    | Max M <sub>T</sub> | -0.78          | ▷              | -0.94              | -0.03          | 0.09           | 0.06  | 0.56  | CO 6                    |       |
|            |  |          |                    | Min M <sub>T</sub> | -0.05          | ▷              | -0.01              | -0.07          | -0.00          | 0.00  | 0.00  | CO 5                    |       |
|            |  |          |                    | Max M <sub>y</sub> | -0.78          | ▷              | -0.94              | -0.03          | 0.09           | 0.06  | 0.56  | CO 6                    |       |
|            |  |          |                    | Min M <sub>y</sub> | -0.05          | ▷              | -0.01              | -0.07          | -0.00          | 0.00  | 0.00  | CO 5                    |       |
|            |  |          |                    | Max M <sub>z</sub> | -0.78          | ▷              | -0.94              | -0.03          | 0.09           | 0.06  | 0.56  | CO 6                    |       |
|            |  |          |                    | RC4                | 15             | 0.000          | Min M <sub>z</sub> | -0.05          | ▷              | -0.01 | -0.07 | -0.00                   | -0.00 |
|            | Max N  | -0.05    | ▷                  |                    |                |                | -0.01              | 0.11           | -0.00          | -0.04 | -0.01 | CO 7                    |       |
|            | Min N  | -0.49    | ▷                  |                    |                |                | -0.57              | 0.13           | 0.05           | -0.03 | -0.54 | CO 8                    |       |
|            | Max V <sub>y</sub>                           | -0.05    | ▷                  |                    |                |                | -0.01              | 0.11           | -0.00          | -0.04 | -0.01 | CO 7                    |       |
|            | Min V <sub>y</sub>                           | -0.49    | ▷                  |                    |                |                | -0.57              | 0.13           | 0.05           | -0.03 | -0.54 | CO 8                    |       |
|            | Max V <sub>z</sub>                           | -0.49    | ▷                  |                    |                |                | -0.57              | 0.13           | 0.05           | -0.03 | -0.54 | CO 8                    |       |
|            | Min V <sub>z</sub>                           | -0.05    | ▷                  |                    |                |                | -0.01              | 0.11           | -0.00          | -0.04 | -0.01 | CO 7                    |       |
|            | Max M <sub>T</sub>                           | -0.49    | ▷                  |                    |                |                | -0.57              | 0.13           | 0.05           | -0.03 | -0.54 | CO 8                    |       |
|            | Min M <sub>T</sub>                           | -0.05    | ▷                  |                    |                |                | -0.01              | 0.11           | -0.00          | -0.04 | -0.01 | CO 7                    |       |
|            | Max M <sub>y</sub>                           | -0.49    | ▷                  |                    |                |                | -0.57              | 0.13           | 0.05           | -0.03 | -0.54 | CO 8                    |       |
|            | Min M <sub>y</sub>                           | -0.05    | ▷                  |                    |                |                | -0.01              | 0.11           | -0.00          | -0.04 | -0.01 | CO 7                    |       |
|            | Max M <sub>z</sub>                           | -0.05    | ▷                  |                    |                |                | -0.01              | 0.11           | -0.00          | -0.04 | -0.01 | CO 7                    |       |
|            | 16   | 1.550    | Min M <sub>z</sub> |                    | -0.49          | ▷              | -0.57              | 0.13           | 0.05           | -0.03 | -0.54 | CO 8                    |       |
|            |  |          | Max N              |                    | -0.05          | ▷              | -0.01              | -0.07          | -0.00          | -0.00 | 0.00  | CO 7                    |       |
|            |  |          | Min N              |                    | -0.49          | ▷              | -0.57              | -0.05          | 0.05           | 0.03  | 0.34  | CO 8                    |       |
|            |  |          | Max V <sub>y</sub> |                    | -0.05          | ▷              | -0.01              | -0.07          | -0.00          | -0.00 | 0.00  | CO 7                    |       |
|            |  |          | Min V <sub>y</sub> |                    | -0.49          | ▷              | -0.57              | -0.05          | 0.05           | 0.03  | 0.34  | CO 8                    |       |
|            |  |          | Max V <sub>z</sub> |                    | -0.49          | ▷              | -0.57              | -0.05          | 0.05           | 0.03  | 0.34  | CO 8                    |       |
|            |  |          | Min V <sub>z</sub> |                    | -0.05          | ▷              | -0.01              | -0.07          | -0.00          | -0.00 | 0.00  | CO 7                    |       |
|            |  |          | Max M <sub>T</sub> |                    | -0.49          | ▷              | -0.57              | -0.05          | 0.05           | 0.03  | 0.34  | CO 8                    |       |
|            |  |          | Min M <sub>T</sub> |                    | -0.05          | ▷              | -0.01              | -0.07          | -0.00          | -0.00 | 0.00  | CO 7                    |       |
|            |  |          | Max M <sub>y</sub> |                    | -0.49          | ▷              | -0.57              | -0.05          | 0.05           | 0.03  | 0.34  | CO 8                    |       |
|            |  |          | Min M <sub>y</sub> |                    | -0.05          | ▷              | -0.01              | -0.07          | -0.00          | -0.00 | 0.00  | CO 7                    |       |
|            |  |          | Max M <sub>z</sub> |                    | -0.49          | ▷              | -0.57              | -0.05          | 0.05           | 0.03  | 0.34  | CO 8                    |       |
|            | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                    |                    |                |                |                    |                |                |       |       |                         |       |
|            | RC5  | 15       | 0.000              | Min M <sub>z</sub> | -0.05          | ▷              | -0.01              | -0.07          | -0.00          | -0.00 | ▷     | 0.00                    | CO 7  |
|            |  |          |                    | Max N              | 0.27           | ▷              | 0.32               | 0.01           | -0.04          | -0.01 | 0.30  |                         |       |
|            |  |          |                    | Min N              | -0.27          | ▷              | -0.32              | -0.01          | 0.04           | 0.01  | -0.30 |                         |       |
|            |  |          |                    | Max V <sub>y</sub> | 0.26           | ▷              | 0.33               | 0.00           | -0.04          | -0.01 | 0.31  |                         |       |
|            |  |          |                    | Min V <sub>y</sub> | -0.26          | ▷              | -0.33              | -0.00          | 0.04           | 0.01  | -0.31 |                         |       |
|            |  |          |                    | Max V <sub>z</sub> | -0.03          | ▷              | -0.09              | 0.05           | 0.02           | -0.02 | -0.08 |                         |       |
|            |  |          |                    | Min V <sub>z</sub> | 0.03           | ▷              | 0.09               | -0.05          | -0.02          | 0.02  | 0.08  |                         |       |
|            |  |          |                    | Max M <sub>T</sub> | -0.24          | ▷              | -0.31              | 0.01           | 0.04           | 0.00  | -0.29 |                         |       |
|            |  |          |                    | Min M <sub>T</sub> | 0.24           | ▷              | 0.31               | -0.01          | -0.04          | -0.00 | 0.29  |                         |       |
|            |  |          |                    | Max M <sub>y</sub> | -0.11          | ▷              | -0.10              | -0.04          | 0.01           | 0.02  | -0.09 |                         |       |
|            |  |          |                    | Min M <sub>y</sub> | 0.11           | ▷              | 0.10               | 0.04           | -0.01          | -0.02 | 0.09  |                         |       |
|            |  |          |                    | Max M <sub>z</sub> | 0.26           | ▷              | 0.33               | 0.00           | -0.04          | -0.01 | 0.31  |                         |       |
|            |  | 16       | 1.550              | Min M <sub>z</sub> | -0.26          | ▷              | -0.33              | -0.00          | 0.04           | 0.01  | -0.31 |                         |       |
|            |  |          |                    | Max N              | 0.27           | ▷              | 0.32               | 0.01           | -0.04          | 0.01  | -0.19 |                         |       |
|            |  |          |                    | Min N              | -0.27          | ▷              | -0.32              | -0.01          | 0.04           | -0.01 | 0.19  |                         |       |
|            |  |          |                    | Max V <sub>y</sub> | 0.26           | ▷              | 0.33               | 0.00           | -0.04          | -0.01 | -0.20 |                         |       |
|            |  |          |                    | Min V <sub>y</sub> | -0.26          | ▷              | -0.33              | -0.00          | 0.04           | 0.01  | 0.20  |                         |       |
|            |  |          |                    | Max V <sub>z</sub> | -0.03          | ▷              | -0.09              | 0.05           | 0.02           | 0.06  | 0.05  |                         |       |
|            |  |          |                    | Min V <sub>z</sub> | 0.03           | ▷              | 0.09               | -0.05          | -0.02          | -0.06 | -0.05 |                         |       |
|            |  |          |                    | Max M <sub>T</sub> | -0.24          | ▷              | -0.31              | 0.01           | 0.04           | 0.02  | 0.19  |                         |       |
|            |  |          |                    | Min M <sub>T</sub> | 0.24           | ▷              | 0.31               | -0.01          | -0.04          | -0.02 | -0.19 |                         |       |
|            |  |          |                    | Max M <sub>y</sub> | -0.07          | ▷              | -0.14              | 0.05           | 0.02           | 0.06  | 0.08  |                         |       |
|            |  |          |                    | Min M <sub>y</sub> | 0.07           | ▷              | 0.14               | -0.05          | -0.02          | -0.06 | -0.08 |                         |       |
|            |  |          |                    | Max M <sub>z</sub> | -0.26          | ▷              | -0.33              | -0.00          | 0.04           | 0.01  | 0.20  |                         |       |
|            | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                    |                    |                |                |                    |                |                |       |       |                         |       |
|            | RC6  | 15       | 0.000              | Min M <sub>z</sub> | 0.26           | ▷              | 0.33               | 0.00           | -0.04          | -0.01 | ▷     | -0.20                   |       |
|            |  |          |                    | Max N              | 0.21           | ▷              | 0.24               | 0.05           | -0.03          | -0.03 | 0.23  |                         |       |
|            |  |          |                    | Min N              | -0.21          | ▷              | -0.24              | -0.05          | 0.03           | 0.03  | -0.23 |                         |       |
|            |  |          |                    | Max V <sub>y</sub> | 0.20           | ▷              | 0.25               | 0.03           | -0.03          | -0.02 | 0.24  |                         |       |
|            |  |          |                    | Min V <sub>y</sub> | -0.20          | ▷              | -0.25              | -0.03          | 0.03           | 0.02  | -0.24 |                         |       |
|            |  |          |                    | Max V <sub>z</sub> | -0.01          | ▷              | -0.05              | 0.08           | 0.01           | -0.04 | -0.05 |                         |       |
|            |  |          |                    | Min V <sub>z</sub> | 0.01           | ▷              | 0.05               | -0.08          | -0.01          | 0.04  | 0.05  |                         |       |
|            |  |          |                    | Max M <sub>T</sub> | -0.18          | ▷              | -0.23              | -0.00          | 0.03           | 0.01  | -0.22 |                         |       |
|            |  |          |                    | Min M <sub>T</sub> | 0.18           | ▷              | 0.23               | 0.00           | -0.03          | -0.01 | 0.22  |                         |       |
|            |  |          |                    | Max M <sub>y</sub> | -0.10          | ▷              | -0.08              | -0.08          | 0.00           | 0.04  | -0.08 |                         |       |
|            |  |          |                    | Min M <sub>y</sub> | 0.10           | ▷              | 0.08               | 0.08           | -0.00          | -0.04 | 0.08  |                         |       |
|            |  |          |                    | Max M <sub>z</sub> | 0.20           | ▷              | 0.25               | 0.03           | -0.03          | -0.02 | 0.24  |                         |       |
|            | 16   | 1.550    | Min M <sub>z</sub> | -0.20              | ▷              | -0.25          | -0.03              | 0.03           | 0.02           | ▷     | -0.24 |                         |       |
|            |  |          | Max N              | 0.21               | ▷              | 0.24           | 0.05               | -0.03          | 0.05           | -0.15 |       |                         |       |
|            |  |          | Min N              | -0.21              | ▷              | -0.24          | -0.05              | 0.03           | -0.05          | 0.15  |       |                         |       |
|            |  |          | Max V <sub>y</sub> | 0.20               | ▷              | 0.25           | 0.03               | -0.03          | 0.02           | -0.15 |       |                         |       |
|            | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                    |                    |                |                |                    |                |                |       |       |                         |       |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC    | Node No. | Location x [m]     | Forces [kN]                                  |                |                |                |                | Moments [kNm]  |       |      | Correspondin Load Cases |
|--------------------|-------|----------|--------------------|--|----------------|----------------|----------------|----------------|----------------|-------|------|-------------------------|
|                    |       |          |                    | N  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |      |                         |
| 13                 | RC6   |          |                    | Max V <sub>z</sub>                           | -0.01          | -0.05          | 0.08           | 0.01           | 0.09           | 0.03  |      |                         |
|                    |       |          |                    | Min V <sub>z</sub>                           | 0.01           | 0.05           | -0.08          | -0.01          | -0.09          | -0.03 |      |                         |
|                    |       |          |                    | Max M <sub>T</sub>                           | -0.18          | -0.23          | -0.00          | 0.03           | 0.00           | 0.14  |      |                         |
|                    |       |          |                    | Min M <sub>T</sub>                           | 0.18           | 0.23           | 0.00           | -0.03          | -0.00          | -0.14 |      |                         |
|                    |       |          |                    | Max M <sub>y</sub>                           | -0.04          | -0.09          | 0.08           | 0.02           | 0.10           | 0.05  |      |                         |
|                    |       |          |                    | Min M <sub>y</sub>                           | 0.04           | 0.09           | -0.08          | -0.02          | -0.10          | -0.05 |      |                         |
|                    |       |          |                    | Max M <sub>z</sub>                           | -0.20          | -0.25          | -0.03          | 0.03           | -0.03          | 0.15  |      |                         |
|                    |       |          |                    | Min M <sub>z</sub>                           | 0.20           | 0.25           | 0.03           | -0.03          | 0.03           | -0.15 |      |                         |
|                    |       |          |                    | DLC1, Result Envelope X 30% / Y 30% / Z 100% |                |                |                |                |                |       |      |                         |
|                    | RC7   | 15       | 0.000              | Max N  | 0.54           | 0.66           | 0.00           | -0.08          | -0.02          | 0.62  |      |                         |
|                    |       |          |                    | Min N  | -0.54          | -0.66          | -0.00          | 0.08           | 0.02           | -0.62 |      |                         |
|                    |       |          |                    | Max V <sub>y</sub>                           | 0.53           | 0.67           | -0.01          | -0.08          | -0.01          | 0.64  |      |                         |
|                    |       |          |                    | Min V <sub>y</sub>                           | -0.53          | -0.67          | 0.01           | 0.08           | 0.01           | -0.64 |      |                         |
|                    |       |          |                    | Max V <sub>z</sub>                           | -0.10          | -0.21          | 0.08           | 0.04           | -0.03          | -0.20 |      |                         |
|                    |       |          |                    | Min V <sub>z</sub>                           | 0.10           | 0.21           | -0.08          | -0.04          | 0.03           | 0.20  |      |                         |
|                    |       |          |                    | Max M <sub>T</sub>                           | -0.48          | -0.64          | 0.03           | 0.09           | 0.00           | -0.60 |      |                         |
|                    |       |          |                    | Min M <sub>T</sub>                           | 0.48           | 0.64           | -0.03          | -0.09          | -0.00          | 0.60  |      |                         |
|                    |       |          |                    | Max M <sub>y</sub>                           | -0.21          | -0.20          | -0.07          | 0.01           | 0.04           | -0.18 |      |                         |
|                    |       |          |                    | Min M <sub>y</sub>                           | 0.21           | 0.20           | 0.07           | -0.01          | -0.04          | 0.18  |      |                         |
|                    |       |          |                    | Max M <sub>z</sub>                           | 0.53           | 0.67           | -0.01          | -0.08          | -0.01          | 0.64  |      |                         |
|                    |       |          |                    | Min M <sub>z</sub>                           | -0.53          | -0.67          | 0.01           | 0.08           | 0.01           | -0.64 |      |                         |
|                    |       |          |                    | Max N  | 0.54           | 0.66           | 0.00           | -0.08          | -0.01          | -0.40 |      |                         |
|                    |       |          |                    | Min N  | -0.54          | -0.66          | -0.00          | 0.08           | 0.01           | 0.40  |      |                         |
|                    |       |          |                    | Max V <sub>y</sub>                           | 0.53           | 0.67           | -0.01          | -0.08          | -0.03          | -0.41 |      |                         |
|                    |       |          |                    | Min V <sub>y</sub>                           | -0.53          | -0.67          | 0.01           | 0.08           | 0.03           | 0.41  |      |                         |
|                    |       |          |                    | Max V <sub>z</sub>                           | -0.10          | -0.21          | 0.08           | 0.04           | 0.10           | 0.12  |      |                         |
|                    |       |          |                    | Min V <sub>z</sub>                           | 0.10           | 0.21           | -0.08          | -0.04          | -0.10          | -0.12 |      |                         |
|                    |       |          |                    | Max M <sub>T</sub>                           | -0.48          | -0.64          | 0.03           | 0.09           | 0.05           | 0.38  |      |                         |
|                    |       |          |                    | Min M <sub>T</sub>                           | 0.48           | 0.64           | -0.03          | -0.09          | -0.05          | -0.38 |      |                         |
|                    |       |          |                    | Max M <sub>y</sub>                           | -0.18          | -0.32          | 0.08           | 0.06           | 0.10           | 0.19  |      |                         |
|                    |       |          |                    | Min M <sub>y</sub>                           | 0.18           | 0.32           | -0.08          | -0.06          | -0.10          | -0.19 |      |                         |
|                    |       |          |                    | Max M <sub>z</sub>                           | -0.53          | -0.67          | 0.01           | 0.08           | 0.03           | 0.41  |      |                         |
|                    |       |          |                    | Min M <sub>z</sub>                           | 0.53           | 0.67           | -0.01          | -0.08          | -0.03          | -0.41 |      |                         |
| Max N              |       |          |                    | 0.01   | -0.00          | 0.11           | -0.00          | -0.01          | -0.00          | CO 1  |      |                         |
| Min N              |       |          |                    | -0.46  | -0.04          | 0.09           | 0.49           | 0.00           | -0.12          | CO 2  |      |                         |
| Max V <sub>y</sub> |       |          |                    | 0.01   | -0.00          | 0.11           | -0.00          | -0.01          | -0.00          | CO 1  |      |                         |
| 14                 | RC1   | 17       | 0.000              | Min V <sub>y</sub>                           | -0.46          | -0.04          | 0.09           | 0.49           | 0.00           | -0.12 | CO 2 |                         |
|                    |       |          |                    | Max V <sub>z</sub>                           | 0.01           | -0.00          | 0.11           | -0.00          | -0.01          | -0.00 | CO 1 |                         |
|                    |       |          |                    | Min V <sub>z</sub>                           | -0.46          | -0.04          | 0.09           | 0.49           | 0.00           | -0.12 | CO 2 |                         |
|                    |       |          |                    | Max M <sub>T</sub>                           | -0.46          | -0.04          | 0.09           | 0.49           | 0.00           | -0.12 | CO 2 |                         |
|                    |       |          |                    | Min M <sub>T</sub>                           | 0.01           | -0.00          | 0.11           | -0.00          | -0.01          | -0.00 | CO 1 |                         |
|                    |       |          |                    | Max M <sub>y</sub>                           | -0.46          | -0.04          | 0.09           | 0.49           | 0.00           | -0.12 | CO 2 |                         |
|                    |       |          |                    | Min M <sub>y</sub>                           | 0.01           | -0.00          | 0.11           | -0.00          | -0.01          | -0.00 | CO 1 |                         |
|                    |       |          |                    | Max M <sub>z</sub>                           | 0.01           | -0.00          | 0.11           | -0.00          | -0.01          | -0.00 | CO 1 |                         |
|                    |       |          |                    | Min M <sub>z</sub>                           | -0.46          | -0.04          | 0.09           | 0.49           | 0.00           | -0.12 | CO 2 |                         |
|                    |       |          |                    | Max N  | 0.01           | -0.00          | -0.14          | -0.00          | -0.04          | 0.00  | CO 1 |                         |
|                    |       |          |                    | Min N  | -0.46          | -0.04          | -0.16          | 0.49           | -0.05          | -0.06 | CO 2 |                         |
|                    |       |          |                    | Max V <sub>y</sub>                           | 0.01           | -0.00          | -0.14          | -0.00          | -0.04          | 0.00  | CO 1 |                         |
|                    |       | 18       | 1.550              | Min V <sub>y</sub>                           | -0.46          | -0.04          | -0.16          | 0.49           | -0.05          | -0.06 | CO 2 |                         |
|                    |       |          |                    | Max V <sub>z</sub>                           | 0.01           | -0.00          | -0.14          | -0.00          | -0.04          | 0.00  | CO 1 |                         |
|                    |       |          |                    | Min V <sub>z</sub>                           | -0.46          | -0.04          | -0.16          | 0.49           | -0.05          | -0.06 | CO 2 |                         |
|                    |       |          |                    | Max M <sub>T</sub>                           | -0.46          | -0.04          | -0.16          | 0.49           | -0.05          | -0.06 | CO 2 |                         |
|                    |       |          |                    | Min M <sub>T</sub>                           | 0.01           | -0.00          | -0.14          | -0.00          | -0.04          | 0.00  | CO 1 |                         |
|                    |       |          |                    | Max M <sub>y</sub>                           | 0.01           | -0.00          | -0.14          | -0.00          | -0.04          | 0.00  | CO 1 |                         |
|                    |       |          |                    | Min M <sub>y</sub>                           | -0.46          | -0.04          | -0.16          | 0.49           | -0.05          | -0.06 | CO 2 |                         |
|                    |       |          |                    | Max M <sub>z</sub>                           | 0.01           | -0.00          | -0.14          | -0.00          | -0.04          | 0.00  | CO 1 |                         |
|                    |       |          |                    | Min M <sub>z</sub>                           | -0.46          | -0.04          | -0.16          | 0.49           | -0.05          | -0.06 | CO 2 |                         |
|                    |       |          |                    | Max N  | 0.01           | -0.00          | 0.08           | -0.00          | -0.01          | -0.00 | CO 3 |                         |
|                    |       |          |                    | Min N  | -0.31          | -0.03          | 0.07           | 0.32           | -0.00          | -0.08 | CO 4 |                         |
|                    |       |          |                    | Max V <sub>y</sub>                           | 0.01           | -0.00          | 0.08           | -0.00          | -0.01          | -0.00 | CO 3 |                         |
|                    |       |          |                    | Min V <sub>y</sub>                           | -0.31          | -0.03          | 0.07           | 0.32           | -0.00          | -0.08 | CO 4 |                         |
|                    |       |          |                    | Max V <sub>z</sub>                           | 0.01           | -0.00          | 0.08           | -0.00          | -0.01          | -0.00 | CO 3 |                         |
|                    |       |          |                    | Min V <sub>z</sub>                           | -0.31          | -0.03          | 0.07           | 0.32           | -0.00          | -0.08 | CO 4 |                         |
|                    |       |          |                    | Max M <sub>T</sub>                           | -0.31          | -0.03          | 0.07           | 0.32           | -0.00          | -0.08 | CO 4 |                         |
|                    |       |          |                    | Min M <sub>T</sub>                           | 0.01           | -0.00          | 0.08           | -0.00          | -0.01          | -0.00 | CO 3 |                         |
|                    |       |          |                    | Max M <sub>y</sub>                           | -0.31          | -0.03          | 0.07           | 0.32           | -0.00          | -0.08 | CO 4 |                         |
|                    |       |          |                    | Min M <sub>y</sub>                           | 0.01           | -0.00          | 0.08           | -0.00          | -0.01          | -0.00 | CO 3 |                         |
|                    |       |          |                    | Max M <sub>z</sub>                           | 0.01           | -0.00          | 0.08           | -0.00          | -0.01          | -0.00 | CO 3 |                         |
|                    |       |          |                    | Min M <sub>z</sub>                           | -0.31          | -0.03          | 0.07           | 0.32           | -0.00          | -0.08 | CO 4 |                         |
| Max N              |       |          |                    | 0.01   | -0.00          | -0.10          | -0.00          | -0.03          | 0.00           | CO 3  |      |                         |
| Min N              |       |          |                    | -0.31  | -0.03          | -0.11          | 0.32           | -0.04          | -0.04          | CO 4  |      |                         |
| Max V <sub>y</sub> |       |          |                    | 0.01   | -0.00          | -0.10          | -0.00          | -0.03          | 0.00           | CO 3  |      |                         |
|                    |       |          | Min V <sub>y</sub> | -0.31  | -0.03          | -0.11          | 0.32           | -0.04          | -0.04          | CO 4  |      |                         |
|                    |       |          | Max V <sub>z</sub> | 0.01   | -0.00          | -0.10          | -0.00          | -0.03          | 0.00           | CO 3  |      |                         |
|                    |       |          | Min V <sub>z</sub> | -0.31  | -0.03          | -0.11          | 0.32           | -0.04          | -0.04          | CO 4  |      |                         |
|                    |       |          | Max M <sub>T</sub> | -0.31  | -0.03          | -0.11          | 0.32           | -0.04          | -0.04          | CO 4  |      |                         |
|                    |       |          | Min M <sub>T</sub> | 0.01   | -0.00          | -0.10          | -0.00          | -0.03          | 0.00           | CO 3  |      |                         |
|                    |       |          | Max M <sub>y</sub> | 0.01   | -0.00          | -0.10          | -0.00          | -0.03          | 0.00           | CO 3  |      |                         |
|                    |       |          | Min M <sub>y</sub> | -0.31  | -0.03          | -0.11          | 0.32           | -0.04          | -0.04          | CO 4  |      |                         |
|                    |       |          | Max M <sub>z</sub> | 0.01   | -0.00          | -0.10          | -0.00          | -0.03          | 0.00           | CO 3  |      |                         |
|                    |       |          | Min M <sub>z</sub> | -0.31  | -0.03          | -0.11          | 0.32           | -0.04          | -0.04          | CO 4  |      |                         |
|                    |       |          | Max N              | 0.01   | -0.00          | 0.08           | -0.00          | -0.01          | -0.00          | CO 5  |      |                         |
|                    |       |          | Min N              | -0.15  | -0.01          | 0.07           | 0.16           | -0.00          | -0.04          | CO 6  |      |                         |
|                    |       |          | Max V <sub>y</sub> | 0.01   | -0.00          | 0.08           | -0.00          | -0.01          | -0.00          | CO 5  |      |                         |
| Min V <sub>y</sub> | -0.15 | -0.01    | 0.07               | 0.16   | -0.00          | -0.04          | CO 6           |                |                |       |      |                         |
| Max V <sub>z</sub> | 0.01  | -0.00    | 0.08               | -0.00  | -0.01          | -0.00          | CO 5           |                |                |       |      |                         |
| Min V <sub>z</sub> | -0.15 | -0.01    | 0.07               | 0.16   | -0.00          | -0.04          | CO 6           |                |                |       |      |                         |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date:

2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m]     | Forces [kN]        |                |                |                    | Moments [kNm]  |                |       | Correspondin Load Cases |       |       |
|------------|--|----------|--------------------|--------------------|----------------|----------------|--------------------|----------------|----------------|-------|-------------------------|-------|-------|
|            |  |          |                    | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub>     | M <sub>y</sub> | M <sub>z</sub> |       |                         |       |       |
| 14         | RC3  | 18       | 1.550              | Max M <sub>T</sub> | -0.15          | -0.01          | 0.07               | ▷              | 0.16           | -0.00 | -0.04                   | CO 6  |       |
|            |  |          |                    | Min M <sub>T</sub> | 0.01           | -0.00          | 0.08               | ▷              | -0.00          | -0.01 | -0.00                   | CO 5  |       |
|            |  |          |                    | Max M <sub>y</sub> | -0.15          | -0.01          | 0.07               | ▷              | 0.16           | -0.00 | -0.04                   | CO 6  |       |
|            |  |          |                    | Min M <sub>y</sub> | 0.01           | -0.00          | 0.08               | ▷              | -0.00          | -0.01 | -0.00                   | CO 5  |       |
|            |  |          |                    | Max M <sub>z</sub> | 0.01           | -0.00          | 0.08               | ▷              | -0.00          | -0.01 | -0.00                   | CO 5  |       |
|            |  |          |                    | Min M <sub>z</sub> | -0.15          | -0.01          | 0.07               | ▷              | 0.16           | -0.00 | -0.04                   | CO 6  |       |
|            |  |          |                    | Max N              | 0.01           | -0.00          | -0.10              | ▷              | -0.00          | -0.03 | 0.00                    | CO 5  |       |
|            |  |          |                    | Min N              | -0.15          | -0.01          | -0.11              | ▷              | 0.16           | -0.03 | -0.02                   | CO 6  |       |
|            |  |          |                    | Max V <sub>y</sub> | 0.01           | -0.00          | -0.10              | ▷              | -0.00          | -0.03 | 0.00                    | CO 5  |       |
|            |  |          |                    | Min V <sub>y</sub> | -0.15          | -0.01          | -0.11              | ▷              | 0.16           | -0.03 | -0.02                   | CO 6  |       |
|            |  |          |                    | Max V <sub>z</sub> | 0.01           | -0.00          | -0.10              | ▷              | -0.00          | -0.03 | 0.00                    | CO 5  |       |
|            |  |          |                    | Min V <sub>z</sub> | -0.15          | -0.01          | -0.11              | ▷              | 0.16           | -0.03 | -0.02                   | CO 6  |       |
|            |  |          |                    | Max M <sub>T</sub> | -0.15          | -0.01          | -0.11              | ▷              | 0.16           | -0.03 | -0.02                   | CO 6  |       |
|            |  |          |                    | Min M <sub>T</sub> | 0.01           | -0.00          | -0.10              | ▷              | -0.00          | -0.03 | 0.00                    | CO 5  |       |
|            |  |          |                    | Max M <sub>y</sub> | 0.01           | -0.00          | -0.10              | ▷              | -0.00          | -0.03 | 0.00                    | CO 5  |       |
|            |  |          |                    | Min M <sub>y</sub> | -0.15          | -0.01          | -0.11              | ▷              | 0.16           | -0.03 | -0.02                   | CO 6  |       |
|            |  |          |                    | Max M <sub>z</sub> | 0.01           | -0.00          | -0.10              | ▷              | -0.00          | -0.03 | 0.00                    | CO 5  |       |
|            |  |          |                    | RC4                | 17             | 0.000          | Min M <sub>z</sub> | -0.15          | -0.01          | -0.11 | ▷                       | 0.16  | -0.03 |
|            | Max N  | 0.01     | -0.00              |                    |                |                | 0.08               | ▷              | -0.00          | -0.01 | -0.00                   | CO 7  |       |
|            | Min N  | -0.08    | -0.01              |                    |                |                | 0.08               | ▷              | 0.09           | -0.01 | -0.02                   | CO 8  |       |
|            | Max V <sub>y</sub>                           | 0.01     | -0.00              |                    |                |                | 0.08               | ▷              | -0.00          | -0.01 | -0.00                   | CO 7  |       |
|            | Min V <sub>y</sub>                           | -0.08    | -0.01              |                    |                |                | 0.08               | ▷              | 0.09           | -0.01 | -0.02                   | CO 8  |       |
|            | Max V <sub>z</sub>                           | 0.01     | -0.00              |                    |                |                | 0.08               | ▷              | -0.00          | -0.01 | -0.00                   | CO 7  |       |
|            | Min V <sub>z</sub>                           | -0.08    | -0.01              |                    |                |                | 0.08               | ▷              | 0.09           | -0.01 | -0.02                   | CO 8  |       |
|            | Max M <sub>T</sub>                           | -0.08    | -0.01              |                    |                |                | 0.08               | ▷              | 0.09           | -0.01 | -0.02                   | CO 8  |       |
|            | Min M <sub>T</sub>                           | 0.01     | -0.00              |                    |                |                | 0.08               | ▷              | -0.00          | -0.01 | -0.00                   | CO 7  |       |
|            | Max M <sub>y</sub>                           | -0.08    | -0.01              |                    |                |                | 0.08               | ▷              | 0.09           | -0.01 | -0.02                   | CO 8  |       |
|            | Min M <sub>y</sub>                           | 0.01     | -0.00              |                    |                |                | 0.08               | ▷              | -0.00          | -0.01 | -0.00                   | CO 7  |       |
|            | Max M <sub>z</sub>                           | 0.01     | -0.00              |                    |                |                | 0.08               | ▷              | -0.00          | -0.01 | -0.00                   | CO 7  |       |
|            | 18   | 1.550    | Min M <sub>z</sub> |                    | -0.08          | -0.01          | 0.08               | ▷              | 0.09           | -0.01 | ▷                       | -0.02 | CO 8  |
|            |  |          | Max N              |                    | 0.01           | -0.00          | -0.10              | ▷              | -0.00          | -0.03 | 0.00                    | CO 7  |       |
|            |  |          | Min N              |                    | -0.09          | -0.01          | -0.11              | ▷              | 0.09           | -0.03 | -0.01                   | CO 8  |       |
|            |  |          | Max V <sub>y</sub> |                    | 0.01           | -0.00          | -0.10              | ▷              | -0.00          | -0.03 | 0.00                    | CO 7  |       |
|            |  |          | Min V <sub>y</sub> |                    | -0.09          | -0.01          | -0.11              | ▷              | 0.09           | -0.03 | -0.01                   | CO 8  |       |
|            |  |          | Max V <sub>z</sub> |                    | 0.01           | -0.00          | -0.10              | ▷              | -0.00          | -0.03 | 0.00                    | CO 7  |       |
|            |  |          | Min V <sub>z</sub> |                    | -0.09          | -0.01          | -0.11              | ▷              | 0.09           | -0.03 | -0.01                   | CO 8  |       |
|            |  |          | Max M <sub>T</sub> |                    | -0.09          | -0.01          | -0.11              | ▷              | 0.09           | -0.03 | -0.01                   | CO 8  |       |
|            |  |          | Min M <sub>T</sub> |                    | 0.01           | -0.00          | -0.10              | ▷              | -0.00          | -0.03 | 0.00                    | CO 7  |       |
|            |  |          | Max M <sub>y</sub> |                    | 0.01           | -0.00          | -0.10              | ▷              | -0.00          | -0.03 | 0.00                    | CO 7  |       |
|            |  |          | Min M <sub>y</sub> |                    | -0.09          | -0.01          | -0.11              | ▷              | 0.09           | -0.03 | -0.01                   | CO 8  |       |
|            |  |          | Max M <sub>z</sub> |                    | 0.01           | -0.00          | -0.10              | ▷              | -0.00          | -0.03 | 0.00                    | CO 7  |       |
|            |  |          | Min M <sub>z</sub> | -0.09              | -0.01          | -0.11          | ▷                  | 0.09           | -0.03          | ▷     | -0.01                   | CO 8  |       |
|            | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                    |                    |                |                |                    |                |                |       |                         |       |       |
|            | RC5  | 17       | 0.000              | Max N              | ▷              | 0.11           | 0.04               | -0.01          | 0.01           | 0.00  | 0.03                    |       |       |
|            |  |          |                    | Min N              | ▷              | -0.11          | -0.04              | 0.01           | -0.01          | -0.00 | -0.03                   |       |       |
|            |  |          |                    | Max V <sub>y</sub> | ▷              | 0.06           | 0.05               | -0.01          | 0.03           | 0.01  | 0.04                    |       |       |
|            |  |          |                    | Min V <sub>y</sub> | ▷              | -0.06          | -0.05              | 0.01           | -0.03          | -0.01 | -0.04                   |       |       |
|            |  |          |                    | Max V <sub>z</sub> | ▷              | -0.07          | -0.05              | 0.01           | -0.05          | -0.01 | -0.03                   |       |       |
|            |  |          |                    | Min V <sub>z</sub> | ▷              | 0.07           | 0.05               | -0.01          | 0.05           | 0.01  | 0.03                    |       |       |
|            |  |          |                    | Max M <sub>T</sub> | ▷              | 0.01           | 0.03               | -0.01          | 0.06           | 0.00  | 0.01                    |       |       |
|            |  |          |                    | Min M <sub>T</sub> | ▷              | -0.01          | -0.03              | 0.01           | -0.06          | -0.00 | -0.01                   |       |       |
|            |  |          |                    | Max M <sub>y</sub> | ▷              | 0.08           | 0.04               | -0.01          | 0.04           | 0.01  | 0.03                    |       |       |
|            |  |          |                    | Min M <sub>y</sub> | ▷              | -0.08          | -0.04              | 0.01           | -0.04          | -0.01 | -0.03                   |       |       |
|            |  |          |                    | Max M <sub>z</sub> | ▷              | 0.06           | 0.05               | -0.01          | 0.01           | 0.00  | ▷                       | 0.05  |       |
|            |  |          |                    | Min M <sub>z</sub> | ▷              | -0.06          | -0.05              | 0.01           | -0.01          | -0.00 | ▷                       | -0.05 |       |
|            |  | 18       | 1.550              | Max N              | ▷              | 0.11           | 0.04               | -0.01          | 0.01           | -0.00 | -0.02                   |       |       |
|            |  |          |                    | Min N              | ▷              | -0.11          | -0.04              | 0.01           | -0.01          | 0.00  | 0.02                    |       |       |
|            |  |          |                    | Max V <sub>y</sub> | ▷              | 0.06           | 0.05               | -0.01          | 0.03           | -0.01 | -0.04                   |       |       |
|            |  |          |                    | Min V <sub>y</sub> | ▷              | -0.06          | -0.05              | 0.01           | -0.03          | 0.01  | 0.04                    |       |       |
|            |  |          |                    | Max V <sub>z</sub> | ▷              | -0.07          | -0.05              | 0.01           | -0.05          | 0.01  | 0.04                    |       |       |
|            |  |          |                    | Min V <sub>z</sub> | ▷              | 0.07           | 0.05               | -0.01          | 0.05           | -0.01 | -0.04                   |       |       |
|            |  |          |                    | Max M <sub>T</sub> | ▷              | 0.01           | 0.03               | -0.01          | 0.06           | -0.01 | -0.03                   |       |       |
|            |  |          |                    | Min M <sub>T</sub> | ▷              | -0.01          | -0.03              | 0.01           | -0.06          | 0.01  | 0.03                    |       |       |
|            |  |          |                    | Max M <sub>y</sub> | ▷              | -0.06          | -0.05              | 0.01           | -0.05          | 0.01  | 0.04                    |       |       |
|            |  |          |                    | Min M <sub>y</sub> | ▷              | 0.06           | 0.05               | -0.01          | 0.05           | -0.01 | -0.04                   |       |       |
|            |  |          |                    | Max M <sub>z</sub> | ▷              | -0.04          | -0.05              | 0.01           | -0.04          | 0.01  | ▷                       | 0.04  |       |
|            |  |          |                    | Min M <sub>z</sub> | ▷              | 0.04           | 0.05               | -0.01          | 0.04           | -0.01 | ▷                       | -0.04 |       |
|            | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                    |                    |                |                |                    |                |                |       |                         |       |       |
|            | RC6  | 17       | 0.000              | Max N              | ▷              | 0.14           | 0.03               | -0.01          | 0.01           | 0.00  | 0.02                    |       |       |
|            |  |          |                    | Min N              | ▷              | -0.14          | -0.03              | 0.01           | -0.01          | -0.00 | -0.02                   |       |       |
|            |  |          |                    | Max V <sub>y</sub> | ▷              | 0.01           | 0.05               | -0.01          | 0.02           | 0.00  | 0.05                    |       |       |
|            |  |          |                    | Min V <sub>y</sub> | ▷              | -0.01          | -0.05              | 0.01           | -0.02          | -0.00 | -0.05                   |       |       |
|            |  |          |                    | Max V <sub>z</sub> | ▷              | -0.10          | -0.04              | 0.01           | -0.03          | -0.01 | -0.03                   |       |       |
|            |  |          |                    | Min V <sub>z</sub> | ▷              | 0.10           | 0.04               | -0.01          | 0.03           | 0.01  | 0.03                    |       |       |
|            |  |          |                    | Max M <sub>T</sub> | ▷              | 0.00           | 0.03               | -0.01          | 0.04           | 0.00  | 0.02                    |       |       |
|            |  |          |                    | Min M <sub>T</sub> | ▷              | -0.00          | -0.03              | 0.01           | -0.04          | -0.00 | -0.02                   |       |       |
|            |  |          |                    | Max M <sub>y</sub> | ▷              | 0.12           | 0.04               | -0.01          | 0.03           | 0.01  | 0.03                    |       |       |
|            |  |          |                    | Min M <sub>y</sub> | ▷              | -0.12          | -0.04              | 0.01           | -0.03          | -0.01 | -0.03                   |       |       |
|            |  |          |                    | Max M <sub>z</sub> | ▷              | 0.02           | 0.05               | -0.01          | 0.01           | 0.00  | ▷                       | 0.05  |       |
|            |  |          |                    | Min M <sub>z</sub> | ▷              | -0.02          | -0.05              | 0.01           | -0.01          | -0.00 | ▷                       | -0.05 |       |
|            |  | 18       | 1.550              | Max N              | ▷              | 0.14           | 0.03               | -0.01          | 0.01           | -0.00 | -0.02                   |       |       |
|            |  |          |                    | Min N              | ▷              | -0.14          | -0.03              | 0.01           | -0.01          | 0.00  | 0.02                    |       |       |
|            |  |          |                    | Max V <sub>y</sub> | ▷              | 0.01           | 0.05               | -0.01          | 0.02           | -0.01 | -0.04                   |       |       |
|            |  |          |                    | Min V <sub>y</sub> | ▷              | -0.01          | -0.05              | 0.01           | -0.02          | 0.01  | 0.04                    |       |       |
|            |  |          |                    | Max V <sub>z</sub> | ▷              | -0.10          | -0.04              | 0.01           | -0.03          | 0.01  | 0.03                    |       |       |
|            |  |          |                    | Min V <sub>z</sub> | ▷              | 0.10           | 0.04               | -0.01          | 0.03           | -0.01 | -0.03                   |       |       |
|            |  |          |                    | Max M <sub>T</sub> | ▷              | 0.00           | 0.03               | -0.01          | 0.04           | -0.00 | -0.03                   |       |       |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date:

2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC   | Node No. | Location x [m] | Forces [kN]        |                |                    |                |                | Moments [kNm]  |       |       | Correspondin Load Cases |       |       |       |      |
|--------------------|--|----------|----------------|--------------------|----------------|--------------------|----------------|----------------|----------------|-------|-------|-------------------------|-------|-------|-------|------|
|                    |  |          |                | N                  | V <sub>y</sub> | V <sub>z</sub>     | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |       |                         |       |       |       |      |
| 14                 | RC6  |          |                | Min M <sub>T</sub> | -0.00          | -0.03              | 0.01           | ▷              | -0.04          | 0.00  | 0.03  |                         |       |       |       |      |
|                    |  |          |                | Max M <sub>y</sub> | -0.06          | -0.05              | 0.01           |                | ▷              | -0.04 | 0.01  | 0.04                    |       |       |       |      |
|                    |  |          |                | Min M <sub>y</sub> | 0.06           | 0.05               | -0.01          |                | ▷              | 0.04  | -0.01 | -0.04                   |       |       |       |      |
|                    |  |          |                | Max M <sub>z</sub> | -0.01          | -0.05              | 0.01           |                | ▷              | -0.03 | 0.01  | 0.04                    |       |       |       |      |
|                    |  |          |                | Min M <sub>z</sub> | 0.01           | 0.05               | -0.01          |                | ▷              | 0.03  | -0.01 | -0.04                   |       |       |       |      |
|                    | DLC1, Result Envelope X 30% / Y 30% / Z 100% |          |                |                    |                |                    |                |                |                |       |       |                         |       |       |       |      |
|                    | RC7  | 17       | 0.000          | Max N              | ▷              | 0.19               | 0.10           | -0.01          |                | 0.04  | 0.01  | 0.09                    |       |       |       |      |
|                    |  |          |                | Min N              | ▷              | -0.19              | -0.10          | 0.01           |                | -0.04 | -0.01 | -0.09                   |       |       |       |      |
|                    |  |          |                | Max V <sub>y</sub> | ▷              | 0.14               | 0.12           | -0.02          |                | 0.07  | 0.01  | 0.10                    |       |       |       |      |
|                    |  |          |                | Min V <sub>y</sub> | ▷              | -0.14              | -0.12          | 0.02           |                | -0.07 | -0.01 | -0.10                   |       |       |       |      |
|                    |  |          |                | Max V <sub>z</sub> | ▷              | -0.14              | -0.11          | 0.02           |                | -0.10 | -0.01 | -0.08                   |       |       |       |      |
|                    |  |          |                | Min V <sub>z</sub> | ▷              | 0.14               | 0.11           | -0.02          |                | 0.10  | 0.01  | 0.08                    |       |       |       |      |
|                    |  |          |                | Max M <sub>T</sub> |                | 0.05               | 0.07           | -0.01          | ▷              | 0.12  | 0.01  | 0.04                    |       |       |       |      |
|                    |  |          |                | Min M <sub>T</sub> |                | -0.05              | -0.07          | 0.01           | ▷              | -0.12 | -0.01 | -0.04                   |       |       |       |      |
|                    |  |          |                | Max M <sub>y</sub> |                | 0.15               | 0.11           | -0.02          | ▷              | 0.10  | 0.01  | 0.08                    |       |       |       |      |
|                    |  |          |                | Min M <sub>y</sub> |                | -0.15              | -0.11          | 0.02           | ▷              | -0.10 | -0.01 | -0.08                   |       |       |       |      |
|                    |  |          |                | Max M <sub>z</sub> |                | 0.14               | 0.12           | -0.01          |                | 0.04  | 0.01  | 0.10                    |       |       |       |      |
|                    |  |          |                | Min M <sub>z</sub> |                | -0.14              | -0.12          | 0.01           |                | -0.04 | -0.01 | -0.10                   |       |       |       |      |
|                    |  |          |                | 18                 | 1.550          | Max N              | ▷              | 0.19           | 0.10           | -0.01 |       | 0.04                    | -0.01 | -0.07 |       |      |
|                    |  |          |                |                    |                | Min N              | ▷              | -0.19          | -0.10          | 0.01  |       | -0.04                   | 0.01  | 0.07  |       |      |
| Max V <sub>y</sub> |  |          |                |                    |                | ▷                  | 0.14           | 0.12           | -0.02          |       | 0.07  | -0.01                   | -0.09 |       |       |      |
| Min V <sub>y</sub> | ▷  | -0.14    | -0.12          |                    |                | 0.02               |                | -0.07          | 0.01           | 0.09  |       |                         |       |       |       |      |
| Max V <sub>z</sub> | ▷  | -0.14    | -0.11          |                    |                | 0.02               |                | -0.10          | 0.01           | 0.09  |       |                         |       |       |       |      |
| Min V <sub>z</sub> | ▷  | 0.14     | 0.11           |                    |                | -0.02              |                | 0.10           | -0.01          | -0.09 |       |                         |       |       |       |      |
| Max M <sub>T</sub> |  | 0.05     | 0.07           |                    |                | -0.01              |                | 0.12           | -0.01          | -0.07 |       |                         |       |       |       |      |
| Min M <sub>T</sub> |  | -0.05    | -0.07          |                    |                | 0.01               | ▷              | -0.12          | 0.01           | 0.07  |       |                         |       |       |       |      |
| Max M <sub>y</sub> |  | -0.13    | -0.11          |                    |                | 0.02               |                | -0.10          | 0.01           | 0.09  |       |                         |       |       |       |      |
| Min M <sub>y</sub> |  | 0.13     | 0.11           |                    |                | -0.02              | ▷              | 0.10           | -0.01          | -0.09 |       |                         |       |       |       |      |
| 15                 | RC1  | 19       | 0.000          | Max M <sub>z</sub> |                | -0.12              | -0.11          | 0.02           |                | -0.10 | 0.01  | ▷                       | 0.09  |       |       |      |
|                    |  |          |                | Min M <sub>z</sub> |                | 0.12               | 0.11           | -0.02          |                | 0.10  | -0.01 | ▷                       | -0.09 |       |       |      |
|                    |  |          |                | Max N              | ▷              | 0.13               | -0.10          | 0.11           |                | 0.50  | -0.04 | -0.29                   | CO 2  |       |       |      |
|                    |  |          |                | Min N              | ▷              | 0.02               | -0.00          | 0.11           |                | 0.01  | -0.01 | -0.00                   | CO 1  |       |       |      |
|                    |  |          |                | Max V <sub>y</sub> | ▷              | 0.02               | -0.00          | 0.11           |                | 0.01  | -0.01 | -0.00                   | CO 1  |       |       |      |
|                    |  |          |                | Min V <sub>y</sub> | ▷              | 0.13               | -0.10          | 0.11           |                | 0.50  | -0.04 | -0.29                   | CO 2  |       |       |      |
|                    |  |          |                | Max V <sub>z</sub> | ▷              | 0.13               | -0.10          | 0.11           |                | 0.50  | -0.04 | -0.29                   | CO 2  |       |       |      |
|                    |  |          |                | Min V <sub>z</sub> | ▷              | 0.02               | -0.00          | 0.11           |                | 0.01  | -0.01 | -0.00                   | CO 1  |       |       |      |
|                    |  |          |                | Max M <sub>T</sub> |                | 0.13               | -0.10          | 0.11           | ▷              | 0.50  | -0.04 | -0.29                   | CO 2  |       |       |      |
|                    |  |          |                | Min M <sub>T</sub> |                | 0.02               | -0.00          | 0.11           | ▷              | 0.01  | -0.01 | -0.00                   | CO 1  |       |       |      |
|                    |  |          |                | Max M <sub>y</sub> |                | 0.02               | -0.00          | 0.11           |                | 0.01  | -0.01 | -0.00                   | CO 1  |       |       |      |
|                    |  |          |                | Min M <sub>y</sub> |                | 0.13               | -0.10          | 0.11           |                | 0.50  | -0.04 | -0.29                   | CO 2  |       |       |      |
|                    |  |          |                | Max M <sub>z</sub> |                | 0.02               | -0.00          | 0.11           |                | 0.01  | -0.01 | ▷                       | -0.00 | CO 1  |       |      |
|                    |  |          |                | Min M <sub>z</sub> |                | 0.13               | -0.10          | 0.11           |                | 0.50  | -0.04 | ▷                       | -0.29 | CO 2  |       |      |
|                    |  |          |                | 20                 | 1.550          | Max N              | ▷              | 0.13           | -0.10          | -0.13 |       | 0.50                    | -0.06 | -0.13 | CO 2  |      |
|                    | Min N  | ▷        | 0.02           |                    |                | -0.00              | -0.14          |                | 0.01           | -0.04 | 0.00  | CO 1                    |       |       |       |      |
|                    | Max V <sub>y</sub>                           | ▷        | 0.02           |                    |                | -0.00              | -0.14          |                | 0.01           | -0.04 | 0.00  | CO 1                    |       |       |       |      |
|                    | Min V <sub>y</sub>                           | ▷        | 0.13           |                    |                | -0.10              | -0.13          |                | 0.50           | -0.06 | -0.13 | CO 2                    |       |       |       |      |
|                    | Max V <sub>z</sub>                           | ▷        | 0.13           |                    |                | -0.10              | -0.13          |                | 0.50           | -0.06 | -0.13 | CO 2                    |       |       |       |      |
|                    | RC2  | 19       | 0.000          | Min V <sub>z</sub> | ▷              | 0.02               | -0.00          | -0.14          | ▷              | 0.01  | -0.04 | 0.00                    | CO 1  |       |       |      |
| Max M <sub>T</sub> |  |          |                |                    | 0.13           | -0.10              | -0.13          | ▷              | 0.50           | -0.06 | -0.13 | CO 2                    |       |       |       |      |
| Min M <sub>T</sub> |  |          |                |                    | 0.02           | -0.00              | -0.14          | ▷              | 0.01           | -0.04 | 0.00  | CO 1                    |       |       |       |      |
| Max M <sub>y</sub> |  |          |                |                    | 0.02           | -0.00              | -0.14          |                | 0.01           | -0.04 | 0.00  | CO 1                    |       |       |       |      |
| Min M <sub>y</sub> |  |          |                |                    | 0.13           | -0.10              | -0.13          |                | 0.50           | -0.06 | -0.13 | CO 2                    |       |       |       |      |
| Max M <sub>z</sub> |  |          |                |                    | 0.02           | -0.00              | -0.14          |                | 0.01           | -0.04 | 0.00  | CO 1                    |       |       |       |      |
| Min M <sub>z</sub> |  |          |                |                    | 0.13           | -0.10              | -0.13          |                | 0.50           | -0.06 | -0.13 | CO 2                    |       |       |       |      |
| Max N              |  |          |                | ▷                  | 0.09           | -0.07              | 0.08           |                | 0.33           | -0.03 | -0.20 | CO 4                    |       |       |       |      |
| Min N              |  |          |                | ▷                  | 0.01           | -0.00              | 0.08           |                | 0.01           | -0.01 | -0.00 | CO 3                    |       |       |       |      |
| Max V <sub>y</sub> |  |          |                | ▷                  | 0.01           | -0.00              | 0.08           |                | 0.01           | -0.01 | -0.00 | CO 3                    |       |       |       |      |
| Min V <sub>y</sub> |  |          |                | ▷                  | 0.09           | -0.07              | 0.08           |                | 0.33           | -0.03 | -0.20 | CO 4                    |       |       |       |      |
| Max V <sub>z</sub> |  |          |                | ▷                  | 0.09           | -0.07              | 0.08           |                | 0.33           | -0.03 | -0.20 | CO 4                    |       |       |       |      |
| Min V <sub>z</sub> |  |          |                | ▷                  | 0.01           | -0.00              | 0.08           |                | 0.01           | -0.01 | -0.00 | CO 3                    |       |       |       |      |
| Max M <sub>T</sub> |  |          |                |                    | 0.09           | -0.07              | 0.08           | ▷              | 0.33           | -0.03 | -0.20 | CO 4                    |       |       |       |      |
| Min M <sub>T</sub> |  |          |                |                    | 0.01           | -0.00              | 0.08           | ▷              | 0.01           | -0.01 | -0.00 | CO 3                    |       |       |       |      |
| Max M <sub>y</sub> |  |          |                |                    | 0.01           | -0.00              | 0.08           |                | 0.01           | -0.01 | -0.00 | CO 3                    |       |       |       |      |
| Min M <sub>y</sub> |  |          |                |                    | 0.09           | -0.07              | 0.08           | ▷              | 0.33           | -0.03 | -0.20 | CO 4                    |       |       |       |      |
| Max M <sub>z</sub> |  |          |                |                    | 0.01           | -0.00              | 0.08           |                | 0.01           | -0.01 | ▷     | -0.00                   | CO 3  |       |       |      |
| RC3                |  |          |                | 19                 | 0.000          | Min M <sub>z</sub> |                | 0.09           | -0.07          | -0.10 |       | 0.33                    | -0.04 | ▷     | -0.09 | CO 4 |
|                    |  |          |                |                    |                | Max N              | ▷              | 0.05           | -0.04          | 0.08  |       | 0.17                    | -0.02 | -0.10 | CO 6  |      |
|                    | Min N  | ▷        | 0.01           |                    |                | -0.00              | 0.08           |                | 0.01           | -0.01 | -0.00 | CO 5                    |       |       |       |      |
|                    | Max V <sub>y</sub>                           | ▷        | 0.01           |                    |                | -0.00              | 0.08           |                | 0.01           | -0.01 | -0.00 | CO 5                    |       |       |       |      |
|                    | Min V <sub>y</sub>                           | ▷        | 0.05           |                    |                | -0.04              | 0.08           |                | 0.17           | -0.02 | -0.10 | CO 6                    |       |       |       |      |
|                    | Max V <sub>z</sub>                           | ▷        | 0.05           |                    |                | -0.04              | 0.08           |                | 0.17           | -0.02 | -0.10 | CO 6                    |       |       |       |      |
|                    | Min V <sub>z</sub>                           | ▷        | 0.01           |                    |                | -0.00              | 0.08           |                | 0.01           | -0.01 | -0.00 | CO 5                    |       |       |       |      |
|                    | Max M <sub>T</sub>                           |          | 0.05           |                    |                | -0.04              | 0.08           | ▷              | 0.17           | -0.02 | -0.10 | CO 6                    |       |       |       |      |
|                    | Min M <sub>T</sub>                           |          | 0.01           |                    |                | -0.00              | 0.08           | ▷              | 0.01           | -0.01 | -0.00 | CO 5                    |       |       |       |      |
|                    | Max M <sub>y</sub>                           |          | 0.01           |                    |                | -0.00              | 0.08           |                | 0.01           | -0.01 | -0.00 | CO 5                    |       |       |       |      |

RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01 Date: 2/8/2023

■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m] | Forces [kN]        |                |                |                |                | Moments [kNm]  |       |       | Correspondin Load Cases |       |      |
|------------|--|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------|-------|-------------------------|-------|------|
|            |  |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |       |                         |       |      |
| 15         | RC3  | 20       | 1.550          | Min M <sub>y</sub> | 0.05           | -0.04          | 0.08           | 0.17           | ▷              | -0.02 |       | -0.10                   | CO 6  |      |
|            |  |          |                | Max M <sub>z</sub> | 0.01           | -0.00          | 0.08           | 0.01           |                | -0.01 | ▷     | -0.00                   | CO 5  |      |
|            |  |          |                | Min M <sub>z</sub> | 0.05           | -0.04          | 0.08           | 0.17           |                | -0.02 | ▷     | -0.10                   | CO 6  |      |
|            |  |          |                | Max N              | 0.05           | -0.04          | -0.10          | 0.17           |                | -0.04 |       | -0.04                   | CO 6  |      |
|            |  |          |                | Min N              | 0.01           | -0.00          | -0.10          | 0.01           |                | -0.03 |       | 0.00                    | CO 5  |      |
|            |  |          |                | Max V <sub>y</sub> | 0.01           | -0.00          | -0.10          | 0.01           |                | -0.03 |       | 0.00                    | CO 5  |      |
|            |  |          |                | Min V <sub>y</sub> | 0.05           | -0.04          | -0.10          | 0.17           |                | -0.04 |       | -0.04                   | CO 6  |      |
|            |  |          |                | Max V <sub>z</sub> | 0.05           | -0.04          | ▷              | -0.10          | 0.17           |       | -0.04 |                         | -0.04 | CO 6 |
|            |  |          |                | Min V <sub>z</sub> | 0.01           | -0.00          | ▷              | -0.10          | 0.01           |       | -0.03 |                         | 0.00  | CO 5 |
|            |  |          |                | Max M <sub>T</sub> | 0.05           | -0.04          | ▷              | -0.10          | 0.17           |       | -0.04 |                         | -0.04 | CO 6 |
|            |  |          |                | Min M <sub>T</sub> | 0.01           | -0.00          | ▷              | -0.10          | 0.01           |       | -0.03 |                         | 0.00  | CO 5 |
|            |  |          |                | Max M <sub>y</sub> | 0.01           | -0.00          | -0.10          | 0.01           |                | -0.03 |       | 0.00                    | CO 5  |      |
|            |  |          |                | Min M <sub>y</sub> | 0.05           | -0.04          | -0.10          | 0.17           | ▷              | -0.04 |       | -0.04                   | CO 6  |      |
|            |  |          |                | Max M <sub>z</sub> | 0.01           | -0.00          | -0.10          | 0.01           |                | -0.03 | ▷     | 0.00                    | CO 5  |      |
|            |  |          |                | Min M <sub>z</sub> | 0.05           | -0.04          | -0.10          | 0.17           |                | -0.04 | ▷     | -0.04                   | CO 6  |      |
|            | RC4  | 19       | 0.000          | Max N              | 0.03           | -0.02          | 0.08           | 0.10           |                | -0.02 |       | -0.06                   | CO 8  |      |
|            |  |          |                | Min N              | 0.01           | -0.00          | 0.08           | 0.01           |                | -0.01 |       | -0.00                   | CO 7  |      |
|            |  |          |                | Max V <sub>y</sub> | 0.01           | ▷              | -0.00          | 0.08           | 0.01           |       | -0.01 |                         | -0.00 | CO 7 |
|            |  |          |                | Min V <sub>y</sub> | 0.03           | ▷              | -0.02          | 0.08           | 0.10           |       | -0.02 |                         | -0.06 | CO 8 |
|            |  |          |                | Max V <sub>z</sub> | 0.03           | -0.02          | ▷              | 0.08           | 0.10           |       | -0.02 |                         | -0.06 | CO 8 |
|            |  |          |                | Min V <sub>z</sub> | 0.01           | -0.00          | ▷              | 0.08           | 0.01           |       | -0.01 |                         | -0.00 | CO 7 |
|            |  |          |                | Max M <sub>T</sub> | 0.03           | -0.02          | ▷              | 0.08           | 0.10           |       | -0.02 |                         | -0.06 | CO 8 |
|            |  |          |                | Min M <sub>T</sub> | 0.01           | -0.00          | ▷              | 0.08           | 0.01           |       | -0.01 |                         | -0.00 | CO 7 |
|            |  |          |                | Max M <sub>y</sub> | 0.01           | -0.00          | 0.08           | 0.01           | ▷              | -0.01 |       | -0.00                   | CO 7  |      |
|            |  |          |                | Min M <sub>y</sub> | 0.03           | -0.02          | 0.08           | 0.10           | ▷              | -0.02 |       | -0.06                   | CO 8  |      |
|            |  |          |                | Max M <sub>z</sub> | 0.01           | -0.00          | 0.08           | 0.01           |                | -0.01 | ▷     | -0.00                   | CO 7  |      |
|            |  |          |                | Min M <sub>z</sub> | 0.03           | -0.02          | 0.08           | 0.10           |                | -0.02 | ▷     | -0.06                   | CO 8  |      |
|            |  | 20       | 1.550          | Max N              | 0.03           | -0.02          | -0.10          | 0.10           |                | -0.03 |       | -0.03                   | CO 8  |      |
|            |  |          |                | Min N              | 0.01           | -0.00          | -0.10          | 0.01           |                | -0.03 |       | 0.00                    | CO 7  |      |
|            |  |          |                | Max V <sub>y</sub> | 0.01           | ▷              | -0.00          | -0.10          | 0.01           |       | -0.03 |                         | 0.00  | CO 7 |
|            |  |          |                | Min V <sub>y</sub> | 0.03           | ▷              | -0.02          | -0.10          | 0.10           |       | -0.03 |                         | -0.03 | CO 8 |
|            |  |          |                | Max V <sub>z</sub> | 0.03           | -0.02          | ▷              | -0.10          | 0.10           |       | -0.03 |                         | -0.03 | CO 8 |
|            |  |          |                | Min V <sub>z</sub> | 0.01           | -0.00          | ▷              | -0.10          | 0.01           |       | -0.03 |                         | 0.00  | CO 7 |
|            |  |          |                | Max M <sub>T</sub> | 0.03           | -0.02          | ▷              | -0.10          | 0.10           |       | -0.03 |                         | -0.03 | CO 8 |
|            |  |          |                | Min M <sub>T</sub> | 0.01           | -0.00          | ▷              | -0.10          | 0.01           |       | -0.03 |                         | 0.00  | CO 7 |
|            |  |          |                | Max M <sub>y</sub> | 0.01           | -0.00          | -0.10          | 0.01           | ▷              | -0.03 |       | 0.00                    | CO 7  |      |
|            |  |          |                | Min M <sub>y</sub> | 0.03           | -0.02          | -0.10          | 0.10           | ▷              | -0.03 |       | -0.03                   | CO 8  |      |
|            |  |          |                | Max M <sub>z</sub> | 0.01           | -0.00          | -0.10          | 0.01           |                | -0.03 | ▷     | 0.00                    | CO 7  |      |
|            |  |          |                | Min M <sub>z</sub> | 0.03           | -0.02          | -0.10          | 0.10           |                | -0.03 | ▷     | -0.03                   | CO 8  |      |
|            | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                |                    |                |                |                |                |                |       |       |                         |       |      |
|            | RC5  | 19       | 0.000          | Max N              | 0.11           | -0.04          | 0.00           | -0.00          |                | 0.00  |       | -0.03                   |       |      |
|            |  |          |                | Min N              | -0.11          | 0.04           | -0.00          | 0.00           |                | -0.00 |       | 0.03                    |       |      |
|            |  |          |                | Max V <sub>y</sub> | -0.07          | 0.06           | 0.00           | 0.03           |                | -0.00 |       | 0.05                    |       |      |
|            |  |          |                | Min V <sub>y</sub> | 0.07           | -0.06          | -0.00          | -0.03          |                | 0.00  |       | -0.05                   |       |      |
|            |  |          |                | Max V <sub>z</sub> | -0.01          | 0.02           | 0.00           | 0.00           |                | -0.00 |       | 0.02                    |       |      |
|            |  |          |                | Min V <sub>z</sub> | 0.01           | -0.02          | -0.00          | -0.00          |                | 0.00  |       | -0.02                   |       |      |
|            |  |          |                | Max M <sub>T</sub> | -0.01          | 0.03           | 0.00           | 0.06           |                | -0.00 |       | 0.01                    |       |      |
|            |  |          |                | Min M <sub>T</sub> | 0.01           | -0.03          | -0.00          | -0.06          | ▷              | 0.00  |       | -0.01                   |       |      |
|            |  |          |                | Max M <sub>y</sub> | 0.03           | -0.02          | -0.00          | -0.05          | ▷              | 0.00  |       | -0.01                   |       |      |
|            |  |          |                | Min M <sub>y</sub> | -0.03          | 0.02           | 0.00           | 0.05           | ▷              | -0.00 |       | 0.01                    |       |      |
|            |  |          |                | Max M <sub>z</sub> | -0.07          | 0.05           | 0.00           | 0.01           |                | -0.00 | ▷     | 0.05                    |       |      |
|            |  |          |                | Min M <sub>z</sub> | 0.07           | -0.05          | -0.00          | -0.01          |                | 0.00  | ▷     | -0.05                   |       |      |
|            |  | 20       | 1.550          | Max N              | 0.11           | -0.04          | 0.00           | -0.00          |                | 0.00  |       | 0.02                    |       |      |
|            |  |          |                | Min N              | -0.11          | 0.04           | -0.00          | 0.00           |                | -0.00 |       | -0.02                   |       |      |
|            |  |          |                | Max V <sub>y</sub> | -0.07          | 0.06           | 0.00           | 0.03           |                | 0.00  |       | -0.04                   |       |      |
|            |  |          |                | Min V <sub>y</sub> | 0.07           | -0.06          | -0.00          | -0.03          |                | -0.00 |       | 0.04                    |       |      |
|            |  |          |                | Max V <sub>z</sub> | -0.01          | 0.02           | ▷              | 0.00           | 0.00           |       | 0.00  |                         | -0.01 |      |
|            |  |          |                | Min V <sub>z</sub> | 0.01           | -0.02          | ▷              | -0.00          | -0.00          |       | -0.00 |                         | 0.01  |      |
|            |  |          |                | Max M <sub>T</sub> | -0.01          | 0.03           | ▷              | 0.00           | 0.06           |       | -0.00 |                         | -0.03 |      |
|            |  |          |                | Min M <sub>T</sub> | 0.01           | -0.03          | ▷              | -0.00          | -0.06          |       | 0.00  |                         | 0.03  |      |
|            |  |          |                | Max M <sub>y</sub> | 0.02           | 0.00           | 0.00           | -0.04          | ▷              | 0.01  |       | 0.01                    |       |      |
|            |  |          |                | Min M <sub>y</sub> | -0.02          | -0.00          | -0.00          | 0.04           | ▷              | -0.01 |       | -0.01                   |       |      |
|            |  |          |                | Max M <sub>z</sub> | 0.06           | -0.05          | -0.00          | -0.04          |                | 0.00  | ▷     | 0.04                    |       |      |
|            |  |          |                | Min M <sub>z</sub> | -0.06          | 0.05           | 0.00           | 0.04           |                | -0.00 | ▷     | -0.04                   |       |      |
|            | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                |                    |                |                |                |                |                |       |       |                         |       |      |
|            | RC6  | 19       | 0.000          | Max N              | 0.18           | -0.04          | -0.00          | -0.01          |                | 0.00  |       | -0.04                   |       |      |
|            |  |          |                | Min N              | -0.18          | 0.04           | 0.00           | 0.01           |                | -0.00 |       | 0.04                    |       |      |
|            |  |          |                | Max V <sub>y</sub> | -0.13          | 0.06           | 0.00           | 0.02           |                | -0.00 |       | 0.05                    |       |      |
|            |  |          |                | Min V <sub>y</sub> | 0.13           | -0.06          | -0.00          | -0.02          |                | 0.00  |       | -0.05                   |       |      |
|            |  |          |                | Max V <sub>z</sub> | -0.02          | 0.02           | ▷              | 0.00           | 0.00           |       | -0.00 |                         | 0.02  |      |
|            |  |          |                | Min V <sub>z</sub> | 0.02           | -0.02          | ▷              | -0.00          | -0.00          |       | 0.00  |                         | -0.02 |      |
|            |  |          |                | Max M <sub>T</sub> | -0.03          | 0.03           | ▷              | 0.00           | 0.04           |       | -0.00 |                         | 0.01  |      |
|            |  |          |                | Min M <sub>T</sub> | 0.03           | -0.03          | ▷              | -0.00          | -0.04          |       | 0.00  |                         | -0.01 |      |
|            |  |          |                | Max M <sub>y</sub> | 0.11           | -0.03          | -0.00          | -0.04          | ▷              | 0.00  |       | -0.02                   |       |      |
|            |  |          |                | Min M <sub>y</sub> | -0.11          | 0.03           | 0.00           | 0.04           | ▷              | -0.00 |       | 0.02                    |       |      |
|            |  |          |                | Max M <sub>z</sub> | -0.13          | 0.06           | 0.00           | 0.01           |                | -0.00 | ▷     | 0.05                    |       |      |
|            |  |          |                | Min M <sub>z</sub> | 0.13           | -0.06          | -0.00          | -0.01          |                | 0.00  | ▷     | -0.05                   |       |      |
|            |  | 20       | 1.550          | Max N              | 0.18           | -0.04          | -0.00          | -0.01          |                | 0.00  |       | 0.02                    |       |      |
|            |  |          |                | Min N              | -0.18          | 0.04           | 0.00           | 0.01           |                | -0.00 |       | -0.02                   |       |      |
|            |  |          |                | Max V <sub>y</sub> | -0.13          | 0.06           | 0.00           | 0.02           |                | 0.00  |       | -0.04                   |       |      |
|            |  |          |                | Min V <sub>y</sub> | 0.13           | -0.06          | -0.00          | -0.02          |                | -0.00 |       | 0.04                    |       |      |
|            |  |          |                | Max V <sub>z</sub> | -0.02          | 0.02           | ▷              | 0.00           | 0.00           |       | 0.00  |                         | -0.01 |      |
|            |  |          |                | Min V <sub>z</sub> | 0.02           | -0.02          | ▷              | -0.00          | -0.00          |       | -0.00 |                         | 0.01  |      |
|            |  |          |                | Max M <sub>T</sub> | -0.03          | 0.03           | ▷              | 0.00           | 0.04           |       | -0.00 |                         | -0.03 |      |
|            |  |          |                | Min M <sub>T</sub> | 0.03           | -0.03          | ▷              | -0.00          | -0.04          |       | 0.00  |                         | 0.03  |      |
|            |  |          |                | Max M <sub>y</sub> | 0.05           | 0.00           | 0.00           | -0.03          | ▷              | 0.01  |       | 0.01                    |       |      |
|            |  |          |                | Min M <sub>y</sub> | -0.05          | -0.00          | -0.00          | 0.03           | ▷              | -0.01 |       | -0.01                   |       |      |

# RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] | Forces [kN]                                  |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |
|------------|-----|----------|----------------|--|----------------|----------------|----------------|----------------|----------------|-------------------------|
|            |     |          |                | N  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |
| 15         | RC6 | 19       | 0.000          | Max M <sub>z</sub>                           | 0.12           | -0.05          | -0.00          | -0.03          | -0.00          | 0.04                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.12          | 0.05           | 0.00           | 0.03           | 0.00           | -0.04                   |
|            |     |          |                | DLC1, Result Envelope X 30% / Y 30% / Z 100% |                |                |                |                |                |                         |
|            |     |          |                | Max N  | 0.19           | -0.10          | -0.00          | -0.02          | 0.00           | -0.09                   |
|            |     |          |                | Min N  | -0.19          | 0.10           | 0.00           | 0.02           | -0.00          | 0.09                    |
|            |     |          |                | Max V <sub>y</sub>                           | -0.14          | 0.12           | 0.00           | 0.07           | -0.00          | 0.11                    |
|            |     |          |                | Min V <sub>y</sub>                           | 0.14           | -0.12          | -0.00          | -0.07          | 0.00           | -0.11                   |
|            |     |          |                | Max V <sub>z</sub>                           | -0.05          | 0.03           | 0.01           | 0.01           | -0.00          | 0.03                    |
|            |     |          |                | Min V <sub>z</sub>                           | 0.05           | -0.03          | -0.01          | -0.01          | 0.00           | -0.03                   |
|            |     |          |                | Max M <sub>T</sub>                           | -0.03          | 0.07           | 0.00           | 0.12           | -0.01          | 0.03                    |
|            |     |          |                | Min M <sub>T</sub>                           | 0.03           | -0.07          | -0.00          | -0.12          | 0.01           | -0.03                   |
|            |     |          |                | Max M <sub>y</sub>                           | 0.06           | -0.05          | -0.00          | -0.11          | 0.01           | -0.02                   |
|            |     |          |                | Min M <sub>y</sub>                           | -0.06          | 0.05           | 0.00           | 0.11           | -0.01          | 0.02                    |
|            |     |          |                | Max M <sub>z</sub>                           | -0.15          | 0.12           | 0.00           | 0.04           | -0.00          | 0.11                    |
|            |     |          |                | Min M <sub>z</sub>                           | 0.15           | -0.12          | -0.00          | -0.04          | 0.00           | -0.11                   |
|            |     | 20       | 1.550          | Max N  | 0.19           | -0.10          | -0.00          | -0.02          | -0.00          | 0.06                    |
|            |     |          |                | Min N  | -0.19          | 0.10           | 0.00           | 0.02           | 0.00           | -0.06                   |
|            |     |          |                | Max V <sub>y</sub>                           | -0.14          | 0.12           | 0.00           | 0.07           | -0.00          | -0.09                   |
|            |     |          |                | Min V <sub>y</sub>                           | 0.14           | -0.12          | -0.00          | -0.07          | 0.00           | 0.09                    |
|            |     |          |                | Max V <sub>z</sub>                           | -0.05          | 0.03           | 0.01           | 0.01           | 0.01           | -0.02                   |
|            |     |          |                | Min V <sub>z</sub>                           | 0.05           | -0.03          | -0.01          | -0.01          | -0.01          | 0.02                    |
|            |     |          |                | Max M <sub>T</sub>                           | -0.03          | 0.07           | 0.00           | 0.12           | -0.01          | -0.07                   |
|            |     |          |                | Min M <sub>T</sub>                           | 0.03           | -0.07          | -0.00          | -0.12          | 0.01           | 0.07                    |
|            |     |          |                | Max M <sub>y</sub>                           | -0.01          | -0.01          | 0.00           | -0.09          | 0.01           | 0.03                    |
|            |     |          |                | Min M <sub>y</sub>                           | 0.01           | 0.01           | -0.00          | 0.09           | -0.01          | -0.03                   |
|            |     |          |                | Max M <sub>z</sub>                           | 0.12           | -0.12          | -0.00          | -0.10          | 0.00           | 0.09                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.12          | 0.12           | 0.00           | 0.10           | -0.00          | -0.09                   |
| 16         | RC1 | 2        | 0.000          | Max N  | -0.04          | 0.00           | 0.13           | -0.00          | -0.03          | -0.00                   |
|            |     |          |                | Min N  | -1.64          | 0.87           | 0.15           | 0.10           | -0.05          | 0.89                    |
|            |     |          |                | Max V <sub>y</sub>                           | -1.64          | 0.87           | 0.15           | 0.10           | -0.05          | 0.89                    |
|            |     |          |                | Min V <sub>y</sub>                           | -0.04          | 0.00           | 0.13           | -0.00          | -0.03          | -0.00                   |
|            |     |          |                | Max V <sub>z</sub>                           | -1.64          | 0.87           | 0.15           | 0.10           | -0.05          | 0.89                    |
|            |     |          |                | Min V <sub>z</sub>                           | -0.04          | 0.00           | 0.13           | -0.00          | -0.03          | -0.00                   |
|            |     |          |                | Max M <sub>T</sub>                           | -1.64          | 0.87           | 0.15           | 0.10           | -0.05          | 0.89                    |
|            |     |          |                | Min M <sub>T</sub>                           | -0.04          | 0.00           | 0.13           | -0.00          | -0.03          | -0.00                   |
|            |     |          |                | Max M <sub>y</sub>                           | -0.04          | 0.00           | 0.13           | -0.00          | -0.03          | -0.00                   |
|            |     |          |                | Min M <sub>y</sub>                           | -1.64          | 0.87           | 0.15           | 0.10           | -0.05          | 0.89                    |
|            |     |          |                | Max M <sub>z</sub>                           | -1.64          | 0.87           | 0.15           | 0.10           | -0.05          | 0.89                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.04          | 0.00           | 0.13           | -0.00          | -0.03          | -0.00                   |
|            |     | 4        | 1.550          | Max N  | -0.04          | 0.00           | -0.11          | -0.00          | -0.01          | -0.00                   |
|            |     |          |                | Min N  | -1.64          | 0.87           | -0.10          | 0.10           | -0.00          | -0.47                   |
|            |     |          |                | Max V <sub>y</sub>                           | -1.64          | 0.87           | -0.10          | 0.10           | -0.00          | -0.47                   |
|            |     |          |                | Min V <sub>y</sub>                           | -0.04          | 0.00           | -0.11          | -0.00          | -0.01          | -0.00                   |
|            |     |          |                | Max V <sub>z</sub>                           | -1.64          | 0.87           | -0.10          | 0.10           | -0.00          | -0.47                   |
|            |     |          |                | Min V <sub>z</sub>                           | -0.04          | 0.00           | -0.11          | -0.00          | -0.01          | -0.00                   |
|            |     |          |                | Max M <sub>T</sub>                           | -1.64          | 0.87           | -0.10          | 0.10           | -0.00          | -0.47                   |
|            |     |          |                | Min M <sub>T</sub>                           | -0.04          | 0.00           | -0.11          | -0.00          | -0.01          | -0.00                   |
|            |     |          |                | Max M <sub>y</sub>                           | -1.64          | 0.87           | -0.10          | 0.10           | -0.00          | -0.47                   |
|            |     |          |                | Min M <sub>y</sub>                           | -0.04          | 0.00           | -0.11          | -0.00          | -0.01          | -0.00                   |
|            |     |          |                | Max M <sub>z</sub>                           | -1.64          | 0.87           | -0.10          | 0.10           | -0.00          | -0.47                   |
|            |     |          |                | Min M <sub>z</sub>                           | -0.04          | 0.00           | -0.11          | -0.00          | -0.01          | -0.00                   |
|            | RC2 | 2        | 0.000          | Max N  | -0.03          | 0.00           | 0.10           | -0.00          | -0.02          | -0.00                   |
|            |     |          |                | Min N  | -1.09          | 0.58           | 0.11           | 0.07           | -0.03          | 0.59                    |
|            |     |          |                | Max V <sub>y</sub>                           | -1.09          | 0.58           | 0.11           | 0.07           | -0.03          | 0.59                    |
|            |     |          |                | Min V <sub>y</sub>                           | -0.03          | 0.00           | 0.10           | -0.00          | -0.02          | -0.00                   |
|            |     |          |                | Max V <sub>z</sub>                           | -1.09          | 0.58           | 0.11           | 0.07           | -0.03          | 0.59                    |
|            |     |          |                | Min V <sub>z</sub>                           | -0.03          | 0.00           | 0.10           | -0.00          | -0.02          | -0.00                   |
|            |     |          |                | Max M <sub>T</sub>                           | -1.09          | 0.58           | 0.11           | 0.07           | -0.03          | 0.59                    |
|            |     |          |                | Min M <sub>T</sub>                           | -0.03          | 0.00           | 0.10           | -0.00          | -0.02          | -0.00                   |
|            |     |          |                | Max M <sub>y</sub>                           | -0.03          | 0.00           | 0.10           | -0.00          | -0.02          | -0.00                   |
|            |     |          |                | Min M <sub>y</sub>                           | -1.09          | 0.58           | 0.11           | 0.07           | -0.03          | 0.59                    |
|            |     |          |                | Max M <sub>z</sub>                           | -1.09          | 0.58           | 0.11           | 0.07           | -0.03          | 0.59                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.03          | 0.00           | 0.10           | -0.00          | -0.02          | -0.00                   |
|            |     | 4        | 1.550          | Max N  | -0.03          | 0.00           | -0.08          | -0.00          | -0.01          | -0.00                   |
|            |     |          |                | Min N  | -1.09          | 0.58           | -0.07          | 0.07           | -0.00          | -0.31                   |
|            |     |          |                | Max V <sub>y</sub>                           | -1.09          | 0.58           | -0.07          | 0.07           | -0.00          | -0.31                   |
|            |     |          |                | Min V <sub>y</sub>                           | -0.03          | 0.00           | -0.08          | -0.00          | -0.01          | -0.00                   |
|            |     |          |                | Max V <sub>z</sub>                           | -1.09          | 0.58           | -0.07          | 0.07           | -0.00          | -0.31                   |
|            |     |          |                | Min V <sub>z</sub>                           | -0.03          | 0.00           | -0.08          | -0.00          | -0.01          | -0.00                   |
|            |     |          |                | Max M <sub>T</sub>                           | -1.09          | 0.58           | -0.07          | 0.07           | -0.00          | -0.31                   |
|            |     |          |                | Min M <sub>T</sub>                           | -0.03          | 0.00           | -0.08          | -0.00          | -0.01          | -0.00                   |
|            |     |          |                | Max M <sub>y</sub>                           | -1.09          | 0.58           | -0.07          | 0.07           | -0.00          | -0.31                   |
|            |     |          |                | Min M <sub>y</sub>                           | -0.03          | 0.00           | -0.08          | -0.00          | -0.01          | -0.00                   |
|            |     |          |                | Max M <sub>z</sub>                           | -1.09          | 0.58           | -0.07          | 0.07           | -0.00          | -0.31                   |
|            |     |          |                | Min M <sub>z</sub>                           | -0.03          | 0.00           | -0.08          | -0.00          | -0.01          | -0.00                   |
| 16         | RC3 | 2        | 0.000          | Max N  | -0.03          | 0.00           | 0.10           | -0.00          | -0.02          | -0.00                   |
|            |     |          |                | Min N  | -0.56          | 0.29           | 0.10           | 0.03           | -0.03          | 0.30                    |
|            |     |          |                | Max V <sub>y</sub>                           | -0.56          | 0.29           | 0.10           | 0.03           | -0.03          | 0.30                    |
|            |     |          |                | Min V <sub>y</sub>                           | -0.03          | 0.00           | 0.10           | -0.00          | -0.02          | -0.00                   |
|            |     |          |                | Max V <sub>z</sub>                           | -0.56          | 0.29           | 0.10           | 0.03           | -0.03          | 0.30                    |
|            |     |          |                | Min V <sub>z</sub>                           | -0.03          | 0.00           | 0.10           | -0.00          | -0.02          | -0.00                   |
|            |     |          |                | Max M <sub>T</sub>                           | -0.56          | 0.29           | 0.10           | 0.03           | -0.03          | 0.30                    |
|            |     |          |                | Min M <sub>T</sub>                           | -0.03          | 0.00           | 0.10           | -0.00          | -0.02          | -0.00                   |
|            |     |          |                | Max M <sub>y</sub>                           | -0.03          | 0.00           | 0.10           | -0.00          | -0.02          | -0.00                   |
|            |     |          |                | Min M <sub>y</sub>                           | -0.56          | 0.29           | 0.10           | 0.03           | -0.03          | 0.30                    |
|            |     |          |                | Max M <sub>z</sub>                           | -0.56          | 0.29           | 0.10           | 0.03           | -0.03          | 0.30                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.03          | 0.00           | 0.10           | -0.00          | -0.02          | -0.00                   |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.                                   | RC   | Node No. | Location x [m] | Forces [kN]        |                |                |                |                | Moments [kNm]  |         |      | Correspondin Load Cases |
|--|--|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|---------|------|-------------------------|
|  |  |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |         |      |                         |
| 16   | RC3  | 4        | 1.550          | Max N              | ▷ -0.03        | 0.00           | -0.08          | -0.00          | -0.01          | -0.00   | CO 5 |                         |
|  |  |          |                | Min N              | ▷ -0.56        | 0.29           | -0.08          | 0.03           | -0.01          | -0.16   | CO 6 |                         |
|  |  |          |                | Max V <sub>y</sub> | ▷ -0.56        | 0.29           | -0.08          | 0.03           | -0.01          | -0.16   | CO 6 |                         |
|  |  |          |                | Min V <sub>y</sub> | ▷ -0.03        | 0.00           | -0.08          | -0.00          | -0.01          | -0.00   | CO 5 |                         |
|  |  |          |                | Max V <sub>z</sub> | ▷ -0.56        | 0.29           | ▷ -0.08        | 0.03           | -0.01          | -0.16   | CO 6 |                         |
|  |  |          |                | Min V <sub>z</sub> | ▷ -0.03        | 0.00           | ▷ -0.08        | -0.00          | -0.01          | -0.00   | CO 5 |                         |
|  |  |          |                | Max M <sub>T</sub> | ▷ -0.56        | 0.29           | -0.08          | ▷ 0.03         | -0.01          | -0.16   | CO 6 |                         |
|  |  |          |                | Min M <sub>T</sub> | ▷ -0.03        | 0.00           | -0.08          | ▷ -0.00        | -0.01          | -0.00   | CO 5 |                         |
|  |  |          |                | Max M <sub>y</sub> | ▷ -0.56        | 0.29           | -0.08          | 0.03           | ▷ -0.01        | -0.16   | CO 6 |                         |
|  |  |          |                | Min M <sub>y</sub> | ▷ -0.03        | 0.00           | -0.08          | -0.00          | ▷ -0.01        | -0.00   | CO 5 |                         |
|  |  |          |                | Max M <sub>z</sub> | ▷ -0.03        | 0.00           | -0.08          | -0.00          | -0.01          | ▷ -0.00 | CO 5 |                         |
|  |  |          |                | Min M <sub>z</sub> | ▷ -0.56        | 0.29           | -0.08          | 0.03           | -0.01          | ▷ -0.16 | CO 6 |                         |
|  | RC4  | 2        | 0.000          | Max N              | ▷ -0.03        | 0.00           | 0.10           | -0.00          | -0.02          | -0.00   | CO 7 |                         |
|  |  |          |                | Min N              | ▷ -0.35        | 0.17           | 0.10           | 0.02           | -0.02          | 0.18    | CO 8 |                         |
|  |  |          |                | Max V <sub>y</sub> | ▷ -0.35        | 0.17           | 0.10           | 0.02           | -0.02          | 0.18    | CO 8 |                         |
|  |  |          |                | Min V <sub>y</sub> | ▷ -0.03        | 0.00           | 0.10           | -0.00          | -0.02          | -0.00   | CO 7 |                         |
|  |  |          |                | Max V <sub>z</sub> | ▷ -0.35        | 0.17           | ▷ 0.10         | 0.02           | -0.02          | 0.18    | CO 8 |                         |
|  |  |          |                | Min V <sub>z</sub> | ▷ -0.03        | 0.00           | ▷ 0.10         | -0.00          | -0.02          | -0.00   | CO 7 |                         |
|  |  |          |                | Max M <sub>T</sub> | ▷ -0.35        | 0.17           | ▷ 0.10         | 0.02           | -0.02          | 0.18    | CO 8 |                         |
|  |  |          |                | Min M <sub>T</sub> | ▷ -0.03        | 0.00           | ▷ 0.10         | -0.00          | -0.02          | -0.00   | CO 7 |                         |
|  |  |          |                | Max M <sub>y</sub> | ▷ -0.03        | 0.00           | 0.10           | -0.00          | ▷ -0.02        | -0.00   | CO 7 |                         |
|  |  |          |                | Min M <sub>y</sub> | ▷ -0.35        | 0.17           | 0.10           | 0.02           | ▷ -0.02        | 0.18    | CO 8 |                         |
|  |  |          |                | Max M <sub>z</sub> | ▷ -0.35        | 0.17           | 0.10           | 0.02           | -0.02          | ▷ 0.18  | CO 8 |                         |
|  |  |          |                | Min M <sub>z</sub> | ▷ -0.03        | 0.00           | 0.10           | -0.00          | -0.02          | ▷ -0.00 | CO 7 |                         |
|  |  | 4        | 1.550          | Max N              | ▷ -0.03        | 0.00           | -0.08          | -0.00          | -0.01          | -0.00   | CO 7 |                         |
|  |  |          |                | Min N              | ▷ -0.35        | 0.17           | -0.08          | 0.02           | -0.01          | -0.09   | CO 8 |                         |
|  |  |          |                | Max V <sub>y</sub> | ▷ -0.35        | 0.17           | -0.08          | 0.02           | -0.01          | -0.09   | CO 8 |                         |
|  |  |          |                | Min V <sub>y</sub> | ▷ -0.03        | 0.00           | -0.08          | -0.00          | -0.01          | -0.00   | CO 7 |                         |
|  |  |          |                | Max V <sub>z</sub> | ▷ -0.35        | 0.17           | ▷ -0.08        | 0.02           | -0.01          | -0.09   | CO 8 |                         |
|  |  |          |                | Min V <sub>z</sub> | ▷ -0.03        | 0.00           | ▷ -0.08        | -0.00          | -0.01          | -0.00   | CO 7 |                         |
|  |  |          |                | Max M <sub>T</sub> | ▷ -0.35        | 0.17           | -0.08          | ▷ 0.02         | -0.01          | -0.09   | CO 8 |                         |
|  |  |          |                | Min M <sub>T</sub> | ▷ -0.03        | 0.00           | -0.08          | ▷ -0.00        | -0.01          | -0.00   | CO 7 |                         |
|  |  |          |                | Max M <sub>y</sub> | ▷ -0.35        | 0.17           | -0.08          | 0.02           | ▷ -0.01        | -0.09   | CO 8 |                         |
|  |  |          |                | Min M <sub>y</sub> | ▷ -0.03        | 0.00           | -0.08          | -0.00          | ▷ -0.01        | -0.00   | CO 7 |                         |
|  |  |          |                | Max M <sub>z</sub> | ▷ -0.03        | 0.00           | -0.08          | -0.00          | -0.01          | ▷ -0.00 | CO 7 |                         |
|  |  |          |                | Min M <sub>z</sub> | ▷ -0.35        | 0.17           | -0.08          | 0.02           | -0.01          | ▷ -0.09 | CO 8 |                         |
|  | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                |                    |                |                |                |                |                |         |      |                         |
|  | RC5  | 2        | 0.000          | Max N              | ▷ 0.15         | -0.09          | -0.00          | -0.00          | 0.00           | -0.07   |      |                         |
|  |  |          |                | Min N              | ▷ -0.15        | 0.09           | 0.00           | 0.00           | -0.00          | 0.07    |      |                         |
|  |  |          |                | Max V <sub>y</sub> | ▷ -0.11        | 0.11           | 0.01           | 0.01           | -0.01          | 0.09    |      |                         |
|  |  |          |                | Min V <sub>y</sub> | ▷ 0.11         | -0.11          | -0.01          | -0.01          | 0.01           | -0.09   |      |                         |
|  |  |          |                | Max V <sub>z</sub> | ▷ -0.08        | 0.09           | ▷ 0.01         | 0.00           | -0.01          | 0.07    |      |                         |
|  |  |          |                | Min V <sub>z</sub> | ▷ 0.08         | -0.09          | -0.01          | -0.00          | 0.01           | -0.07   |      |                         |
|  |  |          |                | Max M <sub>T</sub> | ▷ -0.09        | 0.07           | ▷ 0.00         | 0.01           | -0.00          | 0.06    |      |                         |
|  |  |          |                | Min M <sub>T</sub> | ▷ 0.09         | -0.07          | -0.00          | ▷ -0.01        | 0.00           | -0.06   |      |                         |
|  |  |          |                | Max M <sub>y</sub> | ▷ 0.08         | -0.09          | -0.01          | -0.00          | ▷ 0.01         | -0.07   |      |                         |
|  |  |          |                | Min M <sub>y</sub> | ▷ -0.08        | 0.09           | 0.01           | 0.00           | ▷ -0.01        | 0.07    |      |                         |
|  |  |          |                | Max M <sub>z</sub> | ▷ -0.11        | 0.11           | 0.01           | 0.01           | -0.01          | ▷ 0.09  |      |                         |
|  |  |          |                | Min M <sub>z</sub> | ▷ 0.11         | -0.11          | -0.01          | -0.01          | 0.01           | ▷ -0.09 |      |                         |
|  |  | 4        | 1.550          | Max N              | ▷ 0.15         | -0.09          | -0.00          | -0.00          | -0.00          | 0.07    |      |                         |
|  |  |          |                | Min N              | ▷ -0.15        | 0.09           | 0.00           | 0.00           | 0.00           | -0.07   |      |                         |
|  |  |          |                | Max V <sub>y</sub> | ▷ -0.11        | 0.11           | 0.01           | 0.01           | 0.00           | -0.08   |      |                         |
|  |  |          |                | Min V <sub>y</sub> | ▷ 0.11         | -0.11          | -0.01          | -0.01          | -0.00          | 0.08    |      |                         |
|  |  |          |                | Max V <sub>z</sub> | ▷ -0.08        | 0.09           | ▷ 0.01         | 0.00           | 0.00           | -0.07   |      |                         |
|  |  |          |                | Min V <sub>z</sub> | ▷ 0.08         | -0.09          | ▷ -0.01        | -0.00          | -0.00          | 0.07    |      |                         |
|  |  |          |                | Max M <sub>T</sub> | ▷ -0.09        | 0.07           | ▷ 0.00         | 0.01           | 0.00           | -0.05   |      |                         |
|  |  |          |                | Min M <sub>T</sub> | ▷ 0.09         | -0.07          | -0.00          | ▷ -0.01        | -0.00          | 0.05    |      |                         |
|  |  |          |                | Max M <sub>y</sub> | ▷ -0.08        | 0.08           | 0.01           | 0.00           | ▷ 0.00         | -0.06   |      |                         |
|  |  |          |                | Min M <sub>y</sub> | ▷ 0.08         | -0.08          | -0.01          | -0.00          | ▷ -0.00        | 0.06    |      |                         |
|  |  |          |                | Max M <sub>z</sub> | ▷ 0.11         | -0.11          | -0.01          | -0.01          | -0.00          | ▷ 0.08  |      |                         |
|  |  |          |                | Min M <sub>z</sub> | ▷ -0.11        | 0.11           | 0.01           | 0.01           | 0.00           | ▷ -0.08 |      |                         |
|  | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                |                    |                |                |                |                |                |         |      |                         |
|  | RC6  | 2        | 0.000          | Max N              | ▷ 0.17         | -0.06          | -0.00          | -0.00          | 0.00           | -0.05   |      |                         |
|  |  |          |                | Min N              | ▷ -0.17        | 0.06           | 0.00           | 0.00           | -0.00          | 0.05    |      |                         |
|  |  |          |                | Max V <sub>y</sub> | ▷ -0.06        | 0.10           | 0.01           | 0.00           | -0.01          | 0.08    |      |                         |
|  |  |          |                | Min V <sub>y</sub> | ▷ 0.06         | -0.10          | -0.01          | -0.00          | 0.01           | -0.08   |      |                         |
|  |  |          |                | Max V <sub>z</sub> | ▷ -0.02        | 0.08           | ▷ 0.01         | 0.00           | -0.01          | 0.06    |      |                         |
|  |  |          |                | Min V <sub>z</sub> | ▷ 0.02         | -0.08          | ▷ -0.01        | -0.00          | 0.01           | -0.06   |      |                         |
|  |  |          |                | Max M <sub>T</sub> | ▷ -0.08        | 0.04           | -0.00          | ▷ 0.01         | 0.00           | 0.03    |      |                         |
|  |  |          |                | Min M <sub>T</sub> | ▷ 0.08         | -0.04          | 0.00           | ▷ -0.01        | -0.00          | -0.03   |      |                         |
|  |  |          |                | Max M <sub>y</sub> | ▷ 0.02         | -0.08          | -0.01          | -0.00          | ▷ 0.01         | -0.06   |      |                         |
|  |  |          |                | Min M <sub>y</sub> | ▷ -0.02        | 0.08           | 0.01           | 0.00           | ▷ -0.01        | 0.06    |      |                         |
|  |  |          |                | Max M <sub>z</sub> | ▷ -0.06        | 0.10           | 0.01           | 0.00           | -0.01          | ▷ 0.08  |      |                         |
|  |  |          |                | Min M <sub>z</sub> | ▷ 0.06         | -0.10          | -0.01          | -0.00          | 0.01           | ▷ -0.08 |      |                         |
|  |  | 4        | 1.550          | Max N              | ▷ 0.17         | -0.06          | -0.00          | -0.00          | -0.00          | 0.05    |      |                         |
|  |  |          |                | Min N              | ▷ -0.17        | 0.06           | 0.00           | 0.00           | 0.00           | -0.05   |      |                         |
|  |  |          |                | Max V <sub>y</sub> | ▷ -0.06        | 0.10           | 0.01           | 0.00           | 0.00           | -0.07   |      |                         |
|  |  |          |                | Min V <sub>y</sub> | ▷ 0.06         | -0.10          | -0.01          | -0.00          | -0.00          | 0.07    |      |                         |
|  |  |          |                | Max V <sub>z</sub> | ▷ -0.02        | 0.08           | ▷ 0.01         | 0.00           | 0.01           | -0.06   |      |                         |
|  |  |          |                | Min V <sub>z</sub> | ▷ 0.02         | -0.08          | ▷ -0.01        | -0.00          | -0.01          | 0.06    |      |                         |
|  |  |          |                | Max M <sub>T</sub> | ▷ -0.08        | 0.04           | -0.00          | ▷ 0.01         | -0.00          | -0.03   |      |                         |
|  |  |          |                | Min M <sub>T</sub> | ▷ 0.08         | -0.04          | 0.00           | ▷ -0.01        | 0.00           | 0.03    |      |                         |
|  |  |          |                | Max M <sub>y</sub> | ▷ -0.02        | 0.08           | 0.01           | 0.00           | ▷ 0.01         | -0.06   |      |                         |
|  |  |          |                | Min M <sub>y</sub> | ▷ 0.02         | -0.08          | -0.01          | -0.00          | ▷ -0.01        | 0.06    |      |                         |
|  |  |          |                | Max M <sub>z</sub> | ▷ 0.06         | -0.10          | -0.01          | -0.00          | -0.00          | ▷ 0.07  |      |                         |
|  |  |          |                | Min M <sub>z</sub> | ▷ -0.06        | 0.10           | 0.01           | 0.00           | 0.00           | ▷ -0.07 |      |                         |
| DLC1, Result Envelope X 30% / Y 30% / Z 100% |  |          |                |                    |                |                |                |                |                |         |      |                         |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m]     | Forces [kN]        |                    |                |                |                | Moments [kNm]  |       |       | Correspondin Load Cases |
|------------|-----|----------|--------------------|--------------------|--------------------|----------------|----------------|----------------|----------------|-------|-------|-------------------------|
|            |     |          |                    | N                  | V <sub>y</sub>     | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |       |                         |
| 16         | RC7 | 2        | 0.000              | Max N              | 0.30               | -0.21          | -0.01          | -0.01          | 0.01           | -0.17 |       |                         |
|            |     |          |                    | Min N              | -0.30              | 0.21           | 0.01           | 0.01           | -0.01          | 0.17  |       |                         |
|            |     |          |                    | Max V <sub>y</sub> | -0.26              | 0.23           | 0.01           | 0.01           | -0.01          | 0.18  |       |                         |
|            |     |          |                    | Min V <sub>y</sub> | 0.26               | -0.23          | -0.01          | -0.01          | 0.01           | -0.18 |       |                         |
|            |     |          |                    | Max V <sub>z</sub> | -0.22              | 0.20           | 0.02           | 0.00           | -0.01          | 0.16  |       |                         |
|            |     |          |                    | Min V <sub>z</sub> | 0.22               | -0.20          | -0.02          | -0.00          | 0.01           | -0.16 |       |                         |
|            |     |          |                    | Max M <sub>T</sub> | -0.18              | 0.16           | 0.00           | 0.02           | -0.00          | 0.12  |       |                         |
|            |     |          |                    | Min M <sub>T</sub> | 0.18               | -0.16          | -0.00          | -0.02          | 0.00           | -0.12 |       |                         |
|            |     |          |                    | Max M <sub>y</sub> | 0.22               | -0.20          | -0.02          | -0.00          | 0.01           | -0.16 |       |                         |
|            |     |          |                    | Min M <sub>y</sub> | -0.22              | 0.20           | 0.02           | 0.00           | -0.01          | 0.16  |       |                         |
|            |     |          |                    | Max M <sub>z</sub> | -0.26              | 0.23           | 0.01           | 0.01           | -0.01          | 0.18  |       |                         |
|            |     |          |                    | Min M <sub>z</sub> | 0.26               | -0.23          | -0.01          | -0.01          | 0.01           | -0.18 |       |                         |
|            |     | 4        | 1.550              | Max N              | 0.30               | -0.21          | -0.01          | -0.01          | -0.01          | 0.16  |       |                         |
|            |     |          |                    | Min N              | -0.30              | 0.21           | 0.01           | 0.01           | 0.01           | -0.16 |       |                         |
|            |     |          |                    | Max V <sub>y</sub> | -0.26              | 0.23           | 0.01           | 0.01           | 0.01           | -0.17 |       |                         |
|            |     |          |                    | Min V <sub>y</sub> | 0.26               | -0.23          | -0.01          | -0.01          | -0.01          | 0.17  |       |                         |
|            |     |          |                    | Max V <sub>z</sub> | -0.22              | 0.20           | 0.02           | 0.00           | 0.01           | -0.15 |       |                         |
|            |     |          |                    | Min V <sub>z</sub> | 0.22               | -0.20          | -0.02          | -0.00          | -0.01          | 0.15  |       |                         |
|            |     |          |                    | Max M <sub>T</sub> | -0.18              | 0.16           | 0.00           | 0.02           | 0.00           | -0.12 |       |                         |
|            |     |          |                    | Min M <sub>T</sub> | 0.18               | -0.16          | -0.00          | -0.02          | -0.00          | 0.12  |       |                         |
|            |     |          |                    | Max M <sub>y</sub> | -0.22              | 0.19           | 0.02           | 0.00           | 0.01           | -0.14 |       |                         |
|            |     |          |                    | Min M <sub>y</sub> | 0.22               | -0.19          | -0.02          | -0.00          | -0.01          | 0.14  |       |                         |
|            |     |          |                    | Max M <sub>z</sub> | 0.26               | -0.23          | -0.01          | -0.01          | -0.01          | 0.17  |       |                         |
|            |     |          |                    | Min M <sub>z</sub> | -0.26              | 0.23           | 0.01           | 0.01           | 0.01           | -0.17 |       |                         |
| 17         | RC1 | 6        | 0.000              | Max N              | 1.62               | 9.30           | 0.10           | 0.11           | -0.01          | 2.21  | CO 2  |                         |
|            |     |          |                    | Min N              | -0.04              | -0.00          | 0.13           | 0.00           | -0.03          | -0.00 | CO 1  |                         |
|            |     |          |                    | Max V <sub>y</sub> | 1.62               | 9.30           | 0.10           | 0.11           | -0.01          | 2.21  | CO 2  |                         |
|            |     |          |                    | Min V <sub>y</sub> | -0.04              | -0.00          | 0.13           | 0.00           | -0.03          | -0.00 | CO 1  |                         |
|            |     |          |                    | Max V <sub>z</sub> | -0.04              | -0.00          | 0.13           | 0.00           | -0.03          | -0.00 | CO 1  |                         |
|            |     |          |                    | Min V <sub>z</sub> | 1.62               | 9.30           | 0.10           | 0.11           | -0.01          | 2.21  | CO 2  |                         |
|            |     |          |                    | Max M <sub>T</sub> | 1.62               | 9.30           | 0.10           | 0.11           | -0.01          | 2.21  | CO 2  |                         |
|            |     |          |                    | Min M <sub>T</sub> | -0.04              | -0.00          | 0.13           | 0.00           | -0.03          | -0.00 | CO 1  |                         |
|            |     |          |                    | Max M <sub>y</sub> | 1.62               | 9.30           | 0.10           | 0.11           | -0.01          | 2.21  | CO 2  |                         |
|            |     |          |                    | Min M <sub>y</sub> | -0.04              | -0.00          | 0.13           | 0.00           | -0.03          | -0.00 | CO 1  |                         |
|            |     |          |                    | Max M <sub>z</sub> | 1.62               | 9.30           | 0.10           | 0.11           | -0.01          | 2.21  | CO 2  |                         |
|            |     |          |                    | Min M <sub>z</sub> | -0.04              | -0.00          | 0.13           | 0.00           | -0.03          | -0.00 | CO 1  |                         |
|            |     |          |                    | 0.350 Left         | Max N              | 1.62           | 9.30           | 0.06           | 0.11           | 0.02  | -1.04 | CO 2                    |
|            |     |          |                    |                    | Min N              | -0.04          | -0.00          | 0.08           | 0.00           | 0.01  | -0.00 | CO 1                    |
|            |     |          |                    |                    | Max V <sub>y</sub> | 1.62           | 9.30           | 0.06           | 0.11           | 0.02  | -1.04 | CO 2                    |
|            |     |          |                    |                    | Min V <sub>y</sub> | -0.04          | -0.00          | 0.08           | 0.00           | 0.01  | -0.00 | CO 1                    |
|            |     |          |                    |                    | Max V <sub>z</sub> | -0.04          | -0.00          | 0.08           | 0.00           | 0.01  | -0.00 | CO 1                    |
|            |     |          |                    |                    | Min V <sub>z</sub> | 1.62           | 9.30           | 0.06           | 0.11           | 0.02  | -1.04 | CO 2                    |
|            |     |          |                    |                    | Max M <sub>T</sub> | 1.62           | 9.30           | 0.06           | 0.11           | 0.02  | -1.04 | CO 2                    |
|            |     |          |                    |                    | Min M <sub>T</sub> | -0.04          | -0.00          | 0.08           | 0.00           | 0.01  | -0.00 | CO 1                    |
|            |     |          |                    |                    | Max M <sub>y</sub> | 1.62           | 9.30           | 0.06           | 0.11           | 0.02  | -1.04 | CO 2                    |
|            |     |          |                    |                    | Min M <sub>y</sub> | -0.04          | -0.00          | 0.08           | 0.00           | 0.01  | -0.00 | CO 1                    |
|            |     |          |                    |                    | Max M <sub>z</sub> | -0.04          | -0.00          | 0.08           | 0.00           | 0.01  | -0.00 | CO 1                    |
|            |     |          |                    |                    | Min M <sub>z</sub> | 1.62           | 9.30           | 0.06           | 0.11           | 0.02  | -1.04 | CO 2                    |
|            |     |          |                    | 0.350 Right        | Max N              | 4.52           | 1.50           | 0.06           | 0.11           | 0.02  | -1.04 | CO 2                    |
|            |     |          |                    |                    | Min N              | -0.04          | -0.00          | 0.08           | 0.00           | 0.01  | -0.00 | CO 1                    |
|            |     |          |                    |                    | Max V <sub>y</sub> | 4.52           | 1.50           | 0.06           | 0.11           | 0.02  | -1.04 | CO 2                    |
|            |     |          |                    |                    | Min V <sub>y</sub> | -0.04          | -0.00          | 0.08           | 0.00           | 0.01  | -0.00 | CO 1                    |
|            |     |          |                    |                    | Max V <sub>z</sub> | -0.04          | -0.00          | 0.08           | 0.00           | 0.01  | -0.00 | CO 1                    |
|            |     |          |                    |                    | Min V <sub>z</sub> | 4.52           | 1.50           | 0.06           | 0.11           | 0.02  | -1.04 | CO 2                    |
|            |     |          |                    |                    | Max M <sub>T</sub> | 4.52           | 1.50           | 0.06           | 0.11           | 0.02  | -1.04 | CO 2                    |
|            |     |          |                    |                    | Min M <sub>T</sub> | -0.04          | -0.00          | 0.08           | 0.00           | 0.01  | -0.00 | CO 1                    |
|            |     |          |                    |                    | Max M <sub>y</sub> | 4.52           | 1.50           | 0.06           | 0.11           | 0.02  | -1.04 | CO 2                    |
|            |     |          |                    |                    | Min M <sub>y</sub> | -0.04          | -0.00          | 0.08           | 0.00           | 0.01  | -0.00 | CO 1                    |
|            |     |          |                    |                    | Max M <sub>z</sub> | -0.04          | -0.00          | 0.08           | 0.00           | 0.01  | -0.00 | CO 1                    |
|            |     |          |                    |                    | Min M <sub>z</sub> | 4.52           | 1.50           | 0.06           | 0.11           | 0.02  | -1.04 | CO 2                    |
|            |     |          |                    | 1.050 Left         | Max N              | 4.52           | 1.50           | -0.02          | 0.11           | 0.04  | -2.09 | CO 2                    |
|            |     |          |                    |                    | Min N              | -0.04          | -0.00          | -0.03          | 0.00           | 0.02  | 0.00  | CO 1                    |
|            |     |          |                    |                    | Max V <sub>y</sub> | 4.52           | 1.50           | -0.02          | 0.11           | 0.04  | -2.09 | CO 2                    |
|            |     |          |                    |                    | Min V <sub>y</sub> | -0.04          | -0.00          | -0.03          | 0.00           | 0.02  | 0.00  | CO 1                    |
|            |     |          |                    |                    | Max V <sub>z</sub> | 4.52           | 1.50           | -0.02          | 0.11           | 0.04  | -2.09 | CO 2                    |
|            |     |          |                    |                    | Min V <sub>z</sub> | -0.04          | -0.00          | -0.03          | 0.00           | 0.02  | 0.00  | CO 1                    |
|            |     |          |                    |                    | Max M <sub>T</sub> | 4.52           | 1.50           | -0.02          | 0.11           | 0.04  | -2.09 | CO 2                    |
|            |     |          |                    |                    | Min M <sub>T</sub> | -0.04          | -0.00          | -0.03          | 0.00           | 0.02  | 0.00  | CO 1                    |
|            |     |          |                    |                    | Max M <sub>y</sub> | 4.52           | 1.50           | -0.02          | 0.11           | 0.04  | -2.09 | CO 2                    |
|            |     |          |                    |                    | Min M <sub>y</sub> | -0.04          | -0.00          | -0.03          | 0.00           | 0.02  | 0.00  | CO 1                    |
|            |     |          |                    |                    | Max M <sub>z</sub> | -0.04          | -0.00          | -0.03          | 0.00           | 0.02  | 0.00  | CO 1                    |
|            |     |          |                    |                    | Min M <sub>z</sub> | 4.52           | 1.50           | -0.02          | 0.11           | 0.04  | -2.09 | CO 2                    |
|            |     |          |                    | 1.050 Right        | Max N              | 1.59           | -6.30          | -0.02          | 0.11           | 0.04  | -2.09 | CO 2                    |
|            |     |          |                    |                    | Min N              | -0.04          | -0.00          | -0.03          | 0.00           | 0.02  | 0.00  | CO 1                    |
|            |     |          |                    |                    | Max V <sub>y</sub> | -0.04          | -0.00          | -0.03          | 0.00           | 0.02  | 0.00  | CO 1                    |
|            |     |          |                    |                    | Min V <sub>y</sub> | 1.59           | -6.30          | -0.02          | 0.11           | 0.04  | -2.09 | CO 2                    |
|            |     |          |                    |                    | Max V <sub>z</sub> | 1.59           | -6.30          | -0.02          | 0.11           | 0.04  | -2.09 | CO 2                    |
|            |     |          |                    |                    | Min V <sub>z</sub> | -0.04          | -0.00          | -0.03          | 0.00           | 0.02  | 0.00  | CO 1                    |
|            |     |          |                    |                    | Max M <sub>T</sub> | 1.59           | -6.30          | -0.02          | 0.11           | 0.04  | -2.09 | CO 2                    |
|            |     |          |                    |                    | Min M <sub>T</sub> | -0.04          | -0.00          | -0.03          | 0.00           | 0.02  | 0.00  | CO 1                    |
|            |     |          |                    |                    | Max M <sub>y</sub> | 1.59           | -6.30          | -0.02          | 0.11           | 0.04  | -2.09 | CO 2                    |
|            |     |          |                    |                    | Min M <sub>y</sub> | -0.04          | -0.00          | -0.03          | 0.00           | 0.02  | 0.00  | CO 1                    |
|            |     |          |                    |                    | Max M <sub>z</sub> | -0.04          | -0.00          | -0.03          | 0.00           | 0.02  | 0.00  | CO 1                    |
|            |     |          |                    |                    | Min M <sub>z</sub> | 1.59           | -6.30          | -0.02          | 0.11           | 0.04  | -2.09 | CO 2                    |
| 8          |     | 1.550    | Max N              | 1.60               | -6.30              | -0.08          | 0.11           | 0.01           | 1.06           | CO 2  |       |                         |
|            |     |          | Min N              | -0.04              | -0.00              | -0.11          | 0.00           | -0.01          | 0.00           | CO 1  |       |                         |
|            |     |          | Max V <sub>y</sub> | -0.04              | -0.00              | -0.11          | 0.00           | -0.01          | 0.00           | CO 1  |       |                         |
|            |     |          | Min V <sub>y</sub> | 0.04               | 0.00               | 0.11           | 0.00           | 0.01           | 0.00           | CO 1  |       |                         |
|            |     |          | Max V <sub>z</sub> | -0.04              | -0.00              | -0.11          | 0.00           | -0.01          | 0.00           | CO 1  |       |                         |
|            |     |          | Min V <sub>z</sub> | 0.04               | 0.00               | 0.11           | 0.00           | 0.01           | 0.00           | CO 1  |       |                         |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m]     | Forces [kN]        |                |                |                |                | Moments [kNm]  |       |       | Correspondin Load Cases |      |      |
|------------|-----|----------|--------------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------|-------|-------------------------|------|------|
|            |     |          |                    | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |       |                         |      |      |
| 17         | RC1 |          |                    | Min V <sub>y</sub> | 1.60           | ▷              | -6.30          | -0.08          | 0.11           | 0.01  | 1.06  | CO 2                    |      |      |
|            |     |          |                    | Max V <sub>z</sub> | 1.60           | ▷              | -6.30          | ▷              | -0.08          | 0.11  | 0.01  | 1.06                    | CO 2 |      |
|            |     |          |                    | Min V <sub>z</sub> | -0.04          |                | -0.00          | ▷              | -0.11          | 0.00  | -0.01 | 0.00                    | CO 1 |      |
|            |     |          |                    | Max M <sub>T</sub> | 1.60           | ▷              | -6.30          | -0.08          | ▷              | 0.11  | 0.01  | 1.06                    | CO 2 |      |
|            |     |          |                    | Min M <sub>T</sub> | -0.04          |                | -0.00          | -0.11          | ▷              | 0.00  | -0.01 | 0.00                    | CO 1 |      |
|            |     |          |                    | Max M <sub>y</sub> | 1.60           | ▷              | -6.30          | -0.08          | ▷              | 0.11  | ▷     | 0.01                    | 1.06 | CO 2 |
|            |     |          |                    | Min M <sub>y</sub> | -0.04          |                | -0.00          | -0.11          | ▷              | 0.00  | -0.01 | 0.00                    | CO 1 |      |
|            |     |          |                    | Max M <sub>z</sub> | 1.60           | ▷              | -6.30          | -0.08          | ▷              | 0.11  | ▷     | 0.01                    | 1.06 | CO 2 |
|            |     |          |                    | Min M <sub>z</sub> | -0.04          |                | -0.00          | -0.11          | ▷              | 0.00  | -0.01 | 0.00                    | CO 1 |      |
|            |     |          |                    | Max N              | 1.07           | ▷              | 6.20           | 0.09           | 0.07           | -0.01 | 1.47  | CO 4                    |      |      |
|            | RC2 | 6        | 0.000              | Min N              | ▷              | -0.03          | -0.00          | 0.10           | 0.00           | -0.02 | -0.00 | CO 3                    |      |      |
|            |     |          |                    | Max V <sub>y</sub> | 1.07           | ▷              | 6.20           | 0.09           | 0.07           | -0.01 | 1.47  | CO 4                    |      |      |
|            |     |          |                    | Min V <sub>y</sub> | -0.03          | ▷              | -0.00          | 0.10           | 0.00           | -0.02 | -0.00 | CO 3                    |      |      |
|            |     |          |                    | Max V <sub>z</sub> | -0.03          |                | -0.00          | 0.10           | 0.00           | -0.02 | -0.00 | CO 3                    |      |      |
|            |     |          |                    | Min V <sub>z</sub> | 1.07           | ▷              | 6.20           | 0.09           | 0.07           | -0.01 | 1.47  | CO 4                    |      |      |
|            |     |          |                    | Max M <sub>T</sub> | 1.07           | ▷              | 6.20           | 0.09           | ▷              | 0.07  | -0.01 | 1.47                    | CO 4 |      |
|            |     |          |                    | Min M <sub>T</sub> | -0.03          |                | -0.00          | 0.10           | 0.00           | -0.02 | -0.00 | CO 3                    |      |      |
|            |     |          |                    | Max M <sub>y</sub> | 1.07           | ▷              | 6.20           | 0.09           | ▷              | 0.07  | -0.01 | 1.47                    | CO 4 |      |
|            |     |          |                    | Min M <sub>y</sub> | -0.03          |                | -0.00          | 0.10           | 0.00           | -0.02 | -0.00 | CO 3                    |      |      |
|            |     |          |                    | Max M <sub>z</sub> | 1.07           | ▷              | 6.20           | 0.09           | ▷              | 0.07  | -0.01 | 1.47                    | CO 4 |      |
|            |     |          | 0.350 Left         | Min M <sub>z</sub> | -0.03          |                | -0.00          | 0.10           | 0.00           | -0.02 | ▷     | -0.00                   | CO 3 |      |
|            |     |          |                    | Max N              | ▷              | 1.07           | 6.20           | 0.05           | 0.07           | 0.02  | -0.70 | CO 4                    |      |      |
|            |     |          |                    | Min N              | ▷              | -0.03          | -0.00          | 0.06           | 0.00           | 0.01  | -0.00 | CO 3                    |      |      |
|            |     |          |                    | Max V <sub>y</sub> | 1.07           | ▷              | 6.20           | 0.05           | 0.07           | 0.02  | -0.70 | CO 4                    |      |      |
|            |     |          |                    | Min V <sub>y</sub> | -0.03          | ▷              | -0.00          | 0.06           | 0.00           | 0.01  | -0.00 | CO 3                    |      |      |
|            |     |          |                    | Max V <sub>z</sub> | -0.03          |                | -0.00          | 0.06           | 0.00           | 0.01  | -0.00 | CO 3                    |      |      |
|            |     |          |                    | Min V <sub>z</sub> | 1.07           | ▷              | 6.20           | 0.05           | 0.07           | 0.02  | -0.70 | CO 4                    |      |      |
|            |     |          |                    | Max M <sub>T</sub> | 1.07           | ▷              | 6.20           | 0.05           | ▷              | 0.07  | 0.02  | -0.70                   | CO 4 |      |
|            |     |          |                    | Min M <sub>T</sub> | -0.03          |                | -0.00          | 0.06           | ▷              | 0.00  | 0.01  | -0.00                   | CO 3 |      |
|            |     |          |                    | Max M <sub>y</sub> | 1.07           | ▷              | 6.20           | 0.05           | ▷              | 0.07  | 0.02  | -0.70                   | CO 4 |      |
|            |     |          | 0.350 Right        | Min M <sub>y</sub> | -0.03          |                | -0.00          | 0.06           | ▷              | 0.00  | 0.01  | -0.00                   | CO 3 |      |
|            |     |          |                    | Max M <sub>z</sub> | -0.03          |                | -0.00          | 0.06           | 0.00           | 0.01  | ▷     | -0.00                   | CO 3 |      |
|            |     |          |                    | Min M <sub>z</sub> | 1.07           | ▷              | 6.20           | 0.05           | 0.07           | 0.02  | ▷     | -0.70                   | CO 4 |      |
|            |     |          |                    | Max N              | ▷              | 3.01           | 1.00           | 0.05           | 0.07           | 0.02  | -0.70 | CO 4                    |      |      |
|            |     |          |                    | Min N              | ▷              | -0.03          | -0.00          | 0.06           | 0.00           | 0.01  | -0.00 | CO 3                    |      |      |
|            |     |          |                    | Max V <sub>y</sub> | 3.01           | ▷              | 1.00           | 0.05           | 0.07           | 0.02  | -0.70 | CO 4                    |      |      |
|            |     |          |                    | Min V <sub>y</sub> | -0.03          | ▷              | -0.00          | 0.06           | 0.00           | 0.01  | -0.00 | CO 3                    |      |      |
|            |     |          |                    | Max V <sub>z</sub> | -0.03          |                | -0.00          | 0.06           | 0.00           | 0.01  | -0.00 | CO 3                    |      |      |
|            |     |          |                    | Min V <sub>z</sub> | 3.01           | ▷              | 1.00           | 0.05           | 0.07           | 0.02  | -0.70 | CO 4                    |      |      |
|            |     |          |                    | Max M <sub>T</sub> | 3.01           | ▷              | 1.00           | 0.05           | ▷              | 0.07  | 0.02  | -0.70                   | CO 4 |      |
|            |     |          | 1.050 Left         | Min M <sub>T</sub> | -0.03          |                | -0.00          | 0.06           | ▷              | 0.00  | 0.01  | -0.00                   | CO 3 |      |
|            |     |          |                    | Max M <sub>y</sub> | 3.01           | ▷              | 1.00           | 0.05           | ▷              | 0.07  | 0.02  | -0.70                   | CO 4 |      |
|            |     |          |                    | Min M <sub>y</sub> | -0.03          |                | -0.00          | 0.06           | ▷              | 0.00  | 0.01  | -0.00                   | CO 3 |      |
|            |     |          |                    | Max M <sub>z</sub> | -0.03          |                | -0.00          | 0.06           | 0.00           | 0.01  | ▷     | -0.00                   | CO 3 |      |
|            |     |          |                    | Min M <sub>z</sub> | 3.01           | ▷              | 1.00           | 0.05           | 0.07           | 0.02  | ▷     | -0.70                   | CO 4 |      |
|            |     |          |                    | Max N              | ▷              | 3.01           | 1.00           | -0.02          | 0.07           | 0.03  | -1.40 | CO 4                    |      |      |
|            |     |          |                    | Min N              | ▷              | -0.03          | -0.00          | -0.03          | 0.00           | 0.02  | 0.00  | CO 3                    |      |      |
|            |     |          |                    | Max V <sub>y</sub> | 3.01           | ▷              | 1.00           | -0.02          | 0.07           | 0.03  | -1.40 | CO 4                    |      |      |
|            |     |          |                    | Min V <sub>y</sub> | -0.03          | ▷              | -0.00          | -0.03          | 0.00           | 0.02  | 0.00  | CO 3                    |      |      |
|            |     |          |                    | Max V <sub>z</sub> | 3.01           | ▷              | 1.00           | -0.02          | 0.07           | 0.03  | -1.40 | CO 4                    |      |      |
|            |     |          | 1.050 Right        | Min V <sub>z</sub> | -0.03          |                | -0.00          | -0.03          | 0.00           | 0.02  | 0.00  | CO 3                    |      |      |
|            |     |          |                    | Max M <sub>T</sub> | 3.01           | ▷              | 1.00           | -0.02          | ▷              | 0.07  | 0.03  | -1.40                   | CO 4 |      |
|            |     |          |                    | Min M <sub>T</sub> | -0.03          |                | -0.00          | -0.03          | ▷              | 0.00  | 0.02  | 0.00                    | CO 3 |      |
|            |     |          |                    | Max M <sub>y</sub> | 3.01           | ▷              | 1.00           | -0.02          | ▷              | 0.07  | 0.03  | -1.40                   | CO 4 |      |
|            |     |          |                    | Min M <sub>y</sub> | -0.03          |                | -0.00          | -0.03          | ▷              | 0.00  | 0.02  | 0.00                    | CO 3 |      |
|            |     |          |                    | Max M <sub>z</sub> | -0.03          |                | -0.00          | -0.03          | 0.00           | 0.02  | ▷     | 0.00                    | CO 3 |      |
|            |     |          |                    | Min M <sub>z</sub> | 3.01           | ▷              | 1.00           | -0.02          | 0.07           | 0.03  | ▷     | -1.40                   | CO 4 |      |
|            |     |          |                    | Max N              | ▷              | 1.06           | -4.20          | -0.02          | 0.07           | 0.03  | -1.39 | CO 4                    |      |      |
|            |     |          |                    | Min N              | ▷              | -0.03          | -0.00          | -0.03          | 0.00           | 0.02  | 0.00  | CO 3                    |      |      |
|            |     |          |                    | Max V <sub>y</sub> | -0.03          | ▷              | -0.00          | -0.03          | 0.00           | 0.02  | 0.00  | CO 3                    |      |      |
|            |     |          | 1.550              | Min V <sub>y</sub> | 1.06           | ▷              | -4.20          | -0.02          | 0.07           | 0.03  | -1.39 | CO 4                    |      |      |
|            |     |          |                    | Max V <sub>z</sub> | 1.06           | ▷              | -4.20          | ▷              | -0.02          | 0.07  | 0.03  | -1.39                   | CO 4 |      |
|            |     |          |                    | Min V <sub>z</sub> | -0.03          |                | -0.00          | -0.03          | 0.00           | 0.02  | 0.00  | CO 3                    |      |      |
|            |     |          |                    | Max M <sub>T</sub> | 1.06           | ▷              | -4.20          | -0.02          | ▷              | 0.07  | 0.03  | -1.39                   | CO 4 |      |
|            |     |          |                    | Min M <sub>T</sub> | -0.03          |                | -0.00          | -0.03          | ▷              | 0.00  | 0.02  | 0.00                    | CO 3 |      |
|            |     |          |                    | Max M <sub>y</sub> | 1.06           | ▷              | -4.20          | -0.02          | ▷              | 0.07  | 0.03  | -1.39                   | CO 4 |      |
|            |     |          |                    | Min M <sub>y</sub> | -0.03          |                | -0.00          | -0.03          | ▷              | 0.00  | 0.02  | -1.39                   | CO 4 |      |
|            |     |          |                    | Min M <sub>y</sub> | -0.03          |                | -0.00          | -0.03          | ▷              | 0.00  | 0.02  | 0.00                    | CO 3 |      |
|            |     |          |                    | Max M <sub>z</sub> | -0.03          |                | -0.00          | -0.03          | 0.00           | 0.02  | ▷     | 0.00                    | CO 3 |      |
|            |     |          |                    | Min M <sub>z</sub> | 1.06           | ▷              | -4.20          | -0.02          | 0.07           | 0.03  | ▷     | -1.39                   | CO 4 |      |
| RC3        | 6   | 0.000    | Max N              | ▷                  | 0.52           | 3.10           | 0.10           | 0.04           | -0.02          | 0.74  | CO 6  |                         |      |      |
|            |     |          | Min N              | ▷                  | -0.03          | -0.00          | 0.10           | 0.00           | -0.02          | -0.00 | CO 5  |                         |      |      |
|            |     |          | Max V <sub>y</sub> | 0.52               | ▷              | 3.10           | 0.10           | 0.04           | -0.02          | 0.74  | CO 6  |                         |      |      |
|            |     |          | Min V <sub>y</sub> | -0.03              | ▷              | -0.00          | 0.10           | 0.00           | -0.02          | -0.00 | CO 5  |                         |      |      |
|            |     |          | Max V <sub>z</sub> | -0.03              |                | -0.00          | 0.10           | 0.00           | -0.02          | -0.00 | CO 5  |                         |      |      |
|            |     |          | Min V <sub>z</sub> | 0.52               | ▷              | 3.10           | 0.10           | 0.04           | -0.02          | 0.74  | CO 6  |                         |      |      |
|            |     |          | Max N              | ▷                  | 0.52           | 3.10           | 0.10           | 0.04           | -0.02          | 0.74  | CO 6  |                         |      |      |
|            |     |          | Min N              | ▷                  | -0.03          | -0.00          | -0.08          | 0.00           | -0.01          | 0.00  | CO 3  |                         |      |      |
|            |     |          | Max V <sub>y</sub> | 0.52               | ▷              | 3.10           | ▷              | 0.10           | 0.00           | -0.02 | 0.71  | CO 4                    |      |      |
|            |     |          | Min V <sub>y</sub> | -0.03              |                | -0.00          | -0.08          | ▷              | 0.00           | -0.01 | 0.00  | CO 3                    |      |      |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date:

2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC    | Node No. | Location x [m] | Forces [kN]        |                |                |                | Moments [kNm]  |                |       | Correspondin Load Cases |
|--------------------|-------|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------|-------------------------|
|                    |       |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |                         |
| 17                 | RC3   |          | 0.350 Left     | Max M <sub>T</sub> | 0.52           | 3.10           | 0.10           | 0.04           | -0.02          | 0.74  | CO 6                    |
|                    |       |          |                | Min M <sub>T</sub> | -0.03          | -0.00          | 0.10           | 0.00           | -0.02          | -0.00 | CO 5                    |
|                    |       |          |                | Max M <sub>y</sub> | 0.52           | 3.10           | 0.10           | 0.04           | -0.02          | 0.74  | CO 6                    |
|                    |       |          |                | Min M <sub>y</sub> | -0.03          | -0.00          | 0.10           | 0.00           | -0.02          | -0.00 | CO 5                    |
|                    |       |          |                | Max M <sub>z</sub> | 0.52           | 3.10           | 0.10           | 0.04           | -0.02          | 0.74  | CO 6                    |
|                    |       |          |                | Min M <sub>z</sub> | -0.03          | -0.00          | 0.10           | 0.00           | -0.02          | -0.00 | CO 5                    |
|                    |       |          |                | Max N              | 0.52           | 3.10           | 0.06           | 0.04           | 0.01           | -0.35 | CO 6                    |
|                    |       |          |                | Min N              | -0.03          | -0.00          | 0.06           | 0.00           | 0.01           | -0.00 | CO 5                    |
|                    |       |          |                | Max V <sub>y</sub> | 0.52           | 3.10           | 0.06           | 0.04           | 0.01           | -0.35 | CO 6                    |
|                    |       |          |                | Min V <sub>y</sub> | -0.03          | -0.00          | 0.06           | 0.00           | 0.01           | -0.00 | CO 5                    |
|                    |       |          |                | Max V <sub>z</sub> | -0.03          | -0.00          | 0.06           | 0.00           | 0.01           | -0.00 | CO 5                    |
|                    |       |          |                | Min V <sub>z</sub> | 0.52           | 3.10           | 0.06           | 0.04           | 0.01           | -0.35 | CO 6                    |
|                    |       |          |                | Max M <sub>T</sub> | 0.52           | 3.10           | 0.06           | 0.04           | 0.01           | -0.35 | CO 6                    |
|                    |       |          |                | Min M <sub>T</sub> | -0.03          | -0.00          | 0.06           | 0.00           | 0.01           | -0.00 | CO 5                    |
|                    |       |          |                | Max M <sub>y</sub> | 0.52           | 3.10           | 0.06           | 0.04           | 0.01           | -0.35 | CO 6                    |
|                    |       |          |                | Min M <sub>y</sub> | -0.03          | -0.00          | 0.06           | 0.00           | 0.01           | -0.00 | CO 5                    |
|                    |       |          |                | Max M <sub>z</sub> | -0.03          | -0.00          | 0.06           | 0.00           | 0.01           | -0.00 | CO 5                    |
|                    |       |          |                | Min M <sub>z</sub> | 0.52           | 3.10           | 0.06           | 0.04           | 0.01           | -0.35 | CO 6                    |
|                    |       |          |                | Max N              | 1.49           | 0.50           | 0.06           | 0.04           | 0.01           | -0.35 | CO 6                    |
|                    |       |          |                | Min N              | -0.03          | -0.00          | 0.06           | 0.00           | 0.01           | -0.00 | CO 5                    |
|                    |       |          |                | Max V <sub>y</sub> | 1.49           | 0.50           | 0.06           | 0.04           | 0.01           | -0.35 | CO 6                    |
|                    |       |          |                | Min V <sub>y</sub> | -0.03          | -0.00          | 0.06           | 0.00           | 0.01           | -0.00 | CO 5                    |
|                    |       |          |                | Max V <sub>z</sub> | -0.03          | -0.00          | 0.06           | 0.00           | 0.01           | -0.00 | CO 5                    |
|                    |       |          |                | Min V <sub>z</sub> | 1.49           | 0.50           | 0.06           | 0.04           | 0.01           | -0.35 | CO 6                    |
|                    |       |          |                | Max M <sub>T</sub> | 1.49           | 0.50           | 0.06           | 0.04           | 0.01           | -0.35 | CO 6                    |
|                    |       |          |                | Min M <sub>T</sub> | -0.03          | -0.00          | 0.06           | 0.00           | 0.01           | -0.00 | CO 5                    |
|                    |       |          |                | Max M <sub>y</sub> | 1.49           | 0.50           | 0.06           | 0.04           | 0.01           | -0.35 | CO 6                    |
|                    |       |          |                | Min M <sub>y</sub> | -0.03          | -0.00          | 0.06           | 0.00           | 0.01           | -0.00 | CO 5                    |
|                    |       |          |                | Max M <sub>z</sub> | -0.03          | -0.00          | 0.06           | 0.00           | 0.01           | -0.00 | CO 5                    |
|                    |       |          |                | Min M <sub>z</sub> | 1.49           | 0.50           | 0.06           | 0.04           | 0.01           | -0.35 | CO 6                    |
|                    |       |          |                | Max N              | 1.49           | 0.50           | -0.02          | 0.04           | 0.02           | -0.70 | CO 6                    |
|                    |       |          |                | Min N              | -0.03          | -0.00          | -0.03          | 0.00           | 0.02           | 0.00  | CO 5                    |
|                    |       |          |                | Max V <sub>y</sub> | 1.49           | 0.50           | -0.02          | 0.04           | 0.02           | -0.70 | CO 6                    |
|                    |       |          |                | Min V <sub>y</sub> | -0.03          | -0.00          | -0.03          | 0.00           | 0.02           | 0.00  | CO 5                    |
|                    |       |          |                | Max V <sub>z</sub> | 1.49           | 0.50           | -0.02          | 0.04           | 0.02           | -0.70 | CO 6                    |
|                    |       |          |                | Min V <sub>z</sub> | -0.03          | -0.00          | -0.03          | 0.00           | 0.02           | 0.00  | CO 5                    |
|                    |       |          |                | Max M <sub>T</sub> | 1.49           | 0.50           | -0.02          | 0.04           | 0.02           | -0.70 | CO 6                    |
|                    |       |          |                | Min M <sub>T</sub> | -0.03          | -0.00          | -0.03          | 0.00           | 0.02           | 0.00  | CO 5                    |
|                    |       |          |                | Max M <sub>y</sub> | 1.49           | 0.50           | -0.02          | 0.04           | 0.02           | -0.70 | CO 6                    |
|                    |       |          |                | Min M <sub>y</sub> | -0.03          | -0.00          | -0.03          | 0.00           | 0.02           | 0.00  | CO 5                    |
|                    |       |          |                | Max M <sub>z</sub> | -0.03          | -0.00          | -0.03          | 0.00           | 0.02           | 0.00  | CO 5                    |
|                    |       |          |                | Min M <sub>z</sub> | 1.49           | 0.50           | -0.02          | 0.04           | 0.02           | -0.70 | CO 6                    |
|                    |       |          |                | Max N              | 0.52           | -2.10          | -0.02          | 0.04           | 0.02           | -0.70 | CO 6                    |
|                    |       |          |                | Min N              | -0.03          | -0.00          | -0.03          | 0.00           | 0.02           | 0.00  | CO 5                    |
|                    |       |          |                | Max V <sub>y</sub> | -0.03          | -0.00          | -0.03          | 0.00           | 0.02           | 0.00  | CO 5                    |
|                    |       |          |                | Min V <sub>y</sub> | 0.52           | -2.10          | -0.02          | 0.04           | 0.02           | -0.70 | CO 6                    |
|                    |       |          |                | Max V <sub>z</sub> | 0.52           | -2.10          | -0.02          | 0.04           | 0.02           | -0.70 | CO 6                    |
|                    |       |          |                | Min V <sub>z</sub> | -0.03          | -0.00          | -0.03          | 0.00           | 0.02           | 0.00  | CO 5                    |
|                    |       |          |                | Max M <sub>T</sub> | 0.52           | -2.10          | -0.02          | 0.04           | 0.02           | -0.70 | CO 6                    |
|                    |       |          |                | Min M <sub>T</sub> | -0.03          | -0.00          | -0.03          | 0.00           | 0.02           | 0.00  | CO 5                    |
|                    |       |          |                | Max M <sub>y</sub> | 0.52           | -2.10          | -0.02          | 0.04           | 0.02           | -0.70 | CO 6                    |
|                    |       |          |                | Min M <sub>y</sub> | -0.03          | -0.00          | -0.03          | 0.00           | 0.02           | 0.00  | CO 5                    |
|                    |       |          |                | Max M <sub>z</sub> | -0.03          | -0.00          | -0.03          | 0.00           | 0.02           | 0.00  | CO 5                    |
|                    |       |          |                | Min M <sub>z</sub> | 0.52           | -2.10          | -0.02          | 0.04           | 0.02           | -0.70 | CO 6                    |
|                    |       |          |                | Max N              | 0.52           | -2.10          | -0.08          | 0.04           | -0.00          | 0.35  | CO 6                    |
|                    |       |          |                | Min N              | -0.03          | -0.00          | -0.08          | 0.00           | -0.01          | 0.00  | CO 5                    |
|                    |       |          |                | Max V <sub>y</sub> | -0.03          | -0.00          | -0.08          | 0.00           | -0.01          | 0.00  | CO 5                    |
|                    |       |          |                | Min V <sub>y</sub> | 0.52           | -2.10          | -0.08          | 0.04           | -0.00          | 0.35  | CO 6                    |
|                    |       |          |                | Max V <sub>z</sub> | 0.52           | -2.10          | -0.08          | 0.04           | -0.00          | 0.35  | CO 6                    |
|                    |       |          |                | Min V <sub>z</sub> | -0.03          | -0.00          | -0.08          | 0.00           | -0.01          | 0.00  | CO 5                    |
| Max M <sub>T</sub> | 0.52  | -2.10    | -0.08          | 0.04               | -0.00          | 0.35           | CO 6           |                |                |       |                         |
| Min M <sub>T</sub> | -0.03 | -0.00    | -0.08          | 0.00               | -0.01          | 0.00           | CO 5           |                |                |       |                         |
| Max M <sub>y</sub> | 0.52  | -2.10    | -0.08          | 0.04               | -0.00          | 0.35           | CO 6           |                |                |       |                         |
| Min M <sub>y</sub> | -0.03 | -0.00    | -0.08          | 0.00               | -0.01          | 0.00           | CO 5           |                |                |       |                         |
| Max M <sub>z</sub> | 0.52  | -2.10    | -0.08          | 0.04               | -0.00          | 0.35           | CO 6           |                |                |       |                         |
| Min M <sub>z</sub> | -0.03 | -0.00    | -0.08          | 0.00               | -0.01          | 0.00           | CO 5           |                |                |       |                         |
| Max N              | 0.30  | 1.86     | 0.10           | 0.02               | -0.02          | 0.44           | CO 8           |                |                |       |                         |
| Min N              | -0.03 | -0.00    | 0.10           | 0.00               | -0.02          | -0.00          | CO 7           |                |                |       |                         |
| Max V <sub>y</sub> | 0.30  | 1.86     | 0.10           | 0.02               | -0.02          | 0.44           | CO 8           |                |                |       |                         |
| Min V <sub>y</sub> | -0.03 | -0.00    | 0.10           | 0.00               | -0.02          | -0.00          | CO 7           |                |                |       |                         |
| Max V <sub>z</sub> | -0.03 | -0.00    | 0.10           | 0.00               | -0.02          | -0.00          | CO 7           |                |                |       |                         |
| Min V <sub>z</sub> | 0.30  | 1.86     | 0.10           | 0.02               | -0.02          | 0.44           | CO 8           |                |                |       |                         |
| Max M <sub>T</sub> | 0.30  | 1.86     | 0.10           | 0.02               | -0.02          | 0.44           | CO 8           |                |                |       |                         |
| Min M <sub>T</sub> | -0.03 | -0.00    | 0.10           | 0.00               | -0.02          | -0.00          | CO 7           |                |                |       |                         |
| Max M <sub>y</sub> | 0.30  | 1.86     | 0.10           | 0.02               | -0.02          | 0.44           | CO 8           |                |                |       |                         |
| Min M <sub>y</sub> | -0.03 | -0.00    | 0.10           | 0.00               | -0.02          | -0.00          | CO 7           |                |                |       |                         |
| Max M <sub>z</sub> | 0.30  | 1.86     | 0.10           | 0.02               | -0.02          | 0.44           | CO 8           |                |                |       |                         |
| Min M <sub>z</sub> | -0.03 | -0.00    | 0.10           | 0.00               | -0.02          | -0.00          | CO 7           |                |                |       |                         |
| Max N              | 0.30  | 1.86     | 0.06           | 0.02               | 0.01           | -0.21          | CO 8           |                |                |       |                         |
| Min N              | -0.03 | -0.00    | 0.06           | 0.00               | 0.01           | -0.00          | CO 7           |                |                |       |                         |
| Max V <sub>y</sub> | 0.30  | 1.86     | 0.06           | 0.02               | 0.01           | -0.21          | CO 8           |                |                |       |                         |
| Min V <sub>y</sub> | -0.03 | -0.00    | 0.06           | 0.00               | 0.01           | -0.00          | CO 7           |                |                |       |                         |
| Max V <sub>z</sub> | 0.30  | 1.86     | 0.06           | 0.02               | 0.01           | -0.21          | CO 8           |                |                |       |                         |
| Min V <sub>z</sub> | -0.03 | -0.00    | 0.06           | 0.00               | 0.01           | -0.00          | CO 7           |                |                |       |                         |
| Max M <sub>T</sub> | 0.30  | 1.86     | 0.06           | 0.02               | 0.01           | -0.21          | CO 8           |                |                |       |                         |
| Min M <sub>T</sub> | -0.03 | -0.00    | 0.06           | 0.00               | 0.01           | -0.00          | CO 7           |                |                |       |                         |
| Max M <sub>y</sub> | 0.30  | 1.86     | 0.06           | 0.02               | 0.01           | -0.21          | CO 8           |                |                |       |                         |
| Min M <sub>y</sub> | -0.03 | -0.00    | 0.06           | 0.00               | 0.01           | -0.00          | CO 7           |                |                |       |                         |
| Max M <sub>z</sub> | 0.30  | 1.86     | 0.06           | 0.02               | 0.01           | -0.21          | CO 8           |                |                |       |                         |
| Min M <sub>z</sub> | -0.03 | -0.00    | 0.06           | 0.00               | 0.01           | -0.00          | CO 7           |                |                |       |                         |

RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] | Forces [kN]                                  |                |                |                |  | Moments [kNm]  |       |       |                    | Correspondin Load Cases |       |       |       |       |       |  |  |
|------------|-----|----------|----------------|--|----------------|----------------|----------------|--|----------------|-------|-------|--------------------|-------------------------|-------|-------|-------|-------|-------|--|--|
|            |     |          |                | N  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub>                               | M <sub>z</sub> |       |       |                    |                         |       |       |       |       |       |  |  |
| 17         | RC4 |          |                | Min M <sub>y</sub>                           | -0.03          | -0.00          | 0.06           | 0.00   | 0.01           | -0.00 | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max M <sub>z</sub>                           | -0.03          | -0.00          | 0.06           | 0.00   | 0.01           | -0.00 | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min M <sub>z</sub>                           | 0.30           | 1.86           | 0.06           | 0.02   | 0.01           | -0.21 | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max N  | 0.88           | 0.30           | 0.06           | 0.02   | 0.01           | -0.21 | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min N  | -0.03          | -0.00          | 0.06           | 0.00   | 0.01           | -0.00 | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max V <sub>y</sub>                           | 0.88           | 0.30           | 0.06           | 0.02   | 0.01           | -0.21 | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min V <sub>y</sub>                           | -0.03          | -0.00          | 0.06           | 0.00   | 0.01           | -0.00 | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max V <sub>z</sub>                           | 0.88           | 0.30           | 0.06           | 0.02   | 0.01           | -0.21 | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min V <sub>z</sub>                           | -0.03          | -0.00          | 0.06           | 0.00   | 0.01           | -0.00 | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max M <sub>T</sub>                           | 0.88           | 0.30           | 0.06           | 0.02   | 0.01           | -0.21 | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min M <sub>T</sub>                           | -0.03          | -0.00          | 0.06           | 0.00   | 0.01           | -0.00 | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max M <sub>y</sub>                           | 0.88           | 0.30           | 0.06           | 0.02   | 0.01           | -0.21 | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min M <sub>y</sub>                           | -0.03          | -0.00          | 0.06           | 0.00   | 0.01           | -0.00 | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max M <sub>z</sub>                           | -0.03          | -0.00          | 0.06           | 0.00   | 0.01           | -0.00 | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min M <sub>z</sub>                           | 0.88           | 0.30           | 0.06           | 0.02   | 0.01           | -0.21 | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max N  | 0.88           | 0.30           | -0.02          | 0.02   | 0.02           | -0.42 | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min N  | -0.03          | -0.00          | -0.03          | 0.00   | 0.02           | 0.00  | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max V <sub>y</sub>                           | 0.88           | 0.30           | -0.02          | 0.02   | 0.02           | -0.42 | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min V <sub>y</sub>                           | -0.03          | -0.00          | -0.03          | 0.00   | 0.02           | 0.00  | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max V <sub>z</sub>                           | 0.88           | 0.30           | -0.02          | 0.02   | 0.02           | -0.42 | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min V <sub>z</sub>                           | -0.03          | -0.00          | -0.03          | 0.00   | 0.02           | 0.00  | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max M <sub>T</sub>                           | 0.88           | 0.30           | -0.02          | 0.02   | 0.02           | -0.42 | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min M <sub>T</sub>                           | -0.03          | -0.00          | -0.03          | 0.00   | 0.02           | 0.00  | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max M <sub>y</sub>                           | 0.88           | 0.30           | -0.02          | 0.02   | 0.02           | -0.42 | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min M <sub>y</sub>                           | -0.03          | -0.00          | -0.03          | 0.00   | 0.02           | 0.00  | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max M <sub>z</sub>                           | -0.03          | -0.00          | -0.03          | 0.00   | 0.02           | 0.00  | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min M <sub>z</sub>                           | 0.88           | 0.30           | -0.02          | 0.02   | 0.02           | -0.42 | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max N  | 0.30           | -1.26          | -0.02          | 0.02   | 0.02           | -0.42 | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min N  | -0.03          | -0.00          | -0.03          | 0.00   | 0.02           | 0.00  | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max V <sub>y</sub>                           | -0.03          | -0.00          | -0.03          | 0.00   | 0.02           | 0.00  | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min V <sub>y</sub>                           | 0.30           | -1.26          | -0.02          | 0.02   | 0.02           | -0.42 | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max V <sub>z</sub>                           | 0.30           | -1.26          | -0.02          | 0.02   | 0.02           | -0.42 | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min V <sub>z</sub>                           | -0.03          | -0.00          | -0.03          | 0.00   | 0.02           | 0.00  | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max M <sub>T</sub>                           | 0.30           | -1.26          | -0.02          | 0.02   | 0.02           | -0.42 | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min M <sub>T</sub>                           | -0.03          | -0.00          | -0.03          | 0.00   | 0.02           | 0.00  | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max M <sub>y</sub>                           | 0.30           | -1.26          | -0.02          | 0.02   | 0.02           | -0.42 | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min M <sub>y</sub>                           | -0.03          | -0.00          | -0.03          | 0.00   | 0.02           | 0.00  | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max M <sub>z</sub>                           | -0.03          | -0.00          | -0.03          | 0.00   | 0.02           | 0.00  | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min M <sub>z</sub>                           | 0.30           | -1.26          | -0.02          | 0.02   | 0.02           | -0.42 | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max N  | 0.30           | -1.26          | -0.08          | 0.02   | -0.01          | 0.21  | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min N  | -0.03          | -0.00          | -0.08          | 0.00   | -0.01          | 0.00  | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max V <sub>y</sub>                           | -0.03          | -0.00          | -0.08          | 0.00   | -0.01          | 0.00  | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min V <sub>y</sub>                           | 0.30           | -1.26          | -0.08          | 0.02   | -0.01          | 0.21  | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max V <sub>z</sub>                           | 0.30           | -1.26          | -0.08          | 0.02   | -0.01          | 0.21  | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min V <sub>z</sub>                           | -0.03          | -0.00          | -0.08          | 0.00   | -0.01          | 0.00  | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max M <sub>T</sub>                           | 0.30           | -1.26          | -0.08          | 0.02   | -0.01          | 0.21  | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min M <sub>T</sub>                           | -0.03          | -0.00          | -0.08          | 0.00   | -0.01          | 0.00  | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max M <sub>y</sub>                           | 0.30           | -1.26          | -0.08          | 0.02   | -0.01          | 0.21  | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min M <sub>y</sub>                           | -0.03          | -0.00          | -0.08          | 0.00   | -0.01          | 0.00  | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Max M <sub>z</sub>                           | 0.30           | -1.26          | -0.08          | 0.02   | -0.01          | 0.21  | CO 8  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | Min M <sub>z</sub>                           | -0.03          | -0.00          | -0.08          | 0.00   | -0.01          | 0.00  | CO 7  |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | DLC1, Result Envelope X 100% / Y 30% / Z 30% |                |                |                |  |                |       |       |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                | 17   | RC5            | 6              | 0.000          | Max N  | 0.09           | 0.09  | -0.00 | 0.00               | 0.00                    | 0.07  |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | Min N  | -0.09          | -0.09 | 0.00  | -0.00              | -0.00                   | -0.07 |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | Max V <sub>y</sub>                           | 0.08           | 0.10  | -0.00 | 0.00               | 0.00                    | 0.08  |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | Min V <sub>y</sub>                           | -0.08          | -0.10 | 0.00  | -0.00              | -0.00                   | -0.08 |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | Max V <sub>z</sub>                           | -0.02          | -0.07 | 0.00  | -0.00              | -0.00                   | -0.05 |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | Min V <sub>z</sub>                           | 0.02           | 0.07  | -0.00 | 0.00               | 0.00                    | 0.05  |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | Max M <sub>T</sub>                           | 0.02           | 0.07  | -0.00 | 0.01               | 0.00                    | 0.05  |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | Min M <sub>T</sub>                           | -0.02          | -0.07 | 0.00  | -0.01              | -0.00                   | -0.05 |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | Max M <sub>y</sub>                           | 0.02           | 0.09  | -0.00 | 0.00               | 0.00                    | 0.07  |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | Min M <sub>y</sub>                           | -0.02          | -0.09 | 0.00  | -0.00              | -0.00                   | -0.07 |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | Max M <sub>z</sub>                           | 0.08           | 0.10  | -0.00 | 0.00               | 0.00                    | 0.08  |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | Min M <sub>z</sub>                           | -0.08          | -0.10 | 0.00  | -0.00              | -0.00                   | -0.08 |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | Max N  | 0.09           | 0.09  | -0.00 | 0.00               | -0.00                   | -0.07 |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | Min N  | -0.09          | -0.09 | 0.00  | -0.00              | 0.00                    | 0.07  |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | Max V <sub>y</sub>                           | 0.08           | 0.10  | -0.00 | 0.00               | -0.00                   | -0.08 |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | Min V <sub>y</sub>                           | -0.08          | -0.10 | 0.00  | -0.00              | 0.00                    | 0.08  |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | Max V <sub>z</sub>                           | -0.02          | -0.07 | 0.00  | -0.00              | 0.00                    | 0.05  |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | Min V <sub>z</sub>                           | 0.02           | 0.07  | -0.00 | 0.00               | -0.00                   | -0.05 |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | Max M <sub>T</sub>                           | 0.02           | 0.07  | -0.00 | 0.01               | 0.00                    | -0.05 |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | Min M <sub>T</sub>                           | -0.02          | -0.07 | 0.00  | -0.01              | -0.00                   | 0.05  |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | Max M <sub>y</sub>                           | -0.00          | -0.02 | 0.00  | 0.00               | 0.00                    | 0.02  |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | Min M <sub>y</sub>                           | 0.00           | 0.02  | -0.00 | -0.00              | -0.00                   | -0.02 |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | Max M <sub>z</sub>                           | -0.08          | -0.10 | 0.00  | -0.00              | 0.00                    | 0.08  |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | Min M <sub>z</sub>                           | 0.08           | 0.10  | -0.00 | 0.00               | -0.00                   | -0.08 |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | DLC1, Result Envelope X 30% / Y 100% / Z 30% |                |       |       |                    |                         |       |       |       |       |       |  |  |
|            |     |          |                |  |                |                |                | 17   | RC6            | 6     | 0.000 | Max N              | 0.13                    | 0.08  | 0.00  | 0.00  | -0.00 | 0.06  |  |  |
|            |     |          |                |  |                |                |                |  |                |       |       | Min N              | -0.13                   | -0.08 | -0.00 | -0.00 | 0.00  | -0.06 |  |  |
|            |     |          |                |  |                |                |                |  |                |       |       | Max V <sub>y</sub> | 0.11                    | 0.09  | -0.00 | 0.00  | 0.00  | 0.07  |  |  |
|            |     |          |                |  |                |                |                |  |                |       |       | Min V <sub>y</sub> | -0.11                   | -0.09 | 0.00  | -0.00 | -0.00 | -0.07 |  |  |
|            |     |          |                |  |                |                |                |  |                |       |       | Max V <sub>z</sub> | 0.04                    | -0.05 | 0.00  | -0.00 | -0.00 | -0.04 |  |  |
|            |     |          |                |  |                |                |                |  |                |       |       | Min V <sub>z</sub> | -0.04                   | 0.05  | -0.00 | 0.00  | 0.00  | 0.04  |  |  |
|            |     |          |                |  |                |                |                |  |                |       |       | Max M <sub>T</sub> | -0.03                   | 0.04  | -0.00 | 0.01  | 0.00  | 0.03  |  |  |
|            |     |          |                |  |                |                |                |  |                |       |       | Min M <sub>T</sub> | 0.03                    | -0.04 | 0.00  | -0.01 | -0.00 | -0.03 |  |  |
|            |     |          |                |  |                |                |                |  |                |       |       | Max M <sub>y</sub> | -0.04                   | 0.05  | -0.00 | 0.00  | 0.00  | 0.04  |  |  |
|            |     |          |                |  |                |                |                |  |                |       |       | Min M <sub>y</sub> | 0.04                    | -0.05 | 0.00  | -0.00 | -0.00 | -0.04 |  |  |

## RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC                 | Node No.           | Location x [m]     | Forces [kN]                                  |                |                |                    |                    |                | Moments [kNm] |       |       | Correspondin Load Cases |       |  |
|--------------------|--------------------|--------------------|--------------------|--|----------------|----------------|--------------------|--------------------|----------------|---------------|-------|-------|-------------------------|-------|--|
|                    |                    |                    |                    | N  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub>     | M <sub>y</sub>     | M <sub>z</sub> |               |       |       |                         |       |  |
| 17                 | RC6                | 8                  | 1.550              | Max M <sub>z</sub>                           | 0.11           | 0.09           | -0.00              | 0.00               | 0.00           | 0.07          |       |       |                         |       |  |
|                    |                    |                    |                    | Min M <sub>z</sub>                           | -0.11          | -0.09          | 0.00               | -0.00              | -0.00          | -0.07         |       |       |                         |       |  |
|                    |                    |                    |                    | Max N  | 0.13           | 0.08           | 0.00               | 0.00               | 0.00           | -0.06         |       |       |                         |       |  |
|                    |                    |                    |                    | Min N  | -0.13          | -0.08          | -0.00              | -0.00              | -0.00          | 0.06          |       |       |                         |       |  |
|                    |                    |                    |                    | Max V <sub>y</sub>                           | 0.11           | 0.09           | -0.00              | 0.00               | -0.00          | -0.07         |       |       |                         |       |  |
|                    |                    |                    |                    | Min V <sub>y</sub>                           | -0.11          | -0.09          | 0.00               | -0.00              | 0.00           | 0.07          |       |       |                         |       |  |
|                    |                    |                    |                    | Max V <sub>z</sub>                           | 0.04           | -0.05          | 0.00               | -0.00              | 0.00           | 0.03          |       |       |                         |       |  |
|                    |                    |                    |                    | Min V <sub>z</sub>                           | -0.04          | 0.05           | -0.00              | 0.00               | -0.00          | -0.03         |       |       |                         |       |  |
|                    |                    |                    |                    | Max M <sub>T</sub>                           | -0.03          | 0.04           | -0.00              | 0.01               | 0.00           | -0.03         |       |       |                         |       |  |
|                    |                    |                    |                    | Min M <sub>T</sub>                           | 0.03           | -0.04          | 0.00               | -0.01              | -0.00          | 0.03          |       |       |                         |       |  |
|                    |                    |                    |                    | Max M <sub>y</sub>                           | 0.04           | -0.02          | 0.00               | 0.00               | 0.00           | 0.02          |       |       |                         |       |  |
|                    |                    |                    |                    | Min M <sub>y</sub>                           | -0.04          | 0.02           | -0.00              | -0.00              | -0.00          | -0.02         |       |       |                         |       |  |
|                    |                    |                    |                    | Max M <sub>z</sub>                           | -0.11          | -0.09          | 0.00               | -0.00              | 0.00           | 0.07          |       |       |                         |       |  |
|                    |                    |                    |                    | Min M <sub>z</sub>                           | 0.11           | 0.09           | -0.00              | 0.00               | -0.00          | -0.07         |       |       |                         |       |  |
|                    |                    |                    |                    | DLC1, Result Envelope X 30% / Y 30% / Z 100% |                |                |                    |                    |                |               |       |       |                         |       |  |
|                    |                    |                    |                    | RC7  | 6              | 0.000          | Max N              | 0.17               | 0.20           | -0.00         | 0.01  | 0.00  | 0.15                    |       |  |
|                    |                    |                    |                    |  |                |                | Min N              | -0.17              | -0.20          | 0.00          | -0.01 | -0.00 | -0.15                   |       |  |
|                    |                    |                    |                    |  |                |                | Max V <sub>y</sub> | 0.15               | 0.22           | -0.00         | 0.01  | 0.01  | 0.17                    |       |  |
|                    | Min V <sub>y</sub> | -0.15              | -0.22              |  |                |                | 0.00               | -0.01              | -0.01          | -0.17         |       |       |                         |       |  |
|                    | Max V <sub>z</sub> | -0.08              | -0.17              |  |                |                | 0.01               | -0.00              | -0.01          | -0.13         |       |       |                         |       |  |
|                    | Min V <sub>z</sub> | 0.08               | 0.17               |  |                |                | -0.01              | 0.00               | 0.01           | 0.13          |       |       |                         |       |  |
|                    | Max M <sub>T</sub> | 0.06               | 0.14               |  |                |                | -0.00              | 0.01               | 0.00           | 0.11          |       |       |                         |       |  |
|                    | Min M <sub>T</sub> | -0.06              | -0.14              |  |                |                | 0.00               | -0.01              | -0.00          | -0.11         |       |       |                         |       |  |
|                    | Max M <sub>y</sub> | 0.08               | 0.20               |  |                |                | -0.01              | 0.01               | 0.01           | 0.15          |       |       |                         |       |  |
|                    | Min M <sub>y</sub> | -0.08              | -0.20              |  |                |                | 0.01               | -0.01              | -0.01          | -0.15         |       |       |                         |       |  |
|                    | Max M <sub>z</sub> | 0.15               | 0.22               |  |                |                | -0.00              | 0.01               | 0.01           | 0.17          |       |       |                         |       |  |
|                    | Min M <sub>z</sub> | -0.15              | -0.22              |  |                |                | 0.00               | -0.01              | -0.01          | -0.17         |       |       |                         |       |  |
|                    | Max N              | 0.17               | 0.20               |  |                |                | -0.00              | 0.01               | -0.00          | -0.15         |       |       |                         |       |  |
|                    | Min N              | -0.17              | -0.20              |  |                |                | 0.00               | -0.01              | 0.00           | 0.15          |       |       |                         |       |  |
|                    | Max V <sub>y</sub> | 0.15               | 0.22               |  |                |                | -0.00              | 0.01               | -0.00          | -0.17         |       |       |                         |       |  |
|                    | Min V <sub>y</sub> | -0.15              | -0.22              |  |                |                | 0.00               | -0.01              | 0.00           | 0.17          |       |       |                         |       |  |
|                    | 30                 | RC1                | 13                 |  |                |                | 0.000              | Max V <sub>z</sub> | -0.08          | -0.17         | 0.01  | -0.00 | 0.00                    | 0.13  |  |
|                    |                    |                    |                    |  |                |                |                    | Min V <sub>z</sub> | 0.08           | 0.17          | -0.01 | 0.00  | -0.00                   | -0.13 |  |
|                    |                    |                    |                    | Max M <sub>T</sub>                           | 0.06           | 0.14           |                    | -0.00              | 0.01           | 0.00          | -0.11 |       |                         |       |  |
|                    |                    |                    |                    | Min M <sub>T</sub>                           | -0.06          | -0.14          |                    | 0.00               | -0.01          | -0.00         | 0.11  |       |                         |       |  |
|                    |                    |                    |                    | Max M <sub>y</sub>                           | -0.04          | -0.08          |                    | 0.01               | 0.01           | 0.01          | 0.06  |       |                         |       |  |
|                    |                    |                    |                    | Min M <sub>y</sub>                           | 0.04           | 0.08           |                    | -0.01              | -0.01          | -0.01         | -0.06 |       |                         |       |  |
|                    |                    |                    |                    | Max M <sub>z</sub>                           | -0.15          | -0.22          |                    | 0.00               | -0.01          | 0.00          | 0.17  |       |                         |       |  |
|                    |                    |                    |                    | Min M <sub>z</sub>                           | 0.15           | 0.22           |                    | -0.00              | 0.01           | -0.00         | -0.17 |       |                         |       |  |
|                    |                    |                    |                    | Max N  | 0.05           | 0.00           |                    | 0.12               | 0.00           | -0.01         | -0.00 | CO 1  |                         |       |  |
|                    |                    |                    |                    | Min N  | -4.31          | 2.76           |                    | -0.57              | 0.03           | 0.52          | 2.08  | CO 2  |                         |       |  |
|                    |                    |                    |                    | Max V <sub>y</sub>                           | -4.31          | 2.76           |                    | -0.57              | 0.03           | 0.52          | 2.08  | CO 2  |                         |       |  |
|                    |                    |                    |                    | Min V <sub>y</sub>                           | 0.05           | 0.00           |                    | 0.12               | 0.00           | -0.01         | -0.00 | CO 1  |                         |       |  |
|                    |                    |                    | Max V <sub>z</sub> | 0.05   | 0.00           | 0.12           | 0.00               | -0.01              | -0.00          | CO 1          |       |       |                         |       |  |
|                    |                    |                    | Min V <sub>z</sub> | -4.31  | 2.76           | -0.57          | 0.03               | 0.52               | 2.08           | CO 2          |       |       |                         |       |  |
|                    |                    |                    | Max M <sub>T</sub> | -4.31  | 2.76           | -0.57          | 0.03               | 0.52               | 2.08           | CO 2          |       |       |                         |       |  |
|                    |                    |                    | Min M <sub>T</sub> | 0.05   | 0.00           | 0.12           | 0.00               | -0.01              | -0.00          | CO 1          |       |       |                         |       |  |
|                    |                    |                    | Max M <sub>y</sub> | -4.31  | 2.76           | -0.57          | 0.03               | 0.52               | 2.08           | CO 2          |       |       |                         |       |  |
| Min M <sub>y</sub> |                    |                    | 0.05               | 0.00   | 0.12           | 0.00           | -0.01              | -0.00              | CO 1           |               |       |       |                         |       |  |
| Max M <sub>z</sub> |                    |                    | -4.31              | 2.76   | -0.57          | 0.03           | 0.52               | 2.08               | CO 2           |               |       |       |                         |       |  |
| Min M <sub>z</sub> |                    |                    | 0.05               | 0.00   | 0.12           | 0.00           | -0.01              | -0.00              | CO 1           |               |       |       |                         |       |  |
| 15                 |                    |                    | 1.550              | Max N  | 0.05           | 0.00           | -0.13              | 0.00               | -0.02          | -0.01         | CO 1  |       |                         |       |  |
|                    |                    |                    |                    | Min N  | -4.31          | 2.76           | -0.81              | 0.02               | -0.55          | -2.22         | CO 2  |       |                         |       |  |
|                    |                    |                    |                    | Max V <sub>y</sub>                           | -4.31          | 2.76           | -0.81              | 0.02               | -0.55          | -2.22         | CO 2  |       |                         |       |  |
|                    |                    |                    |                    | Min V <sub>y</sub>                           | 0.05           | 0.00           | -0.13              | 0.00               | -0.02          | -0.01         | CO 1  |       |                         |       |  |
|                    |                    | Max V <sub>z</sub> |                    | 0.05   | 0.00           | -0.13          | 0.00               | -0.02              | -0.01          | CO 1          |       |       |                         |       |  |
|                    |                    | Min V <sub>z</sub> |                    | -4.31  | 2.76           | -0.81          | 0.02               | -0.55              | -2.22          | CO 2          |       |       |                         |       |  |
|                    |                    | Max M <sub>T</sub> |                    | -4.31  | 2.76           | -0.81          | 0.02               | -0.55              | -2.22          | CO 2          |       |       |                         |       |  |
|                    |                    | Min M <sub>T</sub> |                    | 0.05   | 0.00           | -0.13          | 0.00               | -0.02              | -0.01          | CO 1          |       |       |                         |       |  |
|                    |                    | Max M <sub>y</sub> |                    | 0.05   | 0.00           | -0.13          | 0.00               | -0.02              | -0.01          | CO 1          |       |       |                         |       |  |
|                    |                    | Min M <sub>y</sub> |                    | -4.31  | 2.76           | -0.81          | 0.02               | -0.55              | -2.22          | CO 2          |       |       |                         |       |  |
|                    |                    | Max M <sub>z</sub> |                    | 0.05   | 0.00           | -0.13          | 0.00               | -0.02              | -0.01          | CO 1          |       |       |                         |       |  |
|                    |                    | Min M <sub>z</sub> |                    | -4.31  | 2.76           | -0.81          | 0.02               | -0.55              | -2.22          | CO 2          |       |       |                         |       |  |
| RC2                |                    | 13                 | 0.000              | Max N  | 0.04           | 0.00           | 0.09               | 0.00               | -0.01          | -0.00         | CO 3  |       |                         |       |  |
|                    |                    |                    |                    | Min N  | -2.87          | 1.84           | -0.37              | 0.02               | 0.35           | 1.38          | CO 4  |       |                         |       |  |
|                    |                    |                    |                    | Max V <sub>y</sub>                           | -2.87          | 1.84           | -0.37              | 0.02               | 0.35           | 1.38          | CO 4  |       |                         |       |  |
|                    |                    |                    |                    | Min V <sub>y</sub>                           | 0.04           | 0.00           | 0.09               | 0.00               | -0.01          | -0.00         | CO 3  |       |                         |       |  |
|                    |                    |                    |                    | Max V <sub>z</sub>                           | 0.04           | 0.00           | 0.09               | 0.00               | -0.01          | -0.00         | CO 3  |       |                         |       |  |
|                    |                    |                    |                    | Min V <sub>z</sub>                           | -2.87          | 1.84           | -0.37              | 0.02               | 0.35           | 1.38          | CO 4  |       |                         |       |  |
|                    |                    |                    |                    | Max M <sub>T</sub>                           | -2.87          | 1.84           | -0.37              | 0.02               | 0.35           | 1.38          | CO 4  |       |                         |       |  |
|                    |                    |                    |                    | Min M <sub>T</sub>                           | 0.04           | 0.00           | 0.09               | 0.00               | -0.01          | -0.00         | CO 3  |       |                         |       |  |
|                    |                    |                    |                    | Max M <sub>y</sub>                           | -2.87          | 1.84           | -0.37              | 0.02               | 0.35           | 1.38          | CO 4  |       |                         |       |  |
|                    |                    |                    |                    | Min M <sub>y</sub>                           | 0.04           | 0.00           | 0.09               | 0.00               | -0.01          | -0.00         | CO 3  |       |                         |       |  |
|                    |                    |                    |                    | Max M <sub>z</sub>                           | -2.87          | 1.84           | -0.37              | 0.02               | 0.35           | 1.38          | CO 4  |       |                         |       |  |
|                    |                    |                    |                    | Min M <sub>z</sub>                           | 0.04           | 0.00           | 0.09               | 0.00               | -0.01          | -0.00         | CO 3  |       |                         |       |  |
|                    |                    | 15                 | 1.550              | Max N  | 0.04           | 0.00           | -0.10              | 0.00               | -0.02          | -0.00         | CO 3  |       |                         |       |  |
|                    |                    |                    |                    | Min N  | -2.87          | 1.84           | -0.55              | 0.01               | -0.37          | -1.48         | CO 4  |       |                         |       |  |
|                    |                    |                    |                    | Max V <sub>y</sub>                           | -2.87          | 1.84           | -0.55              | 0.01               | -0.37          | -1.48         | CO 4  |       |                         |       |  |
|                    |                    |                    |                    | Min V <sub>y</sub>                           | 0.04           | 0.00           | -0.10              | 0.00               | -0.02          | -0.00         | CO 3  |       |                         |       |  |
|                    | Max V <sub>z</sub> |                    |                    | 0.04   | 0.00           | -0.10          | 0.00               | -0.02              | -0.00          | CO 3          |       |       |                         |       |  |
|                    | Min V <sub>z</sub> |                    |                    | -2.87  | 1.84           | -0.55          | 0.01               | -0.37              | -1.48          | CO 4          |       |       |                         |       |  |
|                    | Max M <sub>T</sub> |                    |                    | -2.87  | 1.84           | -0.55          | 0.01               | -0.37              | -1.48          | CO 4          |       |       |                         |       |  |
|                    | Min M <sub>T</sub> |                    |                    | 0.04   | 0.00           | -0.10          | 0.00               | -0.02              | -0.00          | CO 3          |       |       |                         |       |  |
|                    | Max M <sub>y</sub> |                    |                    | 0.04   | 0.00           | -0.10          | 0.00               | -0.02              | -0.00          | CO 3          |       |       |                         |       |  |
|                    | Min M <sub>y</sub> |                    |                    | -2.87  | 1.84           | -0.55          | 0.01               | -0.37              | -1.48          | CO 4          |       |       |                         |       |  |
|                    | Max M <sub>z</sub> |                    |                    | 0.04   | 0.00           | -0.10          | 0.00               | -0.02              | -0.00          | CO 3          |       |       |                         |       |  |
|                    | Min M <sub>z</sub> |                    |                    | -2.87  | 1.84           | -0.55          | 0.01               | -0.37              | -1.48          | CO 4          |       |       |                         |       |  |

## RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

### ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC   | Node No. | Location x [m]     | Forces [kN]        |                |                |                |                |                | Moments [kNm] |      |  | Correspondin Load Cases |
|--------------------|--|----------|--------------------|--------------------|----------------|----------------|----------------|----------------|----------------|---------------|------|--|-------------------------|
|                    |  |          |                    | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |               |      |  |                         |
| 30                 | RC3  | 13       | 0.000              | Max N              | 0.04           | 0.00           | 0.09           | 0.00           | -0.01          | -0.00         | CO 5 |  |                         |
|                    |  |          |                    | Min N              | -1.42          | 0.92           | -0.14          | 0.01           | 0.17           | 0.69          | CO 6 |  |                         |
|                    |  |          |                    | Max V <sub>y</sub> | -1.42          | 0.92           | -0.14          | 0.01           | 0.17           | 0.69          | CO 6 |  |                         |
|                    |  |          |                    | Min V <sub>y</sub> | 0.04           | 0.00           | 0.09           | 0.00           | -0.01          | -0.00         | CO 5 |  |                         |
|                    |  |          |                    | Max V <sub>z</sub> | 0.04           | 0.00           | 0.09           | 0.00           | -0.01          | -0.00         | CO 5 |  |                         |
|                    |  |          |                    | Min V <sub>z</sub> | -1.42          | 0.92           | -0.14          | 0.01           | 0.17           | 0.69          | CO 6 |  |                         |
|                    |  |          |                    | Max M <sub>T</sub> | -1.42          | 0.92           | -0.14          | 0.01           | 0.17           | 0.69          | CO 6 |  |                         |
|                    |  |          |                    | Min M <sub>T</sub> | 0.04           | 0.00           | 0.09           | 0.00           | -0.01          | -0.00         | CO 5 |  |                         |
|                    |  |          |                    | Max M <sub>y</sub> | -1.42          | 0.92           | -0.14          | 0.01           | 0.17           | 0.69          | CO 6 |  |                         |
|                    |  |          |                    | Min M <sub>y</sub> | 0.04           | 0.00           | 0.09           | 0.00           | -0.01          | -0.00         | CO 5 |  |                         |
|                    |  |          |                    | Max M <sub>z</sub> | -1.42          | 0.92           | -0.14          | 0.01           | 0.17           | 0.69          | CO 6 |  |                         |
|                    |  |          |                    | Min M <sub>z</sub> | 0.04           | 0.00           | 0.09           | 0.00           | -0.01          | -0.00         | CO 5 |  |                         |
|                    |  | 15       | 1.550              | Max N              | 0.04           | 0.00           | -0.10          | 0.00           | -0.02          | -0.00         | CO 5 |  |                         |
|                    |  |          |                    | Min N              | -1.42          | 0.92           | -0.32          | 0.01           | -0.19          | -0.74         | CO 6 |  |                         |
|                    |  |          |                    | Max V <sub>y</sub> | -1.42          | 0.92           | -0.32          | 0.01           | -0.19          | -0.74         | CO 6 |  |                         |
|                    |  |          |                    | Min V <sub>y</sub> | 0.04           | 0.00           | -0.10          | 0.00           | -0.02          | -0.00         | CO 5 |  |                         |
|                    |  |          |                    | Max V <sub>z</sub> | 0.04           | 0.00           | -0.10          | 0.00           | -0.02          | -0.00         | CO 5 |  |                         |
|                    |  |          |                    | Min V <sub>z</sub> | -1.42          | 0.92           | -0.32          | 0.01           | -0.19          | -0.74         | CO 6 |  |                         |
|                    |  |          |                    | Max M <sub>T</sub> | -1.42          | 0.92           | -0.32          | 0.01           | -0.19          | -0.74         | CO 6 |  |                         |
|                    |  |          |                    | Min M <sub>T</sub> | 0.04           | 0.00           | -0.10          | 0.00           | -0.02          | -0.00         | CO 5 |  |                         |
|                    |  |          |                    | Max M <sub>y</sub> | 0.04           | 0.00           | -0.10          | 0.00           | -0.02          | -0.00         | CO 5 |  |                         |
|                    |  |          |                    | Min M <sub>y</sub> | -1.42          | 0.92           | -0.32          | 0.01           | -0.19          | -0.74         | CO 6 |  |                         |
|                    |  |          |                    | Max M <sub>z</sub> | 0.04           | 0.00           | -0.10          | 0.00           | -0.02          | -0.00         | CO 5 |  |                         |
|                    |  |          |                    | Min M <sub>z</sub> | -1.42          | 0.92           | -0.32          | 0.01           | -0.19          | -0.74         | CO 6 |  |                         |
|                    | RC4  | 13       | 0.000              | Max N              | 0.04           | 0.00           | 0.09           | 0.00           | -0.01          | -0.00         | CO 7 |  |                         |
|                    |  |          |                    | Min N              | -0.83          | 0.55           | -0.05          | 0.01           | 0.10           | 0.41          | CO 8 |  |                         |
|                    |  |          |                    | Max V <sub>y</sub> | -0.83          | 0.55           | -0.05          | 0.01           | 0.10           | 0.41          | CO 8 |  |                         |
|                    |  |          |                    | Min V <sub>y</sub> | 0.04           | 0.00           | 0.09           | 0.00           | -0.01          | -0.00         | CO 7 |  |                         |
|                    |  |          |                    | Max V <sub>z</sub> | 0.04           | 0.00           | 0.09           | 0.00           | -0.01          | -0.00         | CO 7 |  |                         |
|                    |  |          |                    | Min V <sub>z</sub> | -0.83          | 0.55           | -0.05          | 0.01           | 0.10           | 0.41          | CO 8 |  |                         |
|                    |  |          |                    | Max M <sub>T</sub> | -0.83          | 0.55           | -0.05          | 0.01           | 0.10           | 0.41          | CO 8 |  |                         |
|                    |  |          |                    | Min M <sub>T</sub> | 0.04           | 0.00           | 0.09           | 0.00           | -0.01          | -0.00         | CO 7 |  |                         |
|                    |  |          |                    | Max M <sub>y</sub> | -0.83          | 0.55           | -0.05          | 0.01           | 0.10           | 0.41          | CO 8 |  |                         |
|                    |  |          |                    | Min M <sub>y</sub> | 0.04           | 0.00           | 0.09           | 0.00           | -0.01          | -0.00         | CO 7 |  |                         |
|                    |  |          |                    | Max M <sub>z</sub> | -0.83          | 0.55           | -0.05          | 0.01           | 0.10           | 0.41          | CO 8 |  |                         |
|                    |  |          |                    | Min M <sub>z</sub> | 0.04           | 0.00           | 0.09           | 0.00           | -0.01          | -0.00         | CO 7 |  |                         |
|                    |  | 15       | 1.550              | Max N              | 0.04           | 0.00           | -0.10          | 0.00           | -0.02          | -0.00         | CO 7 |  |                         |
|                    |  |          |                    | Min N              | -0.83          | 0.55           | -0.23          | 0.01           | -0.12          | -0.45         | CO 8 |  |                         |
|                    |  |          |                    | Max V <sub>y</sub> | -0.83          | 0.55           | -0.23          | 0.01           | -0.12          | -0.45         | CO 8 |  |                         |
|                    |  |          |                    | Min V <sub>y</sub> | 0.04           | 0.00           | -0.10          | 0.00           | -0.02          | -0.00         | CO 7 |  |                         |
|                    |  |          |                    | Max V <sub>z</sub> | 0.04           | 0.00           | -0.10          | 0.00           | -0.02          | -0.00         | CO 7 |  |                         |
|                    |  |          |                    | Min V <sub>z</sub> | -0.83          | 0.55           | -0.23          | 0.01           | -0.12          | -0.45         | CO 8 |  |                         |
|                    |  |          |                    | Max M <sub>T</sub> | -0.83          | 0.55           | -0.23          | 0.01           | -0.12          | -0.45         | CO 8 |  |                         |
|                    |  |          |                    | Min M <sub>T</sub> | 0.04           | 0.00           | -0.10          | 0.00           | -0.02          | -0.00         | CO 7 |  |                         |
|                    |  |          |                    | Max M <sub>y</sub> | 0.04           | 0.00           | -0.10          | 0.00           | -0.02          | -0.00         | CO 7 |  |                         |
|                    |  |          |                    | Min M <sub>y</sub> | -0.83          | 0.55           | -0.23          | 0.01           | -0.12          | -0.45         | CO 8 |  |                         |
|                    |  |          |                    | Max M <sub>z</sub> | 0.04           | 0.00           | -0.10          | 0.00           | -0.02          | -0.00         | CO 7 |  |                         |
|                    |  |          |                    | Min M <sub>z</sub> | -0.83          | 0.55           | -0.23          | 0.01           | -0.12          | -0.45         | CO 8 |  |                         |
|                    | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                    |                    |                |                |                |                |                |               |      |  |                         |
|                    | RC5  | 13       | 0.000              | Max N              | 0.39           | -0.31          | 0.08           | -0.00          | -0.06          | -0.23         |      |  |                         |
|                    |  |          |                    | Min N              | -0.39          | 0.31           | -0.08          | 0.00           | 0.06           | 0.23          |      |  |                         |
|                    |  |          |                    | Max V <sub>y</sub> | -0.37          | 0.33           | -0.08          | 0.00           | 0.06           | 0.24          |      |  |                         |
|                    |  |          |                    | Min V <sub>y</sub> | 0.37           | -0.33          | 0.08           | -0.00          | -0.06          | -0.24         |      |  |                         |
|                    |  |          |                    | Max V <sub>z</sub> | 0.37           | -0.31          | 0.08           | -0.00          | -0.06          | -0.23         |      |  |                         |
|                    |  |          |                    | Min V <sub>z</sub> | -0.37          | 0.31           | -0.08          | 0.00           | 0.06           | 0.23          |      |  |                         |
|                    |  |          |                    | Max M <sub>T</sub> | -0.19          | 0.16           | -0.04          | 0.00           | 0.03           | 0.12          |      |  |                         |
|                    |  |          |                    | Min M <sub>T</sub> | 0.19           | -0.16          | 0.04           | -0.00          | -0.03          | -0.12         |      |  |                         |
|                    |  |          |                    | Max M <sub>y</sub> | -0.37          | 0.31           | -0.08          | 0.00           | 0.06           | 0.23          |      |  |                         |
|                    |  |          |                    | Min M <sub>y</sub> | 0.37           | -0.31          | 0.08           | -0.00          | -0.06          | -0.23         |      |  |                         |
|                    |  |          |                    | Max M <sub>z</sub> | -0.37          | 0.33           | -0.08          | 0.00           | 0.06           | 0.24          |      |  |                         |
|                    |  |          |                    | Min M <sub>z</sub> | 0.37           | -0.33          | 0.08           | -0.00          | -0.06          | -0.24         |      |  |                         |
|                    |  | 15       | 1.550              | Max N              | 0.39           | -0.31          | 0.08           | -0.00          | 0.06           | 0.25          |      |  |                         |
|                    |  |          |                    | Min N              | -0.39          | 0.31           | -0.08          | 0.00           | -0.06          | -0.25         |      |  |                         |
|                    |  |          |                    | Max V <sub>y</sub> | -0.37          | 0.33           | -0.08          | 0.00           | -0.06          | -0.26         |      |  |                         |
|                    |  |          |                    | Min V <sub>y</sub> | 0.37           | -0.33          | 0.08           | -0.00          | 0.06           | 0.26          |      |  |                         |
|                    |  |          |                    | Max V <sub>z</sub> | 0.37           | -0.31          | 0.08           | -0.00          | 0.06           | 0.25          |      |  |                         |
|                    |  |          |                    | Min V <sub>z</sub> | -0.37          | 0.31           | -0.08          | 0.00           | -0.06          | -0.25         |      |  |                         |
|                    |  |          |                    | Max M <sub>T</sub> | -0.19          | 0.16           | -0.04          | 0.00           | -0.03          | -0.13         |      |  |                         |
|                    |  |          |                    | Min M <sub>T</sub> | 0.19           | -0.16          | 0.04           | -0.00          | 0.03           | 0.13          |      |  |                         |
|                    |  |          |                    | Max M <sub>y</sub> | 0.37           | -0.31          | 0.08           | -0.00          | 0.06           | 0.25          |      |  |                         |
|                    |  |          |                    | Min M <sub>y</sub> | -0.37          | 0.31           | -0.08          | 0.00           | -0.06          | -0.25         |      |  |                         |
|                    |  |          |                    | Max M <sub>z</sub> | 0.37           | -0.33          | 0.08           | -0.00          | 0.06           | 0.26          |      |  |                         |
|                    |  |          |                    | Min M <sub>z</sub> | -0.37          | 0.33           | -0.08          | 0.00           | -0.06          | -0.26         |      |  |                         |
|                    | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                    |                    |                |                |                |                |                |               |      |  |                         |
|                    | RC6  | 13       | 0.000              | Max N              | 0.30           | -0.21          | 0.06           | -0.00          | -0.04          | -0.16         |      |  |                         |
|                    |  |          |                    | Min N              | -0.30          | 0.21           | -0.06          | 0.00           | 0.04           | 0.16          |      |  |                         |
|                    |  |          |                    | Max V <sub>y</sub> | -0.25          | 0.26           | -0.05          | 0.00           | 0.04           | 0.19          |      |  |                         |
|                    |  |          |                    | Min V <sub>y</sub> | 0.25           | -0.26          | 0.05           | -0.00          | -0.04          | -0.19         |      |  |                         |
|                    |  |          |                    | Max V <sub>z</sub> | 0.27           | -0.22          | 0.06           | -0.00          | -0.05          | -0.16         |      |  |                         |
|                    |  |          |                    | Min V <sub>z</sub> | -0.27          | 0.22           | -0.06          | 0.00           | 0.05           | 0.16          |      |  |                         |
|                    |  |          |                    | Max M <sub>T</sub> | -0.15          | 0.12           | -0.03          | 0.00           | 0.02           | 0.09          |      |  |                         |
|                    |  |          |                    | Min M <sub>T</sub> | 0.15           | -0.12          | 0.03           | -0.00          | -0.02          | -0.09         |      |  |                         |
|                    |  |          |                    | Max M <sub>y</sub> | -0.27          | 0.22           | -0.06          | 0.00           | 0.05           | 0.16          |      |  |                         |
|                    |  |          |                    | Min M <sub>y</sub> | 0.27           | -0.22          | 0.06           | -0.00          | -0.05          | -0.16         |      |  |                         |
|                    |  |          |                    | Max M <sub>z</sub> | -0.25          | 0.26           | -0.05          | 0.00           | 0.04           | 0.19          |      |  |                         |
| Min M <sub>z</sub> |  |          |                    | 0.25               | -0.26          | 0.05           | -0.00          | -0.04          | -0.19          |               |      |  |                         |
| 15                 |  | 1.550    | Max N              | 0.30               | -0.21          | 0.06           | -0.00          | 0.04           | 0.17           |               |      |  |                         |
|                    |  |          | Min N              | -0.30              | 0.21           | -0.06          | 0.00           | -0.04          | -0.17          |               |      |  |                         |
|                    |  |          | Max V <sub>y</sub> | -0.25              | 0.26           | -0.05          | 0.00           | 0.04           | 0.19           |               |      |  |                         |
|                    |  |          | Min V <sub>y</sub> | 0.25               | -0.26          | 0.05           | -0.00          | -0.04          | -0.19          |               |      |  |                         |
|                    |  |          | Max V <sub>z</sub> | 0.27               | -0.22          | 0.06           | -0.00          | -0.05          | -0.16          |               |      |  |                         |
|                    |  |          | Min V <sub>z</sub> | -0.27              | 0.22           | -0.06          | 0.00           | 0.05           | 0.16           |               |      |  |                         |
|                    |  |          | Max M <sub>T</sub> | -0.15              | 0.12           | -0.03          | 0.00           | 0.02           | 0.09           |               |      |  |                         |
|                    |  |          | Min M <sub>T</sub> | 0.15               | -0.12          | 0.03           | -0.00          | -0.02          | -0.09          |               |      |  |                         |
|                    |  |          | Max M <sub>y</sub> | -0.27              | 0.22           | -0.06          | 0.00           | 0.05           | 0.16           |               |      |  |                         |
|                    |  |          | Min M <sub>y</sub> | 0.27               | -0.22          | 0.06           | -0.00          | -0.05          | -0.16          |               |      |  |                         |
|                    |  |          | Max M <sub>z</sub> | -0.25              | 0.26           | -0.05          | 0.00           | 0.04           | 0.19           |               |      |  |                         |
|                    |  |          | Min M <sub>z</sub> | 0.25               | -0.26          | 0.05           | -0.00          | -0.04          | -0.19          |               |      |  |                         |

## RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

### 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC                 | Node No. | Location x [m]     | Forces [kN]                                  |                |                |                |                    | Moments [kNm]  |       |       | Correspondin Load Cases |       |       |      |
|--------------------|--------------------|----------|--------------------|--|----------------|----------------|----------------|--------------------|----------------|-------|-------|-------------------------|-------|-------|------|
|                    |                    |          |                    | N  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub>     | M <sub>z</sub> |       |       |                         |       |       |      |
| 30                 | RC6                |          |                    | Min N  | -0.30          | 0.21           | -0.06          | 0.00               | -0.04          | -0.17 |       |                         |       |       |      |
|                    |                    |          |                    | Max V <sub>y</sub>                           | -0.25          | 0.26           | -0.05          | 0.00               | -0.04          | -0.21 |       |                         |       |       |      |
|                    |                    |          |                    | Min V <sub>y</sub>                           | 0.25           | -0.26          | 0.05           | -0.00              | 0.04           | 0.21  |       |                         |       |       |      |
|                    |                    |          |                    | Max V <sub>z</sub>                           | 0.27           | -0.22          | 0.06           | -0.00              | 0.05           | 0.17  |       |                         |       |       |      |
|                    |                    |          |                    | Min V <sub>z</sub>                           | -0.27          | 0.22           | -0.06          | 0.00               | -0.05          | -0.17 |       |                         |       |       |      |
|                    |                    |          |                    | Max M <sub>T</sub>                           | -0.15          | 0.12           | -0.03          | 0.00               | -0.02          | -0.10 |       |                         |       |       |      |
|                    |                    |          |                    | Min M <sub>T</sub>                           | 0.15           | -0.12          | 0.03           | -0.00              | 0.02           | 0.10  |       |                         |       |       |      |
|                    |                    |          |                    | Max M <sub>y</sub>                           | 0.26           | -0.22          | 0.06           | -0.00              | 0.05           | 0.17  |       |                         |       |       |      |
|                    |                    |          |                    | Min M <sub>y</sub>                           | -0.26          | 0.22           | -0.06          | 0.00               | -0.05          | -0.17 |       |                         |       |       |      |
|                    |                    |          |                    | Max M <sub>z</sub>                           | 0.25           | -0.26          | 0.05           | -0.00              | 0.04           | 0.21  |       |                         |       |       |      |
|                    |                    |          |                    | Min M <sub>z</sub>                           | -0.25          | 0.26           | -0.05          | 0.00               | -0.04          | -0.21 |       |                         |       |       |      |
|                    |                    |          |                    | DLC1, Result Envelope X 30% / Y 30% / Z 100% |                |                |                |                    |                |       |       |                         |       |       |      |
|                    |                    |          |                    | RC7  | 13             | 0.000          | Max N          | 0.78               | -0.65          | 0.16  | -0.01 | -0.13                   | -0.49 |       |      |
|                    | Min N              | -0.78    | 0.65               |  |                |                | -0.16          | 0.01               | 0.13           | 0.49  |       |                         |       |       |      |
|                    | Max V <sub>y</sub> | -0.76    | 0.67               |  |                |                | -0.16          | 0.01               | 0.13           | 0.50  |       |                         |       |       |      |
|                    | Min V <sub>y</sub> | 0.76     | -0.67              |  |                |                | 0.16           | -0.01              | -0.13          | -0.50 |       |                         |       |       |      |
|                    | Max V <sub>z</sub> | 0.75     | -0.65              |  |                |                | 0.17           | -0.01              | -0.13          | -0.49 |       |                         |       |       |      |
|                    | Min V <sub>z</sub> | -0.75    | 0.65               |  |                |                | -0.17          | 0.01               | 0.13           | 0.49  |       |                         |       |       |      |
|                    | Max M <sub>T</sub> | -0.37    | 0.36               |  |                |                | -0.10          | 0.01               | 0.08           | 0.27  |       |                         |       |       |      |
|                    | Min M <sub>T</sub> | 0.37     | -0.36              |  |                |                | 0.10           | -0.01              | -0.08          | -0.27 |       |                         |       |       |      |
|                    | Max M <sub>y</sub> | -0.76    | 0.65               |  |                |                | -0.17          | 0.01               | 0.13           | 0.49  |       |                         |       |       |      |
|                    | Min M <sub>y</sub> | 0.76     | -0.65              |  |                |                | 0.17           | -0.01              | -0.13          | -0.49 |       |                         |       |       |      |
|                    | Max M <sub>z</sub> | -0.76    | 0.67               |  |                |                | -0.16          | 0.01               | 0.13           | 0.50  |       |                         |       |       |      |
|                    | Min M <sub>z</sub> | 0.76     | -0.67              |  |                |                | 0.16           | -0.01              | -0.13          | -0.50 |       |                         |       |       |      |
|                    | 15                 | 1.550    | Max N              |  | 0.78           | -0.65          | 0.16           | -0.01              | 0.12           | 0.52  |       |                         |       |       |      |
|                    |                    |          | Min N              |  | -0.78          | 0.65           | -0.16          | 0.01               | -0.12          | -0.52 |       |                         |       |       |      |
|                    |                    |          | Max V <sub>y</sub> |  | -0.76          | 0.67           | -0.16          | 0.01               | -0.12          | -0.54 |       |                         |       |       |      |
|                    |                    |          | Min V <sub>y</sub> |  | 0.76           | -0.67          | 0.16           | -0.01              | 0.12           | 0.54  |       |                         |       |       |      |
|                    |                    |          | Max V <sub>z</sub> |  | 0.75           | -0.65          | 0.17           | -0.01              | 0.13           | 0.53  |       |                         |       |       |      |
|                    |                    |          | Min V <sub>z</sub> |  | -0.75          | 0.65           | -0.17          | 0.01               | -0.13          | -0.53 |       |                         |       |       |      |
|                    |                    |          | Max M <sub>T</sub> |  | -0.37          | 0.36           | -0.10          | 0.01               | -0.08          | -0.29 |       |                         |       |       |      |
|                    |                    |          | Min M <sub>T</sub> |  | 0.37           | -0.36          | 0.10           | -0.01              | 0.08           | 0.29  |       |                         |       |       |      |
|                    |                    |          | Max M <sub>y</sub> |  | 0.75           | -0.65          | 0.17           | -0.01              | 0.13           | 0.52  |       |                         |       |       |      |
|                    |                    |          | Min M <sub>y</sub> |  | -0.75          | 0.65           | -0.17          | 0.01               | -0.13          | -0.52 |       |                         |       |       |      |
|                    |                    |          | Max M <sub>z</sub> |  | 0.76           | -0.67          | 0.16           | -0.01              | 0.12           | 0.54  |       |                         |       |       |      |
|                    |                    |          | Min M <sub>z</sub> |  | -0.76          | 0.67           | -0.16          | 0.01               | -0.12          | -0.54 |       |                         |       |       |      |
|                    |                    |          | 31                 |  | RC1            | 17             | 0.000          | Max N              | 0.01           | 0.00  | 0.13  | 0.00                    | -0.04 | -0.00 | CO 1 |
|                    |                    |          |                    |  |                |                |                | Min N              | -0.06          | 0.54  | -0.62 | 0.06                    | 0.54  | 0.49  | CO 2 |
|                    |                    |          |                    |  |                |                |                | Max V <sub>y</sub> | -0.06          | 0.54  | -0.62 | 0.06                    | 0.54  | 0.49  | CO 2 |
|                    |                    |          |                    |  |                |                |                | Min V <sub>y</sub> | 0.01           | 0.00  | 0.13  | 0.00                    | -0.04 | -0.00 | CO 1 |
| Max V <sub>z</sub> |                    |          |                    |  |                |                |                | 0.01               | 0.00           | 0.13  | 0.00  | -0.04                   | -0.00 | CO 1  |      |
| Min V <sub>z</sub> |                    |          |                    |  |                |                |                | -0.06              | 0.54           | -0.62 | 0.06  | 0.54                    | 0.49  | CO 2  |      |
| Max M <sub>T</sub> |                    |          |                    |  |                |                |                | -0.06              | 0.54           | -0.62 | 0.06  | 0.54                    | 0.49  | CO 2  |      |
| Min M <sub>T</sub> |                    |          |                    |  |                |                |                | 0.01               | 0.00           | 0.13  | 0.00  | -0.04                   | -0.00 | CO 1  |      |
| Max M <sub>y</sub> |                    |          |                    |  |                |                |                | -0.06              | 0.54           | -0.62 | 0.06  | 0.54                    | 0.49  | CO 2  |      |
| Min M <sub>y</sub> |                    |          |                    |  |                |                |                | 0.01               | 0.00           | 0.13  | 0.00  | -0.04                   | -0.00 | CO 1  |      |
| Max M <sub>z</sub> |                    |          |                    |  |                |                |                | -0.06              | 0.54           | -0.62 | 0.06  | 0.54                    | 0.49  | CO 2  |      |
| Min M <sub>z</sub> |                    |          |                    |  |                |                |                | 0.01               | 0.00           | 0.13  | 0.00  | -0.04                   | -0.00 | CO 1  |      |
| 19                 |                    |          |                    |  |                | 1.550          | Max N          | 0.01               | 0.00           | -0.11 | 0.00  | -0.02                   | -0.00 | CO 1  |      |
|                    | Min N              | -0.06    |                    | 0.54   |                |                | -0.86          | 0.06               | -0.60          | -0.35 | CO 2  |                         |       |       |      |
|                    | Max V <sub>y</sub> | -0.06    |                    | 0.54   |                |                | -0.86          | 0.06               | -0.60          | -0.35 | CO 2  |                         |       |       |      |
|                    | Min V <sub>y</sub> | 0.01     |                    | 0.00   |                |                | -0.11          | 0.00               | -0.02          | -0.00 | CO 1  |                         |       |       |      |
|                    | Max V <sub>z</sub> | 0.01     |                    | 0.00   |                |                | -0.11          | 0.00               | -0.02          | -0.00 | CO 1  |                         |       |       |      |
|                    | Min V <sub>z</sub> | -0.06    |                    | 0.54   |                |                | -0.86          | 0.06               | -0.60          | -0.35 | CO 2  |                         |       |       |      |
|                    | Max M <sub>T</sub> | -0.06    |                    | 0.54   |                |                | -0.86          | 0.06               | -0.60          | -0.35 | CO 2  |                         |       |       |      |
|                    | Min M <sub>T</sub> | 0.01     |                    | 0.00   |                |                | -0.11          | 0.00               | -0.02          | -0.00 | CO 1  |                         |       |       |      |
| RC2                | 17                 | 0.000    | Max M <sub>y</sub> | 0.01   | 0.00           | -0.11          | 0.00           | -0.02              | -0.00          | CO 1  |       |                         |       |       |      |
|                    |                    |          | Min M <sub>y</sub> | -0.06  | 0.54           | -0.86          | 0.06           | -0.60              | -0.35          | CO 2  |       |                         |       |       |      |
|                    |                    |          | Max M <sub>z</sub> | 0.01   | 0.00           | -0.11          | 0.00           | -0.02              | -0.00          | CO 1  |       |                         |       |       |      |
|                    |                    |          | Min M <sub>z</sub> | -0.06  | 0.54           | -0.86          | 0.06           | -0.60              | -0.35          | CO 2  |       |                         |       |       |      |
|                    |                    |          | Max N              | 0.01   | 0.00           | 0.10           | 0.00           | -0.03              | -0.00          | CO 3  |       |                         |       |       |      |
|                    |                    |          | Min N              | -0.04  | 0.36           | -0.40          | 0.04           | 0.36               | 0.32           | CO 4  |       |                         |       |       |      |
|                    |                    |          | Max V <sub>y</sub> | -0.04  | 0.36           | -0.40          | 0.04           | 0.36               | 0.32           | CO 4  |       |                         |       |       |      |
|                    |                    |          | Min V <sub>y</sub> | 0.01   | 0.00           | 0.10           | 0.00           | -0.03              | -0.00          | CO 3  |       |                         |       |       |      |
|                    |                    |          | Max V <sub>z</sub> | 0.01   | 0.00           | 0.10           | 0.00           | -0.03              | -0.00          | CO 3  |       |                         |       |       |      |
|                    |                    |          | Min V <sub>z</sub> | -0.04  | 0.36           | -0.40          | 0.04           | 0.36               | 0.32           | CO 4  |       |                         |       |       |      |
|                    |                    |          | Max M <sub>T</sub> | -0.04  | 0.36           | -0.40          | 0.04           | 0.36               | 0.32           | CO 4  |       |                         |       |       |      |
|                    |                    |          | Min M <sub>T</sub> | 0.01   | 0.00           | 0.10           | 0.00           | -0.03              | -0.00          | CO 3  |       |                         |       |       |      |
|                    | 19                 | 1.550    | Max M <sub>y</sub> | -0.04  | 0.36           | -0.40          | 0.04           | 0.36               | 0.32           | CO 4  |       |                         |       |       |      |
|                    |                    |          | Min M <sub>y</sub> | 0.01   | 0.00           | 0.10           | 0.00           | -0.03              | -0.00          | CO 3  |       |                         |       |       |      |
|                    |                    |          | Max M <sub>z</sub> | -0.04  | 0.36           | -0.40          | 0.04           | 0.36               | 0.32           | CO 4  |       |                         |       |       |      |
|                    |                    |          | Min M <sub>z</sub> | 0.01   | 0.00           | 0.10           | 0.00           | -0.03              | -0.00          | CO 3  |       |                         |       |       |      |
|                    |                    |          | Max N              | 0.01   | 0.00           | -0.08          | 0.00           | -0.01              | -0.00          | CO 3  |       |                         |       |       |      |
|                    |                    |          | Min N              | -0.04  | 0.36           | -0.58          | 0.04           | -0.40              | -0.23          | CO 4  |       |                         |       |       |      |
| RC3                | 17                 | 0.000    | Max V <sub>y</sub> | -0.04  | 0.36           | -0.58          | 0.04           | -0.40              | -0.23          | CO 4  |       |                         |       |       |      |
|                    |                    |          | Min V <sub>y</sub> | 0.01   | 0.00           | -0.08          | 0.00           | -0.01              | -0.00          | CO 3  |       |                         |       |       |      |
|                    |                    |          | Max V <sub>z</sub> | 0.01   | 0.00           | -0.08          | 0.00           | -0.01              | -0.00          | CO 3  |       |                         |       |       |      |
|                    |                    |          | Min V <sub>z</sub> | -0.04  | 0.36           | -0.58          | 0.04           | -0.40              | -0.23          | CO 4  |       |                         |       |       |      |
|                    |                    |          | Max M <sub>T</sub> | -0.04  | 0.36           | -0.58          | 0.04           | -0.40              | -0.23          | CO 4  |       |                         |       |       |      |
|                    |                    |          | Min M <sub>T</sub> | 0.01   | 0.00           | -0.08          | 0.00           | -0.01              | -0.00          | CO 3  |       |                         |       |       |      |
|                    |                    |          | Max M <sub>y</sub> | 0.01   | 0.00           | -0.08          | 0.00           | -0.01              | -0.00          | CO 3  |       |                         |       |       |      |
|                    |                    |          | Min M <sub>y</sub> | -0.04  | 0.36           | -0.58          | 0.04           | -0.40              | -0.23          | CO 4  |       |                         |       |       |      |
|                    |                    |          | Max M <sub>z</sub> | 0.01   | 0.00           | -0.08          | 0.00           | -0.01              | -0.00          | CO 3  |       |                         |       |       |      |
|                    |                    |          | Min M <sub>z</sub> | -0.04  | 0.36           | -0.58          | 0.04           | -0.40              | -0.23          | CO 4  |       |                         |       |       |      |
|                    |                    |          | Max N              | 0.01   | 0.00           | 0.10           | 0.00           | -0.03              | -0.00          | CO 5  |       |                         |       |       |      |
|                    |                    |          | Min N              | -0.01  | 0.18           | -0.15          | 0.02           | 0.17               | 0.16           | CO 6  |       |                         |       |       |      |
|                    | Max V <sub>y</sub> | -0.01    | 0.18               | -0.15  | 0.02           | 0.17           | 0.16           | CO 6               |                |       |       |                         |       |       |      |

RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC   | Node No. | Location x [m] | Forces [kN]        |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |      |
|--------------------|--|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------------------------|------|
|                    |  |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |      |
| 31                 | RC3  |          |                | Min V <sub>y</sub> | 0.01           | 0.00           | 0.10           | 0.00           | -0.03          | -0.00                   | CO 5 |
|                    |  |          |                | Max V <sub>z</sub> | 0.01           | 0.00           | 0.10           | 0.00           | -0.03          | -0.00                   | CO 5 |
|                    |  |          |                | Min V <sub>z</sub> | -0.01          | 0.18           | -0.15          | 0.02           | 0.17           | 0.16                    | CO 6 |
|                    |  |          |                | Max M <sub>T</sub> | -0.01          | 0.18           | -0.15          | 0.02           | 0.17           | 0.16                    | CO 6 |
|                    |  |          |                | Min M <sub>T</sub> | 0.01           | 0.00           | 0.10           | 0.00           | -0.03          | -0.00                   | CO 5 |
|                    |  |          |                | Max M <sub>y</sub> | -0.01          | 0.18           | -0.15          | 0.02           | 0.17           | 0.16                    | CO 6 |
|                    |  |          |                | Min M <sub>y</sub> | 0.01           | 0.00           | 0.10           | 0.00           | -0.03          | -0.00                   | CO 5 |
|                    |  |          |                | Max M <sub>z</sub> | -0.01          | 0.18           | -0.15          | 0.02           | 0.17           | 0.16                    | CO 6 |
|                    |  |          |                | Min M <sub>z</sub> | 0.01           | 0.00           | 0.10           | 0.00           | -0.03          | -0.00                   | CO 5 |
|                    |  |          |                | Max N              | 0.01           | 0.00           | -0.08          | 0.00           | -0.01          | -0.00                   | CO 5 |
|                    |  |          |                | Min N              | -0.01          | 0.18           | -0.33          | 0.02           | -0.21          | -0.12                   | CO 6 |
|                    |  |          |                | Max V <sub>y</sub> | -0.01          | 0.18           | -0.33          | 0.02           | -0.21          | -0.12                   | CO 6 |
|                    |  |          |                | Min V <sub>y</sub> | 0.01           | 0.00           | -0.08          | 0.00           | -0.01          | -0.00                   | CO 5 |
|                    |  |          |                | Max V <sub>z</sub> | 0.01           | 0.00           | -0.08          | 0.00           | -0.01          | -0.00                   | CO 5 |
|                    |  |          |                | Min V <sub>z</sub> | -0.01          | 0.18           | -0.33          | 0.02           | -0.21          | -0.12                   | CO 6 |
|                    |  |          |                | Max M <sub>T</sub> | -0.01          | 0.18           | -0.33          | 0.02           | -0.21          | -0.12                   | CO 6 |
|                    |  |          |                | Min M <sub>T</sub> | 0.01           | 0.00           | -0.08          | 0.00           | -0.01          | -0.00                   | CO 5 |
|                    |  |          |                | Max M <sub>y</sub> | 0.01           | 0.00           | -0.08          | 0.00           | -0.01          | -0.00                   | CO 5 |
|                    |  |          |                | Min M <sub>y</sub> | -0.01          | 0.18           | -0.33          | 0.02           | -0.21          | -0.12                   | CO 6 |
|                    |  |          |                | Max M <sub>z</sub> | 0.01           | 0.00           | -0.08          | 0.00           | -0.01          | -0.00                   | CO 5 |
|                    |  |          |                | Min M <sub>z</sub> | -0.01          | 0.18           | -0.33          | 0.02           | -0.21          | -0.12                   | CO 6 |
|                    | RC4  | 17       | 0.000          | Max N              | 0.01           | 0.00           | 0.10           | 0.00           | -0.03          | -0.00                   | CO 7 |
|                    |  |          |                | Min N              | -0.01          | 0.11           | -0.05          | 0.01           | 0.09           | 0.10                    | CO 8 |
|                    |  |          |                | Max V <sub>y</sub> | -0.01          | 0.11           | -0.05          | 0.01           | 0.09           | 0.10                    | CO 8 |
|                    |  |          |                | Min V <sub>y</sub> | 0.01           | 0.00           | 0.10           | 0.00           | -0.03          | -0.00                   | CO 7 |
|                    |  |          |                | Max V <sub>z</sub> | 0.01           | 0.00           | 0.10           | 0.00           | -0.03          | -0.00                   | CO 7 |
|                    |  |          |                | Min V <sub>z</sub> | -0.01          | 0.11           | -0.05          | 0.01           | 0.09           | 0.10                    | CO 8 |
|                    |  |          |                | Max M <sub>T</sub> | -0.01          | 0.11           | -0.05          | 0.01           | 0.09           | 0.10                    | CO 8 |
|                    |  |          |                | Min M <sub>T</sub> | 0.01           | 0.00           | 0.10           | 0.00           | -0.03          | -0.00                   | CO 7 |
|                    |  |          |                | Max M <sub>y</sub> | -0.01          | 0.11           | -0.05          | 0.01           | 0.09           | 0.10                    | CO 8 |
|                    |  |          |                | Min M <sub>y</sub> | 0.01           | 0.00           | 0.10           | 0.00           | -0.03          | -0.00                   | CO 7 |
|                    |  |          |                | Max M <sub>z</sub> | -0.01          | 0.11           | -0.05          | 0.01           | 0.09           | 0.10                    | CO 8 |
|                    |  |          |                | Min M <sub>z</sub> | 0.01           | 0.00           | 0.10           | 0.00           | -0.03          | -0.00                   | CO 7 |
|                    |  | 19       | 1.550          | Max N              | 0.01           | 0.00           | -0.08          | 0.00           | -0.01          | -0.00                   | CO 7 |
|                    |  |          |                | Min N              | -0.01          | 0.11           | -0.23          | 0.01           | -0.13          | -0.07                   | CO 8 |
|                    |  |          |                | Max V <sub>y</sub> | -0.01          | 0.11           | -0.23          | 0.01           | -0.13          | -0.07                   | CO 8 |
|                    |  |          |                | Min V <sub>y</sub> | 0.01           | 0.00           | -0.08          | 0.00           | -0.01          | -0.00                   | CO 7 |
|                    |  |          |                | Max V <sub>z</sub> | 0.01           | 0.00           | -0.08          | 0.00           | -0.01          | -0.00                   | CO 7 |
|                    |  |          |                | Min V <sub>z</sub> | -0.01          | 0.11           | -0.23          | 0.01           | -0.13          | -0.07                   | CO 8 |
|                    |  |          |                | Max M <sub>T</sub> | -0.01          | 0.11           | -0.23          | 0.01           | -0.13          | -0.07                   | CO 8 |
|                    |  |          |                | Min M <sub>T</sub> | 0.01           | 0.00           | -0.08          | 0.00           | -0.01          | -0.00                   | CO 7 |
|                    |  |          |                | Max M <sub>y</sub> | 0.01           | 0.00           | -0.08          | 0.00           | -0.01          | -0.00                   | CO 7 |
|                    |  |          |                | Min M <sub>y</sub> | -0.01          | 0.11           | -0.23          | 0.01           | -0.13          | -0.07                   | CO 8 |
|                    |  |          |                | Max M <sub>z</sub> | 0.01           | 0.00           | -0.08          | 0.00           | -0.01          | -0.00                   | CO 7 |
|                    |  |          |                | Min M <sub>z</sub> | -0.01          | 0.11           | -0.23          | 0.01           | -0.13          | -0.07                   | CO 8 |
|                    | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                |                    |                |                |                |                |                |                         |      |
|                    | RC5  | 17       | 0.000          | Max N              | 0.29           | -0.03          | 0.08           | -0.01          | -0.06          | -0.03                   |      |
|                    |  |          |                | Min N              | -0.29          | 0.03           | -0.08          | 0.01           | 0.06           | 0.03                    |      |
|                    |  |          |                | Max V <sub>y</sub> | -0.12          | 0.08           | -0.04          | -0.00          | 0.03           | 0.06                    |      |
|                    |  |          |                | Min V <sub>y</sub> | 0.12           | -0.08          | 0.04           | 0.00           | -0.03          | -0.06                   |      |
|                    |  |          |                | Max V <sub>z</sub> | 0.28           | -0.03          | 0.08           | -0.01          | -0.06          | -0.03                   |      |
|                    |  |          |                | Min V <sub>z</sub> | -0.28          | 0.03           | -0.08          | 0.01           | 0.06           | 0.03                    |      |
|                    |  |          |                | Max M <sub>T</sub> | -0.25          | -0.01          | -0.07          | 0.01           | 0.05           | -0.00                   |      |
|                    |  |          |                | Min M <sub>T</sub> | 0.25           | 0.01           | 0.07           | -0.01          | -0.05          | 0.00                    |      |
|                    |  |          |                | Max M <sub>y</sub> | -0.28          | 0.03           | -0.08          | 0.01           | 0.06           | 0.03                    |      |
|                    |  |          |                | Min M <sub>y</sub> | 0.28           | -0.03          | 0.08           | -0.01          | -0.06          | -0.03                   |      |
|                    |  |          |                | Max M <sub>z</sub> | -0.12          | 0.08           | -0.04          | -0.00          | 0.03           | 0.06                    |      |
|                    |  |          |                | Min M <sub>z</sub> | 0.12           | -0.08          | 0.04           | 0.00           | -0.03          | -0.06                   |      |
|                    |  | 19       | 1.550          | Max N              | 0.29           | -0.03          | 0.08           | -0.01          | 0.06           | 0.02                    |      |
|                    |  |          |                | Min N              | -0.29          | 0.03           | -0.08          | 0.01           | -0.06          | -0.02                   |      |
|                    |  |          |                | Max V <sub>y</sub> | -0.12          | 0.08           | -0.04          | -0.00          | -0.03          | -0.06                   |      |
|                    |  |          |                | Min V <sub>y</sub> | 0.12           | -0.08          | 0.04           | 0.00           | 0.03           | 0.06                    |      |
|                    |  |          |                | Max V <sub>z</sub> | 0.28           | -0.03          | 0.08           | -0.01          | 0.06           | 0.03                    |      |
|                    |  |          |                | Min V <sub>z</sub> | -0.28          | 0.03           | -0.08          | 0.01           | -0.06          | -0.03                   |      |
|                    |  |          |                | Max M <sub>T</sub> | -0.25          | -0.01          | -0.07          | 0.01           | -0.05          | 0.00                    |      |
|                    |  |          |                | Min M <sub>T</sub> | 0.25           | 0.01           | 0.07           | -0.01          | 0.05           | -0.00                   |      |
|                    |  |          |                | Max M <sub>y</sub> | 0.28           | -0.03          | 0.08           | -0.01          | 0.06           | 0.03                    |      |
|                    |  |          |                | Min M <sub>y</sub> | -0.28          | 0.03           | -0.08          | 0.01           | -0.06          | -0.03                   |      |
|                    |  |          |                | Max M <sub>z</sub> | 0.12           | -0.08          | 0.04           | 0.00           | 0.03           | 0.06                    |      |
|                    |  |          |                | Min M <sub>z</sub> | -0.12          | 0.08           | -0.04          | -0.00          | -0.03          | -0.06                   |      |
|                    | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                |                    |                |                |                |                |                |                         |      |
|                    | RC6  | 17       | 0.000          | Max N              | 0.24           | -0.02          | 0.06           | -0.01          | -0.05          | -0.02                   |      |
|                    |  |          |                | Min N              | -0.24          | 0.02           | -0.06          | 0.01           | 0.05           | 0.02                    |      |
|                    |  |          |                | Max V <sub>y</sub> | -0.07          | 0.08           | -0.02          | -0.00          | 0.02           | 0.06                    |      |
|                    |  |          |                | Min V <sub>y</sub> | 0.07           | -0.08          | 0.02           | 0.00           | -0.02          | -0.06                   |      |
|                    |  |          |                | Max V <sub>z</sub> | 0.23           | -0.02          | 0.06           | -0.01          | -0.05          | -0.01                   |      |
|                    |  |          |                | Min V <sub>z</sub> | -0.23          | 0.02           | -0.06          | 0.01           | 0.05           | 0.01                    |      |
|                    |  |          |                | Max M <sub>T</sub> | -0.19          | -0.02          | -0.05          | 0.01           | 0.04           | -0.02                   |      |
|                    |  |          |                | Min M <sub>T</sub> | 0.19           | 0.02           | 0.05           | -0.01          | -0.04          | 0.02                    |      |
|                    |  |          |                | Max M <sub>y</sub> | -0.23          | 0.02           | -0.06          | 0.01           | 0.05           | 0.01                    |      |
|                    |  |          |                | Min M <sub>y</sub> | 0.23           | -0.02          | 0.06           | -0.01          | -0.05          | -0.01                   |      |
|                    |  |          |                | Max M <sub>z</sub> | -0.07          | 0.08           | -0.02          | -0.00          | 0.02           | 0.06                    |      |
|                    |  |          |                | Min M <sub>z</sub> | 0.07           | -0.08          | 0.02           | 0.00           | -0.02          | -0.06                   |      |
|                    |  | 19       | 1.550          | Max N              | 0.24           | -0.02          | 0.06           | -0.01          | 0.04           | 0.02                    |      |
|                    |  |          |                | Min N              | -0.24          | 0.02           | -0.06          | 0.01           | -0.04          | -0.02                   |      |
| Max V <sub>y</sub> |  |          |                | -0.07              | 0.08           | -0.02          | -0.00          | -0.02          | -0.06          |                         |      |
| Min V <sub>y</sub> |  |          |                | 0.07               | -0.08          | 0.02           | 0.00           | 0.02           | 0.06           |                         |      |

## RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m] | Forces [kN]        |                |                |                |                |                | Moments [kNm] |      |  | Correspondin Load Cases |
|------------|--|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|---------------|------|--|-------------------------|
|            |  |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |               |      |  |                         |
| 31         | RC6  |          |                | Max V <sub>z</sub> | 0.23           | -0.02          | 0.06           | -0.01          | 0.05           | 0.01          |      |  |                         |
|            |  |          |                | Min V <sub>z</sub> | -0.23          | 0.02           | -0.06          | 0.01           | -0.05          | -0.01         |      |  |                         |
|            |  |          |                | Max M <sub>T</sub> | -0.19          | -0.02          | -0.05          | 0.01           | -0.04          | 0.02          |      |  |                         |
|            |  |          |                | Min M <sub>T</sub> | 0.19           | 0.02           | 0.05           | -0.01          | 0.04           | -0.02         |      |  |                         |
|            |  |          |                | Max M <sub>y</sub> | 0.23           | -0.02          | 0.06           | -0.01          | 0.05           | 0.01          |      |  |                         |
|            |  |          |                | Min M <sub>y</sub> | -0.23          | 0.02           | -0.06          | 0.01           | -0.05          | -0.01         |      |  |                         |
|            |  |          |                | Max M <sub>z</sub> | 0.07           | -0.08          | 0.02           | 0.00           | 0.02           | 0.06          |      |  |                         |
|            |  |          |                | Min M <sub>z</sub> | -0.07          | 0.08           | -0.02          | -0.00          | -0.02          | -0.06         |      |  |                         |
|            | DLC1, Result Envelope X 30% / Y 30% / Z 100% |          |                |                    |                |                |                |                |                |               |      |  |                         |
|            | RC7  | 17       | 0.000          | Max N              | 0.62           | -0.05          | 0.16           | -0.02          | -0.13          | -0.04         |      |  |                         |
|            |  |          |                | Min N              | -0.62          | 0.05           | -0.16          | 0.02           | 0.13           | 0.04          |      |  |                         |
|            |  |          |                | Max V <sub>y</sub> | -0.18          | 0.16           | -0.06          | -0.00          | 0.05           | 0.13          |      |  |                         |
|            |  |          |                | Min V <sub>y</sub> | 0.18           | -0.16          | 0.06           | 0.00           | -0.05          | -0.13         |      |  |                         |
|            |  |          |                | Max V <sub>z</sub> | 0.61           | -0.06          | 0.17           | -0.02          | -0.13          | -0.05         |      |  |                         |
|            |  |          |                | Min V <sub>z</sub> | -0.61          | 0.06           | -0.17          | 0.02           | 0.13           | 0.05          |      |  |                         |
|            |  |          |                | Max M <sub>T</sub> | -0.56          | -0.02          | -0.15          | 0.02           | 0.12           | -0.02         |      |  |                         |
|            |  |          |                | Min M <sub>T</sub> | 0.56           | 0.02           | 0.15           | -0.02          | -0.12          | 0.02          |      |  |                         |
|            |  |          |                | Max M <sub>y</sub> | -0.61          | 0.06           | -0.17          | 0.02           | 0.13           | 0.05          |      |  |                         |
|            |  |          |                | Min M <sub>y</sub> | 0.61           | -0.06          | 0.17           | -0.02          | -0.13          | -0.05         |      |  |                         |
|            |  |          |                | Max M <sub>z</sub> | -0.18          | 0.16           | -0.06          | -0.00          | 0.05           | 0.13          |      |  |                         |
|            |  |          |                | Min M <sub>z</sub> | 0.18           | -0.16          | 0.06           | 0.00           | -0.05          | -0.13         |      |  |                         |
|            |  | 19       | 1.550          | Max N              | 0.62           | -0.05          | 0.16           | -0.02          | 0.12           | 0.03          |      |  |                         |
|            |  |          |                | Min N              | -0.62          | 0.05           | -0.16          | 0.02           | -0.12          | -0.03         |      |  |                         |
|            |  |          |                | Max V <sub>y</sub> | -0.18          | 0.16           | -0.06          | -0.00          | -0.05          | -0.12         |      |  |                         |
|            |  |          |                | Min V <sub>y</sub> | 0.18           | -0.16          | 0.06           | 0.00           | 0.05           | 0.12          |      |  |                         |
|            |  |          |                | Max V <sub>z</sub> | 0.61           | -0.06          | 0.17           | -0.02          | 0.13           | 0.04          |      |  |                         |
|            |  |          |                | Min V <sub>z</sub> | -0.61          | 0.06           | -0.17          | 0.02           | -0.13          | -0.04         |      |  |                         |
|            |  |          |                | Max M <sub>T</sub> | -0.56          | -0.02          | -0.15          | 0.02           | -0.11          | 0.02          |      |  |                         |
|            |  |          |                | Min M <sub>T</sub> | 0.56           | 0.02           | 0.15           | -0.02          | 0.11           | -0.02         |      |  |                         |
|            |  |          |                | Max M <sub>y</sub> | -0.61          | -0.06          | 0.17           | -0.02          | 0.13           | 0.04          |      |  |                         |
|            |  |          |                | Min M <sub>y</sub> | -0.61          | 0.06           | -0.17          | 0.02           | -0.13          | -0.04         |      |  |                         |
|            |  |          |                | Max M <sub>z</sub> | 0.18           | -0.16          | 0.06           | 0.00           | 0.05           | 0.12          |      |  |                         |
|            |  |          |                | Min M <sub>z</sub> | -0.18          | 0.16           | -0.06          | -0.00          | -0.05          | -0.12         |      |  |                         |
| 32         | RC1  | 2        | 0.000          | Max N              | 9.33           | -1.67          | -0.05          | 0.04           | 0.09           | -0.78         | CO 2 |  |                         |
|            |  |          |                | Min N              | -0.04          | 0.00           | 0.11           | -0.00          | -0.01          | 0.00          | CO 1 |  |                         |
|            |  |          |                | Max V <sub>y</sub> | -0.04          | 0.00           | 0.11           | -0.00          | -0.01          | 0.00          | CO 1 |  |                         |
|            |  |          |                | Min V <sub>y</sub> | 9.33           | -1.67          | -0.05          | 0.04           | 0.09           | -0.78         | CO 2 |  |                         |
|            |  |          |                | Max V <sub>z</sub> | -0.04          | 0.00           | 0.11           | -0.00          | -0.01          | 0.00          | CO 1 |  |                         |
|            |  |          |                | Min V <sub>z</sub> | 9.33           | -1.67          | -0.05          | 0.04           | 0.09           | -0.78         | CO 2 |  |                         |
|            |  |          |                | Max M <sub>T</sub> | 9.33           | -1.67          | -0.05          | 0.04           | 0.09           | -0.78         | CO 2 |  |                         |
|            |  |          |                | Min M <sub>T</sub> | -0.04          | 0.00           | 0.11           | -0.00          | -0.01          | 0.00          | CO 1 |  |                         |
|            |  |          |                | Max M <sub>y</sub> | 9.33           | -1.67          | -0.05          | 0.04           | 0.09           | -0.78         | CO 2 |  |                         |
|            |  |          |                | Min M <sub>y</sub> | -0.04          | 0.00           | 0.11           | -0.00          | -0.01          | 0.00          | CO 1 |  |                         |
|            |  |          |                | Max M <sub>z</sub> | -0.04          | 0.00           | 0.11           | -0.00          | -0.01          | 0.00          | CO 1 |  |                         |
|            |  |          |                | Min M <sub>z</sub> | 9.33           | -1.67          | -0.05          | 0.04           | 0.09           | -0.78         | CO 2 |  |                         |
|            |  | 6        | 1.550          | Max N              | 9.32           | -1.68          | -0.29          | 0.05           | -0.17          | 1.80          | CO 2 |  |                         |
|            |  |          |                | Min N              | -0.04          | 0.00           | -0.13          | -0.00          | -0.03          | -0.00         | CO 1 |  |                         |
|            |  |          |                | Max V <sub>y</sub> | -0.04          | 0.00           | -0.13          | -0.00          | -0.03          | -0.00         | CO 1 |  |                         |
|            |  |          |                | Min V <sub>y</sub> | 9.32           | -1.68          | -0.29          | 0.05           | -0.17          | 1.80          | CO 2 |  |                         |
|            |  |          |                | Max V <sub>z</sub> | -0.04          | 0.00           | -0.13          | -0.00          | -0.03          | -0.00         | CO 1 |  |                         |
|            |  |          |                | Min V <sub>z</sub> | 9.32           | -1.68          | -0.29          | 0.05           | -0.17          | 1.80          | CO 2 |  |                         |
|            |  |          |                | Max M <sub>T</sub> | 9.32           | -1.68          | -0.29          | 0.05           | -0.17          | 1.80          | CO 2 |  |                         |
|            |  |          |                | Min M <sub>T</sub> | -0.04          | 0.00           | -0.13          | -0.00          | -0.03          | -0.00         | CO 1 |  |                         |
|            |  |          |                | Max M <sub>y</sub> | -0.04          | 0.00           | -0.13          | -0.00          | -0.03          | -0.00         | CO 1 |  |                         |
|            |  |          |                | Min M <sub>y</sub> | 9.32           | -1.68          | -0.29          | 0.05           | -0.17          | 1.80          | CO 2 |  |                         |
|            |  |          |                | Max M <sub>z</sub> | 9.32           | -1.68          | -0.29          | 0.05           | -0.17          | 1.80          | CO 2 |  |                         |
|            |  |          |                | Min M <sub>z</sub> | -0.04          | 0.00           | -0.13          | -0.00          | -0.03          | -0.00         | CO 1 |  |                         |
|            | RC2  | 2        | 0.000          | Max N              | 6.21           | -1.11          | -0.02          | 0.03           | 0.06           | -0.52         | CO 4 |  |                         |
|            |  |          |                | Min N              | -0.03          | 0.00           | 0.09           | -0.00          | -0.01          | 0.00          | CO 3 |  |                         |
|            |  |          |                | Max V <sub>y</sub> | -0.03          | 0.00           | 0.09           | -0.00          | -0.01          | 0.00          | CO 3 |  |                         |
|            |  |          |                | Min V <sub>y</sub> | 6.21           | -1.11          | -0.02          | 0.03           | 0.06           | -0.52         | CO 4 |  |                         |
|            |  |          |                | Max V <sub>z</sub> | -0.03          | 0.00           | 0.09           | -0.00          | -0.01          | 0.00          | CO 3 |  |                         |
|            |  |          |                | Min V <sub>z</sub> | 6.21           | -1.11          | -0.02          | 0.03           | 0.06           | -0.52         | CO 4 |  |                         |
|            |  |          |                | Max M <sub>T</sub> | 6.21           | -1.11          | -0.02          | 0.03           | 0.06           | -0.52         | CO 4 |  |                         |
|            |  |          |                | Min M <sub>T</sub> | -0.03          | 0.00           | 0.09           | -0.00          | -0.01          | 0.00          | CO 3 |  |                         |
|            |  |          |                | Max M <sub>y</sub> | 6.21           | -1.11          | -0.02          | 0.03           | 0.06           | -0.52         | CO 4 |  |                         |
|            |  |          |                | Min M <sub>y</sub> | -0.03          | 0.00           | 0.09           | -0.00          | -0.01          | 0.00          | CO 3 |  |                         |
|            |  |          |                | Max M <sub>z</sub> | -0.03          | 0.00           | 0.09           | -0.00          | -0.01          | 0.00          | CO 3 |  |                         |
|            |  |          |                | Min M <sub>z</sub> | 6.21           | -1.11          | -0.02          | 0.03           | 0.06           | -0.52         | CO 4 |  |                         |
|            |  | 6        | 1.550          | Max N              | 6.21           | -1.12          | -0.20          | 0.03           | -0.11          | 1.20          | CO 4 |  |                         |
|            |  |          |                | Min N              | -0.03          | 0.00           | -0.10          | -0.00          | -0.02          | -0.00         | CO 3 |  |                         |
|            |  |          |                | Max V <sub>y</sub> | -0.03          | 0.00           | -0.10          | -0.00          | -0.02          | -0.00         | CO 3 |  |                         |
|            |  |          |                | Min V <sub>y</sub> | 6.21           | -1.12          | -0.20          | 0.03           | -0.11          | 1.20          | CO 4 |  |                         |
|            |  |          |                | Max V <sub>z</sub> | -0.03          | 0.00           | -0.10          | -0.00          | -0.02          | -0.00         | CO 3 |  |                         |
|            |  |          |                | Min V <sub>z</sub> | 6.21           | -1.12          | -0.20          | 0.03           | -0.11          | 1.20          | CO 4 |  |                         |
|            |  |          |                | Max M <sub>T</sub> | 6.21           | -1.12          | -0.20          | 0.03           | -0.11          | 1.20          | CO 4 |  |                         |
|            |  |          |                | Min M <sub>T</sub> | -0.03          | 0.00           | -0.10          | -0.00          | -0.02          | -0.00         | CO 3 |  |                         |
|            |  |          |                | Max M <sub>y</sub> | -0.03          | 0.00           | -0.10          | -0.00          | -0.02          | -0.00         | CO 3 |  |                         |
|            |  |          |                | Min M <sub>y</sub> | 6.21           | -1.12          | -0.20          | 0.03           | -0.11          | 1.20          | CO 4 |  |                         |
|            |  |          |                | Max M <sub>z</sub> | 6.21           | -1.12          | -0.20          | 0.03           | -0.11          | 1.20          | CO 4 |  |                         |
|            |  |          |                | Min M <sub>z</sub> | -0.03          | 0.00           | -0.10          | -0.00          | -0.02          | -0.00         | CO 3 |  |                         |
|            | RC3  | 2        | 0.000          | Max N              | 3.09           | -0.55          | 0.03           | 0.01           | 0.03           | -0.26         | CO 6 |  |                         |
|            |  |          |                | Min N              | -0.03          | 0.00           | 0.09           | -0.00          | -0.01          | 0.00          | CO 5 |  |                         |
|            |  |          |                | Max V <sub>y</sub> | -0.03          | 0.00           | 0.09           | -0.00          | -0.01          | 0.00          | CO 5 |  |                         |
|            |  |          |                | Min V <sub>y</sub> | 3.09           | -0.55          | 0.03           | 0.01           | 0.03           | -0.26         | CO 6 |  |                         |
|            |  |          |                | Max V <sub>z</sub> | -0.03          | 0.00           | 0.09           | -0.00          | -0.01          | 0.00          | CO 5 |  |                         |
|            |  |          |                | Min V <sub>z</sub> | 3.09           | -0.55          | 0.03           | 0.01           | 0.03           | -0.26         | CO 6 |  |                         |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date:

2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC   | Node No.                                     | Location x [m]     | Forces [kN]        |                    |                |                |                | Moments [kNm]  |       |       | Correspondin Load Cases |  |
|--------------------|--|--|--------------------|--------------------|--------------------|----------------|----------------|----------------|----------------|-------|-------|-------------------------|--|
|                    |  |  |                    | N                  | V <sub>y</sub>     | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |       |                         |  |
| 32                 | RC3  | 6  | 1.550              | Max M <sub>T</sub> | 3.09               | -0.55          | 0.03           | 0.01           | 0.03           | -0.26 | CO 6  |                         |  |
|                    |  |  |                    | Min M <sub>T</sub> | -0.03              | 0.00           | 0.09           | -0.00          | -0.01          | 0.00  | CO 5  |                         |  |
|                    |  |  |                    | Max M <sub>y</sub> | 3.09               | -0.55          | 0.03           | 0.01           | 0.03           | -0.26 | CO 6  |                         |  |
|                    |  |  |                    | Min M <sub>y</sub> | -0.03              | 0.00           | 0.09           | -0.00          | -0.01          | 0.00  | CO 5  |                         |  |
|                    |  |  |                    | Max M <sub>z</sub> | -0.03              | 0.00           | 0.09           | -0.00          | -0.01          | 0.00  | CO 5  |                         |  |
|                    |  |  |                    | Min M <sub>z</sub> | 3.09               | -0.55          | 0.03           | 0.01           | 0.03           | -0.26 | CO 6  |                         |  |
|                    |  |  |                    | Max N              | 3.09               | -0.56          | -0.15          | 0.02           | -0.07          | 0.60  | CO 6  |                         |  |
|                    |  |  |                    | Min N              | -0.03              | 0.00           | -0.10          | -0.00          | -0.02          | -0.00 | CO 5  |                         |  |
|                    |  |  |                    | Max V <sub>y</sub> | -0.03              | 0.00           | -0.10          | -0.00          | -0.02          | -0.00 | CO 5  |                         |  |
|                    |  |  |                    | Min V <sub>y</sub> | 3.09               | -0.56          | -0.15          | 0.02           | -0.07          | 0.60  | CO 6  |                         |  |
|                    |  |  |                    | Max V <sub>z</sub> | -0.03              | 0.00           | -0.10          | -0.00          | -0.02          | -0.00 | CO 5  |                         |  |
|                    |  |  |                    | Min V <sub>z</sub> | 3.09               | -0.56          | -0.15          | 0.02           | -0.07          | 0.60  | CO 6  |                         |  |
|                    |  | Max M <sub>T</sub>                           | 3.09               | -0.56              | -0.15              | 0.02           | -0.07          | 0.60           | CO 6           |       |       |                         |  |
|                    |  | Min M <sub>T</sub>                           | -0.03              | 0.00               | -0.10              | -0.00          | -0.02          | -0.00          | CO 5           |       |       |                         |  |
|                    |  | Max M <sub>y</sub>                           | -0.03              | 0.00               | -0.10              | -0.00          | -0.02          | -0.00          | CO 5           |       |       |                         |  |
|                    |  | Min M <sub>y</sub>                           | 3.09               | -0.56              | -0.15              | 0.02           | -0.07          | 0.60           | CO 6           |       |       |                         |  |
|                    |  | Max M <sub>z</sub>                           | 3.09               | -0.56              | -0.15              | 0.02           | -0.07          | 0.60           | CO 6           |       |       |                         |  |
|                    |  | Min M <sub>z</sub>                           | -0.03              | 0.00               | -0.10              | -0.00          | -0.02          | -0.00          | CO 5           |       |       |                         |  |
|                    |  | Max N  | 1.84               | -0.33              | 0.05               | 0.01           | 0.01           | -0.16          | CO 8           |       |       |                         |  |
|                    |  | Min N  | -0.03              | 0.00               | 0.09               | -0.00          | -0.01          | 0.00           | CO 7           |       |       |                         |  |
|                    |  | Max V <sub>y</sub>                           | -0.03              | 0.00               | 0.09               | -0.00          | -0.01          | 0.00           | CO 7           |       |       |                         |  |
|                    |  | Min V <sub>y</sub>                           | 1.84               | -0.33              | 0.05               | 0.01           | 0.01           | -0.16          | CO 8           |       |       |                         |  |
|                    |  | Max V <sub>z</sub>                           | -0.03              | 0.00               | 0.09               | -0.00          | -0.01          | 0.00           | CO 7           |       |       |                         |  |
|                    |  | Min V <sub>z</sub>                           | 1.84               | -0.33              | 0.05               | 0.01           | 0.01           | -0.16          | CO 8           |       |       |                         |  |
|                    | Max M <sub>T</sub>                           | 1.84   | -0.33              | 0.05               | 0.01               | 0.01           | -0.16          | CO 8           |                |       |       |                         |  |
|                    | Min M <sub>T</sub>                           | -0.03  | 0.00               | 0.09               | -0.00              | -0.01          | 0.00           | CO 7           |                |       |       |                         |  |
|                    | Max M <sub>y</sub>                           | 1.84   | -0.33              | 0.05               | 0.01               | 0.01           | -0.16          | CO 8           |                |       |       |                         |  |
|                    | Min M <sub>y</sub>                           | -0.03  | 0.00               | 0.09               | -0.00              | -0.01          | 0.00           | CO 7           |                |       |       |                         |  |
|                    | Max M <sub>z</sub>                           | -0.03  | 0.00               | 0.09               | -0.00              | -0.01          | 0.00           | CO 7           |                |       |       |                         |  |
|                    | Min M <sub>z</sub>                           | 1.84   | -0.33              | 0.05               | 0.01               | 0.01           | -0.16          | CO 8           |                |       |       |                         |  |
|                    | Max N  | 1.84   | -0.33              | -0.13              | 0.01               | -0.05          | 0.36           | CO 8           |                |       |       |                         |  |
|                    | Min N  | -0.03  | 0.00               | -0.10              | -0.00              | -0.02          | -0.00          | CO 7           |                |       |       |                         |  |
|                    | Max V <sub>y</sub>                           | -0.03  | 0.00               | -0.10              | -0.00              | -0.02          | -0.00          | CO 7           |                |       |       |                         |  |
|                    | Min V <sub>y</sub>                           | 1.84   | -0.33              | -0.13              | 0.01               | -0.05          | 0.36           | CO 8           |                |       |       |                         |  |
|                    | Max V <sub>z</sub>                           | -0.03  | 0.00               | -0.10              | -0.00              | -0.02          | -0.00          | CO 7           |                |       |       |                         |  |
|                    | Min V <sub>z</sub>                           | 1.84   | -0.33              | -0.13              | 0.01               | -0.05          | 0.36           | CO 8           |                |       |       |                         |  |
|                    | Max M <sub>T</sub>                           | 1.84   | -0.33              | -0.13              | 0.01               | -0.05          | 0.36           | CO 8           |                |       |       |                         |  |
|                    | Min M <sub>T</sub>                           | -0.03  | 0.00               | -0.10              | -0.00              | -0.02          | -0.00          | CO 7           |                |       |       |                         |  |
|                    | Max M <sub>y</sub>                           | -0.03  | 0.00               | -0.10              | -0.00              | -0.02          | -0.00          | CO 7           |                |       |       |                         |  |
|                    | Min M <sub>y</sub>                           | 1.84   | -0.33              | -0.13              | 0.01               | -0.05          | 0.36           | CO 8           |                |       |       |                         |  |
|                    | Max M <sub>z</sub>                           | 1.84   | -0.33              | -0.13              | 0.01               | -0.05          | 0.36           | CO 8           |                |       |       |                         |  |
|                    | Min M <sub>z</sub>                           | -0.03  | 0.00               | -0.10              | -0.00              | -0.02          | -0.00          | CO 7           |                |       |       |                         |  |
|                    | DLC1, Result Envelope X 100% / Y 30% / Z 30% |  |                    |                    |                    |                |                |                |                |       |       |                         |  |
|                    | RC5  | 2  | 0.000              | Max N              | 0.30               | -0.07          | -0.00          | 0.01           | 0.00           | -0.06 |       |                         |  |
|                    |  |  |                    | Min N              | -0.30              | 0.07           | 0.00           | -0.01          | -0.00          | 0.06  |       |                         |  |
|                    |  |  |                    | Max V <sub>y</sub> | -0.28              | 0.08           | 0.00           | -0.01          | 0.00           | 0.06  |       |                         |  |
|                    |  |  |                    | Min V <sub>y</sub> | 0.28               | -0.08          | -0.00          | 0.01           | -0.00          | -0.06 |       |                         |  |
|                    |  |  |                    | Max V <sub>z</sub> | -0.21              | 0.03           | 0.00           | -0.00          | -0.00          | 0.02  |       |                         |  |
|                    |  |  |                    | Min V <sub>z</sub> | 0.21               | -0.03          | -0.00          | 0.00           | 0.00           | -0.02 |       |                         |  |
|                    |  |  |                    | Max M <sub>T</sub> | 0.24               | -0.07          | -0.00          | 0.01           | -0.00          | -0.06 |       |                         |  |
|                    |  |  |                    | Min M <sub>T</sub> | -0.24              | 0.07           | 0.00           | -0.01          | 0.00           | 0.06  |       |                         |  |
|                    |  |  |                    | Max M <sub>y</sub> | 0.06               | 0.01           | -0.00          | -0.00          | 0.00           | 0.01  |       |                         |  |
|                    |  |  |                    | Min M <sub>y</sub> | -0.06              | -0.01          | 0.00           | 0.00           | -0.00          | -0.01 |       |                         |  |
|                    |  |  |                    | Max M <sub>z</sub> | -0.28              | 0.08           | 0.00           | -0.01          | 0.00           | 0.06  |       |                         |  |
|                    |  |  |                    | Min M <sub>z</sub> | 0.28               | -0.08          | -0.00          | 0.01           | -0.00          | -0.06 |       |                         |  |
|                    |  |  | Max N              | 0.30               | -0.07              | -0.00          | 0.01           | -0.00          | 0.06           |       |       |                         |  |
|                    |  |  | Min N              | -0.30              | 0.07               | 0.00           | -0.01          | 0.00           | -0.06          |       |       |                         |  |
|                    |  |  | Max V <sub>y</sub> | -0.28              | 0.08               | 0.00           | -0.01          | 0.00           | -0.06          |       |       |                         |  |
|                    |  |  | Min V <sub>y</sub> | 0.28               | -0.08              | -0.00          | 0.01           | -0.00          | 0.06           |       |       |                         |  |
|                    |  |  | Max V <sub>z</sub> | -0.21              | 0.03               | 0.00           | -0.00          | 0.00           | -0.03          |       |       |                         |  |
|                    |  |  | Min V <sub>z</sub> | 0.21               | -0.03              | -0.00          | 0.00           | -0.00          | 0.03           |       |       |                         |  |
|                    |  |  | Max M <sub>T</sub> | 0.24               | -0.07              | -0.00          | 0.01           | -0.00          | 0.06           |       |       |                         |  |
|                    |  |  | Min M <sub>T</sub> | -0.24              | 0.07               | 0.00           | -0.01          | 0.00           | -0.06          |       |       |                         |  |
|                    |  |  | Max M <sub>y</sub> | -0.26              | 0.05               | 0.00           | -0.00          | 0.00           | -0.04          |       |       |                         |  |
|                    |  |  | Min M <sub>y</sub> | 0.26               | -0.05              | -0.00          | 0.00           | -0.00          | 0.04           |       |       |                         |  |
|                    |  |  | Max M <sub>z</sub> | 0.28               | -0.08              | -0.00          | 0.01           | -0.00          | 0.06           |       |       |                         |  |
|                    |  |  | Min M <sub>z</sub> | -0.28              | 0.08               | 0.00           | -0.01          | 0.00           | -0.06          |       |       |                         |  |
|                    |  | DLC1, Result Envelope X 30% / Y 100% / Z 30% |                    |                    |                    |                |                |                |                |       |       |                         |  |
|                    |  | RC6  | 2                  | 0.000              | Max N              | 0.24           | -0.06          | -0.00          | 0.00           | 0.00  | -0.05 |                         |  |
|                    |  |  |                    |                    | Min N              | -0.24          | 0.06           | 0.00           | -0.00          | -0.00 | 0.05  |                         |  |
|                    |  |  |                    |                    | Max V <sub>y</sub> | -0.22          | 0.07           | 0.00           | -0.01          | 0.00  | 0.05  |                         |  |
|                    |  |  |                    |                    | Min V <sub>y</sub> | 0.22           | -0.07          | -0.00          | 0.01           | -0.00 | -0.05 |                         |  |
|                    |  |  |                    |                    | Max V <sub>z</sub> | -0.15          | 0.01           | 0.00           | -0.00          | -0.00 | 0.01  |                         |  |
|                    |  |  |                    |                    | Min V <sub>z</sub> | 0.15           | -0.01          | -0.00          | 0.00           | 0.00  | -0.01 |                         |  |
|                    |  |  |                    |                    | Max M <sub>T</sub> | 0.19           | -0.07          | -0.00          | 0.01           | -0.00 | -0.05 |                         |  |
|                    |  |  |                    |                    | Min M <sub>T</sub> | -0.19          | 0.07           | 0.00           | -0.01          | 0.00  | 0.05  |                         |  |
|                    |  |  |                    |                    | Max M <sub>y</sub> | 0.02           | 0.02           | -0.00          | -0.00          | 0.00  | 0.02  |                         |  |
|                    |  |  |                    |                    | Min M <sub>y</sub> | -0.02          | -0.02          | 0.00           | 0.00           | -0.00 | -0.02 |                         |  |
| Max M <sub>z</sub> |  |  |                    |                    | -0.22              | 0.07           | 0.00           | -0.01          | 0.00           | 0.05  |       |                         |  |
| Min M <sub>z</sub> |  |  |                    |                    | 0.22               | -0.07          | -0.00          | 0.01           | -0.00          | -0.05 |       |                         |  |
| Max N              |  |  |                    | 0.24               | -0.06              | -0.00          | 0.00           | -0.00          | 0.05           |       |       |                         |  |
| Min N              |  |  |                    | -0.24              | 0.06               | 0.00           | -0.00          | 0.00           | -0.05          |       |       |                         |  |
| Max V <sub>y</sub> |  |  |                    | -0.22              | 0.07               | 0.00           | -0.01          | 0.00           | -0.06          |       |       |                         |  |
| Min V <sub>y</sub> |  |  |                    | 0.22               | -0.07              | -0.00          | 0.01           | -0.00          | 0.06           |       |       |                         |  |
| Max V <sub>z</sub> |  |  |                    | -0.15              | 0.01               | 0.00           | -0.00          | 0.00           | -0.01          |       |       |                         |  |
| Min V <sub>z</sub> |  |  |                    | 0.15               | -0.01              | -0.00          | 0.00           | -0.00          | 0.01           |       |       |                         |  |
| Max M <sub>T</sub> |  |  |                    | 0.19               | -0.07              | -0.00          | 0.01           | -0.00          | 0.05           |       |       |                         |  |

RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC   | Node No.           | Location x [m] | Forces [kN]        |                |                |                    |                | Moments [kNm]  |         |        | Correspondin Load Cases |       |      |
|--------------------|--|--------------------|----------------|--------------------|----------------|----------------|--------------------|----------------|----------------|---------|--------|-------------------------|-------|------|
|                    |  |                    |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub>     | M <sub>y</sub> | M <sub>z</sub> |         |        |                         |       |      |
| 32                 | RC6  |                    |                | Min M <sub>T</sub> | -0.19          | 0.07           | 0.00               | ▷ -0.01        | 0.00           | -0.05   |        |                         |       |      |
|                    |  |                    |                | Max M <sub>y</sub> | -0.20          | 0.03           | 0.00               | ▷ -0.00        | 0.00           | -0.02   |        |                         |       |      |
|                    |  |                    |                | Min M <sub>y</sub> | 0.20           | -0.03          | -0.00              | 0.00           | ▷ -0.00        | 0.02    |        |                         |       |      |
|                    |  |                    |                | Max M <sub>z</sub> | 0.22           | -0.07          | -0.00              | 0.01           | ▷ -0.00        | 0.06    |        |                         |       |      |
|                    |  |                    |                | Min M <sub>z</sub> | -0.22          | 0.07           | 0.00               | -0.01          | 0.00           | ▷ -0.06 |        |                         |       |      |
|                    | DLC1, Result Envelope X 30% / Y 30% / Z 100% |                    |                |                    |                |                |                    |                |                |         |        |                         |       |      |
|                    | RC7  | 2                  | 0.000          | Max N              | ▷ 0.64         | -0.16          | -0.00              | 0.01           | 0.00           | -0.12   |        |                         |       |      |
|                    |  |                    |                | Min N              | ▷ -0.64        | 0.16           | 0.00               | -0.01          | -0.00          | 0.12    |        |                         |       |      |
|                    |  |                    |                | Max V <sub>y</sub> | ▷ -0.61        | ▷ 0.17         | 0.00               | -0.02          | 0.00           | 0.13    |        |                         |       |      |
|                    |  |                    |                | Min V <sub>y</sub> | ▷ 0.61         | ▷ -0.17        | -0.00              | 0.02           | -0.00          | -0.13   |        |                         |       |      |
|                    |  |                    |                | Max V <sub>z</sub> | -0.41          | 0.06           | ▷ 0.01             | -0.00          | -0.00          | 0.05    |        |                         |       |      |
|                    |  |                    |                | Min V <sub>z</sub> | 0.41           | -0.06          | ▷ -0.01            | 0.00           | 0.00           | -0.05   |        |                         |       |      |
|                    |  |                    |                | Max M <sub>T</sub> | 0.53           | -0.16          | -0.00              | ▷ 0.02         | -0.00          | -0.12   |        |                         |       |      |
|                    |  |                    |                | Min M <sub>T</sub> | -0.53          | 0.16           | 0.00               | ▷ -0.02        | 0.00           | 0.12    |        |                         |       |      |
|                    |  |                    |                | Max M <sub>y</sub> | 0.04           | 0.04           | -0.00              | -0.01          | 0.00           | 0.03    |        |                         |       |      |
|                    |  |                    |                | Min M <sub>y</sub> | -0.04          | -0.04          | 0.00               | 0.01           | -0.00          | -0.03   |        |                         |       |      |
|                    |  |                    |                | Max M <sub>z</sub> | -0.61          | 0.17           | 0.00               | -0.02          | 0.00           | ▷ 0.13  |        |                         |       |      |
|                    |  |                    |                | Min M <sub>z</sub> | 0.61           | -0.17          | -0.00              | 0.02           | -0.00          | ▷ -0.13 |        |                         |       |      |
|                    |  |                    |                | Max N              | ▷ 0.64         | -0.16          | -0.00              | 0.01           | -0.01          | 0.13    |        |                         |       |      |
|                    |  |                    |                | Min N              | -0.64          | 0.16           | 0.00               | -0.01          | 0.01           | -0.13   |        |                         |       |      |
|                    |  |                    |                | Max V <sub>y</sub> | ▷ -0.61        | ▷ 0.17         | 0.00               | -0.02          | 0.00           | -0.13   |        |                         |       |      |
|                    |  |                    |                | Min V <sub>y</sub> | ▷ 0.61         | ▷ -0.17        | -0.00              | 0.02           | -0.00          | 0.13    |        |                         |       |      |
|                    |  |                    |                | Max V <sub>z</sub> | -0.41          | 0.06           | ▷ 0.01             | -0.00          | 0.01           | -0.05   |        |                         |       |      |
|                    |  |                    |                | Min V <sub>z</sub> | 0.41           | -0.06          | ▷ -0.01            | 0.00           | -0.01          | 0.05    |        |                         |       |      |
|                    |  |                    |                | Max M <sub>T</sub> | 0.53           | -0.16          | -0.00              | 0.02           | -0.00          | 0.13    |        |                         |       |      |
|                    |  |                    |                | Min M <sub>T</sub> | -0.53          | 0.16           | 0.00               | ▷ -0.02        | 0.00           | -0.13   |        |                         |       |      |
|                    |  |                    |                | Max M <sub>y</sub> | -0.54          | 0.11           | 0.01               | -0.01          | 0.01           | -0.09   |        |                         |       |      |
|                    |  |                    |                | Min M <sub>y</sub> | 0.54           | -0.11          | -0.01              | 0.01           | -0.01          | 0.09    |        |                         |       |      |
|                    |  |                    |                | Max M <sub>z</sub> | 0.60           | -0.17          | -0.00              | 0.02           | -0.00          | ▷ 0.13  |        |                         |       |      |
|                    |  |                    |                | Min M <sub>z</sub> | -0.60          | 0.17           | 0.00               | -0.02          | 0.00           | ▷ -0.13 |        |                         |       |      |
|                    | 33   | RC1                | 4              | 0.000              | Max N          | ▷ 3.51         | 0.27               | -1.93          | 0.06           | 1.54    | -0.23  | CO 2                    |       |      |
|                    |  |                    |                |                    | Min N          | ▷ -0.03        | 0.00               | 0.12           | 0.00           | -0.02   | 0.00   | CO 1                    |       |      |
| Max V <sub>y</sub> |  |                    |                |                    | ▷ 3.51         | ▷ 0.27         | -1.93              | 0.06           | 1.54           | -0.23   | CO 2   |                         |       |      |
| Min V <sub>y</sub> |  |                    |                |                    | ▷ -0.03        | ▷ 0.00         | 0.12               | 0.00           | -0.02          | 0.00    | CO 1   |                         |       |      |
| Max V <sub>z</sub> |  |                    |                |                    | -0.03          | 0.00           | ▷ 0.12             | 0.00           | -0.02          | 0.00    | CO 1   |                         |       |      |
| Min V <sub>z</sub> |  |                    |                |                    | 3.51           | 0.27           | ▷ -1.93            | 0.06           | 1.54           | -0.23   | CO 2   |                         |       |      |
| Max M <sub>T</sub> |  |                    |                |                    | 3.51           | 0.27           | -1.93              | ▷ 0.06         | 1.54           | -0.23   | CO 2   |                         |       |      |
| Min M <sub>T</sub> |  |                    |                |                    | -0.03          | 0.00           | 0.12               | ▷ 0.00         | -0.02          | 0.00    | CO 1   |                         |       |      |
| Max M <sub>y</sub> |  |                    |                |                    | 3.51           | 0.27           | -1.93              | 0.06           | ▷ 1.54         | -0.23   | CO 2   |                         |       |      |
| Min M <sub>y</sub> |  |                    |                |                    | -0.03          | 0.00           | 0.12               | 0.00           | ▷ -0.02        | 0.00    | CO 1   |                         |       |      |
| Max M <sub>z</sub> |  |                    |                |                    | -0.03          | 0.00           | 0.12               | 0.00           | ▷ -0.02        | ▷ 0.00  | CO 1   |                         |       |      |
| Min M <sub>z</sub> |  |                    |                |                    | 3.51           | 0.27           | -1.93              | 0.06           | 1.54           | ▷ -0.23 | CO 2   |                         |       |      |
| Max N              |  |                    |                |                    | ▷ 3.51         | 0.28           | -2.18              | 0.05           | -1.64          | -0.66   | CO 2   |                         |       |      |
| Min N              |  |                    |                |                    | ▷ -0.03        | 0.00           | -0.12              | 0.00           | -0.02          | -0.00   | CO 1   |                         |       |      |
| Max V <sub>y</sub> |  |                    |                |                    | ▷ 3.51         | ▷ 0.28         | -2.18              | 0.05           | -1.64          | -0.66   | CO 2   |                         |       |      |
| Min V <sub>y</sub> |  |                    |                |                    | -0.03          | 0.00           | -0.12              | 0.00           | -0.02          | -0.00   | CO 1   |                         |       |      |
| Max V <sub>z</sub> |  |                    |                |                    | -0.03          | 0.00           | ▷ -0.12            | 0.00           | -0.02          | -0.00   | CO 1   |                         |       |      |
| Min V <sub>z</sub> |  |                    |                |                    | 3.51           | 0.28           | ▷ -2.18            | 0.05           | -1.64          | -0.66   | CO 2   |                         |       |      |
| Max M <sub>T</sub> |  |                    |                |                    | 3.51           | 0.28           | -2.18              | ▷ 0.05         | -1.64          | -0.66   | CO 2   |                         |       |      |
| Min M <sub>T</sub> |  |                    |                |                    | -0.03          | 0.00           | -0.12              | ▷ 0.00         | -0.02          | -0.00   | CO 1   |                         |       |      |
| Max M <sub>y</sub> |  |                    |                |                    | -0.03          | 0.00           | -0.12              | ▷ 0.00         | -0.02          | -0.00   | CO 1   |                         |       |      |
| Min M <sub>y</sub> |  |                    |                |                    | 3.51           | 0.28           | -2.18              | 0.05           | ▷ -1.64        | -0.66   | CO 2   |                         |       |      |
| Max M <sub>z</sub> |  |                    |                |                    | -0.03          | 0.00           | -0.12              | 0.00           | ▷ -0.02        | -0.00   | CO 1   |                         |       |      |
| Min M <sub>z</sub> |  |                    |                |                    | 3.51           | 0.28           | -2.18              | 0.05           | ▷ -1.64        | -0.66   | CO 2   |                         |       |      |
| RC2                |  |                    |                |                    | 4              | 0.000          | Max N              | ▷ 2.34         | 0.18           | -1.28   | 0.04   | 1.02                    | -0.16 | CO 4 |
|                    |  |                    |                |                    |                |                | Min N              | -0.02          | 0.00           | 0.09    | 0.00   | -0.02                   | 0.00  | CO 3 |
|                    |  |                    |                |                    |                |                | Max V <sub>y</sub> | ▷ 2.34         | ▷ 0.18         | -1.28   | 0.04   | 1.02                    | -0.16 | CO 4 |
|                    |  |                    |                |                    |                |                | Min V <sub>y</sub> | -0.02          | 0.00           | 0.09    | 0.00   | -0.02                   | 0.00  | CO 3 |
|                    |  |                    |                |                    |                |                | Max V <sub>z</sub> | -0.02          | 0.00           | ▷ 0.09  | 0.00   | -0.02                   | 0.00  | CO 3 |
|                    |  |                    |                |                    |                |                | Min V <sub>z</sub> | 2.34           | 0.18           | ▷ -1.28 | 0.04   | 1.02                    | -0.16 | CO 4 |
|                    |  |                    |                |                    |                |                | Max M <sub>T</sub> | 2.34           | 0.18           | -1.28   | ▷ 0.04 | 1.02                    | -0.16 | CO 4 |
|                    |  |                    |                |                    |                |                | Min M <sub>T</sub> | -0.02          | 0.00           | 0.09    | ▷ 0.00 | -0.02                   | 0.00  | CO 3 |
|                    |  | Max M <sub>y</sub> | 2.34           | 0.18               |                |                | -1.28              | 0.04           | ▷ 1.02         | -0.16   | CO 4   |                         |       |      |
|                    |  | Min M <sub>y</sub> | -0.02          | 0.00               |                |                | 0.09               | ▷ 0.00         | -0.02          | 0.00    | CO 3   |                         |       |      |
|                    |  | Max M <sub>z</sub> | -0.02          | 0.00               |                |                | 0.09               | 0.00           | ▷ -0.02        | 0.00    | CO 3   |                         |       |      |
|                    |  | Min M <sub>z</sub> | 2.34           | 0.18               |                |                | -1.28              | 0.04           | ▷ 1.02         | -0.16   | CO 4   |                         |       |      |
|                    |  | Max N              | ▷ 2.34         | 0.19               |                |                | -1.46              | 0.04           | -1.10          | -0.44   | CO 4   |                         |       |      |
|                    |  | Min N              | -0.02          | 0.00               |                |                | -0.09              | 0.00           | -0.02          | -0.00   | CO 3   |                         |       |      |
|                    |  | Max V <sub>y</sub> | ▷ 2.34         | ▷ 0.19             |                |                | -1.46              | 0.04           | -1.10          | -0.44   | CO 4   |                         |       |      |
|                    |  | Min V <sub>y</sub> | -0.02          | ▷ 0.00             |                |                | -0.09              | 0.00           | -0.02          | -0.00   | CO 3   |                         |       |      |
|                    |  | Max V <sub>z</sub> | -0.02          | 0.00               |                |                | ▷ -0.09            | 0.00           | -0.02          | -0.00   | CO 3   |                         |       |      |
|                    |  | Min V <sub>z</sub> | 2.34           | 0.19               |                |                | ▷ -1.46            | 0.04           | -1.10          | -0.44   | CO 4   |                         |       |      |
|                    |  | Max M <sub>T</sub> | 2.34           | 0.19               |                |                | -1.46              | ▷ 0.04         | -1.10          | -0.44   | CO 4   |                         |       |      |
|                    |  | RC3                | 4              | 0.000              |                |                | Max N              | ▷ 1.16         | 0.09           | -0.59   | 0.02   | 0.50                    | -0.08 | CO 6 |
| Min N              |  |                    |                |                    | -0.02          | 0.00           | 0.09               | 0.00           | -0.02          | 0.00    | CO 5   |                         |       |      |
| Max V <sub>y</sub> |  |                    |                |                    | ▷ 1.16         | ▷ 0.09         | -0.59              | 0.02           | 0.50           | -0.08   | CO 6   |                         |       |      |
| Min V <sub>y</sub> |  |                    |                |                    | -0.02          | 0.00           | 0.09               | 0.00           | -0.02          | 0.00    | CO 5   |                         |       |      |
| Max V <sub>z</sub> |  |                    |                |                    | -0.02          | 0.00           | ▷ 0.09             | 0.00           | -0.02          | 0.00    | CO 5   |                         |       |      |
| Min V <sub>z</sub> |  |                    |                |                    | 1.16           | 0.09           | ▷ -0.59            | 0.02           | 0.50           | -0.08   | CO 6   |                         |       |      |
| Max M <sub>T</sub> |  |                    |                |                    | 1.16           | 0.09           | -0.59              | ▷ 0.02         | 0.50           | -0.08   | CO 6   |                         |       |      |
| Min M <sub>T</sub> |  |                    |                |                    | -0.02          | 0.00           | 0.09               | ▷ 0.00         | -0.02          | 0.00    | CO 5   |                         |       |      |
| Max M <sub>y</sub> |  |                    |                |                    | 1.16           | 0.09           | -0.59              | 0.02           | ▷ 0.50         | -0.08   | CO 6   |                         |       |      |
| Min M <sub>y</sub> | -0.02  |                    |                |                    | 0.00           | -0.09          | 0.00               | ▷ -0.02        | -0.00          | CO 5    |        |                         |       |      |
| Max M <sub>z</sub> | -0.02  |                    |                |                    | 0.00           | -0.09          | 0.00               | ▷ -0.02        | ▷ -0.00        | CO 5    |        |                         |       |      |
| Min M <sub>z</sub> | 2.34   |                    |                |                    | 0.19           | -1.46          | 0.04               | -1.10          | ▷ -0.44        | CO 4    |        |                         |       |      |

RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No.                                     | Location x [m] | Forces [kN]        |                |                    |                | Moments [kNm]  |                |       | Correspondin Load Cases |       |       |  |
|------------|--|--|----------------|--------------------|----------------|--------------------|----------------|----------------|----------------|-------|-------------------------|-------|-------|--|
|            |  |  |                | N                  | V <sub>y</sub> | V <sub>z</sub>     | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |                         |       |       |  |
| 33         | RC3  | 8  | 1.550          | Min M <sub>y</sub> | -0.02          | 0.00               | 0.09           | 0.00           | -0.02          | 0.00  | CO 5                    |       |       |  |
|            |  |  |                | Max M <sub>z</sub> | -0.02          | 0.00               | 0.09           | 0.00           | -0.02          | 0.00  | CO 5                    |       |       |  |
|            |  |  |                | Min M <sub>z</sub> | 1.16           | 0.09               | -0.59          | 0.02           | 0.50           | -0.08 | CO 6                    |       |       |  |
|            |  |  |                | Max N              | 1.16           | 0.09               | -0.78          | 0.02           | -0.56          | -0.22 | CO 6                    |       |       |  |
|            |  |  |                | Min N              | -0.02          | 0.00               | -0.09          | 0.00           | -0.02          | -0.00 | CO 5                    |       |       |  |
|            |  |  |                | Max V <sub>y</sub> | 1.16           | 0.09               | -0.78          | 0.02           | -0.56          | -0.22 | CO 6                    |       |       |  |
|            |  |  |                | Min V <sub>y</sub> | -0.02          | 0.00               | -0.09          | 0.00           | -0.02          | -0.00 | CO 5                    |       |       |  |
|            |  |  |                | Max V <sub>z</sub> | -0.02          | 0.00               | -0.09          | 0.00           | -0.02          | -0.00 | CO 5                    |       |       |  |
|            |  |  |                | Min V <sub>z</sub> | 1.16           | 0.09               | -0.78          | 0.02           | -0.56          | -0.22 | CO 6                    |       |       |  |
|            |  |  |                | Max M <sub>T</sub> | 1.16           | 0.09               | -0.78          | 0.02           | -0.56          | -0.22 | CO 6                    |       |       |  |
|            |  |  |                | Min M <sub>T</sub> | -0.02          | 0.00               | -0.09          | 0.00           | -0.02          | -0.00 | CO 5                    |       |       |  |
|            |  |  |                | Max M <sub>y</sub> | -0.02          | 0.00               | -0.09          | 0.00           | -0.02          | -0.00 | CO 5                    |       |       |  |
|            |  |  |                | Min M <sub>y</sub> | 1.16           | 0.09               | -0.78          | 0.02           | -0.56          | -0.22 | CO 6                    |       |       |  |
|            |  |  |                | Max M <sub>z</sub> | -0.02          | 0.00               | -0.09          | 0.00           | -0.02          | -0.00 | CO 5                    |       |       |  |
|            |  |  |                | Min M <sub>z</sub> | 1.16           | 0.09               | -0.78          | 0.02           | -0.56          | -0.22 | CO 6                    |       |       |  |
|            | RC4  | 4  | 0.000          | Max N              | 0.69           | 0.06               | -0.32          | 0.01           | 0.30           | -0.05 | CO 8                    |       |       |  |
|            |  |  |                | Min N              | -0.02          | 0.00               | 0.09           | 0.00           | -0.02          | 0.00  | CO 7                    |       |       |  |
|            |  |  |                | Max V <sub>y</sub> | 0.69           | 0.06               | -0.32          | 0.01           | 0.30           | -0.05 | CO 8                    |       |       |  |
|            |  |  |                | Min V <sub>y</sub> | -0.02          | 0.00               | 0.09           | 0.00           | -0.02          | 0.00  | CO 7                    |       |       |  |
|            |  |  |                | Max V <sub>z</sub> | -0.02          | 0.00               | 0.09           | 0.00           | -0.02          | 0.00  | CO 7                    |       |       |  |
|            |  |  |                | Min V <sub>z</sub> | 0.69           | 0.06               | -0.32          | 0.01           | 0.30           | -0.05 | CO 8                    |       |       |  |
|            |  |  |                | Max M <sub>T</sub> | 0.69           | 0.06               | -0.32          | 0.01           | 0.30           | -0.05 | CO 8                    |       |       |  |
|            |  |  |                | Min M <sub>T</sub> | -0.02          | 0.00               | 0.09           | 0.00           | -0.02          | 0.00  | CO 7                    |       |       |  |
|            |  |  |                | Max M <sub>y</sub> | 0.69           | 0.06               | -0.32          | 0.01           | 0.30           | -0.05 | CO 8                    |       |       |  |
|            |  |  |                | Min M <sub>y</sub> | -0.02          | 0.00               | 0.09           | 0.00           | -0.02          | 0.00  | CO 7                    |       |       |  |
|            |  |  |                | Max M <sub>z</sub> | -0.02          | 0.00               | 0.09           | 0.00           | -0.02          | 0.00  | CO 7                    |       |       |  |
|            |  |  |                | Min M <sub>z</sub> | 0.69           | 0.06               | -0.32          | 0.01           | 0.30           | -0.05 | CO 8                    |       |       |  |
|            |  |  |                | 8                  | 1.550          | Max N              | 0.69           | 0.06           | -0.50          | 0.01  | -0.34                   | -0.13 | CO 8  |  |
|            |  |  |                |                    |                | Min N              | -0.02          | 0.00           | -0.09          | 0.00  | -0.02                   | -0.00 | CO 7  |  |
|            |  |  |                |                    |                | Max V <sub>y</sub> | 0.69           | 0.06           | -0.50          | 0.01  | -0.34                   | -0.13 | CO 8  |  |
|            |  | Min V <sub>y</sub>                           | -0.02          |                    |                | 0.00               | -0.09          | 0.00           | -0.02          | -0.00 | CO 7                    |       |       |  |
|            |  | Max V <sub>z</sub>                           | -0.02          |                    |                | 0.00               | -0.09          | 0.00           | -0.02          | -0.00 | CO 7                    |       |       |  |
|            |  | Min V <sub>z</sub>                           | 0.69           |                    |                | 0.06               | -0.50          | 0.01           | -0.34          | -0.13 | CO 8                    |       |       |  |
|            |  | Max M <sub>T</sub>                           | 0.69           |                    |                | 0.06               | -0.50          | 0.01           | -0.34          | -0.13 | CO 8                    |       |       |  |
|            |  | Min M <sub>T</sub>                           | -0.02          |                    |                | 0.00               | -0.09          | 0.00           | -0.02          | -0.00 | CO 7                    |       |       |  |
|            |  | Max M <sub>y</sub>                           | -0.02          |                    |                | 0.00               | -0.09          | 0.00           | -0.02          | -0.00 | CO 7                    |       |       |  |
|            |  | Min M <sub>y</sub>                           | 0.69           |                    |                | 0.06               | -0.50          | 0.01           | -0.34          | -0.13 | CO 8                    |       |       |  |
|            |  | Max M <sub>z</sub>                           | -0.02          |                    |                | 0.00               | -0.09          | 0.00           | -0.02          | -0.00 | CO 7                    |       |       |  |
|            |  | Min M <sub>z</sub>                           | 0.69           |                    |                | 0.06               | -0.50          | 0.01           | -0.34          | -0.13 | CO 8                    |       |       |  |
|            |  | DLC1, Result Envelope X 100% / Y 30% / Z 30% |                |                    |                |                    |                |                |                |       |                         |       |       |  |
|            |  | RC5  | 4              |                    |                | 0.000              | Max N          | 0.00           | -0.09          | -0.15 | 0.01                    | 0.11  | -0.07 |  |
|            |  |  |                |                    |                |                    | Min N          | -0.00          | 0.09           | 0.15  | -0.01                   | -0.11 | 0.07  |  |
|            |  |  |                | Max V <sub>y</sub> | -0.00          |                    | 0.09           | 0.15           | -0.01          | -0.12 | 0.07                    |       |       |  |
|            |  |  |                | Min V <sub>y</sub> | 0.00           |                    | -0.09          | -0.15          | 0.01           | 0.12  | -0.07                   |       |       |  |
|            |  |  |                | Max V <sub>z</sub> | -0.00          |                    | 0.09           | 0.16           | -0.01          | -0.12 | 0.07                    |       |       |  |
|            | Min V <sub>z</sub>                           |  |                | 0.00               | -0.09          |                    | -0.16          | 0.01           | 0.12           | -0.07 |                         |       |       |  |
|            | Max M <sub>T</sub>                           |  |                | 0.00               | -0.09          |                    | -0.14          | 0.01           | 0.11           | -0.07 |                         |       |       |  |
|            | Min M <sub>T</sub>                           |  |                | -0.00              | 0.09           |                    | 0.14           | -0.01          | -0.11          | 0.07  |                         |       |       |  |
|            | Max M <sub>y</sub>                           |  |                | 0.00               | -0.09          |                    | -0.16          | 0.01           | 0.12           | -0.07 |                         |       |       |  |
|            | Min M <sub>y</sub>                           |  |                | -0.00              | 0.09           |                    | 0.16           | -0.01          | -0.12          | 0.07  |                         |       |       |  |
|            | Max M <sub>z</sub>                           |  |                | -0.00              | 0.09           |                    | 0.15           | -0.01          | -0.12          | 0.07  |                         |       |       |  |
|            | Min M <sub>z</sub>                           |  |                | 0.00               | -0.09          |                    | -0.15          | 0.01           | 0.12           | -0.07 |                         |       |       |  |
|            | 8  |  | 1.550          | Max N              | 0.00           | -0.09              | -0.15          | 0.01           | -0.11          | 0.07  |                         |       |       |  |
|            |  |  |                | Min N              | -0.00          | 0.09               | 0.15           | -0.01          | 0.11           | -0.07 |                         |       |       |  |
|            |  |  |                | Max V <sub>y</sub> | -0.00          | 0.09               | 0.15           | -0.01          | 0.12           | -0.07 |                         |       |       |  |
|            |  |  |                | Min V <sub>y</sub> | 0.00           | -0.09              | -0.15          | 0.01           | -0.12          | 0.07  |                         |       |       |  |
|            |  |  |                | Max V <sub>z</sub> | -0.00          | 0.09               | 0.16           | -0.01          | 0.12           | -0.07 |                         |       |       |  |
|            |  |  |                | Min V <sub>z</sub> | 0.00           | -0.09              | -0.16          | 0.01           | -0.12          | 0.07  |                         |       |       |  |
|            |  |  |                | Max M <sub>T</sub> | 0.00           | -0.09              | -0.14          | 0.01           | -0.11          | 0.07  |                         |       |       |  |
|            |  |  |                | Min M <sub>T</sub> | -0.00          | 0.09               | 0.14           | -0.01          | 0.11           | -0.07 |                         |       |       |  |
|            |  |  |                | Max M <sub>y</sub> | -0.00          | 0.09               | 0.16           | -0.01          | 0.12           | -0.07 |                         |       |       |  |
|            |  |  |                | Min M <sub>y</sub> | 0.00           | -0.09              | -0.16          | 0.01           | -0.12          | 0.07  |                         |       |       |  |
|            |  |  |                | Max M <sub>z</sub> | -0.00          | -0.09              | -0.15          | 0.01           | -0.12          | 0.07  |                         |       |       |  |
|            |  |  |                | Min M <sub>z</sub> | -0.00          | 0.09               | 0.15           | -0.01          | 0.12           | -0.07 |                         |       |       |  |
|            | DLC1, Result Envelope X 30% / Y 100% / Z 30% |  |                |                    |                |                    |                |                |                |       |                         |       |       |  |
|            | RC6  | 4  | 0.000          | Max N              | 0.00           | -0.08              | -0.12          | 0.01           | 0.09           | -0.07 |                         |       |       |  |
|            |  |  |                | Min N              | -0.00          | 0.08               | 0.12           | -0.01          | -0.09          | 0.07  |                         |       |       |  |
|            |  |  |                | Max V <sub>y</sub> | -0.00          | 0.08               | 0.12           | -0.01          | -0.09          | 0.07  |                         |       |       |  |
|            |  |  |                | Min V <sub>y</sub> | 0.00           | -0.08              | -0.12          | 0.01           | 0.09           | -0.07 |                         |       |       |  |
|            |  |  |                | Max V <sub>z</sub> | -0.00          | 0.08               | 0.13           | -0.01          | -0.10          | 0.06  |                         |       |       |  |
|            |  |  |                | Min V <sub>z</sub> | 0.00           | -0.08              | -0.13          | 0.01           | 0.10           | -0.06 |                         |       |       |  |
|            |  |  |                | Max M <sub>T</sub> | 0.00           | -0.08              | -0.11          | 0.01           | 0.09           | -0.06 |                         |       |       |  |
|            |  |  |                | Min M <sub>T</sub> | -0.00          | 0.08               | 0.11           | -0.01          | -0.09          | 0.06  |                         |       |       |  |
|            |  |  |                | Max M <sub>y</sub> | 0.00           | -0.08              | -0.13          | 0.01           | 0.10           | -0.06 |                         |       |       |  |
|            |  |  |                | Min M <sub>y</sub> | -0.00          | 0.08               | 0.13           | -0.01          | -0.10          | 0.06  |                         |       |       |  |
|            |  |  |                | Max M <sub>z</sub> | -0.00          | 0.08               | 0.12           | -0.01          | -0.09          | 0.07  |                         |       |       |  |
|            |  |  |                | Min M <sub>z</sub> | 0.00           | -0.08              | -0.12          | 0.01           | 0.09           | -0.07 |                         |       |       |  |
|            |  | 8  | 1.550          | Max N              | 0.00           | -0.08              | -0.12          | 0.01           | -0.09          | 0.06  |                         |       |       |  |
|            |  |  |                | Min N              | -0.00          | 0.08               | 0.12           | -0.01          | 0.09           | -0.06 |                         |       |       |  |
|            |  |  |                | Max V <sub>y</sub> | -0.00          | 0.08               | 0.12           | -0.01          | 0.09           | -0.06 |                         |       |       |  |
|            |  |  |                | Min V <sub>y</sub> | 0.00           | -0.08              | -0.12          | 0.01           | -0.09          | 0.06  |                         |       |       |  |
|            |  |  |                | Max V <sub>z</sub> | -0.00          | 0.08               | 0.13           | -0.01          | 0.10           | -0.06 |                         |       |       |  |
|            |  |  |                | Min V <sub>z</sub> | 0.00           | -0.08              | -0.13          | 0.01           | -0.10          | 0.06  |                         |       |       |  |
|            |  |  |                | Max M <sub>T</sub> | 0.00           | -0.08              | -0.11          | 0.01           | -0.09          | 0.06  |                         |       |       |  |
|            |  |  |                | Min M <sub>T</sub> | -0.00          | 0.08               | 0.11           | -0.01          | 0.09           | -0.06 |                         |       |       |  |
|            |  |  |                | Max M <sub>y</sub> | -0.00          | 0.08               | 0.13           | -0.01          | 0.10           | -0.06 |                         |       |       |  |
|            |  |  |                | Min M <sub>y</sub> | 0.00           | -0.08              | -0.13          | 0.01           | -0.10          | 0.06  |                         |       |       |  |
|            |  |  |                |                    |                |                    |                |                |                |       |                         |       |       |  |

## RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

### 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] | Forces [kN]                                  |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |
|------------|-----|----------|----------------|--|----------------|----------------|----------------|----------------|----------------|-------------------------|
|            |     |          |                | N  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |
| 33         | RC6 | 4        | 0.000          | Max M <sub>z</sub>                           | 0.00           | -0.08          | -0.12          | 0.01           | -0.09          | 0.06                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.00          | 0.08           | 0.12           | -0.01          | 0.09           | -0.06                   |
|            |     |          |                | DLC1, Result Envelope X 30% / Y 30% / Z 100% |                |                |                |                |                |                         |
|            |     |          |                | RC7  |                |                |                |                |                |                         |
|            |     |          |                | Max N  | 0.01           | -0.20          | -0.32          | 0.02           | 0.25           | -0.15                   |
|            |     |          |                | Min N  | -0.01          | 0.20           | 0.32           | -0.02          | -0.25          | 0.15                    |
|            |     |          |                | Max V <sub>y</sub>                           | -0.01          | 0.20           | 0.33           | -0.02          | -0.25          | 0.16                    |
|            |     |          |                | Min V <sub>y</sub>                           | 0.01           | -0.20          | -0.33          | 0.02           | 0.25           | -0.16                   |
|            |     |          |                | Max V <sub>z</sub>                           | -0.01          | 0.19           | 0.34           | -0.02          | -0.26          | 0.15                    |
|            |     |          |                | Min V <sub>z</sub>                           | 0.01           | -0.19          | -0.34          | 0.02           | 0.26           | -0.15                   |
|            |     |          |                | Max M <sub>T</sub>                           | 0.01           | -0.19          | -0.31          | 0.02           | 0.24           | -0.15                   |
|            |     |          |                | Min M <sub>T</sub>                           | -0.01          | 0.19           | 0.31           | -0.02          | -0.24          | 0.15                    |
|            |     |          |                | Max M <sub>y</sub>                           | 0.01           | -0.19          | -0.34          | 0.02           | 0.26           | -0.15                   |
|            |     |          |                | Min M <sub>y</sub>                           | -0.01          | 0.19           | 0.34           | -0.02          | -0.26          | 0.15                    |
|            |     |          |                | Max M <sub>z</sub>                           | -0.01          | 0.20           | 0.33           | -0.02          | -0.25          | 0.16                    |
|            |     |          |                | Min M <sub>z</sub>                           | 0.01           | -0.20          | -0.33          | 0.02           | 0.25           | -0.16                   |
|            |     | 8        | 1.550          | Max N  | 0.01           | -0.20          | -0.32          | 0.02           | -0.25          | 0.15                    |
|            |     |          |                | Min N  | -0.01          | 0.20           | 0.32           | -0.02          | 0.25           | -0.15                   |
|            |     |          |                | Max V <sub>y</sub>                           | -0.01          | 0.20           | 0.33           | -0.02          | 0.26           | -0.15                   |
|            |     |          |                | Min V <sub>y</sub>                           | 0.01           | -0.20          | -0.33          | 0.02           | -0.26          | 0.15                    |
|            |     |          |                | Max V <sub>z</sub>                           | -0.01          | 0.19           | 0.34           | -0.02          | 0.26           | -0.15                   |
|            |     |          |                | Min V <sub>z</sub>                           | 0.01           | -0.19          | -0.34          | 0.02           | -0.26          | 0.15                    |
|            |     |          |                | Max M <sub>T</sub>                           | 0.01           | -0.19          | -0.31          | 0.02           | -0.24          | 0.15                    |
|            |     |          |                | Min M <sub>T</sub>                           | -0.01          | 0.19           | 0.31           | -0.02          | 0.24           | -0.15                   |
|            |     |          |                | Max M <sub>y</sub>                           | -0.01          | 0.19           | 0.34           | -0.02          | 0.26           | -0.15                   |
|            |     |          |                | Min M <sub>y</sub>                           | 0.01           | -0.19          | -0.34          | 0.02           | -0.26          | 0.15                    |
|            |     |          |                | Max M <sub>z</sub>                           | 0.01           | -0.20          | -0.33          | 0.02           | -0.26          | 0.15                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.01          | 0.20           | 0.33           | -0.02          | 0.26           | -0.15                   |
| 34         | RC1 | 21       | 0.000          | Max N  | -0.03          | 0.00           | 0.12           | 0.00           | -0.03          | -0.00                   |
|            |     |          |                | Min N  | -0.05          | 0.41           | -3.67          | 0.04           | 2.91           | 0.21                    |
|            |     |          |                | Max V <sub>y</sub>                           | -0.05          | 0.41           | -3.67          | 0.04           | 2.91           | 0.21                    |
|            |     |          |                | Min V <sub>y</sub>                           | -0.03          | 0.00           | 0.12           | 0.00           | -0.03          | -0.00                   |
|            |     |          |                | Max V <sub>z</sub>                           | -0.03          | 0.00           | 0.12           | 0.00           | -0.03          | -0.00                   |
|            |     |          |                | Min V <sub>z</sub>                           | -0.05          | 0.41           | -3.67          | 0.04           | 2.91           | 0.21                    |
|            |     |          |                | Max M <sub>T</sub>                           | -0.05          | 0.41           | -3.67          | 0.04           | 2.91           | 0.21                    |
|            |     |          |                | Min M <sub>T</sub>                           | -0.03          | 0.00           | 0.12           | 0.00           | -0.03          | -0.00                   |
|            |     |          |                | Max M <sub>y</sub>                           | -0.05          | 0.41           | -3.67          | 0.04           | 2.91           | 0.21                    |
|            |     |          |                | Min M <sub>y</sub>                           | -0.03          | 0.00           | 0.12           | 0.00           | -0.03          | -0.00                   |
|            |     |          |                | Max M <sub>z</sub>                           | -0.05          | 0.41           | -3.67          | 0.04           | 2.91           | 0.21                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.03          | 0.00           | 0.12           | 0.00           | -0.03          | -0.00                   |
|            |     | 22       | 1.550          | Max N  | -0.03          | 0.00           | -0.12          | 0.00           | -0.04          | -0.00                   |
|            |     |          |                | Min N  | -0.05          | 0.41           | -3.91          | 0.04           | -2.97          | -0.43                   |
|            |     |          |                | Max V <sub>y</sub>                           | -0.05          | 0.41           | -3.91          | 0.04           | -2.97          | -0.43                   |
|            |     |          |                | Min V <sub>y</sub>                           | -0.03          | 0.00           | -0.12          | 0.00           | -0.04          | -0.00                   |
|            |     |          |                | Max V <sub>z</sub>                           | -0.03          | 0.00           | -0.12          | 0.00           | -0.04          | -0.00                   |
|            |     |          |                | Min V <sub>z</sub>                           | -0.05          | 0.41           | -3.91          | 0.04           | -2.97          | -0.43                   |
|            |     |          |                | Max M <sub>T</sub>                           | -0.05          | 0.41           | -3.91          | 0.04           | -2.97          | -0.43                   |
|            |     |          |                | Min M <sub>T</sub>                           | -0.03          | 0.00           | -0.12          | 0.00           | -0.04          | -0.00                   |
|            |     |          |                | Max M <sub>y</sub>                           | -0.03          | 0.00           | -0.12          | 0.00           | -0.04          | -0.00                   |
|            |     |          |                | Min M <sub>y</sub>                           | -0.05          | 0.41           | -3.91          | 0.04           | -2.97          | -0.43                   |
|            |     |          |                | Max M <sub>z</sub>                           | -0.03          | 0.00           | -0.12          | 0.00           | -0.04          | -0.00                   |
|            |     |          |                | Min M <sub>z</sub>                           | -0.05          | 0.41           | -3.91          | 0.04           | -2.97          | -0.43                   |
|            | RC2 | 21       | 0.000          | Max N  | -0.02          | 0.00           | 0.09           | 0.00           | -0.02          | -0.00                   |
|            |     |          |                | Min N  | -0.04          | 0.27           | -2.43          | 0.03           | 1.93           | 0.14                    |
|            |     |          |                | Max V <sub>y</sub>                           | -0.04          | 0.27           | -2.43          | 0.03           | 1.93           | 0.14                    |
|            |     |          |                | Min V <sub>y</sub>                           | -0.02          | 0.00           | 0.09           | 0.00           | -0.02          | -0.00                   |
|            |     |          |                | Max V <sub>z</sub>                           | -0.02          | 0.00           | 0.09           | 0.00           | -0.02          | -0.00                   |
|            |     |          |                | Min V <sub>z</sub>                           | -0.04          | 0.27           | -2.43          | 0.03           | 1.93           | 0.14                    |
|            |     |          |                | Max M <sub>T</sub>                           | -0.04          | 0.27           | -2.43          | 0.03           | 1.93           | 0.14                    |
|            |     |          |                | Min M <sub>T</sub>                           | -0.02          | 0.00           | 0.09           | 0.00           | -0.02          | -0.00                   |
|            |     |          |                | Max M <sub>y</sub>                           | -0.04          | 0.27           | -2.43          | 0.03           | 1.93           | 0.14                    |
|            |     |          |                | Min M <sub>y</sub>                           | -0.02          | 0.00           | 0.09           | 0.00           | -0.02          | -0.00                   |
|            |     |          |                | Max M <sub>z</sub>                           | -0.04          | 0.27           | -2.43          | 0.03           | 1.93           | 0.14                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.02          | 0.00           | 0.09           | 0.00           | -0.02          | -0.00                   |
|            |     | 22       | 1.550          | Max N  | -0.02          | 0.00           | -0.09          | 0.00           | -0.03          | -0.00                   |
|            |     |          |                | Min N  | -0.04          | 0.27           | -2.62          | 0.03           | -1.98          | -0.28                   |
|            |     |          |                | Max V <sub>y</sub>                           | -0.04          | 0.27           | -2.62          | 0.03           | -1.98          | -0.28                   |
|            |     |          |                | Min V <sub>y</sub>                           | -0.02          | 0.00           | -0.09          | 0.00           | -0.03          | -0.00                   |
|            |     |          |                | Max V <sub>z</sub>                           | -0.02          | 0.00           | -0.09          | 0.00           | -0.03          | -0.00                   |
|            |     |          |                | Min V <sub>z</sub>                           | -0.04          | 0.27           | -2.62          | 0.03           | -1.98          | -0.28                   |
|            |     |          |                | Max M <sub>T</sub>                           | -0.04          | 0.27           | -2.62          | 0.03           | -1.98          | -0.28                   |
|            |     |          |                | Min M <sub>T</sub>                           | -0.02          | 0.00           | -0.09          | 0.00           | -0.03          | -0.00                   |
|            |     |          |                | Max M <sub>y</sub>                           | -0.02          | 0.00           | -0.09          | 0.00           | -0.03          | -0.00                   |
|            |     |          |                | Min M <sub>y</sub>                           | -0.04          | 0.27           | -2.62          | 0.03           | -1.98          | -0.28                   |
|            |     |          |                | Max M <sub>z</sub>                           | -0.02          | 0.00           | -0.09          | 0.00           | -0.03          | -0.00                   |
|            |     |          |                | Min M <sub>z</sub>                           | -0.04          | 0.27           | -2.62          | 0.03           | -1.98          | -0.28                   |
| 34         | RC3 | 21       | 0.000          | Max N  | -0.02          | 0.00           | 0.09           | 0.00           | -0.02          | -0.00                   |
|            |     |          |                | Min N  | -0.03          | 0.14           | -1.17          | 0.01           | 0.95           | 0.07                    |
|            |     |          |                | Max V <sub>y</sub>                           | -0.03          | 0.14           | -1.17          | 0.01           | 0.95           | 0.07                    |
|            |     |          |                | Min V <sub>y</sub>                           | -0.02          | 0.00           | 0.09           | 0.00           | -0.02          | -0.00                   |
|            |     |          |                | Max V <sub>z</sub>                           | -0.02          | 0.00           | 0.09           | 0.00           | -0.02          | -0.00                   |
|            |     |          |                | Min V <sub>z</sub>                           | -0.03          | 0.14           | -1.17          | 0.01           | 0.95           | 0.07                    |
|            |     |          |                | Max M <sub>T</sub>                           | -0.03          | 0.14           | -1.17          | 0.01           | 0.95           | 0.07                    |
|            |     |          |                | Min M <sub>T</sub>                           | -0.02          | 0.00           | 0.09           | 0.00           | -0.02          | -0.00                   |
|            |     |          |                | Max M <sub>y</sub>                           | -0.03          | 0.14           | -1.17          | 0.01           | 0.95           | 0.07                    |
|            |     |          |                | Min M <sub>y</sub>                           | -0.02          | 0.00           | 0.09           | 0.00           | -0.02          | -0.00                   |
|            |     |          |                | Max M <sub>z</sub>                           | -0.03          | 0.14           | -1.17          | 0.01           | 0.95           | 0.07                    |
|            |     |          |                | Min M <sub>z</sub>                           | -0.02          | 0.00           | 0.09           | 0.00           | -0.02          | -0.00                   |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m]     | Forces [kN]        |                    |                |                |                | Moments [kNm]  |         |         | Correspondin Load Cases |
|------------|--|----------|--------------------|--------------------|--------------------|----------------|----------------|----------------|----------------|---------|---------|-------------------------|
|            |  |          |                    | N                  | V <sub>y</sub>     | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |         |         |                         |
| 34         | RC3  | 22       | 1.550              | Max N              | ▷ -0.02            | 0.00           | -0.09          | 0.00           | -0.03          | -0.00   | CO 5    |                         |
|            |  |          |                    | Min N              | ▷ -0.03            | 0.14           | -1.35          | 0.01           | -1.00          | -0.14   | CO 6    |                         |
|            |  |          |                    | Max V <sub>y</sub> | ▷ -0.03            | 0.14           | -1.35          | 0.01           | -1.00          | -0.14   | CO 6    |                         |
|            |  |          |                    | Min V <sub>y</sub> | ▷ -0.02            | 0.00           | -0.09          | 0.00           | -0.03          | -0.00   | CO 5    |                         |
|            |  |          |                    | Max V <sub>z</sub> | ▷ -0.02            | 0.00           | ▷ -0.09        | 0.00           | -0.03          | -0.00   | CO 5    |                         |
|            |  |          |                    | Min V <sub>z</sub> | ▷ -0.03            | 0.14           | ▷ -1.35        | 0.01           | -1.00          | -0.14   | CO 6    |                         |
|            |  |          |                    | Max M <sub>T</sub> | ▷ -0.03            | 0.14           | -1.35          | ▷ 0.01         | -1.00          | -0.14   | CO 6    |                         |
|            |  |          |                    | Min M <sub>T</sub> | ▷ -0.02            | 0.00           | -0.09          | ▷ 0.00         | -0.03          | -0.00   | CO 5    |                         |
|            |  |          |                    | Max M <sub>y</sub> | ▷ -0.02            | 0.00           | -0.09          | ▷ 0.00         | -0.03          | -0.00   | CO 5    |                         |
|            |  |          |                    | Min M <sub>y</sub> | ▷ -0.03            | 0.14           | -1.35          | ▷ 0.01         | -1.00          | -0.14   | CO 6    |                         |
|            |  |          |                    | Max M <sub>z</sub> | ▷ -0.02            | 0.00           | -0.09          | ▷ 0.00         | -0.03          | -0.00   | CO 5    |                         |
|            |  |          |                    | Min M <sub>z</sub> | ▷ -0.03            | 0.14           | -1.35          | ▷ 0.01         | -1.00          | -0.14   | CO 6    |                         |
|            |  | RC4      | 21                 | 0.000              | Max N              | ▷ -0.02        | 0.00           | 0.09           | 0.00           | -0.02   | -0.00   | CO 7                    |
|            |  |          |                    |                    | Min N              | ▷ -0.03        | 0.08           | -0.67          | 0.01           | 0.56    | 0.04    | CO 8                    |
|            |  |          |                    |                    | Max V <sub>y</sub> | ▷ -0.03        | 0.08           | -0.67          | ▷ 0.01         | 0.56    | 0.04    | CO 8                    |
|            |  |          |                    |                    | Min V <sub>y</sub> | ▷ -0.02        | 0.00           | 0.09           | 0.00           | -0.02   | -0.00   | CO 7                    |
|            |  |          |                    |                    | Max V <sub>z</sub> | ▷ -0.02        | 0.00           | ▷ 0.09         | 0.00           | -0.02   | -0.00   | CO 7                    |
|            |  |          |                    |                    | Min V <sub>z</sub> | ▷ -0.03        | 0.08           | ▷ -0.67        | 0.01           | 0.56    | 0.04    | CO 8                    |
|            |  |          |                    |                    | Max M <sub>T</sub> | ▷ -0.03        | 0.08           | -0.67          | ▷ 0.01         | 0.56    | 0.04    | CO 8                    |
|            |  |          |                    |                    | Min M <sub>T</sub> | ▷ -0.02        | 0.00           | 0.09           | 0.00           | -0.02   | -0.00   | CO 7                    |
|            |  |          |                    |                    | Max M <sub>y</sub> | ▷ -0.03        | 0.08           | -0.67          | ▷ 0.01         | 0.56    | 0.04    | CO 8                    |
|            |  |          |                    |                    | Min M <sub>y</sub> | ▷ -0.02        | 0.00           | 0.09           | ▷ 0.00         | -0.02   | -0.00   | CO 7                    |
|            |  |          |                    |                    | Max M <sub>z</sub> | ▷ -0.03        | 0.08           | -0.67          | ▷ 0.01         | 0.56    | ▷ 0.04  | CO 8                    |
|            |  |          |                    |                    | Min M <sub>z</sub> | ▷ -0.02        | 0.00           | 0.09           | 0.00           | -0.02   | ▷ -0.00 | CO 7                    |
|            | 22   | 1.550    | Max N              | ▷ -0.02            | 0.00               | -0.09          | 0.00           | -0.03          | -0.00          | CO 7    |         |                         |
|            |  |          | Min N              | ▷ -0.03            | 0.08               | -0.85          | 0.01           | -0.61          | -0.09          | CO 8    |         |                         |
|            |  |          | Max V <sub>y</sub> | ▷ -0.03            | 0.08               | -0.85          | 0.01           | -0.61          | -0.09          | CO 8    |         |                         |
|            |  |          | Min V <sub>y</sub> | ▷ -0.02            | 0.00               | -0.09          | 0.00           | -0.03          | -0.00          | CO 7    |         |                         |
|            |  |          | Max V <sub>z</sub> | ▷ -0.02            | 0.00               | ▷ -0.09        | 0.00           | -0.03          | -0.00          | CO 7    |         |                         |
|            |  |          | Min V <sub>z</sub> | ▷ -0.03            | 0.08               | ▷ -0.85        | 0.01           | -0.61          | -0.09          | CO 8    |         |                         |
|            |  |          | Max M <sub>T</sub> | ▷ -0.03            | 0.08               | -0.85          | ▷ 0.01         | -0.61          | -0.09          | CO 8    |         |                         |
|            |  |          | Min M <sub>T</sub> | ▷ -0.02            | 0.00               | -0.09          | ▷ 0.00         | -0.03          | -0.00          | CO 7    |         |                         |
|            |  |          | Max M <sub>y</sub> | ▷ -0.02            | 0.00               | -0.09          | ▷ 0.00         | -0.03          | -0.00          | CO 7    |         |                         |
|            |  |          | Min M <sub>y</sub> | ▷ -0.03            | 0.08               | -0.85          | ▷ 0.01         | -0.61          | -0.09          | CO 8    |         |                         |
|            |  |          | Max M <sub>z</sub> | ▷ -0.02            | 0.00               | -0.09          | 0.00           | -0.03          | ▷ -0.00        | CO 7    |         |                         |
|            |  |          | Min M <sub>z</sub> | ▷ -0.03            | 0.08               | -0.85          | 0.01           | -0.61          | ▷ -0.09        | CO 8    |         |                         |
|            | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                    |                    |                    |                |                |                |                |         |         |                         |
|            | RC5  | 21       | 0.000              | Max N              | ▷ 0.00             | 0.03           | 0.14           | -0.01          | -0.11          | 0.02    |         |                         |
|            |  |          |                    | Min N              | ▷ -0.00            | -0.03          | -0.14          | 0.01           | 0.11           | -0.02   |         |                         |
|            |  |          |                    | Max V <sub>y</sub> | ▷ 0.00             | ▷ 0.04         | -0.14          | -0.00          | 0.11           | 0.03    |         |                         |
|            |  |          |                    | Min V <sub>y</sub> | ▷ -0.00            | ▷ -0.04        | 0.14           | 0.00           | -0.11          | -0.03   |         |                         |
|            |  |          |                    | Max V <sub>z</sub> | 0.00               | -0.01          | ▷ 0.38         | -0.01          | -0.29          | -0.01   |         |                         |
|            |  |          |                    | Min V <sub>z</sub> | -0.00              | 0.01           | ▷ -0.38        | 0.01           | 0.29           | 0.01    |         |                         |
|            |  |          |                    | Max M <sub>T</sub> | -0.00              | -0.01          | ▷ -0.30        | ▷ 0.01         | 0.23           | -0.01   |         |                         |
|            |  |          |                    | Min M <sub>T</sub> | 0.00               | 0.01           | ▷ 0.30         | ▷ -0.01        | -0.23          | 0.01    |         |                         |
|            |  |          |                    | Max M <sub>y</sub> | -0.00              | 0.01           | -0.38          | 0.01           | ▷ 0.29         | 0.01    |         |                         |
|            |  |          |                    | Min M <sub>y</sub> | 0.00               | -0.01          | 0.38           | -0.01          | ▷ -0.29        | -0.01   |         |                         |
|            |  |          |                    | Max M <sub>z</sub> | 0.00               | 0.04           | -0.14          | -0.00          | 0.11           | ▷ 0.03  |         |                         |
|            |  |          |                    | Min M <sub>z</sub> | -0.00              | -0.04          | 0.14           | 0.00           | -0.11          | ▷ -0.03 |         |                         |
|            |  | 22       | 1.550              | Max N              | ▷ 0.00             | 0.03           | 0.14           | -0.01          | 0.11           | -0.02   |         |                         |
|            |  |          |                    | Min N              | ▷ -0.00            | -0.03          | -0.14          | 0.01           | -0.11          | 0.02    |         |                         |
|            |  |          |                    | Max V <sub>y</sub> | ▷ 0.00             | ▷ 0.04         | -0.14          | -0.00          | -0.11          | -0.03   |         |                         |
|            |  |          |                    | Min V <sub>y</sub> | ▷ -0.00            | ▷ -0.04        | 0.14           | 0.00           | 0.11           | 0.03    |         |                         |
|            |  |          |                    | Max V <sub>z</sub> | 0.00               | -0.01          | ▷ 0.38         | -0.01          | 0.29           | 0.01    |         |                         |
|            |  |          |                    | Min V <sub>z</sub> | -0.00              | 0.01           | ▷ -0.38        | 0.01           | -0.29          | -0.01   |         |                         |
|            |  |          |                    | Max M <sub>T</sub> | -0.00              | -0.01          | ▷ -0.30        | ▷ 0.01         | -0.23          | 0.01    |         |                         |
|            |  |          |                    | Min M <sub>T</sub> | 0.00               | 0.01           | ▷ 0.30         | ▷ -0.01        | 0.23           | -0.01   |         |                         |
|            |  |          |                    | Max M <sub>y</sub> | 0.00               | -0.01          | 0.38           | -0.01          | ▷ 0.29         | 0.01    |         |                         |
|            |  |          |                    | Min M <sub>y</sub> | -0.00              | 0.01           | -0.38          | 0.01           | ▷ -0.29        | -0.01   |         |                         |
|            |  |          |                    | Max M <sub>z</sub> | -0.00              | -0.04          | 0.14           | 0.00           | 0.10           | ▷ 0.03  |         |                         |
|            |  |          |                    | Min M <sub>z</sub> | 0.00               | 0.04           | -0.14          | -0.00          | -0.10          | ▷ -0.03 |         |                         |
|            | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                    |                    |                    |                |                |                |                |         |         |                         |
|            | RC6  | 21       | 0.000              | Max N              | ▷ 0.00             | 0.03           | 0.14           | -0.01          | -0.10          | 0.02    |         |                         |
|            |  |          |                    | Min N              | ▷ -0.00            | -0.03          | -0.14          | 0.01           | 0.10           | -0.02   |         |                         |
|            |  |          |                    | Max V <sub>y</sub> | 0.00               | ▷ 0.04         | -0.07          | -0.00          | 0.05           | 0.03    |         |                         |
|            |  |          |                    | Min V <sub>y</sub> | -0.00              | ▷ -0.04        | 0.07           | 0.00           | -0.05          | -0.03   |         |                         |
|            |  |          |                    | Max V <sub>z</sub> | 0.00               | -0.00          | ▷ 0.29         | -0.01          | -0.23          | -0.00   |         |                         |
|            |  |          |                    | Min V <sub>z</sub> | -0.00              | 0.00           | ▷ -0.29        | 0.01           | 0.23           | 0.00    |         |                         |
|            |  |          |                    | Max M <sub>T</sub> | -0.00              | -0.02          | -0.24          | ▷ 0.01         | 0.18           | -0.02   |         |                         |
|            |  |          |                    | Min M <sub>T</sub> | 0.00               | 0.02           | 0.24           | ▷ -0.01        | -0.18          | 0.02    |         |                         |
|            |  |          |                    | Max M <sub>y</sub> | -0.00              | 0.00           | -0.29          | 0.01           | ▷ 0.23         | 0.00    |         |                         |
|            |  |          |                    | Min M <sub>y</sub> | 0.00               | -0.00          | 0.29           | -0.01          | ▷ -0.23        | -0.00   |         |                         |
|            |  |          |                    | Max M <sub>z</sub> | 0.00               | 0.04           | -0.07          | -0.00          | 0.05           | ▷ 0.03  |         |                         |
|            |  |          |                    | Min M <sub>z</sub> | -0.00              | -0.04          | 0.07           | 0.00           | -0.05          | ▷ -0.03 |         |                         |
|            |  | 22       | 1.550              | Max N              | ▷ 0.00             | 0.03           | 0.14           | -0.01          | 0.10           | -0.02   |         |                         |
|            |  |          |                    | Min N              | ▷ -0.00            | -0.03          | -0.14          | 0.01           | -0.10          | 0.02    |         |                         |
|            |  |          |                    | Max V <sub>y</sub> | 0.00               | ▷ 0.04         | -0.07          | -0.00          | -0.05          | -0.03   |         |                         |
|            |  |          |                    | Min V <sub>y</sub> | -0.00              | ▷ -0.04        | 0.07           | 0.00           | 0.05           | 0.03    |         |                         |
|            |  |          |                    | Max V <sub>z</sub> | 0.00               | -0.00          | ▷ 0.29         | -0.01          | 0.23           | 0.00    |         |                         |
|            |  |          |                    | Min V <sub>z</sub> | -0.00              | 0.00           | ▷ -0.29        | 0.01           | -0.23          | -0.00   |         |                         |
|            |  |          |                    | Max M <sub>T</sub> | -0.00              | -0.02          | -0.24          | ▷ 0.01         | -0.18          | 0.02    |         |                         |
|            |  |          |                    | Min M <sub>T</sub> | 0.00               | 0.02           | 0.24           | ▷ -0.01        | 0.18           | -0.02   |         |                         |
|            |  |          |                    | Max M <sub>y</sub> | 0.00               | -0.00          | 0.29           | -0.01          | ▷ 0.23         | 0.00    |         |                         |
|            |  |          |                    | Min M <sub>y</sub> | -0.00              | 0.00           | -0.29          | 0.01           | ▷ -0.23        | -0.00   |         |                         |
|            |  |          |                    | Max M <sub>z</sub> | -0.00              | -0.04          | 0.07           | 0.00           | 0.05           | ▷ 0.03  |         |                         |
|            |  |          |                    | Min M <sub>z</sub> | 0.00               | 0.04           | -0.07          | -0.00          | -0.05          | ▷ -0.03 |         |                         |
|            | DLC1, Result Envelope X 30% / Y 30% / Z 100% |          |                    |                    |                    |                |                |                |                |         |         |                         |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No.           | Location x [m] | Forces [kN]        |                    |                    |                |                | Moments [kNm]  |       |       | Correspondin Load Cases |      |
|------------|-----|--------------------|----------------|--------------------|--------------------|--------------------|----------------|----------------|----------------|-------|-------|-------------------------|------|
|            |     |                    |                | N                  | V <sub>y</sub>     | V <sub>z</sub>     | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |       |                         |      |
| 34         | RC7 | 21                 | 0.000          | Max N              | 0.01               | 0.06               | 0.40           | -0.02          | -0.31          | 0.04  |       |                         |      |
|            |     |                    |                | Min N              | -0.01              | -0.06              | -0.40          | 0.02           | 0.31           | -0.04 |       |                         |      |
|            |     |                    |                | Max V <sub>y</sub> | 0.00               | 0.08               | -0.21          | -0.01          | 0.16           | 0.06  |       |                         |      |
|            |     |                    |                | Min V <sub>y</sub> | -0.00              | -0.08              | 0.21           | 0.01           | -0.16          | -0.06 |       |                         |      |
|            |     |                    |                | Max V <sub>z</sub> | 0.00               | -0.02              | 0.81           | -0.02          | -0.63          | -0.01 |       |                         |      |
|            |     |                    |                | Min V <sub>z</sub> | -0.00              | 0.02               | -0.81          | 0.02           | 0.63           | 0.01  |       |                         |      |
|            |     |                    |                | Max M <sub>T</sub> | -0.00              | -0.03              | -0.66          | 0.02           | 0.51           | -0.02 |       |                         |      |
|            |     |                    |                | Min M <sub>T</sub> | 0.00               | 0.03               | 0.66           | -0.02          | -0.51          | 0.02  |       |                         |      |
|            |     |                    |                | Max M <sub>y</sub> | -0.00              | 0.02               | -0.81          | 0.02           | 0.63           | 0.01  |       |                         |      |
|            |     |                    |                | Min M <sub>y</sub> | 0.00               | -0.02              | 0.81           | -0.02          | -0.63          | -0.01 |       |                         |      |
|            |     |                    |                | Max M <sub>z</sub> | 0.00               | 0.08               | -0.21          | -0.01          | 0.16           | 0.06  |       |                         |      |
|            |     |                    |                | Min M <sub>z</sub> | -0.00              | -0.08              | 0.21           | 0.01           | -0.16          | -0.06 |       |                         |      |
|            |     | 22                 | 1.550          | Max N              | 0.01               | 0.06               | 0.40           | -0.02          | 0.31           | -0.04 |       |                         |      |
|            |     |                    |                | Min N              | -0.01              | -0.06              | -0.40          | 0.02           | -0.31          | 0.04  |       |                         |      |
|            |     |                    |                | Max V <sub>y</sub> | 0.00               | 0.08               | -0.21          | -0.01          | -0.16          | -0.06 |       |                         |      |
|            |     |                    |                | Min V <sub>y</sub> | -0.00              | -0.08              | 0.21           | 0.01           | 0.16           | 0.06  |       |                         |      |
|            |     |                    |                | Max V <sub>z</sub> | 0.00               | -0.02              | 0.81           | -0.02          | 0.63           | 0.01  |       |                         |      |
|            |     |                    |                | Min V <sub>z</sub> | -0.00              | 0.02               | -0.81          | 0.02           | -0.63          | -0.01 |       |                         |      |
|            |     |                    |                | Max M <sub>T</sub> | -0.00              | -0.03              | -0.66          | 0.02           | -0.51          | 0.02  |       |                         |      |
|            |     |                    |                | Min M <sub>T</sub> | 0.00               | 0.03               | 0.66           | -0.02          | 0.51           | -0.02 |       |                         |      |
|            |     |                    |                | Max M <sub>y</sub> | 0.00               | -0.02              | 0.81           | -0.02          | 0.63           | 0.01  |       |                         |      |
|            |     |                    |                | Min M <sub>y</sub> | -0.00              | 0.02               | -0.81          | 0.02           | -0.63          | -0.01 |       |                         |      |
|            |     |                    |                | Max M <sub>z</sub> | -0.00              | -0.08              | 0.21           | 0.01           | 0.16           | 0.06  |       |                         |      |
|            |     |                    |                | Min M <sub>z</sub> | 0.00               | 0.08               | -0.21          | -0.01          | -0.16          | -0.06 |       |                         |      |
| 35         | RC1 | 23                 | 0.000          | Max N              | 0.00               | 0.00               | 0.67           | -0.00          | -0.18          | -0.00 | CO 1  |                         |      |
|            |     |                    |                | Min N              | -0.00              | 2.15               | 0.45           | 0.02           | -0.01          | 1.67  | CO 2  |                         |      |
|            |     |                    |                | Max V <sub>y</sub> | -0.00              | 2.15               | 0.45           | 0.02           | -0.01          | 1.67  | CO 2  |                         |      |
|            |     |                    |                | Min V <sub>y</sub> | 0.00               | 0.00               | 0.67           | -0.00          | -0.18          | -0.00 | CO 1  |                         |      |
|            |     |                    |                | Max V <sub>z</sub> | 0.00               | 0.00               | 0.67           | -0.00          | -0.18          | -0.00 | CO 1  |                         |      |
|            |     |                    |                | Min V <sub>z</sub> | -0.00              | 2.15               | 0.45           | 0.02           | -0.01          | 1.67  | CO 2  |                         |      |
|            |     |                    |                | Max M <sub>T</sub> | -0.00              | 2.15               | 0.45           | 0.02           | -0.01          | 1.67  | CO 2  |                         |      |
|            |     |                    |                | Min M <sub>T</sub> | 0.00               | 0.00               | 0.67           | -0.00          | -0.18          | -0.00 | CO 1  |                         |      |
|            |     |                    |                | Max M <sub>y</sub> | -0.00              | 2.15               | 0.45           | 0.02           | -0.01          | 1.67  | CO 2  |                         |      |
|            |     |                    |                | Min M <sub>y</sub> | 0.00               | 0.00               | 0.67           | -0.00          | -0.18          | -0.00 | CO 1  |                         |      |
|            |     |                    |                | Max M <sub>z</sub> | -0.00              | 2.15               | 0.45           | 0.02           | -0.01          | 1.67  | CO 2  |                         |      |
|            |     |                    |                | Min M <sub>z</sub> | 0.00               | 0.00               | 0.67           | -0.00          | -0.18          | -0.00 | CO 1  |                         |      |
|            |     |                    |                | 0.775 Left         |                    | Max N              | 0.00           | 0.00           | 0.54           | -0.00 | 0.29  | -0.00                   | CO 1 |
|            |     |                    |                |                    |                    | Min N              | -0.00          | 2.15           | 0.33           | 0.02  | 0.29  | 0.00                    | CO 2 |
|            |     |                    |                |                    |                    | Max V <sub>y</sub> | -0.00          | 2.15           | 0.33           | 0.02  | 0.29  | 0.00                    | CO 2 |
|            |     |                    |                |                    |                    | Min V <sub>y</sub> | 0.00           | 0.00           | 0.54           | -0.00 | 0.29  | -0.00                   | CO 1 |
|            |     |                    |                |                    |                    | Max V <sub>z</sub> | 0.00           | 0.00           | 0.54           | -0.00 | 0.29  | -0.00                   | CO 1 |
|            |     |                    |                |                    |                    | Min V <sub>z</sub> | -0.00          | 2.15           | 0.33           | 0.02  | 0.29  | 0.00                    | CO 2 |
|            |     |                    |                |                    |                    | Max M <sub>T</sub> | -0.00          | 2.15           | 0.33           | 0.02  | 0.29  | 0.00                    | CO 2 |
|            |     |                    |                |                    |                    | Min M <sub>T</sub> | 0.00           | 0.00           | 0.54           | -0.00 | 0.29  | -0.00                   | CO 1 |
|            |     |                    |                |                    |                    | Max M <sub>y</sub> | -0.00          | 2.15           | 0.33           | 0.02  | 0.29  | 0.00                    | CO 2 |
|            |     |                    |                |                    |                    | Min M <sub>y</sub> | 0.00           | 0.00           | 0.54           | -0.00 | 0.29  | -0.00                   | CO 1 |
|            |     |                    |                |                    |                    | Max M <sub>z</sub> | -0.00          | 2.15           | 0.33           | 0.02  | 0.29  | 0.00                    | CO 2 |
|            |     |                    |                |                    |                    | Min M <sub>z</sub> | 0.00           | 0.00           | 0.54           | -0.00 | 0.29  | -0.00                   | CO 1 |
|            |     | 0.775 Right        |                | Max N              | 0.00               | 0.00               | -0.54          | -0.00          | 0.29           | -0.00 | CO 1  |                         |      |
|            |     |                    |                | Min N              | -0.00              | 2.15               | -0.75          | 0.02           | 0.29           | 0.00  | CO 2  |                         |      |
|            |     |                    |                | Max V <sub>y</sub> | -0.00              | 2.15               | -0.75          | 0.02           | 0.29           | 0.00  | CO 2  |                         |      |
|            |     |                    |                | Min V <sub>y</sub> | 0.00               | 0.00               | -0.54          | -0.00          | 0.29           | -0.00 | CO 1  |                         |      |
|            |     |                    |                | Max V <sub>z</sub> | 0.00               | 0.00               | -0.54          | -0.00          | 0.29           | -0.00 | CO 1  |                         |      |
|            |     |                    |                | Min V <sub>z</sub> | -0.00              | 2.15               | -0.75          | 0.02           | 0.29           | 0.00  | CO 2  |                         |      |
|            |     |                    |                | Max M <sub>T</sub> | -0.00              | 2.15               | -0.75          | 0.02           | 0.29           | 0.00  | CO 2  |                         |      |
|            |     |                    |                | Min M <sub>T</sub> | 0.00               | 0.00               | -0.54          | -0.00          | 0.29           | -0.00 | CO 1  |                         |      |
|            |     |                    |                | Max M <sub>y</sub> | -0.00              | 2.15               | -0.75          | 0.02           | 0.29           | 0.00  | CO 2  |                         |      |
|            |     |                    |                | Min M <sub>y</sub> | 0.00               | 0.00               | -0.54          | -0.00          | 0.29           | -0.00 | CO 1  |                         |      |
|            |     |                    |                | Max M <sub>z</sub> | -0.00              | 2.15               | -0.75          | 0.02           | 0.29           | 0.00  | CO 2  |                         |      |
|            |     |                    |                | Min M <sub>z</sub> | 0.00               | 0.00               | -0.54          | -0.00          | 0.29           | -0.00 | CO 1  |                         |      |
|            |     | 24                 | 1.550          | Max N              | 0.00               | 0.00               | -0.66          | -0.00          | -0.17          | -0.00 | CO 1  |                         |      |
|            |     |                    |                | Min N              | -0.01              | 2.15               | -0.87          | 0.01           | -0.33          | -1.66 | CO 2  |                         |      |
|            |     |                    |                | Max V <sub>y</sub> | -0.01              | 2.15               | -0.87          | 0.01           | -0.33          | -1.66 | CO 2  |                         |      |
|            |     |                    |                | Min V <sub>y</sub> | 0.00               | 0.00               | -0.66          | -0.00          | -0.17          | -0.00 | CO 1  |                         |      |
|            |     |                    |                | Max V <sub>z</sub> | 0.00               | 0.00               | -0.66          | -0.00          | -0.17          | -0.00 | CO 1  |                         |      |
|            |     |                    |                | Min V <sub>z</sub> | -0.01              | 2.15               | -0.87          | 0.01           | -0.33          | -1.66 | CO 2  |                         |      |
|            |     |                    |                | Max M <sub>T</sub> | -0.01              | 2.15               | -0.87          | 0.01           | -0.33          | -1.66 | CO 2  |                         |      |
|            |     |                    |                | Min M <sub>T</sub> | 0.00               | 0.00               | -0.66          | -0.00          | -0.17          | -0.00 | CO 1  |                         |      |
|            |     |                    |                | Max M <sub>y</sub> | 0.00               | 0.00               | -0.66          | -0.00          | -0.17          | -0.00 | CO 1  |                         |      |
|            |     |                    |                | Min M <sub>y</sub> | -0.01              | 2.15               | -0.87          | 0.01           | -0.33          | -1.66 | CO 2  |                         |      |
|            |     |                    |                | Max M <sub>z</sub> | 0.00               | 0.00               | -0.66          | -0.00          | -0.17          | -0.00 | CO 1  |                         |      |
|            |     |                    |                | Min M <sub>z</sub> | -0.01              | 2.15               | -0.87          | 0.01           | -0.33          | -1.66 | CO 2  |                         |      |
| RC2        | 23  |                    |                | 0.000              | Max N              | 0.00               | 0.00           | 0.49           | -0.00          | -0.13 | -0.00 | CO 3                    |      |
|            |     |                    |                |                    | Min N              | -0.00              | 1.43           | 0.35           | 0.01           | -0.02 | 1.11  | CO 4                    |      |
|            |     |                    |                |                    | Max V <sub>y</sub> | -0.00              | 1.43           | 0.35           | 0.01           | -0.02 | 1.11  | CO 4                    |      |
|            |     |                    |                |                    | Min V <sub>y</sub> | 0.00               | 0.00           | 0.49           | -0.00          | -0.13 | -0.00 | CO 3                    |      |
|            |     |                    |                |                    | Max V <sub>z</sub> | 0.00               | 0.00           | 0.49           | -0.00          | -0.13 | -0.00 | CO 3                    |      |
|            |     |                    |                |                    | Min V <sub>z</sub> | -0.00              | 1.43           | 0.35           | 0.01           | -0.02 | 1.11  | CO 4                    |      |
|            |     |                    |                |                    | Max M <sub>T</sub> | -0.00              | 1.43           | 0.35           | 0.01           | -0.02 | 1.11  | CO 4                    |      |
|            |     |                    |                |                    | Min M <sub>T</sub> | 0.00               | 0.00           | 0.49           | -0.00          | -0.13 | -0.00 | CO 3                    |      |
|            |     |                    |                |                    | Max M <sub>y</sub> | -0.00              | 1.43           | 0.35           | 0.01           | -0.02 | 1.11  | CO 4                    |      |
|            |     |                    |                |                    | Min M <sub>y</sub> | 0.00               | 0.00           | 0.49           | -0.00          | -0.13 | -0.00 | CO 3                    |      |
|            |     |                    |                |                    | Max M <sub>z</sub> | -0.00              | 1.43           | 0.35           | 0.01           | -0.02 | 1.11  | CO 4                    |      |
|            |     |                    |                |                    | Min M <sub>z</sub> | 0.00               | 0.00           | 0.49           | -0.00          | -0.13 | -0.00 | CO 3                    |      |
| 0.775 Left |     | Max N              | 0.00           |                    | 0.00               | 0.40               | -0.00          | 0.22           | -0.00          | CO 3  |       |                         |      |
|            |     | Min N              | -0.00          |                    | 1.43               | 0.26               | 0.01           | 0.22           | 0.00           | CO 4  |       |                         |      |
|            |     | Max V <sub>y</sub> | -0.00          |                    | 1.43               | 0.26               | 0.01           | 0.22           | 0.00           | CO 4  |       |                         |      |
|            |     | Min V <sub>y</sub> | 0.00           |                    | 0.00               | 0.40               | -0.00          | 0.22           | -0.00          | CO 3  |       |                         |      |
|            |     | Max V <sub>z</sub> | 0.00           |                    | 0.00               | 0.40               | -0.00          | 0.22           | -0.00          | CO 3  |       |                         |      |
|            |     | Min V <sub>z</sub> | -0.00          |                    | 1.43               | 0.26               | 0.01           | 0.22           | 0.00           | CO 4  |       |                         |      |
|            |     | Max M <sub>T</sub> | -0.00          |                    | 1.43               | 0.26               | 0.01           | 0.22           | 0.00           | CO 4  |       |                         |      |
|            |     | Min M <sub>T</sub> | 0.00           |                    | 0.00               | 0.40               | -0.00          | 0.22           | -0.00          | CO 3  |       |                         |      |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date:

2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC                 | Node No.           | Location x [m] | Forces [kN]        |                |                | Moments [kNm]  |                    |                | Correspondin Load Cases |       |       |       |       |      |
|------------|--------------------|--------------------|----------------|--------------------|----------------|----------------|----------------|--------------------|----------------|-------------------------|-------|-------|-------|-------|------|
|            |                    |                    |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub>     | M <sub>z</sub> |                         |       |       |       |       |      |
| 35         | RC2                |                    | 0.775 Right    | Min V <sub>y</sub> | 0.00           | 0.00           | 0.40           | -0.00              | 0.22           | -0.00                   | CO 3  |       |       |       |      |
|            |                    |                    |                | Max V <sub>z</sub> | 0.00           | 0.00           | 0.40           | -0.00              | 0.22           | -0.00                   | CO 3  |       |       |       |      |
|            |                    |                    |                | Min V <sub>z</sub> | -0.00          | 1.43           | 0.26           | 0.01               | 0.22           | 0.00                    | CO 4  |       |       |       |      |
|            |                    |                    |                | Max M <sub>T</sub> | -0.00          | 1.43           | 0.26           | 0.01               | 0.22           | 0.00                    | CO 4  |       |       |       |      |
|            |                    |                    |                | Min M <sub>T</sub> | 0.00           | 0.00           | 0.40           | -0.00              | 0.22           | -0.00                   | CO 3  |       |       |       |      |
|            |                    |                    |                | Max M <sub>y</sub> | -0.00          | 1.43           | 0.26           | 0.01               | 0.22           | 0.00                    | CO 4  |       |       |       |      |
|            |                    |                    |                | Min M <sub>y</sub> | 0.00           | 0.00           | 0.40           | -0.00              | 0.22           | -0.00                   | CO 3  |       |       |       |      |
|            |                    |                    |                | Max M <sub>z</sub> | -0.00          | 1.43           | 0.26           | 0.01               | 0.22           | 0.00                    | CO 4  |       |       |       |      |
|            |                    |                    |                | Min M <sub>z</sub> | 0.00           | 0.00           | 0.40           | -0.00              | 0.22           | -0.00                   | CO 3  |       |       |       |      |
|            |                    |                    |                | Max N              | 0.00           | 0.00           | -0.40          | -0.00              | 0.22           | -0.00                   | CO 3  |       |       |       |      |
|            |                    |                    |                | Min N              | -0.00          | 1.43           | -0.54          | 0.01               | 0.22           | 0.00                    | CO 4  |       |       |       |      |
|            |                    |                    |                | Max V <sub>y</sub> | -0.00          | 1.43           | -0.54          | 0.01               | 0.22           | 0.00                    | CO 4  |       |       |       |      |
|            |                    |                    |                | Min V <sub>y</sub> | 0.00           | 0.00           | -0.40          | -0.00              | 0.22           | -0.00                   | CO 3  |       |       |       |      |
|            |                    |                    |                | Max V <sub>z</sub> | 0.00           | 0.00           | -0.40          | -0.00              | 0.22           | -0.00                   | CO 3  |       |       |       |      |
|            |                    |                    |                | Min V <sub>z</sub> | -0.00          | 1.43           | -0.54          | 0.01               | 0.22           | 0.00                    | CO 4  |       |       |       |      |
|            |                    |                    |                | Max M <sub>T</sub> | -0.00          | 1.43           | -0.54          | 0.01               | 0.22           | 0.00                    | CO 4  |       |       |       |      |
|            |                    |                    |                | Min M <sub>T</sub> | 0.00           | 0.00           | -0.40          | -0.00              | 0.22           | -0.00                   | CO 3  |       |       |       |      |
|            |                    |                    |                | Max M <sub>y</sub> | -0.00          | 1.43           | -0.54          | 0.01               | 0.22           | 0.00                    | CO 4  |       |       |       |      |
|            |                    |                    |                | Min M <sub>y</sub> | 0.00           | 0.00           | -0.40          | -0.00              | 0.22           | -0.00                   | CO 3  |       |       |       |      |
|            |                    |                    |                | Max M <sub>z</sub> | -0.00          | 1.43           | -0.54          | 0.01               | 0.22           | 0.00                    | CO 4  |       |       |       |      |
|            |                    |                    |                | Min M <sub>z</sub> | 0.00           | 0.00           | -0.40          | -0.00              | 0.22           | -0.00                   | CO 3  |       |       |       |      |
|            |                    |                    |                | Max N              | 0.00           | 0.00           | -0.49          | -0.00              | -0.13          | -0.00                   | CO 3  |       |       |       |      |
|            |                    |                    |                | Min N              | -0.00          | 1.43           | -0.63          | 0.01               | -0.23          | -1.11                   | CO 4  |       |       |       |      |
|            |                    |                    |                | Max V <sub>y</sub> | -0.00          | 1.43           | -0.63          | 0.01               | -0.23          | -1.11                   | CO 4  |       |       |       |      |
|            |                    |                    |                | Min V <sub>y</sub> | 0.00           | 0.00           | -0.49          | -0.00              | -0.13          | -0.00                   | CO 3  |       |       |       |      |
|            |                    |                    |                | Max V <sub>z</sub> | 0.00           | 0.00           | -0.49          | -0.00              | -0.13          | -0.00                   | CO 3  |       |       |       |      |
|            |                    |                    |                | Min V <sub>z</sub> | -0.00          | 1.43           | -0.63          | 0.01               | -0.23          | -1.11                   | CO 4  |       |       |       |      |
|            |                    |                    |                | Max M <sub>T</sub> | -0.00          | 1.43           | -0.63          | 0.01               | -0.23          | -1.11                   | CO 4  |       |       |       |      |
|            |                    |                    |                | Min M <sub>T</sub> | 0.00           | 0.00           | -0.49          | -0.00              | -0.13          | -0.00                   | CO 3  |       |       |       |      |
|            |                    |                    |                | Max M <sub>y</sub> | 0.00           | 0.00           | -0.49          | -0.00              | -0.13          | -0.00                   | CO 3  |       |       |       |      |
|            |                    |                    |                | Min M <sub>y</sub> | -0.00          | 1.43           | -0.63          | 0.01               | -0.23          | -1.11                   | CO 4  |       |       |       |      |
|            |                    |                    |                | Max M <sub>z</sub> | 0.00           | 0.00           | -0.49          | -0.00              | -0.13          | -0.00                   | CO 3  |       |       |       |      |
|            |                    |                    |                | Min M <sub>z</sub> | -0.00          | 1.43           | -0.63          | 0.01               | -0.23          | -1.11                   | CO 4  |       |       |       |      |
|            |                    |                    |                | RC3                | 23             | 0.000          | 0.775 Left     | Max N              | 0.00           | 0.72                    | 0.42  | 0.01  | -0.08 | 0.56  | CO 6 |
|            |                    |                    |                |                    |                |                |                | Min N              | 0.00           | 0.00                    | 0.49  | -0.00 | -0.13 | -0.00 | CO 5 |
|            |                    |                    |                |                    |                |                |                | Max V <sub>y</sub> | 0.00           | 0.72                    | 0.42  | 0.01  | -0.08 | 0.56  | CO 6 |
|            |                    |                    |                |                    |                |                |                | Min V <sub>y</sub> | 0.00           | 0.00                    | 0.49  | -0.00 | -0.13 | -0.00 | CO 5 |
|            |                    |                    |                |                    |                |                |                | Max V <sub>z</sub> | 0.00           | 0.00                    | 0.49  | -0.00 | -0.13 | -0.00 | CO 5 |
|            |                    |                    |                |                    |                |                |                | Min V <sub>z</sub> | 0.00           | 0.72                    | 0.42  | 0.01  | -0.08 | 0.56  | CO 6 |
|            |                    |                    |                |                    |                |                |                | Max M <sub>T</sub> | 0.00           | 0.72                    | 0.42  | 0.01  | -0.08 | 0.56  | CO 6 |
|            |                    |                    |                |                    |                |                |                | Min M <sub>T</sub> | 0.00           | 0.00                    | 0.49  | -0.00 | -0.13 | -0.00 | CO 5 |
|            |                    |                    |                |                    |                |                |                | Max M <sub>y</sub> | 0.00           | 0.72                    | 0.42  | 0.01  | -0.08 | 0.56  | CO 6 |
|            |                    |                    |                |                    |                |                |                | Min M <sub>y</sub> | 0.00           | 0.00                    | 0.49  | -0.00 | -0.13 | -0.00 | CO 5 |
|            |                    |                    |                |                    |                |                |                | Max M <sub>z</sub> | 0.00           | 0.72                    | 0.42  | 0.01  | -0.08 | 0.56  | CO 6 |
|            |                    |                    |                |                    |                |                |                | Min M <sub>z</sub> | 0.00           | 0.00                    | 0.49  | -0.00 | -0.13 | -0.00 | CO 5 |
|            |                    |                    |                |                    |                |                |                | Max N              | 0.00           | 0.00                    | 0.40  | -0.00 | 0.22  | -0.00 | CO 5 |
|            |                    |                    |                |                    |                |                |                | Min N              | -0.00          | 0.72                    | 0.33  | 0.01  | 0.22  | 0.00  | CO 6 |
|            |                    |                    |                |                    |                |                |                | Max V <sub>y</sub> | -0.00          | 0.72                    | 0.33  | 0.01  | 0.22  | 0.00  | CO 6 |
|            | Min V <sub>y</sub> | 0.00               | 0.00           |                    |                |                |                | 0.40               | -0.00          | 0.22                    | -0.00 | CO 5  |       |       |      |
|            | Max V <sub>z</sub> | 0.00               | 0.00           |                    |                |                |                | 0.40               | -0.00          | 0.22                    | -0.00 | CO 5  |       |       |      |
|            | Min V <sub>z</sub> | -0.00              | 0.72           |                    |                |                |                | 0.33               | 0.01           | 0.22                    | 0.00  | CO 6  |       |       |      |
|            | Max M <sub>T</sub> | -0.00              | 0.72           |                    |                |                |                | 0.33               | 0.01           | 0.22                    | 0.00  | CO 6  |       |       |      |
|            | Min M <sub>T</sub> | 0.00               | 0.00           |                    |                |                |                | 0.40               | -0.00          | 0.22                    | -0.00 | CO 5  |       |       |      |
|            | Max M <sub>y</sub> | -0.00              | 0.72           |                    |                |                | 0.33           | 0.01               | 0.22           | 0.00                    | CO 6  |       |       |       |      |
|            | Min M <sub>y</sub> | 0.00               | 0.00           |                    |                |                | 0.40           | -0.00              | 0.22           | -0.00                   | CO 5  |       |       |       |      |
|            | Max M <sub>z</sub> | -0.00              | 0.72           |                    |                |                | 0.33           | 0.01               | 0.22           | 0.00                    | CO 6  |       |       |       |      |
|            | Min M <sub>z</sub> | 0.00               | 0.00           |                    |                |                | 0.40           | -0.00              | 0.22           | -0.00                   | CO 5  |       |       |       |      |
|            | 0.775 Right        | Max N              | 0.00           |                    |                |                | 0.00           | -0.40              | -0.00          | 0.22                    | -0.00 | CO 5  |       |       |      |
|            |                    | Min N              | -0.00          |                    |                |                | 0.72           | -0.47              | 0.01           | 0.22                    | 0.00  | CO 6  |       |       |      |
|            |                    | Max V <sub>y</sub> | -0.00          |                    |                |                | 0.72           | -0.47              | 0.01           | 0.22                    | 0.00  | CO 6  |       |       |      |
|            |                    | Min V <sub>y</sub> | 0.00           |                    |                |                | 0.00           | -0.40              | -0.00          | 0.22                    | -0.00 | CO 5  |       |       |      |
|            |                    | Max V <sub>z</sub> | 0.00           |                    |                |                | 0.00           | -0.40              | -0.00          | 0.22                    | -0.00 | CO 5  |       |       |      |
|            |                    | Min V <sub>z</sub> | -0.00          |                    |                |                | 0.72           | -0.47              | 0.01           | 0.22                    | 0.00  | CO 6  |       |       |      |
|            |                    | Max M <sub>T</sub> | -0.00          |                    |                |                | 0.72           | -0.47              | 0.01           | 0.22                    | 0.00  | CO 6  |       |       |      |
|            |                    | Min M <sub>T</sub> | 0.00           |                    |                |                | 0.00           | -0.40              | -0.00          | 0.22                    | -0.00 | CO 5  |       |       |      |
|            |                    | Max M <sub>y</sub> | -0.00          |                    |                |                | 0.72           | -0.47              | 0.01           | 0.22                    | 0.00  | CO 6  |       |       |      |
|            |                    | Min M <sub>y</sub> | 0.00           |                    |                |                | 0.00           | -0.40              | -0.00          | 0.22                    | -0.00 | CO 5  |       |       |      |
|            |                    | Max M <sub>z</sub> | -0.00          |                    |                |                | 0.72           | -0.47              | 0.01           | 0.22                    | 0.00  | CO 6  |       |       |      |
|            |                    | Min M <sub>z</sub> | 0.00           |                    |                |                | 0.00           | -0.40              | -0.00          | 0.22                    | -0.00 | CO 5  |       |       |      |
|            |                    | RC4                | 23             |                    |                |                | 0.000          | Max N              | 0.00           | 0.43                    | 0.45  | 0.00  | -0.10 | 0.33  | CO 8 |
|            |                    |                    |                |                    |                |                |                | Min N              | 0.00           | 0.00                    | 0.49  | -0.00 | -0.13 | -0.00 | CO 7 |
|            |                    |                    |                |                    |                |                |                | Max V <sub>y</sub> | 0.00           | 0.43                    | 0.45  | 0.00  | -0.10 | 0.33  | CO 8 |
|            |                    |                    |                |                    |                |                |                | Min V <sub>y</sub> | 0.00           | 0.00                    | 0.49  | -0.00 | -0.13 | -0.00 | CO 7 |
|            |                    |                    |                | Max V <sub>z</sub> | 0.00           | 0.00           |                | 0.49               | -0.00          | -0.13                   | -0.00 | CO 7  |       |       |      |
|            |                    |                    |                | Min V <sub>z</sub> | 0.00           | 0.43           |                | 0.45               | 0.00           | -0.10                   | 0.33  | CO 8  |       |       |      |
|            |                    |                    |                | Max N              | 0.00           | 0.43           |                | 0.45               | 0.00           | -0.10                   | 0.33  | CO 8  |       |       |      |
|            |                    |                    |                | Min N              | 0.00           | 0.00           |                | 0.49               | -0.00          | -0.13                   | -0.00 | CO 7  |       |       |      |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date:

2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC   | Node No. | Location x [m]                               | Forces [kN]                                  |                    |                    |                    |                    | Moments [kNm]      |       |       | Correspondin Load Cases |       |       |       |  |
|--------------------|------|----------|--|--|--------------------|--------------------|--------------------|--------------------|--------------------|-------|-------|-------------------------|-------|-------|-------|--|
|                    |      |          |  | N  | V <sub>y</sub>     | V <sub>z</sub>     | M <sub>T</sub>     | M <sub>y</sub>     | M <sub>z</sub>     |       |       |                         |       |       |       |  |
| 35                 | RC4  | 24       | 0.775 Left                                   | Max M <sub>T</sub>                           | 0.00               | 0.43               | 0.45               | 0.00               | -0.10              | 0.33  | CO 8  |                         |       |       |       |  |
|                    |      |          |  | Min M <sub>T</sub>                           | 0.00               | 0.00               | 0.49               | -0.00              | -0.13              | -0.00 | CO 7  |                         |       |       |       |  |
|                    |      |          |  | Max M <sub>y</sub>                           | 0.00               | 0.43               | 0.45               | 0.00               | -0.10              | 0.33  | CO 8  |                         |       |       |       |  |
|                    |      |          |  | Min M <sub>y</sub>                           | 0.00               | 0.00               | 0.49               | -0.00              | -0.13              | -0.00 | CO 7  |                         |       |       |       |  |
|                    |      |          |  | Max M <sub>z</sub>                           | 0.00               | 0.43               | 0.45               | 0.00               | -0.10              | 0.33  | CO 8  |                         |       |       |       |  |
|                    |      |          |  | Min M <sub>z</sub>                           | 0.00               | 0.00               | 0.49               | -0.00              | -0.13              | -0.00 | CO 7  |                         |       |       |       |  |
|                    |      |          |  | Max N  | 0.00               | 0.00               | 0.40               | -0.00              | 0.22               | -0.00 | CO 7  |                         |       |       |       |  |
|                    |      |          |  | Min N  | -0.00              | 0.43               | 0.36               | 0.00               | 0.22               | -0.00 | CO 8  |                         |       |       |       |  |
|                    |      |          |  | Max V <sub>y</sub>                           | -0.00              | 0.43               | 0.36               | 0.00               | 0.22               | -0.00 | CO 8  |                         |       |       |       |  |
|                    |      |          |  | Min V <sub>y</sub>                           | 0.00               | 0.00               | 0.40               | -0.00              | 0.22               | -0.00 | CO 7  |                         |       |       |       |  |
|                    |      |          |  | Max V <sub>z</sub>                           | 0.00               | 0.00               | 0.40               | -0.00              | 0.22               | -0.00 | CO 7  |                         |       |       |       |  |
|                    |      |          |  | Min V <sub>z</sub>                           | -0.00              | 0.43               | 0.36               | 0.00               | 0.22               | -0.00 | CO 8  |                         |       |       |       |  |
|                    |      |          |  | Max M <sub>T</sub>                           | -0.00              | 0.43               | 0.36               | 0.00               | 0.22               | -0.00 | CO 8  |                         |       |       |       |  |
|                    |      |          |  | Min M <sub>T</sub>                           | 0.00               | 0.00               | 0.40               | -0.00              | 0.22               | -0.00 | CO 7  |                         |       |       |       |  |
|                    |      |          |  | Max M <sub>y</sub>                           | -0.00              | 0.43               | 0.36               | 0.00               | 0.22               | -0.00 | CO 8  |                         |       |       |       |  |
|                    |      |          |  | Min M <sub>y</sub>                           | 0.00               | 0.00               | 0.40               | -0.00              | 0.22               | -0.00 | CO 7  |                         |       |       |       |  |
|                    |      |          |  | Max M <sub>z</sub>                           | -0.00              | 0.43               | 0.36               | 0.00               | 0.22               | -0.00 | CO 8  |                         |       |       |       |  |
|                    |      |          |  | Min M <sub>z</sub>                           | 0.00               | 0.00               | 0.40               | -0.00              | 0.22               | -0.00 | CO 7  |                         |       |       |       |  |
|                    |      |          |  | 0.775 Right                                  | Max N              | 0.00               | 0.00               | -0.40              | -0.00              | 0.22  | -0.00 | CO 7                    |       |       |       |  |
|                    |      |          |  |  | Min N              | -0.00              | 0.43               | -0.44              | 0.00               | 0.22  | -0.00 | CO 8                    |       |       |       |  |
|                    |      |          |  |  | Max V <sub>y</sub> | -0.00              | 0.43               | -0.44              | 0.00               | 0.22  | -0.00 | CO 8                    |       |       |       |  |
|                    |      |          |  |  | Min V <sub>y</sub> | 0.00               | 0.00               | -0.40              | -0.00              | 0.22  | -0.00 | CO 7                    |       |       |       |  |
|                    |      |          |  |  | Max V <sub>z</sub> | 0.00               | 0.00               | -0.40              | -0.00              | 0.22  | -0.00 | CO 7                    |       |       |       |  |
|                    |      |          |  |  | Min V <sub>z</sub> | -0.00              | 0.43               | -0.44              | 0.00               | 0.22  | -0.00 | CO 8                    |       |       |       |  |
|                    |      |          |  |  | Max M <sub>T</sub> | -0.00              | 0.43               | -0.44              | 0.00               | 0.22  | -0.00 | CO 8                    |       |       |       |  |
|                    |      |          |  |  | Min M <sub>T</sub> | 0.00               | 0.00               | -0.40              | -0.00              | 0.22  | -0.00 | CO 7                    |       |       |       |  |
|                    |      |          |  |  | Max M <sub>y</sub> | -0.00              | 0.43               | -0.44              | 0.00               | 0.22  | -0.00 | CO 8                    |       |       |       |  |
|                    |      |          |  |  | Min M <sub>y</sub> | 0.00               | 0.00               | -0.40              | -0.00              | 0.22  | -0.00 | CO 7                    |       |       |       |  |
|                    |      |          |  |  | Max M <sub>z</sub> | -0.00              | 0.43               | -0.44              | 0.00               | 0.22  | -0.00 | CO 8                    |       |       |       |  |
|                    |      |          |  |  | Min M <sub>z</sub> | 0.00               | 0.00               | -0.40              | -0.00              | 0.22  | -0.00 | CO 7                    |       |       |       |  |
|                    |      |          | 1.550  | Max N  | 0.00               | 0.00               | -0.49              | -0.00              | -0.13              | -0.00 | CO 7  |                         |       |       |       |  |
|                    |      |          |  | Min N  | -0.00              | 0.43               | -0.53              | 0.00               | -0.16              | -0.33 | CO 8  |                         |       |       |       |  |
|                    |      |          |  | Max V <sub>y</sub>                           | -0.00              | 0.43               | -0.53              | 0.00               | -0.16              | -0.33 | CO 8  |                         |       |       |       |  |
|                    |      |          |  | Min V <sub>y</sub>                           | 0.00               | 0.00               | -0.49              | -0.00              | -0.13              | -0.00 | CO 7  |                         |       |       |       |  |
|                    |      |          |  | Max V <sub>z</sub>                           | 0.00               | 0.00               | -0.49              | -0.00              | -0.13              | -0.00 | CO 7  |                         |       |       |       |  |
|                    |      |          |  | Min V <sub>z</sub>                           | -0.00              | 0.43               | -0.53              | 0.00               | -0.16              | -0.33 | CO 8  |                         |       |       |       |  |
|                    |      |          |  | Max M <sub>T</sub>                           | -0.00              | 0.43               | -0.53              | 0.00               | -0.16              | -0.33 | CO 8  |                         |       |       |       |  |
|                    |      |          |  | Min M <sub>T</sub>                           | 0.00               | 0.00               | -0.49              | -0.00              | -0.13              | -0.00 | CO 7  |                         |       |       |       |  |
|                    |      |          |  | Max M <sub>y</sub>                           | 0.00               | 0.00               | -0.49              | -0.00              | -0.13              | -0.00 | CO 7  |                         |       |       |       |  |
|                    |      |          |  | Min M <sub>y</sub>                           | -0.00              | 0.43               | -0.53              | 0.00               | -0.16              | -0.33 | CO 8  |                         |       |       |       |  |
|                    |      |          |  | Max M <sub>z</sub>                           | 0.00               | 0.00               | -0.49              | -0.00              | -0.13              | -0.00 | CO 7  |                         |       |       |       |  |
|                    |      |          |  | Min M <sub>z</sub>                           | -0.00              | 0.43               | -0.53              | 0.00               | -0.16              | -0.33 | CO 8  |                         |       |       |       |  |
|                    |      |          |  | DLC1, Result Envelope X 100% / Y 30% / Z 30% |                    |                    |                    |                    |                    |       |       |                         |       |       |       |  |
|                    |      |          |  | RC5  | 23                 | 1.550              | Max N              | 0.00               | -0.09              | 0.04  | -0.00 | -0.03                   | -0.07 |       |       |  |
|                    |      |          |  |  |                    |                    | Min N              | 0.00               | 0.09               | -0.04 | 0.00  | 0.03                    | 0.07  |       |       |  |
|                    |      |          |  |  |                    |                    | Max V <sub>y</sub> | 0.00               | 0.26               | -0.07 | 0.00  | 0.05                    | 0.20  |       |       |  |
|                    |      |          |  |  |                    |                    | Min V <sub>y</sub> | 0.00               | -0.26              | 0.07  | -0.00 | -0.05                   | -0.20 |       |       |  |
|                    |      |          |  |  |                    |                    | Max V <sub>z</sub> | 0.00               | -0.12              | 0.15  | -0.01 | -0.11                   | -0.09 |       |       |  |
|                    |      |          | Min V <sub>z</sub>                           |  |                    |                    | 0.00               | 0.12               | -0.15              | 0.01  | 0.11  | 0.09                    |       |       |       |  |
|                    |      |          | Max M <sub>T</sub>                           |  |                    |                    | 0.00               | 0.06               | -0.13              | 0.01  | 0.10  | 0.04                    |       |       |       |  |
|                    |      |          | Min M <sub>T</sub>                           |  |                    |                    | 0.00               | -0.06              | 0.13               | -0.01 | -0.10 | -0.04                   |       |       |       |  |
|                    |      |          | Max M <sub>y</sub>                           |  |                    |                    | 0.00               | 0.12               | -0.15              | 0.01  | 0.11  | 0.09                    |       |       |       |  |
|                    |      |          | Min M <sub>y</sub>                           |  |                    |                    | 0.00               | -0.12              | 0.15               | -0.01 | -0.11 | -0.09                   |       |       |       |  |
|                    |      |          | Max M <sub>z</sub>                           |  |                    |                    | 0.00               | 0.26               | -0.07              | 0.00  | 0.05  | 0.20                    |       |       |       |  |
|                    |      |          | Min M <sub>z</sub>                           |  |                    |                    | 0.00               | -0.26              | 0.07               | -0.00 | -0.05 | -0.20                   |       |       |       |  |
|                    |      |          | 24   |  |                    |                    | 1.550              | Max N              | 0.00               | -0.09 | 0.04  | -0.00                   | 0.03  | 0.07  |       |  |
|                    |      |          |  |  |                    |                    |                    | Min N              | 0.00               | 0.09  | -0.04 | 0.00                    | -0.03 | -0.07 |       |  |
|                    |      |          |  |  |                    |                    |                    | Max V <sub>y</sub> | 0.00               | 0.26  | -0.07 | 0.00                    | -0.05 | -0.20 |       |  |
|                    |      |          |  |  |                    |                    |                    | Min V <sub>y</sub> | 0.00               | -0.26 | 0.07  | -0.00                   | 0.05  | 0.20  |       |  |
|                    |      |          |  |  |                    |                    |                    | Max V <sub>z</sub> | 0.00               | -0.12 | 0.15  | -0.01                   | 0.11  | 0.09  |       |  |
|                    |      |          |  |  |                    |                    |                    | Min V <sub>z</sub> | 0.00               | 0.12  | -0.15 | 0.01                    | -0.11 | -0.09 |       |  |
|                    |      |          |  |  |                    |                    |                    | Max M <sub>T</sub> | 0.00               | 0.06  | -0.13 | 0.01                    | -0.10 | -0.04 |       |  |
|                    |      |          |  |  |                    |                    |                    | Min M <sub>T</sub> | 0.00               | -0.06 | 0.13  | -0.01                   | 0.10  | 0.04  |       |  |
|                    |      |          |  |  |                    |                    |                    | Max M <sub>y</sub> | 0.00               | -0.12 | 0.15  | -0.01                   | 0.11  | 0.09  |       |  |
|                    |      |          |  |  |                    |                    |                    | Min M <sub>y</sub> | 0.00               | 0.12  | -0.15 | 0.01                    | -0.11 | -0.09 |       |  |
|                    |      |          |  |  |                    |                    |                    | Max M <sub>z</sub> | 0.00               | -0.26 | 0.07  | -0.00                   | 0.05  | 0.20  |       |  |
|                    |      |          |  |  |                    |                    |                    | Min M <sub>z</sub> | 0.00               | 0.26  | -0.07 | 0.00                    | -0.05 | -0.20 |       |  |
|                    |      |          | DLC1, Result Envelope X 30% / Y 100% / Z 30% |  |                    |                    |                    |                    |                    |       |       |                         |       |       |       |  |
|                    |      |          | RC6  |  |                    |                    | 23                 | 1.550              | Max N              | 0.00  | -0.09 | 0.04                    | -0.00 | -0.03 | -0.07 |  |
|                    |      |          |  |  |                    |                    |                    |                    | Min N              | 0.00  | 0.09  | -0.04                   | 0.00  | 0.03  | 0.07  |  |
|                    |      |          |  |  |                    |                    |                    |                    | Max V <sub>y</sub> | 0.00  | 0.21  | -0.06                   | -0.00 | 0.04  | 0.17  |  |
|                    |      |          |  |  |                    |                    |                    |                    | Min V <sub>y</sub> | 0.00  | -0.21 | 0.06                    | 0.00  | -0.04 | -0.17 |  |
|                    |      |          |  |  |                    |                    |                    |                    | Max V <sub>z</sub> | 0.00  | -0.09 | 0.12                    | -0.01 | -0.09 | -0.07 |  |
|                    |      |          |  | Min V <sub>z</sub>                           | 0.00               | 0.09               |                    |                    | -0.12              | 0.01  | 0.09  | 0.07                    |       |       |       |  |
|                    |      |          |  | Max M <sub>T</sub>                           | 0.00               | 0.02               |                    |                    | -0.11              | 0.02  | 0.08  | 0.02                    |       |       |       |  |
|                    |      |          |  | Min M <sub>T</sub>                           | 0.00               | -0.02              |                    |                    | 0.11               | -0.02 | -0.08 | -0.02                   |       |       |       |  |
|                    |      |          |  | Max M <sub>y</sub>                           | 0.00               | 0.09               |                    |                    | -0.12              | 0.01  | 0.09  | 0.07                    |       |       |       |  |
|                    |      |          |  | Min M <sub>y</sub>                           | 0.00               | -0.09              |                    |                    | 0.12               | -0.01 | -0.09 | -0.07                   |       |       |       |  |
|                    |      |          |  | Max M <sub>z</sub>                           | 0.00               | 0.21               |                    |                    | -0.06              | -0.00 | 0.04  | 0.17                    |       |       |       |  |
|                    |      |          |  | Min M <sub>z</sub>                           | 0.00               | -0.21              |                    |                    | 0.06               | 0.00  | -0.04 | -0.17                   |       |       |       |  |
|                    |      |          |  | 24   | 1.550              | Max N              |                    |                    | 0.00               | -0.09 | 0.04  | -0.00                   | 0.03  | 0.07  |       |  |
|                    |      |          |  |  |                    | Min N              |                    |                    | 0.00               | 0.09  | -0.04 | 0.00                    | -0.03 | -0.07 |       |  |
|                    |      |          |  |  |                    | Max V <sub>y</sub> |                    |                    | 0.00               | 0.21  | -0.06 | -0.00                   | -0.04 | -0.16 |       |  |
|                    |      |          |  |  |                    | Min V <sub>y</sub> |                    |                    | 0.00               | -0.21 | 0.06  | 0.00                    | 0.04  | 0.16  |       |  |
|                    |      |          |  |  |                    | Max V <sub>z</sub> |                    |                    | 0.00               | -0.09 | 0.12  | -0.01                   | 0.09  | 0.07  |       |  |
| Min V <sub>z</sub> | 0.00 | 0.09     |  |  |                    | -0.12              |                    |                    | 0.01               | -0.09 | -0.07 |                         |       |       |       |  |
| Max M <sub>T</sub> | 0.00 | 0.02     |  |  |                    | -0.11              |                    |                    | 0.02               | -0.08 | -0.02 |                         |       |       |       |  |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date:

2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC   | Node No. | Location x [m]     | Forces [kN]        |                    |                |                |                | Moments [kNm]  |       |       | Correspondin Load Cases |       |       |
|--------------------|--|----------|--------------------|--------------------|--------------------|----------------|----------------|----------------|----------------|-------|-------|-------------------------|-------|-------|
|                    |  |          |                    | N                  | V <sub>y</sub>     | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |       |                         |       |       |
| 35                 | RC6  |          |                    | Min M <sub>T</sub> | 0.00               | -0.02          | 0.11           | ▷              | -0.02          | 0.08  | 0.02  |                         |       |       |
|                    |  |          | Max M <sub>y</sub> | 0.00               | -0.09              | 0.12           |                | ▷              | 0.09           | 0.07  |       |                         |       |       |
|                    |  |          | Min M <sub>y</sub> | 0.00               | 0.09               | -0.12          | 0.01           | ▷              | -0.09          | -0.07 |       |                         |       |       |
|                    |  |          | Max M <sub>z</sub> | 0.00               | -0.21              | 0.06           | 0.00           |                | ▷              | 0.04  | 0.16  |                         |       |       |
|                    |  |          | Min M <sub>z</sub> | 0.00               | 0.21               | -0.06          | -0.00          |                | ▷              | -0.04 | -0.16 |                         |       |       |
|                    | DLC1, Result Envelope X 30% / Y 30% / Z 100% |          |                    |                    |                    |                |                |                |                |       |       |                         |       |       |
|                    | RC7  | 23       | 0.000              | Max N              | ▷                  | 0.00           | -0.31          | 0.14           |                | -0.01 | -0.11 | -0.24                   |       |       |
|                    |  |          |                    | Min N              | ▷                  | 0.00           | 0.31           | -0.14          | 0.01           |       | 0.11  | 0.24                    |       |       |
|                    |  |          |                    | Max V <sub>y</sub> | ▷                  | -0.00          | 0.53           | -0.17          | 0.01           |       | 0.13  | 0.41                    |       |       |
|                    |  |          |                    | Min V <sub>y</sub> | ▷                  | 0.00           | -0.53          | 0.17           | -0.01          |       | -0.13 | -0.41                   |       |       |
|                    |  |          |                    | Max V <sub>z</sub> | ▷                  | 0.00           | -0.26          | 0.34           | -0.03          |       | -0.26 | -0.20                   |       |       |
|                    |  |          |                    | Min V <sub>z</sub> | ▷                  | 0.00           | 0.26           | -0.34          | 0.03           |       | 0.26  | 0.20                    |       |       |
|                    |  |          |                    | Max M <sub>T</sub> | ▷                  | 0.00           | 0.15           | -0.33          | ▷              | 0.03  | 0.25  | 0.12                    |       |       |
|                    |  |          |                    | Min M <sub>T</sub> | ▷                  | 0.00           | -0.15          | 0.33           | ▷              | -0.03 | -0.25 | -0.12                   |       |       |
|                    |  |          |                    | Max M <sub>y</sub> | ▷                  | 0.00           | 0.26           | -0.34          | ▷              | 0.03  | 0.26  | 0.20                    |       |       |
|                    |  |          |                    | Min M <sub>y</sub> | ▷                  | 0.00           | -0.26          | 0.34           | ▷              | -0.03 | -0.26 | -0.20                   |       |       |
|                    |  | 24       | 1.550              | Max M <sub>z</sub> | ▷                  | -0.00          | 0.53           | -0.17          | 0.01           |       | 0.13  | ▷                       | 0.41  |       |
|                    |  |          |                    | Min M <sub>z</sub> | ▷                  | 0.00           | -0.53          | 0.17           | -0.01          |       | -0.13 | ▷                       | -0.41 |       |
|                    |  |          |                    | Max N              | ▷                  | 0.00           | -0.31          | 0.14           | -0.01          |       | 0.11  | 0.24                    |       |       |
|                    |  |          |                    | Min N              | ▷                  | 0.00           | 0.31           | -0.14          | 0.01           |       | -0.11 | -0.24                   |       |       |
|                    |  |          |                    | Max V <sub>y</sub> | ▷                  | -0.00          | 0.53           | -0.17          | 0.01           |       | -0.13 | -0.41                   |       |       |
|                    |  |          |                    | Min V <sub>y</sub> | ▷                  | 0.00           | -0.53          | 0.17           | -0.01          |       | 0.13  | 0.41                    |       |       |
|                    |  |          |                    | Max V <sub>z</sub> | ▷                  | 0.00           | -0.26          | 0.34           | -0.03          |       | 0.26  | 0.20                    |       |       |
|                    |  |          |                    | Min V <sub>z</sub> | ▷                  | 0.00           | 0.26           | -0.34          | 0.03           |       | -0.26 | -0.20                   |       |       |
|                    |  |          |                    | Max M <sub>T</sub> | ▷                  | 0.00           | 0.15           | -0.33          | ▷              | 0.03  | -0.25 | -0.12                   |       |       |
|                    |  |          |                    | Min M <sub>T</sub> | ▷                  | 0.00           | -0.15          | 0.33           | ▷              | -0.03 | 0.25  | 0.12                    |       |       |
|                    | 49   | RC1      | 11                 | 0.000              | Max M <sub>y</sub> | ▷              | 0.00           | -0.26          | 0.34           | -0.03 | ▷     | 0.26                    | 0.20  |       |
|                    |  |          |                    |                    | Min M <sub>y</sub> | ▷              | 0.00           | 0.26           | -0.34          | 0.03  | ▷     | -0.26                   | -0.20 |       |
|                    |  |          |                    |                    | Max M <sub>z</sub> | ▷              | 0.00           | -0.53          | 0.17           | -0.01 |       | 0.13                    | ▷     | 0.41  |
|                    |  |          |                    |                    | Min M <sub>z</sub> | ▷              | -0.00          | 0.53           | -0.17          | 0.01  |       | -0.13                   | ▷     | -0.41 |
|                    |  |          |                    |                    | Max N              | ▷              | -0.07          | -0.00          | 0.31           | -0.00 |       | -0.30                   | -0.00 | CO 1  |
|                    |  |          |                    |                    | Min N              | ▷              | -13.81         | -0.07          | 0.33           | -0.00 |       | -0.36                   | -0.13 | CO 2  |
| Max V <sub>y</sub> |  |          |                    |                    | ▷                  | -0.07          | -0.00          | 0.31           | -0.00          |       | -0.30 | -0.00                   | CO 1  |       |
| Min V <sub>y</sub> |  |          |                    |                    | ▷                  | -13.81         | -0.07          | 0.33           | -0.00          |       | -0.36 | -0.13                   | CO 2  |       |
| Max V <sub>z</sub> |  |          |                    |                    | ▷                  | -13.81         | -0.07          | 0.33           | -0.00          |       | -0.36 | -0.13                   | CO 2  |       |
| Min V <sub>z</sub> |  |          |                    |                    | ▷                  | -0.07          | -0.00          | 0.31           | -0.00          |       | -0.30 | -0.00                   | CO 1  |       |
| 33                 |  |          | 1.960              | Max M <sub>T</sub> | ▷                  | -0.07          | -0.00          | 0.31           | ▷              | -0.00 | -0.30 | -0.00                   | CO 1  |       |
|                    |  |          |                    | Min M <sub>T</sub> | ▷                  | -13.81         | -0.07          | 0.33           | ▷              | -0.00 | -0.36 | -0.13                   | CO 2  |       |
|                    |  |          |                    | Max M <sub>y</sub> | ▷                  | -0.07          | -0.00          | 0.31           | -0.00          | ▷     | -0.30 | -0.00                   | CO 1  |       |
|                    |  |          |                    | Min M <sub>y</sub> | ▷                  | -13.81         | -0.07          | 0.33           | -0.00          | ▷     | -0.36 | -0.13                   | CO 2  |       |
|                    |  |          |                    | Max M <sub>z</sub> | ▷                  | -0.07          | -0.00          | 0.31           | -0.00          | ▷     | -0.30 | -0.00                   | CO 1  |       |
|                    |  |          |                    | Min M <sub>z</sub> | ▷                  | -13.81         | -0.07          | 0.33           | -0.00          | ▷     | -0.36 | -0.13                   | CO 2  |       |
|                    |  |          |                    | Max N              | ▷                  | -0.07          | -0.00          | 0.00           | 0.00           |       | 0.00  | 0.00                    | CO 1  |       |
|                    |  |          |                    | Min N              | ▷                  | -13.81         | -0.07          | 0.03           | 0.00           |       | 0.00  | 0.00                    | CO 2  |       |
|                    |  |          |                    | Max V <sub>y</sub> | ▷                  | -0.07          | -0.00          | 0.00           | 0.00           |       | 0.00  | 0.00                    | CO 1  |       |
|                    |  |          |                    | Min V <sub>y</sub> | ▷                  | -13.81         | -0.07          | 0.03           | 0.00           |       | 0.00  | 0.00                    | CO 2  |       |
| RC2                |  | 11       | 0.000              | Max V <sub>z</sub> | ▷                  | -13.81         | -0.07          | 0.03           | 0.00           |       | 0.00  | 0.00                    | CO 2  |       |
|                    |  |          |                    | Min V <sub>z</sub> | ▷                  | -0.07          | -0.00          | 0.00           | 0.00           |       | 0.00  | 0.00                    | CO 1  |       |
|                    |  |          |                    | Max M <sub>T</sub> | ▷                  | -0.07          | -0.00          | 0.00           | ▷              | 0.00  | 0.00  | 0.00                    | CO 1  |       |
|                    |  |          |                    | Min M <sub>T</sub> | ▷                  | -0.07          | -0.00          | 0.00           | ▷              | 0.00  | 0.00  | 0.00                    | CO 1  |       |
|                    |  |          |                    | Max M <sub>y</sub> | ▷                  | -0.07          | -0.00          | 0.00           | ▷              | 0.00  | 0.00  | 0.00                    | CO 1  |       |
|                    |  |          |                    | Min M <sub>y</sub> | ▷                  | -0.07          | -0.00          | 0.00           | ▷              | 0.00  | 0.00  | 0.00                    | CO 1  |       |
|                    |  |          |                    | Max M <sub>z</sub> | ▷                  | -0.07          | -0.00          | 0.00           | ▷              | 0.00  | 0.00  | 0.00                    | CO 1  |       |
|                    |  |          |                    | Min M <sub>z</sub> | ▷                  | -0.07          | -0.00          | 0.00           | ▷              | 0.00  | 0.00  | 0.00                    | CO 1  |       |
|                    |  |          |                    | Max N              | ▷                  | -0.05          | -0.00          | 0.23           | -0.00          |       | -0.22 | -0.00                   | CO 3  |       |
|                    |  |          |                    | Min N              | ▷                  | -9.21          | -0.04          | 0.24           | -0.00          |       | -0.25 | -0.09                   | CO 4  |       |
|                    |  |          |                    | Max V <sub>y</sub> | ▷                  | -0.05          | -0.00          | 0.23           | -0.00          |       | -0.22 | -0.00                   | CO 3  |       |
|                    |  |          |                    | Min V <sub>y</sub> | ▷                  | -9.21          | -0.04          | 0.24           | -0.00          |       | -0.25 | -0.09                   | CO 4  |       |
| RC3                | 11   | 0.000    | Max V <sub>z</sub> | ▷                  | -9.21              | -0.04          | 0.24           | -0.00          |                | -0.25 | -0.09 | CO 4                    |       |       |
|                    |  |          | Min V <sub>z</sub> | ▷                  | -0.05              | -0.00          | 0.23           | -0.00          |                | -0.22 | -0.00 | CO 3                    |       |       |
|                    |  |          | Max M <sub>T</sub> | ▷                  | -0.05              | -0.00          | 0.23           | ▷              | -0.00          | -0.00 | 0.00  | CO 3                    |       |       |
|                    |  |          | Min M <sub>T</sub> | ▷                  | -9.21              | -0.04          | 0.24           | ▷              | -0.00          | -0.09 | 0.00  | CO 4                    |       |       |
|                    |  |          | Max M <sub>y</sub> | ▷                  | -0.05              | -0.00          | 0.23           | ▷              | -0.00          | -0.00 | 0.00  | CO 3                    |       |       |
|                    |  |          | Min M <sub>y</sub> | ▷                  | -9.21              | -0.04          | 0.24           | ▷              | -0.00          | -0.09 | 0.00  | CO 4                    |       |       |
|                    |  |          | Max M <sub>z</sub> | ▷                  | -0.05              | -0.00          | 0.23           | -0.00          | ▷              | -0.22 | -0.00 | CO 3                    |       |       |
|                    |  |          | Min M <sub>z</sub> | ▷                  | -9.21              | -0.04          | 0.24           | -0.00          | ▷              | -0.25 | -0.09 | CO 4                    |       |       |
|                    |  |          | Max N              | ▷                  | -0.05              | -0.00          | 0.00           | 0.00           |                | 0.00  | 0.00  | CO 3                    |       |       |
|                    |  |          | Min N              | ▷                  | -9.21              | -0.05          | 0.01           | 0.00           |                | 0.00  | 0.00  | CO 4                    |       |       |
|                    |  |          | Max V <sub>y</sub> | ▷                  | -0.05              | -0.00          | 0.00           | 0.00           |                | 0.00  | 0.00  | CO 3                    |       |       |
|                    |  |          | Min V <sub>y</sub> | ▷                  | -9.21              | -0.05          | 0.01           | 0.00           |                | 0.00  | 0.00  | CO 4                    |       |       |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m] | Forces [kN]        |                |                | Moments [kNm]  |                |                | Correspondin |            |
|------------|--|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|--------------|------------|
|            |  |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |              | Load Cases |
| 49         | RC3  | 33       | 1.960          | Min M <sub>y</sub> | -4.63          | -0.02          | 0.23           | 0.00           | ▷ -0.23        | -0.05        | CO 6       |
|            |  |          |                | Max M <sub>z</sub> | -0.05          | -0.00          | 0.23           | -0.00          | ▷ -0.22        | -0.00        | CO 5       |
|            |  |          |                | Min M <sub>z</sub> | -4.63          | -0.02          | 0.23           | 0.00           | ▷ -0.23        | ▷ -0.05      | CO 6       |
|            |  |          |                | Max N              | -0.05          | -0.00          | 0.00           | 0.00           | 0.00           | 0.00         | CO 5       |
|            |  |          |                | Min N              | -4.63          | -0.02          | 0.00           | 0.00           | 0.00           | 0.00         | CO 6       |
|            |  |          |                | Max V <sub>y</sub> | -0.05          | -0.00          | 0.00           | 0.00           | 0.00           | 0.00         | CO 5       |
|            |  |          |                | Min V <sub>y</sub> | -4.63          | -0.02          | 0.00           | 0.00           | 0.00           | 0.00         | CO 6       |
|            |  |          |                | Max V <sub>z</sub> | -4.63          | -0.02          | ▷ 0.00         | 0.00           | 0.00           | 0.00         | CO 6       |
|            |  |          |                | Min V <sub>z</sub> | -0.05          | -0.00          | ▷ 0.00         | 0.00           | 0.00           | 0.00         | CO 5       |
|            |  |          |                | Max M <sub>T</sub> | -0.05          | -0.00          | 0.00           | ▷ 0.00         | 0.00           | 0.00         | CO 5       |
|            |  |          |                | Min M <sub>T</sub> | -0.05          | -0.00          | 0.00           | ▷ 0.00         | 0.00           | 0.00         | CO 5       |
|            |  |          |                | Max M <sub>y</sub> | -0.05          | -0.00          | 0.00           | ▷ 0.00         | ▷ 0.00         | 0.00         | CO 5       |
|            |  |          |                | Min M <sub>y</sub> | -0.05          | -0.00          | 0.00           | ▷ 0.00         | ▷ 0.00         | 0.00         | CO 5       |
|            |  |          |                | Max M <sub>z</sub> | -0.05          | -0.00          | 0.00           | ▷ 0.00         | ▷ 0.00         | 0.00         | CO 5       |
|            |  |          |                | Min M <sub>z</sub> | -0.05          | -0.00          | 0.00           | ▷ 0.00         | ▷ 0.00         | 0.00         | CO 5       |
|            | RC4  | 11       | 0.000          | Max N              | -0.05          | -0.00          | 0.23           | -0.00          | -0.22          | -0.00        | CO 7       |
|            |  |          |                | Min N              | -2.80          | -0.01          | 0.23           | 0.00           | -0.23          | -0.03        | CO 8       |
|            |  |          |                | Max V <sub>y</sub> | -0.05          | -0.00          | 0.23           | -0.00          | -0.22          | -0.00        | CO 7       |
|            |  |          |                | Min V <sub>y</sub> | -2.80          | -0.01          | 0.23           | 0.00           | -0.23          | -0.03        | CO 8       |
|            |  |          |                | Max V <sub>z</sub> | -2.80          | -0.01          | ▷ 0.23         | 0.00           | -0.23          | -0.03        | CO 8       |
|            |  |          |                | Min V <sub>z</sub> | -0.05          | -0.00          | ▷ 0.23         | -0.00          | -0.22          | -0.00        | CO 7       |
|            |  |          |                | Max M <sub>T</sub> | -2.80          | -0.01          | ▷ 0.23         | ▷ 0.00         | -0.23          | -0.03        | CO 8       |
|            |  |          |                | Min M <sub>T</sub> | -0.05          | -0.00          | ▷ 0.23         | -0.00          | -0.22          | -0.00        | CO 7       |
|            |  |          |                | Max M <sub>y</sub> | -0.05          | -0.00          | ▷ 0.23         | -0.00          | ▷ -0.22        | -0.00        | CO 7       |
|            |  |          |                | Min M <sub>y</sub> | -2.80          | -0.01          | ▷ 0.23         | 0.00           | -0.23          | -0.03        | CO 8       |
|            |  |          |                | Max M <sub>z</sub> | -0.05          | -0.00          | ▷ 0.23         | -0.00          | ▷ -0.22        | -0.00        | CO 7       |
|            |  |          |                | Min M <sub>z</sub> | -2.80          | -0.01          | ▷ 0.23         | 0.00           | -0.23          | -0.03        | CO 8       |
|            |  | 33       | 1.960          | Max N              | -0.05          | -0.00          | 0.00           | 0.00           | 0.00           | 0.00         | CO 7       |
|            |  |          |                | Min N              | -2.80          | -0.01          | ▷ 0.23         | 0.00           | -0.23          | ▷ -0.03      | CO 8       |
|            |  |          |                | Max V <sub>y</sub> | -0.05          | -0.00          | 0.00           | 0.00           | 0.00           | 0.00         | CO 7       |
|            |  |          |                | Min V <sub>y</sub> | -2.80          | -0.01          | ▷ 0.00         | 0.00           | 0.00           | 0.00         | CO 8       |
|            |  |          |                | Max V <sub>z</sub> | -2.80          | -0.01          | ▷ 0.00         | 0.00           | 0.00           | 0.00         | CO 8       |
|            |  |          |                | Min V <sub>z</sub> | -0.05          | -0.00          | ▷ 0.00         | 0.00           | 0.00           | 0.00         | CO 7       |
|            |  |          |                | Max M <sub>T</sub> | -0.05          | -0.00          | ▷ 0.00         | ▷ 0.00         | 0.00           | 0.00         | CO 7       |
|            |  |          |                | Min M <sub>T</sub> | -0.05          | -0.00          | ▷ 0.00         | ▷ 0.00         | 0.00           | 0.00         | CO 7       |
|            |  |          |                | Max M <sub>y</sub> | -0.05          | -0.00          | 0.00           | ▷ 0.00         | 0.00           | 0.00         | CO 7       |
|            |  |          |                | Min M <sub>y</sub> | -0.05          | -0.00          | 0.00           | ▷ 0.00         | 0.00           | 0.00         | CO 7       |
|            |  |          |                | Max M <sub>z</sub> | -0.05          | -0.00          | 0.00           | ▷ 0.00         | ▷ 0.00         | 0.00         | CO 7       |
|            |  |          |                | Min M <sub>z</sub> | -0.05          | -0.00          | 0.00           | ▷ 0.00         | ▷ 0.00         | 0.00         | CO 7       |
|            | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                |                    |                |                |                |                |                |              |            |
|            | RC5  | 11       | 0.000          | Max N              | ▷ 2.06         | 0.01           | -0.02          | 0.00           | 0.04           | 0.03         |            |
|            |  |          |                | Min N              | -2.06          | -0.01          | 0.02           | 0.00           | -0.04          | -0.03        |            |
|            |  |          |                | Max V <sub>y</sub> | 1.79           | 0.02           | -0.02          | 0.00           | 0.04           | 0.04         |            |
|            |  |          |                | Min V <sub>y</sub> | -1.79          | -0.02          | 0.02           | 0.00           | -0.04          | -0.04        |            |
|            |  |          |                | Max V <sub>z</sub> | -1.29          | -0.01          | ▷ 0.04         | 0.00           | -0.07          | -0.01        |            |
|            |  |          |                | Min V <sub>z</sub> | 1.29           | 0.01           | ▷ -0.04        | 0.00           | 0.07           | 0.01         |            |
|            |  |          |                | Max M <sub>T</sub> | 0.00           | 0.00           | ▷ 0.00         | ▷ 0.00         | 0.00           | 0.00         |            |
|            |  |          |                | Min M <sub>T</sub> | 0.00           | 0.00           | ▷ 0.00         | ▷ 0.00         | 0.00           | 0.00         |            |
|            |  |          |                | Max M <sub>y</sub> | 1.29           | 0.01           | -0.04          | 0.00           | ▷ 0.07         | 0.01         |            |
|            |  |          |                | Min M <sub>y</sub> | -1.29          | -0.01          | 0.04           | 0.00           | ▷ -0.07        | -0.01        |            |
|            |  |          |                | Max M <sub>z</sub> | 1.79           | 0.02           | -0.02          | 0.00           | 0.04           | ▷ 0.04       |            |
|            |  |          |                | Min M <sub>z</sub> | -1.79          | -0.02          | 0.02           | 0.00           | -0.04          | ▷ -0.04      |            |
|            |  | 33       | 1.960          | Max N              | ▷ 2.06         | 0.01           | -0.02          | 0.00           | 0.00           | 0.00         |            |
|            |  |          |                | Min N              | -2.06          | -0.01          | 0.02           | 0.00           | 0.00           | 0.00         |            |
|            |  |          |                | Max V <sub>y</sub> | 1.79           | 0.02           | -0.02          | 0.00           | 0.00           | 0.00         |            |
|            |  |          |                | Min V <sub>y</sub> | -1.79          | -0.02          | 0.02           | 0.00           | 0.00           | 0.00         |            |
|            |  |          |                | Max V <sub>z</sub> | -1.29          | -0.01          | ▷ 0.04         | 0.00           | 0.00           | 0.00         |            |
|            |  |          |                | Min V <sub>z</sub> | 1.29           | 0.01           | ▷ -0.04        | 0.00           | 0.00           | 0.00         |            |
|            |  |          |                | Max M <sub>T</sub> | 0.00           | 0.00           | ▷ 0.00         | ▷ 0.00         | 0.00           | 0.00         |            |
|            |  |          |                | Min M <sub>T</sub> | 0.00           | 0.00           | ▷ 0.00         | ▷ 0.00         | 0.00           | 0.00         |            |
|            |  |          |                | Max M <sub>y</sub> | 0.00           | 0.00           | 0.00           | ▷ 0.00         | 0.00           | 0.00         |            |
|            |  |          |                | Min M <sub>y</sub> | 0.00           | 0.00           | 0.00           | ▷ 0.00         | 0.00           | 0.00         |            |
|            |  |          |                | Max M <sub>z</sub> | 0.00           | 0.00           | 0.00           | ▷ 0.00         | ▷ 0.00         | 0.00         |            |
|            |  |          |                | Min M <sub>z</sub> | 0.00           | 0.00           | 0.00           | ▷ 0.00         | ▷ 0.00         | 0.00         |            |
|            | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                |                    |                |                |                |                |                |              |            |
|            | RC6  | 11       | 0.000          | Max N              | ▷ 1.86         | 0.01           | -0.02          | 0.00           | 0.03           | 0.02         |            |
|            |  |          |                | Min N              | -1.86          | -0.01          | 0.02           | 0.00           | -0.03          | -0.02        |            |
|            |  |          |                | Max V <sub>y</sub> | 1.21           | 0.02           | -0.01          | 0.00           | 0.02           | 0.04         |            |
|            |  |          |                | Min V <sub>y</sub> | -1.21          | -0.02          | 0.01           | 0.00           | -0.02          | -0.04        |            |
|            |  |          |                | Max V <sub>z</sub> | -1.06          | -0.00          | ▷ 0.03         | 0.00           | -0.05          | -0.00        |            |
|            |  |          |                | Min V <sub>z</sub> | 1.06           | 0.00           | ▷ -0.03        | 0.00           | 0.05           | 0.00         |            |
|            |  |          |                | Max M <sub>T</sub> | 0.00           | 0.00           | ▷ 0.00         | ▷ 0.00         | 0.00           | 0.00         |            |
|            |  |          |                | Min M <sub>T</sub> | 0.00           | 0.00           | ▷ 0.00         | ▷ 0.00         | 0.00           | 0.00         |            |
|            |  |          |                | Max M <sub>y</sub> | 1.06           | 0.00           | -0.03          | 0.00           | ▷ 0.05         | 0.00         |            |
|            |  |          |                | Min M <sub>y</sub> | -1.06          | -0.00          | 0.03           | 0.00           | ▷ -0.05        | -0.00        |            |
|            |  |          |                | Max M <sub>z</sub> | 1.21           | 0.02           | -0.01          | 0.00           | 0.02           | ▷ 0.04       |            |
|            |  |          |                | Min M <sub>z</sub> | -1.21          | -0.02          | 0.01           | 0.00           | -0.02          | ▷ -0.04      |            |
|            |  | 33       | 1.960          | Max N              | ▷ 1.86         | 0.01           | -0.02          | 0.00           | 0.00           | 0.00         |            |
|            |  |          |                | Min N              | -1.86          | -0.01          | 0.02           | 0.00           | 0.00           | 0.00         |            |
|            |  |          |                | Max V <sub>y</sub> | 1.21           | 0.02           | -0.01          | 0.00           | 0.00           | 0.00         |            |
|            |  |          |                | Min V <sub>y</sub> | -1.21          | -0.02          | 0.01           | 0.00           | 0.00           | 0.00         |            |
|            |  |          |                | Max V <sub>z</sub> | -1.06          | -0.00          | ▷ 0.03         | 0.00           | 0.00           | 0.00         |            |
|            |  |          |                | Min V <sub>z</sub> | 1.06           | 0.00           | ▷ -0.03        | 0.00           | 0.00           | 0.00         |            |
|            |  |          |                | Max M <sub>T</sub> | 0.00           | 0.00           | ▷ 0.00         | ▷ 0.00         | 0.00           | 0.00         |            |
|            |  |          |                | Min M <sub>T</sub> | 0.00           | 0.00           | ▷ 0.00         | ▷ 0.00         | 0.00           | 0.00         |            |
|            |  |          |                | Max M <sub>y</sub> | 0.00           | 0.00           | 0.00           | ▷ 0.00         | 0.00           | 0.00         |            |
|            |  |          |                | Min M <sub>y</sub> | 0.00           | 0.00           | 0.00           | ▷ 0.00         | 0.00           | 0.00         |            |
|            |  |          |                | Max M <sub>z</sub> | 0.00           | 0.00           | 0.00           | ▷ 0.00         | ▷ 0.00         | 0.00         |            |
|            |  |          |                | Min M <sub>z</sub> | 0.00           | 0.00           | 0.00           | ▷ 0.00         | ▷ 0.00         | 0.00         |            |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.                                | RC   | Node No. | Location x [m] | Forces [kN]        |                |                    | Moments [kNm]  |                |                | Correspondin Load Cases |      |      |  |
|---|--|----------|----------------|--------------------|----------------|--------------------|----------------|----------------|----------------|-------------------------|------|------|--|
|   |  |          |                | N                  | V <sub>y</sub> | V <sub>z</sub>     | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |      |      |  |
| 49  | RC6  |          |                | Max M <sub>z</sub> | 0.00           | 0.00               | 0.00           | 0.00           | 0.00           | 0.00                    |      |      |  |
|   |  |          |                | Min M <sub>z</sub> | 0.00           | 0.00               | 0.00           | 0.00           | 0.00           | 0.00                    |      |      |  |
|   | DLC1, Result Envelope X 30% / Y 30% / Z 100% |          |                |                    |                |                    |                |                |                |                         |      |      |  |
|   | RC7  | 11       | 0.000          | Max N              | 4.18           | 0.03               | -0.05          | 0.00           | 0.09           | 0.06                    |      |      |  |
|   |  |          |                | Min N              | -4.18          | -0.03              | 0.05           | 0.00           | -0.09          | -0.06                   |      |      |  |
|   |  |          |                | Max V <sub>y</sub> | 3.85           | 0.04               | -0.04          | 0.00           | 0.07           | 0.07                    |      |      |  |
|   |  |          |                | Min V <sub>y</sub> | -3.85          | -0.04              | 0.04           | 0.00           | -0.07          | -0.07                   |      |      |  |
|   |  |          |                | Max V <sub>z</sub> | -2.67          | -0.02              | 0.07           | 0.00           | -0.14          | -0.03                   |      |      |  |
|   |  |          |                | Min V <sub>z</sub> | 2.67           | 0.02               | -0.07          | 0.00           | 0.14           | 0.03                    |      |      |  |
|   |  |          |                | Max M <sub>T</sub> | 0.00           | 0.00               | 0.00           | 0.00           | 0.00           | 0.00                    |      |      |  |
|   |  |          |                | Min M <sub>T</sub> | 0.00           | 0.00               | 0.00           | 0.00           | 0.00           | 0.00                    |      |      |  |
|   |  |          |                | Max M <sub>y</sub> | 2.67           | 0.02               | -0.07          | 0.00           | 0.14           | 0.03                    |      |      |  |
|   |  |          |                | Min M <sub>y</sub> | -2.67          | -0.02              | 0.07           | 0.00           | -0.14          | -0.03                   |      |      |  |
|   |  |          |                | Max M <sub>z</sub> | 3.85           | 0.04               | -0.04          | 0.00           | 0.07           | 0.07                    |      |      |  |
|   |  |          |                | Min M <sub>z</sub> | -3.85          | -0.04              | 0.04           | 0.00           | -0.07          | -0.07                   |      |      |  |
|   |  |          |                | 33                 | 1.960          | Max N              | 4.18           | 0.03           | -0.05          | 0.00                    | 0.00 | 0.00 |  |
|   |  |          |                |                    |                | Min N              | -4.18          | -0.03          | 0.05           | 0.00                    | 0.00 | 0.00 |  |
|   |  |          |                |                    |                | Max V <sub>y</sub> | 3.85           | 0.04           | -0.04          | 0.00                    | 0.00 | 0.00 |  |
|   |  |          |                |                    |                | Min V <sub>y</sub> | -3.85          | -0.04          | 0.04           | 0.00                    | 0.00 | 0.00 |  |
|   |  |          |                |                    |                | Max V <sub>z</sub> | -2.67          | -0.02          | 0.07           | 0.00                    | 0.00 | 0.00 |  |
|   |  |          |                |                    |                | Min V <sub>z</sub> | 2.67           | 0.02           | -0.07          | 0.00                    | 0.00 | 0.00 |  |
|   | Max M <sub>T</sub>                           | 0.00     | 0.00           |                    |                | 0.00               | 0.00           | 0.00           | 0.00           |                         |      |      |  |
|   | Min M <sub>T</sub>                           | 0.00     | 0.00           |                    |                | 0.00               | 0.00           | 0.00           | 0.00           |                         |      |      |  |
|   | Max M <sub>y</sub>                           | 0.00     | 0.00           |                    |                | 0.00               | 0.00           | 0.00           | 0.00           |                         |      |      |  |
|   | Min M <sub>y</sub>                           | 0.00     | 0.00           |                    |                | 0.00               | 0.00           | 0.00           | 0.00           |                         |      |      |  |
|   | Max M <sub>z</sub>                           | 0.00     | 0.00           | 0.00               | 0.00           | 0.00               | 0.00           |                |                |                         |      |      |  |
|   | Min M <sub>z</sub>                           | 0.00     | 0.00           | 0.00               | 0.00           | 0.00               | 0.00           |                |                |                         |      |      |  |
| Section No. 3: QRO 80x3   EN 10219-2:2006 |  |          |                |                    |                |                    |                |                |                |                         |      |      |  |
| 36  | RC1  | 11       | 0.000          | Max N              | -0.15          | -0.02              | 0.09           | -0.00          | -0.04          | -0.02                   | CO 1 |      |  |
|   |  |          |                | Min N              | -1.79          | 0.28               | -0.16          | 0.03           | 0.39           | 0.29                    | CO 2 |      |  |
|   |  |          |                | Max V <sub>y</sub> | -1.79          | 0.28               | -0.16          | 0.03           | 0.39           | 0.29                    | CO 2 |      |  |
|   |  |          |                | Min V <sub>y</sub> | -0.15          | -0.02              | 0.09           | -0.00          | -0.04          | -0.02                   | CO 1 |      |  |
|   |  |          |                | Max V <sub>z</sub> | -0.15          | -0.02              | 0.09           | -0.00          | -0.04          | -0.02                   | CO 1 |      |  |
|   |  |          |                | Min V <sub>z</sub> | -1.79          | 0.28               | -0.16          | 0.03           | 0.39           | 0.29                    | CO 2 |      |  |
|   |  |          |                | Max M <sub>T</sub> | -1.79          | 0.28               | -0.16          | 0.03           | 0.39           | 0.29                    | CO 2 |      |  |
|   |  |          |                | Min M <sub>T</sub> | -0.15          | -0.02              | 0.09           | -0.00          | -0.04          | -0.02                   | CO 1 |      |  |
|   |  |          |                | Max M <sub>y</sub> | -1.79          | 0.28               | -0.16          | 0.03           | 0.39           | 0.29                    | CO 2 |      |  |
|   |  |          |                | Min M <sub>y</sub> | -0.15          | -0.02              | 0.09           | -0.00          | -0.04          | -0.02                   | CO 1 |      |  |
|   |  |          |                | Max M <sub>z</sub> | -1.79          | 0.28               | -0.16          | 0.03           | 0.39           | 0.29                    | CO 2 |      |  |
|   |  |          |                | Min M <sub>z</sub> | -0.15          | -0.02              | 0.09           | -0.00          | -0.04          | -0.02                   | CO 1 |      |  |
|   |  |          |                | Max N              | -0.00          | -0.02              | -0.06          | -0.00          | -0.01          | 0.01                    | CO 1 |      |  |
|   |  |          |                | Min N              | -1.65          | 0.28               | -0.31          | 0.03           | -0.13          | -0.33                   | CO 2 |      |  |
|   |  |          |                | Max V <sub>y</sub> | -1.65          | 0.28               | -0.31          | 0.03           | -0.13          | -0.33                   | CO 2 |      |  |
|   |  |          |                | Min V <sub>y</sub> | -0.00          | -0.02              | -0.06          | -0.00          | -0.01          | 0.01                    | CO 1 |      |  |
|   |  |          |                | Max V <sub>z</sub> | -0.00          | -0.02              | -0.06          | -0.00          | -0.01          | 0.01                    | CO 1 |      |  |
|   |  |          |                | Min V <sub>z</sub> | -1.65          | 0.28               | -0.31          | 0.03           | -0.13          | -0.33                   | CO 2 |      |  |
|   |  |          |                | Max M <sub>T</sub> | -1.65          | 0.28               | -0.31          | 0.03           | -0.13          | -0.33                   | CO 2 |      |  |
|   |  |          |                | Min M <sub>T</sub> | -0.00          | -0.02              | -0.06          | -0.00          | -0.01          | 0.01                    | CO 1 |      |  |
|   |  |          |                | Max M <sub>y</sub> | -0.00          | -0.02              | -0.06          | -0.00          | -0.01          | 0.01                    | CO 1 |      |  |
|   |  |          |                | Min M <sub>y</sub> | -1.65          | 0.28               | -0.31          | 0.03           | -0.13          | -0.33                   | CO 2 |      |  |
|   |  |          |                | Max M <sub>z</sub> | -0.00          | -0.02              | -0.06          | -0.00          | -0.01          | 0.01                    | CO 1 |      |  |
|   |  |          |                | Min M <sub>z</sub> | -1.65          | 0.28               | -0.31          | 0.03           | -0.13          | -0.33                   | CO 2 |      |  |
|   | RC2  | 11       | 0.000          | Max N              | -0.11          | -0.01              | 0.06           | -0.00          | -0.03          | -0.02                   | CO 3 |      |  |
|   |  |          |                | Min N              | -1.20          | 0.19               | -0.10          | 0.02           | 0.26           | 0.19                    | CO 4 |      |  |
|   |  |          |                | Max V <sub>y</sub> | -1.20          | 0.19               | -0.10          | 0.02           | 0.26           | 0.19                    | CO 4 |      |  |
|   |  |          |                | Min V <sub>y</sub> | -0.11          | -0.01              | 0.06           | -0.00          | -0.03          | -0.02                   | CO 3 |      |  |
|   |  |          |                | Max V <sub>z</sub> | -0.11          | -0.01              | 0.06           | -0.00          | -0.03          | -0.02                   | CO 3 |      |  |
|   |  |          |                | Min V <sub>z</sub> | -1.20          | 0.19               | -0.10          | 0.02           | 0.26           | 0.19                    | CO 4 |      |  |
|   |  |          |                | Max M <sub>T</sub> | -1.20          | 0.19               | -0.10          | 0.02           | 0.26           | 0.19                    | CO 4 |      |  |
|   |  |          |                | Min M <sub>T</sub> | -0.11          | -0.01              | 0.06           | -0.00          | -0.03          | -0.02                   | CO 3 |      |  |
|   |  |          |                | Max M <sub>y</sub> | -1.20          | 0.19               | -0.10          | 0.02           | 0.26           | 0.19                    | CO 4 |      |  |
|   |  |          |                | Min M <sub>y</sub> | -0.11          | -0.01              | 0.06           | -0.00          | -0.03          | -0.02                   | CO 3 |      |  |
|   |  |          |                | Max M <sub>z</sub> | -1.20          | 0.19               | -0.10          | 0.02           | 0.26           | 0.19                    | CO 4 |      |  |
|   |  |          |                | Min M <sub>z</sub> | -0.11          | -0.01              | 0.06           | -0.00          | -0.03          | -0.02                   | CO 3 |      |  |
|   |  |          |                | Max N              | -0.00          | -0.01              | -0.04          | -0.00          | -0.01          | 0.01                    | CO 3 |      |  |
|   |  |          |                | Min N              | -1.09          | 0.19               | -0.21          | 0.02           | -0.09          | -0.22                   | CO 4 |      |  |
|   |  |          |                | Max V <sub>y</sub> | -1.09          | 0.19               | -0.21          | 0.02           | -0.09          | -0.22                   | CO 4 |      |  |
|   |  |          |                | Min V <sub>y</sub> | -0.00          | -0.01              | -0.04          | -0.00          | -0.01          | 0.01                    | CO 3 |      |  |
|   |  |          |                | Max V <sub>z</sub> | -0.00          | -0.01              | -0.04          | -0.00          | -0.01          | 0.01                    | CO 3 |      |  |
|   |  |          |                | Min V <sub>z</sub> | -1.09          | 0.19               | -0.21          | 0.02           | -0.09          | -0.22                   | CO 4 |      |  |
|   |  |          |                | Max M <sub>T</sub> | -1.09          | 0.19               | -0.21          | 0.02           | -0.09          | -0.22                   | CO 4 |      |  |
|   |  |          |                | Min M <sub>T</sub> | -0.00          | -0.01              | -0.04          | -0.00          | -0.01          | 0.01                    | CO 3 |      |  |
|   |  |          |                | Max M <sub>y</sub> | -0.00          | -0.01              | -0.04          | -0.00          | -0.01          | 0.01                    | CO 3 |      |  |
|   |  |          |                | Min M <sub>y</sub> | -1.09          | 0.19               | -0.21          | 0.02           | -0.09          | -0.22                   | CO 4 |      |  |
|   |  |          |                | Max M <sub>z</sub> | -0.00          | -0.01              | -0.04          | -0.00          | -0.01          | 0.01                    | CO 3 |      |  |
|   |  |          |                | Min M <sub>z</sub> | -1.09          | 0.19               | -0.21          | 0.02           | -0.09          | -0.22                   | CO 4 |      |  |
|   | RC3  | 11       | 0.000          | Max N              | -0.11          | -0.01              | 0.06           | -0.00          | -0.03          | -0.02                   | CO 5 |      |  |
|   |  |          |                | Min N              | -0.66          | 0.09               | -0.02          | 0.01           | 0.11           | 0.09                    | CO 6 |      |  |
|   |  |          |                | Max V <sub>y</sub> | -0.66          | 0.09               | -0.02          | 0.01           | 0.11           | 0.09                    | CO 6 |      |  |
|   |  |          |                | Min V <sub>y</sub> | -0.11          | -0.01              | 0.06           | -0.00          | -0.03          | -0.02                   | CO 5 |      |  |
|   |  |          |                | Max V <sub>z</sub> | -0.11          | -0.01              | 0.06           | -0.00          | -0.03          | -0.02                   | CO 5 |      |  |
|   |  |          |                | Min V <sub>z</sub> | -0.66          | 0.09               | -0.02          | 0.01           | 0.11           | 0.09                    | CO 6 |      |  |
|   |  |          |                | Max M <sub>T</sub> | -0.66          | 0.09               | -0.02          | 0.01           | 0.11           | 0.09                    | CO 6 |      |  |
|   |  |          |                | Min M <sub>T</sub> | -0.11          | -0.01              | 0.06           | -0.00          | -0.03          | -0.02                   | CO 5 |      |  |
|   |  |          |                | Max M <sub>y</sub> | -0.66          | 0.09               | -0.02          | 0.01           | 0.11           | 0.09                    | CO 6 |      |  |
|   |  |          |                | Min M <sub>y</sub> | -0.11          | -0.01              | 0.06           | -0.00          | -0.03          | -0.02                   | CO 5 |      |  |
|   |  |          |                | Max M <sub>z</sub> | -0.66          | 0.09               | -0.02          | 0.01           | 0.11           | 0.09                    | CO 6 |      |  |
|   |  |          |                | Min M <sub>z</sub> | -0.66          | 0.09               | -0.02          | 0.01           | 0.11           | 0.09                    | CO 6 |      |  |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m] | Forces [kN]        |                |                |                |                | Moments [kNm]  |            |      | Correspondin |
|------------|--|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|------------|------|--------------|
|            |  |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> | Load Cases |      |              |
| 36         | RC3  | 13       | 2.192          | Min M <sub>z</sub> | -0.11          | -0.01          | 0.06           | -0.00          | -0.03          | -0.02      | CO 5 |              |
|            |  |          |                | Max N              | -0.00          | -0.01          | -0.04          | -0.00          | -0.01          | 0.01       | CO 5 |              |
|            |  |          |                | Min N              | -0.55          | 0.09           | -0.13          | 0.01           | -0.05          | -0.10      | CO 6 |              |
|            |  |          |                | Max V <sub>y</sub> | -0.55          | 0.09           | -0.13          | 0.01           | -0.05          | -0.10      | CO 6 |              |
|            |  |          |                | Min V <sub>y</sub> | -0.00          | -0.01          | -0.04          | -0.00          | -0.01          | 0.01       | CO 5 |              |
|            |  |          |                | Max V <sub>z</sub> | -0.00          | -0.01          | -0.04          | -0.00          | -0.01          | 0.01       | CO 5 |              |
|            |  |          |                | Min V <sub>z</sub> | -0.55          | 0.09           | -0.13          | 0.01           | -0.05          | -0.10      | CO 6 |              |
|            |  |          |                | Max M <sub>T</sub> | -0.55          | 0.09           | -0.13          | 0.01           | -0.05          | -0.10      | CO 6 |              |
|            |  |          |                | Min M <sub>T</sub> | -0.00          | -0.01          | -0.04          | -0.00          | -0.01          | 0.01       | CO 5 |              |
|            |  |          |                | Max M <sub>y</sub> | -0.00          | -0.01          | -0.04          | -0.00          | -0.01          | 0.01       | CO 5 |              |
|            |  |          |                | Min M <sub>y</sub> | -0.55          | 0.09           | -0.13          | 0.01           | -0.05          | -0.10      | CO 6 |              |
|            |  |          |                | Max M <sub>z</sub> | -0.00          | -0.01          | -0.04          | -0.00          | -0.01          | 0.01       | CO 5 |              |
|            | RC4  | 11       | 0.000          | Min M <sub>z</sub> | -0.55          | 0.09           | -0.13          | 0.01           | -0.05          | -0.10      | CO 6 |              |
|            |  |          |                | Max N              | -0.11          | -0.01          | 0.06           | -0.00          | -0.03          | -0.02      | CO 7 |              |
|            |  |          |                | Min N              | -0.44          | 0.05           | 0.01           | 0.00           | 0.06           | 0.05       | CO 8 |              |
|            |  |          |                | Max V <sub>y</sub> | -0.44          | 0.05           | 0.01           | 0.00           | 0.06           | 0.05       | CO 8 |              |
|            |  |          |                | Min V <sub>y</sub> | -0.11          | -0.01          | 0.06           | -0.00          | -0.03          | -0.02      | CO 7 |              |
|            |  |          |                | Max V <sub>z</sub> | -0.11          | -0.01          | 0.06           | -0.00          | -0.03          | -0.02      | CO 7 |              |
|            |  |          |                | Min V <sub>z</sub> | -0.44          | 0.05           | 0.01           | 0.00           | 0.06           | 0.05       | CO 8 |              |
|            |  |          |                | Max M <sub>T</sub> | -0.44          | 0.05           | 0.01           | 0.00           | 0.06           | 0.05       | CO 8 |              |
|            |  |          |                | Min M <sub>T</sub> | -0.11          | -0.01          | 0.06           | -0.00          | -0.03          | -0.02      | CO 7 |              |
|            |  |          |                | Max M <sub>y</sub> | -0.44          | 0.05           | 0.01           | 0.00           | 0.06           | 0.05       | CO 8 |              |
|            |  |          |                | Min M <sub>y</sub> | -0.11          | -0.01          | 0.06           | -0.00          | -0.03          | -0.02      | CO 7 |              |
|            |  |          |                | Max M <sub>z</sub> | -0.44          | 0.05           | 0.01           | 0.00           | 0.06           | 0.05       | CO 8 |              |
|            |  | 13       | 2.192          | Min M <sub>z</sub> | -0.11          | -0.01          | 0.06           | -0.00          | -0.03          | -0.02      | CO 7 |              |
|            |  |          |                | Max N              | -0.00          | -0.01          | -0.04          | -0.00          | -0.01          | 0.01       | CO 7 |              |
|            |  |          |                | Min N              | -0.33          | 0.05           | -0.10          | 0.00           | -0.03          | -0.06      | CO 8 |              |
|            |  |          |                | Max V <sub>y</sub> | -0.33          | 0.05           | -0.10          | 0.00           | -0.03          | -0.06      | CO 8 |              |
|            |  |          |                | Min V <sub>y</sub> | -0.00          | -0.01          | -0.04          | -0.00          | -0.01          | 0.01       | CO 7 |              |
|            |  |          |                | Max V <sub>z</sub> | -0.00          | -0.01          | -0.04          | -0.00          | -0.01          | 0.01       | CO 7 |              |
|            |  |          |                | Min V <sub>z</sub> | -0.33          | 0.05           | -0.10          | 0.00           | -0.03          | -0.06      | CO 8 |              |
|            |  |          |                | Max M <sub>T</sub> | -0.33          | 0.05           | -0.10          | 0.00           | -0.03          | -0.06      | CO 8 |              |
|            |  |          |                | Min M <sub>T</sub> | -0.00          | -0.01          | -0.04          | -0.00          | -0.01          | 0.01       | CO 7 |              |
|            |  |          |                | Max M <sub>y</sub> | -0.00          | -0.01          | -0.04          | -0.00          | -0.01          | 0.01       | CO 7 |              |
|            |  |          |                | Min M <sub>y</sub> | -0.33          | 0.05           | -0.10          | 0.00           | -0.03          | -0.06      | CO 8 |              |
|            |  |          |                | Max M <sub>z</sub> | -0.00          | -0.01          | -0.04          | -0.00          | -0.01          | 0.01       | CO 7 |              |
|            |  |          |                | Min M <sub>z</sub> | -0.33          | 0.05           | -0.10          | 0.00           | -0.03          | -0.06      | CO 8 |              |
|            | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                |                    |                |                |                |                |                |            |      |              |
|            | RC5  | 11       | 0.000          | Max N              | 1.06           | -0.03          | 0.01           | -0.00          | -0.02          | -0.03      |      |              |
|            |  |          |                | Min N              | -1.06          | 0.03           | -0.01          | 0.00           | 0.02           | 0.03       |      |              |
|            |  |          |                | Max V <sub>y</sub> | -0.69          | 0.04           | -0.02          | 0.00           | 0.04           | 0.04       |      |              |
|            |  |          |                | Min V <sub>y</sub> | 0.69           | -0.04          | 0.02           | -0.00          | -0.04          | -0.04      |      |              |
|            |  |          |                | Max V <sub>z</sub> | 0.41           | -0.03          | 0.02           | -0.00          | -0.04          | -0.03      |      |              |
|            |  |          |                | Min V <sub>z</sub> | -0.41          | 0.03           | -0.02          | 0.00           | 0.04           | 0.03       |      |              |
|            |  |          |                | Max M <sub>T</sub> | -0.56          | 0.04           | -0.02          | 0.00           | 0.04           | 0.04       |      |              |
|            |  |          |                | Min M <sub>T</sub> | 0.56           | -0.04          | 0.02           | -0.00          | -0.04          | -0.04      |      |              |
|            |  |          |                | Max M <sub>y</sub> | -0.44          | 0.03           | -0.02          | 0.00           | 0.04           | 0.03       |      |              |
|            |  |          |                | Min M <sub>y</sub> | 0.44           | -0.03          | 0.02           | -0.00          | -0.04          | -0.03      |      |              |
|            |  |          |                | Max M <sub>z</sub> | -0.74          | 0.04           | -0.02          | 0.00           | 0.04           | 0.04       |      |              |
|            |  |          |                | Min M <sub>z</sub> | 0.74           | -0.04          | 0.02           | -0.00          | -0.04          | -0.04      |      |              |
|            |  | 13       | 2.192          | Max N              | 1.06           | -0.03          | 0.01           | -0.00          | 0.00           | 0.03       |      |              |
|            |  |          |                | Min N              | -1.06          | 0.03           | -0.01          | 0.00           | -0.00          | -0.03      |      |              |
|            |  |          |                | Max V <sub>y</sub> | -0.69          | 0.04           | -0.02          | 0.00           | -0.01          | -0.04      |      |              |
|            |  |          |                | Min V <sub>y</sub> | 0.69           | -0.04          | 0.02           | -0.00          | 0.01           | 0.04       |      |              |
|            |  |          |                | Max V <sub>z</sub> | 0.41           | -0.03          | 0.02           | -0.00          | 0.01           | 0.04       |      |              |
|            |  |          |                | Min V <sub>z</sub> | -0.41          | 0.03           | -0.02          | 0.00           | -0.01          | -0.04      |      |              |
|            |  |          |                | Max M <sub>T</sub> | -0.56          | 0.04           | -0.02          | 0.00           | -0.01          | -0.04      |      |              |
|            |  |          |                | Min M <sub>T</sub> | 0.56           | -0.04          | 0.02           | -0.00          | 0.01           | 0.04       |      |              |
|            |  |          |                | Max M <sub>y</sub> | 0.26           | -0.03          | 0.02           | -0.00          | 0.01           | 0.04       |      |              |
|            |  |          |                | Min M <sub>y</sub> | -0.26          | 0.03           | -0.02          | 0.00           | -0.01          | -0.04      |      |              |
|            |  |          |                | Max M <sub>z</sub> | 0.63           | -0.04          | 0.02           | -0.00          | 0.01           | 0.04       |      |              |
|            |  |          |                | Min M <sub>z</sub> | -0.63          | 0.04           | -0.02          | 0.00           | -0.01          | -0.04      |      |              |
|            | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                |                    |                |                |                |                |                |            |      |              |
|            | RC6  | 11       | 0.000          | Max N              | 0.99           | -0.02          | 0.01           | -0.00          | -0.01          | -0.02      |      |              |
|            |  |          |                | Min N              | -0.99          | 0.02           | -0.01          | 0.00           | 0.01           | 0.02       |      |              |
|            |  |          |                | Max V <sub>y</sub> | -0.54          | 0.04           | -0.01          | 0.00           | 0.02           | 0.04       |      |              |
|            |  |          |                | Min V <sub>y</sub> | 0.54           | -0.04          | 0.01           | -0.00          | -0.02          | -0.04      |      |              |
|            |  |          |                | Max V <sub>z</sub> | 0.32           | -0.02          | 0.02           | -0.00          | -0.03          | -0.02      |      |              |
|            |  |          |                | Min V <sub>z</sub> | -0.32          | 0.02           | -0.02          | 0.00           | 0.03           | 0.02       |      |              |
|            |  |          |                | Max M <sub>T</sub> | -0.38          | 0.03           | -0.01          | 0.00           | 0.02           | 0.04       |      |              |
|            |  |          |                | Min M <sub>T</sub> | 0.38           | -0.03          | 0.01           | -0.00          | -0.02          | -0.04      |      |              |
|            |  |          |                | Max M <sub>y</sub> | -0.36          | 0.02           | -0.02          | 0.00           | 0.03           | 0.02       |      |              |
|            |  |          |                | Min M <sub>y</sub> | 0.36           | -0.02          | 0.02           | -0.00          | -0.03          | -0.02      |      |              |
|            |  |          |                | Max M <sub>z</sub> | -0.57          | 0.04           | -0.01          | 0.00           | 0.02           | 0.04       |      |              |
|            |  |          |                | Min M <sub>z</sub> | 0.57           | -0.04          | 0.01           | -0.00          | -0.02          | -0.04      |      |              |
|            |  | 13       | 2.192          | Max N              | 0.99           | -0.02          | 0.01           | -0.00          | 0.00           | 0.02       |      |              |
|            |  |          |                | Min N              | -0.99          | 0.02           | -0.01          | 0.00           | -0.00          | -0.02      |      |              |
|            |  |          |                | Max V <sub>y</sub> | -0.54          | 0.04           | -0.01          | 0.00           | -0.01          | -0.04      |      |              |
|            |  |          |                | Min V <sub>y</sub> | 0.54           | -0.04          | 0.01           | -0.00          | 0.01           | 0.04       |      |              |
|            |  |          |                | Max V <sub>z</sub> | 0.32           | -0.02          | 0.02           | -0.00          | 0.01           | 0.02       |      |              |
|            |  |          |                | Min V <sub>z</sub> | -0.32          | 0.02           | -0.02          | 0.00           | -0.01          | -0.02      |      |              |
|            |  |          |                | Max M <sub>T</sub> | -0.38          | 0.03           | -0.01          | 0.00           | -0.01          | -0.04      |      |              |
|            |  |          |                | Min M <sub>T</sub> | 0.38           | -0.03          | 0.01           | -0.00          | 0.01           | 0.04       |      |              |
|            |  |          |                | Max M <sub>y</sub> | 0.16           | -0.02          | 0.02           | -0.00          | 0.01           | 0.02       |      |              |
|            |  |          |                | Min M <sub>y</sub> | -0.16          | 0.02           | -0.02          | 0.00           | -0.01          | -0.02      |      |              |
|            |  |          |                | Max M <sub>z</sub> | 0.52           | -0.04          | 0.01           | -0.00          | 0.01           | 0.04       |      |              |
|            |  |          |                | Min M <sub>z</sub> | -0.52          | 0.04           | -0.01          | 0.00           | -0.01          | -0.04      |      |              |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m] | Forces [kN]        |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |      |
|------------|--|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------------------------|------|
|            |  |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |      |
| 36         | DLC1, Result Envelope X 30% / Y 30% / Z 100% RC7 | 11       | 0.000          | Max N              | 2.30           | -0.06          | 0.02           | -0.00          | -0.04          | -0.07                   |      |
|            |  |          |                | Min N              | -2.30          | 0.06           | -0.02          | 0.00           | 0.04           | 0.07                    |      |
|            |  |          |                | Max V <sub>y</sub> | -1.57          | 0.08           | -0.04          | 0.01           | 0.08           | 0.09                    |      |
|            |  |          |                | Min V <sub>y</sub> | 1.57           | -0.08          | 0.04           | -0.01          | -0.08          | -0.09                   |      |
|            |  |          |                | Max V <sub>z</sub> | 0.92           | -0.07          | 0.05           | -0.01          | -0.09          | -0.07                   |      |
|            |  |          |                | Min V <sub>z</sub> | -0.92          | 0.07           | -0.05          | 0.01           | 0.09           | 0.07                    |      |
|            |  |          |                | Max M <sub>T</sub> | -1.34          | 0.08           | -0.05          | 0.01           | 0.08           | 0.09                    |      |
|            |  |          |                | Min M <sub>T</sub> | 1.34           | -0.08          | 0.05           | -0.01          | -0.08          | -0.09                   |      |
|            |  |          |                | Max M <sub>y</sub> | -1.01          | 0.07           | -0.05          | 0.01           | 0.09           | 0.08                    |      |
|            |  |          |                | Min M <sub>y</sub> | 1.01           | -0.07          | 0.05           | -0.01          | -0.09          | -0.08                   |      |
|            |  |          |                | Max M <sub>z</sub> | -1.71          | 0.08           | -0.04          | 0.01           | 0.07           | 0.09                    |      |
|            |  |          |                | Min M <sub>z</sub> | 1.71           | -0.08          | 0.04           | -0.01          | -0.07          | -0.09                   |      |
|            |  | 13       | 2.192          | Max N              | 2.30           | -0.06          | 0.02           | -0.00          | 0.01           | 0.05                    |      |
|            |  |          |                | Min N              | -2.30          | 0.06           | -0.02          | 0.00           | -0.01          | -0.05                   |      |
|            |  |          |                | Max V <sub>y</sub> | -1.57          | 0.08           | -0.04          | 0.01           | -0.02          | -0.09                   |      |
|            |  |          |                | Min V <sub>y</sub> | 1.57           | -0.08          | 0.04           | -0.01          | 0.02           | 0.09                    |      |
|            |  |          |                | Max V <sub>z</sub> | 0.92           | -0.07          | 0.05           | -0.01          | 0.02           | 0.08                    |      |
|            |  |          |                | Min V <sub>z</sub> | -0.92          | 0.07           | -0.05          | 0.01           | -0.02          | -0.08                   |      |
|            |  |          |                | Max M <sub>T</sub> | -1.34          | 0.08           | -0.05          | 0.01           | -0.02          | -0.09                   |      |
|            |  |          |                | Min M <sub>T</sub> | 1.34           | -0.08          | 0.05           | -0.01          | 0.02           | 0.09                    |      |
|            |  |          |                | Max M <sub>y</sub> | 0.58           | -0.07          | 0.05           | -0.01          | 0.02           | 0.08                    |      |
|            |  |          |                | Min M <sub>y</sub> | -0.58          | 0.07           | -0.05          | 0.01           | -0.02          | -0.08                   |      |
|            |  |          |                | Max M <sub>z</sub> | 1.41           | -0.08          | 0.05           | -0.01          | 0.02           | 0.09                    |      |
|            |  |          |                | Min M <sub>z</sub> | -1.41          | 0.08           | -0.05          | 0.01           | -0.02          | -0.09                   |      |
| 37         | RC1  | 13       | 0.000          | Max N              | 14.61          | 0.22           | -0.04          | -0.03          | 0.09           | 0.33                    | CO 2 |
|            |  |          |                | Min N              | -0.11          | 0.00           | 0.07           | -0.00          | -0.02          | 0.00                    | CO 1 |
|            |  |          |                | Max V <sub>y</sub> | 14.61          | 0.22           | -0.04          | -0.03          | 0.09           | 0.33                    | CO 2 |
|            |  |          |                | Min V <sub>y</sub> | -0.11          | 0.00           | 0.07           | -0.00          | -0.02          | 0.00                    | CO 1 |
|            |  |          |                | Max V <sub>z</sub> | -0.11          | 0.00           | 0.07           | -0.00          | -0.02          | 0.00                    | CO 1 |
|            |  |          |                | Min V <sub>z</sub> | 14.61          | 0.22           | -0.04          | -0.03          | 0.09           | 0.33                    | CO 2 |
|            |  |          |                | Max M <sub>T</sub> | -0.11          | 0.00           | 0.07           | -0.00          | -0.02          | 0.00                    | CO 1 |
|            |  |          |                | Min M <sub>T</sub> | 14.61          | 0.22           | -0.04          | -0.03          | 0.09           | 0.33                    | CO 2 |
|            |  |          |                | Max M <sub>y</sub> | 14.61          | 0.22           | -0.04          | -0.03          | 0.09           | 0.33                    | CO 2 |
|            |  |          |                | Min M <sub>y</sub> | -0.11          | 0.00           | 0.07           | -0.00          | -0.02          | 0.00                    | CO 1 |
|            |  |          |                | Max M <sub>z</sub> | 14.61          | 0.22           | -0.04          | -0.03          | 0.09           | 0.33                    | CO 2 |
|            |  |          |                | Min M <sub>z</sub> | -0.11          | 0.00           | 0.07           | -0.00          | -0.02          | 0.00                    | CO 1 |
|            |  | 19       | 2.157          | Max N              | 14.75          | 0.21           | -0.19          | -0.04          | -0.15          | -0.12                   | CO 2 |
|            |  |          |                | Min N              | 0.03           | 0.00           | -0.07          | -0.00          | -0.02          | -0.01                   | CO 1 |
|            |  |          |                | Max V <sub>y</sub> | 14.75          | 0.21           | -0.19          | -0.04          | -0.15          | -0.12                   | CO 2 |
|            |  |          |                | Min V <sub>y</sub> | 0.03           | 0.00           | -0.07          | -0.00          | -0.02          | -0.01                   | CO 1 |
|            |  |          |                | Max V <sub>z</sub> | 0.03           | 0.00           | -0.07          | -0.00          | -0.02          | -0.01                   | CO 1 |
|            |  |          |                | Min V <sub>z</sub> | 14.75          | 0.21           | -0.19          | -0.04          | -0.15          | -0.12                   | CO 2 |
|            |  |          |                | Max M <sub>T</sub> | 0.03           | 0.00           | -0.07          | -0.00          | -0.02          | -0.01                   | CO 1 |
|            |  |          |                | Min M <sub>T</sub> | 14.75          | 0.21           | -0.19          | -0.04          | -0.15          | -0.12                   | CO 2 |
|            |  |          |                | Max M <sub>y</sub> | 0.03           | 0.00           | -0.07          | -0.00          | -0.02          | -0.01                   | CO 1 |
|            |  |          |                | Min M <sub>y</sub> | 14.75          | 0.21           | -0.19          | -0.04          | -0.15          | -0.12                   | CO 2 |
|            |  |          |                | Max M <sub>z</sub> | 0.03           | 0.00           | -0.07          | -0.00          | -0.02          | -0.01                   | CO 1 |
|            |  |          |                | Min M <sub>z</sub> | 14.75          | 0.21           | -0.19          | -0.04          | -0.15          | -0.12                   | CO 2 |
|            | RC2  | 13       | 0.000          | Max N              | 9.73           | 0.15           | -0.02          | -0.02          | 0.06           | 0.22                    | CO 4 |
|            |  |          |                | Min N              | -0.08          | 0.00           | 0.05           | -0.00          | -0.02          | 0.00                    | CO 3 |
|            |  |          |                | Max V <sub>y</sub> | 9.73           | 0.15           | -0.02          | -0.02          | 0.06           | 0.22                    | CO 4 |
|            |  |          |                | Min V <sub>y</sub> | -0.08          | 0.00           | 0.05           | -0.00          | -0.02          | 0.00                    | CO 3 |
|            |  |          |                | Max V <sub>z</sub> | -0.08          | 0.00           | 0.05           | -0.00          | -0.02          | 0.00                    | CO 3 |
|            |  |          |                | Min V <sub>z</sub> | 9.73           | 0.15           | -0.02          | -0.02          | 0.06           | 0.22                    | CO 4 |
|            |  |          |                | Max M <sub>T</sub> | -0.08          | 0.00           | 0.05           | -0.00          | -0.02          | 0.00                    | CO 3 |
|            |  |          |                | Min M <sub>T</sub> | 9.73           | 0.15           | -0.02          | -0.02          | 0.06           | 0.22                    | CO 4 |
|            |  |          |                | Max M <sub>y</sub> | 9.73           | 0.15           | -0.02          | -0.02          | 0.06           | 0.22                    | CO 4 |
|            |  |          |                | Min M <sub>y</sub> | -0.08          | 0.00           | 0.05           | -0.00          | -0.02          | 0.00                    | CO 3 |
|            |  |          |                | Max M <sub>z</sub> | 9.73           | 0.15           | -0.02          | -0.02          | 0.06           | 0.22                    | CO 4 |
|            |  |          |                | Min M <sub>z</sub> | -0.08          | 0.00           | 0.05           | -0.00          | -0.02          | 0.00                    | CO 3 |
|            |  | 19       | 2.157          | Max N              | 9.83           | 0.14           | -0.13          | -0.02          | -0.10          | -0.08                   | CO 4 |
|            |  |          |                | Min N              | 0.02           | 0.00           | -0.06          | -0.00          | -0.02          | -0.00                   | CO 3 |
|            |  |          |                | Max V <sub>y</sub> | 9.83           | 0.14           | -0.13          | -0.02          | -0.10          | -0.08                   | CO 4 |
|            |  |          |                | Min V <sub>y</sub> | 0.02           | 0.00           | -0.06          | -0.00          | -0.02          | -0.00                   | CO 3 |
|            |  |          |                | Max V <sub>z</sub> | 0.02           | 0.00           | -0.06          | -0.00          | -0.02          | -0.00                   | CO 3 |
|            |  |          |                | Min V <sub>z</sub> | 9.83           | 0.14           | -0.13          | -0.02          | -0.10          | -0.08                   | CO 4 |
|            |  |          |                | Max M <sub>T</sub> | 0.02           | 0.00           | -0.06          | -0.00          | -0.02          | -0.00                   | CO 3 |
|            |  |          |                | Min M <sub>T</sub> | 9.83           | 0.14           | -0.13          | -0.02          | -0.10          | -0.08                   | CO 4 |
|            |  |          |                | Max M <sub>y</sub> | 0.02           | 0.00           | -0.06          | -0.00          | -0.02          | -0.00                   | CO 3 |
|            |  |          |                | Min M <sub>y</sub> | 9.83           | 0.14           | -0.13          | -0.02          | -0.10          | -0.08                   | CO 4 |
|            |  |          |                | Max M <sub>z</sub> | 0.02           | 0.00           | -0.06          | -0.00          | -0.02          | -0.00                   | CO 3 |
|            |  |          |                | Min M <sub>z</sub> | 9.83           | 0.14           | -0.13          | -0.02          | -0.10          | -0.08                   | CO 4 |
|            | RC3  | 13       | 0.000          | Max N              | 4.82           | 0.07           | 0.02           | -0.01          | 0.02           | 0.11                    | CO 6 |
|            |  |          |                | Min N              | -0.08          | 0.00           | 0.05           | -0.00          | -0.02          | 0.00                    | CO 5 |
|            |  |          |                | Max V <sub>y</sub> | 4.82           | 0.07           | 0.02           | -0.01          | 0.02           | 0.11                    | CO 6 |
|            |  |          |                | Min V <sub>y</sub> | -0.08          | 0.00           | 0.05           | -0.00          | -0.02          | 0.00                    | CO 5 |
|            |  |          |                | Max V <sub>z</sub> | -0.08          | 0.00           | 0.05           | -0.00          | -0.02          | 0.00                    | CO 5 |
|            |  |          |                | Min V <sub>z</sub> | 4.82           | 0.07           | 0.02           | -0.01          | 0.02           | 0.11                    | CO 6 |
|            |  |          |                | Max M <sub>T</sub> | -0.08          | 0.00           | 0.05           | -0.00          | -0.02          | 0.00                    | CO 5 |
|            |  |          |                | Min M <sub>T</sub> | 4.82           | 0.07           | 0.02           | -0.01          | 0.02           | 0.11                    | CO 6 |
|            |  |          |                | Max M <sub>y</sub> | 4.82           | 0.07           | 0.02           | -0.01          | 0.02           | 0.11                    | CO 6 |
|            |  |          |                | Min M <sub>y</sub> | -0.08          | 0.00           | 0.05           | -0.00          | -0.02          | 0.00                    | CO 5 |
|            |  |          |                | Max M <sub>z</sub> | 4.82           | 0.07           | 0.02           | -0.01          | 0.02           | 0.11                    | CO 6 |
|            |  |          |                | Min M <sub>z</sub> | -0.08          | 0.00           | 0.05           | -0.00          | -0.02          | 0.00                    | CO 5 |
|            |  | 19       | 2.157          | Max N              | 4.93           | 0.07           | -0.09          | -0.01          | -0.06          | -0.04                   | CO 6 |
|            |  |          |                | Min N              | 0.02           | 0.00           | -0.06          | -0.00          | -0.02          | -0.00                   | CO 5 |

# RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m]     | Forces [kN]        |                |                |                | Moments [kNm]  |                |       | Correspondin Load Cases |       |       |      |      |
|------------|--|----------|--------------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------|-------------------------|-------|-------|------|------|
|            |  |          |                    | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |                         |       |       |      |      |
| 37         | RC3  |          |                    | Max V <sub>y</sub> | 4.93           | ▷              | 0.07           | -0.09          | -0.01          | -0.06 | -0.04                   | CO 6  |       |      |      |
|            |  |          |                    | Min V <sub>y</sub> | 0.02           | ▷              | 0.00           | -0.06          | -0.00          | -0.02 | -0.00                   | CO 5  |       |      |      |
|            |  |          |                    | Max V <sub>z</sub> | 0.02           | ▷              | 0.00           | -0.06          | -0.00          | -0.02 | -0.00                   | CO 5  |       |      |      |
|            |  |          |                    | Min V <sub>z</sub> | 4.93           | ▷              | 0.07           | -0.09          | -0.01          | -0.06 | -0.04                   | CO 6  |       |      |      |
|            |  |          |                    | Max M <sub>T</sub> | 0.02           | ▷              | 0.00           | -0.06          | -0.00          | -0.02 | -0.00                   | CO 5  |       |      |      |
|            |  |          |                    | Min M <sub>T</sub> | 4.93           | ▷              | 0.07           | -0.09          | -0.01          | -0.06 | -0.04                   | CO 6  |       |      |      |
|            |  |          |                    | Max M <sub>y</sub> | 0.02           | ▷              | 0.00           | -0.06          | -0.00          | -0.02 | -0.00                   | CO 5  |       |      |      |
|            |  |          |                    | Min M <sub>y</sub> | 4.93           | ▷              | 0.07           | -0.09          | -0.01          | -0.06 | -0.04                   | CO 6  |       |      |      |
|            |  |          |                    | Max M <sub>z</sub> | 0.02           | ▷              | 0.00           | -0.06          | -0.00          | -0.02 | -0.00                   | CO 5  |       |      |      |
|            |  |          |                    | Min M <sub>z</sub> | 4.93           | ▷              | 0.07           | -0.09          | -0.01          | -0.06 | -0.04                   | CO 6  |       |      |      |
|            |  |          |                    | RC4                | 13             | 0.000          | Max N          | 2.86           | ▷              | 0.04  | 0.03                    | -0.01 | 0.00  | 0.07 | CO 8 |
|            |  |          |                    |                    |                |                | Min N          | -0.08          | ▷              | 0.00  | 0.05                    | -0.00 | -0.02 | 0.00 | CO 7 |
|            | Max V <sub>y</sub>                           | 2.86     | ▷                  |                    |                |                | 0.04           | 0.03           | -0.01          | 0.00  | 0.07                    | CO 8  |       |      |      |
|            | Min V <sub>y</sub>                           | -0.08    | ▷                  |                    |                |                | 0.00           | 0.05           | -0.00          | -0.02 | 0.00                    | CO 7  |       |      |      |
|            | Max V <sub>z</sub>                           | -0.08    | ▷                  |                    |                |                | 0.00           | 0.05           | -0.00          | -0.02 | 0.00                    | CO 7  |       |      |      |
|            | Min V <sub>z</sub>                           | 2.86     | ▷                  |                    |                |                | 0.04           | 0.03           | -0.01          | 0.00  | 0.07                    | CO 8  |       |      |      |
|            | Max M <sub>T</sub>                           | -0.08    | ▷                  |                    |                |                | 0.00           | 0.05           | -0.00          | -0.02 | 0.00                    | CO 7  |       |      |      |
|            | Min M <sub>T</sub>                           | 2.86     | ▷                  |                    |                |                | 0.04           | 0.03           | -0.01          | 0.00  | 0.07                    | CO 8  |       |      |      |
|            | Max M <sub>y</sub>                           | 2.86     | ▷                  |                    |                |                | 0.04           | 0.03           | -0.01          | 0.00  | 0.07                    | CO 8  |       |      |      |
|            | Min M <sub>y</sub>                           | -0.08    | ▷                  |                    |                |                | 0.00           | 0.05           | -0.00          | -0.02 | 0.00                    | CO 7  |       |      |      |
|            | Max M <sub>z</sub>                           | 2.86     | ▷                  |                    |                |                | 0.04           | 0.03           | -0.01          | 0.00  | 0.07                    | CO 8  |       |      |      |
|            | Min M <sub>z</sub>                           | -0.08    | ▷                  |                    |                |                | 0.00           | 0.05           | -0.00          | -0.02 | 0.00                    | CO 7  |       |      |      |
|            | 19   | 2.157    | Max N              |                    | 2.97           | ▷              | 0.04           | -0.08          | -0.01          | -0.04 | -0.03                   | CO 8  |       |      |      |
|            |  |          | Min N              |                    | 0.02           | ▷              | 0.00           | -0.06          | -0.00          | -0.02 | -0.00                   | CO 7  |       |      |      |
|            |  |          | Max V <sub>y</sub> |                    | 2.97           | ▷              | 0.04           | -0.08          | -0.01          | -0.04 | -0.03                   | CO 8  |       |      |      |
|            |  |          | Min V <sub>y</sub> |                    | 0.02           | ▷              | 0.00           | -0.06          | -0.00          | -0.02 | -0.00                   | CO 7  |       |      |      |
|            |  |          | Max V <sub>z</sub> |                    | 0.02           | ▷              | 0.00           | -0.06          | -0.00          | -0.02 | -0.00                   | CO 7  |       |      |      |
|            |  |          | Min V <sub>z</sub> |                    | 2.97           | ▷              | 0.04           | -0.08          | -0.01          | -0.04 | -0.03                   | CO 8  |       |      |      |
|            |  |          | Max M <sub>T</sub> |                    | 0.02           | ▷              | 0.00           | -0.06          | -0.00          | -0.02 | -0.00                   | CO 7  |       |      |      |
|            |  |          | Min M <sub>T</sub> |                    | 2.97           | ▷              | 0.04           | -0.08          | -0.01          | -0.04 | -0.03                   | CO 8  |       |      |      |
|            |  |          | Max M <sub>y</sub> |                    | 0.02           | ▷              | 0.00           | -0.06          | -0.00          | -0.02 | -0.00                   | CO 7  |       |      |      |
|            |  |          | Min M <sub>y</sub> |                    | 2.97           | ▷              | 0.04           | -0.08          | -0.01          | -0.04 | -0.03                   | CO 8  |       |      |      |
|            |  |          | Max M <sub>z</sub> |                    | 0.02           | ▷              | 0.00           | -0.06          | -0.00          | -0.02 | -0.00                   | CO 7  |       |      |      |
|            |  |          | Min M <sub>z</sub> |                    | 2.97           | ▷              | 0.04           | -0.08          | -0.01          | -0.04 | -0.03                   | CO 8  |       |      |      |
|            | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                    |                    |                |                |                |                |                |       |                         |       |       |      |      |
|            | RC5  | 13       | 0.000              | Max N              | 1.83           | ▷              | 0.02           | -0.01          | -0.00          | 0.01  | 0.03                    |       |       |      |      |
|            |  |          |                    | Min N              | -1.83          | ▷              | -0.02          | 0.01           | 0.00           | -0.01 | -0.03                   |       |       |      |      |
|            |  |          |                    | Max V <sub>y</sub> | 1.56           | ▷              | 0.03           | -0.01          | -0.00          | 0.01  | 0.04                    |       |       |      |      |
|            |  |          |                    | Min V <sub>y</sub> | -1.56          | ▷              | -0.03          | 0.01           | 0.00           | -0.01 | -0.04                   |       |       |      |      |
|            |  |          |                    | Max V <sub>z</sub> | -1.72          | ▷              | -0.02          | 0.01           | 0.00           | -0.01 | -0.04                   |       |       |      |      |
|            |  |          |                    | Min V <sub>z</sub> | 1.72           | ▷              | 0.02           | -0.01          | -0.00          | 0.01  | 0.04                    |       |       |      |      |
|            |  |          |                    | Max M <sub>T</sub> | -1.74          | ▷              | -0.02          | 0.01           | 0.00           | -0.01 | -0.03                   |       |       |      |      |
|            |  |          |                    | Min M <sub>T</sub> | 1.74           | ▷              | 0.02           | -0.01          | -0.00          | 0.01  | 0.03                    |       |       |      |      |
|            |  |          |                    | Max M <sub>y</sub> | 1.69           | ▷              | 0.02           | -0.01          | -0.00          | 0.01  | 0.04                    |       |       |      |      |
|            |  |          |                    | Min M <sub>y</sub> | -1.69          | ▷              | -0.02          | 0.01           | 0.00           | -0.01 | -0.04                   |       |       |      |      |
|            |  |          |                    | Max M <sub>z</sub> | 1.71           | ▷              | 0.02           | -0.01          | -0.00          | 0.01  | 0.04                    |       |       |      |      |
|            |  |          |                    | Min M <sub>z</sub> | -1.71          | ▷              | -0.02          | 0.01           | 0.00           | -0.01 | -0.04                   |       |       |      |      |
|            |  | 19       | 2.157              | Max N              | 1.83           | ▷              | 0.02           | -0.01          | -0.00          | -0.01 | -0.01                   |       |       |      |      |
|            |  |          |                    | Min N              | -1.83          | ▷              | -0.02          | 0.01           | 0.00           | 0.01  | 0.01                    |       |       |      |      |
|            |  |          |                    | Max V <sub>y</sub> | 1.56           | ▷              | 0.03           | -0.01          | -0.00          | -0.01 | -0.02                   |       |       |      |      |
|            |  |          |                    | Min V <sub>y</sub> | -1.56          | ▷              | -0.03          | 0.01           | 0.00           | 0.01  | 0.02                    |       |       |      |      |
|            |  |          |                    | Max V <sub>z</sub> | -1.72          | ▷              | -0.02          | 0.01           | 0.00           | 0.01  | 0.01                    |       |       |      |      |
|            |  |          |                    | Min V <sub>z</sub> | 1.72           | ▷              | 0.02           | -0.01          | -0.00          | -0.01 | -0.01                   |       |       |      |      |
|            |  |          |                    | Max M <sub>T</sub> | -1.74          | ▷              | -0.02          | 0.01           | 0.00           | 0.01  | 0.01                    |       |       |      |      |
|            |  |          |                    | Min M <sub>T</sub> | 1.74           | ▷              | 0.02           | -0.01          | -0.00          | -0.01 | -0.01                   |       |       |      |      |
|            |  |          |                    | Max M <sub>y</sub> | -1.74          | ▷              | -0.02          | 0.01           | 0.00           | 0.01  | 0.01                    |       |       |      |      |
|            |  |          |                    | Min M <sub>y</sub> | 1.74           | ▷              | 0.02           | -0.01          | -0.00          | -0.01 | -0.01                   |       |       |      |      |
|            |  |          |                    | Max M <sub>z</sub> | -1.11          | ▷              | -0.02          | 0.01           | 0.00           | 0.01  | 0.02                    |       |       |      |      |
|            |  |          |                    | Min M <sub>z</sub> | 1.11           | ▷              | 0.02           | -0.01          | -0.00          | -0.01 | -0.02                   |       |       |      |      |
|            | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                    |                    |                |                |                |                |                |       |                         |       |       |      |      |
|            | RC6  | 13       | 0.000              | Max N              | 1.49           | ▷              | 0.02           | -0.01          | -0.00          | 0.01  | 0.03                    |       |       |      |      |
|            |  |          |                    | Min N              | -1.49          | ▷              | -0.02          | 0.01           | 0.00           | -0.01 | -0.03                   |       |       |      |      |
|            |  |          |                    | Max V <sub>y</sub> | 1.17           | ▷              | 0.02           | -0.01          | -0.00          | 0.01  | 0.03                    |       |       |      |      |
|            |  |          |                    | Min V <sub>y</sub> | -1.17          | ▷              | -0.02          | 0.01           | 0.00           | -0.01 | -0.03                   |       |       |      |      |
|            |  |          |                    | Max V <sub>z</sub> | -1.31          | ▷              | -0.02          | 0.01           | 0.00           | -0.01 | -0.03                   |       |       |      |      |
|            |  |          |                    | Min V <sub>z</sub> | 1.31           | ▷              | 0.02           | -0.01          | -0.00          | 0.01  | 0.03                    |       |       |      |      |
|            |  |          |                    | Max M <sub>T</sub> | -1.27          | ▷              | -0.01          | 0.01           | 0.00           | -0.01 | -0.02                   |       |       |      |      |
|            |  |          |                    | Min M <sub>T</sub> | 1.27           | ▷              | 0.01           | -0.01          | -0.00          | 0.01  | 0.02                    |       |       |      |      |
|            |  |          |                    | Max M <sub>y</sub> | 1.29           | ▷              | 0.02           | -0.01          | -0.00          | 0.01  | 0.03                    |       |       |      |      |
|            |  |          |                    | Min M <sub>y</sub> | -1.29          | ▷              | -0.02          | 0.01           | 0.00           | -0.01 | -0.03                   |       |       |      |      |
|            |  |          |                    | Max M <sub>z</sub> | 1.32           | ▷              | 0.02           | -0.01          | -0.00          | 0.01  | 0.03                    |       |       |      |      |
|            |  |          |                    | Min M <sub>z</sub> | -1.32          | ▷              | -0.02          | 0.01           | 0.00           | -0.01 | -0.03                   |       |       |      |      |
|            |  | 19       | 2.157              | Max N              | 1.49           | ▷              | 0.02           | -0.01          | -0.00          | -0.01 | -0.01                   |       |       |      |      |
|            |  |          |                    | Min N              | -1.49          | ▷              | -0.02          | 0.01           | 0.00           | 0.01  | 0.01                    |       |       |      |      |
|            |  |          |                    | Max V <sub>y</sub> | 1.17           | ▷              | 0.02           | -0.01          | -0.00          | -0.01 | -0.02                   |       |       |      |      |
|            |  |          |                    | Min V <sub>y</sub> | -1.17          | ▷              | -0.02          | 0.01           | 0.00           | 0.01  | 0.02                    |       |       |      |      |
|            |  |          |                    | Max V <sub>z</sub> | -1.31          | ▷              | -0.02          | 0.01           | 0.00           | 0.01  | 0.01                    |       |       |      |      |
|            |  |          |                    | Min V <sub>z</sub> | 1.31           | ▷              | 0.02           | -0.01          | -0.00          | -0.01 | -0.01                   |       |       |      |      |
|            |  |          |                    | Max M <sub>T</sub> | -1.27          | ▷              | -0.01          | 0.01           | 0.00           | 0.01  | 0.01                    |       |       |      |      |
|            |  |          |                    | Min M <sub>T</sub> | 1.27           | ▷              | 0.01           | -0.01          | -0.00          | -0.01 | -0.01                   |       |       |      |      |
|            |  |          |                    | Max M <sub>y</sub> | -1.31          | ▷              | -0.02          | 0.01           | 0.00           | 0.01  | 0.01                    |       |       |      |      |
|            |  |          |                    | Min M <sub>y</sub> | 1.31           | ▷              | 0.02           | -0.01          | -0.00          | -0.01 | -0.01                   |       |       |      |      |
|            |  |          |                    | Max M <sub>z</sub> | -0.76          | ▷              | -0.02          | 0.01           | 0.00           | 0.01  | 0.02                    |       |       |      |      |
|            |  |          |                    | Min M <sub>z</sub> | 0.76           | ▷              | 0.02           | -0.01          | -0.00          | -0.01 | -0.02                   |       |       |      |      |
|            | DLC1, Result Envelope X 30% / Y 30% / Z 100% |          |                    |                    |                |                |                |                |                |       |                         |       |       |      |      |
|            | RC7  | 13       | 0.000              | Max N              | 3.91           | ▷              | 0.04           | -0.02          | -0.01          | 0.02  | 0.07                    |       |       |      |      |
|            |  |          |                    | Min N              | -3.91          | ▷              | -0.04          | 0.02           | 0.01           | -0.02 | -0.07                   |       |       |      |      |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] | Forces [kN]        |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |
|------------|-----|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------------------------|
|            |     |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |
| 37         | RC7 | 19       | 2.157          | Max V <sub>y</sub> | 3.27           | 0.05           | -0.02          | -0.01          | 0.02           | 0.07                    |
|            |     |          |                | Min V <sub>y</sub> | -3.27          | -0.05          | 0.02           | 0.01           | -0.02          | -0.07                   |
|            |     |          |                | Max V <sub>z</sub> | -3.72          | -0.05          | 0.02           | 0.01           | -0.02          | -0.08                   |
|            |     |          |                | Min V <sub>z</sub> | 3.72           | 0.05           | -0.02          | -0.01          | 0.02           | 0.08                    |
|            |     |          |                | Max M <sub>T</sub> | -3.80          | -0.04          | 0.02           | 0.01           | -0.02          | -0.07                   |
|            |     |          |                | Min M <sub>T</sub> | 3.80           | 0.04           | -0.02          | -0.01          | 0.02           | 0.07                    |
|            |     |          |                | Max M <sub>y</sub> | 3.63           | 0.05           | -0.02          | -0.01          | 0.02           | 0.08                    |
|            |     |          |                | Min M <sub>y</sub> | -3.63          | -0.05          | 0.02           | 0.01           | -0.02          | -0.08                   |
|            |     |          |                | Max M <sub>z</sub> | 3.64           | 0.05           | -0.02          | -0.01          | 0.02           | 0.08                    |
|            |     |          |                | Min M <sub>z</sub> | -3.64          | -0.05          | 0.02           | 0.01           | -0.02          | -0.08                   |
|            |     |          |                | Max N              | 3.91           | 0.04           | -0.02          | -0.01          | -0.03          | -0.02                   |
|            |     |          |                | Min N              | -3.91          | -0.04          | 0.02           | 0.01           | 0.03           | 0.02                    |
|            |     |          |                | Max V <sub>y</sub> | 3.27           | 0.05           | -0.02          | -0.01          | -0.02          | -0.04                   |
|            |     |          |                | Min V <sub>y</sub> | -3.27          | -0.05          | 0.02           | 0.01           | 0.02           | 0.04                    |
|            |     |          |                | Max V <sub>z</sub> | -3.72          | -0.05          | 0.02           | 0.01           | 0.03           | 0.03                    |
|            |     |          |                | Min V <sub>z</sub> | 3.72           | 0.05           | -0.02          | -0.01          | -0.03          | -0.03                   |
|            |     |          |                | Max M <sub>T</sub> | -3.80          | -0.04          | 0.02           | 0.01           | 0.03           | 0.02                    |
|            |     |          |                | Min M <sub>T</sub> | 3.80           | 0.04           | -0.02          | -0.01          | -0.03          | -0.02                   |
|            |     |          |                | Max M <sub>y</sub> | -3.78          | -0.05          | 0.02           | 0.01           | 0.03           | 0.03                    |
|            |     |          |                | Min M <sub>y</sub> | 3.78           | 0.05           | -0.02          | -0.01          | -0.03          | -0.03                   |
|            |     |          |                | Max M <sub>z</sub> | -2.08          | -0.05          | 0.02           | 0.00           | 0.02           | 0.04                    |
|            |     |          |                | Min M <sub>z</sub> | 2.08           | 0.05           | -0.02          | -0.00          | -0.02          | -0.04                   |
| 38         | RC1 | 19       | 0.000          | Max N              | -0.07          | -0.00          | 0.08           | -0.00          | -0.03          | -0.00                   |
|            |     |          |                | Min N              | -14.00         | 0.04           | 0.13           | 0.00           | -0.11          | 0.08                    |
|            |     |          |                | Max V <sub>y</sub> | -14.00         | 0.04           | 0.13           | 0.00           | -0.11          | 0.08                    |
|            |     |          |                | Min V <sub>y</sub> | -0.07          | -0.00          | 0.08           | -0.00          | -0.03          | -0.00                   |
|            |     |          |                | Max V <sub>z</sub> | -14.00         | 0.04           | 0.13           | 0.00           | -0.11          | 0.08                    |
|            |     |          |                | Min V <sub>z</sub> | -0.07          | -0.00          | 0.08           | -0.00          | -0.03          | -0.00                   |
|            |     |          |                | Max M <sub>T</sub> | -14.00         | 0.04           | 0.13           | 0.00           | -0.11          | 0.08                    |
|            |     |          |                | Min M <sub>T</sub> | -0.07          | -0.00          | 0.08           | -0.00          | -0.03          | -0.00                   |
|            |     |          |                | Max M <sub>y</sub> | -0.07          | -0.00          | 0.08           | -0.00          | -0.03          | -0.00                   |
|            |     |          |                | Min M <sub>y</sub> | -14.00         | 0.04           | 0.13           | 0.00           | -0.11          | 0.08                    |
|            |     |          |                | Max M <sub>z</sub> | -14.00         | 0.04           | 0.13           | 0.00           | -0.11          | 0.08                    |
|            |     |          |                | Min M <sub>z</sub> | -0.07          | -0.00          | 0.08           | -0.00          | -0.03          | -0.00                   |
|            |     | 2        | 2.089          | Max N              | 0.07           | -0.00          | -0.07          | -0.00          | -0.02          | 0.00                    |
|            |     |          |                | Min N              | -13.87         | 0.04           | -0.02          | 0.00           | 0.01           | -0.01                   |
|            |     |          |                | Max V <sub>y</sub> | -13.87         | 0.04           | -0.02          | 0.00           | 0.01           | -0.01                   |
|            |     |          |                | Min V <sub>y</sub> | 0.07           | -0.00          | -0.07          | -0.00          | -0.02          | 0.00                    |
|            |     |          |                | Max V <sub>z</sub> | -13.87         | 0.04           | -0.02          | 0.00           | 0.01           | -0.01                   |
|            |     |          |                | Min V <sub>z</sub> | 0.07           | -0.00          | -0.07          | -0.00          | -0.02          | 0.00                    |
|            |     |          |                | Max M <sub>T</sub> | -13.87         | 0.04           | -0.02          | 0.00           | 0.01           | -0.01                   |
|            |     |          |                | Min M <sub>T</sub> | 0.07           | -0.00          | -0.07          | -0.00          | -0.02          | 0.00                    |
|            |     |          |                | Max M <sub>y</sub> | -13.87         | 0.04           | -0.02          | 0.00           | 0.01           | -0.01                   |
|            |     |          |                | Min M <sub>y</sub> | 0.07           | -0.00          | -0.07          | -0.00          | -0.02          | 0.00                    |
|            |     |          |                | Max M <sub>z</sub> | 0.07           | -0.00          | -0.07          | -0.00          | -0.02          | 0.00                    |
|            |     |          |                | Min M <sub>z</sub> | -13.87         | 0.04           | -0.02          | 0.00           | 0.01           | -0.01                   |
|            | RC2 | 19       | 0.000          | Max N              | -0.05          | -0.00          | 0.06           | -0.00          | -0.02          | -0.00                   |
|            |     |          |                | Min N              | -9.34          | 0.03           | 0.09           | 0.00           | -0.07          | 0.05                    |
|            |     |          |                | Max V <sub>y</sub> | -9.34          | 0.03           | 0.09           | 0.00           | -0.07          | 0.05                    |
|            |     |          |                | Min V <sub>y</sub> | -0.05          | -0.00          | 0.06           | -0.00          | -0.02          | -0.00                   |
|            |     |          |                | Max V <sub>z</sub> | -9.34          | 0.03           | 0.09           | 0.00           | -0.07          | 0.05                    |
|            |     |          |                | Min V <sub>z</sub> | -0.05          | -0.00          | 0.06           | -0.00          | -0.02          | -0.00                   |
|            |     |          |                | Max M <sub>T</sub> | -9.34          | 0.03           | 0.09           | 0.00           | -0.07          | 0.05                    |
|            |     |          |                | Min M <sub>T</sub> | -0.05          | -0.00          | 0.06           | -0.00          | -0.02          | -0.00                   |
|            |     |          |                | Max M <sub>y</sub> | -0.05          | -0.00          | 0.06           | -0.00          | -0.02          | -0.00                   |
|            |     |          |                | Min M <sub>y</sub> | -9.34          | 0.03           | 0.09           | 0.00           | -0.07          | 0.05                    |
|            |     |          |                | Max M <sub>z</sub> | -9.34          | 0.03           | 0.09           | 0.00           | -0.07          | 0.05                    |
|            |     |          |                | Min M <sub>z</sub> | -0.05          | -0.00          | 0.06           | -0.00          | -0.02          | -0.00                   |
|            |     | 2        | 2.089          | Max N              | 0.05           | -0.00          | -0.05          | -0.00          | -0.01          | 0.00                    |
|            |     |          |                | Min N              | -9.24          | 0.03           | -0.02          | 0.00           | 0.01           | -0.00                   |
|            |     |          |                | Max V <sub>y</sub> | -9.24          | 0.03           | -0.02          | 0.00           | 0.01           | -0.00                   |
|            |     |          |                | Min V <sub>y</sub> | 0.05           | -0.00          | -0.05          | -0.00          | -0.01          | 0.00                    |
|            |     |          |                | Max V <sub>z</sub> | -9.24          | 0.03           | -0.02          | 0.00           | 0.01           | -0.00                   |
|            |     |          |                | Min V <sub>z</sub> | 0.05           | -0.00          | -0.05          | -0.00          | -0.01          | 0.00                    |
|            |     |          |                | Max M <sub>T</sub> | -9.24          | 0.03           | -0.02          | 0.00           | 0.01           | -0.00                   |
|            |     |          |                | Min M <sub>T</sub> | 0.05           | -0.00          | -0.05          | -0.00          | -0.01          | 0.00                    |
|            |     |          |                | Max M <sub>y</sub> | -9.24          | 0.03           | -0.02          | 0.00           | 0.01           | -0.00                   |
|            |     |          |                | Min M <sub>y</sub> | 0.05           | -0.00          | -0.05          | -0.00          | -0.01          | 0.00                    |
|            |     |          |                | Max M <sub>z</sub> | 0.05           | -0.00          | -0.05          | -0.00          | -0.01          | 0.00                    |
|            |     |          |                | Min M <sub>z</sub> | -9.24          | 0.03           | -0.02          | 0.00           | 0.01           | -0.00                   |
|            | RC3 | 19       | 0.000          | Max N              | -0.05          | -0.00          | 0.06           | -0.00          | -0.02          | -0.00                   |
|            |     |          |                | Min N              | -4.69          | 0.01           | 0.08           | 0.00           | -0.05          | 0.03                    |
|            |     |          |                | Max V <sub>y</sub> | -4.69          | 0.01           | 0.08           | 0.00           | -0.05          | 0.03                    |
|            |     |          |                | Min V <sub>y</sub> | -0.05          | -0.00          | 0.06           | -0.00          | -0.02          | -0.00                   |
|            |     |          |                | Max V <sub>z</sub> | -4.69          | 0.01           | 0.08           | 0.00           | -0.05          | 0.03                    |
|            |     |          |                | Min V <sub>z</sub> | -0.05          | -0.00          | 0.06           | -0.00          | -0.02          | -0.00                   |
|            |     |          |                | Max M <sub>T</sub> | -4.69          | 0.01           | 0.08           | 0.00           | -0.05          | 0.03                    |
|            |     |          |                | Min M <sub>T</sub> | -0.05          | -0.00          | 0.06           | -0.00          | -0.02          | -0.00                   |
|            |     |          |                | Max M <sub>y</sub> | -0.05          | -0.00          | 0.06           | -0.00          | -0.02          | -0.00                   |
|            |     |          |                | Min M <sub>y</sub> | -4.69          | 0.01           | 0.08           | 0.00           | -0.05          | 0.03                    |
|            |     |          |                | Max M <sub>z</sub> | -4.69          | 0.01           | 0.08           | 0.00           | -0.05          | 0.03                    |
|            |     |          |                | Min M <sub>z</sub> | -0.05          | -0.00          | 0.06           | -0.00          | -0.02          | -0.00                   |
|            |     | 2        | 2.089          | Max N              | 0.05           | -0.00          | -0.05          | -0.00          | -0.01          | 0.00                    |
|            |     |          |                | Min N              | -4.60          | 0.01           | -0.03          | 0.00           | -0.00          | 0.00                    |
|            |     |          |                | Max V <sub>y</sub> | -4.60          | 0.01           | -0.03          | 0.00           | -0.00          | 0.00                    |
|            |     |          |                | Min V <sub>y</sub> | 0.05           | -0.00          | -0.05          | -0.00          | -0.01          | 0.00                    |
|            |     |          |                | Max V <sub>z</sub> | -4.60          | 0.01           | -0.03          | 0.00           | -0.00          | 0.00                    |

# RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m]                               | Forces [kN]        |                |                |                |                | Moments [kNm]  |       |       | Correspondin Load Cases |       |      |
|------------|--|----------|--|--------------------|----------------|----------------|----------------|----------------|----------------|-------|-------|-------------------------|-------|------|
|            |  |          |  | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |       |                         |       |      |
| 38         | RC3  |          |  | Min V <sub>z</sub> |                | 0.05           | -0.00          | ▷              | -0.05          | -0.00 | -0.01 | 0.00                    | CO 5  |      |
|            |  |          |  | Max M <sub>T</sub> |                | -4.60          | 0.01           |                | -0.03          | ▷     | 0.00  | -0.00                   | -0.00 | CO 6 |
|            |  |          |  | Min M <sub>T</sub> |                | 0.05           | -0.00          |                | -0.05          | ▷     | -0.00 | -0.01                   | 0.00  | CO 5 |
|            |  |          |  | Max M <sub>y</sub> |                | -4.60          | 0.01           |                | -0.03          | ▷     | 0.00  | -0.00                   | -0.00 | CO 6 |
|            |  |          |  | Min M <sub>y</sub> |                | 0.05           | -0.00          |                | -0.05          | ▷     | -0.00 | -0.01                   | 0.00  | CO 5 |
|            |  |          |  | Max M <sub>z</sub> |                | 0.05           | -0.00          |                | -0.05          | ▷     | -0.00 | -0.01                   | 0.00  | CO 5 |
|            |  |          |  | Min M <sub>z</sub> |                | -4.60          | 0.01           |                | -0.03          | ▷     | 0.00  | -0.00                   | -0.00 | CO 6 |
|            |  |          |  | Max N              | ▷              | -0.05          | -0.00          |                | 0.06           | -0.00 | -0.02 | -0.00                   | CO 7  |      |
|            |  |          |  | Min N              | ▷              | -2.84          | 0.01           |                | 0.07           | 0.00  | -0.04 | 0.01                    | CO 8  |      |
|            |  |          |  | Max V <sub>y</sub> | ▷              | -2.84          | 0.01           |                | 0.07           | 0.00  | -0.04 | 0.01                    | CO 8  |      |
|            |  |          |  | Min V <sub>y</sub> | ▷              | -0.05          | -0.00          |                | 0.06           | -0.00 | -0.02 | -0.00                   | CO 7  |      |
|            |  |          |  | Max V <sub>z</sub> |                | -2.84          | 0.01           | ▷              | 0.07           | 0.00  | -0.04 | 0.01                    | CO 8  |      |
|            | RC4  | 19       | 0.000  | Min V <sub>z</sub> |                | -0.05          | -0.00          | ▷              | 0.06           | -0.00 | -0.02 | -0.00                   | CO 7  |      |
|            |  |          |  | Max M <sub>T</sub> |                | -2.84          | 0.01           | ▷              | 0.07           | 0.00  | -0.04 | 0.01                    | CO 8  |      |
|            |  |          |  | Min M <sub>T</sub> |                | -0.05          | -0.00          | ▷              | 0.06           | -0.00 | -0.02 | -0.00                   | CO 7  |      |
|            |  |          |  | Max M <sub>y</sub> |                | -0.05          | -0.00          | ▷              | 0.06           | -0.00 | -0.02 | -0.00                   | CO 7  |      |
|            |  |          |  | Min M <sub>y</sub> |                | -2.84          | 0.01           | ▷              | 0.07           | 0.00  | -0.04 | 0.01                    | CO 8  |      |
|            |  |          |  | Max M <sub>z</sub> |                | -2.84          | 0.01           | ▷              | 0.07           | 0.00  | -0.04 | 0.01                    | CO 8  |      |
|            |  |          |  | Min M <sub>z</sub> |                | -0.05          | -0.00          |                | 0.06           | -0.00 | -0.02 | -0.00                   | CO 7  |      |
|            |  |          |  | Max N              | ▷              | 0.05           | -0.00          |                | -0.05          | -0.00 | -0.01 | 0.00                    | CO 7  |      |
|            |  |          |  | Min N              | ▷              | -2.74          | 0.01           |                | -0.04          | 0.00  | -0.01 | 0.00                    | CO 8  |      |
|            |  |          |  | Max V <sub>y</sub> | ▷              | -2.74          | 0.01           |                | -0.04          | 0.00  | -0.01 | 0.00                    | CO 8  |      |
|            |  |          |  | Min V <sub>y</sub> | ▷              | 0.05           | -0.00          |                | -0.05          | -0.00 | -0.01 | 0.00                    | CO 7  |      |
|            |  |          |  | Max V <sub>z</sub> |                | -2.74          | 0.01           | ▷              | -0.04          | 0.00  | -0.01 | 0.00                    | CO 8  |      |
|            | 2  | 2.089    | Min V <sub>z</sub>                           |                    | 0.05           | -0.00          | ▷              | -0.05          | -0.00          | -0.01 | 0.00  | CO 7                    |       |      |
|            |  |          | Max M <sub>T</sub>                           |                    | -2.74          | 0.01           | ▷              | -0.04          | 0.00           | -0.01 | 0.00  | CO 8                    |       |      |
|            |  |          | Min M <sub>T</sub>                           |                    | 0.05           | -0.00          | ▷              | -0.05          | -0.00          | -0.01 | 0.00  | CO 7                    |       |      |
|            |  |          | Max M <sub>y</sub>                           |                    | -2.74          | 0.01           | ▷              | -0.04          | 0.00           | -0.01 | 0.00  | CO 8                    |       |      |
|            |  |          | Min M <sub>y</sub>                           |                    | 0.05           | -0.00          |                | -0.05          | -0.00          | -0.01 | 0.00  | CO 7                    |       |      |
|            |  |          | Max M <sub>z</sub>                           |                    | 0.05           | -0.00          |                | -0.05          | -0.00          | -0.01 | 0.00  | CO 7                    |       |      |
|            |  |          | Min M <sub>z</sub>                           |                    | -2.74          | 0.01           | ▷              | -0.04          | 0.00           | -0.01 | 0.00  | CO 8                    |       |      |
|            |  |          | DLC1, Result Envelope X 100% / Y 30% / Z 30% |                    |                |                |                |                |                |       |       |                         |       |      |
|            |  |          | Max N  | ▷                  | 0.90           | 0.00           |                | -0.01          | 0.00           | 0.01  | -0.01 |                         |       |      |
|            |  |          | Min N  | ▷                  | -0.90          | -0.00          |                | 0.01           | -0.00          | -0.01 | 0.01  |                         |       |      |
|            |  |          | Max V <sub>y</sub>                           | ▷                  | 0.19           | 0.01           |                | -0.00          | -0.00          | 0.00  | 0.00  |                         |       |      |
|            |  |          | Min V <sub>y</sub>                           | ▷                  | -0.19          | -0.01          |                | 0.00           | 0.00           | -0.00 | -0.00 |                         |       |      |
|            | Max V <sub>z</sub>                           |          | -0.89  | -0.00              | ▷              | 0.01           | -0.00          | -0.01          | 0.01           |       |       |                         |       |      |
|            | Min V <sub>z</sub>                           |          | 0.89   | 0.00               | ▷              | -0.01          | 0.00           | 0.01           | -0.01          |       |       |                         |       |      |
|            | Max M <sub>T</sub>                           |          | 0.79   | -0.00              |                | -0.00          | ▷              | 0.00           | 0.01           | -0.01 |       |                         |       |      |
|            | Min M <sub>T</sub>                           |          | -0.79  | 0.00               |                | 0.00           | ▷              | -0.00          | -0.01          | 0.01  |       |                         |       |      |
|            | Max M <sub>y</sub>                           |          | 0.89   | 0.00               |                | -0.01          | 0.00           | ▷              | 0.01           | -0.01 |       |                         |       |      |
|            | Min M <sub>y</sub>                           |          | -0.89  | -0.00              |                | 0.01           | -0.00          | ▷              | -0.01          | 0.01  |       |                         |       |      |
|            | Max M <sub>z</sub>                           |          | -0.65  | 0.00               |                | 0.00           | -0.00          |                | -0.01          | ▷     |       |                         |       |      |
|            | Min M <sub>z</sub>                           |          | 0.65   | -0.00              |                | -0.00          | 0.00           |                | 0.01           | ▷     |       |                         |       |      |
|            | 2  | 2.089    | Max N  | ▷                  | 0.90           | 0.00           |                | -0.01          | 0.00           | -0.00 | -0.01 |                         |       |      |
|            |  |          | Min N  | ▷                  | -0.90          | -0.00          |                | 0.01           | -0.00          | 0.00  | 0.01  |                         |       |      |
|            |  |          | Max V <sub>y</sub>                           | ▷                  | 0.19           | 0.01           |                | -0.00          | -0.00          | -0.00 | -0.01 |                         |       |      |
|            |  |          | Min V <sub>y</sub>                           | ▷                  | -0.19          | -0.01          |                | 0.00           | 0.00           | 0.00  | 0.01  |                         |       |      |
|            |  |          | Max V <sub>z</sub>                           |                    | -0.89          | -0.00          | ▷              | 0.01           | -0.00          | 0.00  | 0.01  |                         |       |      |
|            |  |          | Min V <sub>z</sub>                           |                    | 0.89           | 0.00           | ▷              | -0.01          | 0.00           | -0.00 | -0.01 |                         |       |      |
|            |  |          | Max M <sub>T</sub>                           |                    | 0.79           | -0.00          |                | -0.00          | ▷              | 0.00  | -0.00 | -0.00                   |       |      |
|            |  |          | Min M <sub>T</sub>                           |                    | -0.79          | 0.00           |                | 0.00           | ▷              | -0.00 | 0.00  | 0.00                    |       |      |
|            |  |          | Max M <sub>y</sub>                           |                    | -0.87          | -0.00          |                | 0.01           | -0.00          | ▷     | 0.00  | -0.01                   |       |      |
|            |  |          | Min M <sub>y</sub>                           |                    | 0.87           | 0.00           |                | -0.01          | 0.00           | ▷     | -0.00 | -0.01                   |       |      |
|            |  |          | Max M <sub>z</sub>                           |                    | -0.65          | -0.01          |                | 0.00           | -0.00          |       | 0.00  | ▷                       |       |      |
|            |  |          | Min M <sub>z</sub>                           |                    | 0.65           | 0.01           |                | -0.00          | 0.00           |       | -0.00 | ▷                       |       |      |
|            | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |  |                    |                |                |                |                |                |       |       |                         |       |      |
|            | RC6  | 19       | 0.000  | Max N              | ▷              | 0.72           | 0.00           |                | -0.00          | 0.00  | 0.01  | -0.00                   |       |      |
|            |  |          |  | Min N              | ▷              | -0.72          | -0.00          |                | 0.00           | -0.00 | -0.01 | 0.00                    |       |      |
|            |  |          |  | Max V <sub>y</sub> | ▷              | 0.23           | 0.01           |                | -0.00          | -0.00 | 0.00  | 0.00                    |       |      |
|            |  |          |  | Min V <sub>y</sub> | ▷              | -0.23          | -0.01          |                | 0.00           | 0.00  | -0.00 | -0.00                   |       |      |
|            |  |          |  | Max V <sub>z</sub> |                | -0.71          | -0.00          | ▷              | 0.00           | -0.00 | -0.01 | 0.00                    |       |      |
|            |  |          |  | Min V <sub>z</sub> |                | 0.71           | 0.00           | ▷              | -0.00          | 0.00  | 0.01  | -0.00                   |       |      |
|            |  |          |  | Max M <sub>T</sub> |                | 0.55           | -0.00          |                | -0.00          | ▷     | 0.00  | 0.01                    | -0.01 |      |
|            |  |          |  | Min M <sub>T</sub> |                | -0.55          | 0.00           |                | 0.00           | ▷     | -0.00 | -0.01                   | 0.01  |      |
|            |  |          |  | Max M <sub>y</sub> |                | 0.71           | 0.00           |                | -0.00          | 0.00  | ▷     | 0.01                    | -0.00 |      |
|            |  |          |  | Min M <sub>y</sub> |                | -0.71          | -0.00          |                | 0.00           | -0.00 | ▷     | -0.01                   | 0.00  |      |
|            |  |          |  | Max M <sub>z</sub> |                | -0.44          | 0.00           |                | 0.00           | -0.00 |       | -0.00                   | ▷     |      |
|            |  |          |  | Min M <sub>z</sub> |                | 0.44           | -0.00          |                | -0.00          | 0.00  |       | 0.00                    | ▷     |      |
|            | 2  | 2.089    | Max N  | ▷                  | 0.72           | 0.00           |                | -0.00          | 0.00           | -0.00 | -0.01 |                         |       |      |
|            |  |          | Min N  | ▷                  | -0.72          | -0.00          |                | 0.00           | -0.00          | 0.00  | 0.01  |                         |       |      |
|            |  |          | Max V <sub>y</sub>                           | ▷                  | 0.23           | 0.01           |                | -0.00          | -0.00          | -0.00 | -0.01 |                         |       |      |
|            |  |          | Min V <sub>y</sub>                           | ▷                  | -0.23          | -0.01          |                | 0.00           | 0.00           | 0.00  | 0.01  |                         |       |      |
|            |  |          | Max V <sub>z</sub>                           |                    | -0.71          | -0.00          | ▷              | 0.00           | -0.00          | 0.00  | 0.01  |                         |       |      |
|            |  |          | Min V <sub>z</sub>                           |                    | 0.71           | 0.00           | ▷              | -0.00          | 0.00           | -0.00 | -0.01 |                         |       |      |
|            |  |          | Max M <sub>T</sub>                           |                    | 0.55           | -0.00          |                | -0.00          | ▷              | 0.00  | -0.00 | -0.00                   |       |      |
|            |  |          | Min M <sub>T</sub>                           |                    | -0.55          | 0.00           |                | 0.00           | ▷              | -0.00 | 0.00  | 0.00                    |       |      |
|            |  |          | Max M <sub>y</sub>                           |                    | -0.69          | -0.00          |                | 0.00           | -0.00          | ▷     | 0.00  | 0.01                    |       |      |
|            |  |          | Min M <sub>y</sub>                           |                    | 0.69           | 0.00           |                | -0.00          | 0.00           | ▷     | -0.00 | -0.01                   |       |      |
|            |  |          | Max M <sub>z</sub>                           |                    | -0.53          | -0.01          |                | 0.00           | -0.00          |       | 0.00  | ▷                       |       |      |
|            |  |          | Min M <sub>z</sub>                           |                    | 0.53           | 0.01           |                | -0.00          | 0.00           |       | -0.00 | ▷                       |       |      |
|            | DLC1, Result Envelope X 30% / Y 30% / Z 100% |          |  |                    |                |                |                |                |                |       |       |                         |       |      |
|            | RC7  | 19       | 0.000  | Max N              | ▷              | 1.91           | 0.01           |                | -0.01          | 0.00  | 0.02  | -0.01                   |       |      |
|            |  |          |  | Min N              | ▷              | -1.91          | -0.01          |                | 0.01           | -0.00 | -0.02 | 0.01                    |       |      |
|            |  |          |  | Max V <sub>y</sub> | ▷              | 0.65           | 0.01           |                | -0.00          | -0.00 | 0.01  | 0.01                    |       |      |
|            |  |          |  | Min V <sub>y</sub> | ▷              | -0.65          | -0.01          |                | 0.00           | 0.00  | -0.01 | -0.01                   |       |      |
|            |  |          |  | Max V <sub>z</sub> |                | -1.89          | -0.00          | ▷              | 0.01           | -0.00 | -0.02 | 0.01                    |       |      |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] | Forces [kN]        |                |                    |                |                | Moments [kNm]  |         |       | Correspondin Load Cases |      |
|------------|-----|----------|----------------|--------------------|----------------|--------------------|----------------|----------------|----------------|---------|-------|-------------------------|------|
|            |     |          |                | N                  | V <sub>y</sub> | V <sub>z</sub>     | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |         |       |                         |      |
| 38         | RC7 | 2        | 2.089          | Min V <sub>z</sub> | 1.89           | 0.00               | ▷ -0.01        | 0.00           | 0.02           | -0.01   |       |                         |      |
|            |     |          |                | Max M <sub>T</sub> | 1.68           | -0.00              | ▷ -0.01        | 0.00           | 0.02           | -0.01   |       |                         |      |
|            |     |          |                | Min M <sub>T</sub> | -1.68          | 0.00               | ▷ 0.01         | -0.00          | -0.02          | 0.01    |       |                         |      |
|            |     |          |                | Max M <sub>y</sub> | 1.90           | 0.00               | ▷ -0.01        | 0.00           | 0.02           | -0.01   |       |                         |      |
|            |     |          |                | Min M <sub>y</sub> | -1.90          | -0.00              | ▷ 0.01         | -0.00          | -0.02          | 0.01    |       |                         |      |
|            |     |          |                | Max M <sub>z</sub> | -1.34          | 0.01               | ▷ 0.01         | -0.00          | -0.01          | ▷ 0.02  |       |                         |      |
|            |     |          |                | Min M <sub>z</sub> | 1.34           | -0.01              | ▷ -0.01        | 0.00           | 0.01           | ▷ -0.02 |       |                         |      |
|            |     |          |                | Max N              | ▷ 1.91         | 0.01               | ▷ -0.01        | 0.00           | -0.01          | -0.02   |       |                         |      |
|            |     |          |                | Min N              | ▷ -1.91        | -0.01              | ▷ 0.01         | -0.00          | 0.01           | 0.02    |       |                         |      |
|            |     |          |                | Max V <sub>y</sub> | ▷ 0.65         | ▷ 0.01             | ▷ -0.00        | -0.00          | -0.00          | -0.02   |       |                         |      |
|            |     |          |                | Min V <sub>y</sub> | ▷ -0.65        | ▷ -0.01            | ▷ 0.00         | 0.00           | 0.00           | 0.02    |       |                         |      |
|            |     |          |                | Max V <sub>z</sub> | ▷ -1.89        | -0.00              | ▷ 0.01         | -0.00          | 0.01           | 0.02    |       |                         |      |
|            |     |          |                | Min V <sub>z</sub> | ▷ 1.89         | 0.00               | ▷ -0.01        | 0.00           | -0.01          | -0.02   |       |                         |      |
|            |     |          |                | Max M <sub>T</sub> | 1.68           | -0.00              | ▷ -0.01        | 0.00           | -0.01          | -0.01   |       |                         |      |
|            |     |          |                | Min M <sub>T</sub> | -1.68          | 0.00               | ▷ 0.01         | -0.00          | 0.01           | 0.01    |       |                         |      |
|            |     |          |                | Max M <sub>y</sub> | -1.86          | -0.00              | ▷ 0.01         | -0.00          | 0.01           | 0.02    |       |                         |      |
|            |     |          |                | Min M <sub>y</sub> | 1.86           | 0.00               | ▷ -0.01        | 0.00           | -0.01          | -0.02   |       |                         |      |
|            |     |          |                | Max M <sub>z</sub> | -1.48          | -0.01              | ▷ 0.01         | -0.00          | 0.00           | ▷ 0.03  |       |                         |      |
|            |     |          |                | Min M <sub>z</sub> | 1.48           | 0.01               | ▷ -0.01        | 0.00           | -0.00          | ▷ -0.03 |       |                         |      |
| 39         | RC1 | 9        | 0.000          | Max N              | ▷ -0.04        | -0.00              | ▷ 0.07         | 0.00           | -0.02          | 0.00    | CO 1  |                         |      |
|            |     |          |                | Min N              | ▷ -1.19        | -0.56              | ▷ 0.14         | 0.22           | -0.12          | -0.54   | CO 2  |                         |      |
|            |     |          |                | Max V <sub>y</sub> | ▷ -0.04        | ▷ -0.00            | ▷ 0.07         | 0.00           | -0.02          | 0.00    | CO 1  |                         |      |
|            |     |          |                | Min V <sub>y</sub> | ▷ -1.19        | -0.56              | ▷ 0.14         | 0.22           | -0.12          | -0.54   | CO 2  |                         |      |
|            |     |          |                | Max V <sub>z</sub> | ▷ -1.19        | -0.56              | ▷ 0.14         | 0.22           | -0.12          | -0.54   | CO 2  |                         |      |
|            |     |          |                | Min V <sub>z</sub> | ▷ -0.04        | -0.00              | ▷ 0.07         | 0.00           | -0.02          | 0.00    | CO 1  |                         |      |
|            |     |          |                | Max M <sub>T</sub> | ▷ -1.19        | -0.56              | ▷ 0.14         | 0.22           | -0.12          | -0.54   | CO 2  |                         |      |
|            |     |          |                | Min M <sub>T</sub> | ▷ -0.04        | -0.00              | ▷ 0.07         | 0.00           | -0.02          | 0.00    | CO 1  |                         |      |
|            |     |          |                | Max M <sub>y</sub> | ▷ -0.04        | -0.00              | ▷ 0.07         | 0.00           | -0.02          | 0.00    | CO 1  |                         |      |
|            |     |          |                | Min M <sub>y</sub> | ▷ -1.19        | -0.56              | ▷ 0.14         | 0.22           | -0.12          | -0.54   | CO 2  |                         |      |
|            |     |          |                | Max M <sub>z</sub> | ▷ -0.04        | -0.00              | ▷ 0.07         | 0.00           | -0.02          | 0.00    | CO 1  |                         |      |
|            |     |          |                | Min M <sub>z</sub> | ▷ -1.19        | -0.56              | ▷ 0.14         | 0.22           | -0.12          | -0.54   | CO 2  |                         |      |
|            |     |          |                | 14                 | 2.192          | Max N              | ▷ 0.11         | -0.00          | ▷ -0.07        | 0.00    | -0.02 | 0.01                    | CO 1 |
|            |     |          |                |                    |                | Min N              | ▷ -1.05        | -0.56          | ▷ -0.00        | 0.22    | 0.04  | 0.69                    | CO 2 |
|            |     |          |                |                    |                | Max V <sub>y</sub> | ▷ 0.11         | ▷ -0.00        | ▷ -0.07        | 0.00    | -0.02 | 0.01                    | CO 1 |
|            |     |          |                |                    |                | Min V <sub>y</sub> | ▷ -1.05        | -0.56          | ▷ -0.00        | 0.22    | 0.04  | 0.69                    | CO 2 |
|            |     |          |                |                    |                | Max V <sub>z</sub> | ▷ -1.05        | -0.56          | ▷ -0.00        | 0.22    | 0.04  | 0.69                    | CO 2 |
|            |     |          |                |                    |                | Min V <sub>z</sub> | ▷ 0.11         | -0.00          | ▷ -0.07        | 0.00    | -0.02 | 0.01                    | CO 1 |
|            |     |          |                |                    |                | Max M <sub>T</sub> | ▷ -1.05        | -0.56          | ▷ -0.00        | 0.22    | 0.04  | 0.69                    | CO 2 |
|            |     |          |                |                    |                | Min M <sub>T</sub> | ▷ 0.11         | -0.00          | ▷ -0.07        | 0.00    | -0.02 | 0.01                    | CO 1 |
|            |     |          |                |                    |                | Max M <sub>y</sub> | ▷ -1.05        | -0.56          | -0.00          | 0.22    | 0.04  | 0.69                    | CO 2 |
|            |     |          |                |                    |                | Min M <sub>y</sub> | ▷ 0.11         | -0.00          | -0.07          | 0.00    | -0.02 | 0.01                    | CO 1 |
|            |     |          |                |                    |                | Max M <sub>z</sub> | ▷ -1.05        | -0.56          | -0.00          | 0.22    | 0.04  | 0.69                    | CO 2 |
|            |     |          |                |                    |                | Min M <sub>z</sub> | ▷ 0.11         | -0.00          | -0.07          | 0.00    | -0.02 | 0.01                    | CO 1 |
|            | RC2 | 9        | 0.000          | Max N              | ▷ -0.03        | -0.00              | ▷ 0.06         | 0.00           | -0.02          | 0.00    | CO 3  |                         |      |
|            |     |          |                | Min N              | ▷ -0.79        | -0.37              | ▷ 0.10         | 0.14           | -0.08          | -0.36   | CO 4  |                         |      |
|            |     |          |                | Max V <sub>y</sub> | ▷ -0.03        | -0.00              | ▷ 0.06         | 0.00           | -0.02          | 0.00    | CO 3  |                         |      |
|            |     |          |                | Min V <sub>y</sub> | ▷ -0.79        | -0.37              | ▷ 0.10         | 0.14           | -0.08          | -0.36   | CO 4  |                         |      |
|            |     |          |                | Max V <sub>z</sub> | ▷ -0.79        | -0.37              | ▷ 0.10         | 0.14           | -0.08          | -0.36   | CO 4  |                         |      |
|            |     |          |                | Min V <sub>z</sub> | ▷ -0.03        | -0.00              | ▷ 0.06         | 0.00           | -0.02          | 0.00    | CO 3  |                         |      |
|            |     |          |                | Max M <sub>T</sub> | ▷ -0.79        | -0.37              | ▷ 0.10         | 0.14           | -0.08          | -0.36   | CO 4  |                         |      |
|            |     |          |                | Min M <sub>T</sub> | ▷ -0.03        | -0.00              | ▷ 0.06         | 0.00           | -0.02          | 0.00    | CO 3  |                         |      |
|            |     |          |                | Max M <sub>y</sub> | ▷ -0.03        | -0.00              | ▷ 0.06         | 0.00           | -0.02          | 0.00    | CO 3  |                         |      |
|            |     |          |                | Min M <sub>y</sub> | ▷ -0.79        | -0.37              | ▷ 0.10         | 0.14           | -0.08          | -0.36   | CO 4  |                         |      |
|            |     |          |                | Max M <sub>z</sub> | ▷ -0.03        | -0.00              | ▷ 0.06         | 0.00           | -0.02          | 0.00    | CO 3  |                         |      |
|            |     |          |                | Min M <sub>z</sub> | ▷ -0.79        | -0.37              | ▷ 0.10         | 0.14           | -0.08          | -0.36   | CO 4  |                         |      |
|            |     |          |                | 14                 | 2.192          | Max N              | ▷ 0.08         | -0.00          | ▷ -0.05        | 0.00    | -0.02 | 0.01                    | CO 3 |
|            |     |          |                |                    |                | Min N              | ▷ -0.68        | -0.37          | ▷ -0.01        | 0.14    | 0.02  | 0.46                    | CO 4 |
|            |     |          |                |                    |                | Max V <sub>y</sub> | ▷ 0.08         | -0.00          | ▷ -0.05        | 0.00    | -0.02 | 0.01                    | CO 3 |
|            |     |          |                |                    |                | Min V <sub>y</sub> | ▷ -0.68        | -0.37          | ▷ -0.01        | 0.14    | 0.02  | 0.46                    | CO 4 |
|            |     |          |                |                    |                | Max V <sub>z</sub> | ▷ -0.68        | -0.37          | ▷ -0.01        | 0.14    | 0.02  | 0.46                    | CO 4 |
|            |     |          |                |                    |                | Min V <sub>z</sub> | ▷ 0.08         | -0.00          | ▷ -0.05        | 0.00    | -0.02 | 0.01                    | CO 3 |
|            |     |          |                |                    |                | Max M <sub>T</sub> | ▷ -0.68        | -0.37          | ▷ -0.01        | 0.14    | 0.02  | 0.46                    | CO 4 |
|            |     |          |                |                    |                | Min M <sub>T</sub> | ▷ 0.08         | -0.00          | ▷ -0.05        | 0.00    | -0.02 | 0.01                    | CO 3 |
|            |     |          |                |                    |                | Max M <sub>y</sub> | ▷ -0.68        | -0.37          | ▷ -0.01        | 0.14    | 0.02  | 0.46                    | CO 4 |
|            |     |          |                |                    |                | Min M <sub>y</sub> | ▷ 0.08         | -0.00          | ▷ -0.05        | 0.00    | -0.02 | 0.01                    | CO 3 |
|            |     |          |                |                    |                | Max M <sub>z</sub> | ▷ -0.68        | -0.37          | ▷ -0.01        | 0.14    | 0.02  | 0.46                    | CO 4 |
|            |     |          |                |                    |                | Min M <sub>z</sub> | ▷ 0.08         | -0.00          | ▷ -0.05        | 0.00    | -0.02 | 0.01                    | CO 3 |
|            | RC3 | 9        | 0.000          | Max N              | ▷ -0.03        | -0.00              | ▷ 0.06         | 0.00           | -0.02          | 0.00    | CO 5  |                         |      |
|            |     |          |                | Min N              | ▷ -0.41        | -0.19              | ▷ 0.08         | 0.07           | -0.05          | -0.18   | CO 6  |                         |      |
|            |     |          |                | Max V <sub>y</sub> | ▷ -0.03        | ▷ -0.00            | ▷ 0.06         | 0.00           | -0.02          | 0.00    | CO 5  |                         |      |
|            |     |          |                | Min V <sub>y</sub> | ▷ -0.41        | -0.19              | ▷ 0.08         | 0.07           | -0.05          | -0.18   | CO 6  |                         |      |
|            |     |          |                | Max V <sub>z</sub> | ▷ -0.41        | -0.19              | ▷ 0.08         | 0.07           | -0.05          | -0.18   | CO 6  |                         |      |
|            |     |          |                | Min V <sub>z</sub> | ▷ -0.03        | -0.00              | ▷ 0.06         | 0.00           | -0.02          | 0.00    | CO 5  |                         |      |
|            |     |          |                | Max M <sub>T</sub> | ▷ -0.41        | -0.19              | ▷ 0.08         | 0.07           | -0.05          | -0.18   | CO 6  |                         |      |
|            |     |          |                | Min M <sub>T</sub> | ▷ -0.03        | -0.00              | ▷ 0.06         | 0.00           | -0.02          | 0.00    | CO 5  |                         |      |
|            |     |          |                | Max M <sub>y</sub> | ▷ -0.03        | -0.00              | ▷ 0.06         | 0.00           | -0.02          | 0.00    | CO 5  |                         |      |
|            |     |          |                | Min M <sub>y</sub> | ▷ -0.41        | -0.19              | ▷ 0.08         | 0.07           | -0.05          | -0.18   | CO 6  |                         |      |
|            |     |          |                | Max M <sub>z</sub> | ▷ -0.03        | -0.00              | ▷ 0.06         | 0.00           | -0.02          | 0.00    | CO 5  |                         |      |
|            |     |          |                | Min M <sub>z</sub> | ▷ -0.41        | -0.19              | ▷ 0.08         | 0.07           | -0.05          | -0.18   | CO 6  |                         |      |
|            |     |          |                | 14                 | 2.192          | Max N              | ▷ 0.08         | -0.00          | ▷ -0.05        | 0.00    | -0.02 | 0.01                    | CO 5 |
|            |     |          |                |                    |                | Min N              | ▷ -0.30        | -0.19          | ▷ -0.03        | 0.07    | 0.00  | 0.23                    | CO 6 |
|            |     |          |                |                    |                | Max V <sub>y</sub> | ▷ 0.08         | -0.00          | ▷ -0.05        | 0.00    | -0.02 | 0.01                    | CO 5 |
|            |     |          |                |                    |                | Min V <sub>y</sub> | ▷ -0.30        | -0.19          | ▷ -0.03        | 0.07    | 0.00  | 0.23                    | CO 6 |
|            |     |          |                |                    |                | Max V <sub>z</sub> | ▷ -0.30        | -0.19          | ▷ -0.03        | 0.07    | 0.00  | 0.23                    | CO 6 |
|            |     |          |                |                    |                | Min V <sub>z</sub> | ▷ 0.08         | -0.00          | ▷ -0.05        | 0.00    | -0.02 | 0.01                    | CO 5 |
|            |     |          |                |                    |                | Max M <sub>T</sub> | ▷ -0.30        | -0.19          | ▷ -0.03        | 0.07    | 0.00  | 0.23                    | CO 6 |
|            |     |          |                |                    |                | Min M <sub>T</sub> | ▷ 0.08         | -0.00          | ▷ -0.05        | 0.00    | -0.02 | 0.01                    | CO 5 |

## RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.                                   | RC   | Node No. | Location x [m]     | Forces [kN]        |                    |                |                |                | Moments [kNm]  |       |       | Correspondin Load Cases |
|--|--|----------|--------------------|--------------------|--------------------|----------------|----------------|----------------|----------------|-------|-------|-------------------------|
|  |  |          |                    | N                  | V <sub>y</sub>     | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |       |                         |
| 39   | RC3  |          |                    | Max M <sub>y</sub> | -0.30              | -0.19          | -0.03          | 0.07           | 0.00           | 0.23  | CO 6  |                         |
|  |  |          |                    | Min M <sub>y</sub> | 0.08               | -0.00          | -0.05          | 0.00           | -0.02          | 0.01  | CO 5  |                         |
|  |  |          |                    | Max M <sub>z</sub> | -0.30              | -0.19          | -0.03          | 0.07           | 0.00           | 0.23  | CO 6  |                         |
|  |  |          |                    | Min M <sub>z</sub> | 0.08               | -0.00          | -0.05          | 0.00           | -0.02          | 0.01  | CO 5  |                         |
|  | RC4  | 9        | 0.000              | Max N              | -0.03              | -0.00          | 0.06           | 0.00           | -0.02          | 0.00  | CO 7  |                         |
|  |  |          |                    | Min N              | -0.26              | -0.11          | 0.07           | 0.04           | -0.04          | -0.11 | CO 8  |                         |
|  |  |          |                    | Max V <sub>y</sub> | -0.03              | -0.00          | 0.06           | 0.00           | -0.02          | 0.00  | CO 7  |                         |
|  |  |          |                    | Min V <sub>y</sub> | -0.26              | -0.11          | 0.07           | 0.04           | -0.04          | -0.11 | CO 8  |                         |
|  |  |          |                    | Max V <sub>z</sub> | -0.26              | -0.11          | 0.07           | 0.04           | -0.04          | -0.11 | CO 8  |                         |
|  |  |          |                    | Min V <sub>z</sub> | -0.03              | -0.00          | 0.06           | 0.00           | -0.02          | 0.00  | CO 7  |                         |
|  |  |          |                    | Max M <sub>T</sub> | -0.26              | -0.11          | 0.07           | 0.04           | -0.04          | -0.11 | CO 8  |                         |
|  |  |          |                    | Min M <sub>T</sub> | -0.03              | -0.00          | 0.06           | 0.00           | -0.02          | 0.00  | CO 7  |                         |
|  |  |          |                    | Max M <sub>y</sub> | -0.03              | -0.00          | 0.06           | 0.00           | -0.02          | 0.00  | CO 7  |                         |
|  |  |          |                    | Min M <sub>y</sub> | -0.26              | -0.11          | 0.07           | 0.04           | -0.04          | -0.11 | CO 8  |                         |
|  |  |          |                    | Max M <sub>z</sub> | -0.03              | -0.00          | 0.06           | 0.00           | -0.02          | 0.00  | CO 7  |                         |
|  |  |          |                    | Min M <sub>z</sub> | -0.26              | -0.11          | 0.07           | 0.04           | -0.04          | -0.11 | CO 8  |                         |
|  |  | 14       | 2.192              | Max N              | 0.08               | -0.00          | -0.05          | 0.00           | -0.02          | 0.01  | CO 7  |                         |
|  |  |          |                    | Min N              | -0.15              | -0.11          | -0.04          | 0.04           | -0.00          | 0.14  | CO 8  |                         |
|  |  |          |                    | Max V <sub>y</sub> | 0.08               | -0.00          | -0.05          | 0.00           | -0.02          | 0.01  | CO 7  |                         |
|  |  |          |                    | Min V <sub>y</sub> | -0.15              | -0.11          | -0.04          | 0.04           | -0.00          | 0.14  | CO 8  |                         |
|  |  |          |                    | Max V <sub>z</sub> | -0.15              | -0.11          | -0.04          | 0.04           | -0.00          | 0.14  | CO 8  |                         |
|  |  |          |                    | Min V <sub>z</sub> | 0.08               | -0.00          | -0.05          | 0.00           | -0.02          | 0.01  | CO 7  |                         |
|  |  |          |                    | Max M <sub>T</sub> | -0.15              | -0.11          | -0.04          | 0.04           | -0.00          | 0.14  | CO 8  |                         |
|  |  |          |                    | Min M <sub>T</sub> | 0.08               | -0.00          | -0.05          | 0.00           | -0.02          | 0.01  | CO 7  |                         |
|  |  |          |                    | Max M <sub>y</sub> | -0.15              | -0.11          | -0.04          | 0.04           | -0.00          | 0.14  | CO 8  |                         |
|  |  |          |                    | Min M <sub>y</sub> | 0.08               | -0.00          | -0.05          | 0.00           | -0.02          | 0.01  | CO 7  |                         |
|  |  |          |                    | Max M <sub>z</sub> | -0.15              | -0.11          | -0.04          | 0.04           | -0.00          | 0.14  | CO 8  |                         |
|  |  |          |                    | Min M <sub>z</sub> | 0.08               | -0.00          | -0.05          | 0.00           | -0.02          | 0.01  | CO 7  |                         |
|  | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                    |                    |                    |                |                |                |                |       |       |                         |
|  |  | RC5      | 9                  | 0.000              | Max N              | 0.24           | 0.06           | -0.01          | -0.02          | 0.01  | 0.06  |                         |
|  |  |          |                    |                    | Min N              | -0.24          | -0.06          | 0.01           | 0.02           | -0.01 | -0.06 |                         |
|  |  |          |                    |                    | Max V <sub>y</sub> | 0.19           | 0.07           | -0.01          | -0.02          | 0.02  | 0.07  |                         |
|  |  |          |                    |                    | Min V <sub>y</sub> | -0.19          | -0.07          | 0.01           | 0.02           | -0.02 | -0.07 |                         |
|  |  |          |                    |                    | Max V <sub>z</sub> | -0.19          | -0.06          | 0.01           | 0.02           | -0.01 | -0.06 |                         |
|  |  |          |                    |                    | Min V <sub>z</sub> | 0.19           | 0.06           | -0.01          | -0.02          | 0.01  | 0.06  |                         |
|  |  |          |                    |                    | Max M <sub>T</sub> | -0.12          | -0.07          | 0.01           | 0.02           | -0.01 | -0.07 |                         |
|  |  |          |                    |                    | Min M <sub>T</sub> | 0.12           | 0.07           | -0.01          | -0.02          | 0.01  | 0.07  |                         |
|  |  |          |                    |                    | Max M <sub>y</sub> | 0.23           | 0.07           | -0.01          | -0.02          | 0.02  | 0.07  |                         |
|  |  |          |                    |                    | Min M <sub>y</sub> | -0.23          | -0.07          | 0.01           | 0.02           | -0.02 | -0.07 |                         |
|  |  |          |                    |                    | Max M <sub>z</sub> | 0.20           | 0.07           | -0.01          | -0.02          | 0.02  | 0.07  |                         |
|  |  |          |                    |                    | Min M <sub>z</sub> | -0.20          | -0.07          | 0.01           | 0.02           | -0.02 | -0.07 |                         |
|  |  | 14       | 2.192              | Max N              | 0.24               | 0.06           | -0.01          | -0.02          | -0.00          | -0.07 |       |                         |
|  |  |          |                    | Min N              | -0.24              | -0.06          | 0.01           | 0.02           | 0.00           | 0.07  |       |                         |
|  |  |          |                    | Max V <sub>y</sub> | 0.19               | 0.07           | -0.01          | -0.02          | -0.00          | -0.09 |       |                         |
|  |  |          |                    | Min V <sub>y</sub> | -0.19              | -0.07          | 0.01           | 0.02           | 0.00           | 0.09  |       |                         |
|  |  |          |                    | Max V <sub>z</sub> | -0.19              | -0.06          | 0.01           | 0.02           | 0.01           | 0.07  |       |                         |
|  |  |          |                    | Min V <sub>z</sub> | 0.19               | 0.06           | -0.01          | -0.02          | -0.01          | -0.07 |       |                         |
|  |  |          |                    | Max M <sub>T</sub> | -0.12              | -0.07          | 0.01           | 0.02           | 0.01           | 0.08  |       |                         |
|  |  |          |                    | Min M <sub>T</sub> | 0.12               | 0.07           | -0.01          | -0.02          | -0.01          | -0.08 |       |                         |
|  |  |          |                    | Max M <sub>y</sub> | -0.05              | -0.03          | 0.01           | 0.01           | 0.01           | 0.03  |       |                         |
|  |  |          |                    | Min M <sub>y</sub> | 0.05               | 0.03           | -0.01          | -0.01          | -0.01          | -0.03 |       |                         |
|  |  |          |                    | Max M <sub>z</sub> | -0.18              | -0.07          | 0.01           | 0.02           | 0.00           | 0.09  |       |                         |
|  |  |          |                    | Min M <sub>z</sub> | 0.18               | 0.07           | -0.01          | -0.02          | -0.00          | -0.09 |       |                         |
|  | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                    |                    |                    |                |                |                |                |       |       |                         |
|  |  | RC6      | 9                  | 0.000              | Max N              | 0.37           | 0.04           | -0.01          | -0.01          | 0.02  | 0.05  |                         |
|  |  |          |                    |                    | Min N              | -0.37          | -0.04          | 0.01           | 0.01           | -0.02 | -0.05 |                         |
|  |  |          |                    |                    | Max V <sub>y</sub> | 0.28           | 0.06           | -0.01          | -0.02          | 0.02  | 0.06  |                         |
|  |  |          |                    |                    | Min V <sub>y</sub> | -0.28          | -0.06          | 0.01           | 0.02           | -0.02 | -0.06 |                         |
|  |  |          |                    |                    | Max V <sub>z</sub> | -0.25          | -0.05          | 0.01           | 0.02           | -0.02 | -0.05 |                         |
|  |  |          |                    |                    | Min V <sub>z</sub> | 0.25           | 0.05           | -0.01          | -0.02          | 0.02  | 0.05  |                         |
|  |  |          |                    | Max M <sub>T</sub> | -0.02              | -0.05          | 0.01           | 0.02           | -0.01          | -0.05 |       |                         |
|  |  |          |                    | Min M <sub>T</sub> | 0.02               | 0.05           | -0.01          | -0.02          | 0.01           | 0.05  |       |                         |
|  |  |          |                    | Max M <sub>y</sub> | 0.35               | 0.05           | -0.01          | -0.02          | 0.02           | 0.05  |       |                         |
|  |  |          |                    | Min M <sub>y</sub> | -0.35              | -0.05          | 0.01           | 0.02           | -0.02          | -0.05 |       |                         |
|  |  |          |                    | Max M <sub>z</sub> | 0.30               | 0.06           | -0.01          | -0.02          | 0.02           | 0.06  |       |                         |
|  |  |          |                    | Min M <sub>z</sub> | -0.30              | -0.06          | 0.01           | 0.02           | -0.02          | -0.06 |       |                         |
|  | 14   | 2.192    | Max N              | 0.37               | 0.04               | -0.01          | -0.01          | -0.00          | -0.05          |       |       |                         |
|  |  |          | Min N              | -0.37              | -0.04              | 0.01           | 0.01           | 0.00           | 0.05           |       |       |                         |
|  |  |          | Max V <sub>y</sub> | 0.28               | 0.06               | -0.01          | -0.02          | -0.00          | -0.07          |       |       |                         |
|  |  |          | Min V <sub>y</sub> | -0.28              | -0.06              | 0.01           | 0.02           | 0.00           | 0.07           |       |       |                         |
|  |  |          | Max V <sub>z</sub> | -0.25              | -0.05              | 0.01           | 0.02           | 0.01           | 0.05           |       |       |                         |
|  |  |          | Min V <sub>z</sub> | 0.25               | 0.05               | -0.01          | -0.02          | -0.01          | -0.05          |       |       |                         |
|  |  |          | Max M <sub>T</sub> | -0.02              | -0.05              | 0.01           | 0.02           | 0.01           | 0.06           |       |       |                         |
|  |  |          | Min M <sub>T</sub> | 0.02               | 0.05               | -0.01          | -0.02          | -0.01          | -0.06          |       |       |                         |
|  |  |          | Max M <sub>y</sub> | 0.07               | -0.02              | 0.01           | 0.01           | 0.01           | 0.02           |       |       |                         |
|  |  |          | Min M <sub>y</sub> | -0.07              | 0.02               | -0.01          | -0.01          | -0.01          | -0.02          |       |       |                         |
|  |  |          | Max M <sub>z</sub> | -0.25              | -0.06              | 0.01           | 0.02           | 0.00           | 0.07           |       |       |                         |
|  |  |          | Min M <sub>z</sub> | 0.25               | 0.06               | -0.01          | -0.02          | -0.00          | -0.07          |       |       |                         |
| DLC1, Result Envelope X 30% / Y 30% / Z 100% |  |          |                    |                    |                    |                |                |                |                |       |       |                         |
|  | RC7  | 9        | 0.000              | Max N              | 0.43               | 0.12           | -0.02          | -0.04          | 0.03           | 0.12  |       |                         |
|  |  |          |                    | Min N              | -0.43              | -0.12          | 0.02           | 0.04           | -0.03          | -0.12 |       |                         |
|  |  |          |                    | Max V <sub>y</sub> | 0.34               | 0.15           | -0.02          | -0.05          | 0.03           | 0.14  |       |                         |
|  |  |          |                    | Min V <sub>y</sub> | -0.34              | -0.15          | 0.02           | 0.05           | -0.03          | -0.14 |       |                         |
|  |  |          |                    | Max V <sub>z</sub> | -0.36              | -0.12          | 0.02           | 0.05           | -0.03          | -0.12 |       |                         |
|  |  |          |                    | Min V <sub>z</sub> | 0.36               | 0.12           | -0.02          | -0.05          | 0.03           | 0.12  |       |                         |
|  |  |          |                    | Max M <sub>T</sub> | -0.27              | -0.15          | 0.02           | 0.05           | -0.03          | -0.14 |       |                         |
|  |  |          |                    | Min M <sub>T</sub> | 0.27               | 0.15           | -0.02          | -0.05          | 0.03           | 0.14  |       |                         |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] | Forces [kN]        |                |                |                |                | Moments [kNm]  |       |      | Correspondin Load Cases |
|------------|-----|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------|------|-------------------------|
|            |     |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |      |                         |
| 39         | RC7 | 14       | 2.192          | Max M <sub>y</sub> | 0.40           | 0.14           | -0.02          | -0.05          | 0.03           | 0.14  |      |                         |
|            |     |          |                | Min M <sub>y</sub> | -0.40          | -0.14          | 0.02           | 0.05           | -0.03          | -0.14 |      |                         |
|            |     |          |                | Max M <sub>z</sub> | 0.35           | 0.15           | -0.02          | -0.05          | 0.03           | 0.14  |      |                         |
|            |     |          |                | Min M <sub>z</sub> | -0.35          | -0.15          | 0.02           | 0.05           | -0.03          | -0.14 |      |                         |
|            |     |          |                | Max N              | 0.43           | 0.12           | -0.02          | -0.04          | -0.01          | -0.14 |      |                         |
|            |     |          |                | Min N              | -0.43          | -0.12          | 0.02           | 0.04           | 0.01           | 0.14  |      |                         |
|            |     |          |                | Max V <sub>y</sub> | 0.34           | 0.15           | -0.02          | -0.05          | -0.01          | -0.18 |      |                         |
|            |     |          |                | Min V <sub>y</sub> | -0.34          | -0.15          | 0.02           | 0.05           | 0.01           | 0.18  |      |                         |
|            |     |          |                | Max V <sub>z</sub> | -0.36          | -0.12          | 0.02           | 0.05           | 0.01           | 0.15  |      |                         |
|            |     |          |                | Min V <sub>z</sub> | 0.36           | 0.12           | -0.02          | -0.05          | -0.01          | -0.15 |      |                         |
|            |     |          |                | Max M <sub>T</sub> | -0.27          | -0.15          | 0.02           | 0.05           | 0.01           | 0.18  |      |                         |
|            |     |          |                | Min M <sub>T</sub> | 0.27           | 0.15           | -0.02          | -0.05          | -0.01          | -0.18 |      |                         |
|            |     |          |                | Max M <sub>y</sub> | -0.16          | -0.05          | 0.01           | 0.02           | 0.02           | 0.06  |      |                         |
|            |     |          |                | Min M <sub>y</sub> | 0.16           | 0.05           | -0.01          | -0.02          | -0.02          | -0.06 |      |                         |
|            |     |          |                | Max M <sub>z</sub> | -0.32          | -0.15          | 0.02           | 0.05           | 0.01           | 0.18  |      |                         |
|            |     |          |                | Min M <sub>z</sub> | 0.32           | 0.15           | -0.02          | -0.05          | -0.01          | -0.18 |      |                         |
| 40         | RC1 | 14       | 0.000          | Max N              | -0.08          | 0.01           | 0.07           | 0.00           | -0.02          | 0.01  | CO 1 |                         |
|            |     |          |                | Min N              | -0.27          | -0.32          | 0.03           | -0.05          | 0.03           | -0.09 | CO 2 |                         |
|            |     |          |                | Max V <sub>y</sub> | -0.08          | 0.01           | 0.07           | 0.00           | -0.02          | 0.01  | CO 1 |                         |
|            |     |          |                | Min V <sub>y</sub> | -0.27          | -0.32          | 0.03           | -0.05          | 0.03           | -0.09 | CO 2 |                         |
|            |     |          |                | Max V <sub>z</sub> | -0.08          | 0.01           | 0.07           | 0.00           | -0.02          | 0.01  | CO 1 |                         |
|            |     |          |                | Min V <sub>z</sub> | -0.27          | -0.32          | 0.03           | -0.05          | 0.03           | -0.09 | CO 2 |                         |
|            |     |          |                | Max M <sub>T</sub> | -0.08          | 0.01           | 0.07           | 0.00           | -0.02          | 0.01  | CO 1 |                         |
|            |     |          |                | Min M <sub>T</sub> | -0.27          | -0.32          | 0.03           | -0.05          | 0.03           | -0.09 | CO 2 |                         |
|            |     |          |                | Max M <sub>y</sub> | -0.27          | -0.32          | 0.03           | -0.05          | 0.03           | -0.09 | CO 2 |                         |
|            |     |          |                | Min M <sub>y</sub> | -0.08          | 0.01           | 0.07           | 0.00           | -0.02          | 0.01  | CO 1 |                         |
|            |     |          |                | Max M <sub>z</sub> | -0.08          | 0.01           | 0.07           | 0.00           | -0.02          | 0.01  | CO 1 |                         |
|            |     |          |                | Min M <sub>z</sub> | -0.27          | -0.32          | 0.03           | -0.05          | 0.03           | -0.09 | CO 2 |                         |
|            |     |          |                | Max N              | 0.07           | 0.01           | -0.07          | 0.00           | -0.02          | -0.01 | CO 1 |                         |
|            |     | 17       | 2.157          | Min N              | -0.13          | -0.32          | -0.12          | -0.05          | -0.06          | 0.61  | CO 2 |                         |
|            |     |          |                | Max V <sub>y</sub> | 0.07           | 0.01           | -0.07          | 0.00           | -0.02          | -0.01 | CO 1 |                         |
|            |     |          |                | Min V <sub>y</sub> | -0.13          | -0.32          | -0.12          | -0.05          | -0.06          | 0.61  | CO 2 |                         |
|            |     |          |                | Max V <sub>z</sub> | 0.07           | 0.01           | -0.07          | 0.00           | -0.02          | -0.01 | CO 1 |                         |
|            |     |          |                | Min V <sub>z</sub> | -0.13          | -0.32          | -0.12          | -0.05          | -0.06          | 0.61  | CO 2 |                         |
|            |     |          |                | Max M <sub>T</sub> | 0.07           | 0.01           | -0.07          | 0.00           | -0.02          | -0.01 | CO 1 |                         |
|            |     |          |                | Min M <sub>T</sub> | -0.13          | -0.32          | -0.12          | -0.05          | -0.06          | 0.61  | CO 2 |                         |
|            |     |          |                | Max M <sub>y</sub> | 0.07           | 0.01           | -0.07          | 0.00           | -0.02          | -0.01 | CO 1 |                         |
|            |     |          |                | Min M <sub>y</sub> | -0.13          | -0.32          | -0.12          | -0.05          | -0.06          | 0.61  | CO 2 |                         |
|            |     |          |                | Max M <sub>z</sub> | -0.13          | -0.32          | -0.12          | -0.05          | -0.06          | 0.61  | CO 2 |                         |
|            |     |          |                | Min M <sub>z</sub> | 0.07           | 0.01           | -0.07          | 0.00           | -0.02          | -0.01 | CO 1 |                         |
|            | RC2 | 14       | 0.000          | Max N              | -0.06          | 0.01           | 0.06           | 0.00           | -0.02          | 0.01  | CO 3 |                         |
|            |     |          |                | Min N              | -0.19          | -0.22          | 0.03           | -0.03          | 0.02           | -0.06 | CO 4 |                         |
|            |     |          |                | Max V <sub>y</sub> | -0.06          | 0.01           | 0.06           | 0.00           | -0.02          | 0.01  | CO 3 |                         |
|            |     |          |                | Min V <sub>y</sub> | -0.19          | -0.22          | 0.03           | -0.03          | 0.02           | -0.06 | CO 4 |                         |
|            |     |          |                | Max V <sub>z</sub> | -0.06          | 0.01           | 0.06           | 0.00           | -0.02          | 0.01  | CO 3 |                         |
|            |     |          |                | Min V <sub>z</sub> | -0.19          | -0.22          | 0.03           | -0.03          | 0.02           | -0.06 | CO 4 |                         |
|            |     |          |                | Max M <sub>T</sub> | -0.06          | 0.01           | 0.06           | 0.00           | -0.02          | 0.01  | CO 3 |                         |
|            |     |          |                | Min M <sub>T</sub> | -0.19          | -0.22          | 0.03           | -0.03          | 0.02           | -0.06 | CO 4 |                         |
|            |     |          |                | Max M <sub>y</sub> | -0.19          | -0.22          | 0.03           | -0.03          | 0.02           | -0.06 | CO 4 |                         |
|            |     |          |                | Min M <sub>y</sub> | -0.06          | 0.01           | 0.06           | 0.00           | -0.02          | 0.01  | CO 3 |                         |
|            |     |          |                | Max M <sub>z</sub> | -0.06          | 0.01           | 0.06           | 0.00           | -0.02          | 0.01  | CO 3 |                         |
|            |     |          |                | Min M <sub>z</sub> | -0.19          | -0.22          | 0.03           | -0.03          | 0.02           | -0.06 | CO 4 |                         |
|            |     | 17       | 2.157          | Max N              | 0.05           | 0.01           | -0.05          | 0.00           | -0.02          | -0.01 | CO 3 |                         |
|            |     |          |                | Min N              | -0.08          | -0.21          | -0.08          | -0.03          | -0.04          | 0.41  | CO 4 |                         |
|            |     |          |                | Max V <sub>y</sub> | 0.05           | 0.01           | -0.05          | 0.00           | -0.02          | -0.01 | CO 3 |                         |
|            |     |          |                | Min V <sub>y</sub> | -0.08          | -0.21          | -0.08          | -0.03          | -0.04          | 0.41  | CO 4 |                         |
|            |     |          |                | Max V <sub>z</sub> | 0.05           | 0.01           | -0.05          | 0.00           | -0.02          | -0.01 | CO 3 |                         |
|            |     |          |                | Min V <sub>z</sub> | -0.08          | -0.21          | -0.08          | -0.03          | -0.04          | 0.41  | CO 4 |                         |
|            |     |          |                | Max M <sub>T</sub> | 0.05           | 0.01           | -0.05          | 0.00           | -0.02          | -0.01 | CO 3 |                         |
|            |     |          |                | Min M <sub>T</sub> | -0.08          | -0.21          | -0.08          | -0.03          | -0.04          | 0.41  | CO 4 |                         |
|            |     |          |                | Max M <sub>y</sub> | 0.05           | 0.01           | -0.05          | 0.00           | -0.02          | -0.01 | CO 3 |                         |
|            |     |          |                | Min M <sub>y</sub> | -0.08          | -0.21          | -0.08          | -0.03          | -0.04          | 0.41  | CO 4 |                         |
|            |     |          |                | Max M <sub>z</sub> | -0.08          | -0.21          | -0.08          | -0.03          | -0.04          | 0.41  | CO 4 |                         |
|            |     |          |                | Min M <sub>z</sub> | 0.05           | 0.01           | -0.05          | 0.00           | -0.02          | -0.01 | CO 3 |                         |
|            | RC3 | 14       | 0.000          | Max N              | -0.06          | 0.01           | 0.06           | 0.00           | -0.02          | 0.01  | CO 5 |                         |
|            |     |          |                | Min N              | -0.12          | -0.10          | 0.04           | -0.02          | 0.00           | -0.02 | CO 6 |                         |
|            |     |          |                | Max V <sub>y</sub> | -0.06          | 0.01           | 0.06           | 0.00           | -0.02          | 0.01  | CO 5 |                         |
|            |     |          |                | Min V <sub>y</sub> | -0.12          | -0.10          | 0.04           | -0.02          | 0.00           | -0.02 | CO 6 |                         |
|            |     |          |                | Max V <sub>z</sub> | -0.06          | 0.01           | 0.06           | 0.00           | -0.02          | 0.01  | CO 5 |                         |
|            |     |          |                | Min V <sub>z</sub> | -0.12          | -0.10          | 0.04           | -0.02          | 0.00           | -0.02 | CO 6 |                         |
|            |     |          |                | Max M <sub>T</sub> | -0.06          | 0.01           | 0.06           | 0.00           | -0.02          | 0.01  | CO 5 |                         |
|            |     |          |                | Min M <sub>T</sub> | -0.12          | -0.10          | 0.04           | -0.02          | 0.00           | -0.02 | CO 6 |                         |
|            |     |          |                | Max M <sub>y</sub> | -0.12          | -0.10          | 0.04           | -0.02          | 0.00           | -0.02 | CO 6 |                         |
|            |     |          |                | Min M <sub>y</sub> | -0.06          | 0.01           | 0.06           | 0.00           | -0.02          | 0.01  | CO 5 |                         |
|            |     |          |                | Max M <sub>z</sub> | -0.06          | 0.01           | 0.06           | 0.00           | -0.02          | 0.01  | CO 5 |                         |
|            |     |          |                | Min M <sub>z</sub> | -0.12          | -0.10          | 0.04           | -0.02          | 0.00           | -0.02 | CO 6 |                         |
|            |     | 17       | 2.157          | Max N              | 0.05           | 0.01           | -0.05          | 0.00           | -0.02          | -0.01 | CO 5 |                         |
|            |     |          |                | Min N              | -0.02          | -0.10          | -0.07          | -0.02          | -0.03          | 0.20  | CO 6 |                         |
|            |     |          |                | Max V <sub>y</sub> | 0.05           | 0.01           | -0.05          | 0.00           | -0.02          | -0.01 | CO 5 |                         |
|            |     |          |                | Min V <sub>y</sub> | -0.02          | -0.10          | -0.07          | -0.02          | -0.03          | 0.20  | CO 6 |                         |
|            |     |          |                | Max V <sub>z</sub> | 0.05           | 0.01           | -0.05          | 0.00           | -0.02          | -0.01 | CO 5 |                         |
|            |     |          |                | Min V <sub>z</sub> | -0.02          | -0.10          | -0.07          | -0.02          | -0.03          | 0.20  | CO 6 |                         |
|            |     |          |                | Max M <sub>T</sub> | 0.05           | 0.01           | -0.05          | 0.00           | -0.02          | -0.01 | CO 5 |                         |
|            |     |          |                | Min M <sub>T</sub> | -0.02          | -0.10          | -0.07          | -0.02          | -0.03          | 0.20  | CO 6 |                         |
|            |     |          |                | Max M <sub>y</sub> | 0.05           | 0.01           | -0.05          | 0.00           | -0.02          | -0.01 | CO 5 |                         |
|            |     |          |                | Min M <sub>y</sub> | -0.02          | -0.10          | -0.07          | -0.02          | -0.03          | 0.20  | CO 6 |                         |
|            |     |          |                | Max M <sub>z</sub> | -0.02          | -0.10          | -0.07          | -0.02          | -0.03          | 0.20  | CO 6 |                         |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC   | Node No. | Location x [m] | Forces [kN]        |                |                |                |                |                | Moments [kNm] |      |  | Correspondin Load Cases |
|--------------------|--|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|---------------|------|--|-------------------------|
|                    |  |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |               |      |  |                         |
| 40                 | RC3  | 14       | 0.000          | Min M <sub>z</sub> | 0.05           | 0.01           | -0.05          | 0.00           | -0.02          | -0.01         | CO 5 |  |                         |
|                    | Max N  |          |                | -0.06              | 0.01           | 0.06           | 0.00           | -0.02          | 0.01           | CO 7          |      |  |                         |
|                    | Min N  |          |                | -0.10              | -0.06          | 0.05           | -0.01          | -0.01          | -0.01          | CO 8          |      |  |                         |
|                    | Max V <sub>y</sub>                           |          |                | -0.06              | 0.01           | 0.06           | 0.00           | -0.02          | 0.01           | CO 7          |      |  |                         |
|                    | Min V <sub>y</sub>                           |          |                | -0.10              | -0.06          | 0.05           | -0.01          | -0.01          | -0.01          | CO 8          |      |  |                         |
|                    | Max V <sub>z</sub>                           |          |                | -0.06              | 0.01           | 0.06           | 0.00           | -0.02          | 0.01           | CO 7          |      |  |                         |
|                    | Min V <sub>z</sub>                           |          |                | -0.10              | -0.06          | 0.05           | -0.01          | -0.01          | -0.01          | CO 8          |      |  |                         |
|                    | Max M <sub>T</sub>                           |          |                | -0.06              | 0.01           | 0.06           | 0.00           | -0.02          | 0.01           | CO 7          |      |  |                         |
|                    | Min M <sub>T</sub>                           |          |                | -0.10              | -0.06          | 0.05           | -0.01          | -0.01          | -0.01          | CO 8          |      |  |                         |
|                    | Max M <sub>y</sub>                           |          |                | -0.10              | -0.06          | 0.05           | -0.01          | -0.01          | -0.01          | CO 8          |      |  |                         |
|                    | Min M <sub>y</sub>                           |          |                | -0.06              | 0.01           | 0.06           | 0.00           | -0.02          | 0.01           | CO 7          |      |  |                         |
|                    | Max M <sub>z</sub>                           |          |                | -0.06              | 0.01           | 0.06           | 0.00           | -0.02          | 0.01           | CO 7          |      |  |                         |
|                    | Min M <sub>z</sub>                           |          |                | -0.10              | -0.06          | 0.05           | -0.01          | -0.01          | -0.01          | CO 8          |      |  |                         |
|                    | Max N  |          |                | 0.05               | 0.01           | -0.05          | 0.00           | -0.02          | -0.01          | CO 7          |      |  |                         |
|                    | Min N  |          |                | 0.01               | -0.06          | -0.06          | -0.01          | -0.02          | 0.12           | CO 8          |      |  |                         |
|                    | Max V <sub>y</sub>                           |          |                | 0.05               | 0.01           | -0.05          | 0.00           | -0.02          | -0.01          | CO 7          |      |  |                         |
|                    | Min V <sub>y</sub>                           |          |                | 0.01               | -0.06          | -0.06          | -0.01          | -0.02          | 0.12           | CO 8          |      |  |                         |
|                    | Max V <sub>z</sub>                           |          |                | 0.05               | 0.01           | -0.05          | 0.00           | -0.02          | -0.01          | CO 7          |      |  |                         |
|                    | Min V <sub>z</sub>                           |          |                | 0.01               | -0.06          | -0.06          | -0.01          | -0.02          | 0.12           | CO 8          |      |  |                         |
|                    | Max M <sub>T</sub>                           |          |                | 0.05               | 0.01           | -0.05          | 0.00           | -0.02          | -0.01          | CO 7          |      |  |                         |
|                    | Min M <sub>T</sub>                           |          |                | 0.01               | -0.06          | -0.06          | -0.01          | -0.02          | 0.12           | CO 8          |      |  |                         |
|                    | Max M <sub>y</sub>                           |          |                | 0.05               | 0.01           | -0.05          | 0.00           | -0.02          | -0.01          | CO 7          |      |  |                         |
|                    | Min M <sub>y</sub>                           |          |                | 0.01               | -0.06          | -0.06          | -0.01          | -0.02          | 0.12           | CO 8          |      |  |                         |
|                    | Max M <sub>z</sub>                           |          |                | 0.01               | -0.06          | -0.06          | -0.01          | -0.02          | 0.12           | CO 8          |      |  |                         |
|                    | Min M <sub>z</sub>                           | 0.05     | 0.01           | -0.05              | 0.00           | -0.02          | -0.01          | CO 7           |                |               |      |  |                         |
|                    | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                |                    |                |                |                |                |                |               |      |  |                         |
|                    | RC5  | 14       | 0.000          | Max N              | 0.68           | 0.02           | -0.01          | 0.00           | 0.01           | -0.00         |      |  |                         |
|                    | Min N  |          |                | -0.68              | -0.02          | 0.01           | -0.00          | -0.01          | 0.00           |               |      |  |                         |
|                    | Max V <sub>y</sub>                           |          |                | 0.26               | 0.04           | 0.00           | 0.01           | -0.00          | 0.01           |               |      |  |                         |
|                    | Min V <sub>y</sub>                           |          |                | -0.26              | -0.04          | -0.00          | -0.01          | 0.00           | -0.01          |               |      |  |                         |
|                    | Max V <sub>z</sub>                           |          |                | -0.46              | 0.01           | 0.01           | 0.00           | -0.01          | 0.01           |               |      |  |                         |
|                    | Min V <sub>z</sub>                           |          |                | 0.46               | -0.01          | -0.01          | -0.00          | 0.01           | -0.01          |               |      |  |                         |
|                    | Max M <sub>T</sub>                           |          |                | 0.28               | 0.04           | 0.00           | 0.01           | -0.00          | 0.01           |               |      |  |                         |
|                    | Min M <sub>T</sub>                           |          |                | -0.28              | -0.04          | -0.00          | -0.01          | 0.00           | -0.01          |               |      |  |                         |
|                    | Max M <sub>y</sub>                           |          |                | 0.47               | -0.01          | -0.01          | -0.00          | 0.01           | -0.01          |               |      |  |                         |
|                    | Min M <sub>y</sub>                           |          |                | -0.47              | 0.01           | 0.01           | 0.00           | -0.01          | 0.01           |               |      |  |                         |
|                    | Max M <sub>z</sub>                           |          |                | -0.17              | 0.02           | 0.00           | 0.00           | -0.01          | 0.01           |               |      |  |                         |
|                    | Min M <sub>z</sub>                           |          |                | 0.17               | -0.02          | -0.00          | -0.00          | 0.01           | -0.01          |               |      |  |                         |
|                    | Max N  |          |                | 0.68               | 0.02           | -0.01          | 0.00           | -0.00          | -0.04          |               |      |  |                         |
|                    | Min N  |          |                | -0.68              | -0.02          | 0.01           | -0.00          | 0.00           | 0.04           |               |      |  |                         |
|                    | Max V <sub>y</sub>                           |          |                | 0.26               | 0.04           | 0.00           | 0.01           | 0.00           | -0.07          |               |      |  |                         |
|                    | Min V <sub>y</sub>                           |          |                | -0.26              | -0.04          | -0.00          | -0.01          | -0.00          | 0.07           |               |      |  |                         |
|                    | Max V <sub>z</sub>                           |          |                | -0.46              | 0.01           | 0.01           | 0.00           | 0.01           | -0.02          |               |      |  |                         |
|                    | Min V <sub>z</sub>                           |          |                | 0.46               | -0.01          | -0.01          | -0.00          | -0.01          | 0.02           |               |      |  |                         |
|                    | Max M <sub>T</sub>                           |          |                | 0.28               | 0.04           | 0.00           | 0.01           | 0.00           | -0.07          |               |      |  |                         |
|                    | Min M <sub>T</sub>                           |          |                | -0.28              | -0.04          | -0.00          | -0.01          | -0.00          | 0.07           |               |      |  |                         |
|                    | Max M <sub>y</sub>                           |          |                | -0.44              | 0.02           | 0.01           | 0.00           | 0.01           | -0.03          |               |      |  |                         |
|                    | Min M <sub>y</sub>                           |          |                | 0.44               | -0.02          | -0.01          | -0.00          | -0.01          | 0.03           |               |      |  |                         |
|                    | Max M <sub>z</sub>                           |          |                | -0.31              | -0.04          | -0.00          | -0.01          | -0.00          | 0.07           |               |      |  |                         |
|                    | Min M <sub>z</sub>                           |          |                | 0.31               | 0.04           | 0.00           | 0.01           | 0.00           | -0.07          |               |      |  |                         |
|                    | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                |                    |                |                |                |                |                |               |      |  |                         |
|                    | RC6  | 14       | 0.000          | Max N              | 0.81           | 0.01           | -0.01          | 0.00           | 0.01           | -0.00         |      |  |                         |
|                    | Min N  |          |                | -0.81              | -0.01          | 0.01           | -0.00          | -0.01          | 0.00           |               |      |  |                         |
|                    | Max V <sub>y</sub>                           |          |                | 0.26               | 0.03           | 0.00           | 0.00           | -0.00          | 0.00           |               |      |  |                         |
|                    | Min V <sub>y</sub>                           |          |                | -0.26              | -0.03          | -0.00          | -0.00          | 0.00           | -0.00          |               |      |  |                         |
|                    | Max V <sub>z</sub>                           |          |                | -0.64              | 0.01           | 0.01           | 0.00           | -0.01          | 0.01           |               |      |  |                         |
|                    | Min V <sub>z</sub>                           |          |                | 0.64               | -0.01          | -0.01          | -0.00          | 0.01           | -0.01          |               |      |  |                         |
|                    | Max M <sub>T</sub>                           |          |                | 0.23               | 0.03           | 0.00           | 0.00           | -0.00          | 0.00           |               |      |  |                         |
|                    | Min M <sub>T</sub>                           |          |                | -0.23              | -0.03          | -0.00          | -0.00          | 0.00           | -0.00          |               |      |  |                         |
|                    | Max M <sub>y</sub>                           |          |                | 0.65               | -0.01          | -0.01          | -0.00          | 0.01           | -0.01          |               |      |  |                         |
|                    | Min M <sub>y</sub>                           |          |                | -0.65              | 0.01           | 0.01           | 0.00           | -0.01          | 0.01           |               |      |  |                         |
|                    | Max M <sub>z</sub>                           |          |                | -0.14              | 0.02           | 0.00           | 0.00           | -0.00          | 0.01           |               |      |  |                         |
|                    | Min M <sub>z</sub>                           |          |                | 0.14               | -0.02          | -0.00          | -0.00          | 0.00           | -0.01          |               |      |  |                         |
|                    | Max N  |          |                | 0.81               | 0.01           | -0.01          | 0.00           | -0.01          | -0.03          |               |      |  |                         |
|                    | Min N  |          |                | -0.81              | -0.01          | 0.01           | -0.00          | 0.01           | 0.03           |               |      |  |                         |
|                    | Max V <sub>y</sub>                           |          |                | 0.26               | 0.03           | 0.00           | 0.00           | 0.00           | -0.06          |               |      |  |                         |
|                    | Min V <sub>y</sub>                           |          |                | -0.26              | -0.03          | -0.00          | -0.00          | -0.00          | 0.06           |               |      |  |                         |
|                    | Max V <sub>z</sub>                           |          |                | -0.64              | 0.01           | 0.01           | 0.00           | 0.01           | -0.01          |               |      |  |                         |
|                    | Min V <sub>z</sub>                           |          |                | 0.64               | -0.01          | -0.01          | -0.00          | -0.01          | 0.01           |               |      |  |                         |
|                    | Max M <sub>T</sub>                           |          |                | 0.23               | 0.03           | 0.00           | 0.00           | 0.00           | -0.06          |               |      |  |                         |
|                    | Min M <sub>T</sub>                           |          |                | -0.23              | -0.03          | -0.00          | -0.00          | -0.00          | 0.06           |               |      |  |                         |
|                    | Max M <sub>y</sub>                           |          |                | -0.62              | 0.01           | 0.01           | 0.00           | 0.01           | -0.02          |               |      |  |                         |
|                    | Min M <sub>y</sub>                           |          |                | 0.62               | -0.01          | -0.01          | -0.00          | -0.01          | 0.02           |               |      |  |                         |
|                    | Max M <sub>z</sub>                           |          |                | -0.30              | -0.03          | 0.00           | -0.00          | -0.00          | 0.06           |               |      |  |                         |
|                    | Min M <sub>z</sub>                           |          |                | 0.30               | 0.03           | -0.00          | 0.00           | 0.00           | -0.06          |               |      |  |                         |
|                    | DLC1, Result Envelope X 30% / Y 30% / Z 100% |          |                |                    |                |                |                |                |                |               |      |  |                         |
|                    | RC7  | 14       | 0.000          | Max N              | 1.32           | 0.04           | -0.01          | 0.01           | 0.01           | -0.01         |      |  |                         |
|                    | Min N  |          |                | -1.32              | -0.04          | 0.01           | -0.01          | -0.01          | 0.01           |               |      |  |                         |
|                    | Max V <sub>y</sub>                           |          |                | 0.63               | 0.08           | 0.00           | 0.01           | -0.00          | 0.01           |               |      |  |                         |
|                    | Min V <sub>y</sub>                           |          |                | -0.63              | -0.08          | -0.00          | -0.01          | 0.00           | -0.01          |               |      |  |                         |
|                    | Max V <sub>z</sub>                           |          |                | -0.82              | 0.03           | 0.01           | 0.00           | -0.02          | 0.02           |               |      |  |                         |
|                    | Min V <sub>z</sub>                           |          |                | 0.82               | -0.03          | -0.01          | -0.00          | 0.02           | -0.02          |               |      |  |                         |
|                    | Max M <sub>T</sub>                           |          |                | 0.69               | 0.08           | 0.00           | 0.01           | -0.00          | 0.01           |               |      |  |                         |
|                    | Min M <sub>T</sub>                           |          |                | -0.69              | -0.08          | -0.00          | -0.01          | 0.00           | -0.01          |               |      |  |                         |
|                    | Max M <sub>y</sub>                           |          |                | 0.85               | -0.03          | -0.01          | -0.00          | 0.02           | -0.02          |               |      |  |                         |
|                    | Min M <sub>y</sub>                           |          |                | -0.85              | 0.03           | 0.01           | 0.00           | -0.02          | 0.02           |               |      |  |                         |
|                    | Max M <sub>z</sub>                           |          |                | -0.47              | 0.04           | 0.01           | 0.01           | -0.01          | 0.02           |               |      |  |                         |
| Min M <sub>z</sub> | 0.47   |          |                | -0.04              | -0.01          | -0.01          | 0.01           | -0.02          |                |               |      |  |                         |

## RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

### 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] |                    | Forces [kN] |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |
|------------|-----|----------|----------------|--------------------|-------------|----------------|----------------|----------------|----------------|----------------|-------------------------|
|            |     |          |                |                    | N           | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |
| 40         | RC7 | 17       | 2.157          | Min M <sub>z</sub> | 0.47        | -0.04          | -0.01          | -0.01          | 0.01           | -0.02          |                         |
|            |     |          |                | Max N              | 1.32        | 0.04           | -0.01          | 0.01           | -0.01          | -0.09          |                         |
|            |     |          |                | Min N              | -1.32       | -0.04          | 0.01           | -0.01          | 0.01           | 0.09           |                         |
|            |     |          |                | Max V <sub>y</sub> | 0.63        | 0.08           | 0.00           | 0.01           | 0.00           | -0.15          |                         |
|            |     |          |                | Min V <sub>y</sub> | -0.63       | -0.08          | -0.00          | -0.01          | -0.00          | 0.15           |                         |
|            |     |          |                | Max V <sub>z</sub> | -0.82       | 0.03           | 0.01           | 0.00           | 0.01           | -0.04          |                         |
|            |     |          |                | Min V <sub>z</sub> | 0.82        | -0.03          | -0.01          | -0.00          | -0.01          | 0.04           |                         |
|            |     |          |                | Max M <sub>T</sub> | 0.69        | 0.08           | 0.00           | 0.01           | 0.00           | -0.15          |                         |
|            |     |          |                | Min M <sub>T</sub> | -0.69       | -0.08          | -0.00          | -0.01          | -0.00          | 0.15           |                         |
|            |     |          |                | Max M <sub>y</sub> | -0.77       | 0.03           | 0.01           | 0.00           | 0.01           | -0.05          |                         |
|            |     |          |                | Min M <sub>y</sub> | 0.77        | -0.03          | -0.01          | -0.00          | -0.01          | 0.05           |                         |
|            |     |          |                | Max M <sub>z</sub> | -0.73       | -0.08          | -0.00          | -0.01          | -0.00          | 0.15           |                         |
|            |     |          |                | Min M <sub>z</sub> | 0.73        | 0.08           | 0.00           | 0.01           | 0.00           | -0.15          |                         |
|            |     |          |                | Max N              | 1.53        | 0.14           | 0.07           | -0.03          | -0.02          | 0.24           | CO 2                    |
|            |     |          |                | Min N              | -0.07       | -0.00          | 0.08           | 0.00           | -0.02          | -0.00          | CO 1                    |
| 41         | RC1 | 17       | 0.000          | Max V <sub>y</sub> | 1.53        | 0.14           | 0.07           | -0.03          | -0.02          | 0.24           | CO 2                    |
|            |     |          |                | Min V <sub>y</sub> | -0.07       | -0.00          | 0.08           | 0.00           | -0.02          | -0.00          | CO 1                    |
|            |     |          |                | Max V <sub>z</sub> | -0.07       | -0.00          | 0.08           | 0.00           | -0.02          | -0.00          | CO 1                    |
|            |     |          |                | Min V <sub>z</sub> | 1.53        | 0.14           | 0.07           | -0.03          | -0.02          | 0.24           | CO 2                    |
|            |     |          |                | Max M <sub>T</sub> | -0.07       | -0.00          | 0.08           | 0.00           | -0.02          | -0.00          | CO 1                    |
|            |     |          |                | Min M <sub>T</sub> | 1.53        | 0.14           | 0.07           | -0.03          | -0.02          | 0.24           | CO 2                    |
|            |     |          |                | Max M <sub>y</sub> | 1.53        | 0.14           | 0.07           | -0.03          | -0.02          | 0.24           | CO 2                    |
|            |     |          |                | Min M <sub>y</sub> | -0.07       | -0.00          | 0.08           | 0.00           | -0.02          | -0.00          | CO 1                    |
|            |     |          |                | Max M <sub>z</sub> | 1.53        | 0.14           | 0.07           | -0.03          | -0.02          | 0.24           | CO 2                    |
|            |     |          |                | Min M <sub>z</sub> | -0.07       | -0.00          | 0.08           | 0.00           | -0.02          | -0.00          | CO 1                    |
|            |     | 4        | 2.089          | Max N              | 1.67        | 0.14           | -0.08          | -0.03          | -0.03          | -0.05          | CO 2                    |
|            |     |          |                | Min N              | 0.06        | -0.00          | -0.07          | 0.00           | -0.02          | 0.00           | CO 1                    |
|            |     |          |                | Max V <sub>y</sub> | 1.67        | 0.14           | -0.08          | -0.03          | -0.03          | -0.05          | CO 2                    |
|            |     |          |                | Min V <sub>y</sub> | 0.06        | -0.00          | -0.07          | 0.00           | -0.02          | 0.00           | CO 1                    |
|            |     |          |                | Max V <sub>z</sub> | 0.06        | -0.00          | -0.07          | 0.00           | -0.02          | 0.00           | CO 1                    |
|            |     |          |                | Min V <sub>z</sub> | 1.67        | 0.14           | -0.08          | -0.03          | -0.03          | -0.05          | CO 2                    |
|            |     |          |                | Max M <sub>T</sub> | 0.06        | -0.00          | -0.07          | 0.00           | -0.02          | 0.00           | CO 1                    |
|            |     |          |                | Min M <sub>T</sub> | 1.67        | 0.14           | -0.08          | -0.03          | -0.03          | -0.05          | CO 2                    |
|            |     |          |                | Max M <sub>y</sub> | 0.06        | -0.00          | -0.07          | 0.00           | -0.02          | 0.00           | CO 1                    |
|            |     |          |                | Min M <sub>y</sub> | 1.67        | 0.14           | -0.08          | -0.03          | -0.03          | -0.05          | CO 2                    |
|            |     |          |                | Max M <sub>z</sub> | 0.06        | -0.00          | -0.07          | 0.00           | -0.02          | 0.00           | CO 1                    |
|            |     |          |                | Min M <sub>z</sub> | 1.67        | 0.14           | -0.08          | -0.03          | -0.03          | -0.05          | CO 2                    |
|            |     | 17       | 0.000          | Max N              | 1.02        | 0.09           | 0.05           | -0.02          | -0.01          | 0.16           | CO 4                    |
|            |     |          |                | Min N              | -0.05       | -0.00          | 0.06           | 0.00           | -0.02          | -0.00          | CO 3                    |
|            |     |          |                | Max V <sub>y</sub> | 1.02        | 0.09           | 0.05           | -0.02          | -0.01          | 0.16           | CO 4                    |
|            |     |          |                | Min V <sub>y</sub> | -0.05       | -0.00          | 0.06           | 0.00           | -0.02          | -0.00          | CO 3                    |
|            |     |          |                | Max V <sub>z</sub> | -0.05       | -0.00          | 0.06           | 0.00           | -0.02          | -0.00          | CO 3                    |
|            |     |          |                | Min V <sub>z</sub> | 1.02        | 0.09           | 0.05           | -0.02          | -0.01          | 0.16           | CO 4                    |
|            |     |          |                | Max M <sub>T</sub> | -0.05       | -0.00          | 0.06           | 0.00           | -0.02          | -0.00          | CO 3                    |
|            |     |          |                | Min M <sub>T</sub> | 1.02        | 0.09           | 0.05           | -0.02          | -0.01          | 0.16           | CO 4                    |
|            |     |          |                | Max M <sub>y</sub> | 1.02        | 0.09           | 0.05           | -0.02          | -0.01          | 0.16           | CO 4                    |
|            |     |          |                | Min M <sub>y</sub> | -0.05       | -0.00          | 0.06           | 0.00           | -0.02          | -0.00          | CO 3                    |
|            |     |          |                | Max M <sub>z</sub> | 1.02        | 0.09           | 0.05           | -0.02          | -0.01          | 0.16           | CO 4                    |
|            |     |          |                | Min M <sub>z</sub> | -0.05       | -0.00          | 0.06           | 0.00           | -0.02          | -0.00          | CO 3                    |
|            |     | 4        | 2.089          | Max N              | 1.12        | 0.09           | -0.06          | -0.02          | -0.02          | -0.03          | CO 4                    |
|            |     |          |                | Min N              | 0.05        | -0.00          | -0.05          | 0.00           | -0.02          | 0.00           | CO 3                    |
|            |     |          |                | Max V <sub>y</sub> | 1.12        | 0.09           | -0.06          | -0.02          | -0.02          | -0.03          | CO 4                    |
|            |     |          |                | Min V <sub>y</sub> | 0.05        | -0.00          | -0.05          | 0.00           | -0.02          | 0.00           | CO 3                    |
|            |     |          |                | Max V <sub>z</sub> | 0.05        | -0.00          | -0.05          | 0.00           | -0.02          | 0.00           | CO 3                    |
|            |     |          |                | Min V <sub>z</sub> | 1.12        | 0.09           | -0.06          | -0.02          | -0.02          | -0.03          | CO 4                    |
|            |     |          |                | Max M <sub>T</sub> | 0.05        | -0.00          | -0.05          | 0.00           | -0.02          | 0.00           | CO 3                    |
|            |     |          |                | Min M <sub>T</sub> | 1.12        | 0.09           | -0.06          | -0.02          | -0.02          | -0.03          | CO 4                    |
|            |     |          |                | Max M <sub>y</sub> | 0.05        | -0.00          | -0.05          | 0.00           | -0.02          | 0.00           | CO 3                    |
|            |     |          |                | Min M <sub>y</sub> | 1.12        | 0.09           | -0.06          | -0.02          | -0.02          | -0.03          | CO 4                    |
|            |     |          |                | Max M <sub>z</sub> | 0.05        | -0.00          | -0.05          | 0.00           | -0.02          | 0.00           | CO 3                    |
|            |     |          |                | Min M <sub>z</sub> | 1.12        | 0.09           | -0.06          | -0.02          | -0.02          | -0.03          | CO 4                    |
|            | RC3 | 17       | 0.000          | Max N              | 0.48        | 0.04           | 0.05           | -0.01          | -0.02          | 0.08           | CO 6                    |
|            |     |          |                | Min N              | -0.05       | -0.00          | 0.06           | 0.00           | -0.02          | -0.00          | CO 5                    |
|            |     |          |                | Max V <sub>y</sub> | 0.48        | 0.04           | 0.05           | -0.01          | -0.02          | 0.08           | CO 6                    |
|            |     |          |                | Min V <sub>y</sub> | -0.05       | -0.00          | 0.06           | 0.00           | -0.02          | -0.00          | CO 5                    |
|            |     |          |                | Max V <sub>z</sub> | -0.05       | -0.00          | 0.06           | 0.00           | -0.02          | -0.00          | CO 5                    |
|            |     |          |                | Min V <sub>z</sub> | 0.48        | 0.04           | 0.05           | -0.01          | -0.02          | 0.08           | CO 6                    |
|            |     |          |                | Max M <sub>T</sub> | -0.05       | -0.00          | 0.06           | 0.00           | -0.02          | -0.00          | CO 5                    |
|            |     |          |                | Min M <sub>T</sub> | 0.48        | 0.04           | 0.05           | -0.01          | -0.02          | 0.08           | CO 6                    |
|            |     |          |                | Max M <sub>y</sub> | 0.48        | 0.04           | 0.05           | -0.01          | -0.02          | 0.08           | CO 6                    |
|            |     |          |                | Min M <sub>y</sub> | -0.05       | -0.00          | 0.06           | 0.00           | -0.02          | -0.00          | CO 5                    |
|            |     |          |                | Max M <sub>z</sub> | 0.48        | 0.04           | 0.05           | -0.01          | -0.02          | 0.08           | CO 6                    |
|            |     |          |                | Min M <sub>z</sub> | -0.05       | -0.00          | 0.06           | 0.00           | -0.02          | -0.00          | CO 5                    |
|            |     | 4        | 2.089          | Max N              | 0.58        | 0.04           | -0.06          | -0.01          | -0.02          | -0.01          | CO 6                    |
|            |     |          |                | Min N              | 0.05        | -0.00          | -0.05          | 0.00           | -0.02          | 0.00           | CO 5                    |
|            |     |          |                | Max V <sub>y</sub> | 0.58        | 0.04           | -0.06          | -0.01          | -0.02          | -0.01          | CO 6                    |
|            |     |          |                | Min V <sub>y</sub> | 0.05        | -0.00          | -0.05          | 0.00           | -0.02          | 0.00           | CO 5                    |
|            |     |          |                | Max V <sub>z</sub> | 0.05        | -0.00          | -0.05          | 0.00           | -0.02          | 0.00           | CO 5                    |
|            |     |          |                | Min V <sub>z</sub> | 0.58        | 0.04           | -0.06          | -0.01          | -0.02          | -0.01          | CO 6                    |
|            |     |          |                | Max M <sub>T</sub> | 0.05        | -0.00          | -0.05          | 0.00           | -0.02          | 0.00           | CO 5                    |
|            |     |          |                | Min M <sub>T</sub> | 0.58        | 0.04           | -0.06          | -0.01          | -0.02          | -0.01          | CO 6                    |
|            |     |          |                | Max M <sub>y</sub> | 0.05        | -0.00          | -0.05          | 0.00           | -0.02          | 0.00           | CO 5                    |
|            |     |          |                | Min M <sub>y</sub> | 0.58        | 0.04           | -0.06          | -0.01          | -0.02          | -0.01          | CO 6                    |
|            |     |          |                | Max M <sub>z</sub> | 0.05        | -0.00          | -0.05          | 0.00           | -0.02          | 0.00           | CO 5                    |
|            |     |          |                | Min M <sub>z</sub> | 0.58        | 0.04           | -0.06          | -0.01          | -0.02          | -0.01          | CO 6                    |
|            | RC4 | 17       | 0.000          | Max N              | 0.27        | 0.03           | 0.05           | -0.01          | -0.02          | 0.05           | CO 8                    |
|            |     |          |                | Min N              | -0.05       | -0.00          | 0.06           | 0.00           | -0.02          | -0.00          | CO 7                    |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date:

2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.                                   | RC   | Node No. | Location x [m]     | Forces [kN]        |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |       |  |
|--|--|----------|--------------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------------------------|-------|--|
|  |  |          |                    | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |       |  |
| 41   | RC4  | 4        | 2.089              | Max V <sub>y</sub> | 0.27           | 0.03           | 0.05           | -0.01          | -0.02          | 0.05                    | CO 8  |  |
|  |  |          |                    | Min V <sub>y</sub> | -0.05          | -0.00          | 0.06           | 0.00           | -0.02          | -0.00                   | CO 7  |  |
|  |  |          |                    | Max V <sub>z</sub> | -0.05          | -0.00          | 0.06           | 0.00           | -0.02          | -0.00                   | CO 7  |  |
|  |  |          |                    | Min V <sub>z</sub> | 0.27           | 0.03           | 0.05           | -0.01          | -0.02          | 0.05                    | CO 8  |  |
|  |  |          |                    | Max M <sub>T</sub> | -0.05          | -0.00          | 0.06           | 0.00           | -0.02          | -0.00                   | CO 7  |  |
|  |  |          |                    | Min M <sub>T</sub> | 0.27           | 0.03           | 0.05           | -0.01          | -0.02          | 0.05                    | CO 8  |  |
|  |  |          |                    | Max M <sub>y</sub> | 0.27           | 0.03           | 0.05           | -0.01          | -0.02          | 0.05                    | CO 8  |  |
|  |  |          |                    | Min M <sub>y</sub> | -0.05          | -0.00          | 0.06           | 0.00           | -0.02          | -0.00                   | CO 7  |  |
|  |  |          |                    | Max M <sub>z</sub> | 0.27           | 0.03           | 0.05           | -0.01          | -0.02          | 0.05                    | CO 8  |  |
|  |  |          |                    | Min M <sub>z</sub> | -0.05          | -0.00          | 0.06           | 0.00           | -0.02          | -0.00                   | CO 7  |  |
|  |  |          |                    | Max N              | 0.37           | 0.03           | -0.05          | -0.01          | -0.02          | -0.01                   | CO 8  |  |
|  |  |          |                    | Min N              | 0.05           | -0.00          | -0.05          | 0.00           | -0.02          | 0.00                    | CO 7  |  |
|  |  |          |                    | Max V <sub>y</sub> | 0.37           | 0.03           | -0.05          | -0.01          | -0.02          | -0.01                   | CO 8  |  |
|  |  |          |                    | Min V <sub>y</sub> | 0.05           | -0.00          | -0.05          | 0.00           | -0.02          | 0.00                    | CO 7  |  |
|  |  |          |                    | Max V <sub>z</sub> | 0.05           | -0.00          | -0.05          | 0.00           | -0.02          | 0.00                    | CO 7  |  |
|  |  |          |                    | Min V <sub>z</sub> | 0.37           | 0.03           | -0.05          | -0.01          | -0.02          | -0.01                   | CO 8  |  |
|  |  |          |                    | Max M <sub>T</sub> | 0.05           | -0.00          | -0.05          | 0.00           | -0.02          | 0.00                    | CO 7  |  |
|  |  |          |                    | Min M <sub>T</sub> | 0.37           | 0.03           | -0.05          | -0.01          | -0.02          | -0.01                   | CO 8  |  |
|  |  |          |                    | Max M <sub>y</sub> | 0.05           | -0.00          | -0.05          | 0.00           | -0.02          | 0.00                    | CO 7  |  |
|  |  |          |                    | Min M <sub>y</sub> | 0.37           | 0.03           | -0.05          | -0.01          | -0.02          | -0.01                   | CO 8  |  |
|  |  |          |                    | Max M <sub>z</sub> | 0.05           | -0.00          | -0.05          | 0.00           | -0.02          | 0.00                    | CO 7  |  |
|  |  |          |                    | Min M <sub>z</sub> | 0.37           | 0.03           | -0.05          | -0.01          | -0.02          | -0.01                   | CO 8  |  |
|  | DLC1, Result Envelope X 100% / Y 30% / Z 30% |          |                    |                    |                |                |                |                |                |                         |       |  |
|  | RC5  | 17       | 0.000              | Max N              | 0.41           | 0.02           | 0.00           | -0.00          | 0.00           | 0.03                    |       |  |
|  |  |          |                    | Min N              | -0.41          | -0.02          | -0.00          | 0.00           | -0.00          | -0.03                   |       |  |
|  |  |          |                    | Max V <sub>y</sub> | 0.32           | 0.02           | 0.00           | -0.00          | 0.00           | 0.03                    |       |  |
|  |  |          |                    | Min V <sub>y</sub> | -0.32          | -0.02          | -0.00          | 0.00           | -0.00          | -0.03                   |       |  |
|  |  |          |                    | Max V <sub>z</sub> | 0.10           | 0.00           | 0.00           | 0.00           | -0.00          | -0.00                   |       |  |
|  |  |          |                    | Min V <sub>z</sub> | -0.10          | -0.00          | -0.00          | -0.00          | 0.00           | 0.00                    |       |  |
|  |  |          |                    | Max M <sub>T</sub> | -0.31          | -0.02          | 0.00           | 0.00           | -0.00          | -0.03                   |       |  |
|  |  |          |                    | Min M <sub>T</sub> | 0.31           | 0.02           | -0.00          | -0.00          | 0.00           | 0.03                    |       |  |
|  |  |          |                    | Max M <sub>y</sub> | 0.25           | 0.02           | -0.00          | -0.00          | 0.00           | 0.02                    |       |  |
|  |  |          |                    | Min M <sub>y</sub> | -0.25          | -0.02          | 0.00           | 0.00           | -0.00          | -0.02                   |       |  |
|  |  |          |                    | Max M <sub>z</sub> | 0.32           | 0.02           | -0.00          | -0.00          | 0.00           | 0.03                    |       |  |
|  |  |          |                    | Min M <sub>z</sub> | -0.32          | -0.02          | 0.00           | 0.00           | -0.00          | -0.03                   |       |  |
|  |  |          |                    | Max N              | 0.41           | 0.02           | 0.00           | -0.00          | 0.00           | -0.02                   |       |  |
|  |  |          |                    | Min N              | -0.41          | -0.02          | -0.00          | 0.00           | -0.00          | 0.02                    |       |  |
|  |  |          |                    | Max V <sub>y</sub> | 0.32           | 0.02           | 0.00           | -0.00          | 0.00           | -0.02                   |       |  |
|  |  |          |                    | Min V <sub>y</sub> | -0.32          | -0.02          | -0.00          | 0.00           | -0.00          | 0.02                    |       |  |
|  |  |          |                    | Max V <sub>z</sub> | 0.10           | 0.00           | 0.00           | 0.00           | 0.00           | -0.00                   |       |  |
|  |  |          |                    | Min V <sub>z</sub> | -0.10          | -0.00          | -0.00          | -0.00          | -0.00          | 0.00                    |       |  |
|  |  |          |                    | Max M <sub>T</sub> | -0.31          | -0.02          | 0.00           | 0.00           | -0.00          | 0.02                    |       |  |
|  |  |          |                    | Min M <sub>T</sub> | 0.31           | 0.02           | -0.00          | -0.00          | 0.00           | -0.02                   |       |  |
|  |  |          |                    | Max M <sub>y</sub> | 0.21           | 0.01           | 0.00           | -0.00          | 0.00           | -0.01                   |       |  |
|  |  |          |                    | Min M <sub>y</sub> | -0.21          | -0.01          | -0.00          | 0.00           | -0.00          | 0.01                    |       |  |
|  | Max M <sub>z</sub>                           | -0.32    | -0.02              | -0.00              | 0.00           | -0.00          | 0.02           |                |                |                         |       |  |
|  | Min M <sub>z</sub>                           | 0.32     | 0.02               | 0.00               | -0.00          | 0.00           | -0.02          |                |                |                         |       |  |
|  | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                    |                    |                |                |                |                |                |                         |       |  |
|  | RC6  | 17       | 0.000              | Max N              | 0.45           | 0.02           | 0.00           | -0.00          | 0.00           | 0.02                    |       |  |
|  |  |          |                    | Min N              | -0.45          | -0.02          | -0.00          | 0.00           | -0.00          | -0.02                   |       |  |
|  |  |          |                    | Max V <sub>y</sub> | 0.18           | 0.02           | 0.00           | -0.00          | 0.00           | 0.03                    |       |  |
|  |  |          |                    | Min V <sub>y</sub> | -0.18          | -0.02          | -0.00          | 0.00           | -0.00          | -0.03                   |       |  |
|  |  |          |                    | Max V <sub>z</sub> | 0.23           | 0.00           | 0.00           | -0.00          | -0.00          | -0.00                   |       |  |
|  |  |          |                    | Min V <sub>z</sub> | -0.23          | -0.00          | -0.00          | 0.00           | 0.00           | 0.00                    |       |  |
|  |  |          |                    | Max M <sub>T</sub> | -0.18          | -0.02          | -0.00          | 0.00           | -0.00          | -0.03                   |       |  |
|  |  |          |                    | Min M <sub>T</sub> | 0.18           | 0.02           | 0.00           | -0.00          | 0.00           | 0.03                    |       |  |
| Max M <sub>y</sub>                           |  |          |                    | 0.26               | 0.01           | -0.00          | -0.00          | 0.00           | 0.02           |                         |       |  |
| Min M <sub>y</sub>                           |  |          |                    | -0.26              | -0.01          | 0.00           | 0.00           | -0.00          | -0.02          |                         |       |  |
| Max M <sub>z</sub>                           |  |          |                    | 0.18               | 0.02           | 0.00           | -0.00          | 0.00           | 0.03           |                         |       |  |
| Min M <sub>z</sub>                           |  |          |                    | -0.18              | -0.02          | -0.00          | 0.00           | -0.00          | -0.03          |                         |       |  |
| Max N  |  |          |                    | 0.45               | 0.02           | 0.00           | -0.00          | 0.00           | -0.01          |                         |       |  |
| Min N  |  |          |                    | -0.45              | -0.02          | -0.00          | 0.00           | -0.00          | 0.01           |                         |       |  |
| Max V <sub>y</sub>                           |  |          |                    | 0.18               | 0.02           | 0.00           | -0.00          | 0.00           | -0.02          |                         |       |  |
| Min V <sub>y</sub>                           |  |          |                    | -0.18              | -0.02          | -0.00          | 0.00           | -0.00          | 0.02           |                         |       |  |
| Max V <sub>z</sub>                           |  |          |                    | 0.23               | 0.00           | 0.00           | -0.00          | 0.00           | -0.00          |                         |       |  |
| Min V <sub>z</sub>                           |  |          |                    | -0.23              | -0.00          | -0.00          | 0.00           | -0.00          | 0.00           |                         |       |  |
| Max M <sub>T</sub>                           |  |          |                    | -0.18              | -0.02          | -0.00          | 0.00           | -0.00          | 0.02           |                         |       |  |
| Min M <sub>T</sub>                           |  |          |                    | 0.18               | 0.02           | 0.00           | -0.00          | 0.00           | -0.02          |                         |       |  |
| Max M <sub>y</sub>                           |  |          |                    | 0.30               | 0.01           | 0.00           | -0.00          | 0.00           | -0.01          |                         |       |  |
| Min M <sub>y</sub>                           |  |          |                    | -0.30              | -0.01          | -0.00          | 0.00           | -0.00          | 0.01           |                         |       |  |
| Max M <sub>z</sub>                           | -0.18  | -0.02    | -0.00              | 0.00               | -0.00          | 0.02           |                |                |                |                         |       |  |
| Min M <sub>z</sub>                           | 0.18   | 0.02     | 0.00               | -0.00              | 0.00           | -0.02          |                |                |                |                         |       |  |
| DLC1, Result Envelope X 30% / Y 30% / Z 100% |  |          |                    |                    |                |                |                |                |                |                         |       |  |
| RC7  | 17   | 0.000    | Max N              | 0.84               | 0.05           | 0.00           | -0.01          | 0.00           | 0.06           |                         |       |  |
|  |  |          | Min N              | -0.84              | -0.05          | -0.00          | 0.01           | -0.00          | -0.06          |                         |       |  |
|  |  |          | Max V <sub>y</sub> | 0.74               | 0.05           | 0.00           | -0.01          | 0.00           | 0.07           |                         |       |  |
|  |  |          | Min V <sub>y</sub> | -0.74              | -0.05          | -0.00          | 0.01           | -0.00          | -0.07          |                         |       |  |
|  |  |          | Max V <sub>z</sub> | 0.26               | 0.01           | 0.00           | -0.00          | -0.00          | 0.01           |                         |       |  |
|  |  |          | Min V <sub>z</sub> | -0.26              | -0.01          | -0.00          | 0.00           | 0.00           | -0.01          |                         |       |  |
|  |  |          | Max M <sub>T</sub> | -0.74              | -0.05          | -0.00          | 0.01           | -0.00          | -0.07          |                         |       |  |
|  |  |          | Min M <sub>T</sub> | 0.74               | 0.05           | 0.00           | -0.01          | 0.00           | 0.07           |                         |       |  |
|  |  |          | Max M <sub>y</sub> | 0.44               | 0.03           | -0.00          | -0.00          | 0.00           | 0.04           |                         |       |  |
|  |  |          | Min M <sub>y</sub> | -0.44              | -0.03          | 0.00           | 0.00           | -0.00          | -0.04          |                         |       |  |
|  |  |          | Max M <sub>z</sub> | 0.74               | 0.05           | 0.00           | -0.01          | 0.00           | 0.07           |                         |       |  |
|  |  |          | Min M <sub>z</sub> | -0.74              | -0.05          | -0.00          | 0.01           | -0.00          | -0.07          |                         |       |  |
|  |  |          | 4                  | 2.089              | Max N          | 0.84           | 0.05           | 0.00           | -0.01          | 0.00                    | -0.04 |  |
|  |  |          |                    |                    | Min N          | -0.84          | -0.05          | -0.00          | 0.01           | -0.00                   | 0.04  |  |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC    | Node No.           | Location x [m]     | Forces [kN]        |                |                |                | Moments [kNm]  |                |       | Correspondin Load Cases |       |       |       |      |
|--------------------|-------|--------------------|--------------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------|-------------------------|-------|-------|-------|------|
|                    |       |                    |                    | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |                         |       |       |       |      |
| 41                 | RC7   |                    |                    | Max V <sub>y</sub> | 0.74           | 0.05           | 0.00           | -0.01          | 0.00           | -0.05 |                         |       |       |       |      |
|                    |       |                    |                    | Min V <sub>y</sub> | -0.74          | -0.05          | -0.00          | 0.01           | -0.00          | 0.05  |                         |       |       |       |      |
|                    |       |                    |                    | Max V <sub>z</sub> | 0.26           | 0.01           | 0.00           | -0.00          | 0.00           | -0.01 |                         |       |       |       |      |
|                    |       |                    |                    | Min V <sub>z</sub> | -0.26          | -0.01          | -0.00          | 0.00           | -0.00          | 0.01  |                         |       |       |       |      |
|                    |       |                    |                    | Max M <sub>T</sub> | -0.74          | -0.05          | -0.00          | 0.01           | -0.00          | 0.05  |                         |       |       |       |      |
|                    |       |                    |                    | Min M <sub>T</sub> | 0.74           | 0.05           | 0.00           | -0.01          | 0.00           | -0.05 |                         |       |       |       |      |
|                    |       |                    |                    | Max M <sub>y</sub> | 0.47           | 0.02           | 0.00           | -0.00          | 0.00           | -0.03 |                         |       |       |       |      |
|                    |       |                    |                    | Min M <sub>y</sub> | -0.47          | -0.02          | -0.00          | 0.00           | -0.00          | 0.03  |                         |       |       |       |      |
|                    |       |                    |                    | Max M <sub>z</sub> | -0.74          | -0.05          | -0.00          | 0.01           | -0.00          | 0.05  |                         |       |       |       |      |
|                    |       |                    |                    | Min M <sub>z</sub> | 0.74           | 0.05           | 0.00           | -0.01          | 0.00           | -0.05 |                         |       |       |       |      |
|                    |       |                    |                    | 42                 | RC1            | 11             | 0.000          | Max N          | 8.26           | -0.60 | 0.18                    | 0.21  | -0.12 | -0.59 | CO 2 |
|                    |       |                    |                    |                    |                |                |                | Min N          | 0.07           | -0.00 | 0.06                    | -0.00 | -0.00 | -0.01 | CO 1 |
| Max V <sub>y</sub> | 0.07  | -0.00              | 0.06               |                    |                |                |                | -0.00          | -0.00          | -0.01 | CO 1                    |       |       |       |      |
| Min V <sub>y</sub> | 8.26  | -0.60              | 0.18               |                    |                |                |                | 0.21           | -0.12          | -0.59 | CO 2                    |       |       |       |      |
| Max V <sub>z</sub> | 8.26  | -0.60              | 0.18               |                    |                |                |                | 0.21           | -0.12          | -0.59 | CO 2                    |       |       |       |      |
| Min V <sub>z</sub> | 0.07  | -0.00              | 0.06               |                    |                |                |                | -0.00          | -0.00          | -0.01 | CO 1                    |       |       |       |      |
| Max M <sub>T</sub> | 8.26  | -0.60              | 0.18               |                    |                |                |                | 0.21           | -0.12          | -0.59 | CO 2                    |       |       |       |      |
| Min M <sub>T</sub> | 0.07  | -0.00              | 0.06               |                    |                |                |                | -0.00          | -0.00          | -0.01 | CO 1                    |       |       |       |      |
| Max M <sub>y</sub> | 0.07  | -0.00              | 0.06               |                    |                |                |                | -0.00          | -0.00          | -0.01 | CO 1                    |       |       |       |      |
| Min M <sub>y</sub> | 8.26  | -0.60              | 0.18               |                    |                |                |                | 0.21           | -0.12          | -0.59 | CO 2                    |       |       |       |      |
| Max M <sub>z</sub> | 0.07  | -0.00              | 0.06               |                    |                |                |                | -0.00          | -0.00          | -0.01 | CO 1                    |       |       |       |      |
| Min M <sub>z</sub> | 8.26  | -0.60              | 0.18               |                    |                |                |                | 0.21           | -0.12          | -0.59 | CO 2                    |       |       |       |      |
| 16                 | 2.192 | Max N              | 8.41               |                    |                | -0.60          | 0.04           | 0.21           | 0.11           | 0.70  | CO 2                    |       |       |       |      |
|                    |       | Min N              | 0.22               |                    |                | -0.00          | -0.09          | -0.00          | -0.03          | -0.00 | CO 1                    |       |       |       |      |
|                    |       | Max V <sub>y</sub> | 0.22               |                    |                | -0.00          | -0.09          | -0.00          | -0.03          | -0.00 | CO 1                    |       |       |       |      |
|                    |       | Min V <sub>y</sub> | 8.41               |                    |                | -0.60          | 0.04           | 0.21           | 0.11           | 0.70  | CO 2                    |       |       |       |      |
|                    |       | Max V <sub>z</sub> | 8.41               |                    |                | -0.60          | 0.04           | 0.21           | 0.11           | 0.70  | CO 2                    |       |       |       |      |
|                    |       | Min V <sub>z</sub> | 0.22               |                    |                | -0.00          | -0.09          | -0.00          | -0.03          | -0.00 | CO 1                    |       |       |       |      |
|                    |       | Max M <sub>T</sub> | 8.41               |                    |                | -0.60          | 0.04           | 0.21           | 0.11           | 0.70  | CO 2                    |       |       |       |      |
|                    |       | Min M <sub>T</sub> | 0.22               |                    |                | -0.00          | -0.09          | -0.00          | -0.03          | -0.00 | CO 1                    |       |       |       |      |
|                    |       | Max M <sub>y</sub> | 8.41               |                    |                | -0.60          | 0.04           | 0.21           | 0.11           | 0.70  | CO 2                    |       |       |       |      |
|                    |       | Min M <sub>y</sub> | 0.22               |                    |                | -0.00          | -0.09          | -0.00          | -0.03          | -0.00 | CO 1                    |       |       |       |      |
|                    |       | Max M <sub>z</sub> | 8.41               |                    |                | -0.60          | 0.04           | 0.21           | 0.11           | 0.70  | CO 2                    |       |       |       |      |
|                    |       | Min M <sub>z</sub> | 0.22               |                    |                | -0.00          | -0.09          | -0.00          | -0.03          | -0.00 | CO 1                    |       |       |       |      |
| RC2                | 11    | 0.000              | Max N              |                    | 5.50           | -0.40          | 0.12           | 0.14           | -0.08          | -0.40 | CO 4                    |       |       |       |      |
|                    |       |                    | Min N              |                    | 0.05           | -0.00          | 0.05           | -0.00          | -0.00          | -0.01 | CO 3                    |       |       |       |      |
|                    |       |                    | Max V <sub>y</sub> |                    | 0.05           | -0.00          | 0.05           | -0.00          | -0.00          | -0.01 | CO 3                    |       |       |       |      |
|                    |       |                    | Min V <sub>y</sub> |                    | 5.50           | -0.40          | 0.12           | 0.14           | -0.08          | -0.40 | CO 4                    |       |       |       |      |
|                    |       |                    | Max V <sub>z</sub> |                    | 5.50           | -0.40          | 0.12           | 0.14           | -0.08          | -0.40 | CO 4                    |       |       |       |      |
|                    |       |                    | Min V <sub>z</sub> |                    | 0.05           | -0.00          | 0.05           | -0.00          | -0.00          | -0.01 | CO 3                    |       |       |       |      |
|                    |       |                    | Max M <sub>T</sub> |                    | 5.50           | -0.40          | 0.12           | 0.14           | -0.08          | -0.40 | CO 4                    |       |       |       |      |
|                    |       |                    | Min M <sub>T</sub> |                    | 0.05           | -0.00          | 0.05           | -0.00          | -0.00          | -0.01 | CO 3                    |       |       |       |      |
|                    |       |                    | Max M <sub>y</sub> |                    | 0.05           | -0.00          | 0.05           | -0.00          | -0.00          | -0.01 | CO 3                    |       |       |       |      |
|                    |       |                    | Min M <sub>y</sub> |                    | 5.50           | -0.40          | 0.12           | 0.14           | -0.08          | -0.40 | CO 4                    |       |       |       |      |
|                    |       |                    | Max M <sub>z</sub> |                    | 0.05           | -0.00          | 0.05           | -0.00          | -0.00          | -0.01 | CO 3                    |       |       |       |      |
|                    |       |                    | Min M <sub>z</sub> |                    | 5.50           | -0.40          | 0.12           | 0.14           | -0.08          | -0.40 | CO 4                    |       |       |       |      |
|                    | 16    | 2.192              | Max N              |                    | 5.61           | -0.40          | 0.02           | 0.14           | 0.07           | 0.47  | CO 4                    |       |       |       |      |
|                    |       |                    | Min N              |                    | 0.16           | -0.00          | -0.06          | -0.00          | -0.02          | -0.00 | CO 3                    |       |       |       |      |
|                    |       |                    | Max V <sub>y</sub> |                    | 0.16           | -0.00          | -0.06          | -0.00          | -0.02          | -0.00 | CO 3                    |       |       |       |      |
|                    |       |                    | Min V <sub>y</sub> |                    | 5.61           | -0.40          | 0.02           | 0.14           | 0.07           | 0.47  | CO 4                    |       |       |       |      |
|                    |       |                    | Max V <sub>z</sub> |                    | 5.61           | -0.40          | 0.02           | 0.14           | 0.07           | 0.47  | CO 4                    |       |       |       |      |
|                    |       |                    | Min V <sub>z</sub> |                    | 0.16           | -0.00          | -0.06          | -0.00          | -0.02          | -0.00 | CO 3                    |       |       |       |      |
|                    |       |                    | Max M <sub>T</sub> |                    | 5.61           | -0.40          | 0.02           | 0.14           | 0.07           | 0.47  | CO 4                    |       |       |       |      |
|                    |       |                    | Min M <sub>T</sub> |                    | 0.16           | -0.00          | -0.06          | -0.00          | -0.02          | -0.00 | CO 3                    |       |       |       |      |
|                    |       |                    | Max M <sub>y</sub> |                    | 5.61           | -0.40          | 0.02           | 0.14           | 0.07           | 0.47  | CO 4                    |       |       |       |      |
|                    |       |                    | Min M <sub>y</sub> |                    | 0.16           | -0.00          | -0.06          | -0.00          | -0.02          | -0.00 | CO 3                    |       |       |       |      |
|                    |       |                    | Max M <sub>z</sub> |                    | 5.61           | -0.40          | 0.02           | 0.14           | 0.07           | 0.47  | CO 4                    |       |       |       |      |
|                    |       |                    | Min M <sub>z</sub> |                    | 0.16           | -0.00          | -0.06          | -0.00          | -0.02          | -0.00 | CO 3                    |       |       |       |      |
| RC3                | 11    | 0.000              | Max N              |                    | 2.77           | -0.20          | 0.08           | 0.07           | -0.04          | -0.20 | CO 6                    |       |       |       |      |
|                    |       |                    | Min N              |                    | 0.05           | -0.00          | 0.05           | -0.00          | -0.00          | -0.01 | CO 5                    |       |       |       |      |
|                    |       |                    | Max V <sub>y</sub> |                    | 0.05           | -0.00          | 0.05           | -0.00          | -0.00          | -0.01 | CO 5                    |       |       |       |      |
|                    |       |                    | Min V <sub>y</sub> |                    | 2.77           | -0.20          | 0.08           | 0.07           | -0.04          | -0.20 | CO 6                    |       |       |       |      |
|                    |       |                    | Max V <sub>z</sub> |                    | 2.77           | -0.20          | 0.08           | 0.07           | -0.04          | -0.20 | CO 6                    |       |       |       |      |
|                    |       |                    | Min V <sub>z</sub> |                    | 0.05           | -0.00          | 0.05           | -0.00          | -0.00          | -0.01 | CO 5                    |       |       |       |      |
|                    |       |                    | Max M <sub>T</sub> |                    | 2.77           | -0.20          | 0.08           | 0.07           | -0.04          | -0.20 | CO 6                    |       |       |       |      |
|                    |       |                    | Min M <sub>T</sub> |                    | 0.05           | -0.00          | 0.05           | -0.00          | -0.00          | -0.01 | CO 5                    |       |       |       |      |
|                    |       |                    | Max M <sub>y</sub> |                    | 0.05           | -0.00          | 0.05           | -0.00          | -0.00          | -0.01 | CO 5                    |       |       |       |      |
|                    |       |                    | Min M <sub>y</sub> |                    | 2.77           | -0.20          | 0.08           | 0.07           | -0.04          | -0.20 | CO 6                    |       |       |       |      |
|                    |       |                    | Max M <sub>z</sub> |                    | 0.05           | -0.00          | 0.05           | -0.00          | -0.00          | -0.01 | CO 5                    |       |       |       |      |
|                    |       |                    | Min M <sub>z</sub> |                    | 2.77           | -0.20          | 0.08           | 0.07           | -0.04          | -0.20 | CO 6                    |       |       |       |      |
|                    | 16    | 2.192              | Max N              |                    | 2.88           | -0.20          | -0.02          | 0.07           | 0.02           | 0.23  | CO 6                    |       |       |       |      |
|                    |       |                    | Min N              |                    | 0.16           | -0.00          | -0.06          | -0.00          | -0.02          | -0.00 | CO 5                    |       |       |       |      |
|                    |       |                    | Max V <sub>y</sub> |                    | 0.16           | -0.00          | -0.06          | -0.00          | -0.02          | -0.00 | CO 5                    |       |       |       |      |
|                    |       |                    | Min V <sub>y</sub> |                    | 2.88           | -0.20          | -0.02          | 0.07           | 0.02           | 0.23  | CO 6                    |       |       |       |      |
|                    |       |                    | Max V <sub>z</sub> |                    | 2.88           | -0.20          | -0.02          | 0.07           | 0.02           | 0.23  | CO 6                    |       |       |       |      |
|                    |       |                    | Min V <sub>z</sub> |                    | 0.16           | -0.00          | -0.06          | -0.00          | -0.02          | -0.00 | CO 5                    |       |       |       |      |
|                    |       |                    | Max M <sub>T</sub> |                    | 2.88           | -0.20          | -0.02          | 0.07           | 0.02           | 0.23  | CO 6                    |       |       |       |      |
|                    |       |                    | Min M <sub>T</sub> |                    | 0.16           | -0.00          | -0.06          | -0.00          | -0.02          | -0.00 | CO 5                    |       |       |       |      |
|                    |       |                    | Max M <sub>y</sub> |                    | 2.88           | -0.20          | -0.02          | 0.07           | 0.02           | 0.23  | CO 6                    |       |       |       |      |
|                    |       |                    | Min M <sub>y</sub> |                    | 0.16           | -0.00          | -0.06          | -0.00          | -0.02          | -0.00 | CO 5                    |       |       |       |      |
|                    |       |                    | Max M <sub>z</sub> |                    | 2.88           | -0.20          | -0.02          | 0.07           | 0.02           | 0.23  | CO 6                    |       |       |       |      |
|                    |       |                    | Min M <sub>z</sub> |                    | 0.16           | -0.00          | -0.06          | -0.00          | -0.02          | -0.00 | CO 5                    |       |       |       |      |
| RC4                | 11    | 0.000              | Max N              |                    | 1.68           | -0.12          | 0.07           | 0.04           | -0.03          | -0.12 | CO 8                    |       |       |       |      |
|                    |       |                    | Min N              |                    | 0.05           | -0.00          | 0.05           | -0.00          | -0.00          | -0.01 | CO 7                    |       |       |       |      |
|                    |       |                    | Max V <sub>y</sub> |                    | 0.05           | -0.00          | 0.05           | -0.00          | -0.00          | -0.01 | CO 7                    |       |       |       |      |
|                    |       |                    | Min V <sub>y</sub> |                    | 1.68           | -0.12          | 0.07           | 0.04           | -0.03          | -0.12 | CO 8                    |       |       |       |      |
|                    |       |                    | Max V <sub>z</sub> |                    | 1.68           | -0.12          | 0.07           | 0.04           | -0.03          | -0.12 | CO 8                    |       |       |       |      |
|                    |       |                    | Min V <sub>z</sub> |                    | 0.05           | -0.00          | 0.05           | -0.00          | -0.00          | -0.01 | CO 7                    |       |       |       |      |
|                    |       |                    | Max M <sub>T</sub> | 1.68               | -0.12          | 0.07           | 0.04           | -0.03          | -0.12          | CO 8  |                         |       |       |       |      |
|                    |       |                    | Min M <sub>T</sub> | 0.05               | -0.00          | 0.05           | -0.00          | -0.00          | -0.01          | CO 7  |                         |       |       |       |      |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date:

2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m]     | Forces [kN]                                  |                |                |                |                | Moments [kNm]  |       |      | Correspondin Load Cases |
|------------|--|----------|--------------------|--|----------------|----------------|----------------|----------------|----------------|-------|------|-------------------------|
|            |  |          |                    | N  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |      |                         |
| 42         | RC4  | 16       | 2.192              | Min V <sub>z</sub>                           | 0.05           | -0.00          | 0.05           | -0.00          | -0.00          | -0.01 | CO 7 |                         |
|            |  |          |                    | Max M <sub>T</sub>                           | 1.68           | -0.12          | 0.07           | 0.04           | -0.03          | -0.12 | CO 8 |                         |
|            |  |          |                    | Min M <sub>T</sub>                           | 0.05           | -0.00          | 0.05           | -0.00          | -0.00          | -0.01 | CO 7 |                         |
|            |  |          |                    | Max M <sub>y</sub>                           | 0.05           | -0.00          | 0.05           | -0.00          | -0.00          | -0.01 | CO 7 |                         |
|            |  |          |                    | Min M <sub>y</sub>                           | 1.68           | -0.12          | 0.07           | 0.04           | -0.03          | -0.12 | CO 8 |                         |
|            |  |          |                    | Max M <sub>z</sub>                           | 0.05           | -0.00          | 0.05           | -0.00          | -0.00          | -0.01 | CO 7 |                         |
|            |  |          |                    | Min M <sub>z</sub>                           | 1.68           | -0.12          | 0.07           | 0.04           | -0.03          | -0.12 | CO 8 |                         |
|            |  |          |                    | Max N  | 1.79           | -0.12          | -0.04          | 0.04           | 0.00           | 0.14  | CO 8 |                         |
|            |  |          |                    | Min N  | 0.16           | -0.00          | -0.06          | -0.00          | -0.02          | -0.00 | CO 7 |                         |
|            |  |          |                    | Max V <sub>y</sub>                           | 0.16           | -0.00          | -0.06          | -0.00          | -0.02          | -0.00 | CO 7 |                         |
|            |  |          |                    | Min V <sub>y</sub>                           | 1.79           | -0.12          | -0.04          | 0.04           | 0.00           | 0.14  | CO 8 |                         |
|            |  |          |                    | Max V <sub>z</sub>                           | 1.79           | -0.12          | -0.04          | 0.04           | 0.00           | 0.14  | CO 8 |                         |
|            |  |          |                    | Min V <sub>z</sub>                           | 0.16           | -0.00          | -0.06          | -0.00          | -0.02          | -0.00 | CO 7 |                         |
|            |  |          |                    | Max M <sub>T</sub>                           | 1.79           | -0.12          | -0.04          | 0.04           | 0.00           | 0.14  | CO 8 |                         |
|            |  |          |                    | Min M <sub>T</sub>                           | 0.16           | -0.00          | -0.06          | -0.00          | -0.02          | -0.00 | CO 7 |                         |
|            |  |          |                    | Max M <sub>y</sub>                           | 1.79           | -0.12          | -0.04          | 0.04           | 0.00           | 0.14  | CO 8 |                         |
|            |  |          |                    | Min M <sub>y</sub>                           | 0.16           | -0.00          | -0.06          | -0.00          | -0.02          | -0.00 | CO 7 |                         |
|            |  |          |                    | Max M <sub>z</sub>                           | 1.79           | -0.12          | -0.04          | 0.04           | 0.00           | 0.14  | CO 8 |                         |
|            |  |          |                    | Min M <sub>z</sub>                           | 0.16           | -0.00          | -0.06          | -0.00          | -0.02          | -0.00 | CO 7 |                         |
|            |  |          |                    | DLC1, Result Envelope X 100% / Y 30% / Z 30% |                |                |                |                |                |       |      |                         |
|            | RC5  | 11       | 0.000              | Max N  | 1.36           | -0.07          | 0.02           | 0.02           | -0.02          | -0.07 |      |                         |
|            |  |          |                    | Min N  | -1.36          | 0.07           | -0.02          | -0.02          | 0.02           | 0.07  |      |                         |
|            |  |          |                    | Max V <sub>y</sub>                           | -1.02          | 0.07           | -0.01          | -0.02          | 0.02           | 0.07  |      |                         |
|            |  |          |                    | Min V <sub>y</sub>                           | 1.02           | -0.07          | 0.01           | 0.02           | -0.02          | -0.07 |      |                         |
|            |  |          |                    | Max V <sub>z</sub>                           | 1.30           | -0.06          | 0.02           | 0.02           | -0.02          | -0.06 |      |                         |
|            |  |          |                    | Min V <sub>z</sub>                           | -1.30          | 0.06           | -0.02          | -0.02          | 0.02           | 0.06  |      |                         |
|            |  |          |                    | Max M <sub>T</sub>                           | 1.17           | -0.07          | 0.01           | 0.02           | -0.01          | -0.07 |      |                         |
|            |  |          |                    | Min M <sub>T</sub>                           | -1.17          | 0.07           | -0.01          | -0.02          | 0.01           | 0.07  |      |                         |
|            |  |          |                    | Max M <sub>y</sub>                           | -1.13          | 0.06           | -0.02          | -0.02          | 0.02           | 0.06  |      |                         |
|            |  |          |                    | Min M <sub>y</sub>                           | 1.13           | -0.06          | 0.02           | 0.02           | -0.02          | -0.06 |      |                         |
|            |  |          |                    | Max M <sub>z</sub>                           | -1.01          | 0.07           | -0.01          | -0.02          | 0.02           | 0.07  |      |                         |
|            |  |          |                    | Min M <sub>z</sub>                           | 1.01           | -0.07          | 0.01           | 0.02           | -0.02          | -0.07 |      |                         |
|            |  | 16       | 2.192              | Max N  | 1.36           | -0.07          | 0.02           | 0.02           | 0.02           | 0.08  |      |                         |
|            |  |          |                    | Min N  | -1.36          | 0.07           | -0.02          | -0.02          | -0.02          | -0.08 |      |                         |
|            |  |          |                    | Max V <sub>y</sub>                           | -1.02          | 0.07           | -0.01          | -0.02          | -0.01          | -0.09 |      |                         |
|            |  |          |                    | Min V <sub>y</sub>                           | 1.02           | -0.07          | 0.01           | 0.02           | 0.01           | 0.09  |      |                         |
|            |  |          |                    | Max V <sub>z</sub>                           | 1.30           | -0.06          | 0.02           | 0.02           | 0.03           | 0.07  |      |                         |
|            |  |          |                    | Min V <sub>z</sub>                           | -1.30          | 0.06           | -0.02          | -0.02          | -0.03          | -0.07 |      |                         |
|            |  |          |                    | Max M <sub>T</sub>                           | 1.17           | -0.07          | 0.01           | 0.02           | 0.02           | 0.09  |      |                         |
|            |  |          |                    | Min M <sub>T</sub>                           | -1.17          | 0.07           | -0.01          | -0.02          | -0.02          | -0.09 |      |                         |
|            |  |          |                    | Max M <sub>y</sub>                           | 1.28           | -0.06          | 0.02           | 0.02           | 0.03           | 0.07  |      |                         |
|            |  |          |                    | Min M <sub>y</sub>                           | -1.28          | 0.06           | -0.02          | -0.02          | -0.03          | -0.07 |      |                         |
|            |  |          |                    | Max M <sub>z</sub>                           | 1.03           | -0.07          | 0.01           | 0.02           | 0.02           | 0.09  |      |                         |
|            |  |          |                    | Min M <sub>z</sub>                           | -1.03          | 0.07           | -0.01          | -0.02          | -0.02          | -0.09 |      |                         |
|            | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                    |  |                |                |                |                |                |       |      |                         |
|            | RC6  | 11       | 0.000              | Max N  | 1.46           | -0.05          | 0.02           | 0.02           | -0.01          | -0.05 |      |                         |
|            |  |          |                    | Min N  | -1.46          | 0.05           | -0.02          | -0.02          | 0.01           | 0.05  |      |                         |
|            |  |          |                    | Max V <sub>y</sub>                           | -0.57          | 0.06           | -0.01          | -0.02          | 0.01           | 0.06  |      |                         |
|            |  |          |                    | Min V <sub>y</sub>                           | 0.57           | -0.06          | 0.01           | 0.02           | -0.01          | -0.06 |      |                         |
|            |  |          |                    | Max V <sub>z</sub>                           | 1.40           | -0.04          | 0.02           | 0.01           | -0.01          | -0.04 |      |                         |
|            |  |          |                    | Min V <sub>z</sub>                           | -1.40          | 0.04           | -0.02          | -0.01          | 0.01           | 0.04  |      |                         |
|            |  |          |                    | Max M <sub>T</sub>                           | 1.14           | -0.05          | 0.01           | 0.02           | -0.01          | -0.05 |      |                         |
|            |  |          |                    | Min M <sub>T</sub>                           | -1.14          | 0.05           | -0.01          | -0.02          | 0.01           | 0.05  |      |                         |
|            |  |          |                    | Max M <sub>y</sub>                           | -0.87          | 0.05           | -0.01          | -0.01          | 0.02           | 0.05  |      |                         |
|            |  |          |                    | Min M <sub>y</sub>                           | 0.87           | -0.05          | 0.01           | 0.01           | -0.02          | -0.05 |      |                         |
|            |  |          |                    | Max M <sub>z</sub>                           | -0.54          | 0.06           | -0.01          | -0.02          | 0.01           | 0.06  |      |                         |
|            |  |          |                    | Min M <sub>z</sub>                           | 0.54           | -0.06          | 0.01           | 0.02           | -0.01          | -0.06 |      |                         |
|            |  | 16       | 2.192              | Max N  | 1.46           | -0.05          | 0.02           | 0.02           | 0.03           | 0.06  |      |                         |
|            |  |          |                    | Min N  | -1.46          | 0.05           | -0.02          | -0.02          | -0.03          | -0.06 |      |                         |
|            |  |          |                    | Max V <sub>y</sub>                           | -0.57          | 0.06           | -0.01          | -0.02          | -0.01          | -0.07 |      |                         |
|            |  |          |                    | Min V <sub>y</sub>                           | 0.57           | -0.06          | 0.01           | 0.02           | 0.01           | 0.07  |      |                         |
|            |  |          |                    | Max V <sub>z</sub>                           | 1.40           | -0.04          | 0.02           | 0.01           | 0.03           | 0.05  |      |                         |
|            |  |          |                    | Min V <sub>z</sub>                           | -1.40          | 0.04           | -0.02          | -0.01          | -0.03          | -0.05 |      |                         |
|            |  |          |                    | Max M <sub>T</sub>                           | 1.14           | -0.05          | 0.01           | 0.02           | 0.02           | 0.07  |      |                         |
|            |  |          |                    | Min M <sub>T</sub>                           | -1.14          | 0.05           | -0.01          | -0.02          | -0.02          | -0.07 |      |                         |
|            |  |          |                    | Max M <sub>y</sub>                           | 1.39           | -0.04          | 0.02           | 0.01           | 0.03           | 0.05  |      |                         |
|            |  |          |                    | Min M <sub>y</sub>                           | -1.39          | 0.04           | -0.02          | -0.01          | -0.03          | -0.05 |      |                         |
|            |  |          |                    | Max M <sub>z</sub>                           | 0.62           | -0.06          | 0.01           | 0.02           | 0.01           | 0.07  |      |                         |
|            |  |          |                    | Min M <sub>z</sub>                           | -0.62          | 0.06           | -0.01          | -0.02          | -0.01          | -0.07 |      |                         |
|            | DLC1, Result Envelope X 30% / Y 30% / Z 100% |          |                    |  |                |                |                |                |                |       |      |                         |
|            | RC7  | 11       | 0.000              | Max N  | 2.58           | -0.15          | 0.04           | 0.05           | -0.03          | -0.14 |      |                         |
|            |  |          |                    | Min N  | -2.58          | 0.15           | -0.04          | -0.05          | 0.03           | 0.14  |      |                         |
|            |  |          |                    | Max V <sub>y</sub>                           | -2.23          | 0.16           | -0.03          | -0.05          | 0.03           | 0.15  |      |                         |
|            |  |          |                    | Min V <sub>y</sub>                           | 2.23           | -0.16          | 0.03           | 0.05           | -0.03          | -0.15 |      |                         |
|            |  |          |                    | Max V <sub>z</sub>                           | 2.43           | -0.13          | 0.04           | 0.04           | -0.04          | -0.13 |      |                         |
|            |  |          |                    | Min V <sub>z</sub>                           | -2.43          | 0.13           | -0.04          | -0.04          | 0.04           | 0.13  |      |                         |
|            |  |          |                    | Max M <sub>T</sub>                           | 2.37           | -0.15          | 0.03           | 0.05           | -0.03          | -0.15 |      |                         |
|            |  |          |                    | Min M <sub>T</sub>                           | -2.37          | 0.15           | -0.03          | -0.05          | 0.03           | 0.15  |      |                         |
|            |  |          |                    | Max M <sub>y</sub>                           | -2.26          | 0.14           | -0.04          | -0.04          | 0.04           | 0.13  |      |                         |
|            |  |          |                    | Min M <sub>y</sub>                           | 2.26           | -0.14          | 0.04           | 0.04           | -0.04          | -0.13 |      |                         |
|            |  |          |                    | Max M <sub>z</sub>                           | -2.20          | 0.15           | -0.03          | -0.05          | 0.03           | 0.15  |      |                         |
|            |  |          |                    | Min M <sub>z</sub>                           | 2.20           | -0.15          | 0.03           | 0.05           | -0.03          | -0.15 |      |                         |
|            | 16   | 2.192    | Max N              | 2.58   | -0.15          | 0.04           | 0.05           | 0.05           | 0.18           |       |      |                         |
|            |  |          | Min N              | -2.58  | 0.15           | -0.04          | -0.05          | -0.05          | -0.18          |       |      |                         |
|            |  |          | Max V <sub>y</sub> | -2.23  | 0.16           | -0.03          | -0.05          | -0.03          | -0.19          |       |      |                         |
|            |  |          | Min V <sub>y</sub> | 2.23   | -0.16          | 0.03           | 0.05           | 0.03           | 0.19           |       |      |                         |
|            |  |          | Max V <sub>z</sub> | 2.43   | -0.13          | 0.04           | 0.04           | 0.05           | 0.16           |       |      |                         |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No.         | RC                 | Node No. | Location x [m] | Forces [kN]        |                |                |                |                | Moments [kNm]  |       |       | Correspondin Load Cases |
|--------------------|--------------------|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------|-------|-------------------------|
|                    |                    |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |       |                         |
| 42                 | RC7                |          |                | Min V <sub>z</sub> | -2.43          | 0.13           | ▷              | -0.04          | -0.04          | -0.05 | -0.16 |                         |
|                    |                    |          |                | Max M <sub>T</sub> | 2.37           | -0.15          | ▷              | 0.03           | 0.05           | 0.04  | 0.18  |                         |
|                    |                    |          |                | Min M <sub>T</sub> | -2.37          | 0.15           | ▷              | -0.03          | -0.05          | -0.04 | -0.18 |                         |
|                    |                    |          |                | Max M <sub>y</sub> | 2.40           | -0.13          | ▷              | 0.04           | 0.04           | 0.05  | 0.16  |                         |
|                    |                    |          |                | Min M <sub>y</sub> | -2.40          | 0.13           | ▷              | -0.04          | -0.04          | -0.05 | -0.16 |                         |
|                    |                    |          |                | Max M <sub>z</sub> | 2.25           | -0.15          | ▷              | 0.03           | 0.05           | 0.04  | 0.19  |                         |
| 43                 | RC1                | 16       | 0.000          | Min M <sub>z</sub> | -2.25          | 0.15           | ▷              | -0.03          | -0.05          | -0.04 | -0.19 |                         |
|                    |                    |          |                | Max N              | 0.08           | -0.39          | ▷              | 0.04           | -0.06          | 0.03  | -0.15 | CO 2                    |
|                    |                    |          |                | Min N              | -0.08          | -0.01          | ▷              | 0.07           | -0.00          | -0.02 | -0.01 | CO 1                    |
|                    |                    |          |                | Max V <sub>y</sub> | -0.08          | -0.01          | ▷              | 0.07           | -0.00          | -0.02 | -0.01 | CO 1                    |
|                    |                    |          |                | Min V <sub>y</sub> | 0.08           | -0.39          | ▷              | 0.04           | -0.06          | 0.03  | -0.15 | CO 2                    |
|                    |                    |          |                | Max V <sub>z</sub> | -0.08          | -0.01          | ▷              | 0.07           | -0.00          | -0.02 | -0.01 | CO 1                    |
|                    |                    |          |                | Min V <sub>z</sub> | 0.08           | -0.39          | ▷              | 0.04           | -0.06          | 0.03  | -0.15 | CO 2                    |
|                    |                    |          |                | Max M <sub>T</sub> | -0.08          | -0.01          | ▷              | 0.07           | -0.00          | -0.02 | -0.01 | CO 1                    |
|                    |                    |          |                | Min M <sub>T</sub> | 0.08           | -0.39          | ▷              | 0.04           | -0.06          | 0.03  | -0.15 | CO 2                    |
|                    |                    |          |                | Max M <sub>y</sub> | 0.08           | -0.39          | ▷              | 0.04           | -0.06          | 0.03  | -0.15 | CO 2                    |
|                    |                    |          |                | Min M <sub>y</sub> | -0.08          | -0.01          | ▷              | 0.07           | -0.00          | -0.02 | -0.01 | CO 1                    |
|                    |                    |          |                | Max M <sub>z</sub> | -0.08          | -0.01          | ▷              | 0.07           | -0.00          | -0.02 | -0.01 | CO 1                    |
|                    |                    |          |                | Min M <sub>z</sub> | 0.08           | -0.39          | ▷              | 0.04           | -0.06          | 0.03  | -0.15 | CO 2                    |
|                    |                    |          |                | Max N              | 0.22           | -0.39          | ▷              | -0.11          | -0.06          | -0.06 | 0.69  | CO 2                    |
|                    |                    |          |                | Min N              | 0.06           | -0.01          | ▷              | -0.07          | -0.00          | -0.02 | 0.01  | CO 1                    |
|                    |                    |          |                | Max V <sub>y</sub> | 0.06           | -0.01          | ▷              | -0.07          | -0.00          | -0.02 | 0.01  | CO 1                    |
|                    |                    |          |                | Min V <sub>y</sub> | 0.22           | -0.39          | ▷              | -0.11          | -0.06          | -0.06 | 0.69  | CO 2                    |
|                    |                    |          |                | Max V <sub>z</sub> | 0.06           | -0.01          | ▷              | -0.07          | -0.00          | -0.02 | 0.01  | CO 1                    |
|                    | Min V <sub>z</sub> | 0.22     | -0.39          | ▷                  | -0.11          | -0.06          | -0.06          | 0.69           | CO 2           |       |       |                         |
|                    | Max M <sub>T</sub> | 0.06     | -0.01          | ▷                  | -0.07          | -0.00          | -0.02          | 0.01           | CO 1           |       |       |                         |
|                    | Min M <sub>T</sub> | 0.22     | -0.39          | ▷                  | -0.11          | -0.06          | -0.06          | 0.69           | CO 2           |       |       |                         |
|                    | Max M <sub>y</sub> | 0.06     | -0.01          | ▷                  | -0.07          | -0.00          | -0.02          | 0.01           | CO 1           |       |       |                         |
|                    | Min M <sub>y</sub> | 0.22     | -0.39          | ▷                  | -0.11          | -0.06          | -0.06          | 0.69           | CO 2           |       |       |                         |
|                    | Max M <sub>z</sub> | 0.22     | -0.39          | ▷                  | -0.11          | -0.06          | -0.06          | 0.69           | CO 2           |       |       |                         |
|                    | Min M <sub>z</sub> | 0.06     | -0.01          | ▷                  | -0.07          | -0.00          | -0.02          | 0.01           | CO 1           |       |       |                         |
|                    | Max N              | 0.04     | -0.26          | ▷                  | 0.03           | -0.04          | 0.02           | -0.10          | CO 4           |       |       |                         |
|                    | Min N              | -0.06    | -0.01          | ▷                  | 0.05           | -0.00          | -0.02          | -0.01          | CO 3           |       |       |                         |
|                    | Max V <sub>y</sub> | -0.06    | -0.01          | ▷                  | 0.05           | -0.00          | -0.02          | -0.01          | CO 3           |       |       |                         |
|                    | Min V <sub>y</sub> | 0.04     | -0.26          | ▷                  | 0.03           | -0.04          | 0.02           | -0.10          | CO 4           |       |       |                         |
|                    | Max V <sub>z</sub> | -0.06    | -0.01          | ▷                  | 0.05           | -0.00          | -0.02          | -0.01          | CO 3           |       |       |                         |
|                    | Min V <sub>z</sub> | 0.04     | -0.26          | ▷                  | 0.03           | -0.04          | 0.02           | -0.10          | CO 4           |       |       |                         |
|                    | Max M <sub>T</sub> | -0.06    | -0.01          | ▷                  | 0.05           | -0.00          | -0.02          | -0.01          | CO 3           |       |       |                         |
|                    | Min M <sub>T</sub> | 0.04     | -0.26          | ▷                  | 0.03           | -0.04          | 0.02           | -0.10          | CO 4           |       |       |                         |
|                    | Max M <sub>y</sub> | 0.04     | -0.26          | ▷                  | 0.03           | -0.04          | 0.02           | -0.10          | CO 4           |       |       |                         |
|                    | Min M <sub>y</sub> | -0.06    | -0.01          | ▷                  | 0.05           | -0.00          | -0.02          | -0.01          | CO 3           |       |       |                         |
|                    | Max M <sub>z</sub> | -0.06    | -0.01          | ▷                  | 0.05           | -0.00          | -0.02          | -0.01          | CO 3           |       |       |                         |
|                    | Min M <sub>z</sub> | 0.04     | -0.26          | ▷                  | 0.03           | -0.04          | 0.02           | -0.10          | CO 4           |       |       |                         |
|                    | Max N              | 0.15     | -0.26          | ▷                  | -0.08          | -0.04          | -0.04          | 0.46           | CO 4           |       |       |                         |
|                    | Min N              | 0.04     | -0.01          | ▷                  | -0.05          | -0.00          | -0.02          | 0.01           | CO 3           |       |       |                         |
|                    | Max V <sub>y</sub> | 0.04     | -0.01          | ▷                  | -0.05          | -0.00          | -0.02          | 0.01           | CO 3           |       |       |                         |
|                    | Min V <sub>y</sub> | 0.15     | -0.26          | ▷                  | -0.08          | -0.04          | -0.04          | 0.46           | CO 4           |       |       |                         |
|                    | Max V <sub>z</sub> | 0.04     | -0.01          | ▷                  | -0.05          | -0.00          | -0.02          | 0.01           | CO 3           |       |       |                         |
|                    | Min V <sub>z</sub> | 0.15     | -0.26          | ▷                  | -0.08          | -0.04          | -0.04          | 0.46           | CO 4           |       |       |                         |
|                    | Max M <sub>T</sub> | 0.04     | -0.01          | ▷                  | -0.05          | -0.00          | -0.02          | 0.01           | CO 3           |       |       |                         |
|                    | Min M <sub>T</sub> | 0.15     | -0.26          | ▷                  | -0.08          | -0.04          | -0.04          | 0.46           | CO 4           |       |       |                         |
|                    | Max M <sub>y</sub> | 0.04     | -0.01          | ▷                  | -0.05          | -0.00          | -0.02          | 0.01           | CO 3           |       |       |                         |
|                    | Min M <sub>y</sub> | 0.15     | -0.26          | ▷                  | -0.08          | -0.04          | -0.04          | 0.46           | CO 4           |       |       |                         |
|                    | Max M <sub>z</sub> | 0.15     | -0.26          | ▷                  | -0.08          | -0.04          | -0.04          | 0.46           | CO 4           |       |       |                         |
| Min M <sub>z</sub> | 0.04               | -0.01    | ▷              | -0.05              | -0.00          | -0.02          | 0.01           | CO 3           |                |       |       |                         |
| Max N              | -0.01              | -0.14    | ▷              | 0.04               | -0.02          | -0.00          | -0.06          | CO 6           |                |       |       |                         |
| Min N              | -0.06              | -0.01    | ▷              | 0.05               | -0.00          | -0.02          | -0.01          | CO 5           |                |       |       |                         |
| Max V <sub>y</sub> | -0.06              | -0.01    | ▷              | 0.05               | -0.00          | -0.02          | -0.01          | CO 5           |                |       |       |                         |
| Min V <sub>y</sub> | -0.01              | -0.14    | ▷              | 0.04               | -0.02          | -0.00          | -0.06          | CO 6           |                |       |       |                         |
| Max V <sub>z</sub> | -0.06              | -0.01    | ▷              | 0.05               | -0.00          | -0.02          | -0.01          | CO 5           |                |       |       |                         |
| Min V <sub>z</sub> | -0.01              | -0.14    | ▷              | 0.04               | -0.02          | -0.00          | -0.06          | CO 6           |                |       |       |                         |
| Max M <sub>T</sub> | -0.06              | -0.01    | ▷              | 0.05               | -0.00          | -0.02          | -0.01          | CO 5           |                |       |       |                         |
| Min M <sub>T</sub> | -0.01              | -0.14    | ▷              | 0.04               | -0.02          | -0.00          | -0.06          | CO 6           |                |       |       |                         |
| Max M <sub>y</sub> | -0.01              | -0.14    | ▷              | 0.04               | -0.02          | -0.00          | -0.06          | CO 6           |                |       |       |                         |
| Min M <sub>y</sub> | -0.06              | -0.01    | ▷              | 0.05               | -0.00          | -0.02          | -0.01          | CO 5           |                |       |       |                         |
| Max M <sub>z</sub> | -0.06              | -0.01    | ▷              | 0.05               | -0.00          | -0.02          | -0.01          | CO 5           |                |       |       |                         |
| Min M <sub>z</sub> | -0.01              | -0.14    | ▷              | 0.04               | -0.02          | -0.00          | -0.06          | CO 6           |                |       |       |                         |
| Max N              | 0.10               | -0.13    | ▷              | -0.07              | -0.02          | -0.03          | 0.24           | CO 6           |                |       |       |                         |
| Min N              | 0.04               | -0.01    | ▷              | -0.05              | -0.00          | -0.02          | 0.01           | CO 5           |                |       |       |                         |
| Max V <sub>y</sub> | 0.04               | -0.01    | ▷              | -0.05              | -0.00          | -0.02          | 0.01           | CO 5           |                |       |       |                         |
| Min V <sub>y</sub> | 0.10               | -0.13    | ▷              | -0.07              | -0.02          | -0.03          | 0.24           | CO 6           |                |       |       |                         |
| Max V <sub>z</sub> | 0.04               | -0.01    | ▷              | -0.05              | -0.00          | -0.02          | 0.01           | CO 5           |                |       |       |                         |
| Min V <sub>z</sub> | 0.10               | -0.13    | ▷              | -0.07              | -0.02          | -0.03          | 0.24           | CO 6           |                |       |       |                         |
| Max M <sub>T</sub> | 0.04               | -0.01    | ▷              | -0.05              | -0.00          | -0.02          | 0.01           | CO 5           |                |       |       |                         |
| Min M <sub>T</sub> | 0.10               | -0.13    | ▷              | -0.07              | -0.02          | -0.03          | 0.24           | CO 6           |                |       |       |                         |
| Max M <sub>y</sub> | 0.04               | -0.01    | ▷              | -0.05              | -0.00          | -0.02          | 0.01           | CO 5           |                |       |       |                         |
| Min M <sub>y</sub> | 0.10               | -0.13    | ▷              | -0.07              | -0.02          | -0.03          | 0.24           | CO 6           |                |       |       |                         |
| Max M <sub>z</sub> | 0.10               | -0.13    | ▷              | -0.07              | -0.02          | -0.03          | 0.24           | CO 6           |                |       |       |                         |
| Min M <sub>z</sub> | 0.04               | -0.01    | ▷              | -0.05              | -0.00          | -0.02          | 0.01           | CO 5           |                |       |       |                         |
| Max N              | -0.03              | -0.08    | ▷              | 0.05               | -0.01          | -0.01          | -0.04          | CO 8           |                |       |       |                         |
| Min N              | -0.06              | -0.01    | ▷              | 0.05               | -0.00          | -0.02          | -0.01          | CO 7           |                |       |       |                         |
| Max V <sub>y</sub> | -0.06              | -0.01    | ▷              | 0.05               | -0.00          | -0.02          | -0.01          | CO 7           |                |       |       |                         |
| Min V <sub>y</sub> | -0.03              | -0.08    | ▷              | 0.05               | -0.01          | -0.01          | -0.04          | CO 8           |                |       |       |                         |
| Max V <sub>z</sub> | -0.06              | -0.01    | ▷              | 0.05               | -0.00          | -0.02          | -0.01          | CO 7           |                |       |       |                         |
| Min V <sub>z</sub> | -0.03              | -0.08    | ▷              | 0.05               | -0.01          | -0.01          | -0.04          | CO 8           |                |       |       |                         |
| Max M <sub>T</sub> | -0.06              | -0.01    | ▷              | 0.05               | -0.00          | -0.02          | -0.01          | CO 7           |                |       |       |                         |
| Min M <sub>T</sub> | -0.03              | -0.08    | ▷              | 0.05               | -0.01          | -0.01          | -0.04          | CO 8           |                |       |       |                         |

# RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC   | Node No. | Location x [m] | Forces [kN]                                  |                |                | Moments [kNm]      |                |                | Correspondin |            |       |       |       |  |
|------------|--|----------|----------------|--|----------------|----------------|--------------------|----------------|----------------|--------------|------------|-------|-------|-------|--|
|            |  |          |                | N  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub>     | M <sub>y</sub> | M <sub>z</sub> |              | Load Cases |       |       |       |  |
| 43         | RC4  | 19       | 2.157          | Max M <sub>y</sub>                           | -0.03          | -0.08          | 0.05               | -0.01          | ▽              | -0.01        | -0.04      | CO 8  |       |       |  |
|            |  |          |                | Min M <sub>y</sub>                           | -0.06          | -0.01          | 0.05               | -0.00          | ▽              | -0.02        | -0.01      | CO 7  |       |       |  |
|            |  |          |                | Max M <sub>z</sub>                           | -0.06          | -0.01          | 0.05               | -0.00          | ▽              | -0.02        | ▽          | -0.01 | CO 7  |       |  |
|            |  |          |                | Min M <sub>z</sub>                           | -0.03          | -0.08          | 0.05               | -0.01          | ▽              | -0.01        | ▽          | -0.04 | CO 8  |       |  |
|            |  |          |                | Max N  | 0.08           | -0.08          | -0.06              | -0.01          | ▽              | -0.02        | ▽          | 0.14  | CO 8  |       |  |
|            |  |          |                | Min N  | 0.04           | -0.01          | -0.05              | -0.00          | ▽              | -0.02        | ▽          | 0.01  | CO 7  |       |  |
|            |  |          |                | Max V <sub>y</sub>                           | 0.04           | -0.01          | -0.05              | -0.00          | ▽              | -0.02        | ▽          | 0.01  | CO 7  |       |  |
|            |  |          |                | Min V <sub>y</sub>                           | 0.08           | -0.08          | -0.06              | -0.01          | ▽              | -0.02        | ▽          | 0.14  | CO 8  |       |  |
|            |  |          |                | Max V <sub>z</sub>                           | 0.04           | -0.01          | ▽                  | -0.05          | -0.00          | -0.02        | ▽          | 0.01  | CO 7  |       |  |
|            |  |          |                | Min V <sub>z</sub>                           | 0.08           | -0.08          | ▽                  | -0.06          | -0.01          | -0.02        | ▽          | 0.14  | CO 8  |       |  |
|            |  |          |                | Max M <sub>T</sub>                           | 0.04           | -0.01          | -0.05              | ▽              | -0.00          | -0.02        | ▽          | 0.01  | CO 7  |       |  |
|            |  |          |                | Min M <sub>T</sub>                           | 0.08           | -0.08          | -0.06              | ▽              | -0.01          | -0.02        | ▽          | 0.14  | CO 8  |       |  |
|            |  |          |                | Max M <sub>y</sub>                           | 0.04           | -0.01          | -0.05              | ▽              | -0.00          | -0.02        | ▽          | 0.01  | CO 7  |       |  |
|            |  |          |                | Min M <sub>y</sub>                           | 0.08           | -0.08          | -0.06              | ▽              | -0.01          | -0.02        | ▽          | 0.14  | CO 8  |       |  |
|            |  |          |                | Max M <sub>z</sub>                           | 0.08           | -0.08          | -0.06              | ▽              | -0.01          | -0.02        | ▽          | 0.14  | CO 8  |       |  |
|            |  |          |                | Min M <sub>z</sub>                           | 0.04           | -0.01          | -0.05              | -0.00          | ▽              | -0.02        | ▽          | 0.01  | CO 7  |       |  |
|            |  |          |                | DLC1, Result Envelope X 100% / Y 30% / Z 30% |                |                |                    |                |                |              |            |       |       |       |  |
|            |  |          |                | RC5  | 16             | 0.000          | Max N              | ▽              | 0.52           | 0.01         | -0.01      | 0.00  | 0.01  | 0.01  |  |
|            |  |          |                |  |                |                | Min N              | ▽              | -0.52          | -0.01        | 0.01       | -0.00 | -0.01 | -0.01 |  |
|            |  |          |                |  |                |                | Max V <sub>y</sub> | ▽              | 0.15           | 0.04         | 0.00       | 0.01  | -0.00 | 0.01  |  |
|            | Min V <sub>y</sub>                           | ▽        | -0.15          |  |                |                | -0.04              | -0.00          | -0.01          | 0.00         | -0.01      |       |       |       |  |
|            | Max V <sub>z</sub>                           | ▽        | -0.36          |  |                |                | 0.02               | 0.01           | 0.00           | -0.02        | 0.00       |       |       |       |  |
|            | Min V <sub>z</sub>                           | ▽        | 0.36           |  |                |                | -0.02              | -0.01          | -0.00          | 0.02         | -0.00      |       |       |       |  |
|            | Max M <sub>T</sub>                           | ▽        | 0.09           |  |                |                | 0.04               | 0.00           | 0.01           | -0.01        | 0.01       |       |       |       |  |
|            | Min M <sub>T</sub>                           | ▽        | -0.09          |  |                |                | -0.04              | -0.00          | -0.01          | 0.01         | -0.01      |       |       |       |  |
|            | Max M <sub>y</sub>                           | ▽        | 0.37           |  |                |                | -0.02              | -0.01          | -0.00          | 0.02         | -0.00      |       |       |       |  |
|            | Min M <sub>y</sub>                           | ▽        | -0.37          |  |                |                | 0.02               | 0.01           | 0.00           | -0.02        | 0.00       |       |       |       |  |
|            | Max M <sub>z</sub>                           | ▽        | 0.32           |  |                |                | 0.03               | -0.00          | 0.00           | 0.00         | 0.01       |       |       |       |  |
|            | Min M <sub>z</sub>                           | ▽        | -0.32          |  |                |                | -0.03              | 0.00           | -0.00          | -0.00        | ▽          | -0.01 |       |       |  |
|            | Max N  | ▽        | 0.52           |  |                |                | 0.01               | -0.01          | 0.00           | -0.01        | -0.01      |       |       |       |  |
|            | Min N  | ▽        | -0.52          |  |                |                | -0.01              | 0.01           | -0.00          | 0.01         | 0.01       |       |       |       |  |
|            | Max V <sub>y</sub>                           | ▽        | 0.15           |  |                |                | 0.04               | 0.00           | 0.01           | 0.00         | -0.08      |       |       |       |  |
|            | Min V <sub>y</sub>                           | ▽        | -0.15          |  |                |                | -0.04              | -0.00          | -0.01          | -0.00        | 0.08       |       |       |       |  |
|            | Max V <sub>z</sub>                           | ▽        | -0.36          |  |                |                | 0.02               | 0.01           | 0.00           | 0.01         | -0.04      |       |       |       |  |
|            | Min V <sub>z</sub>                           | ▽        | 0.36           |  |                |                | -0.02              | -0.01          | -0.00          | -0.01        | 0.04       |       |       |       |  |
|            | Max M <sub>T</sub>                           | ▽        | 0.09           |  |                |                | 0.04               | 0.00           | 0.01           | 0.00         | -0.08      |       |       |       |  |
|            | Min M <sub>T</sub>                           | ▽        | -0.09          |  |                |                | -0.04              | -0.00          | -0.01          | -0.00        | 0.08       |       |       |       |  |
|            | Max M <sub>y</sub>                           | ▽        | -0.33          | 0.02   | 0.01           | 0.00           | 0.01               | -0.05          |                |              |            |       |       |       |  |
|            | Min M <sub>y</sub>                           | ▽        | 0.33           | -0.02  | -0.01          | -0.00          | -0.01              | 0.05           |                |              |            |       |       |       |  |
|            | Max M <sub>z</sub>                           | ▽        | -0.11          | -0.04  | -0.00          | -0.01          | -0.00              | 0.08           |                |              |            |       |       |       |  |
|            | Min M <sub>z</sub>                           | ▽        | 0.11           | 0.04   | 0.00           | 0.01           | 0.00               | ▽              | -0.08          |              |            |       |       |       |  |
|            | DLC1, Result Envelope X 30% / Y 100% / Z 30% |          |                |  |                |                |                    |                |                |              |            |       |       |       |  |
|            | RC6  | 16       | 0.000          | Max N  | ▽              | 0.85           | 0.01               | -0.02          | 0.00           | 0.02         | 0.01       |       |       |       |  |
|            |  |          |                | Min N  | ▽              | -0.85          | -0.01              | 0.02           | -0.00          | -0.02        | -0.01      |       |       |       |  |
|            |  |          |                | Max V <sub>y</sub>                           | ▽              | 0.33           | 0.03               | -0.00          | 0.00           | 0.00         | 0.01       |       |       |       |  |
|            |  |          |                | Min V <sub>y</sub>                           | ▽              | -0.33          | -0.03              | 0.00           | -0.00          | -0.00        | -0.01      |       |       |       |  |
|            |  |          |                | Max V <sub>z</sub>                           | ▽              | -0.72          | 0.02               | 0.02           | 0.00           | -0.03        | -0.00      |       |       |       |  |
|            |  |          |                | Min V <sub>z</sub>                           | ▽              | 0.72           | -0.02              | -0.02          | -0.00          | 0.03         | 0.00       |       |       |       |  |
|            |  |          |                | Max M <sub>T</sub>                           | ▽              | 0.16           | 0.03               | 0.00           | 0.00           | -0.00        | 0.01       |       |       |       |  |
|            |  |          |                | Min M <sub>T</sub>                           | ▽              | -0.16          | -0.03              | -0.00          | -0.00          | 0.00         | -0.01      |       |       |       |  |
|            |  |          |                | Max M <sub>y</sub>                           | ▽              | 0.73           | -0.01              | -0.02          | -0.00          | 0.03         | 0.00       |       |       |       |  |
|            |  |          |                | Min M <sub>y</sub>                           | ▽              | -0.73          | 0.01               | 0.02           | 0.00           | -0.03        | -0.00      |       |       |       |  |
|            |  |          |                | Max M <sub>z</sub>                           | ▽              | 0.53           | 0.02               | -0.00          | 0.00           | 0.01         | 0.01       |       |       |       |  |
|            |  |          |                | Min M <sub>z</sub>                           | ▽              | -0.53          | -0.02              | 0.00           | -0.00          | -0.01        | ▽          | -0.01 |       |       |  |
|            |  |          |                | Max N  | ▽              | 0.85           | 0.01               | -0.02          | 0.00           | -0.01        | -0.01      |       |       |       |  |
|            |  |          |                | Min N  | ▽              | -0.85          | -0.01              | 0.02           | -0.00          | 0.01         | 0.01       |       |       |       |  |
|            |  |          |                | Max V <sub>y</sub>                           | ▽              | 0.33           | 0.03               | -0.00          | 0.00           | 0.00         | -0.06      |       |       |       |  |
|            |  |          |                | Min V <sub>y</sub>                           | ▽              | -0.33          | -0.03              | 0.00           | -0.00          | -0.00        | 0.06       |       |       |       |  |
|            |  |          |                | Max V <sub>z</sub>                           | ▽              | -0.72          | 0.02               | 0.02           | 0.00           | 0.01         | -0.03      |       |       |       |  |
|            |  |          |                | Min V <sub>z</sub>                           | ▽              | 0.72           | -0.02              | -0.02          | -0.00          | -0.01        | 0.03       |       |       |       |  |
|            |  |          |                | Max M <sub>T</sub>                           | ▽              | 0.16           | 0.03               | 0.00           | 0.00           | 0.00         | -0.06      |       |       |       |  |
|            |  |          |                | Min M <sub>T</sub>                           | ▽              | -0.16          | -0.03              | -0.00          | -0.00          | -0.00        | 0.06       |       |       |       |  |
|            | Max M <sub>y</sub>                           | ▽        | -0.70          | 0.02   | 0.02           | 0.00           | 0.01               | -0.04          |                |              |            |       |       |       |  |
|            | Min M <sub>y</sub>                           | ▽        | 0.70           | -0.02  | -0.02          | -0.00          | -0.01              | 0.04           |                |              |            |       |       |       |  |
|            | Max M <sub>z</sub>                           | ▽        | -0.26          | -0.03  | -0.00          | -0.00          | -0.00              | 0.06           |                |              |            |       |       |       |  |
|            | Min M <sub>z</sub>                           | ▽        | 0.26           | 0.03   | 0.00           | 0.00           | 0.00               | ▽              | -0.06          |              |            |       |       |       |  |
|            | DLC1, Result Envelope X 30% / Y 30% / Z 100% |          |                |  |                |                |                    |                |                |              |            |       |       |       |  |
|            | RC7  | 16       | 0.000          | Max N  | ▽              | 0.95           | 0.01               | -0.01          | 0.00           | 0.02         | 0.02       |       |       |       |  |
|            |  |          |                | Min N  | ▽              | -0.95          | -0.01              | 0.01           | -0.00          | -0.02        | -0.02      |       |       |       |  |
|            |  |          |                | Max V <sub>y</sub>                           | ▽              | 0.19           | 0.08               | 0.01           | 0.01           | -0.01        | 0.02       |       |       |       |  |
|            |  |          |                | Min V <sub>y</sub>                           | ▽              | -0.19          | -0.08              | -0.01          | -0.01          | 0.01         | -0.02      |       |       |       |  |
|            |  |          |                | Max V <sub>z</sub>                           | ▽              | -0.66          | 0.05               | 0.02           | 0.01           | -0.03        | -0.00      |       |       |       |  |
|            |  |          |                | Min V <sub>z</sub>                           | ▽              | 0.66           | -0.05              | -0.02          | -0.01          | 0.03         | 0.00       |       |       |       |  |
|            |  |          |                | Max M <sub>T</sub>                           | ▽              | 0.11           | 0.08               | 0.01           | 0.01           | -0.01        | 0.02       |       |       |       |  |
|            |  |          |                | Min M <sub>T</sub>                           | ▽              | -0.11          | -0.08              | -0.01          | -0.01          | 0.01         | -0.02      |       |       |       |  |
|            |  |          |                | Max M <sub>y</sub>                           | ▽              | 0.69           | -0.04              | -0.02          | -0.01          | 0.03         | 0.00       |       |       |       |  |
|            |  |          |                | Min M <sub>y</sub>                           | ▽              | -0.69          | 0.04               | 0.02           | 0.01           | -0.03        | -0.00      |       |       |       |  |
|            |  |          |                | Max M <sub>z</sub>                           | ▽              | 0.61           | 0.06               | -0.00          | 0.01           | 0.00         | 0.02       |       |       |       |  |
|            |  |          |                | Min M <sub>z</sub>                           | ▽              | -0.61          | -0.06              | 0.00           | -0.01          | -0.00        | ▽          | -0.02 |       |       |  |
|            |  |          |                | Max N  | ▽              | 0.95           | 0.01               | -0.01          | 0.00           | -0.01        | -0.01      |       |       |       |  |
|            |  |          |                | Min N  | ▽              | -0.95          | -0.01              | 0.01           | -0.00          | 0.01         | 0.01       |       |       |       |  |
|            |  |          |                | Max V <sub>y</sub>                           | ▽              | 0.19           | 0.08               | 0.01           | 0.01           | 0.01         | -0.16      |       |       |       |  |
|            |  |          |                | Min V <sub>y</sub>                           | ▽              | -0.19          | -0.08              | -0.01          | -0.01          | -0.01        | 0.16       |       |       |       |  |
|            |  |          |                | Max V <sub>z</sub>                           | ▽              | -0.66          | 0.05               | 0.02           | 0.01           | 0.01         | -0.10      |       |       |       |  |
|            |  |          |                | Min V <sub>z</sub>                           | ▽              | 0.66           | -0.05              | -0.02          | -0.01          | -0.01        | 0.10       |       |       |       |  |
|            |  |          |                | Max M <sub>T</sub>                           | ▽              | 0.11           | 0.08               | 0.01           | 0.01           | 0.01         | -0.16      |       |       |       |  |
|            |  |          |                | Min M <sub>T</sub>                           | ▽              | -0.11          | -0.08              | -0.01          | -0.01          | -0.01        | 0.16       |       |       |       |  |

## RESULTS

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m]     | Forces [kN]        |                    |                |                | Moments [kNm]  |                |       | Correspondin Load Cases |      |
|------------|-----|----------|--------------------|--------------------|--------------------|----------------|----------------|----------------|----------------|-------|-------------------------|------|
|            |     |          |                    | N                  | V <sub>y</sub>     | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |       |                         |      |
| 43         | RC7 |          |                    | Max M <sub>y</sub> | -0.61              | 0.05           | 0.02           | 0.01           | 0.02           | -0.11 |                         |      |
|            |     |          |                    | Min M <sub>y</sub> | 0.61               | -0.05          | -0.02          | -0.01          | -0.02          | 0.11  |                         |      |
|            |     |          |                    | Max M <sub>z</sub> | -0.11              | -0.08          | -0.01          | -0.01          | -0.01          | 0.16  |                         |      |
|            |     |          |                    | Min M <sub>z</sub> | 0.11               | 0.08           | 0.01           | 0.01           | 0.01           | -0.16 |                         |      |
| 44         | RC1 | 19       | 0.000              | Max N              | -0.06              | 0.00           | 0.08           | -0.00          | -0.02          | 0.00  | CO 1                    |      |
|            |     |          |                    | Min N              | -1.63              | 0.36           | 0.09           | 0.03           | -0.04          | 0.37  | CO 2                    |      |
|            |     |          |                    | Max V <sub>y</sub> | -1.63              | 0.36           | 0.09           | 0.03           | -0.04          | 0.37  | CO 2                    |      |
|            |     |          |                    | Min V <sub>y</sub> | -0.06              | 0.00           | 0.08           | -0.00          | -0.02          | 0.00  | CO 1                    |      |
|            |     |          |                    | Max V <sub>z</sub> | -1.63              | 0.36           | 0.09           | 0.03           | -0.04          | 0.37  | CO 2                    |      |
|            |     |          |                    | Min V <sub>z</sub> | -0.06              | 0.00           | 0.08           | -0.00          | -0.02          | 0.00  | CO 1                    |      |
|            |     |          |                    | Max M <sub>T</sub> | -1.63              | 0.36           | 0.09           | 0.03           | -0.04          | 0.37  | CO 2                    |      |
|            |     |          |                    | Min M <sub>T</sub> | -0.06              | 0.00           | 0.08           | -0.00          | -0.02          | 0.00  | CO 1                    |      |
|            |     |          |                    | Max M <sub>y</sub> | -0.06              | 0.00           | 0.08           | -0.00          | -0.02          | 0.00  | CO 1                    |      |
|            |     |          |                    | Min M <sub>y</sub> | -1.63              | 0.36           | 0.09           | 0.03           | -0.04          | 0.37  | CO 2                    |      |
|            |     |          |                    | Max M <sub>z</sub> | -1.63              | 0.36           | 0.09           | 0.03           | -0.04          | 0.37  | CO 2                    |      |
|            |     |          |                    | Min M <sub>z</sub> | -0.06              | 0.00           | 0.08           | -0.00          | -0.02          | 0.00  | CO 1                    |      |
|            |     | 8        | 2.089              | Max N              | 0.07               | 0.00           | -0.07          | -0.00          | -0.02          | -0.00 | CO 1                    |      |
|            |     |          |                    | Min N              | -1.50              | 0.36           | -0.06          | 0.03           | -0.01          | -0.38 | CO 2                    |      |
|            |     |          |                    | Max V <sub>y</sub> | -1.50              | 0.36           | -0.06          | 0.03           | -0.01          | -0.38 | CO 2                    |      |
|            |     |          |                    | Min V <sub>y</sub> | 0.07               | 0.00           | -0.07          | -0.00          | -0.02          | -0.00 | CO 1                    |      |
|            |     |          |                    | Max V <sub>z</sub> | -1.50              | 0.36           | -0.06          | 0.03           | -0.01          | -0.38 | CO 2                    |      |
|            |     |          |                    | Min V <sub>z</sub> | 0.07               | 0.00           | -0.07          | -0.00          | -0.02          | -0.00 | CO 1                    |      |
|            |     |          |                    | Max M <sub>T</sub> | -1.50              | 0.36           | -0.06          | 0.03           | -0.01          | -0.38 | CO 2                    |      |
|            |     |          |                    | Min M <sub>T</sub> | 0.07               | 0.00           | -0.07          | -0.00          | -0.02          | -0.00 | CO 1                    |      |
|            |     |          |                    | Max M <sub>y</sub> | -1.50              | 0.36           | -0.06          | 0.03           | -0.01          | -0.38 | CO 2                    |      |
|            |     |          |                    | Min M <sub>y</sub> | 0.07               | 0.00           | -0.07          | -0.00          | -0.02          | -0.00 | CO 1                    |      |
|            |     |          |                    | Max M <sub>z</sub> | 0.07               | 0.00           | -0.07          | -0.00          | -0.02          | -0.00 | CO 1                    |      |
|            |     |          |                    | Min M <sub>z</sub> | -1.50              | 0.36           | -0.06          | 0.03           | -0.01          | -0.38 | CO 2                    |      |
|            | RC2 | 19       | 0.000              | Max N              | -0.05              | 0.00           | 0.06           | -0.00          | -0.02          | 0.00  | CO 3                    |      |
|            |     |          |                    | Min N              | -1.09              | 0.24           | 0.06           | 0.02           | -0.03          | 0.24  | CO 4                    |      |
|            |     |          |                    | Max V <sub>y</sub> | -1.09              | 0.24           | 0.06           | 0.02           | -0.03          | 0.24  | CO 4                    |      |
|            |     |          |                    | Min V <sub>y</sub> | -0.05              | 0.00           | 0.06           | -0.00          | -0.02          | 0.00  | CO 3                    |      |
|            |     |          |                    | Max V <sub>z</sub> | -1.09              | 0.24           | 0.06           | 0.02           | -0.03          | 0.24  | CO 4                    |      |
|            |     |          |                    | Min V <sub>z</sub> | -0.05              | 0.00           | 0.06           | -0.00          | -0.02          | 0.00  | CO 3                    |      |
|            |     |          |                    | Max M <sub>T</sub> | -1.09              | 0.24           | 0.06           | 0.02           | -0.03          | 0.24  | CO 4                    |      |
|            |     |          |                    | Min M <sub>T</sub> | -0.05              | 0.00           | 0.06           | -0.00          | -0.02          | 0.00  | CO 3                    |      |
|            |     |          |                    | Max M <sub>y</sub> | -0.05              | 0.00           | 0.06           | -0.00          | -0.02          | 0.00  | CO 3                    |      |
|            |     |          |                    | Min M <sub>y</sub> | -1.09              | 0.24           | 0.06           | 0.02           | -0.03          | 0.24  | CO 4                    |      |
|            |     |          |                    | Max M <sub>z</sub> | -1.09              | 0.24           | 0.06           | 0.02           | -0.03          | 0.24  | CO 4                    |      |
|            |     |          |                    | Min M <sub>z</sub> | -0.05              | 0.00           | 0.06           | -0.00          | -0.02          | 0.00  | CO 3                    |      |
|            |     |          | 8                  | 2.089              | Max N              | 0.05           | 0.00           | -0.05          | -0.00          | -0.02 | -0.00                   | CO 3 |
|            |     |          |                    |                    | Min N              | -1.00          | 0.24           | -0.04          | 0.02           | -0.01 | -0.26                   | CO 4 |
|            |     |          |                    |                    | Max V <sub>y</sub> | -1.00          | 0.24           | -0.04          | 0.02           | -0.01 | -0.26                   | CO 4 |
|            |     |          |                    |                    | Min V <sub>y</sub> | 0.05           | 0.00           | -0.05          | -0.00          | -0.02 | -0.00                   | CO 3 |
|            |     |          |                    |                    | Max V <sub>z</sub> | -1.00          | 0.24           | -0.04          | 0.02           | -0.01 | -0.26                   | CO 4 |
|            |     |          |                    |                    | Min V <sub>z</sub> | 0.05           | 0.00           | -0.05          | -0.00          | -0.02 | -0.00                   | CO 3 |
|            |     |          |                    |                    | Max M <sub>T</sub> | -1.00          | 0.24           | -0.04          | 0.02           | -0.01 | -0.26                   | CO 4 |
|            |     |          |                    |                    | Min M <sub>T</sub> | 0.05           | 0.00           | -0.05          | -0.00          | -0.02 | -0.00                   | CO 3 |
|            |     |          |                    |                    | Max M <sub>y</sub> | -1.00          | 0.24           | -0.04          | 0.02           | -0.01 | -0.26                   | CO 4 |
|            |     |          |                    |                    | Min M <sub>y</sub> | 0.05           | 0.00           | -0.05          | -0.00          | -0.02 | -0.00                   | CO 3 |
|            |     |          |                    |                    | Max M <sub>z</sub> | 0.05           | 0.00           | -0.05          | -0.00          | -0.02 | -0.00                   | CO 3 |
|            |     |          |                    |                    | Min M <sub>z</sub> | -1.00          | 0.24           | -0.04          | 0.02           | -0.01 | -0.26                   | CO 4 |
| RC3        | 19  | 0.000    | Max N              | -0.05              | 0.00               | 0.06           | -0.00          | -0.02          | 0.00           | CO 5  |                         |      |
|            |     |          | Min N              | -0.57              | 0.12               | 0.06           | 0.01           | -0.02          | 0.12           | CO 6  |                         |      |
|            |     |          | Max V <sub>y</sub> | -0.57              | 0.12               | 0.06           | 0.01           | -0.02          | 0.12           | CO 6  |                         |      |
|            |     |          | Min V <sub>y</sub> | -0.05              | 0.00               | 0.06           | -0.00          | -0.02          | 0.00           | CO 5  |                         |      |
|            |     |          | Max V <sub>z</sub> | -0.57              | 0.12               | 0.06           | 0.01           | -0.02          | 0.12           | CO 6  |                         |      |
|            |     |          | Min V <sub>z</sub> | -0.05              | 0.00               | 0.06           | -0.00          | -0.02          | 0.00           | CO 5  |                         |      |
|            |     |          | Max M <sub>T</sub> | -0.57              | 0.12               | 0.06           | 0.01           | -0.02          | 0.12           | CO 6  |                         |      |
|            |     |          | Min M <sub>T</sub> | -0.05              | 0.00               | 0.06           | -0.00          | -0.02          | 0.00           | CO 5  |                         |      |
|            |     |          | Max M <sub>y</sub> | -0.05              | 0.00               | 0.06           | -0.00          | -0.02          | 0.00           | CO 5  |                         |      |
|            |     |          | Min M <sub>y</sub> | -0.57              | 0.12               | 0.06           | 0.01           | -0.02          | 0.12           | CO 6  |                         |      |
|            |     |          | Max M <sub>z</sub> | -0.57              | 0.12               | 0.06           | 0.01           | -0.02          | 0.12           | CO 6  |                         |      |
|            |     |          | Min M <sub>z</sub> | -0.05              | 0.00               | 0.06           | -0.00          | -0.02          | 0.00           | CO 5  |                         |      |
|            |     | 8        | 2.089              | Max N              | 0.05               | 0.00           | -0.05          | -0.00          | -0.02          | -0.00 | CO 5                    |      |
|            |     |          |                    | Min N              | -0.47              | 0.12           | -0.05          | 0.01           | -0.01          | -0.13 | CO 6                    |      |
|            |     |          |                    | Max V <sub>y</sub> | -0.47              | 0.12           | -0.05          | 0.01           | -0.01          | -0.13 | CO 6                    |      |
|            |     |          |                    | Min V <sub>y</sub> | 0.05               | 0.00           | -0.05          | -0.00          | -0.02          | -0.00 | CO 5                    |      |
|            |     |          |                    | Max V <sub>z</sub> | -0.47              | 0.12           | -0.05          | 0.01           | -0.01          | -0.13 | CO 6                    |      |
|            |     |          |                    | Min V <sub>z</sub> | 0.05               | 0.00           | -0.05          | -0.00          | -0.02          | -0.00 | CO 5                    |      |
|            |     |          |                    | Max M <sub>T</sub> | -0.47              | 0.12           | -0.05          | 0.01           | -0.01          | -0.13 | CO 6                    |      |
|            |     |          |                    | Min M <sub>T</sub> | 0.05               | 0.00           | -0.05          | -0.00          | -0.02          | -0.00 | CO 5                    |      |
|            |     |          |                    | Max M <sub>y</sub> | -0.47              | 0.12           | -0.05          | 0.01           | -0.01          | -0.13 | CO 6                    |      |
|            |     |          |                    | Min M <sub>y</sub> | 0.05               | 0.00           | -0.05          | -0.00          | -0.02          | -0.00 | CO 5                    |      |
|            |     |          |                    | Max M <sub>z</sub> | 0.05               | 0.00           | -0.05          | -0.00          | -0.02          | -0.00 | CO 5                    |      |
|            |     |          |                    | Min M <sub>z</sub> | -0.47              | 0.12           | -0.05          | 0.01           | -0.01          | -0.13 | CO 6                    |      |
| RC4        | 19  | 0.000    | Max N              | -0.05              | 0.00               | 0.06           | -0.00          | -0.02          | 0.00           | CO 7  |                         |      |
|            |     |          | Min N              | -0.36              | 0.07               | 0.06           | 0.01           | -0.02          | 0.08           | CO 8  |                         |      |
|            |     |          | Max V <sub>y</sub> | -0.36              | 0.07               | 0.06           | 0.01           | -0.02          | 0.08           | CO 8  |                         |      |
|            |     |          | Min V <sub>y</sub> | -0.05              | 0.00               | 0.06           | -0.00          | -0.02          | 0.00           | CO 7  |                         |      |
|            |     |          | Max V <sub>z</sub> | -0.36              | 0.07               | 0.06           | 0.01           | -0.02          | 0.08           | CO 8  |                         |      |
|            |     |          | Min V <sub>z</sub> | -0.05              | 0.00               | 0.06           | -0.00          | -0.02          | 0.00           | CO 7  |                         |      |
|            |     |          | Max M <sub>T</sub> | -0.36              | 0.07               | 0.06           | 0.01           | -0.02          | 0.08           | CO 8  |                         |      |
|            |     |          | Min M <sub>T</sub> | -0.05              | 0.00               | 0.06           | -0.00          | -0.02          | 0.00           | CO 7  |                         |      |
|            |     |          | Max M <sub>y</sub> | -0.05              | 0.00               | 0.06           | -0.00          | -0.02          | 0.00           | CO 7  |                         |      |
|            |     |          | Min M <sub>y</sub> | -0.36              | 0.07               | 0.06           | 0.01           | -0.02          | 0.08           | CO 8  |                         |      |
|            |     |          | Max M <sub>z</sub> | -0.36              | 0.07               | 0.06           | 0.01           | -0.02          | 0.08           | CO 8  |                         |      |
|            |     |          | Min M <sub>z</sub> | -0.36              | 0.07               | 0.06           | 0.01           | -0.02          | 0.08           | CO 8  |                         |      |

# RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] |                    | Forces [kN] |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |
|------------|---|----------|----------------|--------------------|-------------|----------------|----------------|----------------|----------------|----------------|-------------------------|
|            |   |          |                |                    | N           | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |
| 44         | RC4   | 8        | 2.089          | Min M <sub>z</sub> | -0.05       | 0.00           | 0.06           | -0.00          | -0.02          | 0.00           | CO 7                    |
|            |   |          |                | Max N              | 0.05        | 0.00           | -0.05          | -0.00          | -0.02          | -0.00          | CO 7                    |
|            |   |          |                | Min N              | -0.26       | 0.07           | -0.05          | 0.01           | -0.01          | -0.08          | CO 8                    |
|            |   |          |                | Max V <sub>y</sub> | -0.26       | 0.07           | -0.05          | 0.01           | -0.01          | -0.08          | CO 8                    |
|            |   |          |                | Min V <sub>y</sub> | 0.05        | 0.00           | -0.05          | -0.00          | -0.02          | -0.00          | CO 7                    |
|            |   |          |                | Max V <sub>z</sub> | -0.26       | 0.07           | -0.05          | 0.01           | -0.01          | -0.08          | CO 8                    |
|            |   |          |                | Min V <sub>z</sub> | 0.05        | 0.00           | -0.05          | -0.00          | -0.02          | -0.00          | CO 7                    |
|            |   |          |                | Max M <sub>T</sub> | -0.26       | 0.07           | -0.05          | 0.01           | -0.01          | -0.08          | CO 8                    |
|            |   |          |                | Min M <sub>T</sub> | 0.05        | 0.00           | -0.05          | -0.00          | -0.02          | -0.00          | CO 7                    |
|            |   |          |                | Max M <sub>y</sub> | -0.26       | 0.07           | -0.05          | 0.01           | -0.01          | -0.08          | CO 8                    |
|            | DLC1, Result Envelope X 100% / Y 30% / Z 30%<br>RC5 | 19       | 0.000          | Min M <sub>z</sub> | 0.05        | 0.00           | -0.05          | -0.00          | -0.02          | -0.00          | CO 7                    |
|            |   |          |                | Max M <sub>z</sub> | -0.26       | 0.07           | -0.05          | 0.01           | -0.01          | -0.08          | CO 8                    |
|            |   |          |                | Min M <sub>z</sub> | -0.26       | 0.07           | -0.05          | 0.01           | -0.01          | -0.08          | CO 8                    |
|            |   |          |                | Max N              | 0.25        | -0.02          | -0.00          | 0.00           | 0.00           | -0.03          |                         |
|            |   |          |                | Min N              | -0.25       | 0.02           | 0.00           | -0.00          | -0.00          | 0.03           |                         |
|            |   |          |                | Max V <sub>y</sub> | -0.21       | 0.03           | 0.00           | -0.00          | -0.00          | 0.03           |                         |
|            |   |          |                | Min V <sub>y</sub> | 0.21        | -0.03          | -0.00          | 0.00           | 0.00           | -0.03          |                         |
|            |   |          |                | Max V <sub>z</sub> | -0.04       | 0.01           | -0.00          | -0.00          | -0.00          | 0.02           |                         |
|            |   |          |                | Min V <sub>z</sub> | 0.04        | -0.01          | -0.00          | 0.00           | 0.00           | -0.02          |                         |
|            |   |          |                | Max M <sub>T</sub> | 0.21        | -0.03          | -0.00          | 0.00           | 0.00           | -0.03          |                         |
|            |   | 8        | 2.089          | Min M <sub>T</sub> | -0.21       | 0.03           | 0.00           | -0.00          | -0.00          | 0.03           |                         |
|            |   |          |                | Max M <sub>y</sub> | 0.09        | -0.01          | -0.00          | 0.00           | 0.00           | -0.02          |                         |
|            |   |          |                | Min M <sub>y</sub> | -0.09       | 0.01           | 0.00           | -0.00          | -0.00          | 0.02           |                         |
|            |   |          |                | Max M <sub>z</sub> | -0.21       | 0.03           | 0.00           | -0.00          | -0.00          | 0.03           |                         |
|            |   |          |                | Min M <sub>z</sub> | 0.21        | -0.03          | -0.00          | 0.00           | 0.00           | -0.03          |                         |
|            |   |          |                | Max N              | 0.25        | -0.02          | -0.00          | 0.00           | -0.00          | 0.02           |                         |
|            |   |          |                | Min N              | -0.25       | 0.02           | 0.00           | -0.00          | 0.00           | -0.02          |                         |
|            |   |          |                | Max V <sub>y</sub> | -0.21       | 0.03           | 0.00           | -0.00          | 0.00           | -0.02          |                         |
|            |   |          |                | Min V <sub>y</sub> | 0.21        | -0.03          | -0.00          | 0.00           | -0.00          | 0.02           |                         |
|            |   |          |                | Max V <sub>z</sub> | -0.04       | 0.01           | -0.00          | -0.00          | 0.00           | -0.01          |                         |
|            |   |          |                | Min V <sub>z</sub> | 0.04        | -0.01          | -0.00          | 0.00           | -0.00          | 0.01           |                         |
|            |   |          |                | Max M <sub>T</sub> | 0.21        | -0.03          | -0.00          | 0.00           | -0.00          | 0.02           |                         |
|            |   |          |                | Min M <sub>T</sub> | -0.21       | 0.03           | 0.00           | -0.00          | 0.00           | -0.02          |                         |
|            |   |          |                | Max M <sub>y</sub> | 0.02        | -0.01          | -0.00          | 0.00           | 0.00           | -0.00          |                         |
|            |   |          |                | Min M <sub>y</sub> | -0.02       | 0.01           | -0.00          | 0.00           | -0.00          | 0.00           |                         |
|            |   |          |                | Max M <sub>z</sub> | 0.21        | -0.03          | -0.00          | 0.00           | -0.00          | 0.02           |                         |
|            |   |          |                | Min M <sub>z</sub> | -0.21       | 0.03           | 0.00           | -0.00          | 0.00           | -0.02          |                         |
|            |   |          |                | Max N              | 0.37        | -0.02          | -0.00          | 0.00           | 0.00           | -0.02          |                         |
|            |   |          |                | Min N              | -0.37       | 0.02           | 0.00           | -0.00          | -0.00          | 0.02           |                         |
|            |   |          |                | Max V <sub>y</sub> | -0.31       | 0.02           | 0.00           | -0.00          | -0.00          | 0.03           |                         |
|            |   |          |                | Min V <sub>y</sub> | 0.31        | -0.02          | -0.00          | 0.00           | 0.00           | -0.03          |                         |
|            |   |          |                | Max V <sub>z</sub> | 0.01        | 0.01           | -0.00          | -0.00          | -0.00          | 0.01           |                         |
|            |   |          |                | Min V <sub>z</sub> | -0.01       | -0.01          | -0.00          | 0.00           | 0.00           | -0.01          |                         |
|            |   |          |                | Max M <sub>T</sub> | 0.31        | -0.02          | -0.00          | 0.00           | 0.00           | -0.03          |                         |
|            |   |          |                | Min M <sub>T</sub> | -0.31       | 0.02           | 0.00           | -0.00          | -0.00          | 0.03           |                         |
|            |   |          |                | Max M <sub>y</sub> | 0.11        | -0.01          | -0.00          | 0.00           | 0.00           | -0.01          |                         |
|            |   |          |                | Min M <sub>y</sub> | -0.11       | 0.01           | 0.00           | -0.00          | -0.00          | 0.01           |                         |
|            |   |          |                | Max M <sub>z</sub> | -0.31       | 0.02           | 0.00           | -0.00          | -0.00          | 0.03           |                         |
|            |   |          |                | Min M <sub>z</sub> | 0.31        | -0.02          | -0.00          | 0.00           | 0.00           | -0.03          |                         |
|            |   |          |                | Max N              | 0.37        | -0.02          | -0.00          | 0.00           | 0.00           | 0.02           |                         |
|            |   | 8        | 2.089          | Min N              | -0.37       | 0.02           | 0.00           | -0.00          | -0.00          | -0.02          |                         |
|            |   |          |                | Max V <sub>y</sub> | -0.31       | 0.02           | 0.00           | -0.00          | -0.00          | -0.02          |                         |
|            |   |          |                | Min V <sub>y</sub> | 0.31        | -0.02          | -0.00          | 0.00           | 0.00           | 0.02           |                         |
|            |   |          |                | Max V <sub>z</sub> | 0.01        | 0.01           | -0.00          | -0.00          | 0.00           | -0.00          |                         |
|            |   |          |                | Min V <sub>z</sub> | -0.01       | -0.01          | -0.00          | 0.00           | -0.00          | 0.00           |                         |
|            |   |          |                | Max M <sub>T</sub> | 0.31        | -0.02          | -0.00          | 0.00           | 0.00           | 0.02           |                         |
|            |   |          |                | Min M <sub>T</sub> | -0.31       | 0.02           | 0.00           | -0.00          | -0.00          | -0.02          |                         |
|            |   |          |                | Max M <sub>y</sub> | 0.12        | -0.01          | -0.00          | 0.00           | 0.00           | 0.00           |                         |
|            |   |          |                | Min M <sub>y</sub> | -0.12       | 0.01           | -0.00          | 0.00           | -0.00          | -0.00          |                         |
|            |   |          |                | Max M <sub>z</sub> | 0.32        | -0.02          | -0.00          | 0.00           | 0.00           | 0.02           |                         |
|            |   |          |                | Min M <sub>z</sub> | -0.32       | 0.02           | 0.00           | -0.00          | -0.00          | -0.02          |                         |
|            |   |          |                | Max N              | 0.47        | -0.05          | -0.00          | 0.01           | 0.00           | -0.06          |                         |
|            |   |          |                | Min N              | -0.47       | 0.05           | 0.00           | -0.01          | -0.00          | 0.06           |                         |
|            |   |          |                | Max V <sub>y</sub> | -0.40       | 0.06           | 0.00           | -0.01          | -0.00          | 0.07           |                         |
|            |   |          |                | Min V <sub>y</sub> | 0.40        | -0.06          | -0.00          | 0.01           | 0.00           | -0.07          |                         |
|            |   |          |                | Max V <sub>z</sub> | -0.08       | 0.02           | -0.00          | -0.00          | -0.00          | 0.04           |                         |
|            |   |          |                | Min V <sub>z</sub> | 0.08        | -0.02          | -0.00          | 0.00           | 0.00           | -0.04          |                         |
|            |   |          |                | Max M <sub>T</sub> | 0.40        | -0.06          | -0.00          | 0.01           | 0.00           | -0.07          |                         |
|            |   |          |                | Min M <sub>T</sub> | -0.40       | 0.06           | 0.00           | -0.01          | -0.00          | 0.07           |                         |
|            |   |          |                | Max M <sub>y</sub> | 0.17        | -0.03          | -0.00          | 0.00           | 0.00           | -0.04          |                         |
|            |   | 8        | 2.089          | Min M <sub>y</sub> | -0.17       | 0.03           | 0.00           | -0.00          | -0.00          | 0.04           |                         |
|            |   |          |                | Max M <sub>z</sub> | -0.40       | 0.06           | 0.00           | -0.01          | -0.00          | 0.07           |                         |
|            |   |          |                | Min M <sub>z</sub> | 0.40        | -0.06          | -0.00          | 0.01           | 0.00           | -0.07          |                         |
|            |   |          |                | Max N              | 0.47        | -0.05          | -0.00          | 0.01           | -0.00          | 0.04           |                         |
|            |   |          |                | Min N              | -0.47       | 0.05           | 0.00           | -0.01          | 0.00           | -0.04          |                         |
|            |   |          |                | Max V <sub>y</sub> | -0.40       | 0.06           | 0.00           | -0.01          | 0.00           | -0.05          |                         |
|            |   |          |                | Min V <sub>y</sub> | 0.40        | -0.06          | -0.00          | 0.01           | -0.00          | 0.05           |                         |
|            |   |          |                | Max V <sub>z</sub> | -0.08       | 0.02           | -0.00          | -0.00          | 0.00           | -0.02          |                         |
|            |   |          |                | Min V <sub>z</sub> | 0.08        | -0.02          | -0.00          | 0.00           | -0.00          | 0.02           |                         |
|            |   |          |                | Max M <sub>T</sub> | 0.40        | -0.06          | -0.00          | 0.01           | -0.00          | 0.05           |                         |
|            |   |          |                | Min M <sub>T</sub> | -0.40       | 0.06           | 0.00           | -0.01          | 0.00           | -0.05          |                         |
|            |   |          |                | Max M <sub>y</sub> | 0.02        | -0.01          | -0.00          | 0.00           | 0.00           | -0.01          |                         |
|            |   |          |                | Min M <sub>y</sub> | -0.02       | 0.01           | -0.00          | 0.00           | -0.00          | 0.01           |                         |
|            |   |          |                | Max M <sub>z</sub> | 0.41        | -0.06          | -0.00          | 0.01           | -0.00          | 0.05           |                         |

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## ■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

Result Combinations

| Member No. | RC  | Node No. | Location x [m] | Forces [kN]        |                |                | Moments [kNm]  |                |                | Correspondin Load Cases |
|------------|-----|----------|----------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------------------------|
|            |     |          |                | N                  | V <sub>y</sub> | V <sub>z</sub> | M <sub>T</sub> | M <sub>y</sub> | M <sub>z</sub> |                         |
| 44         | RC7 |          |                | Min M <sub>z</sub> | -0.41          | 0.06           | 0.00           | -0.01          | 0.00           | -0.05                   |

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

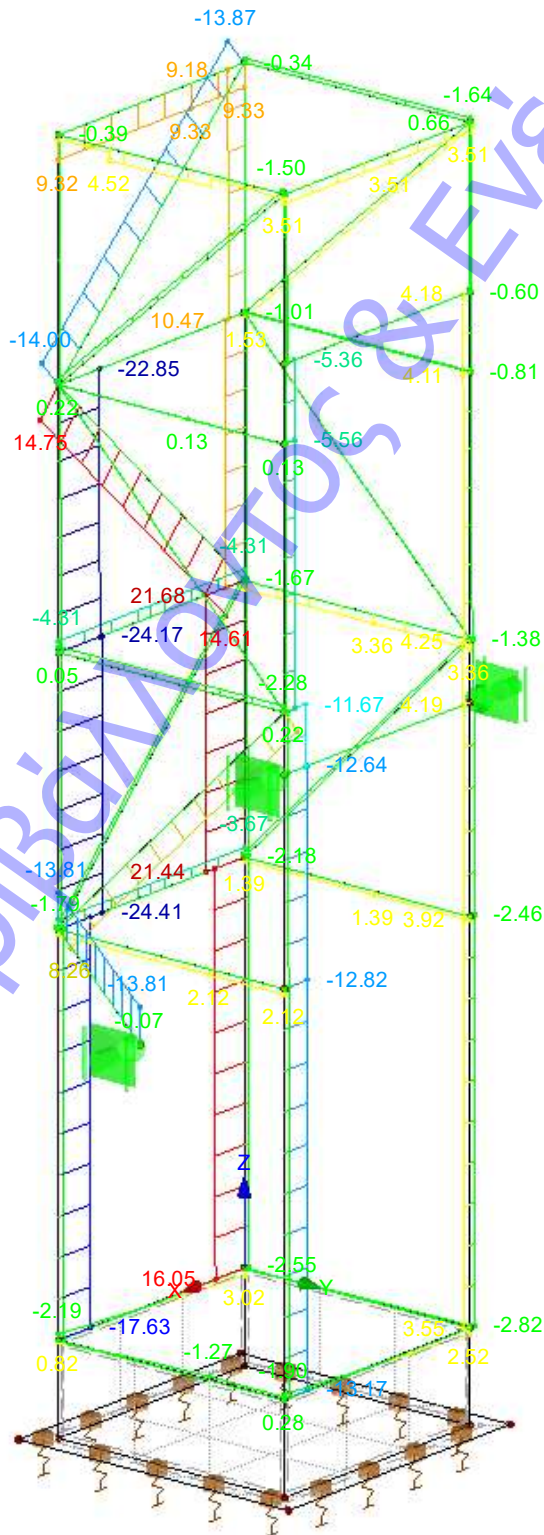
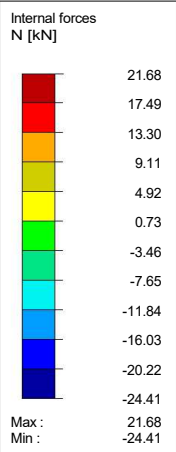
## INTERNAL FORCES N

RC1 : ULS (STR/GEO) - Permanent / transient - Eq. 6.10

Members Internal Forces N

Result Combinations: Max and Min Values

Isometric



Members Max N: 21.68, Min N: -24.41 [kN]

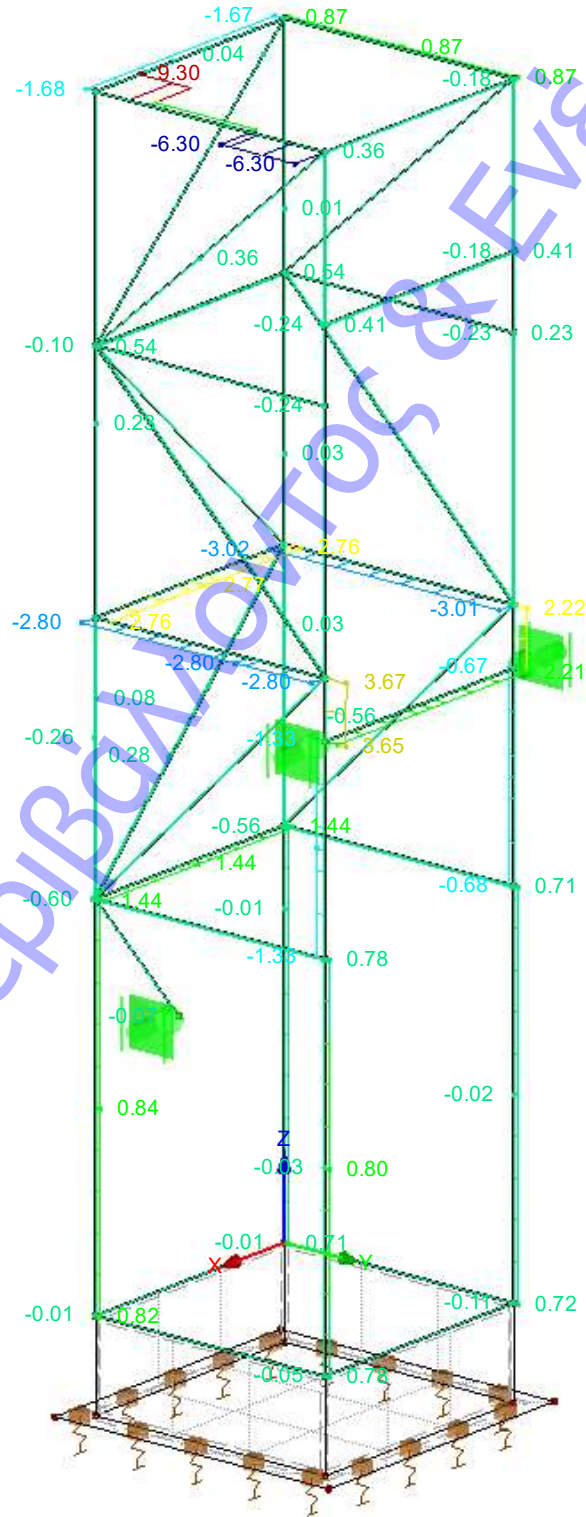
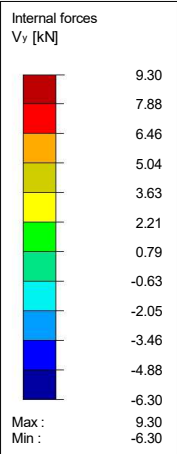
RESULTS

Project: Model: Freatio\_EPAL LAMIAS\_R01 Date: 2/8/2023

INTERNAL FORCES  $V_y$

RC1 : ULS (STR/GEO) - Permanent / transient - Eq. 6.10  
Members Internal Forces V-y  
Result Combinations: Max and Min Values

Isometric



Members Max V-y: 9.30, Min V-y: -6.30 [kN]

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

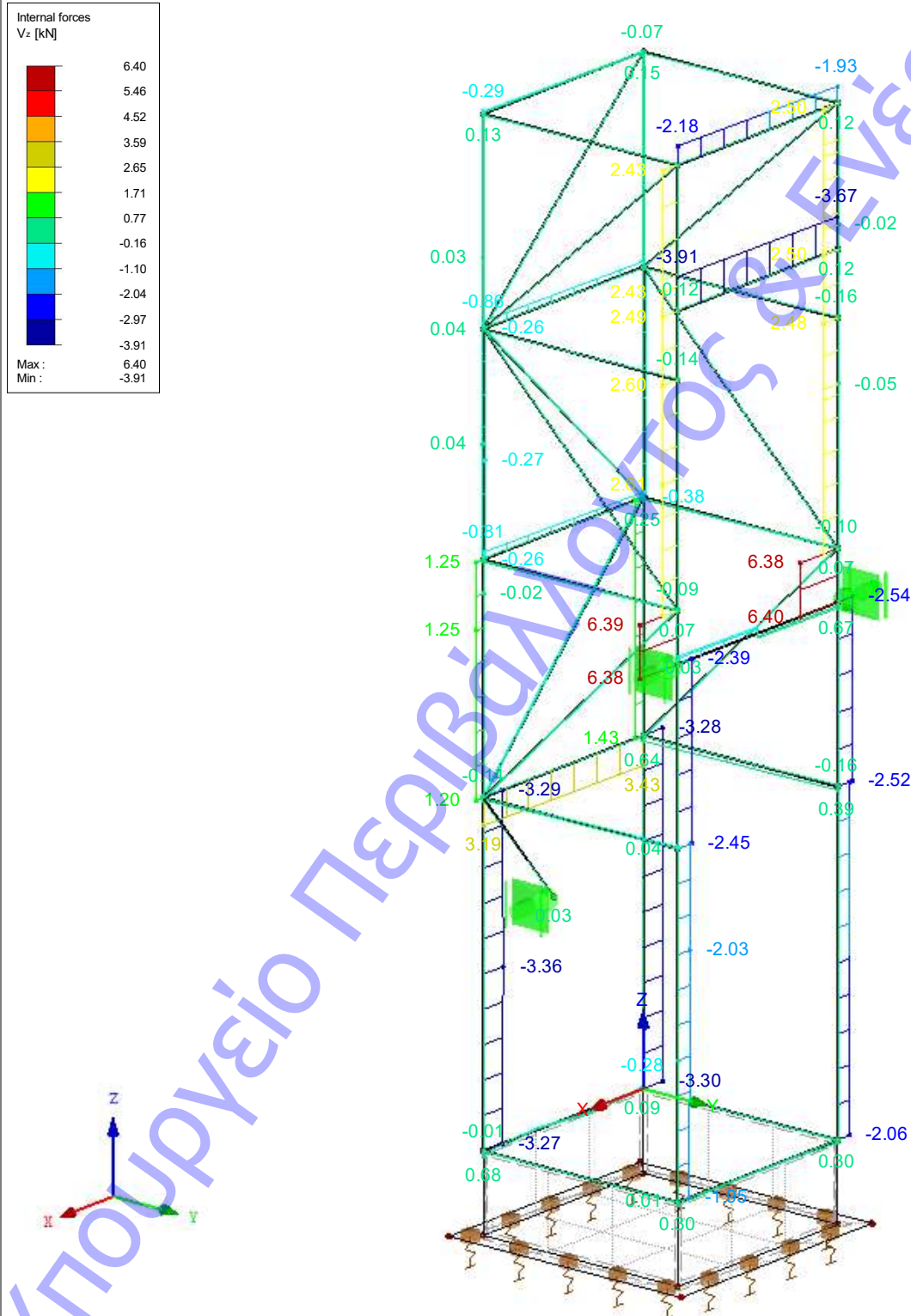
# INTERNAL FORCES V<sub>z</sub>

RC1 : ULS (STR/GEO) - Permanent / transient - Eq. 6.10

Members Internal Forces V-z

Result Combinations: Max and Min Values

Isometric



Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

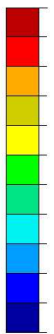
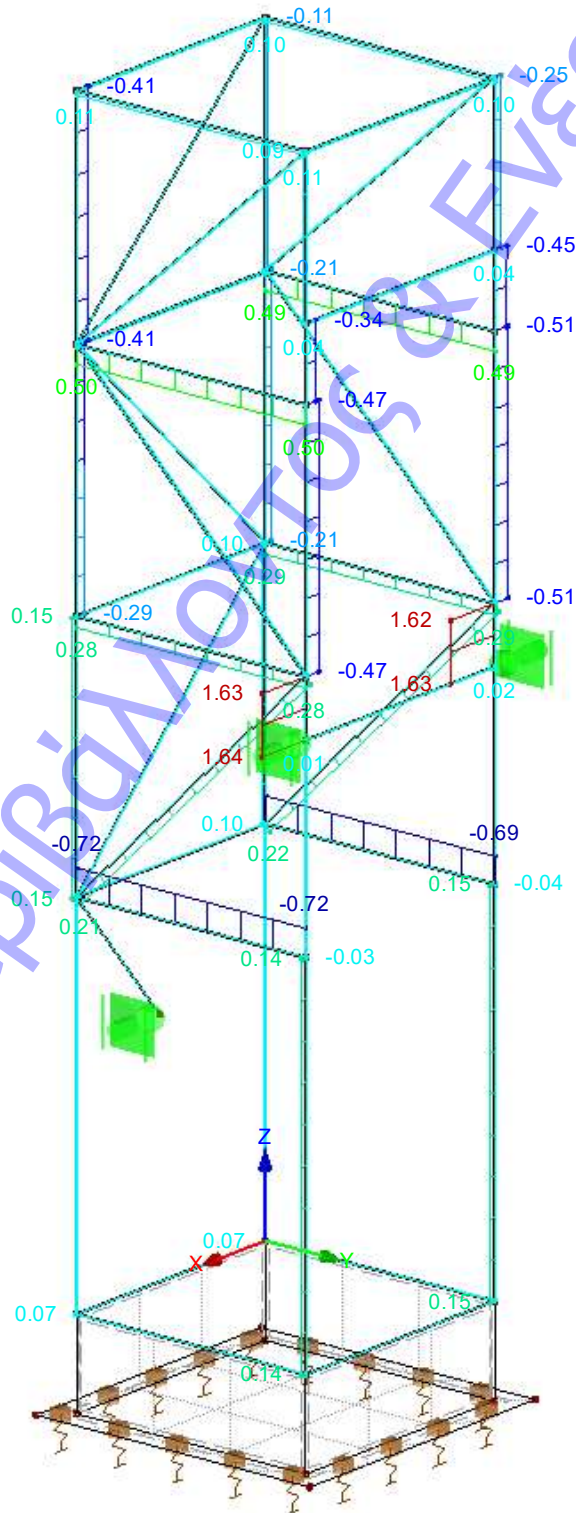
INTERNAL FORCES  $M_T$ 

RC1 : ULS (STR/GEO) - Permanent / transient - Eq. 6.10

Members Internal Forces M-T

Result Combinations: Max and Min Values

Isometric

Internal forces  
 $M_T$  [kNm]Max.: 1.64  
Min.: -0.72

Members Max M-T: 1.64, Min M-T: -0.72 [kNm]

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

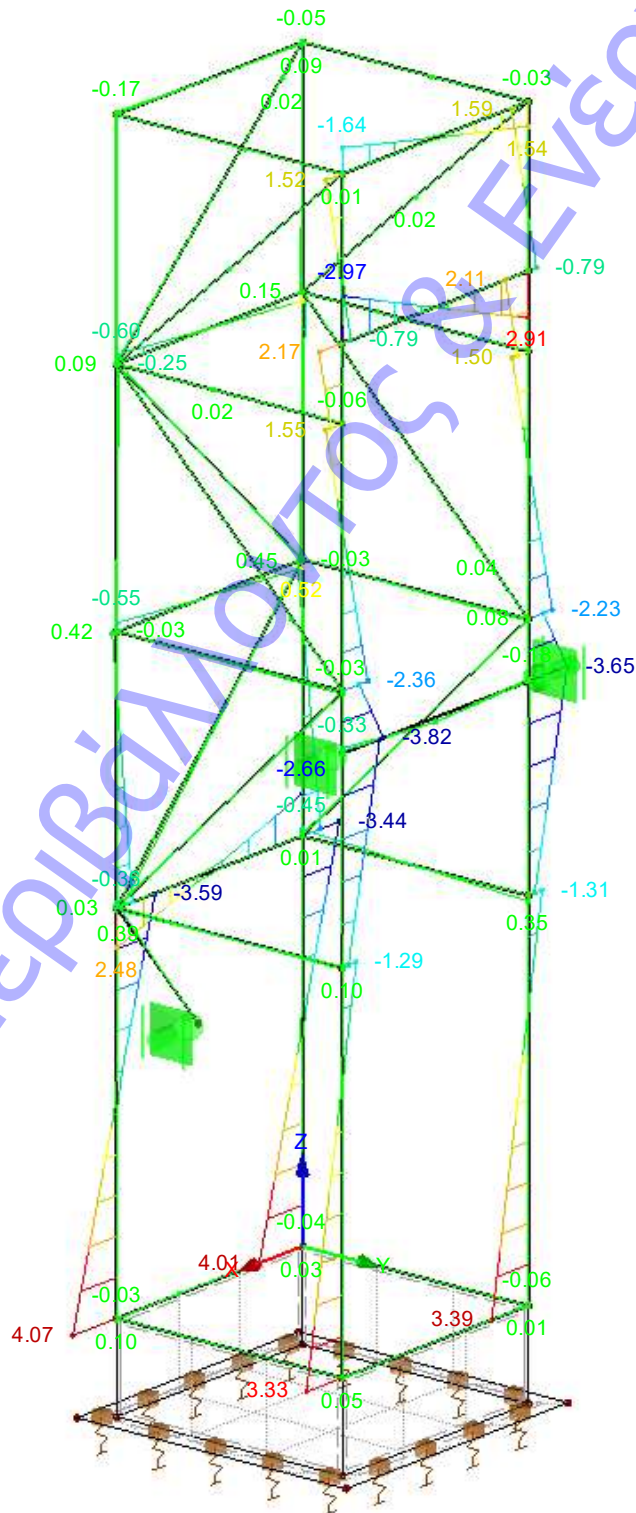
INTERNAL FORCES  $M_y$ 

RC1 : ULS (STR/GEO) - Permanent / transient - Eq. 6.10

Members Internal Forces M-y

Result Combinations: Max and Min Values

Isometric

Internal forces  
 $M_y$  [kNm]Max : 4.07  
Min : -3.82

Members Max M-y: 4.07, Min M-y: -3.82 [kNm]

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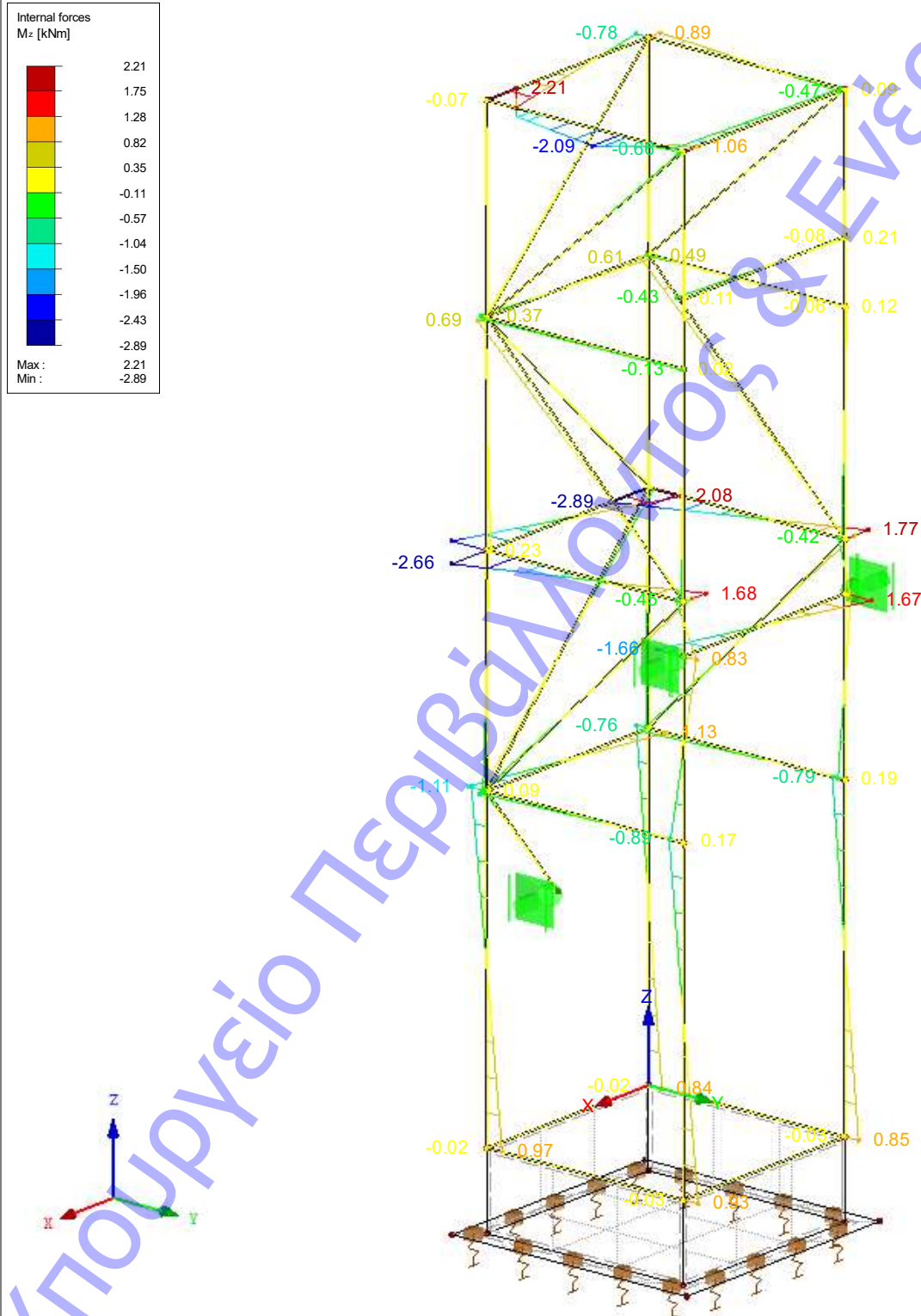
INTERNAL FORCES  $M_z$ 

RC1 : ULS (STR/GEO) - Permanent / transient - Eq. 6.10

Members Internal Forces M-z

Result Combinations: Max and Min Values

Isometric



RF-STEEL EC3  
CA1  
Columns

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## 1.1 GENERAL DATA

|                                   |                 |  |  |
|-----------------------------------|-----------------|--|--|
| Members to design:                | 1-4,18-29,46,48 |  |  |
| Sets of members to design:        |                 |  |  |
| National Annex:                   | CEN             |  |  |
| Ultimate Limit State Design       |                 |  |  |
| Result combinations to design:    | RC1             | ULS (STR/GEO) - Permanent / transient - Eq. 6.10 |  |
| Serviceability Limit State Design |                 |  |  |
| Result combinations to design:    | RC2             | SLS - Characteristic                             |  |
|                                   | RC3             | SLS - Frequent                                   |  |
|                                   | RC4             | SLS - Quasi-permanent                            |  |

## 1.2 MATERIALS

| Matl. No. | Material Description             | E- Modulus<br>E [kN/cm <sup>2</sup> ] | Shear Modulus<br>G [kN/cm <sup>2</sup> ] | Poisson's Ratio<br>ν [-] | Yield Stress<br>f <sub>yk</sub> [kN/cm <sup>2</sup> ] | Max. Thickness<br>t [mm] |
|-----------|----------------------------------|---------------------------------------|--|--------------------------|---|--------------------------|
| 2         | Steel S 235   EN 10025-2:2004-11 | 21000.00                              | 8076.92                                  | 0.300                    | 23.50   | 16.0                     |
|           |                                  |                                       |  |                          | 22.50   | 40.0                     |
|           |                                  |                                       |  |                          | 21.50   | 100.0                    |
|           |                                  |                                       |  |                          | 19.50   | 150.0                    |
|           |                                  |                                       |  |                          | 18.50   | 200.0                    |
|           |                                  |                                       |  |                          | 17.50   | 250.0                    |
|           |                                  |                                       |  |                          | 16.50   | 400.0                    |

## 1.3 CROSS-SECTIONS

| Sect. No. | Matl. No. | Cross-Section Description   | Cross-Section Type | Max Design Ratio | Comment |
|-----------|-----------|-----------------------------|--------------------|------------------|---------|
| 1         | 2         | QRO 100x4   EN 10219-2:2006 | Box rolled         | 0.73             |         |

## 1.5 EFFECTIVE LENGTHS - MEMBERS

| Member No. | Buckling Possible                   | Buckling About Axis y               |                   |                       | Buckling About Axis z               |                   |                       | Lateral-Torsional Buckling |                |                |                    |                    |
|------------|-------------------------------------|-------------------------------------|-------------------|-----------------------|-------------------------------------|-------------------|-----------------------|----------------------------|----------------|----------------|--------------------|--------------------|
|            |                                     | Possible                            | k <sub>cr,y</sub> | L <sub>cr,y</sub> [m] | Possible                            | k <sub>cr,z</sub> | L <sub>cr,z</sub> [m] | Possible                   | k <sub>z</sub> | k <sub>w</sub> | L <sub>w</sub> [m] | L <sub>T</sub> [m] |
| 1          | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00              | 2.300                 | <input checked="" type="checkbox"/> | 1.00              | 2.300                 | <input type="checkbox"/>   | 1.0            | 1.0            | 2.300              | 2.300              |
| 2          | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00              | 2.300                 | <input checked="" type="checkbox"/> | 1.00              | 2.300                 | <input type="checkbox"/>   | 1.0            | 1.0            | 2.300              | 2.300              |
| 3          | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00              | 2.300                 | <input checked="" type="checkbox"/> | 1.00              | 2.300                 | <input type="checkbox"/>   | 1.0            | 1.0            | 2.300              | 2.300              |
| 4          | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00              | 2.300                 | <input checked="" type="checkbox"/> | 1.00              | 2.300                 | <input type="checkbox"/>   | 1.0            | 1.0            | 2.300              | 2.300              |
| 18         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00              | 1.550                 | <input checked="" type="checkbox"/> | 1.00              | 1.550                 | <input type="checkbox"/>   | 1.0            | 1.0            | 1.550              | 1.550              |
| 19         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00              | 1.500                 | <input checked="" type="checkbox"/> | 1.00              | 1.500                 | <input type="checkbox"/>   | 1.0            | 1.0            | 1.500              | 1.500              |
| 20         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00              | 1.400                 | <input checked="" type="checkbox"/> | 1.00              | 1.400                 | <input type="checkbox"/>   | 1.0            | 1.0            | 1.400              | 1.400              |
| 21         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00              | 1.200                 | <input checked="" type="checkbox"/> | 1.00              | 1.200                 | <input type="checkbox"/>   | 1.0            | 1.0            | 1.200              | 1.200              |
| 22         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00              | 1.500                 | <input checked="" type="checkbox"/> | 1.00              | 1.500                 | <input type="checkbox"/>   | 1.0            | 1.0            | 1.500              | 1.500              |
| 23         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00              | 0.450                 | <input checked="" type="checkbox"/> | 1.00              | 0.450                 | <input type="checkbox"/>   | 1.0            | 1.0            | 0.450              | 0.450              |
| 24         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00              | 1.550                 | <input checked="" type="checkbox"/> | 1.00              | 1.550                 | <input type="checkbox"/>   | 1.0            | 1.0            | 1.550              | 1.550              |
| 25         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00              | 1.500                 | <input checked="" type="checkbox"/> | 1.00              | 1.500                 | <input type="checkbox"/>   | 1.0            | 1.0            | 1.500              | 1.500              |
| 26         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00              | 1.400                 | <input checked="" type="checkbox"/> | 1.00              | 1.400                 | <input type="checkbox"/>   | 1.0            | 1.0            | 1.400              | 1.400              |
| 27         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00              | 1.200                 | <input checked="" type="checkbox"/> | 1.00              | 1.200                 | <input type="checkbox"/>   | 1.0            | 1.0            | 1.200              | 1.200              |
| 28         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00              | 1.500                 | <input checked="" type="checkbox"/> | 1.00              | 1.500                 | <input type="checkbox"/>   | 1.0            | 1.0            | 1.500              | 1.500              |
| 29         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00              | 0.450                 | <input checked="" type="checkbox"/> | 1.00              | 0.450                 | <input type="checkbox"/>   | 1.0            | 1.0            | 0.450              | 0.450              |
| 46         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00              | 0.950                 | <input checked="" type="checkbox"/> | 1.00              | 0.950                 | <input type="checkbox"/>   | 1.0            | 1.0            | 0.950              | 0.950              |
| 48         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00              | 0.950                 | <input checked="" type="checkbox"/> | 1.00              | 0.950                 | <input type="checkbox"/>   | 1.0            | 1.0            | 0.950              | 0.950              |

## 1.9 SERVICEABILITY DATA

| No. | Reference to | Members/Sets No. | Reference Length         |       | Direct. | Precamber           |  | Beam Type           |
|-----|--------------|------------------|--------------------------|-------|---------|---------------------|--|---------------------|
|     |              |                  | Manually                 | l [m] |         | e <sub>0</sub> [mm] |  |                     |
| 1   | Member       | 1                | <input type="checkbox"/> | 2.300 | y, z    | 0.0                 |  | Cantilever End Free |
| 2   | Member       | 2                | <input type="checkbox"/> | 2.300 | y, z    | 0.0                 |  | Cantilever End Free |
| 3   | Member       | 3                | <input type="checkbox"/> | 2.300 | y, z    | 0.0                 |  | Cantilever End Free |
| 4   | Member       | 4                | <input type="checkbox"/> | 2.300 | y, z    | 0.0                 |  | Cantilever End Free |
| 5   | Member       | 18               | <input type="checkbox"/> | 1.550 | y, z    | 0.0                 |  | Cantilever End Free |
| 6   | Member       | 19               | <input type="checkbox"/> | 1.500 | y, z    | 0.0                 |  | Cantilever End Free |
| 7   | Member       | 20               | <input type="checkbox"/> | 1.400 | y, z    | 0.0                 |  | Cantilever End Free |
| 8   | Member       | 21               | <input type="checkbox"/> | 1.200 | y, z    | 0.0                 |  | Cantilever End Free |
| 9   | Member       | 22               | <input type="checkbox"/> | 1.500 | y, z    | 0.0                 |  | Cantilever End Free |
| 10  | Member       | 23               | <input type="checkbox"/> | 0.450 | y, z    | 0.0                 |  | Cantilever End Free |
| 11  | Member       | 24               | <input type="checkbox"/> | 1.550 | y, z    | 0.0                 |  | Cantilever End Free |
| 12  | Member       | 25               | <input type="checkbox"/> | 1.500 | y, z    | 0.0                 |  | Cantilever End Free |
| 13  | Member       | 26               | <input type="checkbox"/> | 1.400 | y, z    | 0.0                 |  | Cantilever End Free |
| 14  | Member       | 27               | <input type="checkbox"/> | 1.200 | y, z    | 0.0                 |  | Cantilever End Free |
| 15  | Member       | 28               | <input type="checkbox"/> | 1.500 | y, z    | 0.0                 |  | Cantilever End Free |
| 16  | Member       | 29               | <input type="checkbox"/> | 0.450 | y, z    | 0.0                 |  | Cantilever End Free |
| 17  | Member       | 46               | <input type="checkbox"/> | 0.950 | y, z    | 0.0                 |  | Cantilever End Free |
| 18  | Member       | 48               | <input type="checkbox"/> | 0.950 | y, z    | 0.0                 |  | Cantilever End Free |

## 1.12 PARAMETERS - MEMBERS

| Member No. | Description                             | Parameter                       |
|------------|---|---------------------------------|
| 1          | Cross-Section                           | 1 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |

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## 1.12 PARAMETERS - MEMBERS

| Member No. | Description                             | Parameter                       |
|------------|---|---------------------------------|
| 2          | Cross-Section                           | 1 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 3          | Cross-Section                           | 1 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 4          | Cross-Section                           | 1 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 18         | Cross-Section                           | 1 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 19         | Cross-Section                           | 1 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 20         | Cross-Section                           | 1 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 21         | Cross-Section                           | 1 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 22         | Cross-Section                           | 1 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 23         | Cross-Section                           | 1 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 24         | Cross-Section                           | 1 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 25         | Cross-Section                           | 1 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 26         | Cross-Section                           | 1 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 27         | Cross-Section                           | 1 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 28         | Cross-Section                           | 1 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 29         | Cross-Section                           | 1 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 46         | Cross-Section                           | 1 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 48         | Cross-Section                           | 1 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |

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## 2.4 DESIGN BY MEMBER

| Member No. | Location x [m]   | LC/CO/ RC | Design | Equation No. | Description  |
|------------|--|-----------|--------|--------------|--|
| 1          | <b>Cross-section No. 1 - QRO 100x4   EN 10219-2:2006</b> |           |        |              |  |
|            | 2.300  | RC1       | 0.05   | ≤ 1          | CS101) Cross-section check - Tension acc. to 6.2.3   |
|            | 0.000  | RC1       | 0.01   | ≤ 1          | CS102) Cross-section check - Compression acc. to 6.2.4                                       |
|            | 0.000  | RC1       | 0.03   | ≤ 1          | CS121) Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 0.000  | RC1       | 0.01   | ≤ 1          | CS123) Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 0.000  | RC1       | 0.00   | ≤ 1          | CS126) Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 0.000  | RC1       | 0.16   | ≤ 1          | CS221) Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000  | RC2       | 0.00   | ≤ 1          | SE400) Serviceability - Negligible deformations  |
|            | 2.070  | RC2       | 0.04   | ≤ 1          | SE411) Serviceability - Combination of actions 'Characteristic' - z-direction, Cantilever    |
|            | 2.070  | RC3       | 0.02   | ≤ 1          | SE412) Serviceability - Combination of actions 'Frequent' - z-direction, Cantilever          |
|            | 2.070  | RC4       | 0.01   | ≤ 1          | SE413) Serviceability - Combination of actions 'Quasi-permanent' - z-direction, Cantilever   |
|            | 2.070  | RC2       | 0.04   | ≤ 1          | SE416) Serviceability - Combination of actions 'Characteristic' - y-direction, Cantilever    |
|            | 2.070  | RC3       | 0.01   | ≤ 1          | SE417) Serviceability - Combination of actions 'Frequent' - y-direction, Cantilever          |
|            | 2.070  | RC4       | 0.01   | ≤ 1          | SE418) Serviceability - Combination of actions 'Quasi-permanent' - y-direction, Cantilever   |
| 2          | <b>Cross-section No. 1 - QRO 100x4   EN 10219-2:2006</b> |           |        |              |  |
|            | 2.300  | RC1       | 0.01   | ≤ 1          | CS101) Cross-section check - Tension acc. to 6.2.3   |
|            | 0.000  | RC1       | 0.01   | ≤ 1          | CS102) Cross-section check - Compression acc. to 6.2.4                                       |
|            | 0.000  | RC1       | 0.02   | ≤ 1          | CS121) Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 0.000  | RC1       | 0.01   | ≤ 1          | CS123) Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 0.000  | RC1       | 0.00   | ≤ 1          | CS126) Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 0.230  | RC1       | 0.00   | ≤ 1          | CS181) Cross-section check - Bending, shear and axial force acc. to 6.2.9.1                  |
|            | 0.000  | RC1       | 0.13   | ≤ 1          | CS221) Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000  | RC2       | 0.00   | ≤ 1          | SE400) Serviceability - Negligible deformations  |
|            | 2.300  | RC2       | 0.10   | ≤ 1          | SE411) Serviceability - Combination of actions 'Characteristic' - z-direction, Cantilever    |
|            | 2.300  | RC3       | 0.04   | ≤ 1          | SE412) Serviceability - Combination of actions 'Frequent' - z-direction, Cantilever          |
|            | 2.300  | RC4       | 0.02   | ≤ 1          | SE413) Serviceability - Combination of actions 'Quasi-permanent' - z-direction, Cantilever   |
|            | 2.070  | RC2       | 0.04   | ≤ 1          | SE416) Serviceability - Combination of actions 'Characteristic' - y-direction, Cantilever    |
|            | 2.070  | RC3       | 0.01   | ≤ 1          | SE417) Serviceability - Combination of actions 'Frequent' - y-direction, Cantilever          |
|            | 2.070  | RC4       | 0.01   | ≤ 1          | SE418) Serviceability - Combination of actions 'Quasi-permanent' - y-direction, Cantilever   |
| 3          | <b>Cross-section No. 1 - QRO 100x4   EN 10219-2:2006</b> |           |        |              |  |
|            | 0.000  | RC1       | 0.05   | ≤ 1          | CS102) Cross-section check - Compression acc. to 6.2.4                                       |
|            | 1.150  | RC1       | 0.03   | ≤ 1          | CS121) Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 1.150  | RC1       | 0.01   | ≤ 1          | CS123) Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 0.000  | RC1       | 0.00   | ≤ 1          | CS126) Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 1.150  | RC1       | 0.02   | ≤ 1          | CS181) Cross-section check - Bending, shear and axial force acc. to 6.2.9.1                  |
|            | 1.610  | RC1       | 0.00   | ≤ 1          | CS201) Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1     |
|            | 0.000  | RC1       | 0.17   | ≤ 1          | CS221) Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000  | RC1       | 0.22   | ≤ 1          | ST364) Stability analysis - Bending and compression acc. to 6.3.3, Method 2                  |
|            | 0.000  | RC2       | 0.00   | ≤ 1          | SE400) Serviceability - Negligible deformations  |
|            | 2.070  | RC2       | 0.05   | ≤ 1          | SE411) Serviceability - Combination of actions 'Characteristic' - z-direction, Cantilever    |
|            | 1.840  | RC3       | 0.02   | ≤ 1          | SE412) Serviceability - Combination of actions 'Frequent' - z-direction, Cantilever          |
|            | 1.840  | RC4       | 0.01   | ≤ 1          | SE413) Serviceability - Combination of actions 'Quasi-permanent' - z-direction, Cantilever   |
|            | 2.070  | RC2       | 0.04   | ≤ 1          | SE416) Serviceability - Combination of actions 'Characteristic' - y-direction, Cantilever    |
|            | 2.070  | RC3       | 0.01   | ≤ 1          | SE417) Serviceability - Combination of actions 'Frequent' - y-direction, Cantilever          |
|            | 2.070  | RC4       | 0.01   | ≤ 1          | SE418) Serviceability - Combination of actions 'Quasi-permanent' - y-direction, Cantilever   |
| 4          | <b>Cross-section No. 1 - QRO 100x4   EN 10219-2:2006</b> |           |        |              |  |
|            | 0.000  | RC1       | 0.04   | ≤ 1          | CS102) Cross-section check - Compression acc. to 6.2.4                                       |
|            | 1.610  | RC1       | 0.02   | ≤ 1          | CS121) Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 1.150  | RC1       | 0.01   | ≤ 1          | CS123) Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 0.000  | RC1       | 0.00   | ≤ 1          | CS126) Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 1.150  | RC1       | 0.08   | ≤ 1          | CS181) Cross-section check - Bending, shear and axial force acc. to 6.2.9.1                  |
|            | 2.300  | RC1       | 0.00   | ≤ 1          | CS201) Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1     |
|            | 0.000  | RC1       | 0.12   | ≤ 1          | CS221) Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000  | RC1       | 0.19   | ≤ 1          | ST364) Stability analysis - Bending and compression acc. to 6.3.3, Method 2                  |
|            | 0.000  | RC2       | 0.00   | ≤ 1          | SE400) Serviceability - Negligible deformations  |
|            | 2.300  | RC2       | 0.10   | ≤ 1          | SE411) Serviceability - Combination of actions 'Characteristic' - z-direction, Cantilever    |
|            | 2.300  | RC3       | 0.03   | ≤ 1          | SE412) Serviceability - Combination of actions 'Frequent' - z-direction, Cantilever          |
|            | 2.300  | RC4       | 0.02   | ≤ 1          | SE413) Serviceability - Combination of actions 'Quasi-permanent' - z-direction, Cantilever   |
|            | 2.070  | RC2       | 0.04   | ≤ 1          | SE416) Serviceability - Combination of actions 'Characteristic' - y-direction, Cantilever    |

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## 2.4 DESIGN BY MEMBER

| Member No. | Location x [m]   | LC/CO/RC | Design |     | Equation No. | Description   |
|------------|--|----------|--------|-----|--------------|---|
|            | 2.070  | RC3      | 0.01   | ≤ 1 | SE417)       | Serviceability - Combination of actions 'Frequent' - y-direction, Cantilever          |
|            | 2.070  | RC4      | 0.01   | ≤ 1 | SE418)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction, Cantilever   |
| 18         | <b>Cross-section No. 1 - QRO 100x4   EN 10219-2:2006</b> |          |        |     |              |   |
|            | 1.550  | RC1      | 0.06   | ≤ 1 | CS101)       | Cross-section check - Tension acc. to 6.2.3   |
|            | 0.000  | RC1      | 0.01   | ≤ 1 | CS102)       | Cross-section check - Compression acc. to 6.2.4                                       |
|            | 0.000  | RC1      | 0.01   | ≤ 1 | CS121)       | Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 0.000  | RC1      | 0.00   | ≤ 1 | CS126)       | Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 1.550  | RC1      | 0.00   | ≤ 1 | CS181)       | Cross-section check - Bending, shear and axial force acc. to 6.2.9.1                  |
|            | 0.000  | RC1      | 0.00   | ≤ 1 | CS201)       | Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1     |
|            | 0.000  | RC1      | 0.04   | ≤ 1 | CS221)       | Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000  | RC2      | 0.00   | ≤ 1 | SE400)       | Serviceability - Negligible deformations  |
|            | 1.550  | RC2      | 0.37   | ≤ 1 | SE411)       | Serviceability - Combination of actions 'Characteristic' - z-direction, Cantilever    |
|            | 1.550  | RC3      | 0.12   | ≤ 1 | SE412)       | Serviceability - Combination of actions 'Frequent' - z-direction, Cantilever          |
|            | 1.550  | RC4      | 0.07   | ≤ 1 | SE413)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction, Cantilever   |
|            | 1.550  | RC2      | 0.04   | ≤ 1 | SE416)       | Serviceability - Combination of actions 'Characteristic' - y-direction, Cantilever    |
|            | 1.550  | RC3      | 0.01   | ≤ 1 | SE417)       | Serviceability - Combination of actions 'Frequent' - y-direction, Cantilever          |
|            | 1.550  | RC4      | 0.01   | ≤ 1 | SE418)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction, Cantilever   |
| 19         | <b>Cross-section No. 1 - QRO 100x4   EN 10219-2:2006</b> |          |        |     |              |   |
|            | 1.500  | RC1      | 0.03   | ≤ 1 | CS101)       | Cross-section check - Tension acc. to 6.2.3   |
|            | 0.000  | RC1      | 0.00   | ≤ 1 | CS102)       | Cross-section check - Compression acc. to 6.2.4                                       |
|            | 1.500  | RC1      | 0.00   | ≤ 1 | CS121)       | Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 0.000  | RC1      | 0.00   | ≤ 1 | CS126)       | Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 1.500  | RC1      | 0.03   | ≤ 1 | CS181)       | Cross-section check - Bending, shear and axial force acc. to 6.2.9.1                  |
|            | 1.500  | RC1      | 0.00   | ≤ 1 | CS201)       | Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1     |
|            | 0.000  | RC2      | 0.00   | ≤ 1 | SE400)       | Serviceability - Negligible deformations  |
|            | 1.500  | RC2      | 0.40   | ≤ 1 | SE411)       | Serviceability - Combination of actions 'Characteristic' - z-direction, Cantilever    |
|            | 1.500  | RC3      | 0.13   | ≤ 1 | SE412)       | Serviceability - Combination of actions 'Frequent' - z-direction, Cantilever          |
|            | 1.500  | RC4      | 0.08   | ≤ 1 | SE413)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction, Cantilever   |
|            | 1.500  | RC2      | 0.06   | ≤ 1 | SE416)       | Serviceability - Combination of actions 'Characteristic' - y-direction, Cantilever    |
|            | 1.500  | RC3      | 0.02   | ≤ 1 | SE417)       | Serviceability - Combination of actions 'Frequent' - y-direction, Cantilever          |
|            | 1.500  | RC4      | 0.01   | ≤ 1 | SE418)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction, Cantilever   |
| 20         | <b>Cross-section No. 1 - QRO 100x4   EN 10219-2:2006</b> |          |        |     |              |   |
|            | 1.167  | RC1      | 0.00   | ≤ 1 | CS100)       | Negligible internal forces  |
|            | 1.400  | RC1      | 0.03   | ≤ 1 | CS101)       | Cross-section check - Tension acc. to 6.2.3   |
|            | 0.000  | RC1      | 0.00   | ≤ 1 | CS116)       | Cross-section check - Bending about z-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 0.000  | RC1      | 0.00   | ≤ 1 | CS151)       | Cross-section check - Bending about z-axis and shear force acc. to 6.2.5 and 6.2.8    |
|            | 1.400  | RC1      | 0.00   | ≤ 1 | CS161)       | Cross-section check - Biaxial bending and shear force acc. to 6.2.6, 6.2.7 and 6.2.9  |
|            | 0.000  | RC1      | 0.01   | ≤ 1 | CS181)       | Cross-section check - Bending, shear and axial force acc. to 6.2.9.1                  |
|            | 0.000  | RC2      | 0.00   | ≤ 1 | SE400)       | Serviceability - Negligible deformations  |
|            | 1.400  | RC2      | 0.40   | ≤ 1 | SE411)       | Serviceability - Combination of actions 'Characteristic' - z-direction, Cantilever    |
|            | 1.400  | RC3      | 0.14   | ≤ 1 | SE412)       | Serviceability - Combination of actions 'Frequent' - z-direction, Cantilever          |
|            | 1.400  | RC4      | 0.08   | ≤ 1 | SE413)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction, Cantilever   |
|            | 1.400  | RC2      | 0.06   | ≤ 1 | SE416)       | Serviceability - Combination of actions 'Characteristic' - y-direction, Cantilever    |
|            | 1.400  | RC3      | 0.02   | ≤ 1 | SE417)       | Serviceability - Combination of actions 'Frequent' - y-direction, Cantilever          |
|            | 1.400  | RC4      | 0.01   | ≤ 1 | SE418)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction, Cantilever   |
| 21         | <b>Cross-section No. 1 - QRO 100x4   EN 10219-2:2006</b> |          |        |     |              |   |
|            | 1.200  | RC1      | 0.01   | ≤ 1 | CS101)       | Cross-section check - Tension acc. to 6.2.3   |
|            | 0.000  | RC1      | 0.01   | ≤ 1 | CS102)       | Cross-section check - Compression acc. to 6.2.4                                       |
|            | 1.200  | RC1      | 0.03   | ≤ 1 | CS121)       | Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 0.000  | RC1      | 0.01   | ≤ 1 | CS123)       | Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 0.000  | RC1      | 0.00   | ≤ 1 | CS126)       | Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 0.960  | RC1      | 0.01   | ≤ 1 | CS181)       | Cross-section check - Bending, shear and axial force acc. to 6.2.9.1                  |
|            | 1.200  | RC1      | 0.13   | ≤ 1 | CS221)       | Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000  | RC2      | 0.00   | ≤ 1 | SE400)       | Serviceability - Negligible deformations  |
|            | 0.480  | RC2      | 0.05   | ≤ 1 | SE411)       | Serviceability - Combination of actions 'Characteristic' - z-direction, Cantilever    |
|            | 0.480  | RC3      | 0.02   | ≤ 1 | SE412)       | Serviceability - Combination of actions 'Frequent' - z-direction, Cantilever          |
|            | 1.200  | RC4      | 0.01   | ≤ 1 | SE413)       | Serviceability - Combination of actions 'Quasi-permanent' - z                         |

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## ■ 2.4 DESIGN BY MEMBER

| Member No. | Location x [m]   | LC/CO/RC | Design |     | Equation No. | Description   |
|------------|--|----------|--------|-----|--------------|---|
| 22         | 1.200  | RC2      | 0.05   | ≤ 1 | SE416)       | z-direction, Cantilever<br>Serviceability - Combination of actions 'Characteristic' - y-direction, Cantilever |
|            | 1.200  | RC3      | 0.02   | ≤ 1 | SE417)       | Serviceability - Combination of actions 'Frequent' - y-direction, Cantilever                                  |
|            | 1.200  | RC4      | 0.01   | ≤ 1 | SE418)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction, Cantilever                           |
|            | <b>Cross-section No. 1 - QRO 100x4   EN 10219-2:2006</b> |          |        |     |              |   |
|            | 1.500  | RC1      | 0.01   | ≤ 1 | CS101)       | Cross-section check - Tension acc. to 6.2.3   |
|            | 0.000  | RC1      | 0.00   | ≤ 1 | CS102)       | Cross-section check - Compression acc. to 6.2.4   |
|            | 0.000  | RC1      | 0.00   | ≤ 1 | CS126)       | Cross-section check - Shear buckling acc. to 6.2.6(6)   |
|            | 0.000  | RC1      | 0.05   | ≤ 1 | CS131)       | Cross-section check - Torsion acc. to 6.2.7   |
|            | 0.000  | RC1      | 0.03   | ≤ 1 | CS132)       | Cross-section check - Torsion and shear force acc. to 6.2.7(9)  |
|            | 1.500  | RC1      | 0.00   | ≤ 1 | CS137)       | Cross-section check - Torsion and shear force acc. to 6.2.7(9)  |
|            | 0.000  | RC1      | 0.00   | ≤ 1 | CS181)       | Cross-section check - Bending, shear and axial force acc. to 6.2.9.1  |
|            | 1.071  | RC1      | 0.03   | ≤ 1 | CS186)       | Cross-section check - Bending, shear, torsion and axial force acc. to 6.2.9.1                                 |
|            | 0.000  | RC1      | 0.06   | ≤ 1 | CS226)       | Cross-section check - Biaxial bending, shear, torsion and axial force acc. to 6.2.10 and 6.2.9                |
|            | 0.000  | RC1      | 0.24   | ≤ 1 | CS271)       | Cross-section check - Axial stress and torsion - Elastic design   |
|            | 0.000  | RC2      | 0.00   | ≤ 1 | SE400)       | Serviceability - Negligible deformations  |
| 23         | 1.500  | RC2      | 0.72   | ≤ 1 | SE411)       | Serviceability - Combination of actions 'Characteristic' - z-direction, Cantilever                            |
|            | 1.500  | RC3      | 0.24   | ≤ 1 | SE412)       | Serviceability - Combination of actions 'Frequent' - z-direction, Cantilever                                  |
|            | 1.500  | RC4      | 0.14   | ≤ 1 | SE413)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction, Cantilever                           |
|            | 1.500  | RC2      | 0.06   | ≤ 1 | SE416)       | Serviceability - Combination of actions 'Characteristic' - y-direction, Cantilever                            |
|            | 1.500  | RC3      | 0.02   | ≤ 1 | SE417)       | Serviceability - Combination of actions 'Frequent' - y-direction, Cantilever                                  |
|            | 1.500  | RC4      | 0.01   | ≤ 1 | SE418)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction, Cantilever                           |
|            | <b>Cross-section No. 1 - QRO 100x4   EN 10219-2:2006</b> |          |        |     |              |   |
|            | 0.000  | RC1      | 0.00   | ≤ 1 | CS100)       | Negligible internal forces  |
|            | 0.450  | RC1      | 0.01   | ≤ 1 | CS101)       | Cross-section check - Tension acc. to 6.2.3   |
|            | 0.450  | RC1      | 0.00   | ≤ 1 | CS111)       | Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2                                       |
|            | 0.450  | RC1      | 0.02   | ≤ 1 | CS121)       | Cross-section check - Shear force in z-axis acc. to 6.2.6   |
|            | 0.000  | RC1      | 0.00   | ≤ 1 | CS123)       | Cross-section check - Shear force in y-axis acc. to 6.2.6   |
|            | 0.000  | RC1      | 0.00   | ≤ 1 | CS126)       | Cross-section check - Shear buckling acc. to 6.2.6(6)   |
|            | 0.450  | RC1      | 0.00   | ≤ 1 | CS141)       | Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8   |
|            | 0.225  | RC1      | 0.12   | ≤ 1 | CS181)       | Cross-section check - Bending, shear and axial force acc. to 6.2.9.1  |
|            | 0.450  | RC1      | 0.05   | ≤ 1 | CS221)       | Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9                         |
|            | 0.000  | RC2      | 0.00   | ≤ 1 | SE400)       | Serviceability - Negligible deformations  |
|            | 0.450  | RC2      | 0.62   | ≤ 1 | SE411)       | Serviceability - Combination of actions 'Characteristic' - z-direction, Cantilever                            |
| 24         | 0.450  | RC3      | 0.21   | ≤ 1 | SE412)       | Serviceability - Combination of actions 'Frequent' - z-direction, Cantilever                                  |
|            | 0.450  | RC4      | 0.12   | ≤ 1 | SE413)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction, Cantilever                           |
|            | 0.450  | RC2      | 0.05   | ≤ 1 | SE416)       | Serviceability - Combination of actions 'Characteristic' - y-direction, Cantilever                            |
|            | 0.450  | RC3      | 0.02   | ≤ 1 | SE417)       | Serviceability - Combination of actions 'Frequent' - y-direction, Cantilever                                  |
|            | 0.450  | RC4      | 0.01   | ≤ 1 | SE418)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction, Cantilever                           |
|            | <b>Cross-section No. 1 - QRO 100x4   EN 10219-2:2006</b> |          |        |     |              |   |
|            | 0.000  | RC1      | 0.07   | ≤ 1 | CS102)       | Cross-section check - Compression acc. to 6.2.4   |
|            | 1.107  | RC1      | 0.01   | ≤ 1 | CS121)       | Cross-section check - Shear force in z-axis acc. to 6.2.6   |
|            | 0.886  | RC1      | 0.00   | ≤ 1 | CS123)       | Cross-section check - Shear force in y-axis acc. to 6.2.6   |
|            | 0.000  | RC1      | 0.00   | ≤ 1 | CS126)       | Cross-section check - Shear buckling acc. to 6.2.6(6)   |
|            | 0.886  | RC1      | 0.03   | ≤ 1 | CS181)       | Cross-section check - Bending, shear and axial force acc. to 6.2.9.1  |
|            | 0.221  | RC1      | 0.01   | ≤ 1 | CS201)       | Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1                             |
|            | 0.000  | RC1      | 0.03   | ≤ 1 | CS221)       | Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9                         |
|            | 0.000  | RC1      | 0.14   | ≤ 1 | ST364)       | Stability analysis - Bending and compression acc. to 6.3.3, Method 2  |
|            | 0.000  | RC2      | 0.00   | ≤ 1 | SE400)       | Serviceability - Negligible deformations  |
|            | 1.550  | RC2      | 0.37   | ≤ 1 | SE411)       | Serviceability - Combination of actions 'Characteristic' - z-direction, Cantilever                            |
| 25         | 1.550  | RC3      | 0.12   | ≤ 1 | SE412)       | Serviceability - Combination of actions 'Frequent' - z-direction, Cantilever                                  |
|            | 1.550  | RC4      | 0.07   | ≤ 1 | SE413)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction, Cantilever                           |
|            | 1.550  | RC2      | 0.05   | ≤ 1 | SE416)       | Serviceability - Combination of actions 'Characteristic' - y-direction, Cantilever                            |
|            | 1.550  | RC3      | 0.02   | ≤ 1 | SE417)       | Serviceability - Combination of actions 'Frequent' - y-direction, Cantilever                                  |
|            | 1.550  | RC4      | 0.01   | ≤ 1 | SE418)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction, Cantilever                           |
|            | <b>Cross-section No. 1 - QRO 100x4   EN 10219-2:2006</b> |          |        |     |              |   |
|            | 0.000  | RC1      | 0.07   | ≤ 1 | CS102)       | Cross-section check - Compression acc. to 6.2.4   |
|            | 0.643  | RC1      | 0.00   | ≤ 1 | CS121)       | Cross-section check - Shear force in z-axis acc. to 6.2.6   |

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## 2.4 DESIGN BY MEMBER

| Member No. | Location x [m]                                    | LC/CO/RC | Design | Equation No. | Description  |
|------------|---|----------|--------|--------------|--|
|            | 1.071   | RC1      | 0.00   | ≤ 1          | CS123) Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 0.000   | RC1      | 0.00   | ≤ 1          | CS126) Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 1.071   | RC1      | 0.01   | ≤ 1          | CS181) Cross-section check - Bending, shear and axial force acc. to 6.2.9.1                  |
|            | 0.643   | RC1      | 0.01   | ≤ 1          | CS201) Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1     |
|            | 0.000   | RC1      | 0.00   | ≤ 1          | CS221) Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000   | RC1      | 0.09   | ≤ 1          | ST364) Stability analysis - Bending and compression acc. to 6.3.3, Method 2                  |
|            | 0.000   | RC2      | 0.00   | ≤ 1          | SE400) Serviceability - Negligible deformations  |
|            | 1.500   | RC2      | 0.40   | ≤ 1          | SE411) Serviceability - Combination of actions 'Characteristic' - z-direction, Cantilever    |
|            | 1.500   | RC3      | 0.13   | ≤ 1          | SE412) Serviceability - Combination of actions 'Frequent' - z-direction, Cantilever          |
|            | 1.500   | RC4      | 0.08   | ≤ 1          | SE413) Serviceability - Combination of actions 'Quasi-permanent' - z-direction, Cantilever   |
|            | 1.500   | RC2      | 0.03   | ≤ 1          | SE416) Serviceability - Combination of actions 'Characteristic' - y-direction, Cantilever    |
|            | 1.500   | RC3      | 0.01   | ≤ 1          | SE417) Serviceability - Combination of actions 'Frequent' - y-direction, Cantilever          |
|            | 1.500   | RC4      | 0.00   | ≤ 1          | SE418) Serviceability - Combination of actions 'Quasi-permanent' - y-direction, Cantilever   |
|            | Cross-section No. 1 - QRO 100x4   EN 10219-2:2006 |          |        |              |  |
| 26         | 0.233   | RC1      | 0.00   | ≤ 1          | CS100) Negligible internal forces  |
|            | 0.233   | RC1      | 0.01   | ≤ 1          | CS111) Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 0.000   | RC1      | 0.00   | ≤ 1          | CS116) Cross-section check - Bending about z-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 0.233   | RC1      | 0.01   | ≤ 1          | CS141) Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                 |
|            | 0.000   | RC1      | 0.00   | ≤ 1          | CS151) Cross-section check - Bending about z-axis and shear force acc. to 6.2.5 and 6.2.8    |
|            | 0.000   | RC1      | 0.00   | ≤ 1          | CS161) Cross-section check - Biaxial bending and shear force acc. to 6.2.6, 6.2.7 and 6.2.9  |
|            | 0.000   | RC2      | 0.00   | ≤ 1          | SE400) Serviceability - Negligible deformations  |
|            | 1.400   | RC2      | 0.41   | ≤ 1          | SE411) Serviceability - Combination of actions 'Characteristic' - z-direction, Cantilever    |
|            | 1.400   | RC3      | 0.14   | ≤ 1          | SE412) Serviceability - Combination of actions 'Frequent' - z-direction, Cantilever          |
|            | 1.400   | RC4      | 0.08   | ≤ 1          | SE413) Serviceability - Combination of actions 'Quasi-permanent' - z-direction, Cantilever   |
|            | 1.400   | RC2      | 0.03   | ≤ 1          | SE416) Serviceability - Combination of actions 'Characteristic' - y-direction, Cantilever    |
|            | 1.400   | RC3      | 0.01   | ≤ 1          | SE417) Serviceability - Combination of actions 'Frequent' - y-direction, Cantilever          |
|            | 1.400   | RC4      | 0.00   | ≤ 1          | SE418) Serviceability - Combination of actions 'Quasi-permanent' - y-direction, Cantilever   |
|            | Cross-section No. 1 - QRO 100x4   EN 10219-2:2006 |          |        |              |  |
| 27         | 0.000   | RC1      | 0.04   | ≤ 1          | CS102) Cross-section check - Compression acc. to 6.2.4                                       |
|            | 0.000   | RC1      | 0.02   | ≤ 1          | CS121) Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 0.480   | RC1      | 0.01   | ≤ 1          | CS123) Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 0.000   | RC1      | 0.00   | ≤ 1          | CS126) Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 0.960   | RC1      | 0.00   | ≤ 1          | CS181) Cross-section check - Bending, shear and axial force acc. to 6.2.9.1                  |
|            | 0.000   | RC1      | 0.00   | ≤ 1          | CS201) Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1     |
|            | 1.200   | RC1      | 0.13   | ≤ 1          | CS221) Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000   | RC1      | 0.24   | ≤ 1          | ST364) Stability analysis - Bending and compression acc. to 6.3.3, Method 2                  |
|            | 0.000   | RC2      | 0.00   | ≤ 1          | SE400) Serviceability - Negligible deformations  |
|            | 0.480   | RC2      | 0.05   | ≤ 1          | SE411) Serviceability - Combination of actions 'Characteristic' - z-direction, Cantilever    |
|            | 0.720   | RC3      | 0.02   | ≤ 1          | SE412) Serviceability - Combination of actions 'Frequent' - z-direction, Cantilever          |
|            | 0.720   | RC4      | 0.01   | ≤ 1          | SE413) Serviceability - Combination of actions 'Quasi-permanent' - z-direction, Cantilever   |
|            | 1.200   | RC2      | 0.06   | ≤ 1          | SE416) Serviceability - Combination of actions 'Characteristic' - y-direction, Cantilever    |
|            | 1.200   | RC3      | 0.02   | ≤ 1          | SE417) Serviceability - Combination of actions 'Frequent' - y-direction, Cantilever          |
|            | 1.200   | RC4      | 0.01   | ≤ 1          | SE418) Serviceability - Combination of actions 'Quasi-permanent' - y-direction, Cantilever   |
|            | Cross-section No. 1 - QRO 100x4   EN 10219-2:2006 |          |        |              |  |
| 28         | 0.000   | RC1      | 0.02   | ≤ 1          | CS102) Cross-section check - Compression acc. to 6.2.4                                       |
|            | 0.857   | RC1      | 0.03   | ≤ 1          | CS121) Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 0.000   | RC1      | 0.00   | ≤ 1          | CS126) Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 1.500   | RC1      | 0.12   | ≤ 1          | CS181) Cross-section check - Bending, shear and axial force acc. to 6.2.9.1                  |
|            | 0.000   | RC1      | 0.06   | ≤ 1          | CS221) Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000   | RC1      | 0.10   | ≤ 1          | ST364) Stability analysis - Bending and compression acc. to 6.3.3, Method 2                  |
|            | 0.000   | RC2      | 0.00   | ≤ 1          | SE400) Serviceability - Negligible deformations  |
|            | 1.500   | RC2      | 0.73   | ≤ 1          | SE411) Serviceability - Combination of actions 'Characteristic' - z-direction, Cantilever    |
|            | 1.500   | RC3      | 0.24   | ≤ 1          | SE412) Serviceability - Combination of actions 'Frequent' - z-direction, Cantilever          |
|            | 1.500   | RC4      | 0.15   | ≤ 1          | SE413) Serviceability - Combination of actions 'Quasi-permanent' - z-direction, Cantilever   |

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## 2.4 DESIGN BY MEMBER

| Member No. | Location x [m]   | LC/CO/RC | Design |          | Equation No. | Description   |
|------------|--|----------|--------|----------|--------------|---|
| 29         | 1.500  | RC2      | 0.03   | $\leq 1$ | SE416)       | Serviceability - Combination of actions 'Characteristic' - y-direction, Cantilever    |
|            | 1.500  | RC3      | 0.01   | $\leq 1$ | SE417)       | Serviceability - Combination of actions 'Frequent' - y-direction, Cantilever          |
|            | 1.500  | RC4      | 0.00   | $\leq 1$ | SE418)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction, Cantilever   |
|            | <b>Cross-section No. 1 - QRO 100x4   EN 10219-2:2006</b> |          |        |          |              |   |
|            | 0.000  | RC1      | 0.00   | $\leq 1$ | CS100)       | Negligible internal forces  |
|            | 0.000  | RC1      | 0.02   | $\leq 1$ | CS102)       | Cross-section check - Compression acc. to 6.2.4                                       |
|            | 0.450  | RC1      | 0.00   | $\leq 1$ | CS111)       | Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 0.000  | RC1      | 0.02   | $\leq 1$ | CS121)       | Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 0.450  | RC1      | 0.00   | $\leq 1$ | CS123)       | Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 0.000  | RC1      | 0.00   | $\leq 1$ | CS126)       | Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 0.450  | RC1      | 0.00   | $\leq 1$ | CS141)       | Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                 |
|            | 0.225  | RC1      | 0.13   | $\leq 1$ | CS181)       | Cross-section check - Bending, shear and axial force acc. to 6.2.9.1                  |
|            | 0.450  | RC1      | 0.05   | $\leq 1$ | CS221)       | Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000  | RC1      | 0.15   | $\leq 1$ | ST364)       | Stability analysis - Bending and compression acc. to 6.3.3, Method 2                  |
|            | 0.000  | RC2      | 0.00   | $\leq 1$ | SE400)       | Serviceability - Negligible deformations  |
|            | 0.450  | RC2      | 0.62   | $\leq 1$ | SE411)       | Serviceability - Combination of actions 'Characteristic' - z-direction, Cantilever    |
|            | 0.450  | RC3      | 0.21   | $\leq 1$ | SE412)       | Serviceability - Combination of actions 'Frequent' - z-direction, Cantilever          |
|            | 0.450  | RC4      | 0.13   | $\leq 1$ | SE413)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction, Cantilever   |
|            | 0.450  | RC2      | 0.03   | $\leq 1$ | SE416)       | Serviceability - Combination of actions 'Characteristic' - y-direction, Cantilever    |
|            | 0.450  | RC3      | 0.01   | $\leq 1$ | SE417)       | Serviceability - Combination of actions 'Frequent' - y-direction, Cantilever          |
|            | 0.450  | RC4      | 0.01   | $\leq 1$ | SE418)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction, Cantilever   |
| 46         | <b>Cross-section No. 1 - QRO 100x4   EN 10219-2:2006</b> |          |        |          |              |   |
|            | 0.712  | RC1      | 0.00   | $\leq 1$ | CS100)       | Negligible internal forces  |
|            | 0.475  | RC1      | 0.03   | $\leq 1$ | CS111)       | Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 0.950  | RC1      | 0.00   | $\leq 1$ | CS116)       | Cross-section check - Bending about z-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 0.000  | RC1      | 0.02   | $\leq 1$ | CS121)       | Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 0.000  | RC1      | 0.00   | $\leq 1$ | CS126)       | Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 0.475  | RC1      | 0.03   | $\leq 1$ | CS141)       | Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                 |
|            | 0.950  | RC1      | 0.00   | $\leq 1$ | CS151)       | Cross-section check - Bending about z-axis and shear force acc. to 6.2.5 and 6.2.8    |
|            | 0.950  | RC1      | 0.03   | $\leq 1$ | CS161)       | Cross-section check - Biaxial bending and shear force acc. to 6.2.6, 6.2.7 and 6.2.9  |
|            | 0.000  | RC2      | 0.00   | $\leq 1$ | SE400)       | Serviceability - Negligible deformations  |
|            | 0.950  | RC2      | 0.53   | $\leq 1$ | SE411)       | Serviceability - Combination of actions 'Characteristic' - z-direction, Cantilever    |
|            | 0.950  | RC3      | 0.18   | $\leq 1$ | SE412)       | Serviceability - Combination of actions 'Frequent' - z-direction, Cantilever          |
|            | 0.950  | RC4      | 0.11   | $\leq 1$ | SE413)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction, Cantilever   |
|            | 0.950  | RC2      | 0.06   | $\leq 1$ | SE416)       | Serviceability - Combination of actions 'Characteristic' - y-direction, Cantilever    |
|            | 0.950  | RC3      | 0.02   | $\leq 1$ | SE417)       | Serviceability - Combination of actions 'Frequent' - y-direction, Cantilever          |
|            | 0.950  | RC4      | 0.01   | $\leq 1$ | SE418)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction, Cantilever   |
|            | <b>Cross-section No. 1 - QRO 100x4   EN 10219-2:2006</b> |          |        |          |              |   |
|            | 0.712  | RC1      | 0.00   | $\leq 1$ | CS100)       | Negligible internal forces  |
|            | 0.000  | RC1      | 0.00   | $\leq 1$ | CS102)       | Cross-section check - Compression acc. to 6.2.4                                       |
|            | 0.950  | RC1      | 0.00   | $\leq 1$ | CS116)       | Cross-section check - Bending about z-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 0.237  | RC1      | 0.02   | $\leq 1$ | CS121)       | Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 0.000  | RC1      | 0.00   | $\leq 1$ | CS126)       | Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 0.950  | RC1      | 0.00   | $\leq 1$ | CS151)       | Cross-section check - Bending about z-axis and shear force acc. to 6.2.5 and 6.2.8    |
|            | 0.712  | RC1      | 0.08   | $\leq 1$ | CS181)       | Cross-section check - Bending, shear and axial force acc. to 6.2.9.1                  |
|            | 0.950  | RC1      | 0.03   | $\leq 1$ | CS221)       | Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000  | RC2      | 0.00   | $\leq 1$ | SE400)       | Serviceability - Negligible deformations  |
|            | 0.950  | RC2      | 0.54   | $\leq 1$ | SE411)       | Serviceability - Combination of actions 'Characteristic' - z-direction, Cantilever    |
|            | 0.950  | RC3      | 0.18   | $\leq 1$ | SE412)       | Serviceability - Combination of actions 'Frequent' - z-direction, Cantilever          |
|            | 0.950  | RC4      | 0.11   | $\leq 1$ | SE413)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction, Cantilever   |
|            | 0.950  | RC2      | 0.02   | $\leq 1$ | SE416)       | Serviceability - Combination of actions 'Characteristic' - y-direction, Cantilever    |
|            | 0.950  | RC3      | 0.01   | $\leq 1$ | SE417)       | Serviceability - Combination of actions 'Frequent' - y-direction, Cantilever          |
|            | 0.950  | RC4      | 0.00   | $\leq 1$ | SE418)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction, Cantilever   |
| 48         | <b>Cross-section No. 1 - QRO 100x4   EN 10219-2:2006</b> |          |        |          |              |   |
|            | 0.712  | RC1      | 0.00   | $\leq 1$ | CS100)       | Negligible internal forces  |
|            | 0.000  | RC1      | 0.00   | $\leq 1$ | CS102)       | Cross-section check - Compression acc. to 6.2.4                                       |
|            | 0.950  | RC1      | 0.00   | $\leq 1$ | CS116)       | Cross-section check - Bending about z-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 0.237  | RC1      | 0.02   | $\leq 1$ | CS121)       | Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 0.000  | RC1      | 0.00   | $\leq 1$ | CS126)       | Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 0.950  | RC1      | 0.00   | $\leq 1$ | CS151)       | Cross-section check - Bending about z-axis and shear force acc. to 6.2.5 and 6.2.8    |
|            | 0.712  | RC1      | 0.08   | $\leq 1$ | CS181)       | Cross-section check - Bending, shear and axial force acc. to 6.2.9.1                  |
|            | 0.950  | RC1      | 0.03   | $\leq 1$ | CS221)       | Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000  | RC2      | 0.00   | $\leq 1$ | SE400)       | Serviceability - Negligible deformations  |
|            | 0.950  | RC2      | 0.54   | $\leq 1$ | SE411)       | Serviceability - Combination of actions 'Characteristic' - z-direction, Cantilever    |
|            | 0.950  | RC3      | 0.18   | $\leq 1$ | SE412)       | Serviceability - Combination of actions 'Frequent' - z-direction, Cantilever          |
|            | 0.950  | RC4      | 0.11   | $\leq 1$ | SE413)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction, Cantilever   |
|            | 0.950  | RC2      | 0.02   | $\leq 1$ | SE416)       | Serviceability - Combination of actions 'Characteristic' - y-direction, Cantilever    |
|            | 0.950  | RC3      | 0.01   | $\leq 1$ | SE417)       | Serviceability - Combination of actions 'Frequent' - y-direction, Cantilever          |
|            | 0.950  | RC4      | 0.00   | $\leq 1$ | SE418)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction, Cantilever   |
|            | <b>Cross-section No. 1 - QRO 100x4   EN 10219-2:2006</b> |          |        |          |              |   |
|            | 0.712  | RC1      | 0.00   | $\leq 1$ | CS100)       | Negligible internal forces  |
|            | 0.000  | RC1      | 0.00   | $\leq 1$ | CS102)       | Cross-section check - Compression acc. to 6.2.4                                       |
|            | 0.950  | RC1      | 0.00   | $\leq 1$ | CS116)       | Cross-section check - Bending about z-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 0.237  | RC1      | 0.02   | $\leq 1$ | CS121)       | Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 0.000  | RC1      | 0.00   | $\leq 1$ | CS126)       | Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 0.950  | RC1      | 0.00   | $\leq 1$ | CS151)       | Cross-section check - Bending about z-axis and shear force acc. to 6.2.5 and 6.2.8    |
|            | 0.712  | RC1      | 0.08   | $\leq 1$ | CS181)       | Cross-section check - Bending, shear and axial force acc. to 6.2.9.1                  |
|            | 0.950  | RC1      | 0.03   | $\leq 1$ | CS221)       | Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000  | RC2      | 0.00   | $\leq 1$ | SE400)       | Serviceability - Negligible deformations  |
|            | 0.950  | RC2      | 0.54   | $\leq 1$ | SE411)       | Serviceability - Combination of actions 'Characteristic' - z-direction, Cantilever    |
|            | 0.950  | RC3      | 0.18   | $\leq 1$ | SE412)       | Serviceability - Combination of actions 'Frequent' - z-direction, Cantilever          |
|            | 0.950  | RC4      | 0.11   | $\leq 1$ | SE413)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction, Cantilever   |
|            | 0.950  | RC2      | 0.02   | $\leq 1$ | SE416)       | Serviceability - Combination of actions 'Characteristic' - y-direction, Cantilever    |
|            | 0.950  | RC3      | 0.01   | $\leq 1$ | SE417)       | Serviceability - Combination of actions 'Frequent' - y-direction, Cantilever          |
|            | 0.950  | RC4      | 0.00   | $\leq 1$ | SE418)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction, Cantilever   |



RF-STEEL EC3  
CA2  
Horizontal beams

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## 1.1 GENERAL DATA

|                                   |               |  |  |
|-----------------------------------|---------------|--|--|
| Members to design:                | 5-17,30-35,49 |  |  |
| Sets of members to design:        |               |  |  |
| National Annex:                   | CEN           |  |  |
| Ultimate Limit State Design       |               |  |  |
| Result combinations to design:    | RC1           | ULS (STR/GEO) - Permanent / transient - Eq. 6.10 |  |
| Serviceability Limit State Design |               |  |  |
| Result combinations to design:    | RC2           | SLS - Characteristic                             |  |
|                                   | RC3           | SLS - Frequent                                   |  |
|                                   | RC4           | SLS - Quasi-permanent                            |  |

## 1.2 MATERIALS

| Matl. No. | Material Description             | E- Modulus<br>E [kN/cm <sup>2</sup> ] | Shear Modulus<br>G [kN/cm <sup>2</sup> ] | Poisson's Ratio<br>ν [-] | Yield Stress<br>f <sub>yk</sub> [kN/cm <sup>2</sup> ] | Max. Thickness<br>t [mm] |
|-----------|----------------------------------|---------------------------------------|--|--------------------------|---|--------------------------|
| 2         | Steel S 235   EN 10025-2:2004-11 | 21000.00                              | 8076.92                                  | 0.300                    | 23.50   | 16.0                     |
|           |                                  |                                       |  |                          | 22.50   | 40.0                     |
|           |                                  |                                       |  |                          | 21.50   | 100.0                    |
|           |                                  |                                       |  |                          | 19.50   | 150.0                    |
|           |                                  |                                       |  |                          | 18.50   | 200.0                    |
|           |                                  |                                       |  |                          | 17.50   | 250.0                    |
|           |                                  |                                       |  |                          | 16.50   | 400.0                    |

## 1.3 CROSS-SECTIONS

| Sect. No. | Matl. No. | Cross-Section Description   | Cross-Section Type | Max Design Ratio | Comment |
|-----------|-----------|-----------------------------|--------------------|------------------|---------|
| 2         | 2         | QRO 100x4   EN 10219-2:2006 | Box rolled         | 0.18             |         |

## 1.5 EFFECTIVE LENGTHS - MEMBERS

| Member | Buckling                            | Buckling About Axis y               |            |                | Buckling About Axis z               |            |                | Lateral-Torsional Buckling |       |       |           |           |
|--------|-------------------------------------|-------------------------------------|------------|----------------|-------------------------------------|------------|----------------|----------------------------|-------|-------|-----------|-----------|
| No.    | Possible                            | Possible                            | $k_{cr,y}$ | $L_{cr,y}$ [m] | Possible                            | $k_{cr,z}$ | $L_{cr,z}$ [m] | Possible                   | $k_z$ | $k_w$ | $L_w$ [m] | $L_T$ [m] |
| 5      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input type="checkbox"/>   | 1.0   | 1.0   | 1.550     | 1.550     |
| 6      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input type="checkbox"/>   | 1.0   | 1.0   | 1.550     | 1.550     |
| 7      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input type="checkbox"/>   | 1.0   | 1.0   | 1.550     | 1.550     |
| 8      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input type="checkbox"/>   | 1.0   | 1.0   | 1.550     | 1.550     |
| 9      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input type="checkbox"/>   | 1.0   | 1.0   | 1.550     | 1.550     |
| 10     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input type="checkbox"/>   | 1.0   | 1.0   | 1.550     | 1.550     |
| 11     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input type="checkbox"/>   | 1.0   | 1.0   | 1.550     | 1.550     |
| 12     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input type="checkbox"/>   | 1.0   | 1.0   | 1.550     | 1.550     |
| 13     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input type="checkbox"/>   | 1.0   | 1.0   | 1.550     | 1.550     |
| 14     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input type="checkbox"/>   | 1.0   | 1.0   | 1.550     | 1.550     |
| 15     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input type="checkbox"/>   | 1.0   | 1.0   | 1.550     | 1.550     |
| 16     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input type="checkbox"/>   | 1.0   | 1.0   | 1.550     | 1.550     |
| 17     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input type="checkbox"/>   | 1.0   | 1.0   | 1.550     | 1.550     |
| 30     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input type="checkbox"/>   | 1.0   | 1.0   | 1.550     | 1.550     |
| 31     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input type="checkbox"/>   | 1.0   | 1.0   | 1.550     | 1.550     |
| 32     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input type="checkbox"/>   | 1.0   | 1.0   | 1.550     | 1.550     |
| 33     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input type="checkbox"/>   | 1.0   | 1.0   | 1.550     | 1.550     |
| 34     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input type="checkbox"/>   | 1.0   | 1.0   | 1.550     | 1.550     |
| 35     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input checked="" type="checkbox"/> | 1.00       | 1.550          | <input type="checkbox"/>   | 1.0   | 1.0   | 1.550     | 1.550     |
| 49     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 1.960          | <input checked="" type="checkbox"/> | 1.00       | 1.960          | <input type="checkbox"/>   | 1.0   | 1.0   | 1.960     | 1.960     |

## 1.9 SERVICEABILITY DATA

| No. | Reference to | Members/Sets No. | Reference Length         |       | Direct. | Precamber<br>e <sub>0</sub> [mm] | Beam Type |
|-----|--------------|------------------|--------------------------|-------|---------|----------------------------------|-----------|
|     |              |                  | Manually                 | l [m] |         |                                  |           |
| 1   | Member       | 5                | <input type="checkbox"/> | 1.550 | y, z    | 0.0                              | Beam      |
| 2   | Member       | 6                | <input type="checkbox"/> | 1.550 | y, z    | 0.0                              | Beam      |
| 3   | Member       | 7                | <input type="checkbox"/> | 1.550 | y, z    | 0.0                              | Beam      |
| 4   | Member       | 8                | <input type="checkbox"/> | 1.550 | y, z    | 0.0                              | Beam      |
| 5   | Member       | 9                | <input type="checkbox"/> | 1.550 | y, z    | 0.0                              | Beam      |
| 6   | Member       | 10               | <input type="checkbox"/> | 1.550 | y, z    | 0.0                              | Beam      |
| 7   | Member       | 11               | <input type="checkbox"/> | 1.550 | y, z    | 0.0                              | Beam      |
| 8   | Member       | 12               | <input type="checkbox"/> | 1.550 | y, z    | 0.0                              | Beam      |
| 9   | Member       | 13               | <input type="checkbox"/> | 1.550 | y, z    | 0.0                              | Beam      |
| 10  | Member       | 14               | <input type="checkbox"/> | 1.550 | y, z    | 0.0                              | Beam      |
| 11  | Member       | 15               | <input type="checkbox"/> | 1.550 | y, z    | 0.0                              | Beam      |
| 12  | Member       | 16               | <input type="checkbox"/> | 1.550 | y, z    | 0.0                              | Beam      |
| 13  | Member       | 17               | <input type="checkbox"/> | 1.550 | y, z    | 0.0                              | Beam      |
| 14  | Member       | 30               | <input type="checkbox"/> | 1.550 | y, z    | 0.0                              | Beam      |
| 15  | Member       | 31               | <input type="checkbox"/> | 1.550 | y, z    | 0.0                              | Beam      |
| 16  | Member       | 32               | <input type="checkbox"/> | 1.550 | y, z    | 0.0                              | Beam      |
| 17  | Member       | 33               | <input type="checkbox"/> | 1.550 | y, z    | 0.0                              | Beam      |
| 18  | Member       | 34               | <input type="checkbox"/> | 1.550 | y, z    | 0.0                              | Beam      |
| 19  | Member       | 35               | <input type="checkbox"/> | 1.550 | y, z    | 0.0                              | Beam      |
| 20  | Member       | 49               | <input type="checkbox"/> | 1.960 | y, z    | 0.0                              | Beam      |

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## 1.12 PARAMETERS - MEMBERS

| Member No. | Description                             | Parameter                       |
|------------|---|---------------------------------|
| 5          | Cross-Section                           | 2 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 6          | Cross-Section                           | 2 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 7          | Cross-Section                           | 2 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 8          | Cross-Section                           | 2 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 9          | Cross-Section                           | 2 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 10         | Cross-Section                           | 2 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 11         | Cross-Section                           | 2 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 12         | Cross-Section                           | 2 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 13         | Cross-Section                           | 2 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 14         | Cross-Section                           | 2 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 15         | Cross-Section                           | 2 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 16         | Cross-Section                           | 2 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 17         | Cross-Section                           | 2 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 30         | Cross-Section                           | 2 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 31         | Cross-Section                           | 2 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 32         | Cross-Section                           | 2 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 33         | Cross-Section                           | 2 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 34         | Cross-Section                           | 2 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |
| 35         | Cross-Section                           | 2 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |

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## 1.12 PARAMETERS - MEMBERS

| Member No. | Description                             | Parameter                       |
|------------|---|---------------------------------|
| 49         | Cross-Section                           | 2 - QRO 100x4   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>        |
|            | Rotational restraint                    | <input type="checkbox"/>        |
|            | Cross-sectional area for tension design | <input type="checkbox"/>        |

## 2.4 DESIGN BY MEMBER

| Member No. | Location x [m]                                    | LC/CO/ RC | Design | Equation No. | Description   |
|------------|---|-----------|--------|--------------|---|
| 5          | Cross-section No. 2 - QRO 100x4   EN 10219-2:2006 |           |        |              |   |
|            | 1.292   | RC1       | 0.00   | ≤ 1          | CS100) Negligible internal forces   |
|            | 0.000   | RC2       | 0.00   | ≤ 1          | SE400) Serviceability - Negligible deformations   |
| 6          | Cross-section No. 2 - QRO 100x4   EN 10219-2:2006 |           |        |              |   |
|            | 0.258   | RC1       | 0.00   | ≤ 1          | CS100) Negligible internal forces   |
|            | 0.000   | RC1       | 0.00   | ≤ 1          | CS101) Cross-section check - Tension acc. to 6.2.3  |
|            | 1.033   | RC1       | 0.00   | ≤ 1          | CS102) Cross-section check - Compression acc. to 6.2.4  |
|            | 0.000   | RC1       | 0.00   | ≤ 1          | CS181) Cross-section check - Bending, shear and axial force acc. to 6.2.9.1                           |
|            | 0.000   | RC2       | 0.00   | ≤ 1          | SE400) Serviceability - Negligible deformations   |
|            | 0.775   | RC2       | 0.00   | ≤ 1          | SE401) Serviceability - Combination of actions 'Characteristic' - z-direction                         |
| 7          | Cross-section No. 2 - QRO 100x4   EN 10219-2:2006 |           |        |              |   |
|            | 0.258   | RC1       | 0.00   | ≤ 1          | CS100) Negligible internal forces   |
|            | 0.000   | RC1       | 0.01   | ≤ 1          | CS101) Cross-section check - Tension acc. to 6.2.3  |
|            | 1.550   | RC1       | 0.01   | ≤ 1          | CS102) Cross-section check - Compression acc. to 6.2.4  |
|            | 1.033   | RC1       | 0.00   | ≤ 1          | CS111) Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2                        |
|            | 1.550   | RC1       | 0.01   | ≤ 1          | CS121) Cross-section check - Shear force in z-axis acc. to 6.2.6                                      |
|            | 0.000   | RC1       | 0.00   | ≤ 1          | CS126) Cross-section check - Shear buckling acc. to 6.2.6(6)  |
|            | 1.033   | RC1       | 0.00   | ≤ 1          | CS141) Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                          |
|            | 1.550   | RC1       | 0.01   | ≤ 1          | CS181) Cross-section check - Bending, shear and axial force acc. to 6.2.9.1                           |
|            | 0.000   | RC2       | 0.00   | ≤ 1          | SE400) Serviceability - Negligible deformations   |
|            | 0.258   | RC2       | 0.00   | ≤ 1          | SE401) Serviceability - Combination of actions 'Characteristic' - z-direction                         |
| 8          | Cross-section No. 2 - QRO 100x4   EN 10219-2:2006 |           |        |              |   |
|            | 1.033   | RC1       | 0.00   | ≤ 1          | CS100) Negligible internal forces   |
|            | 0.000   | RC1       | 0.01   | ≤ 1          | CS101) Cross-section check - Tension acc. to 6.2.3  |
|            | 1.550   | RC1       | 0.01   | ≤ 1          | CS102) Cross-section check - Compression acc. to 6.2.4  |
|            | 1.550   | RC1       | 0.00   | ≤ 1          | CS121) Cross-section check - Shear force in z-axis acc. to 6.2.6                                      |
|            | 0.000   | RC1       | 0.00   | ≤ 1          | CS126) Cross-section check - Shear buckling acc. to 6.2.6(6)  |
|            | 0.000   | RC1       | 0.01   | ≤ 1          | CS181) Cross-section check - Bending, shear and axial force acc. to 6.2.9.1                           |
|            | 0.000   | RC2       | 0.00   | ≤ 1          | SE400) Serviceability - Negligible deformations   |
|            | 0.258   | RC2       | 0.00   | ≤ 1          | SE401) Serviceability - Combination of actions 'Characteristic' - z-direction                         |
| 9          | Cross-section No. 2 - QRO 100x4   EN 10219-2:2006 |           |        |              |   |
|            | 0.221   | RC1       | 0.00   | ≤ 1          | CS100) Negligible internal forces   |
|            | 0.886   | RC1       | 0.00   | ≤ 1          | CS101) Cross-section check - Tension acc. to 6.2.3  |
|            | 1.550   | RC1       | 0.00   | ≤ 1          | CS111) Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2                        |
|            | 0.000   | RC1       | 0.00   | ≤ 1          | CS126) Cross-section check - Shear buckling acc. to 6.2.6(6)  |
|            | 1.550   | RC1       | 0.07   | ≤ 1          | CS131) Cross-section check - Torsion acc. to 6.2.7  |
|            | 0.000   | RC1       | 0.01   | ≤ 1          | CS132) Cross-section check - Torsion and shear force acc. to 6.2.7(9)                                 |
|            | 1.550   | RC1       | 0.01   | ≤ 1          | CS137) Cross-section check - Torsion and shear force acc. to 6.2.7(9)                                 |
|            | 1.550   | RC1       | 0.00   | ≤ 1          | CS141) Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                          |
|            | 1.107   | RC1       | 0.01   | ≤ 1          | CS186) Cross-section check - Bending, shear, torsion and axial force acc. to 6.2.9.1                  |
|            | 0.000   | RC1       | 0.01   | ≤ 1          | CS226) Cross-section check - Biaxial bending, shear, torsion and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000   | RC1       | 0.12   | ≤ 1          | CS271) Cross-section check - Axial stress and torsion - Elastic design                                |
|            | 0.000   | RC2       | 0.00   | ≤ 1          | SE400) Serviceability - Negligible deformations   |
|            | 0.221   | RC2       | 0.00   | ≤ 1          | SE401) Serviceability - Combination of actions 'Characteristic' - z-direction                         |
|            | 1.107   | RC3       | 0.00   | ≤ 1          | SE402) Serviceability - Combination of actions 'Frequent' - z-direction                               |
|            | 0.664   | RC4       | 0.00   | ≤ 1          | SE403) Serviceability - Combination of actions 'Quasi-permanent' - z-direction                        |
|            | 0.664   | RC2       | 0.02   | ≤ 1          | SE406) Serviceability - Combination of actions 'Characteristic' - y-direction                         |
|            | 0.664   | RC3       | 0.01   | ≤ 1          | SE407) Serviceability - Combination of actions 'Frequent' - y-direction                               |
|            | 0.664   | RC4       | 0.00   | ≤ 1          | SE408) Serviceability - Combination of actions 'Quasi-permanent' - y-direction                        |
| 10         | Cross-section No. 2 - QRO 100x4   EN 10219-2:2006 |           |        |              |   |
|            | 1.107   | RC1       | 0.00   | ≤ 1          | CS100) Negligible internal forces   |
|            | 0.886   | RC1       | 0.01   | ≤ 1          | CS101) Cross-section check - Tension acc. to 6.2.3  |
|            | 0.221   | RC1       | 0.01   | ≤ 1          | CS111) Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2                        |
|            | 1.550   | RC1       | 0.00   | ≤ 1          | CS121) Cross-section check - Shear force in z-axis acc. to 6.2.6                                      |
|            | 0.000   | RC1       | 0.00   | ≤ 1          | CS126) Cross-section check - Shear buckling acc. to 6.2.6(6)  |
|            | 0.000   | RC1       | 0.07   | ≤ 1          | CS131) Cross-section check - Torsion acc. to 6.2.7  |
|            | 0.000   | RC1       | 0.00   | ≤ 1          | CS132) Cross-section check - Torsion and shear force acc. to 6.2.7(9)                                 |
|            | 0.000   | RC1       | 0.00   | ≤ 1          | CS137) Cross-section check - Torsion and shear force acc. to 6.2.7(9)                                 |
|            | 0.221   | RC1       | 0.01   | ≤ 1          | CS141) Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                          |
|            | 0.000   | RC1       | 0.00   | ≤ 1          | CS161) Cross-section check - Biaxial bending and shear force acc. to 6.2.6, 6.2.7 and 6.2.9           |
|            | 0.443   | RC1       | 0.03   | ≤ 1          | CS206) Cross-section check - Bending about z-axis, shear, torsion and axial force acc. to 6.2.9.1     |
|            | 0.000   | RC1       | 0.01   | ≤ 1          | CS226) Cross-section check - Biaxial bending, shear, torsion and axial force acc. to 6.2.10 and 6.2.9 |

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## ■ 2.4 DESIGN BY MEMBER

| Member No. | Location x [m]   | LC/CO/RC | Design |     | Equation No. | Description   |
|------------|--|----------|--------|-----|--------------|---|
|            | 0.000  | RC1      | 0.10   | ≤ 1 | CS271)       | Cross-section check - Axial stress and torsion - Elastic design                       |
|            | 0.000  | RC2      | 0.00   | ≤ 1 | SE400)       | Serviceability - Negligible deformations  |
|            | 0.664  | RC2      | 0.00   | ≤ 1 | SE401)       | Serviceability - Combination of actions 'Characteristic' - z-direction                |
|            | 0.664  | RC3      | 0.00   | ≤ 1 | SE402)       | Serviceability - Combination of actions 'Frequent' - z-direction                      |
|            | 0.664  | RC4      | 0.00   | ≤ 1 | SE403)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction               |
|            | 0.664  | RC2      | 0.01   | ≤ 1 | SE406)       | Serviceability - Combination of actions 'Characteristic' - y-direction                |
|            | 0.664  | RC3      | 0.00   | ≤ 1 | SE407)       | Serviceability - Combination of actions 'Frequent' - y-direction                      |
|            | 0.664  | RC4      | 0.00   | ≤ 1 | SE408)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction               |
|            | <b>Cross-section No. 2 - QRO 100x4   EN 10219-2:2006</b> |          |        |     |              |   |
|            | 1.107  | RC1      | 0.00   | ≤ 1 | CS100)       | Negligible internal forces  |
|            | 0.000  | RC1      | 0.01   | ≤ 1 | CS102)       | Cross-section check - Compression acc. to 6.2.4                                       |
|            | 1.550  | RC1      | 0.00   | ≤ 1 | CS111)       | Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 0.000  | RC1      | 0.03   | ≤ 1 | CS121)       | Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 0.664  | RC1      | 0.01   | ≤ 1 | CS123)       | Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 0.000  | RC1      | 0.00   | ≤ 1 | CS126)       | Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 1.550  | RC1      | 0.00   | ≤ 1 | CS141)       | Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                 |
|            | 0.000  | RC1      | 0.09   | ≤ 1 | CS221)       | Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000  | RC1      | 0.12   | ≤ 1 | ST364)       | Stability analysis - Bending and compression acc. to 6.3.3, Method 2                  |
|            | 0.000  | RC2      | 0.00   | ≤ 1 | SE400)       | Serviceability - Negligible deformations  |
|            | 0.443  | RC2      | 0.03   | ≤ 1 | SE401)       | Serviceability - Combination of actions 'Characteristic' - z-direction                |
|            | 0.443  | RC3      | 0.01   | ≤ 1 | SE402)       | Serviceability - Combination of actions 'Frequent' - z-direction                      |
|            | 0.443  | RC4      | 0.01   | ≤ 1 | SE403)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction               |
|            | 0.443  | RC2      | 0.01   | ≤ 1 | SE406)       | Serviceability - Combination of actions 'Characteristic' - y-direction                |
|            | 0.443  | RC3      | 0.00   | ≤ 1 | SE407)       | Serviceability - Combination of actions 'Frequent' - y-direction                      |
|            | 0.443  | RC4      | 0.00   | ≤ 1 | SE408)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction               |
|            | <b>Cross-section No. 2 - QRO 100x4   EN 10219-2:2006</b> |          |        |     |              |   |
|            | 0.886  | RC1      | 0.00   | ≤ 1 | CS100)       | Negligible internal forces  |
|            | 0.886  | RC1      | 0.01   | ≤ 1 | CS101)       | Cross-section check - Tension acc. to 6.2.3   |
|            | 0.000  | RC1      | 0.00   | ≤ 1 | CS111)       | Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 0.000  | RC1      | 0.00   | ≤ 1 | CS121)       | Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 0.000  | RC1      | 0.03   | ≤ 1 | CS123)       | Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 0.000  | RC1      | 0.00   | ≤ 1 | CS126)       | Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 0.000  | RC1      | 0.00   | ≤ 1 | CS141)       | Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                 |
|            | 0.221  | RC1      | 0.18   | ≤ 1 | CS201)       | Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1     |
|            | 0.000  | RC1      | 0.09   | ≤ 1 | CS221)       | Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000  | RC2      | 0.00   | ≤ 1 | SE400)       | Serviceability - Negligible deformations  |
|            | 0.886  | RC2      | 0.01   | ≤ 1 | SE401)       | Serviceability - Combination of actions 'Characteristic' - z-direction                |
|            | 0.886  | RC3      | 0.00   | ≤ 1 | SE402)       | Serviceability - Combination of actions 'Frequent' - z-direction                      |
|            | 0.886  | RC4      | 0.00   | ≤ 1 | SE403)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction               |
|            | 0.443  | RC2      | 0.06   | ≤ 1 | SE406)       | Serviceability - Combination of actions 'Characteristic' - y-direction                |
|            | 0.443  | RC3      | 0.02   | ≤ 1 | SE407)       | Serviceability - Combination of actions 'Frequent' - y-direction                      |
|            | 0.443  | RC4      | 0.01   | ≤ 1 | SE408)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction               |
|            | <b>Cross-section No. 2 - QRO 100x4   EN 10219-2:2006</b> |          |        |     |              |   |
|            | 0.886  | RC1      | 0.00   | ≤ 1 | CS100)       | Negligible internal forces  |
|            | 0.000  | RC1      | 0.01   | ≤ 1 | CS102)       | Cross-section check - Compression acc. to 6.2.4                                       |
|            | 0.000  | RC1      | 0.00   | ≤ 1 | CS111)       | Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 0.000  | RC1      | 0.00   | ≤ 1 | CS121)       | Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 0.886  | RC1      | 0.03   | ≤ 1 | CS123)       | Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 0.000  | RC1      | 0.00   | ≤ 1 | CS126)       | Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 0.000  | RC1      | 0.00   | ≤ 1 | CS141)       | Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                 |
|            | 0.221  | RC1      | 0.16   | ≤ 1 | CS201)       | Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1     |
|            | 0.000  | RC1      | 0.08   | ≤ 1 | CS221)       | Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000  | RC2      | 0.00   | ≤ 1 | SE400)       | Serviceability - Negligible deformations  |
|            | 0.886  | RC2      | 0.01   | ≤ 1 | SE401)       | Serviceability - Combination of actions 'Characteristic' - z-direction                |
|            | 0.886  | RC3      | 0.00   | ≤ 1 | SE402)       | Serviceability - Combination of actions 'Frequent' - z-direction                      |
|            | 0.886  | RC4      | 0.00   | ≤ 1 | SE403)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction               |
|            | 0.443  | RC2      | 0.05   | ≤ 1 | SE406)       | Serviceability - Combination of actions 'Characteristic' - y-direction                |
|            | 0.443  | RC3      | 0.02   | ≤ 1 | SE407)       | Serviceability - Combination of actions 'Frequent' - y-direction                      |
|            | 0.443  | RC4      | 0.01   | ≤ 1 | SE408)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction               |
|            | <b>Cross-section No. 2 - QRO 100x4   EN 10219-2:2006</b> |          |        |     |              |   |
|            | 0.664  | RC1      | 0.00   | ≤ 1 | CS100)       | Negligible internal forces  |
|            | 1.550  | RC1      | 0.00   | ≤ 1 | CS111)       | Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 0.000  | RC1      | 0.01   | ≤ 1 | CS116)       | Cross-section check - Bending about z-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 1.550  | RC1      | 0.00   | ≤ 1 | CS141)       | Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                 |
|            | 0.000  | RC1      | 0.01   | ≤ 1 | CS151)       | Cross-section check - Bending about z-axis and shear force acc. to 6.2.5 and 6.2.8    |
|            | 1.550  | RC1      | 0.00   | ≤ 1 | CS161)       | Cross-section check - Biaxial bending and shear force acc. to 6                       |

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## 2.4 DESIGN BY MEMBER

| Member No. | Location x [m]   | LC/CO/ RC | Design | Equation No. | Description  |
|------------|--|-----------|--------|--------------|--|
|            | 0.000  | RC2       | 0.00   | ≤ 1          | SE400) 6.2.6, 6.2.7 and 6.2.9 Serviceability - Negligible deformations                       |
|            | 0.664  | RC2       | 0.00   | ≤ 1          | SE401) Serviceability - Combination of actions 'Characteristic' - z-direction                |
|            | 0.664  | RC3       | 0.00   | ≤ 1          | SE402) Serviceability - Combination of actions 'Frequent' - z-direction                      |
|            | 0.664  | RC4       | 0.00   | ≤ 1          | SE403) Serviceability - Combination of actions 'Quasi-permanent' - z-direction               |
|            | 0.664  | RC2       | 0.01   | ≤ 1          | SE406) Serviceability - Combination of actions 'Characteristic' - y-direction                |
|            | 0.664  | RC3       | 0.00   | ≤ 1          | SE407) Serviceability - Combination of actions 'Frequent' - y-direction                      |
|            | 0.664  | RC4       | 0.00   | ≤ 1          | SE408) Serviceability - Combination of actions 'Quasi-permanent' - y-direction               |
|            | <b>Cross-section No. 2 - QRO 100x4   EN 10219-2:2006</b> |           |        |              |  |
|            | 0.664  | RC1       | 0.00   | ≤ 1          | CS100) Negligible internal forces  |
|            | 1.550  | RC1       | 0.00   | ≤ 1          | CS111) Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 0.221  | RC1       | 0.02   | ≤ 1          | CS116) Cross-section check - Bending about z-axis acc. to 6.2.5 - Class 1 or 2               |
| 15         | 1.550  | RC1       | 0.00   | ≤ 1          | CS141) Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                 |
|            | 0.221  | RC1       | 0.02   | ≤ 1          | CS151) Cross-section check - Bending about z-axis and shear force acc. to 6.2.5 and 6.2.8    |
|            | 0.000  | RC1       | 0.00   | ≤ 1          | CS161) Cross-section check - Biaxial bending and shear force acc. to 6.2.6, 6.2.7 and 6.2.9  |
|            | 0.000  | RC2       | 0.00   | ≤ 1          | SE400) Serviceability - Negligible deformations  |
|            | 0.664  | RC2       | 0.00   | ≤ 1          | SE401) Serviceability - Combination of actions 'Characteristic' - z-direction                |
|            | 0.664  | RC3       | 0.00   | ≤ 1          | SE402) Serviceability - Combination of actions 'Frequent' - z-direction                      |
|            | 0.664  | RC4       | 0.00   | ≤ 1          | SE403) Serviceability - Combination of actions 'Quasi-permanent' - z-direction               |
|            | 0.664  | RC2       | 0.02   | ≤ 1          | SE406) Serviceability - Combination of actions 'Characteristic' - y-direction                |
|            | 0.664  | RC3       | 0.01   | ≤ 1          | SE407) Serviceability - Combination of actions 'Frequent' - y-direction                      |
|            | 0.664  | RC4       | 0.00   | ≤ 1          | SE408) Serviceability - Combination of actions 'Quasi-permanent' - y-direction               |
|            | <b>Cross-section No. 2 - QRO 100x4   EN 10219-2:2006</b> |           |        |              |  |
| 16         | 0.664  | RC1       | 0.00   | ≤ 1          | CS100) Negligible internal forces  |
|            | 0.000  | RC1       | 0.00   | ≤ 1          | CS102) Cross-section check - Compression acc. to 6.2.4                                       |
|            | 0.000  | RC1       | 0.00   | ≤ 1          | CS111) Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 0.886  | RC1       | 0.01   | ≤ 1          | CS123) Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 0.000  | RC1       | 0.00   | ≤ 1          | CS141) Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                 |
|            | 0.221  | RC1       | 0.06   | ≤ 1          | CS201) Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1     |
|            | 0.000  | RC1       | 0.01   | ≤ 1          | CS221) Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000  | RC2       | 0.00   | ≤ 1          | SE400) Serviceability - Negligible deformations  |
|            | 0.886  | RC2       | 0.00   | ≤ 1          | SE401) Serviceability - Combination of actions 'Characteristic' - z-direction                |
|            | 0.886  | RC3       | 0.00   | ≤ 1          | SE402) Serviceability - Combination of actions 'Frequent' - z-direction                      |
|            | 0.886  | RC4       | 0.00   | ≤ 1          | SE403) Serviceability - Combination of actions 'Quasi-permanent' - z-direction               |
|            | 0.443  | RC2       | 0.02   | ≤ 1          | SE406) Serviceability - Combination of actions 'Characteristic' - y-direction                |
| 17         | 0.443  | RC3       | 0.01   | ≤ 1          | SE407) Serviceability - Combination of actions 'Frequent' - y-direction                      |
|            | 0.443  | RC4       | 0.00   | ≤ 1          | SE408) Serviceability - Combination of actions 'Quasi-permanent' - y-direction               |
|            | <b>Cross-section No. 2 - QRO 100x4   EN 10219-2:2006</b> |           |        |              |  |
|            | 1.050  | RC1       | 0.00   | ≤ 1          | CS100) Negligible internal forces  |
|            | 0.350  | RC1       | 0.01   | ≤ 1          | CS101) Cross-section check - Tension acc. to 6.2.3   |
|            | 0.000  | RC1       | 0.00   | ≤ 1          | CS111) Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 0.000  | RC1       | 0.09   | ≤ 1          | CS123) Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 0.000  | RC1       | 0.00   | ≤ 1          | CS141) Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                 |
|            | 0.000  | RC1       | 0.18   | ≤ 1          | CS201) Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1     |
|            | 1.050  | RC1       | 0.05   | ≤ 1          | CS221) Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000  | RC2       | 0.00   | ≤ 1          | SE400) Serviceability - Negligible deformations  |
|            | 0.886  | RC2       | 0.00   | ≤ 1          | SE401) Serviceability - Combination of actions 'Characteristic' - z-direction                |
| 30         | 0.886  | RC3       | 0.00   | ≤ 1          | SE402) Serviceability - Combination of actions 'Frequent' - z-direction                      |
|            | 0.886  | RC4       | 0.00   | ≤ 1          | SE403) Serviceability - Combination of actions 'Quasi-permanent' - z-direction               |
|            | 0.886  | RC2       | 0.12   | ≤ 1          | SE406) Serviceability - Combination of actions 'Characteristic' - y-direction                |
|            | 0.886  | RC3       | 0.04   | ≤ 1          | SE407) Serviceability - Combination of actions 'Frequent' - y-direction                      |
|            | 0.886  | RC4       | 0.02   | ≤ 1          | SE408) Serviceability - Combination of actions 'Quasi-permanent' - y-direction               |
|            | <b>Cross-section No. 2 - QRO 100x4   EN 10219-2:2006</b> |           |        |              |  |
|            | 1.550  | RC1       | 0.00   | ≤ 1          | CS100) Negligible internal forces  |
|            | 1.550  | RC1       | 0.01   | ≤ 1          | CS102) Cross-section check - Compression acc. to 6.2.4                                       |
|            | 0.664  | RC1       | 0.00   | ≤ 1          | CS111) Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 1.550  | RC1       | 0.01   | ≤ 1          | CS121) Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 0.664  | RC1       | 0.03   | ≤ 1          | CS123) Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 0.000  | RC1       | 0.00   | ≤ 1          | CS126) Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 0.664  | RC1       | 0.00   | ≤ 1          | CS141) Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                 |
|            | 1.550  | RC1       | 0.06   | ≤ 1          | CS221) Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 1.550  | RC1       | 0.10   | ≤ 1          | ST364) Stability analysis - Bending and compression acc. to 6.3.3, Method 2                  |
|            | 0.000  | RC2       | 0.00   | ≤ 1          | SE400) Serviceability - Negligible deformations  |
|            | 0.443  | RC2       | 0.01   | ≤ 1          | SE401) Serviceability - Combination of actions 'Characteristic' - z-direction                |
|            | 0.443  | RC3       | 0.00   | ≤ 1          | SE402) Serviceability - Combination of actions 'Frequent' - z-direction                      |

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## ■ 2.4 DESIGN BY MEMBER

| Member No. | Location x [m]   | LC/CO/ RC | Design | Equation No. | Description   |
|------------|--|-----------|--------|--------------|---|
| 31         | 0.443  | RC4       | 0.00   | SE403)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction               |
|            | 1.107  | RC2       | 0.03   | SE406)       | Serviceability - Combination of actions 'Characteristic' - y-direction                |
|            | 1.107  | RC3       | 0.01   | SE407)       | Serviceability - Combination of actions 'Frequent' - y-direction                      |
|            | 1.107  | RC4       | 0.01   | SE408)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction               |
|            | <b>Cross-section No. 2 - QRO 100x4   EN 10219-2:2006</b> |           |        |              |   |
|            | 0.886  | RC1       | 0.00   | CS100)       | Negligible internal forces  |
|            | 0.886  | RC1       | 0.01   | CS111)       | Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 1.550  | RC1       | 0.01   | CS121)       | Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 0.000  | RC1       | 0.01   | CS123)       | Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 0.000  | RC1       | 0.00   | CS126)       | Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 0.886  | RC1       | 0.01   | CS141)       | Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                 |
|            | 0.000  | RC1       | 0.01   | CS161)       | Cross-section check - Biaxial bending and shear force acc. to 6.2.6, 6.2.7 and 6.2.9  |
|            | 0.000  | RC2       | 0.00   | SE400)       | Serviceability - Negligible deformations  |
|            | 0.443  | RC2       | 0.01   | SE401)       | Serviceability - Combination of actions 'Characteristic' - z-direction                |
|            | 0.443  | RC3       | 0.00   | SE402)       | Serviceability - Combination of actions 'Frequent' - z-direction                      |
|            | 0.443  | RC4       | 0.00   | SE403)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction               |
| 32         | 0.443  | RC2       | 0.01   | SE406)       | Serviceability - Combination of actions 'Characteristic' - y-direction                |
|            | 0.443  | RC3       | 0.00   | SE407)       | Serviceability - Combination of actions 'Frequent' - y-direction                      |
|            | 0.443  | RC4       | 0.00   | SE408)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction               |
|            | <b>Cross-section No. 2 - QRO 100x4   EN 10219-2:2006</b> |           |        |              |   |
|            | 0.443  | RC1       | 0.00   | CS100)       | Negligible internal forces  |
|            | 0.443  | RC1       | 0.03   | CS101)       | Cross-section check - Tension acc. to 6.2.3   |
|            | 0.664  | RC1       | 0.00   | CS111)       | Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 1.550  | RC1       | 0.00   | CS121)       | Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 1.550  | RC1       | 0.02   | CS123)       | Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 1.107  | RC1       | 0.00   | CS126)       | Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 0.664  | RC1       | 0.00   | CS141)       | Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                 |
|            | 0.886  | RC1       | 0.06   | CS201)       | Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1     |
|            | 1.550  | RC1       | 0.04   | CS221)       | Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000  | RC2       | 0.00   | SE400)       | Serviceability - Negligible deformations  |
|            | 0.664  | RC2       | 0.00   | SE401)       | Serviceability - Combination of actions 'Characteristic' - z-direction                |
| 33         | 0.664  | RC3       | 0.00   | SE402)       | Serviceability - Combination of actions 'Frequent' - z-direction                      |
|            | 0.664  | RC4       | 0.00   | SE403)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction               |
|            | 1.107  | RC2       | 0.05   | SE406)       | Serviceability - Combination of actions 'Characteristic' - y-direction                |
|            | 1.107  | RC3       | 0.02   | SE407)       | Serviceability - Combination of actions 'Frequent' - y-direction                      |
|            | 1.107  | RC4       | 0.01   | SE408)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction               |
|            | <b>Cross-section No. 2 - QRO 100x4   EN 10219-2:2006</b> |           |        |              |   |
|            | 1.550  | RC1       | 0.00   | CS100)       | Negligible internal forces  |
|            | 0.664  | RC1       | 0.01   | CS101)       | Cross-section check - Tension acc. to 6.2.3   |
|            | 1.550  | RC1       | 0.02   | CS121)       | Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 1.550  | RC1       | 0.00   | CS123)       | Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 0.000  | RC1       | 0.00   | CS126)       | Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 1.550  | RC1       | 0.04   | CS221)       | Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000  | RC2       | 0.00   | SE400)       | Serviceability - Negligible deformations  |
|            | 1.107  | RC2       | 0.02   | SE401)       | Serviceability - Combination of actions 'Characteristic' - z-direction                |
|            | 0.443  | RC3       | 0.01   | SE402)       | Serviceability - Combination of actions 'Frequent' - z-direction                      |
|            | 0.443  | RC4       | 0.00   | SE403)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction               |
| 34         | 0.886  | RC2       | 0.04   | SE406)       | Serviceability - Combination of actions 'Characteristic' - y-direction                |
|            | 0.886  | RC3       | 0.01   | SE407)       | Serviceability - Combination of actions 'Frequent' - y-direction                      |
|            | 0.886  | RC4       | 0.01   | SE408)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction               |
|            | <b>Cross-section No. 2 - QRO 100x4   EN 10219-2:2006</b> |           |        |              |   |
|            | 1.329  | RC1       | 0.00   | CS100)       | Negligible internal forces  |
|            | 0.443  | RC1       | 0.10   | CS111)       | Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 1.550  | RC1       | 0.04   | CS121)       | Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 0.000  | RC1       | 0.00   | CS123)       | Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 0.000  | RC1       | 0.00   | CS126)       | Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 0.443  | RC1       | 0.10   | CS141)       | Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                 |
|            | 1.550  | RC1       | 0.10   | CS161)       | Cross-section check - Biaxial bending and shear force acc. to 6.2.6, 6.2.7 and 6.2.9  |
|            | 0.000  | RC2       | 0.00   | SE400)       | Serviceability - Negligible deformations  |
|            | 0.443  | RC2       | 0.03   | SE401)       | Serviceability - Combination of actions 'Characteristic' - z-direction                |
|            | 0.443  | RC3       | 0.01   | SE402)       | Serviceability - Combination of actions 'Frequent' - z-direction                      |
|            | 0.443  | RC4       | 0.01   | SE403)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction               |
| 35         | 1.107  | RC2       | 0.01   | SE406)       | Serviceability - Combination of actions 'Characteristic' - y-direction                |
|            | 1.107  | RC3       | 0.00   | SE407)       | Serviceability - Combination of actions 'Frequent' - y-direction                      |
|            | 1.107  | RC4       | 0.00   | SE408)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction               |
|            | <b>Cross-section No. 2 - QRO 100x4   EN 10219-2:2006</b> |           |        |              |   |
|            | 0.775  | RC1       | 0.02   | CS111)       | Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2               |

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## 2.4 DESIGN BY MEMBER

| Member No. | Location x [m]                                    | LC/CO/RC | Design   | Equation No. | Description   |
|------------|---|----------|----------|--------------|---|
|            | 0.000   | RC1      | 0.13 ≤ 1 | CS116)       | Cross-section check - Bending about z-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 1.550   | RC1      | 0.01 ≤ 1 | CS121)       | Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 1.550   | RC1      | 0.02 ≤ 1 | CS123)       | Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 0.000   | RC1      | 0.00 ≤ 1 | CS126)       | Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 0.775   | RC1      | 0.02 ≤ 1 | CS141)       | Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                 |
|            | 0.000   | RC1      | 0.13 ≤ 1 | CS151)       | Cross-section check - Bending about z-axis and shear force acc. to 6.2.5 and 6.2.8    |
|            | 1.550   | RC1      | 0.04 ≤ 1 | CS161)       | Cross-section check - Biaxial bending and shear force acc. to 6.2.6, 6.2.7 and 6.2.9  |
|            | 0.000   | RC2      | 0.00 ≤ 1 | SE400)       | Serviceability - Negligible deformations  |
|            | 0.775   | RC2      | 0.01 ≤ 1 | SE401)       | Serviceability - Combination of actions 'Characteristic' - z-direction                |
|            | 0.775   | RC3      | 0.01 ≤ 1 | SE402)       | Serviceability - Combination of actions 'Frequent' - z-direction                      |
|            | 0.775   | RC4      | 0.01 ≤ 1 | SE403)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction               |
|            | 0.443   | RC2      | 0.02 ≤ 1 | SE406)       | Serviceability - Combination of actions 'Characteristic' - y-direction                |
|            | 0.443   | RC3      | 0.01 ≤ 1 | SE407)       | Serviceability - Combination of actions 'Frequent' - y-direction                      |
|            | 1.107   | RC4      | 0.00 ≤ 1 | SE408)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction               |
| 49         | Cross-section No. 2 - QRO 100x4   EN 10219-2:2006 |          |          |              |   |
|            | 1.525   | RC1      | 0.00 ≤ 1 | CS100)       | Negligible internal forces  |
|            | 1.960   | RC1      | 0.04 ≤ 1 | CS102)       | Cross-section check - Compression acc. to 6.2.4                                       |
|            | 0.000   | RC1      | 0.02 ≤ 1 | CS111)       | Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 0.000   | RC1      | 0.00 ≤ 1 | CS121)       | Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 0.000   | RC1      | 0.00 ≤ 1 | CS126)       | Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 0.000   | RC1      | 0.02 ≤ 1 | CS141)       | Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                 |
|            | 0.000   | RC1      | 0.00 ≤ 1 | CS221)       | Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 1.960   | RC1      | 0.05 ≤ 1 | ST301)       | Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2(4)    |
|            | 1.960   | RC1      | 0.05 ≤ 1 | ST311)       | Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2(4)    |
|            | 1.742   | RC1      | 0.06 ≤ 1 | ST364)       | Stability analysis - Bending and compression acc. to 6.3.3, Method 2                  |
|            | 0.000   | RC2      | 0.00 ≤ 1 | SE400)       | Serviceability - Negligible deformations  |
|            | 0.653   | RC2      | 0.01 ≤ 1 | SE401)       | Serviceability - Combination of actions 'Characteristic' - z-direction                |
|            | 0.653   | RC3      | 0.01 ≤ 1 | SE402)       | Serviceability - Combination of actions 'Frequent' - z-direction                      |
|            | 0.653   | RC4      | 0.01 ≤ 1 | SE403)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction               |
|            | 0.871   | RC2      | 0.01 ≤ 1 | SE406)       | Serviceability - Combination of actions 'Characteristic' - y-direction                |
|            | 0.871   | RC3      | 0.00 ≤ 1 | SE407)       | Serviceability - Combination of actions 'Frequent' - y-direction                      |
|            | 0.871   | RC4      | 0.00 ≤ 1 | SE408)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction               |

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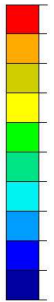
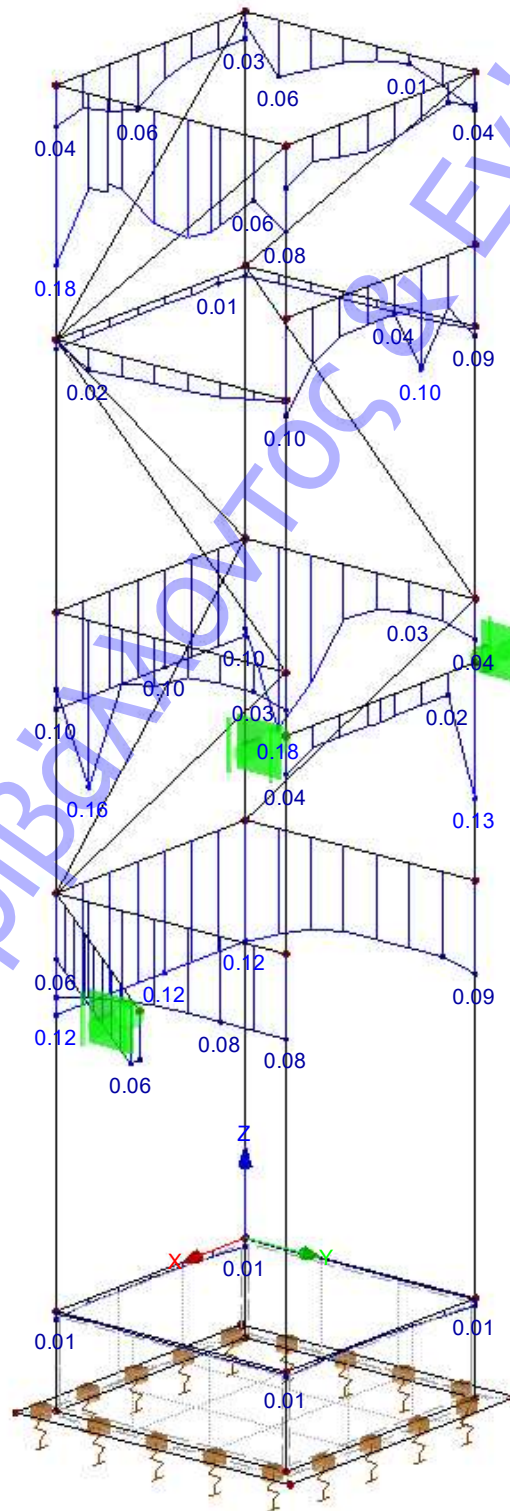
## ■ DESIGN RATIO

RF-STEEL EC3 CA2

Ultimate Limit State: Cross-Section Design, Stability Design, Weld Design, Pressure Design, Plastic Design

Serviceability Limit State: Deformations, Web Breathing

Isometric

Max  
Design Ratio [-]Max :  
Min :0.18  
0.00

Members Max Design Ratio: 0.18

RF-STEEL EC3  
CA3  
Diagonals

Project:

Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

1.1 GENERAL DATA

|   |       |  |  |
|---|-------|--|--|
| Members to design:  | 36-44 |  |  |
| Sets of members to design:  |       |  |  |
| National Annex:   | CEN   |  |  |
| Ultimate Limit State Design<br>Result combinations to design:       | RC1   | ULS (STR/GEO) - Permanent / transient - Eq. 6.10 |  |
| Serviceability Limit State Design<br>Result combinations to design: | RC2   | SLS - Characteristic                             |  |
|   | RC3   | SLS - Frequent                                   |  |
|   | RC4   | SLS - Quasi-permanent                            |  |

1.2 MATERIALS

| Matl. No. | Material Description             | E- Modulus<br>E [kN/cm <sup>2</sup> ] | Shear Modulus<br>G [kN/cm <sup>2</sup> ] | Poisson's Ratio<br>ν [-] | Yield Stress<br>f <sub>yk</sub> [kN/cm <sup>2</sup> ] | Max. Thickness<br>t [mm] |
|-----------|----------------------------------|---------------------------------------|--|--------------------------|---|--------------------------|
| 2         | Steel S 235   EN 10025-2:2004-11 | 21000.00                              | 8076.92                                  | 0.300                    | 23.50   | 16.0                     |
|           |                                  |                                       |  |                          | 22.50   | 40.0                     |
|           |                                  |                                       |  |                          | 21.50   | 100.0                    |
|           |                                  |                                       |  |                          | 19.50   | 150.0                    |
|           |                                  |                                       |  |                          | 18.50   | 200.0                    |
|           |                                  |                                       |  |                          | 17.50   | 250.0                    |
|           |                                  |                                       |  |                          | 16.50   | 400.0                    |

1.3 CROSS-SECTIONS

| Sect. No. | Matl. No. | Cross-Section Description  | Cross-Section Type | Max Design Ratio | Comment |
|-----------|-----------|----------------------------|--------------------|------------------|---------|
| 3         | 2         | QRO 80x3   EN 10219-2:2006 | Box rolled         | 0.10             |         |

1.5 EFFECTIVE LENGTHS - MEMBERS

| Member | Buckling                            | Buckling About Axis y               |            |                | Buckling About Axis z               |            |                | Lateral-Torsional Buckling |       |       |           |           |
|--------|-------------------------------------|-------------------------------------|------------|----------------|-------------------------------------|------------|----------------|----------------------------|-------|-------|-----------|-----------|
| No.    | Possible                            | Possible                            | $k_{cr,y}$ | $L_{cr,y}$ [m] | Possible                            | $k_{cr,z}$ | $L_{cr,z}$ [m] | Possible                   | $k_z$ | $k_w$ | $L_w$ [m] | $L_T$ [m] |
| 36     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 2.192          | <input checked="" type="checkbox"/> | 1.00       | 2.192          | <input type="checkbox"/>   | 1.0   | 1.0   | 2.192     | 2.192     |
| 37     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 2.157          | <input checked="" type="checkbox"/> | 1.00       | 2.157          | <input type="checkbox"/>   | 1.0   | 1.0   | 2.157     | 2.157     |
| 38     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 2.089          | <input checked="" type="checkbox"/> | 1.00       | 2.089          | <input type="checkbox"/>   | 1.0   | 1.0   | 2.089     | 2.089     |
| 39     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 2.192          | <input checked="" type="checkbox"/> | 1.00       | 2.192          | <input type="checkbox"/>   | 1.0   | 1.0   | 2.192     | 2.192     |
| 40     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 2.157          | <input checked="" type="checkbox"/> | 1.00       | 2.157          | <input type="checkbox"/>   | 1.0   | 1.0   | 2.157     | 2.157     |
| 41     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 2.089          | <input checked="" type="checkbox"/> | 1.00       | 2.089          | <input type="checkbox"/>   | 1.0   | 1.0   | 2.089     | 2.089     |
| 42     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 2.192          | <input checked="" type="checkbox"/> | 1.00       | 2.192          | <input type="checkbox"/>   | 1.0   | 1.0   | 2.192     | 2.192     |
| 43     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 2.157          | <input checked="" type="checkbox"/> | 1.00       | 2.157          | <input type="checkbox"/>   | 1.0   | 1.0   | 2.157     | 2.157     |
| 44     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00       | 2.089          | <input checked="" type="checkbox"/> | 1.00       | 2.089          | <input type="checkbox"/>   | 1.0   | 1.0   | 2.089     | 2.089     |

1.9 SERVICEABILITY DATA

| No. | Reference to | Members/Sets No. | Reference Length         |       | Direct. | Precamber<br>e <sub>0</sub> [mm] | Beam Type |
|-----|--------------|------------------|--------------------------|-------|---------|----------------------------------|-----------|
|     |              |                  | Manually                 | I [m] |         |                                  |           |
| 1   | Member       | 36               | <input type="checkbox"/> | 2.192 | y, z    | 0.0                              | Beam      |
| 2   | Member       | 37               | <input type="checkbox"/> | 2.157 | y, z    | 0.0                              | Beam      |
| 3   | Member       | 38               | <input type="checkbox"/> | 2.089 | y, z    | 0.0                              | Beam      |
| 4   | Member       | 39               | <input type="checkbox"/> | 2.192 | y, z    | 0.0                              | Beam      |
| 5   | Member       | 40               | <input type="checkbox"/> | 2.157 | y, z    | 0.0                              | Beam      |
| 6   | Member       | 41               | <input type="checkbox"/> | 2.089 | y, z    | 0.0                              | Beam      |
| 7   | Member       | 42               | <input type="checkbox"/> | 2.192 | y, z    | 0.0                              | Beam      |
| 8   | Member       | 43               | <input type="checkbox"/> | 2.157 | y, z    | 0.0                              | Beam      |
| 9   | Member       | 44               | <input type="checkbox"/> | 2.089 | y, z    | 0.0                              | Beam      |

1.12 PARAMETERS - MEMBERS

| Member No. | Description                             | Parameter                      |
|------------|---|--------------------------------|
| 36         | Cross-Section                           | 3 - QRO 80x3   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>       |
|            | Rotational restraint                    | <input type="checkbox"/>       |
|            | Cross-sectional area for tension design | <input type="checkbox"/>       |
| 37         | Cross-Section                           | 3 - QRO 80x3   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>       |
|            | Rotational restraint                    | <input type="checkbox"/>       |
|            | Cross-sectional area for tension design | <input type="checkbox"/>       |
| 38         | Cross-Section                           | 3 - QRO 80x3   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>       |
|            | Rotational restraint                    | <input type="checkbox"/>       |
|            | Cross-sectional area for tension design | <input type="checkbox"/>       |
| 39         | Cross-Section                           | 3 - QRO 80x3   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>       |
|            | Rotational restraint                    | <input type="checkbox"/>       |
|            | Cross-sectional area for tension design | <input type="checkbox"/>       |
| 40         | Cross-Section                           | 3 - QRO 80x3   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>       |

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## 1.12 PARAMETERS - MEMBERS

| Member No. | Description                             | Parameter                      |
|------------|---|--------------------------------|
| 41         | Rotational restraint                    | <input type="checkbox"/>       |
|            | Cross-sectional area for tension design | <input type="checkbox"/>       |
|            | Cross-Section                           | 3 - QRO 80x3   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>       |
|            | Rotational restraint                    | <input type="checkbox"/>       |
| 42         | Cross-sectional area for tension design | <input type="checkbox"/>       |
|            | Cross-Section                           | 3 - QRO 80x3   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>       |
|            | Rotational restraint                    | <input type="checkbox"/>       |
|            | Cross-sectional area for tension design | <input type="checkbox"/>       |
| 43         | Cross-Section                           | 3 - QRO 80x3   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>       |
|            | Rotational restraint                    | <input type="checkbox"/>       |
|            | Cross-sectional area for tension design | <input type="checkbox"/>       |
|            | Cross-Section                           | 3 - QRO 80x3   EN 10219-2:2006 |
| 44         | Shear panel                             | <input type="checkbox"/>       |
|            | Rotational restraint                    | <input type="checkbox"/>       |
|            | Cross-sectional area for tension design | <input type="checkbox"/>       |
|            | Cross-Section                           | 3 - QRO 80x3   EN 10219-2:2006 |
|            | Shear panel                             | <input type="checkbox"/>       |

## 2.4 DESIGN BY MEMBER

| Member No. | Location x [m]                                   | LC/CO/RC | Design | Equation No. | Description  |
|------------|--|----------|--------|--------------|--|
| 36         | Cross-section No. 3 - QRO 80x3   EN 10219-2:2006 |          |        |              |  |
|            | 0.877  | RC1      | 0.00   | ≤ 1          | CS100) Negligible internal forces  |
|            | 0.000  | RC1      | 0.01   | ≤ 1          | CS102) Cross-section check - Compression acc. to 6.2.4                                       |
|            | 1.315  | RC1      | 0.00   | ≤ 1          | CS111) Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 0.438  | RC1      | 0.00   | ≤ 1          | CS116) Cross-section check - Bending about z-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 2.192  | RC1      | 0.01   | ≤ 1          | CS121) Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 0.877  | RC1      | 0.00   | ≤ 1          | CS123) Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 0.000  | RC1      | 0.00   | ≤ 1          | CS126) Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 1.315  | RC1      | 0.00   | ≤ 1          | CS141) Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                 |
|            | 0.438  | RC1      | 0.00   | ≤ 1          | CS151) Cross-section check - Bending about z-axis and shear force acc. to 6.2.5 and 6.2.8    |
|            | 0.000  | RC1      | 0.00   | ≤ 1          | CS161) Cross-section check - Biaxial bending and shear force acc. to 6.2.6, 6.2.7 and 6.2.9  |
|            | 1.754  | RC1      | 0.03   | ≤ 1          | CS201) Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1     |
|            | 0.000  | RC1      | 0.02   | ≤ 1          | CS221) Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000  | RC2      | 0.00   | ≤ 1          | SE400) Serviceability - Negligible deformations  |
|            | 0.877  | RC2      | 0.05   | ≤ 1          | SE401) Serviceability - Combination of actions 'Characteristic' - z-direction                |
|            | 0.877  | RC3      | 0.02   | ≤ 1          | SE402) Serviceability - Combination of actions 'Frequent' - z-direction                      |
|            | 0.877  | RC4      | 0.01   | ≤ 1          | SE403) Serviceability - Combination of actions 'Quasi-permanent' - z-direction               |
|            | 1.754  | RC2      | 0.02   | ≤ 1          | SE406) Serviceability - Combination of actions 'Characteristic' - y-direction                |
|            | 1.534  | RC3      | 0.01   | ≤ 1          | SE407) Serviceability - Combination of actions 'Frequent' - y-direction                      |
|            | 1.534  | RC4      | 0.00   | ≤ 1          | SE408) Serviceability - Combination of actions 'Quasi-permanent' - y-direction               |
| 37         | Cross-section No. 3 - QRO 80x3   EN 10219-2:2006 |          |        |              |  |
|            | 1.438  | RC1      | 0.00   | ≤ 1          | CS100) Negligible internal forces  |
|            | 2.157  | RC1      | 0.07   | ≤ 1          | CS101) Cross-section check - Tension acc. to 6.2.3   |
|            | 2.157  | RC1      | 0.00   | ≤ 1          | CS111) Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 2.157  | RC1      | 0.00   | ≤ 1          | CS121) Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 0.000  | RC1      | 0.00   | ≤ 1          | CS123) Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 1.438  | RC1      | 0.00   | ≤ 1          | CS126) Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 2.157  | RC1      | 0.00   | ≤ 1          | CS141) Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                 |
|            | 1.198  | RC1      | 0.01   | ≤ 1          | CS201) Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1     |
|            | 0.000  | RC1      | 0.01   | ≤ 1          | CS221) Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000  | RC2      | 0.00   | ≤ 1          | SE400) Serviceability - Negligible deformations  |
|            | 1.678  | RC2      | 0.00   | ≤ 1          | SE401) Serviceability - Combination of actions 'Characteristic' - z-direction                |
|            | 0.959  | RC3      | 0.00   | ≤ 1          | SE402) Serviceability - Combination of actions 'Frequent' - z-direction                      |
|            | 0.959  | RC4      | 0.00   | ≤ 1          | SE403) Serviceability - Combination of actions 'Quasi-permanent' - z-direction               |
|            | 0.719  | RC2      | 0.03   | ≤ 1          | SE406) Serviceability - Combination of actions 'Characteristic' - y-direction                |
|            | 0.719  | RC3      | 0.01   | ≤ 1          | SE407) Serviceability - Combination of actions 'Frequent' - y-direction                      |
|            | 0.719  | RC4      | 0.01   | ≤ 1          | SE408) Serviceability - Combination of actions 'Quasi-permanent' - y-direction               |
| 38         | Cross-section No. 3 - QRO 80x3   EN 10219-2:2006 |          |        |              |  |
|            | 0.696  | RC1      | 0.00   | ≤ 1          | CS100) Negligible internal forces  |
|            | 0.000  | RC1      | 0.07   | ≤ 1          | CS102) Cross-section check - Compression acc. to 6.2.4                                       |
|            | 0.000  | RC1      | 0.00   | ≤ 1          | CS111) Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 0.000  | RC1      | 0.00   | ≤ 1          | CS121) Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 0.000  | RC1      | 0.00   | ≤ 1          | CS126) Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 0.000  | RC1      | 0.00   | ≤ 1          | CS141) Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                 |
|            | 1.857  | RC1      | 0.00   | ≤ 1          | CS181) Cross-section check - Bending, shear and axial force acc. to 6.2.9.1                  |

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## ■ 2.4 DESIGN BY MEMBER

| Member No. | Location x [m]  | LC/CO/RC | Design |     | Equation No. | Description   |
|------------|---|----------|--------|-----|--------------|---|
|            | 1.160   | RC1      | 0.01   | ≤ 1 | CS201)       | Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1     |
|            | 0.000   | RC1      | 0.00   | ≤ 1 | CS221)       | Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000   | RC1      | 0.10   | ≤ 1 | ST364)       | Stability analysis - Bending and compression acc. to 6.3.3, Method 2                  |
|            | 0.000   | RC2      | 0.00   | ≤ 1 | SE400)       | Serviceability - Negligible deformations  |
|            | 0.464   | RC2      | 0.01   | ≤ 1 | SE401)       | Serviceability - Combination of actions 'Characteristic' - z-direction                |
|            | 1.160   | RC3      | 0.00   | ≤ 1 | SE402)       | Serviceability - Combination of actions 'Frequent' - z-direction                      |
|            | 1.160   | RC4      | 0.00   | ≤ 1 | SE403)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction               |
|            | 0.928   | RC2      | 0.01   | ≤ 1 | SE406)       | Serviceability - Combination of actions 'Characteristic' - y-direction                |
|            | 0.928   | RC3      | 0.00   | ≤ 1 | SE407)       | Serviceability - Combination of actions 'Frequent' - y-direction                      |
|            | 0.928   | RC4      | 0.00   | ≤ 1 | SE408)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction               |
|            | <b>Cross-section No. 3 - QRO 80x3   EN 10219-2:2006</b> |          |        |     |              |   |
|            | 1.534   | RC1      | 0.00   | ≤ 1 | CS100)       | Negligible internal forces  |
| 39         | 0.000   | RC1      | 0.01   | ≤ 1 | CS102)       | Cross-section check - Compression acc. to 6.2.4                                       |
|            | 0.000   | RC1      | 0.00   | ≤ 1 | CS111)       | Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 0.000   | RC1      | 0.00   | ≤ 1 | CS121)       | Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 1.096   | RC1      | 0.01   | ≤ 1 | CS123)       | Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 0.000   | RC1      | 0.00   | ≤ 1 | CS126)       | Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 0.000   | RC1      | 0.00   | ≤ 1 | CS141)       | Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                 |
|            | 1.096   | RC1      | 0.01   | ≤ 1 | CS201)       | Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1     |
|            | 2.192   | RC1      | 0.03   | ≤ 1 | CS221)       | Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000   | RC2      | 0.00   | ≤ 1 | SE400)       | Serviceability - Negligible deformations  |
|            | 0.438   | RC2      | 0.00   | ≤ 1 | SE401)       | Serviceability - Combination of actions 'Characteristic' - z-direction                |
|            | 1.096   | RC3      | 0.00   | ≤ 1 | SE402)       | Serviceability - Combination of actions 'Frequent' - z-direction                      |
|            | 1.096   | RC4      | 0.00   | ≤ 1 | SE403)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction               |
|            | 1.534   | RC2      | 0.04   | ≤ 1 | SE406)       | Serviceability - Combination of actions 'Characteristic' - y-direction                |
| 40         | 1.534   | RC3      | 0.01   | ≤ 1 | SE407)       | Serviceability - Combination of actions 'Frequent' - y-direction                      |
|            | 1.534   | RC4      | 0.01   | ≤ 1 | SE408)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction               |
|            | <b>Cross-section No. 3 - QRO 80x3   EN 10219-2:2006</b> |          |        |     |              |   |
|            | 0.719   | RC1      | 0.00   | ≤ 1 | CS100)       | Negligible internal forces  |
|            | 0.240   | RC1      | 0.01   | ≤ 1 | CS111)       | Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 1.678   | RC1      | 0.08   | ≤ 1 | CS116)       | Cross-section check - Bending about z-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 0.000   | RC1      | 0.01   | ≤ 1 | CS123)       | Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 0.240   | RC1      | 0.01   | ≤ 1 | CS141)       | Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                 |
|            | 1.678   | RC1      | 0.08   | ≤ 1 | CS151)       | Cross-section check - Bending about z-axis and shear force acc. to 6.2.5 and 6.2.8    |
|            | 2.157   | RC1      | 0.02   | ≤ 1 | CS161)       | Cross-section check - Biaxial bending and shear force acc. to 6.2.6, 6.2.7 and 6.2.9  |
|            | 0.000   | RC2      | 0.00   | ≤ 1 | SE400)       | Serviceability - Negligible deformations  |
|            | 0.959   | RC2      | 0.01   | ≤ 1 | SE401)       | Serviceability - Combination of actions 'Characteristic' - z-direction                |
|            | 0.959   | RC3      | 0.00   | ≤ 1 | SE402)       | Serviceability - Combination of actions 'Frequent' - z-direction                      |
| 41         | 0.959   | RC4      | 0.00   | ≤ 1 | SE403)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction               |
|            | 1.198   | RC2      | 0.08   | ≤ 1 | SE406)       | Serviceability - Combination of actions 'Characteristic' - y-direction                |
|            | 1.198   | RC3      | 0.03   | ≤ 1 | SE407)       | Serviceability - Combination of actions 'Frequent' - y-direction                      |
|            | 1.198   | RC4      | 0.02   | ≤ 1 | SE408)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction               |
|            | <b>Cross-section No. 3 - QRO 80x3   EN 10219-2:2006</b> |          |        |     |              |   |
|            | 0.696   | RC1      | 0.00   | ≤ 1 | CS100)       | Negligible internal forces  |
|            | 2.089   | RC1      | 0.01   | ≤ 1 | CS101)       | Cross-section check - Tension acc. to 6.2.3   |
|            | 0.000   | RC1      | 0.00   | ≤ 1 | CS111)       | Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 0.000   | RC1      | 0.00   | ≤ 1 | CS123)       | Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 0.000   | RC1      | 0.00   | ≤ 1 | CS141)       | Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                 |
|            | 0.232   | RC1      | 0.03   | ≤ 1 | CS201)       | Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1     |
|            | 0.000   | RC1      | 0.00   | ≤ 1 | CS221)       | Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 |
|            | 0.000   | RC2      | 0.00   | ≤ 1 | SE400)       | Serviceability - Negligible deformations  |
| 42         | 1.160   | RC2      | 0.00   | ≤ 1 | SE401)       | Serviceability - Combination of actions 'Characteristic' - z-direction                |
|            | 1.160   | RC3      | 0.00   | ≤ 1 | SE402)       | Serviceability - Combination of actions 'Frequent' - z-direction                      |
|            | 1.160   | RC4      | 0.00   | ≤ 1 | SE403)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction               |
|            | 0.928   | RC2      | 0.03   | ≤ 1 | SE406)       | Serviceability - Combination of actions 'Characteristic' - y-direction                |
|            | 0.928   | RC3      | 0.01   | ≤ 1 | SE407)       | Serviceability - Combination of actions 'Frequent' - y-direction                      |
|            | 0.928   | RC4      | 0.01   | ≤ 1 | SE408)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction               |
|            | <b>Cross-section No. 3 - QRO 80x3   EN 10219-2:2006</b> |          |        |     |              |   |
|            | 1.534   | RC1      | 0.00   | ≤ 1 | CS100)       | Negligible internal forces  |
|            | 2.192   | RC1      | 0.04   | ≤ 1 | CS101)       | Cross-section check - Tension acc. to 6.2.3   |
|            | 2.192   | RC1      | 0.01   | ≤ 1 | CS111)       | Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2               |
|            | 0.000   | RC1      | 0.00   | ≤ 1 | CS121)       | Cross-section check - Shear force in z-axis acc. to 6.2.6                             |
|            | 2.192   | RC1      | 0.01   | ≤ 1 | CS123)       | Cross-section check - Shear force in y-axis acc. to 6.2.6                             |
|            | 0.000   | RC1      | 0.00   | ≤ 1 | CS126)       | Cross-section check - Shear buckling acc. to 6.2.6(6)                                 |
|            | 2.192   | RC1      | 0.01   | ≤ 1 | CS141)       | Cross-section check - Bending and shear force acc. to 6.2.5 and 6                     |

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## 2.4 DESIGN BY MEMBER

| Member No. | Location x [m]                                   | LC/CO/RC | Design |          | Equation No. | Description  |
|------------|--|----------|--------|----------|--------------|--|
|            | 0.877  | RC1      | 0.01   | $\leq 1$ | CS201)       | 6.2.8<br>Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1 |
|            | 2.192  | RC1      | 0.03   | $\leq 1$ | CS221)       | Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9      |
|            | 0.000  | RC2      | 0.00   | $\leq 1$ | SE400)       | Serviceability - Negligible deformations   |
|            | 1.534  | RC2      | 0.01   | $\leq 1$ | SE401)       | Serviceability - Combination of actions 'Characteristic' - z-direction                     |
|            | 1.315  | RC3      | 0.00   | $\leq 1$ | SE402)       | Serviceability - Combination of actions 'Frequent' - z-direction                           |
|            | 1.315  | RC4      | 0.00   | $\leq 1$ | SE403)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction                    |
|            | 1.534  | RC2      | 0.03   | $\leq 1$ | SE406)       | Serviceability - Combination of actions 'Characteristic' - y-direction                     |
|            | 1.754  | RC3      | 0.01   | $\leq 1$ | SE407)       | Serviceability - Combination of actions 'Frequent' - y-direction                           |
|            | 1.754  | RC4      | 0.01   | $\leq 1$ | SE408)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction                    |
|            |  |          |        |          |              |  |
| 43         | Cross-section No. 3 - QRO 80x3   EN 10219-2:2006 |          |        |          |              |  |
|            | 0.240  | RC1      | 0.00   | $\leq 1$ | CS100)       | Negligible internal forces   |
|            | 2.157  | RC1      | 0.00   | $\leq 1$ | CS111)       | Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2                    |
|            | 1.678  | RC1      | 0.08   | $\leq 1$ | CS116)       | Cross-section check - Bending about z-axis acc. to 6.2.5 - Class 1 or 2                    |
|            | 0.000  | RC1      | 0.01   | $\leq 1$ | CS123)       | Cross-section check - Shear force in y-axis acc. to 6.2.6                                  |
|            | 2.157  | RC1      | 0.00   | $\leq 1$ | CS141)       | Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                      |
|            | 1.678  | RC1      | 0.08   | $\leq 1$ | CS151)       | Cross-section check - Bending about z-axis and shear force acc. to 6.2.5 and 6.2.8         |
|            | 2.157  | RC1      | 0.03   | $\leq 1$ | CS161)       | Cross-section check - Biaxial bending and shear force acc. to 6.2.6, 6.2.7 and 6.2.9       |
|            | 0.000  | RC2      | 0.00   | $\leq 1$ | SE400)       | Serviceability - Negligible deformations   |
|            | 0.959  | RC2      | 0.01   | $\leq 1$ | SE401)       | Serviceability - Combination of actions 'Characteristic' - z-direction                     |
|            | 0.959  | RC3      | 0.00   | $\leq 1$ | SE402)       | Serviceability - Combination of actions 'Frequent' - z-direction                           |
|            | 0.959  | RC4      | 0.00   | $\leq 1$ | SE403)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction                    |
|            | 1.198  | RC2      | 0.08   | $\leq 1$ | SE406)       | Serviceability - Combination of actions 'Characteristic' - y-direction                     |
| 44         | Cross-section No. 3 - QRO 80x3   EN 10219-2:2006 |          |        |          |              |  |
|            | 0.696  | RC1      | 0.00   | $\leq 1$ | CS100)       | Negligible internal forces   |
|            | 0.000  | RC1      | 0.01   | $\leq 1$ | CS102)       | Cross-section check - Compression acc. to 6.2.4  |
|            | 0.000  | RC1      | 0.00   | $\leq 1$ | CS111)       | Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2                    |
|            | 0.928  | RC1      | 0.01   | $\leq 1$ | CS123)       | Cross-section check - Shear force in y-axis acc. to 6.2.6                                  |
|            | 0.000  | RC1      | 0.00   | $\leq 1$ | CS141)       | Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8                      |
|            | 2.089  | RC1      | 0.06   | $\leq 1$ | CS201)       | Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1          |
|            | 0.000  | RC1      | 0.01   | $\leq 1$ | CS221)       | Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9      |
|            | 0.000  | RC2      | 0.00   | $\leq 1$ | SE400)       | Serviceability - Negligible deformations   |
|            | 1.160  | RC2      | 0.00   | $\leq 1$ | SE401)       | Serviceability - Combination of actions 'Characteristic' - z-direction                     |
|            | 1.160  | RC3      | 0.00   | $\leq 1$ | SE402)       | Serviceability - Combination of actions 'Frequent' - z-direction                           |
|            | 1.160  | RC4      | 0.00   | $\leq 1$ | SE403)       | Serviceability - Combination of actions 'Quasi-permanent' - z-direction                    |
|            | 1.625  | RC2      | 0.02   | $\leq 1$ | SE406)       | Serviceability - Combination of actions 'Characteristic' - y-direction                     |
|            | 1.625  | RC3      | 0.01   | $\leq 1$ | SE407)       | Serviceability - Combination of actions 'Frequent' - y-direction                           |
|            | 1.625  | RC4      | 0.00   | $\leq 1$ | SE408)       | Serviceability - Combination of actions 'Quasi-permanent' - y-direction                    |

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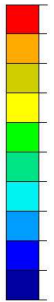
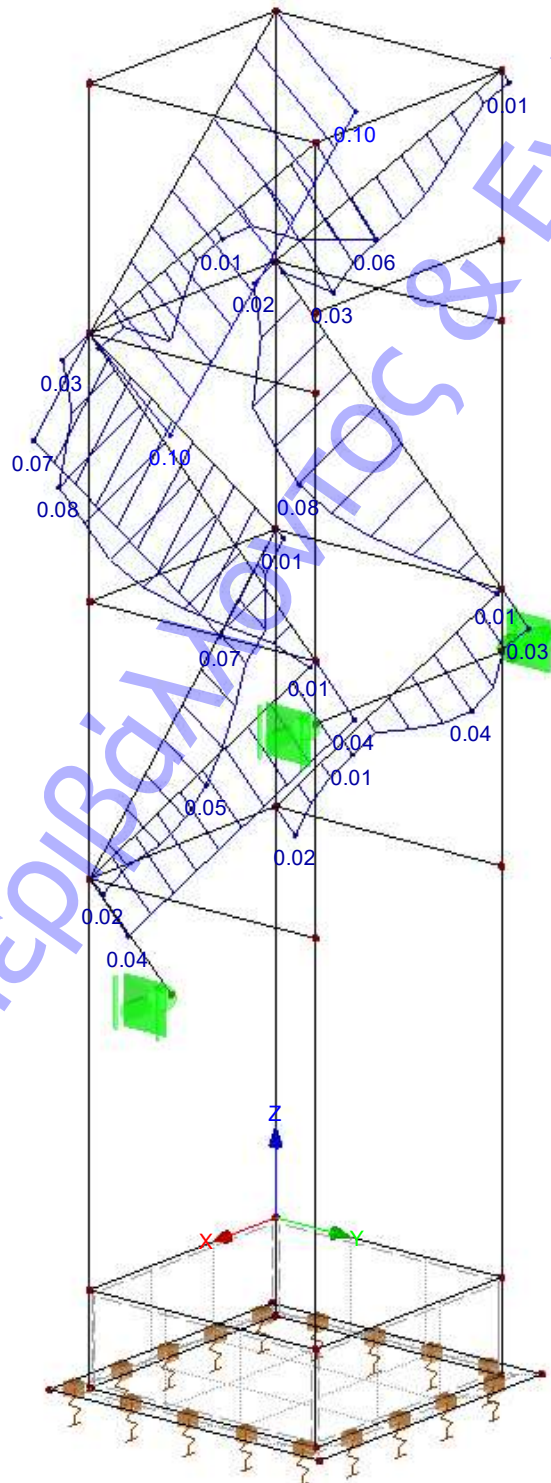
Date: 2/8/2023

## ■ DESIGN RATIO

RF-STEEL EC3 CA3

Ultimate Limit State: Cross-Section Design, Stability Design, Weld Design, Pressure Design, Plastic Design  
Serviceability Limit State: Deformations, Web Breathing

Isometric

Max  
Design Ratio [-]1.00  
0.90  
0.80  
0.70  
0.60  
0.50  
0.40  
0.30  
0.20  
0.10  
0.00Max : 0.10  
Min : 0.00

Members Max Design Ratio: 0.10

RF-CONCRETE Surfaces  
CA1  
Reinforced concrete design

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## 1.1 GENERAL DATA

|  |   |  |  |
|--|---|--|--|
| Design according to Standard:  | EN 1992-1-1:2004/A1:2014  |  |  |
| ULTIMATE LIMIT STATE   |   |  |  |
| Result combination for design:   | RC1   | ULS (STR/GEO) - Permanent / transient - Eq. 6.10<br>Persistent and Transient |  |
| SERVICEABILITY LIMIT STATE   |   |  |  |
| Result combination for design:   | RC2   | SLS - Characteristic<br>Characteristic with direct load, $k_i$ 0.600         |  |
|  | RC3   | SLS - Frequent<br>Frequent, $k_i$ 0.500                                      |  |
|  | RC4   | SLS - Quasi-permanent<br>Quasi-permanent, $k_i$ 0.500                        |  |
| Definition of Provided Additional Reinforcement  | Automatic arrangement according to the specifications in Table 1.4                                |  |  |
| Type of SLS method:  | Analytical Method<br>By assuming an identical deformation ratio of the longitudinal reinforcement |  |  |
| Design of  |   |  |  |
| Concrete Stress Analysis   | <input type="checkbox"/>  |  |  |
| Steel Stress Analysis  | <input checked="" type="checkbox"/>   |  |  |
| Crack widths   | <input checked="" type="checkbox"/>   |  |  |
| Deformation Analysis   | <input type="checkbox"/>  |  |  |
| Layout of longitudinal reinforcement   |   |  |  |
| Required longitudinal reinforcement automatically increased for serviceability limit state design: | <input checked="" type="checkbox"/>   |  |  |
| DETAILS  |   |  |  |
| Analysis Method for Reinforcement Envelope   | Mixed   |  |  |
| Apply the internal forces without the rib components   | <input type="checkbox"/>  |  |  |
| Design Situation Settings for Serviceability Limit State Checks                                    |   |  |  |
| Load combination:  |   |  |  |
| Characteristic with direct load  | Checks: $k_1^*f_{ck}$ , $k_3^*f_{yk}$   |  |  |
| Characteristic with imposed deformation  | Checks: $k_1^*f_{ck}$ , $k_4^*f_{yk}$   |  |  |
| Frequent   | Checks: $w_k$   |  |  |
| Quasi-permanent  | Checks: $k_2^*f_{ck}$ , $w_k$ , $u_l$   |  |  |

## 1.2 MATERIALS

| Material No. | Concrete Strength Class | Material Description Steel Description | Comment |
|--------------|-------------------------|--|---------|
| 1            | Concrete C30/37         | B 500 S (C)                            |         |

### 1.2.1 MATERIAL PARAMETERS

| Material No. | Description  | Name             | Size      | Unit              |
|--------------|--|------------------|-----------|-------------------|
| 1            | Concrete Strength Class: Concrete C30/37                 |                  |           |                   |
|              | Characteristic Cylinder Compressive Strength             | $f_{ck}$         | 30.00     | N/mm <sup>2</sup> |
|              | 5 % Fractile of Axial Tensile Strength                   | $f_{ctk,0.05}$   | 2.00      | N/mm <sup>2</sup> |
|              | Characteristic for Nonlinear Calculations                |                  |           |                   |
|              | Mean Secant Modulus of Elasticity                        | $E_{cm}$         | 33000.00  | N/mm <sup>2</sup> |
|              | Mean Cylinder Compressive Strength                       | $f_{cm}$         | 38.00     | N/mm <sup>2</sup> |
|              | Mean Axial Tensile Strength                              | $f_{ctm}$        | 2.90      | N/mm <sup>2</sup> |
|              | Ultimate Strain for Pure Compression                     | $\epsilon_{c1}$  | -2.200    | ‰                 |
|              | Ultimate Strain at Failure                               | $\epsilon_{cu}$  | -3.500    | ‰                 |
|              | Shear Modulus  | G                | 13750.00  | N/mm <sup>2</sup> |
|              | Poisson's Ratio  | $\nu$            | 0.200     | -                 |
|              | Characteristic Strains for Parabolic-Rectangular Diagram |                  |           |                   |
|              | Ultimate Strain for Pure Compression                     | $\epsilon_{c2}$  | -2.000    | ‰                 |
|              | Ultimate Strain at Failure                               | $\epsilon_{cu2}$ | -3.500    | ‰                 |
|              | Parabola Exponent  | n                | 2.000     | -                 |
|              | Specific Weight  | $\gamma$         | 25.00     | kN/m <sup>3</sup> |
|              | Reinforcing Steel: B 500 S (C)                           |                  |           |                   |
|              | Modulus of Elasticity                                    | $E_s$            | 200000.00 | N/mm <sup>2</sup> |
|              | Yield Stress Mean Value                                  | $f_{ym}$         | 550.00    | N/mm <sup>2</sup> |
|              | Characteristic Yield Stress                              | $f_{yk}$         | 500.00    | N/mm <sup>2</sup> |
|              | Tensile Strength Mean Value                              | $f_{tm}$         | 621.00    | N/mm <sup>2</sup> |
|              | Characteristic Tensile Strength                          | $f_{tk}$         | 575.00    | N/mm <sup>2</sup> |
|              | Limiting Strain  | $\epsilon_{uk}$  | 75.000    | ‰                 |

## 1.3 SURFACES

| Surface No. | Matl. No. | $f_{ct,eff,wk}$ [N/mm <sup>2</sup> ] | $f_{ct,eff,As,min}$ [N/mm <sup>2</sup> ] | $w_{k,+z}$ (top) [mm] | $w_{k,-z}$ (bottom) [mm] | Effects due to Restraint Apply      | $k_c$ [-] | Notes |
|-------------|-----------|--------------------------------------|--|-----------------------|--------------------------|-------------------------------------|-----------|-------|
| 1           | 1         | 2.90                                 | 2.90                                     | 0.300                 | 0.300                    | <input checked="" type="checkbox"/> | var.      | 6)    |
| 2           | 1         | 2.90                                 | 2.90                                     | 0.300                 | 0.300                    | <input checked="" type="checkbox"/> | var.      | 6)    |
| 3           | 1         | 2.90                                 | 2.90                                     | 0.300                 | 0.300                    | <input checked="" type="checkbox"/> | var.      | 6)    |
| 4           | 1         | 2.90                                 | 2.90                                     | 0.300                 | 0.300                    | <input checked="" type="checkbox"/> | var.      | 6)    |

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### 1.3 SURFACES

| Surface No.  | Matl. No.         | $f_{ct,eff,wk}$      | $f_{ct,eff,As,min}$  | $w_{k,+z}$ (top) [mm]    | Effects due to Restraint            |           | Notes |
|--|-------------------|----------------------|----------------------|--------------------------|-------------------------------------|-----------|-------|
|  |                   | [N/mm <sup>2</sup> ] | [N/mm <sup>2</sup> ] | $w_{k,-z}$ (bottom) [mm] | Apply                               | $k_c$ [-] |       |
| 5  | Thickness Type: 1 | Constant, 2.90       | 2.90                 | Thickness: 300.00 mm     |                                     |           | 6)    |
|  |                   |                      |                      | 0.300                    | <input checked="" type="checkbox"/> | var.      |       |
|  |                   |                      |                      | 0.300                    |                                     |           |       |
| Notes:   |                   |                      |                      |                          |                                     |           |       |
| 6) Calculation of minimum reinforcement for effects due to restraint |                   |                      |                      |                          |                                     |           |       |

Notes:

6) Calculation of minimum reinforcement for effects due to restraint

### 1.4 REINFORCEMENT GROUP NO. 1

|   |  |
|---|--|
| Applied to surfaces:  | All  |
| REINFORCEMENT RATIO   |  |
| Minimum secondary reinforcement   | 20.0 %   |
| Basic minimum reinforcement   | 0.0 %  |
| Minimum compression reinforcement   | 0.0 %  |
| Minimum tension reinforcement   | 0.0 %  |
| Maximum reinforcement percentage  | 4.0 %  |
| Minimum shear reinforcement percentage  | 0.0 %  |
| REINFORCEMENT AREA FOR DESIGN OF SLS  |  |
| Use required reinforcement area acc. to Tables 2.1, 2.2, 2.3  |  |
| Concrete cover acc. to Standard   | <input checked="" type="checkbox"/>                          |
| BASIC REINFORCEMENT LAYOUT - TOP (-z)   |  |
| Number of directions  | 2  |
| Cover to rebar centroid   | d-1: 25.00, d-2: 35.00 mm                                    |
| Parameters for definition of the concrete cover   |  |
| Settings identical to cover   |  |
| Bar diameter  | ds-1: 10.00, ds-2: 10.00 mm                                  |
| Directions of reinforcement   | Phi-1: 0.000°, Phi-2: 90.000°                                |
| Reinforcement area  | Use required reinforcement area acc. to Tables 2.1, 2.2, 2.3 |
| BASIC REINFORCEMENT LAYOUT - BOTTOM (+z)  |  |
| Number of directions  | 2  |
| Cover to rebar centroid   | d-1: 25.00, d-2: 35.00 mm                                    |
| Parameters for definition of the concrete cover   |  |
| Exposure Class acc. to 4.4.1.2(5)   | XC1  |
| Abrasion Class acc. to 4.4.1.2(13)  | No   |
| Design working life acc. to 4.4.1.2(5) Table 4.3N   | 50 Years   |
| Concrete Cast acc. to 4.4.1.3(4)  | cast-in-place concrete                                       |
| Air entrainment of more than 4% acc. to 4.4.1.2(5) Note 2.  | <input type="checkbox"/>                                     |
| Special quality control of the concrete production acc. to 4.4.1.2(5) Table 4.3N  | <input type="checkbox"/>                                     |
| Nominal maximum aggregate size greater than 32 mm, acc. to 4.4.1.2(3) Table 4.2   | <input type="checkbox"/>                                     |
| Reinforcement direction   | $\phi_1$   |
| Maximum diameter of reinforcement   | 0.010 m  |
| Minimum cover due to bond requirement acc. to 4.4.1.2(3)  | 0.010 m  |
| Minimum cover due to environmental conditions acc. to 4.4.1.2(5)  | 0.010 m  |
| Additive safety element acc. to 4.4.1.2(6)  | 0.000 m  |
| Minimum concrete cover acc. to 4.4.1.2(2)   | 0.010 m  |
| Allowance for deviation acc. to 4.4.1.3   | 0.010 m  |
| Nominal cover reinforcement, acc. to 4.4.1.1  | 0.025 m  |
| Minimum cover of reinforcement  | 0.025 m  |
| Bar diameter  | ds-1: 10.00, ds-2: 10.00 mm                                  |
| Directions of reinforcement   | Phi-1: 0.000°, Phi-2: 90.000°                                |
| Reinforcement area  | Use required reinforcement area acc. to Tables 2.1, 2.2, 2.3 |
| LONGITUDINAL REINFORCEMENT FOR SHEAR FORCE DESIGN   |  |
| Apply the greater value resulting from either the required or provided reinforcement (basic and add. reinforcement) per reinforcement direction |  |
| OPTIONS FOR EN 1992-1-1:2004/A1:2014  |  |
| Minimum longitudinal reinforcement for plates acc. to 9.3.1   | <input checked="" type="checkbox"/>                          |
| Direction of minimum reinforcement  |  |
| Reinforcement direction with the main tensile force from top (-z) and bottom (+z) surfaces together:  | <input checked="" type="checkbox"/>                          |
| Minimum longitudinal reinforcement for walls acc. to 9.6  | <input type="checkbox"/>                                     |
| Minimum shear reinforcement   | <input checked="" type="checkbox"/>                          |
| Neutral axis depth limitation   | <input checked="" type="checkbox"/>                          |
| Variable strut inclination - min  | 21.801 °   |
| Variable concrete strut inclination - max   | 45.000 °   |
| Partial safety factor $\gamma_s$  | PT 1.15, AC 1.00, SLS 1.00                                   |
| Partial safety factor $\gamma_c$  | PT 1.50, AC 1.20, SLS 1.00                                   |
| Consideration of long-term effects Alpha-cc   | PT 1.00, AC 1.00, SLS 1.00                                   |
| Consideration of long-term effects Alpha-ct   | SLS 1.00   |

### 2.2 REQUIRED REINFORCEMENT BY SURFACE

| Surface No. | Point No. | Point Coordinates [m] | Symbol                | Required Reinforcement | Basic Reinf. | Additional Reinforcement | Unit | Notes                           |
|-------------|-----------|-----------------------|-----------------------|------------------------|--------------|--------------------------|------|---------------------------------|
|             |           | X Y Z                 |                       | ULS SLS ULS/SLS        |              | Required Provided        |      |                                 |
| 1           | M64       | 1.238 1.700 -0.550    | $a_{s,1,-z}$ (top)    | 4.07 6.29 6.29         | -            | -                        | -    | cm <sup>2</sup> /m              |
|             | M62       | 0.775 1.700 -0.550    | $a_{s,2,-z}$ (top)    | 0.81 7.97 7.97         | -            | -                        | -    | cm <sup>2</sup> /m              |
|             | M55       | -0.150 1.238 -0.550   | $a_{s,1,+z}$ (bottom) | 0.81 8.87 8.87         | -            | -                        | -    | cm <sup>2</sup> /m              |
|             | M50       | 1.238 -0.150 -0.550   | $a_{s,2,+z}$ (bottom) | 4.07 6.40 6.40         | -            | -                        | -    | cm <sup>2</sup> /m              |
|             | M25 - E3  | 0.000 0.000 -0.550    | $a_{sw}$              | 0.00 - 0.00            | -            | -                        | -    | cm <sup>2</sup> /m <sup>2</sup> |
| 2           | M35       | 0.000 1.033 0.000     | $a_{s,1,-z}$ (top)    | 0.81 9.51 9.51         | -            | -                        | -    | cm <sup>2</sup> /m              |

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## 2.2 REQUIRED REINFORCEMENT BY SURFACE

| Surface No. | Point No. | Point Coordinates [m] |       |        | Symbol                | Required Reinforcement |      |         | Basic Reinf. | Additional Reinforcement |          | Unit                            | Notes |
|-------------|-----------|-----------------------|-------|--------|-----------------------|------------------------|------|---------|--------------|--------------------------|----------|---------------------------------|-------|
|             |           | X                     | Y     | Z      |                       | ULS                    | SLS  | ULS/SLS |              | Required                 | Provided |                                 |       |
| 3           | M35       | 0.000                 | 1.033 | 0.000  | $a_{s,2,-z}$ (top)    | 4.07                   | 6.69 | 6.69    | -            | -                        | -        | cm <sup>2</sup> /m              |       |
|             | M35       | 0.000                 | 1.033 | 0.000  | $a_{s,1,+z}$ (bottom) | 4.07                   | 9.02 | 9.02    | -            | -                        | -        | cm <sup>2</sup> /m              |       |
|             | M34       | 0.000                 | 0.517 | 0.000  | $a_{s,2,+z}$ (bottom) | 0.81                   | 7.74 | 7.74    | -            | -                        | -        | cm <sup>2</sup> /m              |       |
|             | M1        | 0.000                 | 0.000 | 0.000  | $a_{sw}$              | 0.00                   | -    | 0.00    | -            | -                        | -        | cm <sup>2</sup> /m <sup>2</sup> |       |
|             | M39       | 1.550                 | 1.033 | 0.000  | $a_{s,1,-z}$ (top)    | 0.10                   | 9.44 | 9.44    | -            | -                        | -        | cm <sup>2</sup> /m              |       |
| 4           | M58       | 1.550                 | 0.517 | -0.550 | $a_{s,2,-z}$ (top)    | 4.07                   | 9.62 | 9.62    | -            | -                        | -        | cm <sup>2</sup> /m              |       |
|             | M38       | 1.550                 | 0.517 | 0.000  | $a_{s,1,+z}$ (bottom) | 4.07                   | 9.18 | 9.18    | -            | -                        | -        | cm <sup>2</sup> /m              |       |
|             | M45       | 1.550                 | 1.033 | -0.550 | $a_{s,2,+z}$ (bottom) | 0.12                   | 8.90 | 8.90    | -            | -                        | -        | cm <sup>2</sup> /m              |       |
|             | M5        | 1.550                 | 0.000 | 0.000  | $a_{sw}$              | 0.00                   | -    | 0.00    | -            | -                        | -        | cm <sup>2</sup> /m <sup>2</sup> |       |
|             | M42       | 1.033                 | 1.550 | 0.000  | $a_{s,1,-z}$ (top)    | 4.07                   | 9.45 | 9.45    | -            | -                        | -        | cm <sup>2</sup> /m              |       |
| 5           | M42       | 1.033                 | 1.550 | 0.000  | $a_{s,2,-z}$ (top)    | 0.81                   | 9.01 | 9.01    | -            | -                        | -        | cm <sup>2</sup> /m              |       |
|             | M28       | 1.550                 | 1.550 | -0.550 | $a_{s,1,+z}$ (bottom) | 0.35                   | 9.55 | 9.55    | -            | -                        | -        | cm <sup>2</sup> /m              |       |
|             | M41       | 0.517                 | 1.550 | 0.000  | $a_{s,2,+z}$ (bottom) | 0.81                   | 9.01 | 9.01    | -            | -                        | -        | cm <sup>2</sup> /m              |       |
|             | M3        | 0.000                 | 1.550 | 0.000  | $a_{sw}$              | 0.00                   | -    | 0.00    | -            | -                        | -        | cm <sup>2</sup> /m <sup>2</sup> |       |
|             | M44       | 1.033                 | 0.000 | 0.000  | $a_{s,1,-z}$ (top)    | 0.30                   | 9.32 | 9.32    | -            | -                        | -        | cm <sup>2</sup> /m              |       |
|             | M43       | 0.517                 | 0.000 | 0.000  | $a_{s,2,-z}$ (top)    | 0.81                   | 9.34 | 9.34    | -            | -                        | -        | cm <sup>2</sup> /m              |       |
|             | M43       | 0.517                 | 0.000 | 0.000  | $a_{s,1,+z}$ (bottom) | 4.07                   | 8.81 | 8.81    | -            | -                        | -        | cm <sup>2</sup> /m              |       |
|             | M25       | 0.000                 | 0.000 | -0.550 | $a_{s,2,+z}$ (bottom) | 0.76                   | 9.62 | 9.62    | -            | -                        | -        | cm <sup>2</sup> /m              |       |
|             | M1        | 0.000                 | 0.000 | 0.000  | $a_{sw}$              | 0.00                   | -    | 0.00    | -            | -                        | -        | cm <sup>2</sup> /m <sup>2</sup> |       |
|             |           |                       |       |        |                       |                        |      |         |              |                          |          |                                 |       |

## 3.2 SERVICEABILITY CHECK BY SURFACE

| Surface No. | Point No. | Point Coordinates [m] |        |        | Load Case      | Type        | Exist. Value | Design      |                    | Unit | Ratio | Notes          |
|-------------|-----------|-----------------------|--------|--------|----------------|-------------|--------------|-------------|--------------------|------|-------|----------------|
|             |           | X                     | Y      | Z      |                |             |              | Limit Value |                    |      |       |                |
| 1           | M25 - E3  | 0.000                 | 0.000  | -0.550 | Envelope e ChD | $\sigma_s$  | 0.00         | 400.00      | N/mm <sup>2</sup>  |      | 0.0   | 226) 236)      |
|             | M32       | 1.700                 | -0.150 | -0.550 | Envelope Fr    | $a_{s,min}$ | 6.08         | 6.08        | cm <sup>2</sup> /m |      | 1.0   |                |
|             | M25 - E3  | 0.000                 | 0.000  | -0.550 | Envelope e ChD | lim $d_s$   | 10.00        | -           | mm                 |      | 0.0   | 226) 235) 236) |
|             | M25 - E3  | 0.000                 | 0.000  | -0.550 | Envelope e ChD | lim $s_i$   | 0.159        | -           | m                  |      | 0.0   | 226) 235) 236) |
|             | M25 - E3  | 0.000                 | 0.000  | -0.550 | Envelope Fr    | $w_k$       | 0.000        | 0.300       | mm                 |      | 0.0   | 226) 236)      |
| 2           | M1        | 0.000                 | 0.000  | 0.000  | Envelope e ChD | $\sigma_s$  | 0.00         | 400.00      | N/mm <sup>2</sup>  |      | 0.0   | 226) 236)      |
|             | M3        | 0.000                 | 1.550  | 0.000  | Envelope Fr    | $a_{s,min}$ | 6.07         | 6.07        | cm <sup>2</sup> /m |      | 1.0   |                |
|             | M1        | 0.000                 | 0.000  | 0.000  | Envelope e ChD | lim $d_s$   | 10.00        | -           | mm                 |      | 0.0   | 226) 235) 236) |
|             | M1        | 0.000                 | 0.000  | 0.000  | Envelope e ChD | lim $s_i$   | 0.127        | -           | m                  |      | 0.0   | 226) 235) 236) |
|             | M1        | 0.000                 | 0.000  | 0.000  | Envelope Fr    | $w_k$       | 0.000        | 0.300       | mm                 |      | 0.0   | 226) 236)      |
| 3           | M5        | 1.550                 | 0.000  | 0.000  | Envelope e ChD | $\sigma_s$  | 0.00         | 400.00      | N/mm <sup>2</sup>  |      | 0.0   | 226) 236)      |
|             | M5        | 1.550                 | 0.000  | 0.000  | Envelope Fr    | $a_{s,min}$ | 6.07         | 6.07        | cm <sup>2</sup> /m |      | 1.0   |                |
|             | M5        | 1.550                 | 0.000  | 0.000  | Envelope e ChD | lim $d_s$   | 10.00        | -           | mm                 |      | 0.0   | 226) 235) 236) |
|             | M5        | 1.550                 | 0.000  | 0.000  | Envelope e ChD | lim $s_i$   | 0.129        | -           | m                  |      | 0.0   | 226) 235) 236) |
|             | M5        | 1.550                 | 0.000  | 0.000  | Envelope Fr    | $w_k$       | 0.000        | 0.300       | mm                 |      | 0.0   | 226) 236)      |
| 4           | M3        | 0.000                 | 1.550  | 0.000  | Envelope e ChD | $\sigma_s$  | 0.00         | 400.00      | N/mm <sup>2</sup>  |      | 0.0   | 226) 236)      |
|             | M3        | 0.000                 | 1.550  | 0.000  | Envelope Fr    | $a_{s,min}$ | 9.52         | 9.52        | cm <sup>2</sup> /m |      | 1.0   |                |
|             | M3        | 0.000                 | 1.550  | 0.000  | Envelope e ChD | lim $d_s$   | 10.00        | -           | mm                 |      | 0.0   | 226) 235) 236) |
|             | M3        | 0.000                 | 1.550  | 0.000  | Envelope e ChD | lim $s_i$   | 0.094        | -           | m                  |      | 0.0   | 226) 235) 236) |
|             | M3        | 0.000                 | 1.550  | 0.000  | Envelope Fr    | $w_k$       | 0.000        | 0.300       | mm                 |      | 0.0   | 226) 236)      |
| 5           | M1        | 0.000                 | 0.000  | 0.000  | Envelope e ChD | $\sigma_s$  | 0.00         | 400.00      | N/mm <sup>2</sup>  |      | 0.0   | 226) 236)      |
|             | M1        | 0.000                 | 0.000  | 0.000  | Envelope Fr    | $a_{s,min}$ | 9.59         | 9.59        | cm <sup>2</sup> /m |      | 1.0   |                |
|             | M1        | 0.000                 | 0.000  | 0.000  | Envelope e ChD | lim $d_s$   | 10.00        | -           | mm                 |      | 0.0   | 226) 235) 236) |
|             | M1        | 0.000                 | 0.000  | 0.000  | Envelope e ChD | lim $s_i$   | 0.109        | -           | m                  |      | 0.0   | 226) 235) 236) |
|             | M1        | 0.000                 | 0.000  | 0.000  | Envelope Fr    | $w_k$       | 0.000        | 0.300       | mm                 |      | 0.0   | 226) 236)      |

## SERVICEABILITY CHECK NOTES

| No.  | Description   |
|------|---|
| 226) | Concrete cracks on neither side.  |
| 235) | The check restricts increase of reinforcement for economic reasons.               |
| 236) | The check of the reinforcing layer need not to be fulfilled for economic reasons. |

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

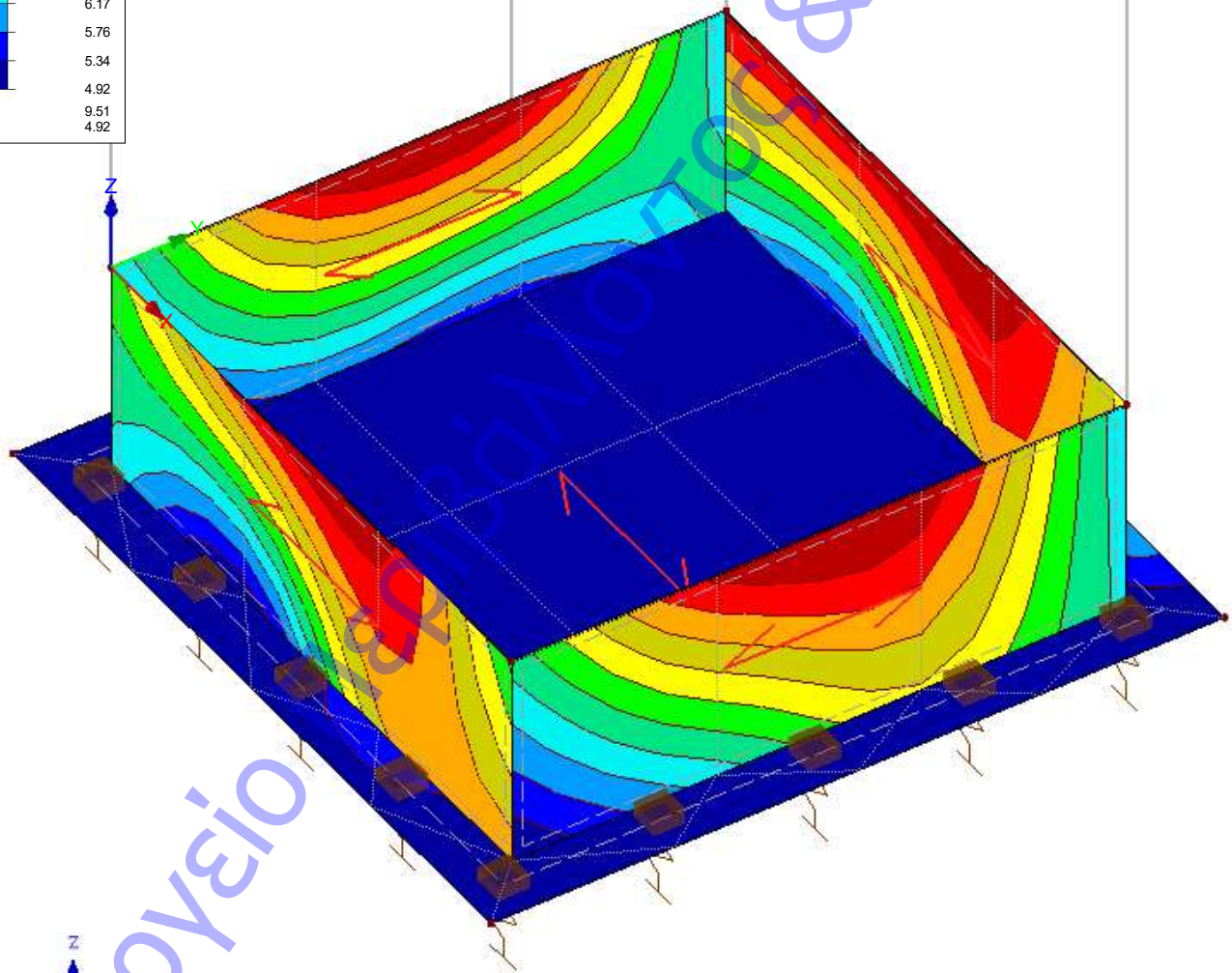
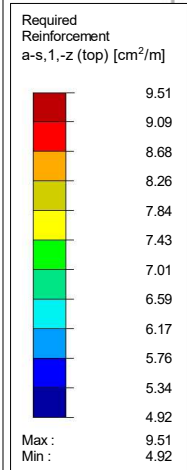
■ REQUIRED REINFORCEMENT  $a_{s,1,-z}$  (top)

RF-CONCRETE Surfaces CA1

Reinforced concrete design

Surfaces Required Reinforcement a-s,1,-z (top) [cm<sup>2</sup>/m]

Isometric

Max a-s,1,-z (top): 9.51, Min a-s,1,-z (top): 4.92 cm<sup>2</sup>/m

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

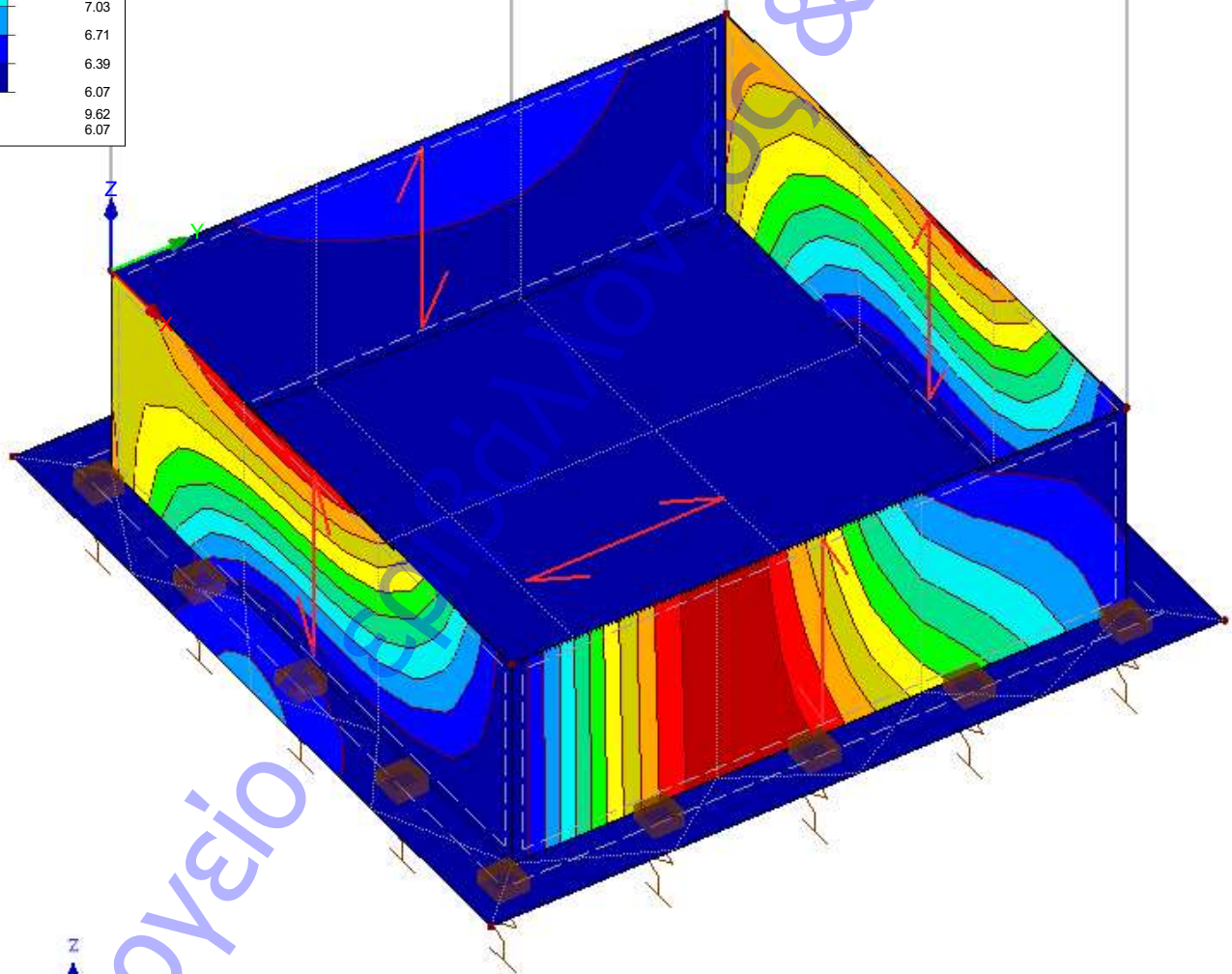
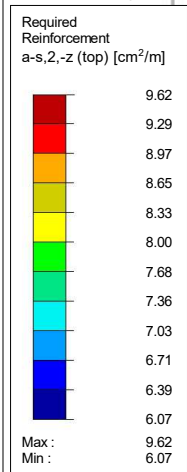
■ REQUIRED REINFORCEMENT  $a_{s,2,-z}$  (top)

RF-CONCRETE Surfaces CA1

Reinforced concrete design

Surfaces Required Reinforcement a-s,2,-z (top) [cm<sup>2</sup>/m]

Isometric

Max a-s,2,-z (top): 9.62, Min a-s,2,-z (top): 6.07 cm<sup>2</sup>/m

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

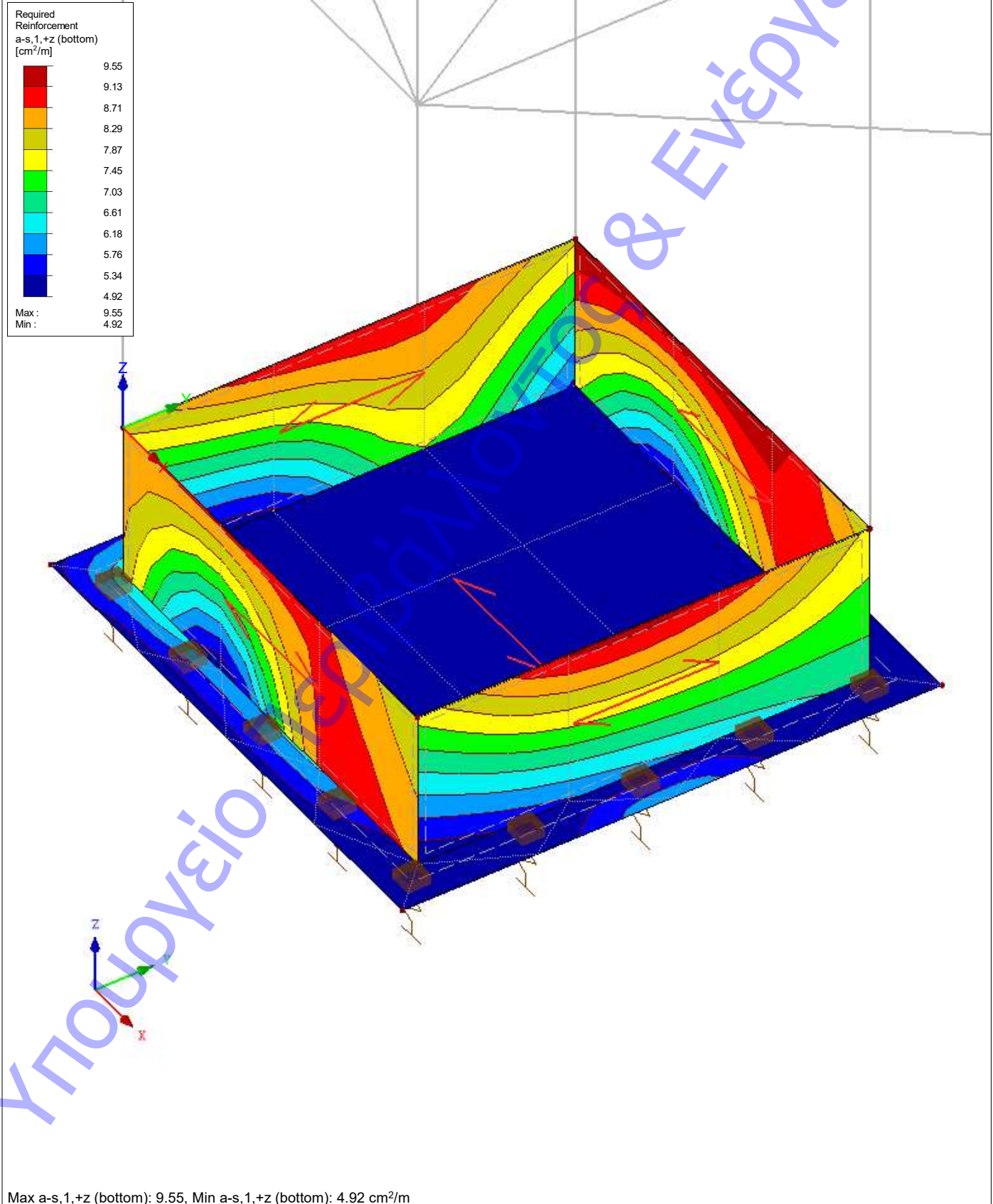
■ REQUIRED REINFORCEMENT  $a_{s,1,+z}$  (bottom)

RF-CONCRETE Surfaces CA1

Reinforced concrete design

Surfaces Required Reinforcement a-s,1,+z (bottom) [cm<sup>2</sup>/m]

Isometric

Max a-s,1,+z (bottom): 9.55, Min a-s,1,+z (bottom): 4.92 cm<sup>2</sup>/m

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

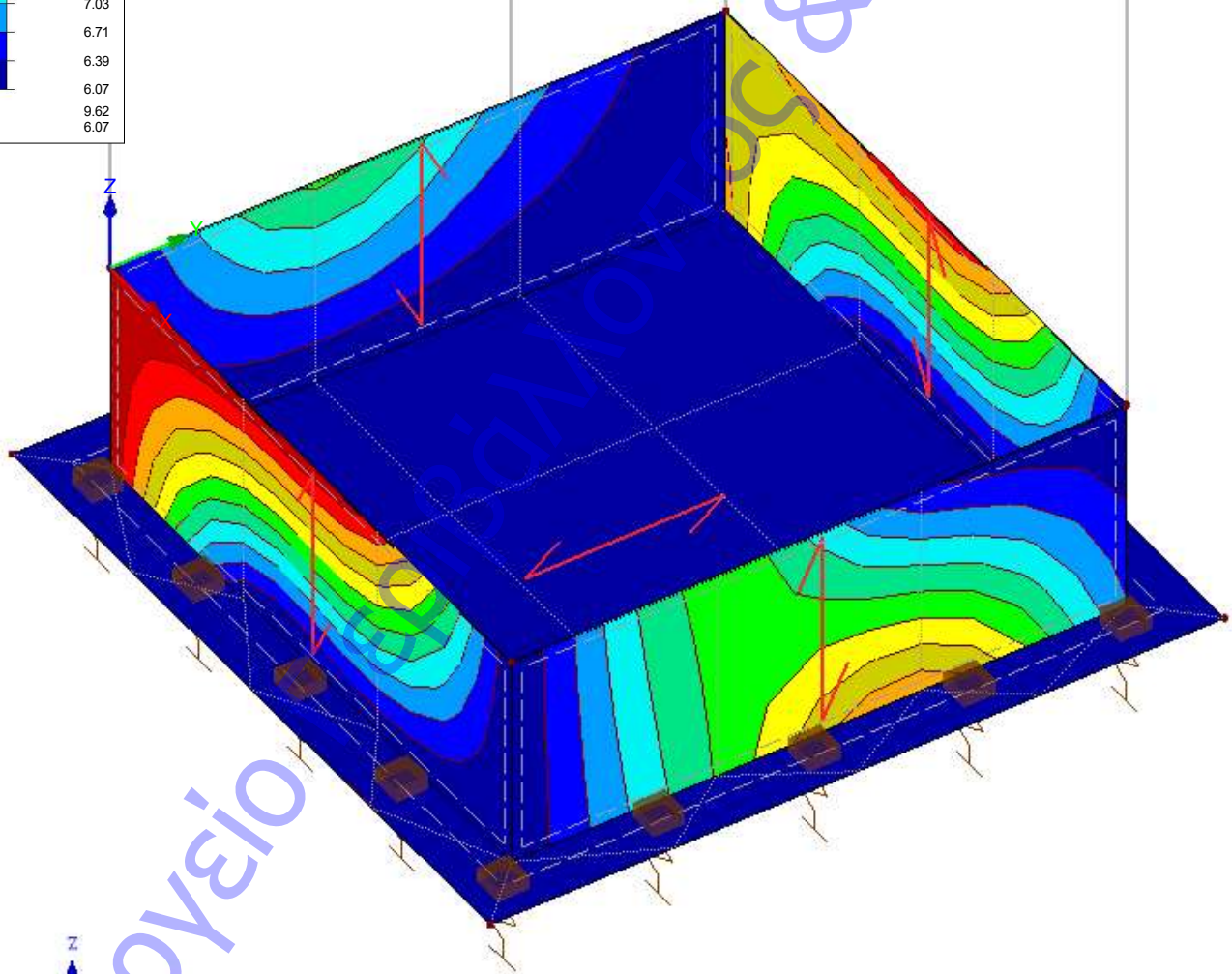
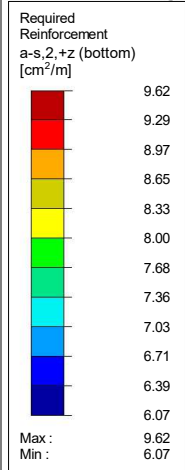
# REQUIRED REINFORCEMENT $a_{s,2,+z}$ (bottom)

RF-CONCRETE Surfaces CA1

Reinforced concrete design

Surfaces Required Reinforcement a-s,2,+z (bottom) [cm<sup>2</sup>/m]

Isometric


Max a-s,2,+z (bottom): 9.62, Min a-s,2,+z (bottom): 6.07 cm<sup>2</sup>/m

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## 1.1 GLOBAL DATA

|            |  |
|------------|--|
| Activities | <input checked="" type="checkbox"/> Modal analysis (eigenvectors)<br><input checked="" type="checkbox"/> Mass combinations<br><input checked="" type="checkbox"/> Forced vibrations<br><input checked="" type="checkbox"/> Response spectra<br><input type="checkbox"/> Accelerograms<br><input type="checkbox"/> Time diagrams<br><input type="checkbox"/> Equivalent static force analysis |
| Setting    | Gravity acceleration : 10.00 m/s <sup>2</sup>  |

## 1.2.1 MASS CASES - GENERAL

| No. | Mass Case Description | Parameters   |
|-----|-----------------------|--|
| MC1 |                       | Mass Case Type : Permanent<br>Masses : <input checked="" type="checkbox"/> From force components of Load Case LC1-SW   |
| MC2 |                       | Mass Case Type : Imposed - category A-B (roofs, p=1.0)<br>Masses : <input checked="" type="checkbox"/> From force components of Load Case LC2-Elevator loads |

## 1.3.1 MASS COMBINATIONS - GENERAL

| No.  | Mass Combination Description | Parameters                                      |
|------|------------------------------|---|
| MCO1 | 1.00*MC1 + 1.00*MC2          | Mass Cases : 1.00 MC1 -<br>Comment : 1.00 MC2 - |

## 1.4.1 NATURAL VIBRATION CASE - GENERAL

| NVC Case | Natural Vibration Case Description | Parameters  |
|----------|------------------------------------|---|
| NVC1     | MCO1                               | Number of Smallest Eigenvalues : 10<br>Acting Masses : MCO1<br>Masses considered in : <input checked="" type="checkbox"/> X-direction<br><input checked="" type="checkbox"/> Y-direction<br><input checked="" type="checkbox"/> Z-direction |

## 1.4.2 NATURAL VIBRATION CASE - CALCULATION PARAMETERS

| NVC Case | Natural Vibration Case Description | Calculation Parameters  |
|----------|------------------------------------|---|
| NVC1     | MC1                                | Type of Mass Matrix : Diagonal matrix (translational DOFs)<br>Scaling Vibration Mode Shapes : Max {u <sub>j</sub> } = 1<br>Method for Solving Eigenvalues : Lanczos |

## 1.5.1 RESPONSE SPECTRA - GENERAL

| RS Case | Response Spectra Description | Definition Type  | Comment |
|---------|------------------------------|--|---------|
| RS1     |                              | According to Standard:<br>EN 1998-1:2010 - European Union<br>National Annex:<br>CEN - European Union |         |
| RS2     |                              | According to Standard:<br>EN 1998-1:2010 - European Union<br>National Annex:<br>CEN - European Union |         |

## 1.5.2 RESPONSE SPECTRA - STANDARD PARAMETERS

| No. | Response Spectrum Description | Mass Case Parameters   |
|-----|-------------------------------|--|
| RS1 |                               | Type of Spectrum : Design spectrum for linear calculation<br>Type of Spectrum : 1<br>Spectrum direction : Horizontal spectrum<br>Earthquake action<br>Reference peak ground acceleration a <sub>gR</sub> : 2.3600<br>Importance factor γ <sub>I</sub> : 1.0<br>Design ground acceleration a <sub>g</sub> : 2.3600<br>Parameter for description of response spectrum<br>Ground type S : C<br>Soil factor T <sub>B-H</sub> : 0.2000<br>Lower limit of area of constant spectral acceleration (horizontal) T <sub>C-H</sub> : 0.6000<br>Upper limit of area of constant spectral acceleration (horizontal) T <sub>D-H</sub> : 2.0000<br>Value defining the beginning of area of constant displacements of spectrum (horizontal) |

Project: Model: Freatio\_EPAL LAMIAS\_R01

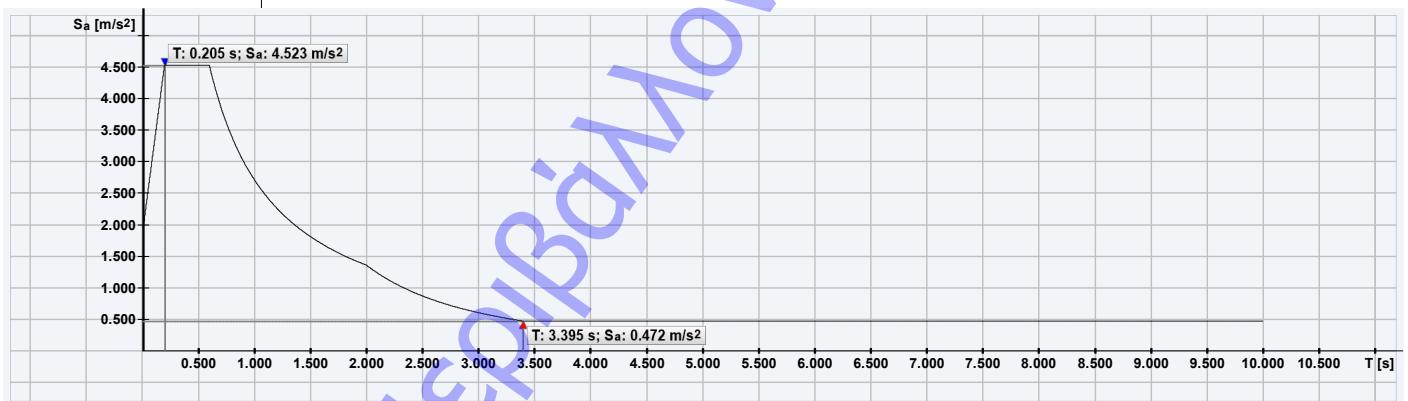
Date: 2/8/2023

## 1.5.2 RESPONSE SPECTRA - STANDARD PARAMETERS

| No. | Response Spectrum Description | Mass Case Parameters   |
|-----|-------------------------------|--|
| RS2 |                               | Factors<br>Behavior factor $q$ : 1.5000<br>Limit value for horizontal design spectrum $\beta$ : 0.2000   |
|     |                               | Type of Spectrum<br>Type of Spectrum : Design spectrum for linear calculation<br>Type of Spectrum : 1<br>Spectrum direction : Vertical spectrum  |
|     |                               | Earthquake action<br>Reference peak ground acceleration $a_{gR}$ : 2.3600<br>Importance factor $\gamma_I$ : 1.0<br>Design ground acceleration (vertical) $a_{gV}$ : 2.1240   |
|     |                               | Parameter for description of response spectrum<br>Ground type $S$ : C<br>Soil factor $T_{B-V}$ : 0.0500<br>Lower limit of area with constant spectral acceleration (vertical) $T_{C-V}$ : 0.1500<br>Upper limit of area with constant spectral acceleration (vertical) $T_{D-V}$ : 1.0000<br>Value defining the beginning of area of constant displacements of spectrum (vertical) |
|     |                               | Factors<br>Behavior factor $q$ : 1.5000<br>Limit value for horizontal design spectrum $\beta$ : 0.2000   |

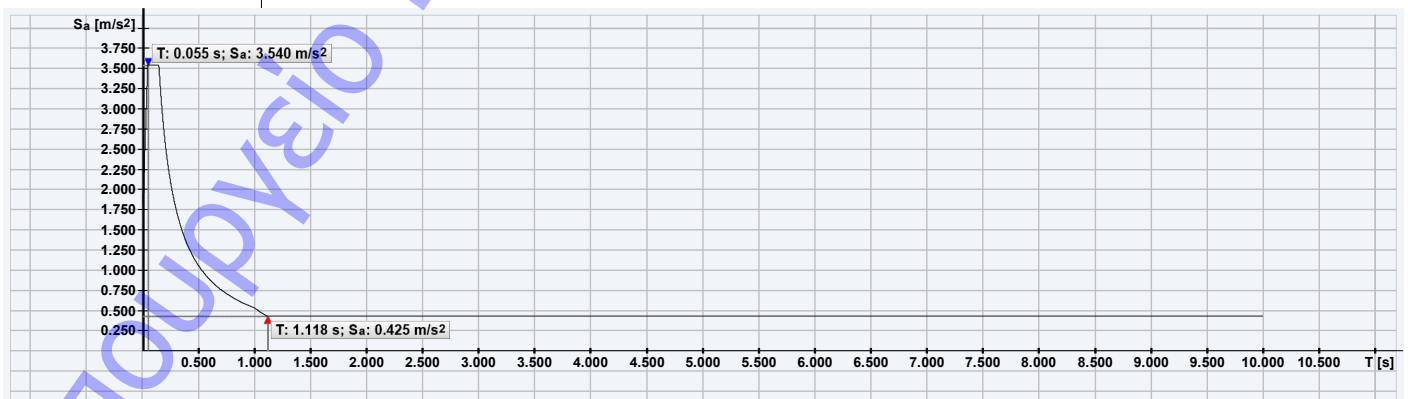
### 1.5.3.1 RESPONSE SPECTRA - GRAPH

RS1



### 1.5.3.2 RESPONSE SPECTRA - GRAPH

RS2



## 1.8.1 DYNAMIC LOAD CASES - GENERAL

| DLC Case | Dynamic Load Cases Description | Parameters   |
|----------|--------------------------------|--|
| DLC1     |                                | Method Type : Response spectrum analysis (response spectrum required)<br>Assign Natural Vibration : Natural Vibration Case: NVC1 |

Project: Model: Freatio\_EPAL LAMIAS\_R01

Date: 2/8/2023

## 1.8.2.1 DYNAMIC LOAD CASES - RESPONSE SPECTRUM ANALYSIS

| DLC Case | Dynamic Load Cases Description | Parameters  |
|----------|--------------------------------|---|
| DLC1     |                                | <p>Assign Response Spectrum - Supports</p> <p><input checked="" type="checkbox"/> On all supports identically</p> <p>Assign response spectrum:</p> <p>Response Spectrum in Direction</p> <p><input checked="" type="checkbox"/> x: RS1 -      Multiplication factor 1.000</p> <p><input checked="" type="checkbox"/> y: RS1 -      1.000</p> <p><input checked="" type="checkbox"/> z: RS2 -      1.000</p> <p>Rotate <math>a_x</math> <math>a_y</math> about Z:      <math>\alpha = 0.00</math> [°]</p> <p>Combination Rules:</p> <p>Modal response combination rule:</p> <p><input type="checkbox"/> SRSS</p> <p><input checked="" type="checkbox"/> CQC</p> <p>Combination of directional components:</p> <p><input type="checkbox"/> SRSS</p> <p><input checked="" type="checkbox"/> 100 / 30 %</p> <p><input type="checkbox"/> 100 / 40 %</p> <p>Options</p> <p><input checked="" type="checkbox"/> Use equivalent linear combination</p> <p>Generate:</p> <p><input checked="" type="checkbox"/> Create result combination</p> <p>Number of first generated result combination: 5</p> <p>Lehr's damping:</p> <p>D = 0.040 [-]</p> |

## 1.8.2.2 DYNAMIC LOAD CASES - RESPONSE SPECTRUM ANALYSIS - MODE SHAPES TO GENERATE

| DLC Case | Dynamic Load Cases Description | Mode No. | To generat                          | Frequency $\omega$ [rad/s] | f [Hz] | Period T [s] | Acceleration $S_a$ [m/s²] |
|----------|--------------------------------|----------|-------------------------------------|----------------------------|--------|--------------|---------------------------|
| DLC1     |                                | 1        | <input checked="" type="checkbox"/> | 54.107                     | 8.611  | 0.116        | 3.385                     |
|          |                                | 2        | <input checked="" type="checkbox"/> | 76.023                     | 12.099 | 0.083        | 2.931                     |
|          |                                | 3        | <input checked="" type="checkbox"/> | 86.825                     | 13.819 | 0.072        | 2.791                     |
|          |                                | 4        | <input checked="" type="checkbox"/> | 116.911                    | 18.607 | 0.054        | 2.539                     |
|          |                                | 5        | <input checked="" type="checkbox"/> | 132.173                    | 21.036 | 0.048        | 2.454                     |
|          |                                | 6        | <input checked="" type="checkbox"/> | 200.372                    | 31.890 | 0.031        | 2.235                     |
|          |                                | 7        | <input checked="" type="checkbox"/> | 281.260                    | 44.764 | 0.022        | 2.112                     |
|          |                                | 8        | <input checked="" type="checkbox"/> | 286.942                    | 45.668 | 0.022        | 2.106                     |
|          |                                | 9        | <input checked="" type="checkbox"/> | 300.437                    | 47.816 | 0.021        | 2.093                     |
|          |                                | 10       | <input checked="" type="checkbox"/> | 318.780                    | 50.735 | 0.020        | 2.077                     |

## 5.1 NATURAL FREQUENCIES

| Mode No. | Eigenvalue $\lambda$ [1/s²] | Angular frequency $\omega$ [rad/s] | Natural Frequency f [Hz] | Natural Period T [s] |
|----------|-----------------------------|------------------------------------|--------------------------|----------------------|
| 1        | 2927.522                    | 54.107                             | 8.611                    | 0.116                |
| 2        | 5779.445                    | 76.023                             | 12.099                   | 0.083                |
| 3        | 7538.586                    | 86.825                             | 13.819                   | 0.072                |
| 4        | 13668.292                   | 116.911                            | 18.607                   | 0.054                |
| 5        | 17469.783                   | 132.173                            | 21.036                   | 0.048                |
| 6        | 40149.090                   | 200.372                            | 31.890                   | 0.031                |
| 7        | 79107.375                   | 281.260                            | 44.764                   | 0.022                |
| 8        | 82335.789                   | 286.942                            | 45.668                   | 0.022                |
| 9        | 90262.477                   | 300.437                            | 47.816                   | 0.021                |
| 10       | 101620.563                  | 318.780                            | 50.735                   | 0.020                |

## 5.7 EFFECTIVE MODAL MASS FACTORS

| Mode No. | Modal Mas $M_i$ [kg] | Effective Modal Mass |               |               |                  |                  |                  | Effective Modal Mass Factor |               |               |
|----------|----------------------|----------------------|---------------|---------------|------------------|------------------|------------------|-----------------------------|---------------|---------------|
|          |                      | $m_{ex}$ [kg]        | $m_{ey}$ [kg] | $m_{ez}$ [kg] | $m_{ex}$ [kg.m²] | $m_{ey}$ [kg.m²] | $m_{ez}$ [kg.m²] | $f_{meX}$ [-]               | $f_{meY}$ [-] | $f_{meZ}$ [-] |
| 1        | 582.32               | 311.10               | 2.70          | 5833.04       | 121.62           | 9902.78          | 3.74             | 0.022                       | 0.000         | 0.413         |
| 2        | 506.09               | 218.09               | 11.15         | 7947.70       | 387.76           | 7141.92          | 0.02             | 0.016                       | 0.001         | 0.563         |
| 3        | 391.29               | 7.71                 | 385.65        | 107.02        | 12015.68         | 370.56           | 8.34             | 0.001                       | 0.028         | 0.008         |
| 4        | 11.60                | 1.14                 | 0.01          | 5.87          | 9.34             | 1.19             | 1.23             | 0.000                       | 0.000         | 0.000         |
| 5        | 233.38               | 3.16                 | 0.05          | 216.75        | 4.06             | 2.67             | 173.71           | 0.000                       | 0.000         | 0.015         |
| 6        | 371.35               | 62.41                | 114.85        | 11.73         | 2597.18          | 769.43           | 267.42           | 0.004                       | 0.008         | 0.001         |
| 7        | 405.91               | 3.85                 | 26.61         | 0.96          | 2076.02          | 79.35            | 0.44             | 0.000                       | 0.002         | 0.000         |
| 8        | 45.48                | 0.75                 | 0.00          | 0.01          | 0.03             | 2.33             | 2.17             | 0.000                       | 0.000         | 0.000         |
| 9        | 47.46                | 52.26                | 0.02          | 0.15          | 0.01             | 221.63           | 91.96            | 0.004                       | 0.000         | 0.000         |
| 10       | 199.83               | 3.87                 | 0.68          | 0.03          | 11.44            | 40.58            | 36.97            | 0.000                       | 0.000         | 0.000         |
| Sum      | 2794.70              | 664.33               | 541.73        | 14123.26      | 17223.14         | 18532.44         | 586.00           | 0.047                       | 0.039         | 1.000         |