

# PAD FOUNDATION DESIGN CHECK

## Site Information:

|              |                           |
|--------------|---------------------------|
| Site:        | Ballydavid                |
| Site No.:    |                           |
| Date:        | 2026-04-09                |
| Struc. Type: | 54 Tri tower 3.5m leg c/c |
| Location     | 52.195176°, -10.373818°   |

Fermoy transposer site

*Foundation details will be dependant on ground investigations. Space is limited and due to this the following to be adopted.*

Foundation Design Loads to have Min FOS 2.5

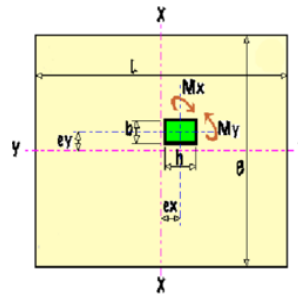
Foundation Max reactions FOS 1.5 is acceptable

**200**

|                              |              |            |
|------------------------------|--------------|------------|
| A.B.P.:                      | ( $kN/m^2$ ) | <b>100</b> |
| Concrete Weight, gc:         | ( $kN/m^3$ ) | 24.6       |
| Concrete Strength, fcu:      | ( $N/mm^2$ ) | 35         |
| Steel Strength, fy:          | ( $N/mm^2$ ) | 460        |
| Concrete Cover:              | (mm)         | 75         |
| Bar Size, $\Phi$ :           | (mm)         | 20         |
| Co-Eff. Of Friction, $\mu$ : | -            | 0.4        |

@1.2m BGL TBC

| Tower eccentricity    | (m)      | Dist from edge |
|-----------------------|----------|----------------|
| x offset from centre: | <b>0</b> | 4.5            |
| y offset from centre: | <b>0</b> | 4.5            |



Key

Pad+Ground

| Depth | Extra weight |
|-------|--------------|
| D     |              |
| (m)   | (kN)         |
| 1.200 | 0.00         |

## Dimension of Pad

| Length       | Width        | Depth        | Volume    |
|--------------|--------------|--------------|-----------|
| L (x)        | W (y)        | D            | V         |
| (m)          | (m)          | (m)          | ( $m^3$ ) |
| <b>9.000</b> | <b>9.000</b> | <b>1.200</b> | 97.200    |

## Ground

| Length | Width | Depth        | Density      |
|--------|-------|--------------|--------------|
| L      | W     | D            | V            |
| (m)    | (m)   | (m)          | ( $kN/m^3$ ) |
| 9.000  | 9.000 | <b>0.000</b> | 18.000       |

## Reactions from MStower (resultant)

| FHx     | FHy   | FV      | Mx       | My    | Mz    |
|---------|-------|---------|----------|-------|-------|
| (kN)    | (kN)  | (kN)    | (kNm)    | (kNm) | (kNm) |
| 229.110 | 0.000 | 175.400 | 6503.530 | 0.000 | 0.000 |
| 190.925 | 0.000 | 175.400 | 5419.608 | 0.000 | 0.000 |

FACTORED

UNFACTORED

| gv          |
|-------------|
| (kN)        |
| <b>1.20</b> |

1.15 countryside

1.20 city

## Forces:

| FC      | FV     | FVtot   | FH     | M       | Mtot    | MRES     |
|---------|--------|---------|--------|---------|---------|----------|
| (kN)    | (kN)   | (kN)    | (kN)   | (kNm)   | (kNm)   | (kNm)    |
| 2391.12 | 175.40 | 2566.52 | 190.93 | 5419.61 | 5648.72 | 11549.34 |

## Bearing Pressure

| Ecc   | PMIN         | PMAX         | COMMENTS |
|-------|--------------|--------------|----------|
| (m)   | ( $kN/m^2$ ) | ( $kN/m^2$ ) |          |
| 2.201 | 0.00         | 82.69        | OKAY     |

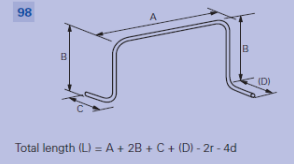
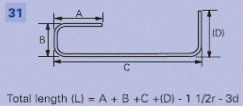
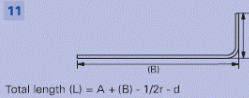
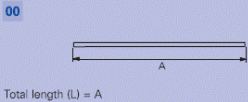
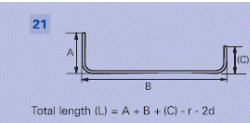
## Factor of Safety

|           |      |      |     |
|-----------|------|------|-----|
| F.O.S. OV | 2.04 | OKAY | 1.5 |
| F.O.S. SL | 5.38 | OKAY |     |

## Report:

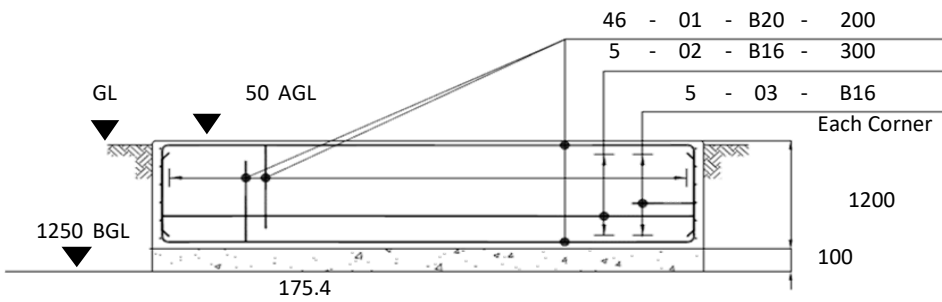
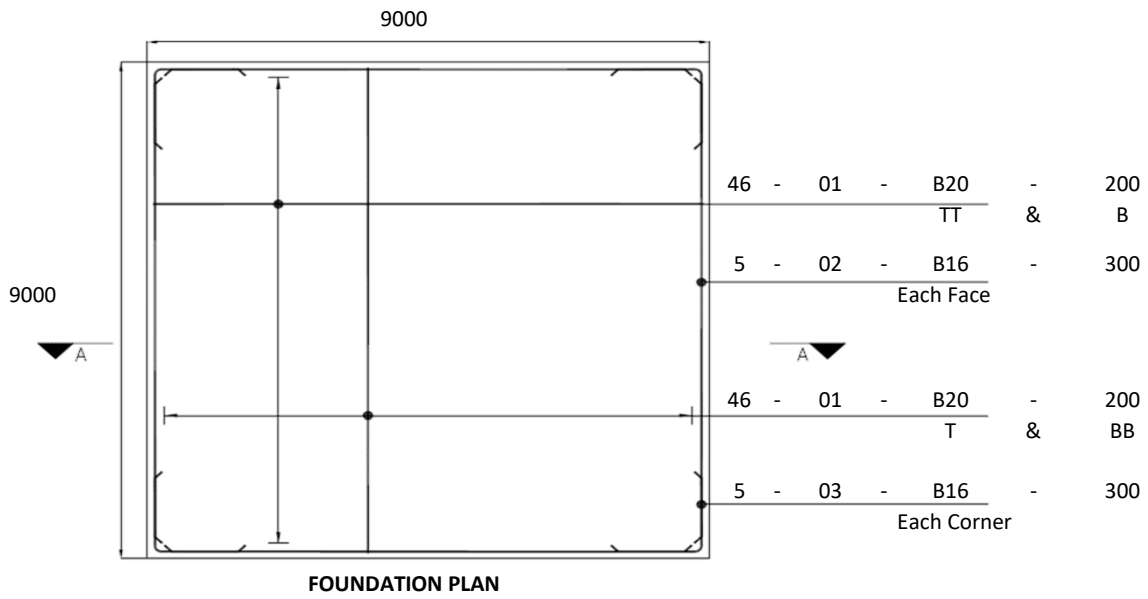
| B     | L     | D     | Base weight | Mtot    | MRES     | F.O.S. OV | PMAX  |
|-------|-------|-------|-------------|---------|----------|-----------|-------|
| 9.000 | 9.000 | 1.200 | 2391.12     | 5648.72 | 11549.34 | 2.04      | 82.69 |

| Bar Mark | Type & Size | No. of member | Total No. | Length of each bar<br>mm | Shape Code | A<br>mm | B<br>mm | C<br>mm | D<br>mm | Comments                                                         |
|----------|-------------|---------------|-----------|--------------------------|------------|---------|---------|---------|---------|------------------------------------------------------------------|
| 01       | B20         | 1             | 184       | 10750                    | 21         | 985     | 8870    | 985     | -       | U-Bars Main Steel TT & B, T & BB                                 |
| 02       | B16         | 1             | 20        | 8770                     | 00         | 8770    | -       | -       | -       | Straight, Face Lacers                                            |
| 03       | B16         | 1             | 20        | 1775                     | 11         | 900     | 900     | -       | -       | L-Bars, Corner Lacers                                            |
| 04       | B16         | 1             | 10        | 3575                     | 98         | 1000    | 995     | 350     | 350     | Chairs: 3 rows of 9                                              |
| 05       | B16         | 1             | 36        | 1525                     | 31         | 130     | 160     | 1015    | 300     | Vertical Bars to be evenly spread in a circular pattern 500mm fr |



| Foundation Size |      |
|-----------------|------|
| Details         | mm   |
| Breath          | 9000 |
| Depth           | 1200 |
| Spacing         | 300  |
| Top Cover       | 50   |
| Bot Cover       | 75   |
| Sides Cover     | 50   |

| Total Rebar Weight |    |
|--------------------|----|
| 5362.109           | kg |



**SECTION A-A**