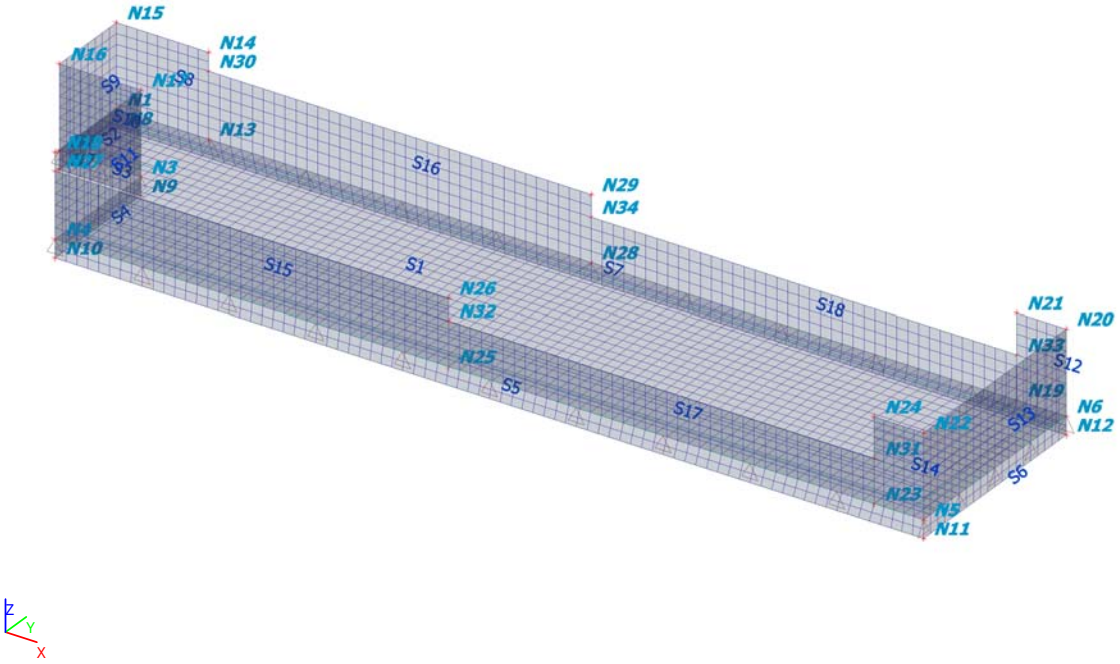
1. Table of contents

2. Model snapshots

2.1. Analysis model



3. Libraries

3.1. Setup manager

Combination setup

Annex - Category H loading not to be combined with snow or wind	
Category H loading not to be combined with snow or wind	✓

Psi factors

Load	Psi0	Psi1	Psi2
CategoryA	0.7	0.5	0.3
CategoryB	0.7	0.5	0.3
CategoryC	0.7	0.7	0.6
CategoryD	0.7	0.7	0.6
CategoryE	1	0.9	0.8
CategoryF	0.7	0.7	0.6
CategoryG	0.7	0.5	0.3
CategoryH	0	0	0
Snow	0.5	0.2	0
Wind	0.6	0.2	0
Temperature	0.6	0.5	0

Load combination factors

Permanent action - unfavorable	1.35
Permanent action - favorable	1.00
Leading variable action	1.50
Accompanying variable action	1.50
Reduction factor ksi	0.85
Permanent action - unfavorable	1.00
Permanent action - favorable	1.00
Leading variable action	1.30
Accompanying variable action	1.30

3.2. Materials

Concrete EC2

Name	Type	Unit mass [kg/m³]	E mod [kN/m²]	Poisson - nu	Thermal exp [m/mK]	Characteristic compressive cylinder strength fck(28) [MPa]
C30/37	Concrete	2500.0	32800000.0	0.2	0.00	30.00

Reinforcement EC2

Name	Type	Unit mass [kg/m³]	E mod [kN/m²]	G mod [kN/m²]	Thermal exp [m/mK]	Characteristic yield strength fyk [MPa]
B 500B	Reinforcement steel	7850.0	200000000.0	83333333.3	0.00	500.0

3.3. Subsoils

Name	C1x [kN/m³]	C1z	C1y [kN/m³]	Stiffness [kN/m³]	C2x [kN/m]	C2y [kN/m]	Sigma oc [kN/m²]
Sub1	1000.0	Flexible	1000.0	10000.0	1000.0	1000.0	100.0

4. Structure

4.1. Nodes

Name	Coord X [m]	Coord Y [m]	Coord Z [m]
N1	-2.260	5.939	0.000
N2	-2.260	3.572	0.000
N3	0.000	3.572	0.000
N4	0.000	0.000	0.000
N5	24.097	0.000	0.000
N6	24.097	5.939	0.000
N7	-2.260	3.572	-0.500
N8	-2.260	5.939	-0.500
N9	0.000	3.572	-0.500
N10	0.000	0.000	-0.500
N11	24.097	0.000	-0.500
N12	24.097	5.939	-0.500

Name	Coord X [m]	Coord Y [m]	Coord Z [m]
N13	0.300	5.939	0.000
N14	0.300	5.939	2.300
N15	-2.260	5.939	2.300
N16	-2.260	3.572	2.300
N17	0.000	3.572	2.300
N18	0.000	0.000	2.300
N19	22.729	5.939	0.000
N20	24.097	5.939	2.300
N21	22.729	5.939	2.300
N22	24.097	0.000	2.300
N23	22.729	0.000	0.000
N24	22.729	0.000	2.300

Name	Coord X [m]	Coord Y [m]	Coord Z [m]
N25	10.918	0.000	0.000
N26	10.918	0.000	1.800
N27	0.000	0.000	1.800
N28	10.918	5.939	0.000
N29	10.918	5.939	1.800
N30	0.300	5.939	1.800
N31	22.729	0.000	1.200
N32	10.918	0.000	1.200
N33	22.729	5.939	1.200
N34	10.918	5.939	1.200

4.2. 2D members

Name	Layer	Type	Analysis model	Material	Thickness type	Th. [mm]	
S1	Layer2-Concrete Slabs	plate (90)	Standard	C30/37	constant	300	
S2	Layer3-Concrete Wall	wall (80)	Standard	C30/37	constant	300	
S3	Layer3-Concrete Wall	wall (80)	Standard	C30/37	constant	300	
S4	Layer3-Concrete Wall	wall (80)	Standard	C30/37	constant	300	
S5	Layer3-Concrete Wall	wall (80)	Standard	C30/37	constant	300	
S6	Layer3-Concrete Wall	wall (80)	Standard	C30/37	constant	300	
S7	Layer3-Concrete Wall	wall (80)	Standard	C30/37	constant	300	
S8	Layer3-Concrete Wall	wall (80)	Standard	C30/37	constant	300	
S9	Layer3-Concrete Wall	wall (80)	Standard	C30/37	constant	300	
S10	Layer3-Concrete Wall	wall (80)	Standard	C30/37	constant	300	
S11	Layer3-Concrete Wall	wall (80)	Standard	C30/37	constant	300	
S12	Layer3-Concrete Wall	wall (80)	Standard	C30/37	constant	300	
S13	Layer3-Concrete Wall	wall (80)	Standard	C30/37	constant	300	
S14	Layer3-Concrete Wall	wall (80)	Standard	C30/37	constant	300	
S15	Layer3-Concrete Wall	wall (80)	Standard	C30/37	constant	300	
S16	Layer3-Concrete Wall	wall (80)	Standard	C30/37	constant	300	
S17	Layer3-Concrete Wall	wall (80)	Standard	C30/37	constant	300	
S18	Layer3-Concrete Wall	wall (80)	Standard	C30/37	constant	300	

4.3. 2D member supports

Name	Type	Subsoil	2D member
SS1	Individual	Sub1 - 100 KN/m2	S1

5. Sets

5.1. Load cases

Name	Description	Action type	LoadGroup	Direction	Duration	Master load case
	Spec	Load type				
LC1	Self-Weight	Permanent	LG1-D	-Z		
		Self weight				
LC2	Dead	Permanent	LG1-D			
		Standard				
LC3	Live	Variable	LG2-L		Short	None
	Standard	Static				
LC4	Water Pressure	Variable	LG2-L		Short	None
	Standard	Static				

5.2. Load groups

Name	Load	Relation	Type
LG1-D	Permanent		
LG2-L	Variable	Standard	Cat A : Domestic

5.3. Combinations

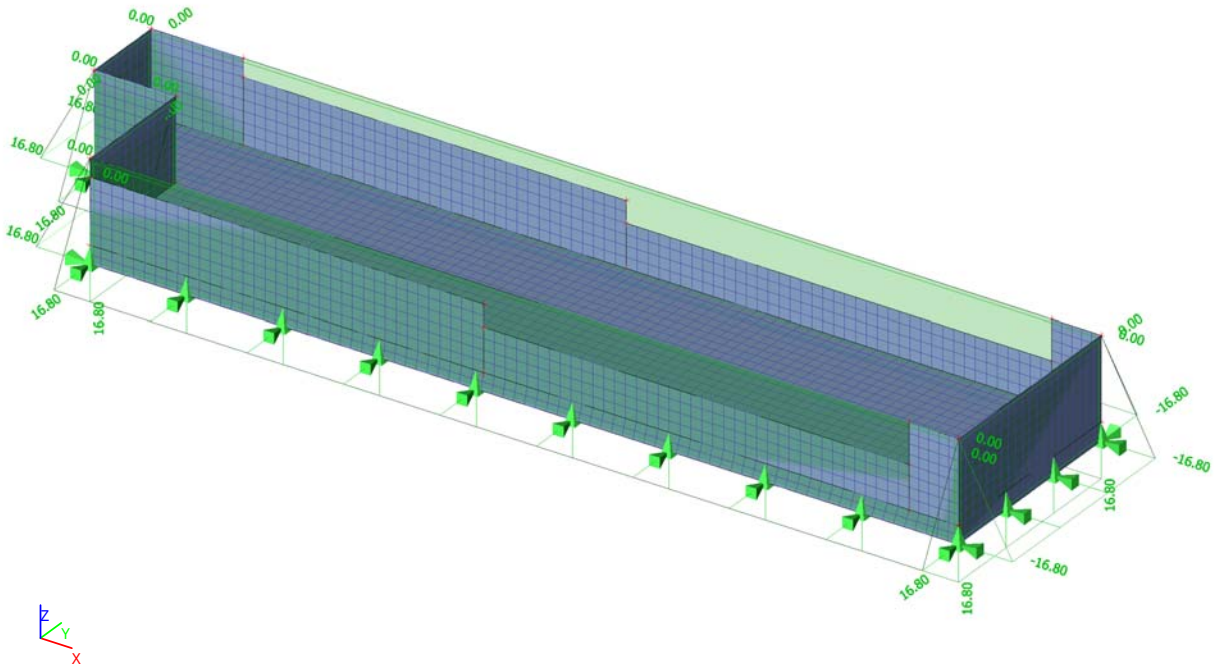
Name	Description	Type	Load cases	Coeff. [-]
ULS		EN-ULS (STR/GEO) Set B	LC1 - Self-Weight	1.00
			LC2 - Dead	1.00
			LC3 - Live	1.00
			LC4 - Water Pressure	1.00
SLS-Ch		EN-SLS Characteristic	LC1 - Self-Weight	1.00
			LC2 - Dead	1.00
			LC3 - Live	1.00
			LC4 - Water Pressure	1.00
SLS-Fr		EN-SLS Frequent	LC1 - Self-Weight	1.00
			LC2 - Dead	1.00
			LC3 - Live	1.00
			LC4 - Water Pressure	1.00
SLS-Qp		EN-SLS Quasi-permanent	LC1 - Self-Weight	1.00
			LC2 - Dead	1.00
			LC3 - Live	1.00
			LC4 - Water Pressure	1.00

5.4. Result classes

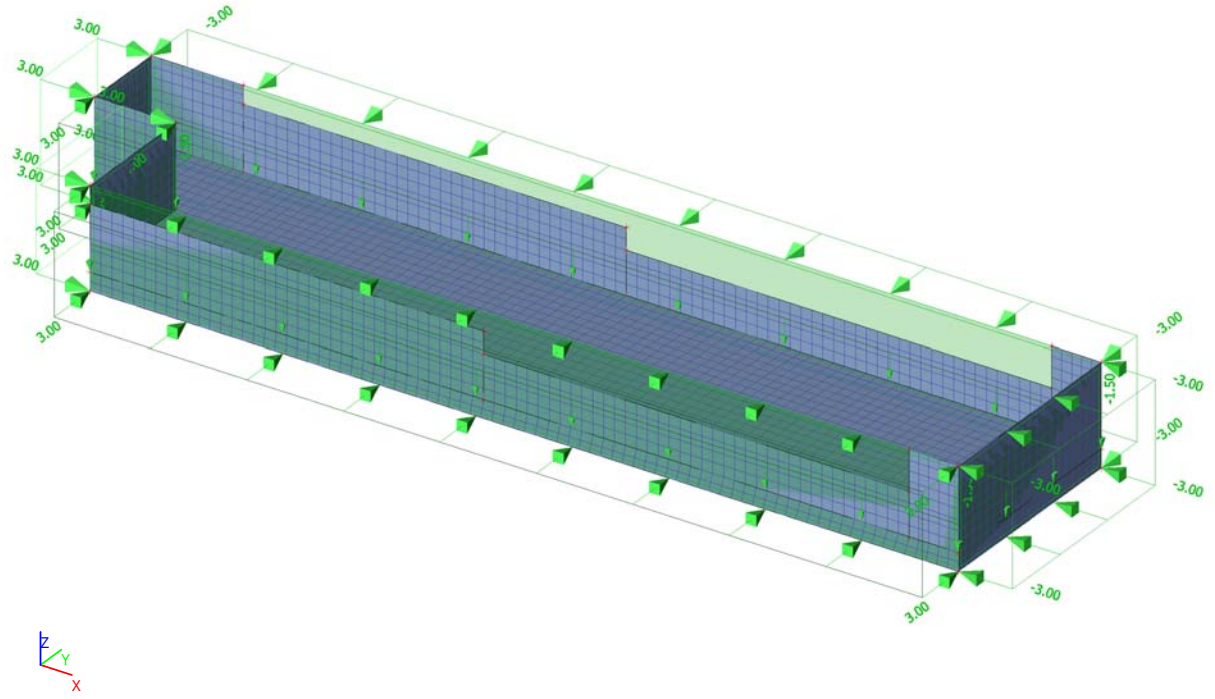
Name	List
SLS	SLS-Ch - EN-SLS Characteristic
	SLS-Fr - EN-SLS Frequent
	SLS-Qp - EN-SLS Quasi-permanent
GEO	ULS - EN-ULS (STR/GEO) Set B

6. Loads

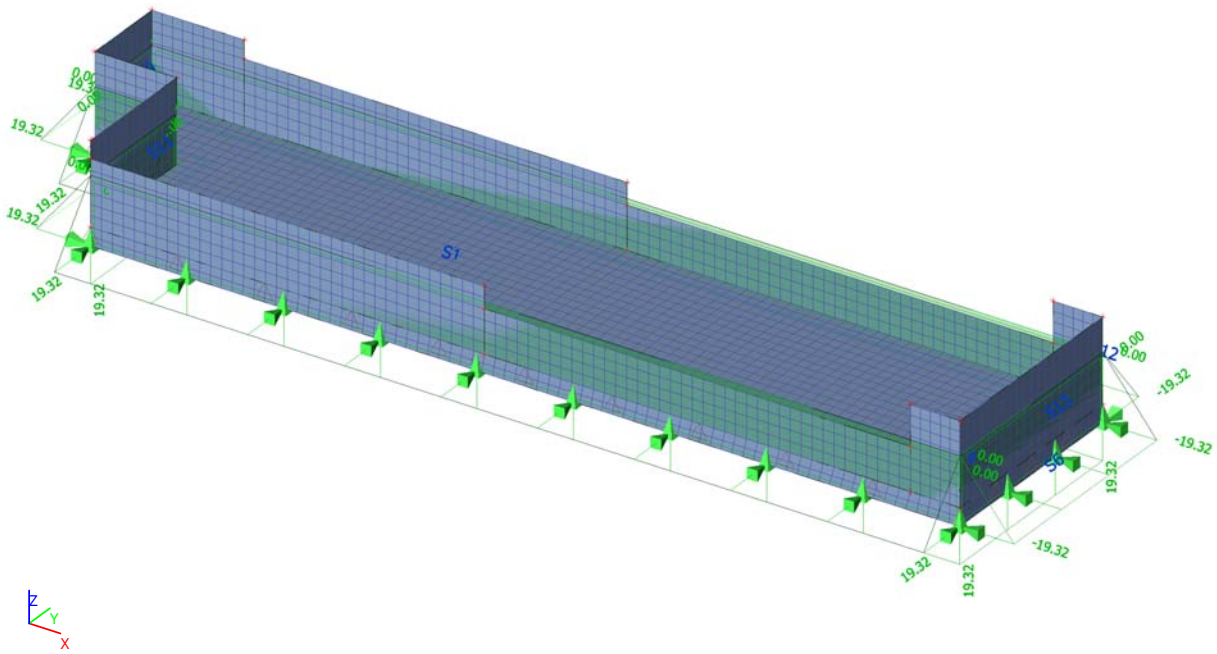
6.1. LC2 - Dead (soil pressure)



6.2. LC3 - Live (surcharge)



6.3. LC4 - Water Pressure



6.4. Surface load

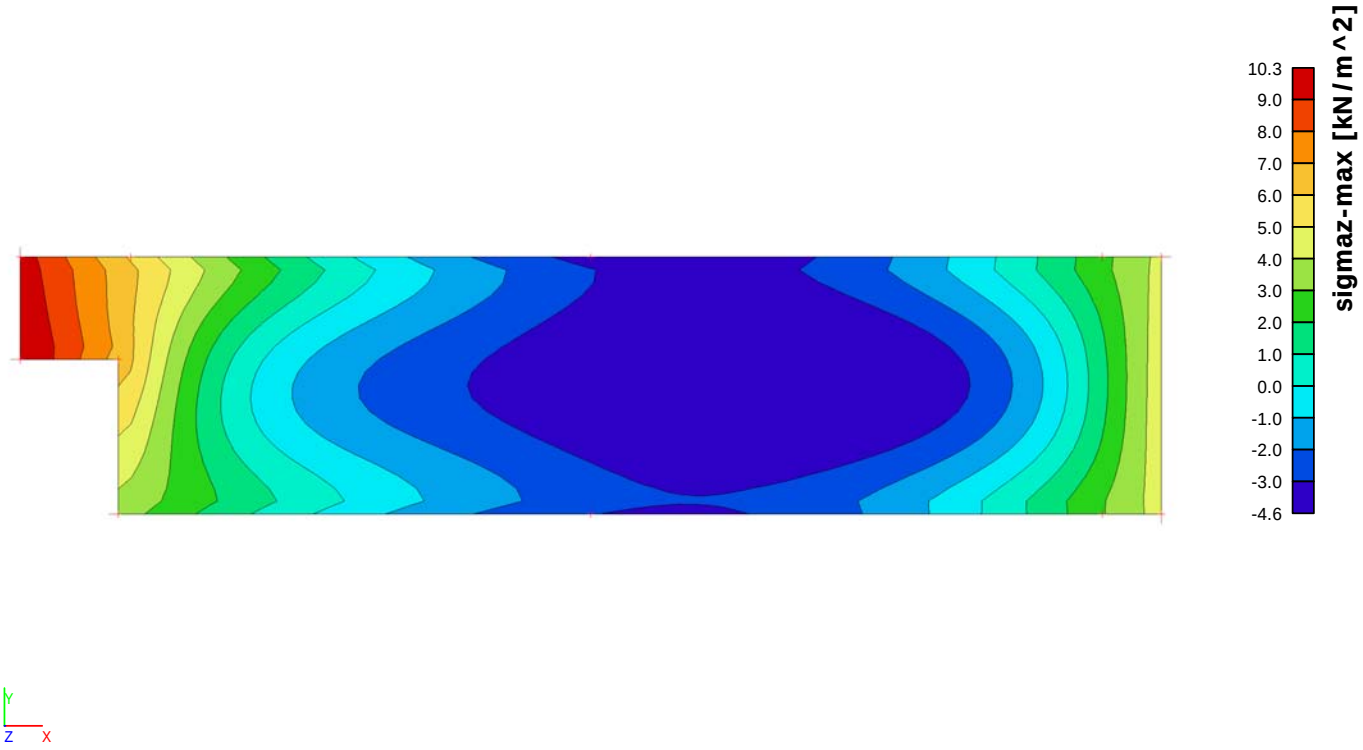
Name	Dir	Type	Value [kN/m²]	2D member	Load case	System	Loc
SF1	Z	Force	16.80	S1	LC2 - Dead	GCS	Length
SF2	Z	Force	-1.50	S1	LC3 - Live	GCS	Length
SF3	Z	Force	19.32	S1	LC4 - Water Pressure	GCS	Length

6.5. Free surface load

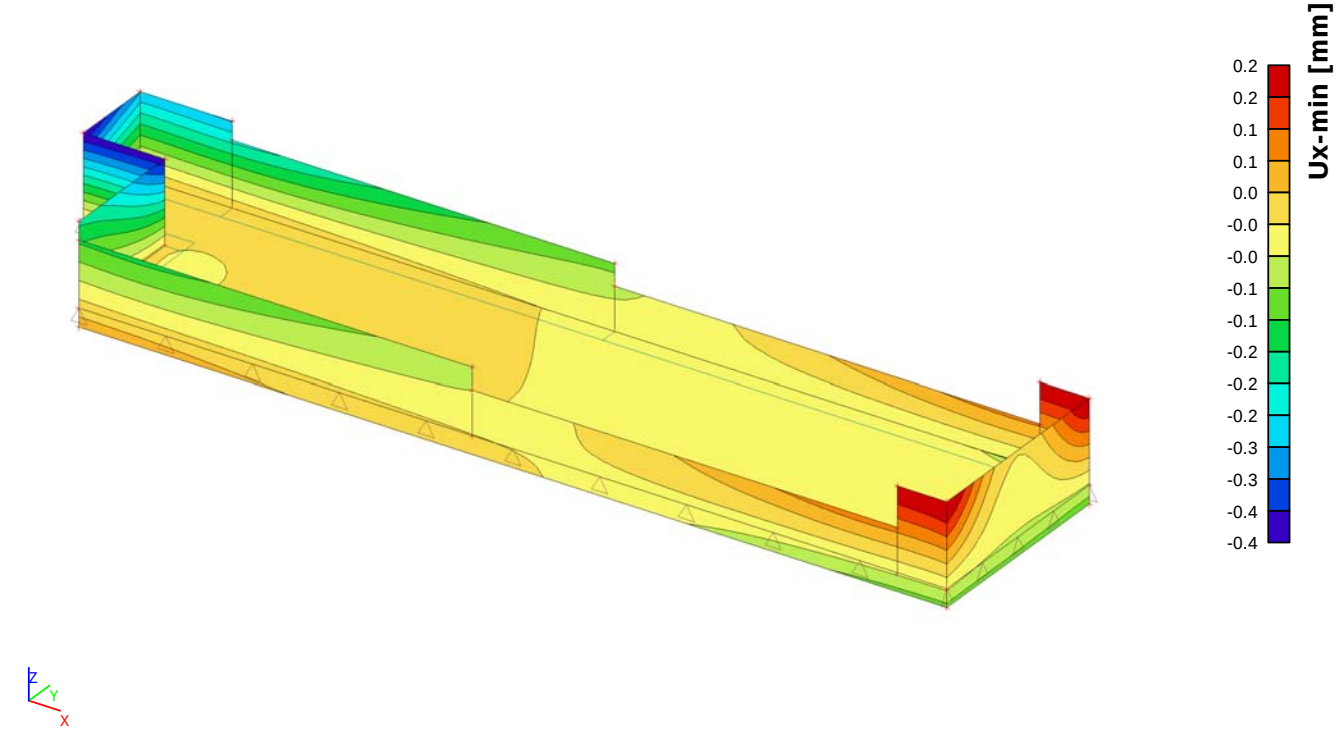
Name	Load case	Dir	Type	Distribution	q1 [kN/m²]	q2 [kN/m²]	Validity	Select	System	Location
FF7	LC2 - Dead	Y	Force	Dir Y	0.00	16.80	Z=0	Auto	GCS	Length
FF8	LC2 - Dead	Y	Force	Dir Y	-16.80	0.00	Z=0	Auto	GCS	Length
FF9	LC2 - Dead	X	Force	Dir Y	-16.80	0.00	Z=0	Auto	GCS	Length
FF10	LC2 - Dead	X	Force	Dir Y	16.80	0.00	Z=0	Auto	GCS	Length
FF11	LC2 - Dead	X	Force	Dir Y	16.80	0.00	Z=0	Auto	GCS	Length
FF12	LC2 - Dead	Y	Force	Dir Y	16.80	0.00	Z=0	Auto	GCS	Length
FF13	LC4 - Water Pressure	Y	Force	Dir Y	0.00	19.32	Z=0	Auto	GCS	Length
FF14	LC4 - Water Pressure	Y	Force	Dir Y	-19.32	0.00	Z=0	Auto	GCS	Length
FF15	LC4 - Water Pressure	X	Force	Dir Y	-19.32	0.00	Z=0	Auto	GCS	Length
FF16	LC4 - Water Pressure	X	Force	Dir Y	19.32	0.00	Z=0	Auto	GCS	Length
FF17	LC4 - Water Pressure	X	Force	Dir Y	19.32	0.00	Z=0	Auto	GCS	Length
FF18	LC4 - Water Pressure	Y	Force	Dir Y	19.32	0.00	Z=0	Auto	GCS	Length
FF19	LC3 - Live	Y	Force	Dir Y	3.00	3.00	Z=0	Auto	GCS	Length
FF20	LC3 - Live	Y	Force	Dir Y	-3.00	-3.00	Z=0	Auto	GCS	Length
FF21	LC3 - Live	X	Force	Dir Y	-3.00	-3.00	Z=0	Auto	GCS	Length
FF22	LC3 - Live	X	Force	Dir Y	3.00	3.00	Z=0	Auto	GCS	Length
FF23	LC3 - Live	X	Force	Dir Y	3.00	3.00	Z=0	Auto	GCS	Length
FF24	LC3 - Live	Y	Force	Dir Y	3.00	3.00	Z=0	Auto	GCS	Length

7. Results

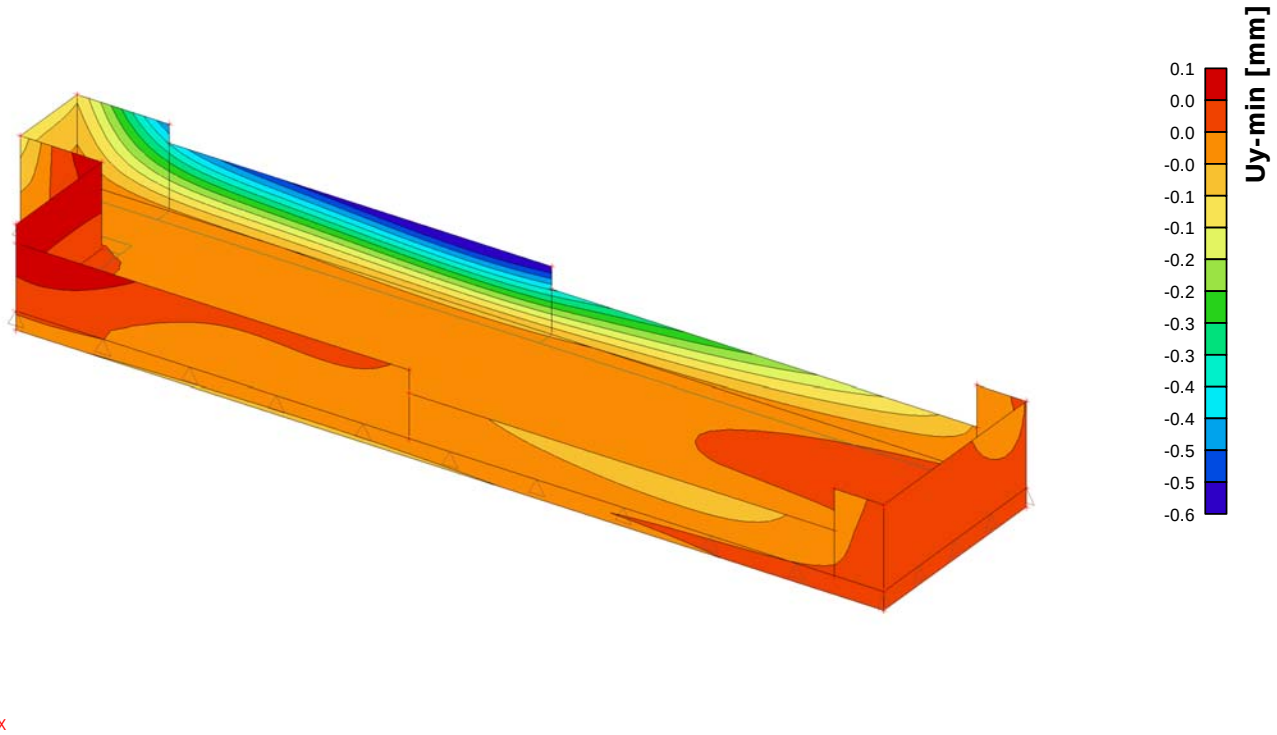
7.1. Contact stresses; sigmaz (SLS)



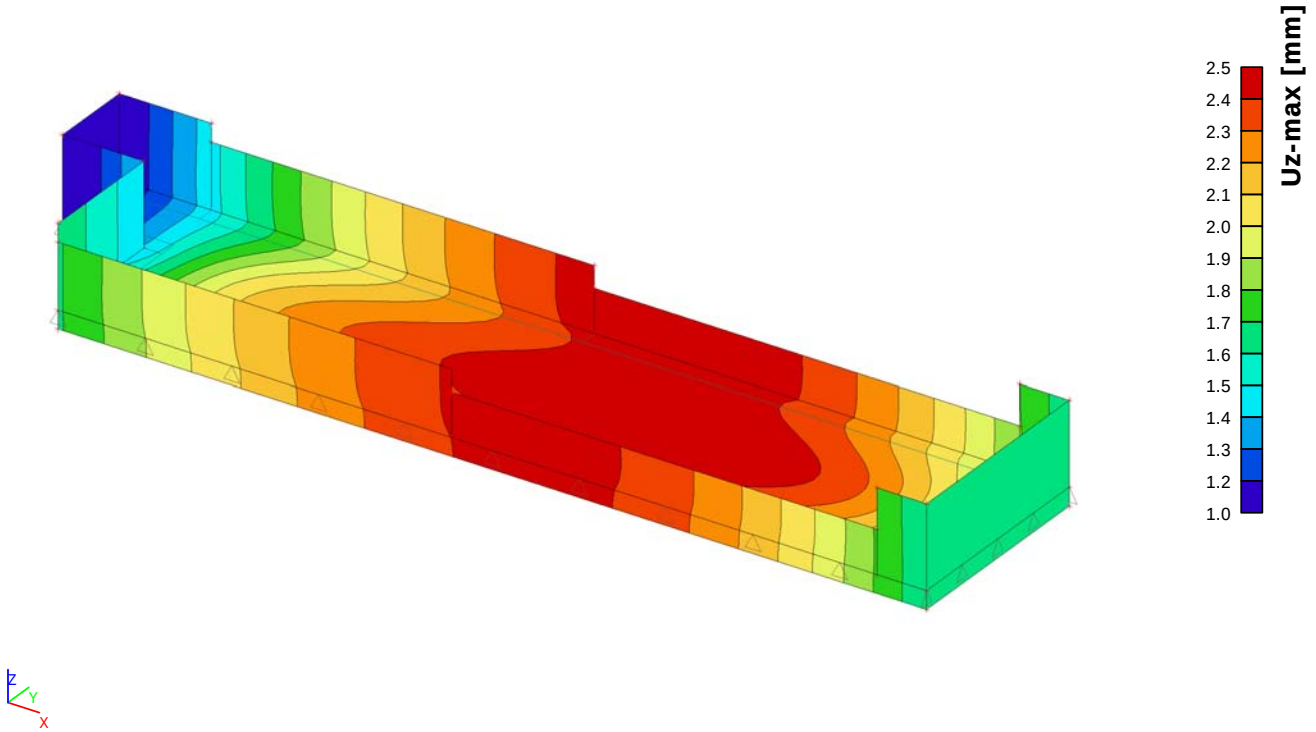
7.2. Displacement of nodes; Ux (SLS)



7.3. Displacement of nodes; Uy (SLS)

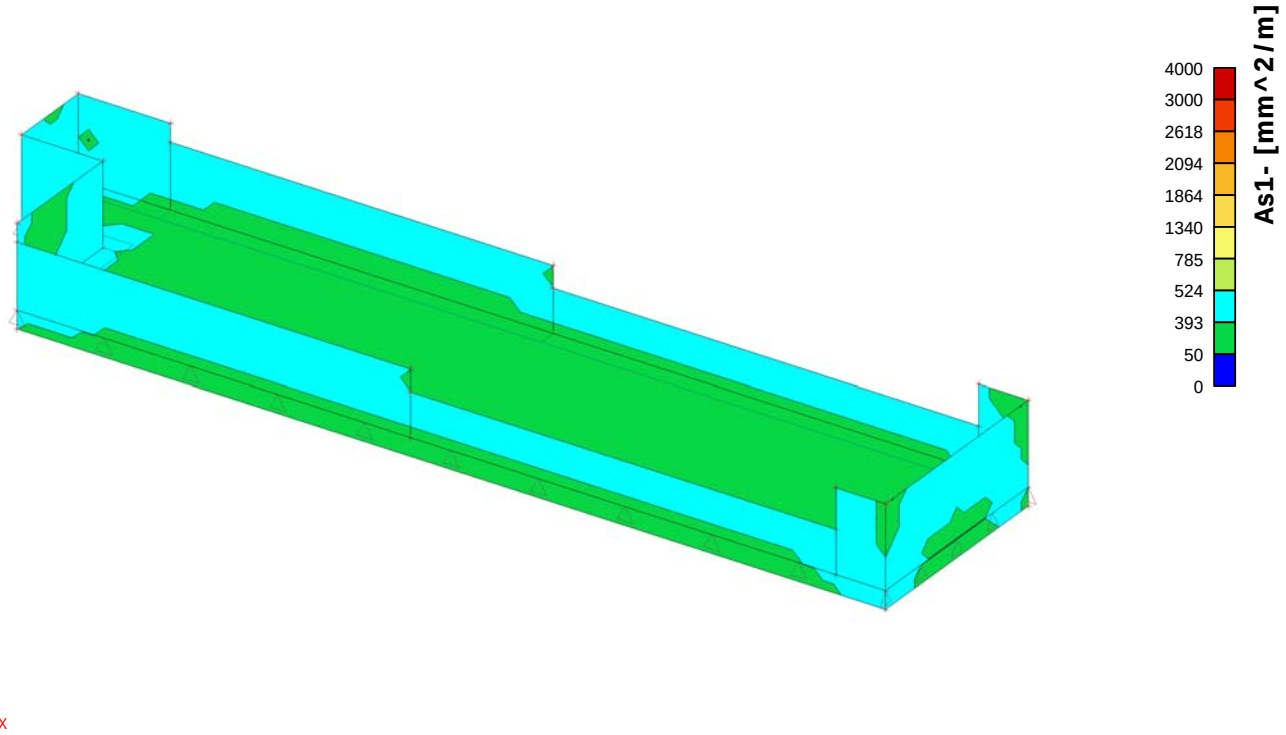


7.4. Displacement of nodes; Uz (SLS)

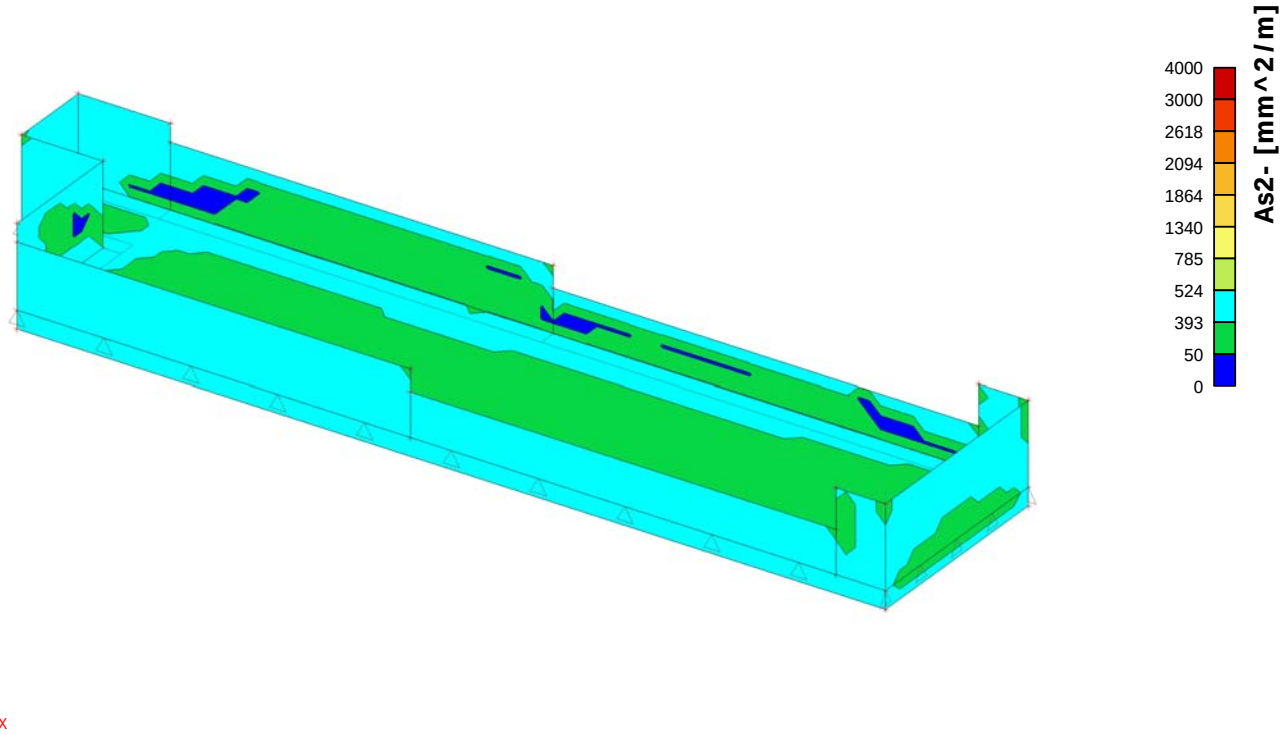


8. Design

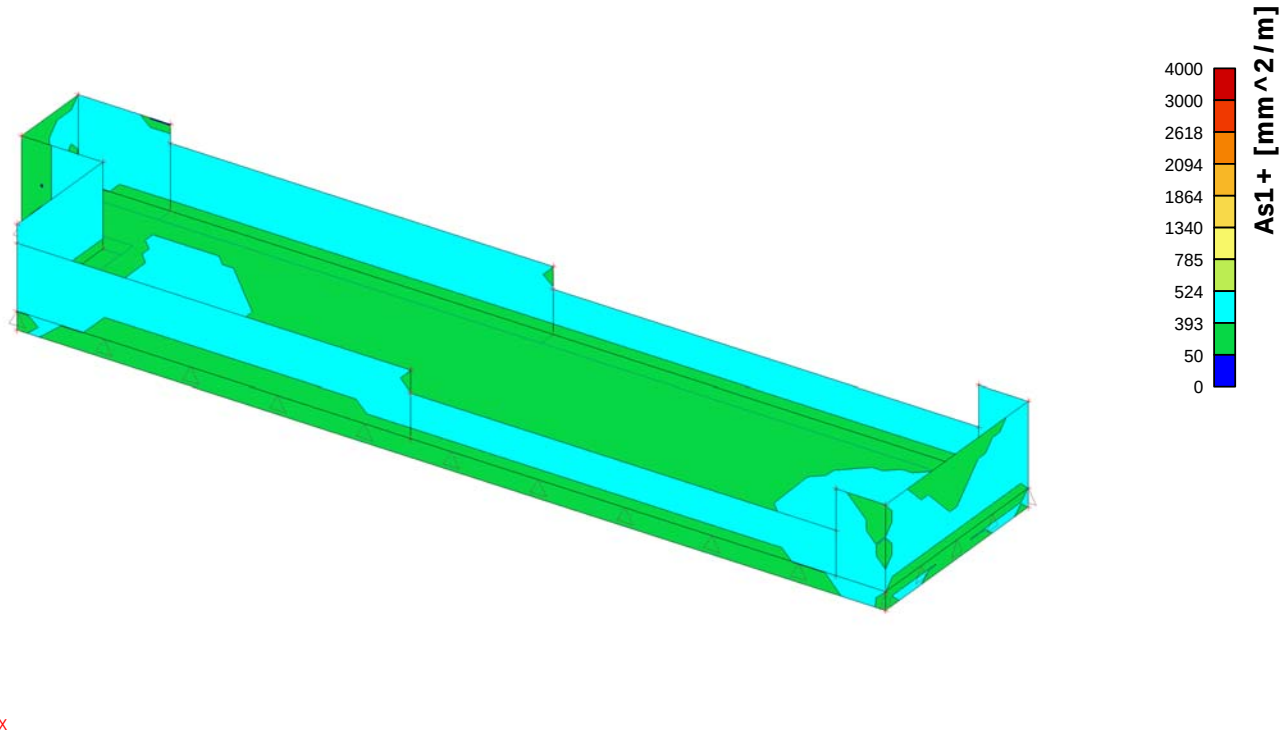
8.1. Member 2D - design - required areas; As1- (ULS)



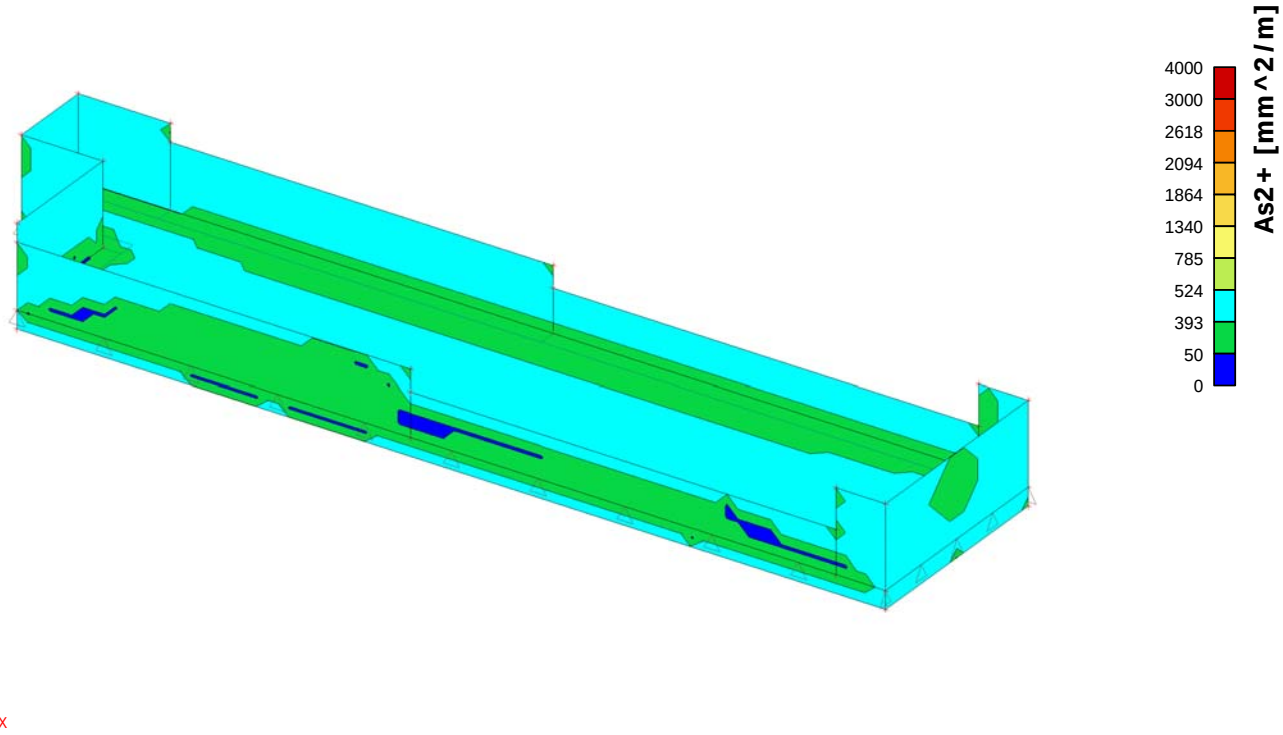
8.2. Member 2D - design - required areas; As2- (ULS)



8.3. Member 2D - design - required areas; As1+ (ULS)



8.4. Member 2D - design - required areas; As2+ (ULS)



9. Summary

Basement floor slab:
C30/37. 300mm thick
Cover reinforcement: 50mm top, 50mm bottom
Reinforcement: 1 Layer Mesh A393 Top and H16-200 Bottom Each Way

Basement walls:
C30/37, 300mm thick
Cover reinforcement: 50mm
Reinforcement: 1 Layer Mesh A393 Inner Face and H12-200 Outer Face Each Way