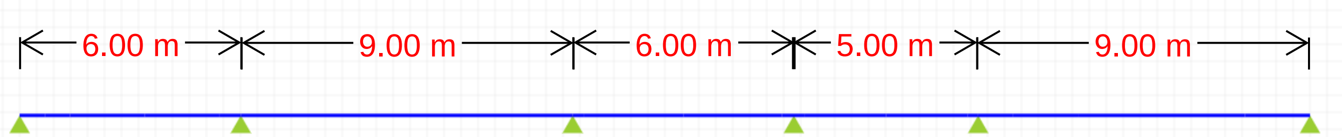
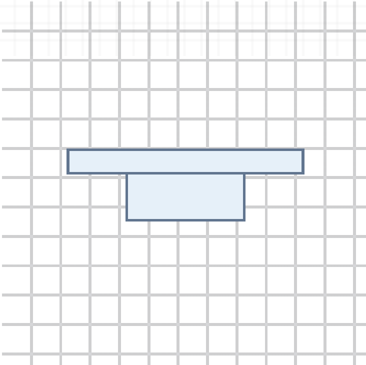
Sample Beam : T-Shaped Section using PTKalc

Spans



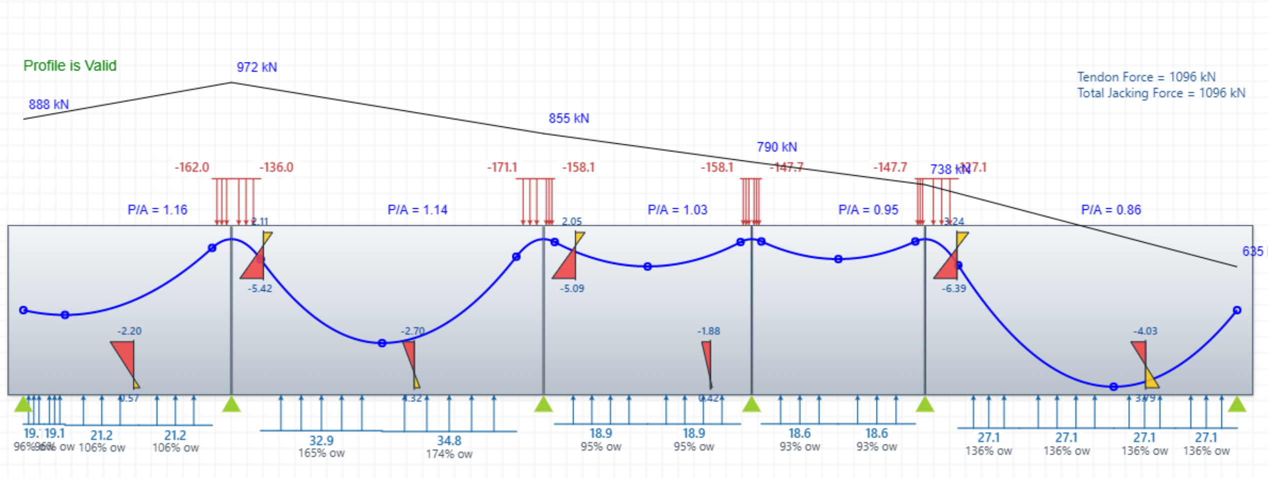
Section Geometry



Tf = 200
Dtotal = 600
Width of Band = 1000
Width of Flange = 2000
40 MPa concrete

Loads

1- Self weight of beam = (0.2x2+0.4*1) * 25 = 20 KN/m'
2- SDL = 32 KN/m' (8 meters trib width and 4KPa) - highly loaded
3- LL = 48 KN/m' (8 meters trib width and 6 KPa) - highly loaded



PT Information

1- Balance some 80% of own weight, and
2- Minimise Deflection and
3- Minimise Flexural Reinforcement

Scan Code to Access PTKalc

Modeling Progression

Define sections

Define materials

Define Sections

Define the section geometry and concrete strength.

Member type: Beam

Section shape: T-section

Dimensions

Flange width, b_f: 2000 mm

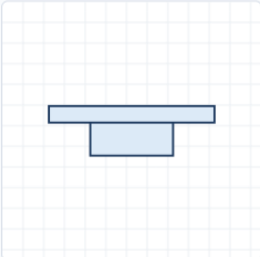
Flange thickness, D_f: 200 mm

Web width, b_w: 1000 mm

Overall depth, D: 600 mm

Add section | Clear

Section preview



T-section: bf 2,000, bw 1,000, Df 200, D 600 mm

Defined sections

Sections available for assignment to beam and column elements.

3 sections

Section ID	Member	Shape	Dimensions	MPa	
R1000x220-40	Beam	Rectangular	1000 × 220 mm	40 MPa	Delete
C200x800-40	Support	Rectangular	200 × 800 mm	40 MPa	Delete
T2000x200-1000x600-40	Beam	T-section	bf 2000 × Df 200; bw 1000 × D 600 mm	40 MPa	Delete

Materials & Criteria

Beam Type	PT
f'cp (N/mm²) - *at transfer*	20
f'c (N/mm²) - *final*	40
ft (N/mm²) Conc. Tension Stress	3.39
Maximum I Ratio (Clause 8.5.3.1)	0.6
Basic Creep Coef. φcc.b	2.8
Shringkage Strain εcs (30 Years)	800E-6
Age Adjustment Factor	0.76
fy (N/mm²) - *flexure*	500
fyv (N/mm²) - *shear*	500
fpb (N/mm²) - *strands*	1870
fpb reduction (clause 3.3.1)	0.82
Strand *(7 Wire Ordinary AS/NZS 4672.1)*	15.2
No. of Strands (Per Tendon)	3
No. of Tendons (even spacing)	2
Reverse Parabola Radius (mm)	5000
Stressing Location	Left
Top Cover mm (Min)	30
Bottom Cover mm (Min)	30
Environment (Clause 3.1.8.3)	Arid
Load Application - days	10
Draw In Magnitude mm	6
μ (friction coef. - clause 3.4.2.4)	0.2
βb (wobble effects - cl. 3.4.2.4)	0.024

Update | Reset | Close

1-insert number of spans

2-Enter span lengths in meters

3-Select sections

4- select drape types and values (including autobalancing)

Bending Moment Diagram - KN.m / LC-1.2DL+1.5LL

No. of Spans

Update Beam | Show Profile | Show Balancing | New

Span ID.	Length	Section	Left Support	Right Support	Cols Under?	Cols Over?	Profile Type	ZL	Zc	Zr	C	Cantilever?
Span#1	6	T2000x200-1000x60(	Pin	Pin	☐	☐	Type1-Parab(	300	281	550	1200	☐
Span#2	9	T2000x200-1000x60(	Pin	Pin	☐	☐	Type2-Parab(	550	418	550	4245	
Span#3	6	T2000x200-1000x60(	Pin	Pin	☐	☐	Type2-Parab(	550	480	550	3000	
Span#4	5	T2000x200-1000x60(	Pin	Pin	☐	☐	Type2-Parab(	550	480	550	2500	
Span#5	9	T2000x200-1000x60(	Pin		☐	☐	Type1-Parab(	550	209	300	6025	☐

Click on the cells in table above to insert / update the beam data

First things first, we need to work out the actual magnitude of the load that we need to balance using the PT, there are so many scenarios and no 2 beams will be designed similarly, it depends on the software and experience.
in our case the beam's own weight is 20 KN/m, if we size up the PT to be equal to that, then the beam design will be effectively against the permanent SDL and LL loads.
When SDL and LL loads are high, these will trigger tension-compression stresses within the depth of the section (for example at mid span where we have sagging moments, tension will at bottom of section).
these tension stresses should be as low as possible, less than 1 MPa for example

Australian (and international standards) address the question of tension stresses in PT beams, for example the following screenshots from AS3600-2018 and concrete centre document

8.6.3 Crack control for flexure in prestressed beams

Flexural cracking in a prestressed beam shall be deemed to be controlled if, under the short-term service loads, the resulting maximum tensile stress in the concrete does not exceed $0.25\sqrt{f'_c}$ or, if this stress is exceeded, by providing reinforcement or bonded tendons, or both, near the tensile face with a centre-to-centre spacing not exceeding 300 mm and by either of the following:

(a) Limiting the calculated maximum flexural tensile stress in the concrete under short-term service loads to $0.6\sqrt{f'_c}$.

or

(b) Limiting the increment in steel stress near the tension face to that given in Table 8.6.3, as the load increases from its value when the extreme concrete tensile fibre is at zero stress to the short-term service load value.

or

(c) Limiting the calculated maximum crack width in accordance with Clause 8.6.2.3.

TABLE 8.6.3
MAXIMUM INCREMENT OF STEEL STRESS FOR FLEXURE IN PRESTRESSED BEAMS

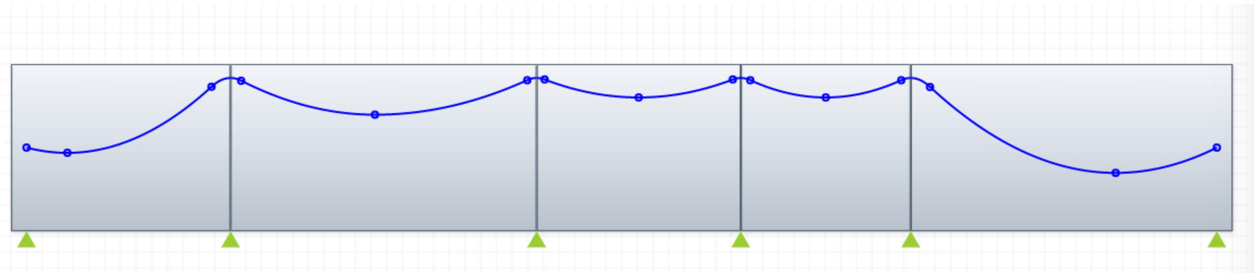
Nominal reinforcement bar diameter (d_b) mm	Maximum increment of steel stress MPa
≤12	320
16	280
20	240
24	210
≥28	200
All bonded tendons	200

Table 3.17
Design flexural stresses for post-tensioned members (N/mm^2) (Based on tables 4.1 to 4.3 of BS 8110)

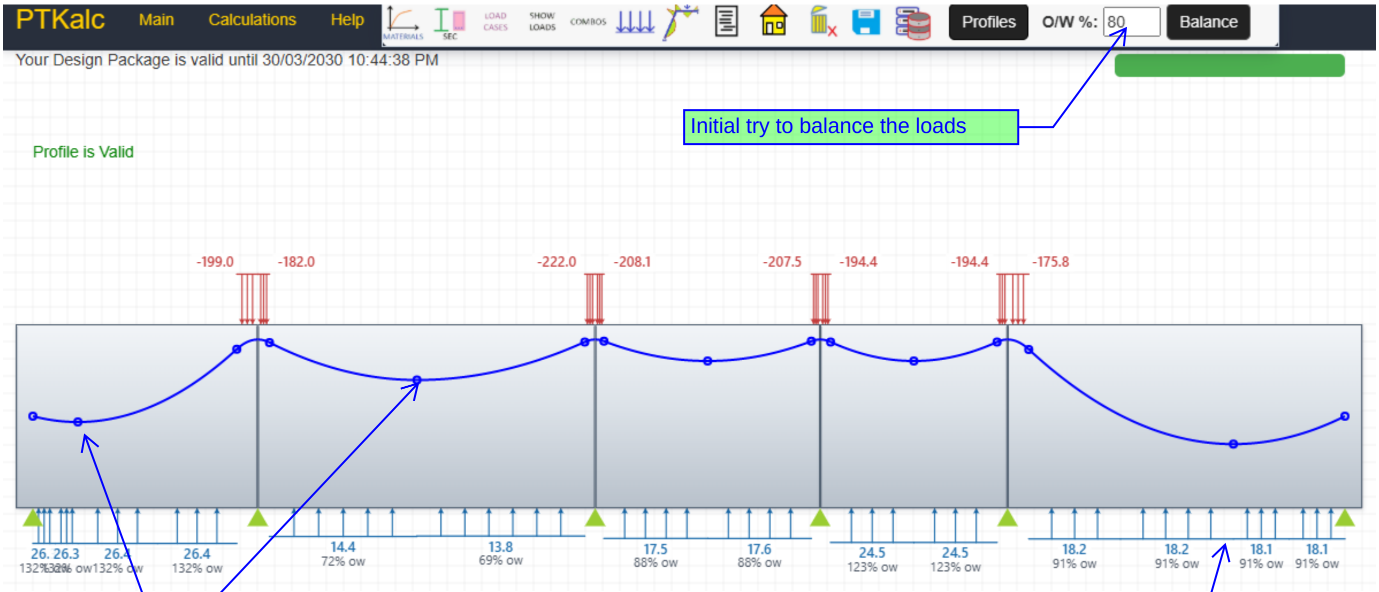
			Concrete class		
			C25/30	C32/40	⩾ C40/50
Compressive stresses					
In span and at cantilever supports			9.9	13.2	16.5
At support (except cantilevers)			12.0	16.0	20.0
Tensile stresses					
Class 1[a]			0.0	0.0	0.0
Class 2[b]			2.1	2.3	2.6
Class 3[c]	Crack width (mm)	Member depth (mm)			
	0.2	200	4.18	5.50	6.38
		400	3.80	5.00	5.80
		600	3.42	4.50	5.22
		800	3.04	4.00	4.64
		≥1000	2.66	3.50	4.06
	0.1	200	3.52	4.51	5.28
		400	3.20	4.10	4.80
		600	2.88	3.69	4.32
		800	2.56	3.28	3.84
		≥1000	2.24	2.87	3.36

Key
a Class 1 serviceability condition does not allow flexural tensile stresses
b Class 2 serviceability condition allows flexural tensile stresses but no visible cracking
c Class 3 serviceability condition allows flexural tensile stresses with maximum crack width of 0.1 mm for exposure classes XS2, XS3, XD2, XD3, XF3 and XF4, otherwise a crack width of 0.2 mm may be used

so if we will have tension above 0.25*fc^0.5 (1.54 MPa) then reinforcement will be required



Below screenshot is from PTKalc, see notes



Initial try to balance the loads

Drag the drapes up and down, or left and right until you achieve circa 20KN/m' which is the weight of the beam

However need to note that small spans followed by longer ones do not make things perfect,and reality is that we must, normally, have parabolic profiles to get load distributed nicely.

short span here at the start and nature of profile is dictating higher load than own weight, and this would result in secondary moment that are not favorable for moment diagrams.

Concordant profile (that triggers zero secondary moment) is not always possible in beams, unless it is a bridge with uniform section.

amount of balancing load by PT

Materials & Criteria

Beam Type	PT
f'cp (N/mm²) - *at transfer*	20
f'c (N/mm²) - *final*	40
ft (N/mm²) Conc. Tension Stress	3.39
Maximum I Ratio (Clause 8.5.3.1)	0.6
Basic Creep Coef. φcc.b	2.8
Shringkage Strain εcs (30 Years)	800E-6
Age Adjustment Factor	0.76
fy (N/mm²) - *flexure*	500
fyv (N/mm²) - *shear*	500
fpb (N/mm²) - *strands*	1870
fpb reduction (clause 3.3.1)	0.82
Strand *(7 Wire Ordinary AS/NZS 4672.1)*	15.2
No. of Strands (Per Tendon)	3
No. of Tendons (even spacing)	2
Reverse Parabola Radius (mm)	5000
Stressing Location	Left
Top Cover mm (Min)	30
Bottom Cover mm (Min)	30
Environment (Clause 3.1.8.3)	Arid
Load Application - days	10
Draw In Magnitude mm	6
μ (friction coef. - clause 3.4.2.4)	0.2
βb (wobble effects - cl. 3.4.2.4)	0.024

Update Reset Close

this is a key item, rupture stress, 0.6*fc^0.5
some people prefer to reduce this to 1 or 1.5 MPa, designer's call, impacts deflection

Maximum Inertia ratio (effective inertia) , refer to clause 8.5.3.1 of AS3600-2018
the standard allows for full inertia to be used in case of prestressed beams with high P/A
Would keep it at 0.6 (but again designers call)

Creep and shrinkage factors to be taken from Section 3 of AS3600-2018
these greatly impact long term deflection

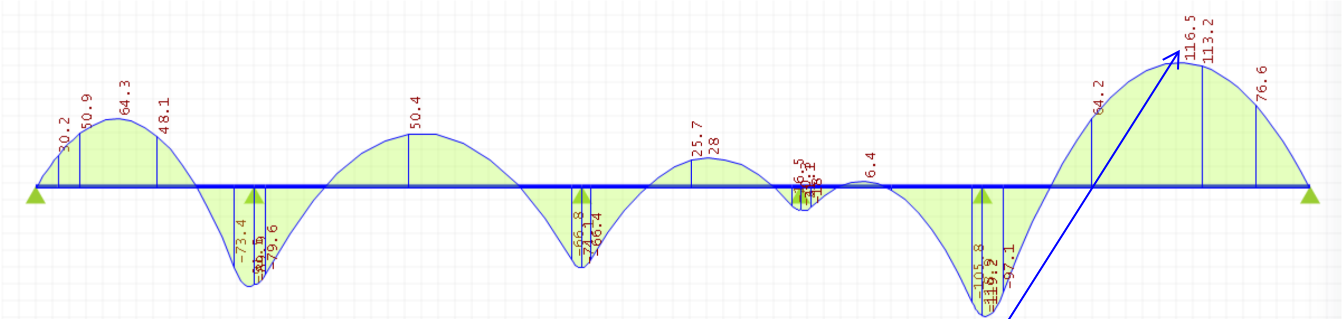
This is the P/A
try to keep it within 1.4 and up to 2.5 for extremely loaded beams.
See section 8+9 of AS3600

This is the curvature of tendon, could be changed to 6 meters for example, but industry standard is 5 for thin slabs

Take this from Section 3 of AS3600-2018
also age of loading for deflection

Standard values

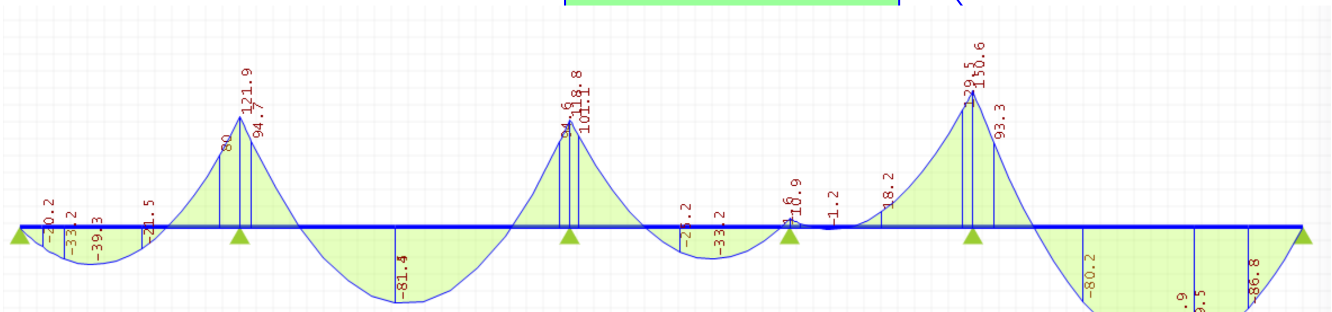
Now we need to read a load combination, which is DL+SDL+PT to understand what moments and stresses we have from PT and Own weight, this is important to establish how good is your system:



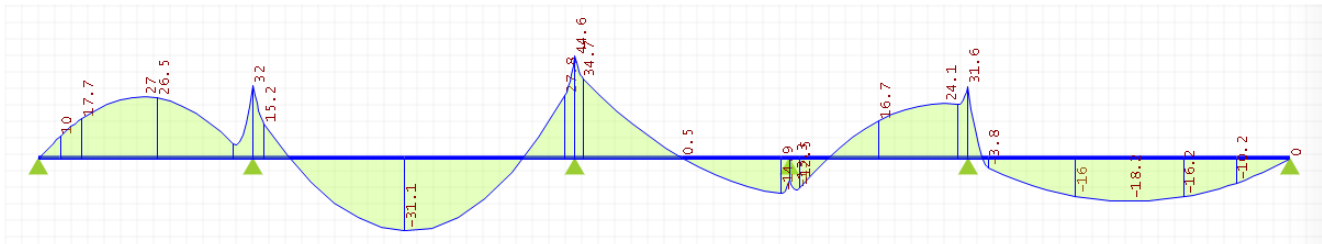
Bending Moments from Pure PT

Bending Moment Diagram - KN.m / PT

note the moments
we try to have these values
opposite to each other



Bending Moments from Own Weight



Combined Moments from OW+PT

Bending Moment Diagram - KN.m / LC-1.0OW+1.0PT

To have a feel of how stressed is a beam, work out the ratio M/bd², if this one is above say 2.5 to 4 then the beam is highly loaded,

in our case we have maximum of 31KN.m this is an M/bd² = 31E+6/1000/550² = 0.1 so the beam is almost at zero stress state :) or does not have tension,

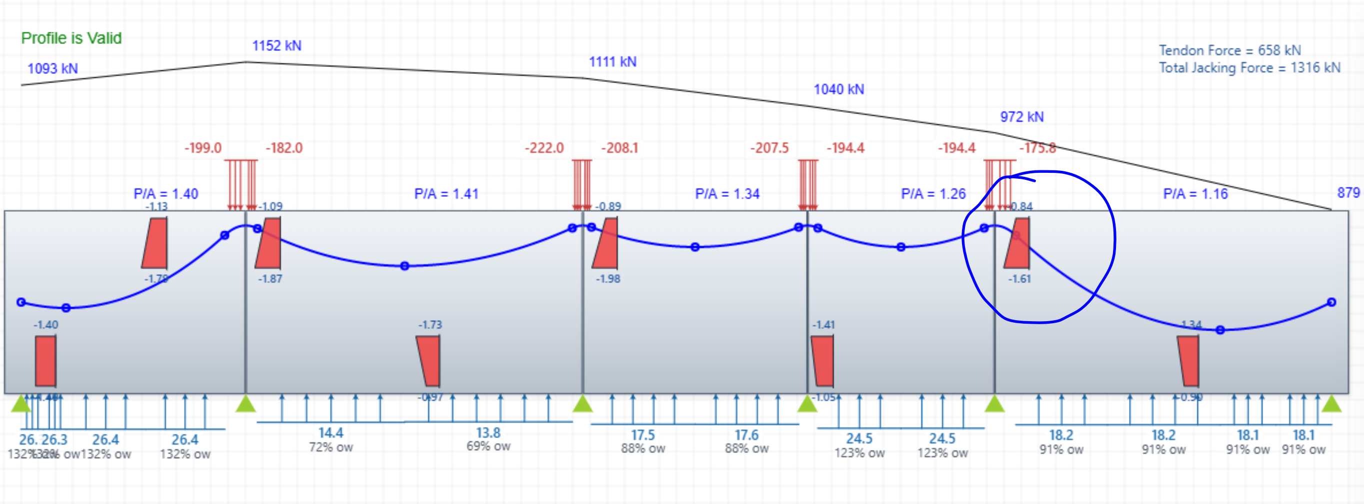
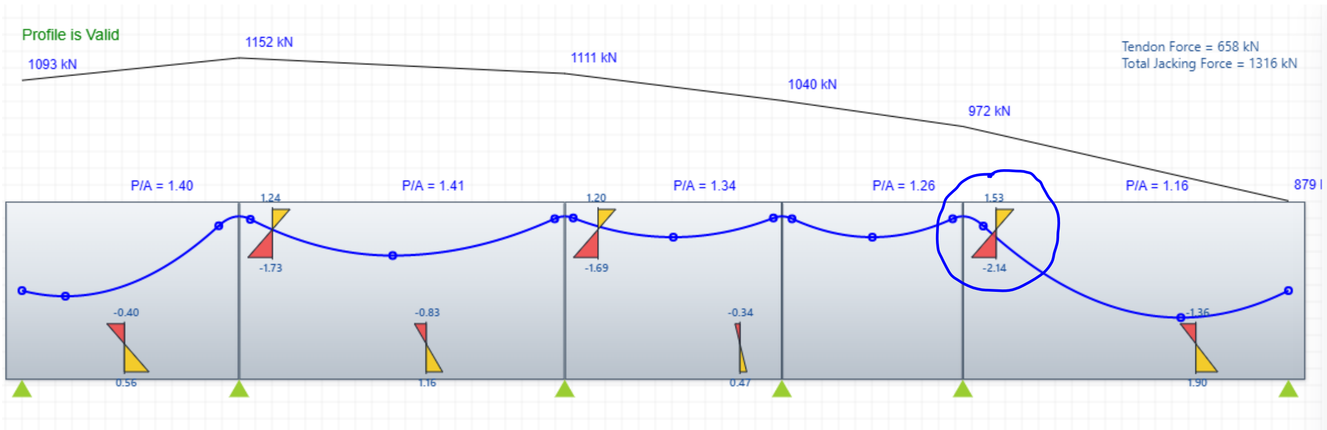
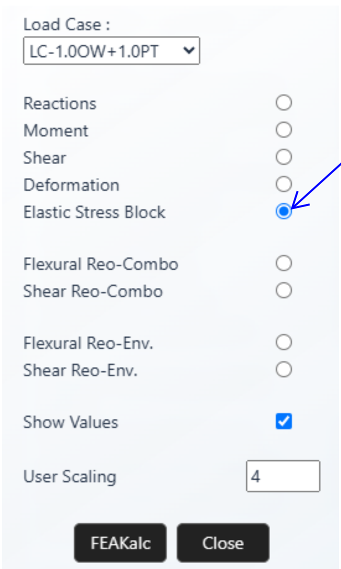


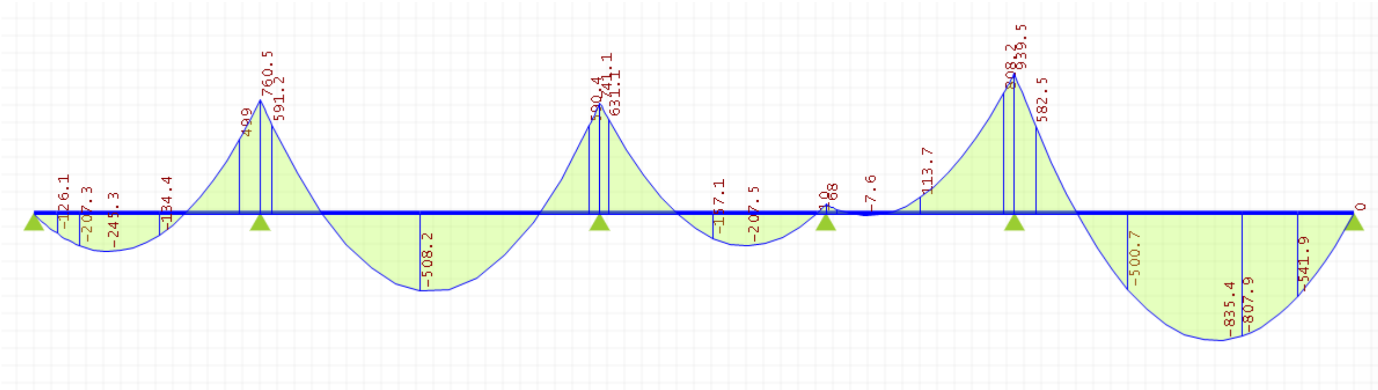
Figure above shows the stress state of section, bottom stress blocks at mid span and over supports are all indicating compression , that is the ratio = P/A + M/Z

whereas the own weight stress block diagram looks like:

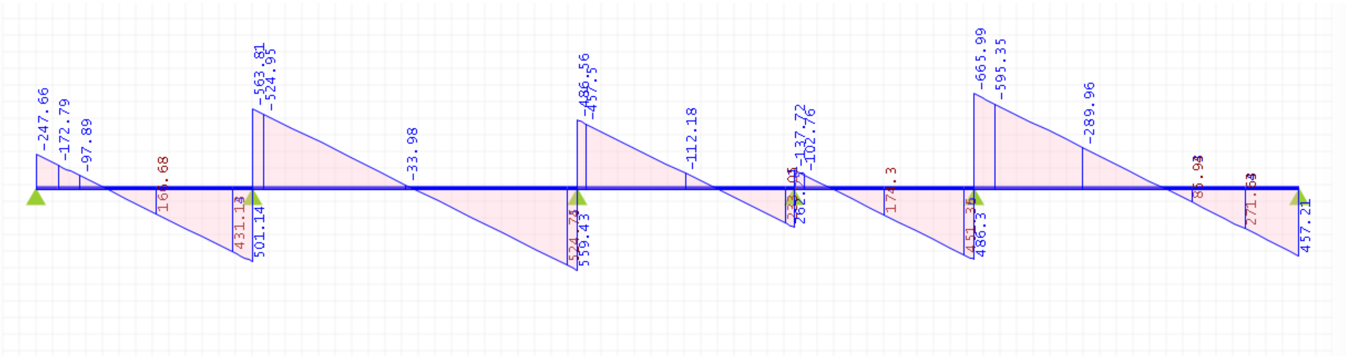




click on elastic stress block for the DL+PT case now we can progress to review the bending moment diagram and stress block from ultimate load case, for example 1.2DL+1.5LL



Bending Moment Diagram - KN.m / LC-1.2DL+1.5LL



Shear Force Diagram - KN , m / LC-1.2DL+1.5LL

To gauge the section stress under PURE ultimate actions:

M/bd^2 = 900E+6 / 1000 / 550^2 = 3
(so the section is approaching high stress state)

Shear Stress = 650E3 / 1000 / 550 = 1.18 MPa
(shear stress is not very high, would be concerned if its 3 or 4 MPa for example - case of transfer beams)

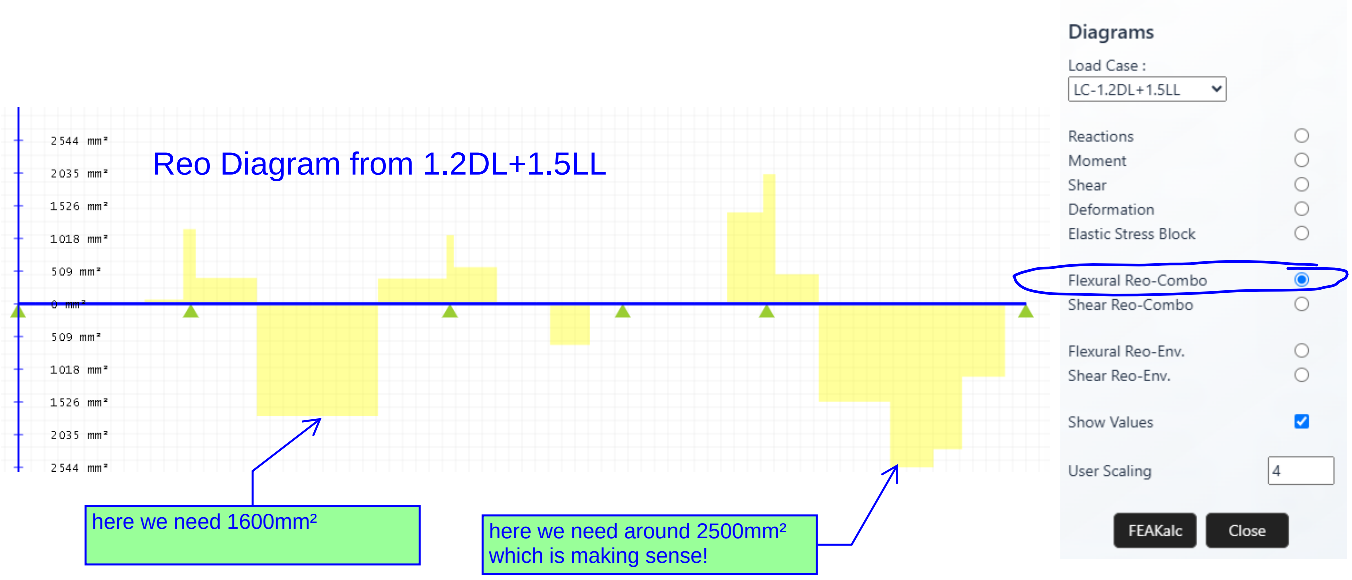
so if the beam is RC we would require
As = 900E+6 / (0.7*fy*550) = 4700 mm² (approx of 8N28)

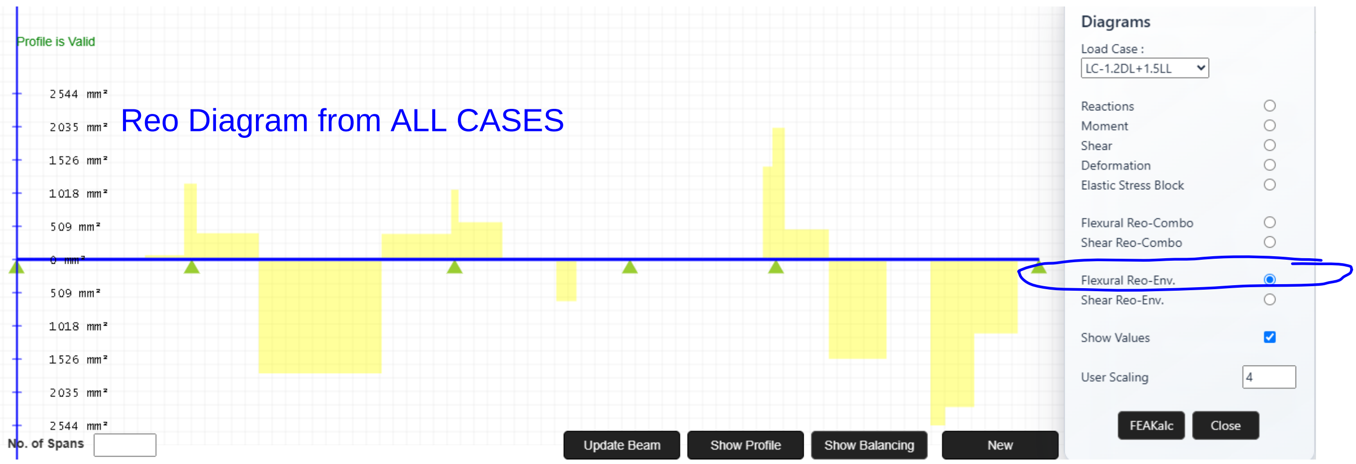
we have provided 3 x 2 x 15.2 strands (area of each is 143mm²), this is equal to
equivalent normal reo = 3 x 2 x 143 x (0.82*1800)/500 = 2500

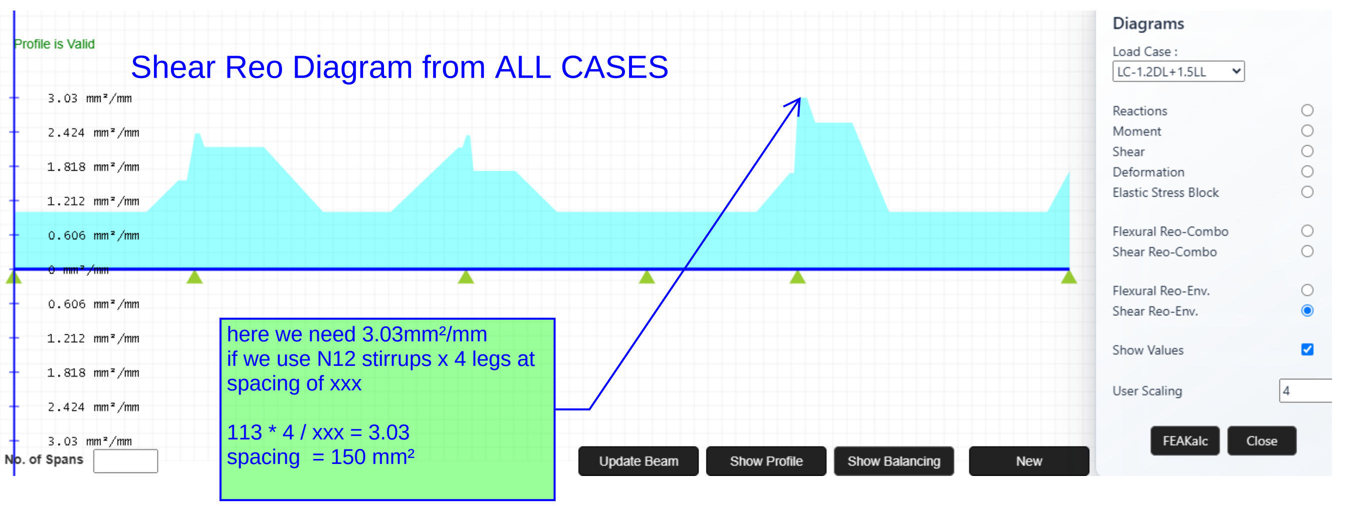
so we are short of circa 2000 mm² worth of rebar?
let us see next page

TENSILE STRENGTH OF COMMONLY US

Material type and Standard	Nominal diameter mm	Area mm²
As-drawn wire, AS/NZS 4672.1	5.0 7.0	19.6 38.5
Stress-relieved wire, AS/NZS 4672.1	5.0 7.0	19.9 38.5
7 wire ordinary strand, AS/NZS 4672.1	9.5 12.7 15.2 15.2 15.7	55.0 98.6 143 143 150

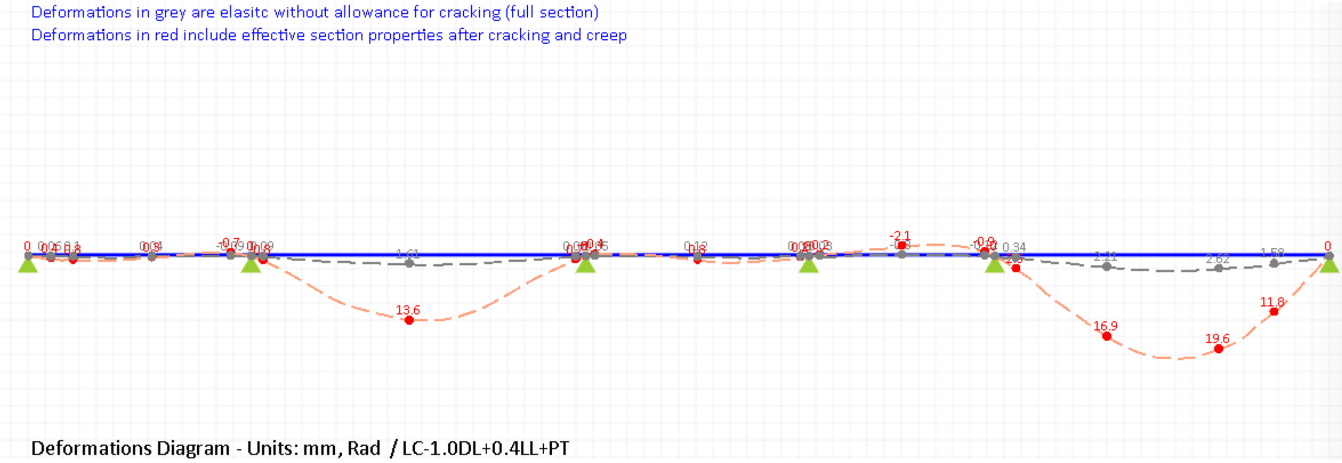

Reo Diagram from 1.2DL+1.5LL
2544 mm²
2035 mm²
1526 mm²
1018 mm²
509 mm²
0 mm²
509 mm²
1018 mm²
1526 mm²
2035 mm²
2544 mm²
here we need 1600mm²
here we need around 2500mm²
which is making sense!
Diagrams
Load Case :
LC-1.2DL+1.5LL
Reactions
Moment
Shear
Deformation
Elastic Stress Block
Flexural Reo-Combo
Shear Reo-Combo
Flexural Reo-Env.
Shear Reo-Env.
Show Values
User Scaling
4
FEAKalc
Close


Profile is Valid
Reo Diagram from ALL CASES
2544 mm²
2035 mm²
1526 mm²
1018 mm²
509 mm²
0 mm²
509 mm²
1018 mm²
1526 mm²
2035 mm²
2544 mm²
No. of Spans
Update Beam
Show Profile
Show Balancing
New
Diagrams
Load Case :
LC-1.2DL+1.5LL
Reactions
Moment
Shear
Deformation
Elastic Stress Block
Flexural Reo-Combo
Shear Reo-Combo
Flexural Reo-Env.
Shear Reo-Env.
Show Values
User Scaling
4
FEAKalc
Close

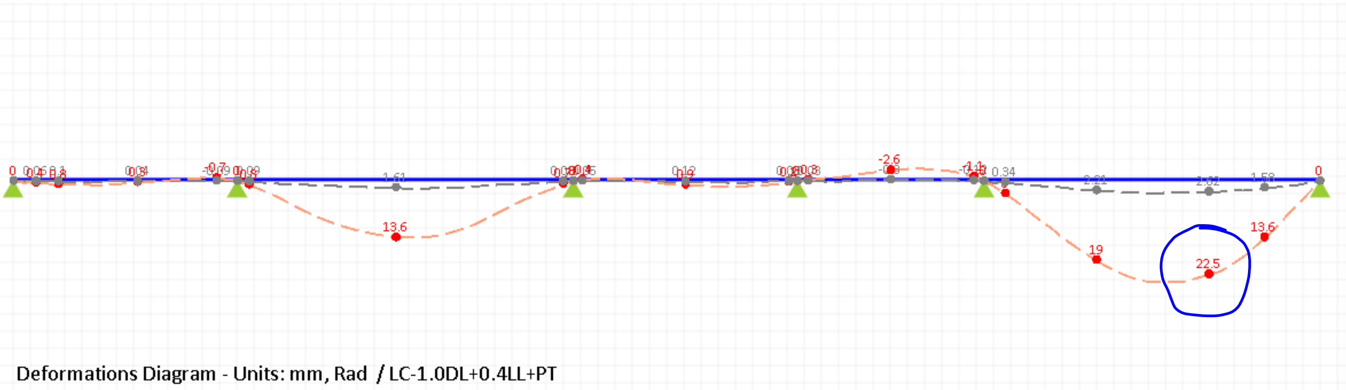

Profile is Valid
Shear Reo Diagram from ALL CASES
3.03 mm²/mm
2.424 mm²/mm
1.818 mm²/mm
1.212 mm²/mm
0.606 mm²/mm
0 mm²/mm
0.606 mm²/mm
1.212 mm²/mm
1.818 mm²/mm
2.424 mm²/mm
3.03 mm²/mm
No. of Spans
here we need 3.03mm²/mm
if we use N12 stirrups x 4 legs at
spacing of xxx
113 * 4 / xxx = 3.03
spacing = 150 mm²
Update Beam
Show Profile
Show Balancing
New
Diagrams
Load Case :
LC-1.2DL+1.5LL
Reactions
Moment
Shear
Deformation
Elastic Stress Block
Flexural Reo-Combo
Shear Reo-Combo
Flexural Reo-Env.
Shear Reo-Env.
Show Values
User Scaling
4
FEAKalc
Close

Next is deflection check

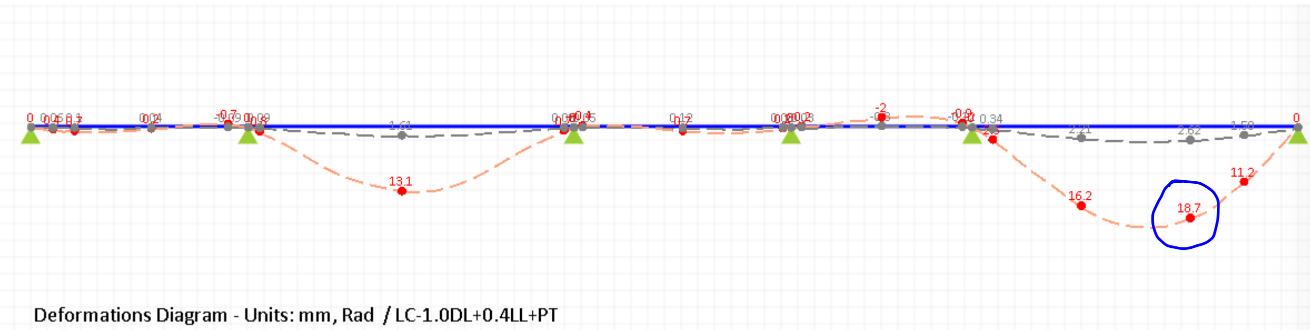
Below diagram shows the deflection long term case under DL+0.4LL+0.9PT
this is all good, given the beam deflection = 19.6 mm at end span, but need to note that the slab sitting on this beam must not deflect more than say 25 in total (her deflection plus deflection of the beam itself) designer to make the call.



You can study sensitiviy of the beam, for example set the allowed tension at 1 MPa?

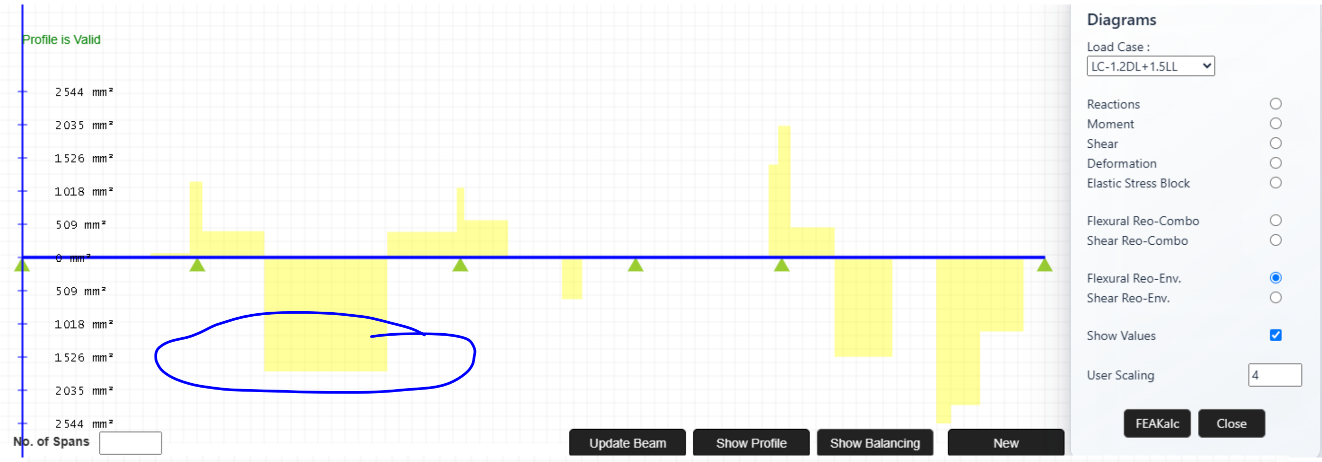


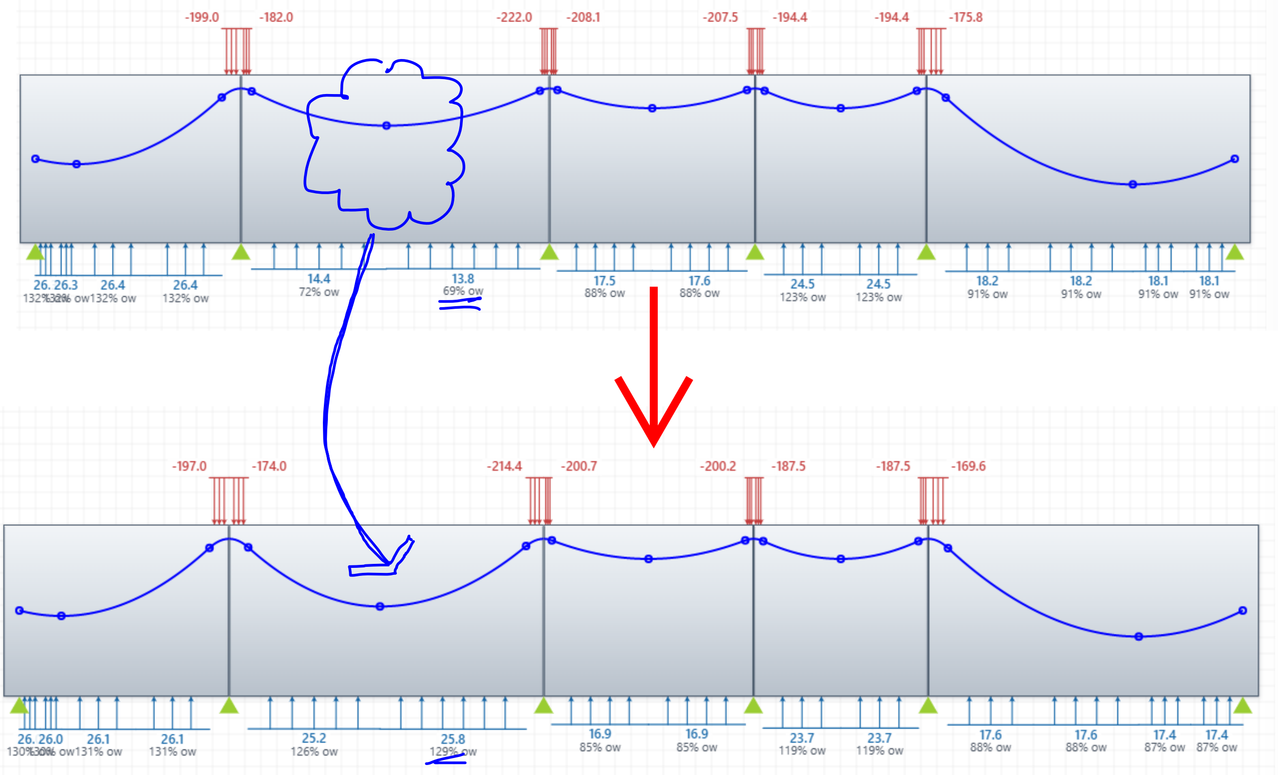
or maybe change the loading age from 10 to 14 days?

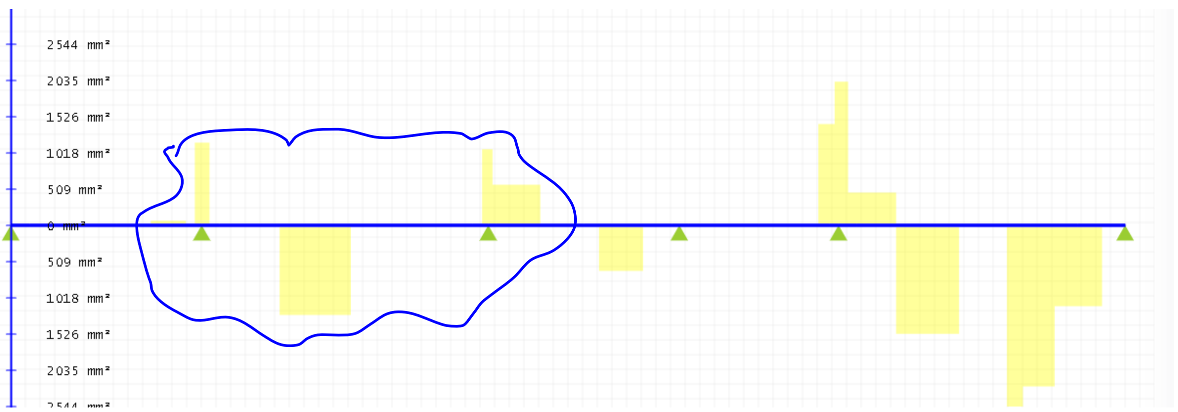


LEARNING CENTRE	PT Band Beam	By	RK
	PTKalc	Sheet No. 2	Date 8/26

Can we for example reduce the reo at second span by increasing PT load?

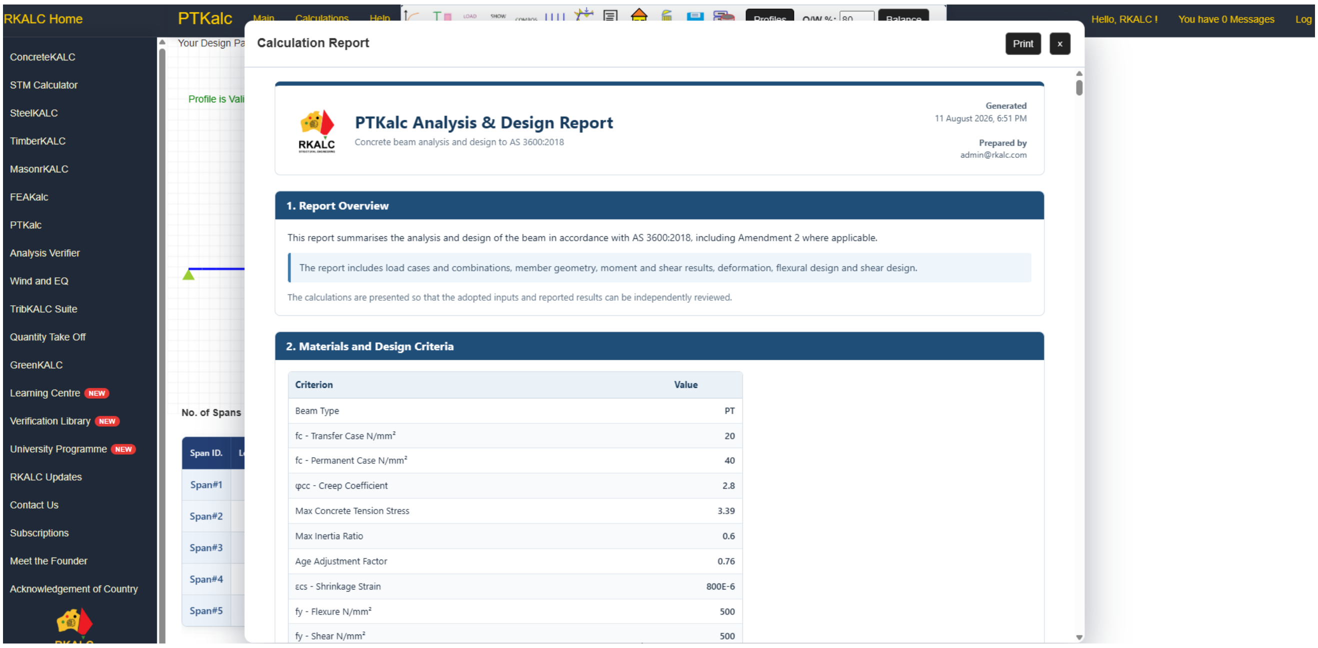






you can try all of these possibilities until the beam is optimised!

then click on calculations button to get final product:



PTKalc Analysis & Design Report

Concrete beam analysis and design to AS 3600:2018

Generated
11 August 2026, 6:51 PM

Prepared by
admin@rkalc.com

1. Report Overview

This report summarises the analysis and design of the beam in accordance with AS 3600:2018, including Amendment 2 where applicable.

> The report includes load cases and combinations, member geometry, moment and shear results, deformation, flexural design and shear design.

The calculations are presented so that the adopted inputs and reported results can be independently reviewed.

2. Materials and Design Criteria

Criterion	Value
Beam Type	PT
fc - Transfer Case N/mm²	20
fc - Permanent Case N/mm²	40
φcc - Creep Coefficient	2.8
Max Concrete Tension Stress	3.39
Max Inertia Ratio	0.6
Age Adjustment Factor	0.76
εcs - Shrinkage Strain	800E-6
fy - Flexure N/mm²	500
fy - Shear N/mm²	500
fpb Strands N/mm²	1870
Φ - fpb Reduction	0.82
Strand Size - mm (7 Wire Ordinary AS/NZS 4672.1)	143
No. of Strands (Per Tendon)	3
No. of Tendons (even spacing)	2
Reverse Parabola Radius (mm)	5000
Stressing Location	Left
Top Reo Cover - mm	30
Bottom Reo Cover - mm	30
Environment (Clause 3.1.8.3)	0.70
Load Application - Days	14
Draw-in Magnitude	6
μ (friction coef. - clause 3.4.2.4)	0.2
βb (wobble effects - cl. 3.4.2.4)	0.024

3. Loads and Combinations

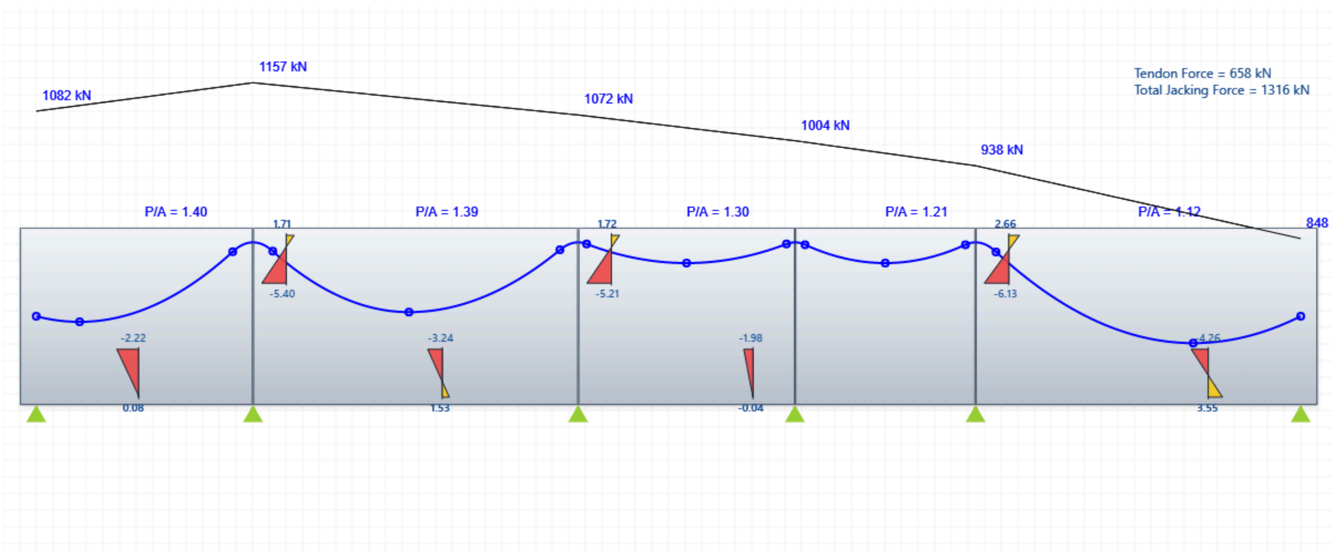
The following load cases and combinations were defined for this model.

1. PT
2. OW
3. SDL
4. LL
5. LC-1.0OW+1.0PT
6. LC-1.15OW+1.15PT
7. LC-0.9DL+1.1PT
8. LC-1.35DL
9. LC-1.2DL+1.5LL
10. LC-1.0DL+0.4LL+PT

4. Frame Schedule

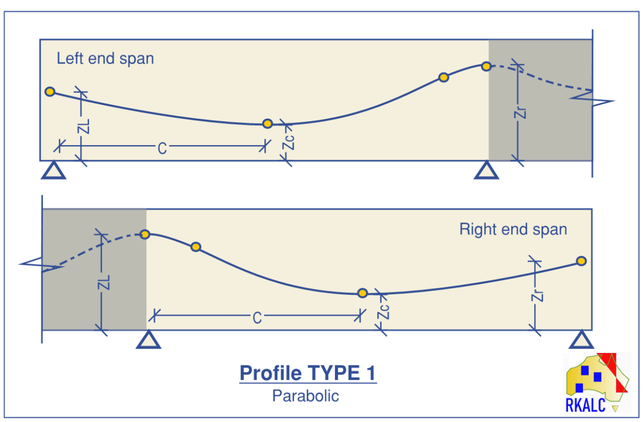
SpanID	Length	Section	LeftSupp	RightSupp	ColsUnder	ColsOver	ProfileType	Zl	Zc	Zr	C	Cantilever
Span#1	6	T2000x200-1000x600-40	Pin	Pin	False	False	Type1	300	281	550	1200	False
Span#2	9	T2000x200-1000x600-40	Pin	Pin	False	False	Type2	550	314	550	4316	
Span#3	6	T2000x200-1000x600-40	Pin	Pin	False	False	Type2	550	480	550	3000	
Span#4	5	T2000x200-1000x600-40	Pin	Pin	False	False	Type2	550	480	550	2500	
Span#5	9	T2000x200-1000x600-40	Pin	Pin	False	False	Type1	550	209	300	6025	False

5. Beam Elevation

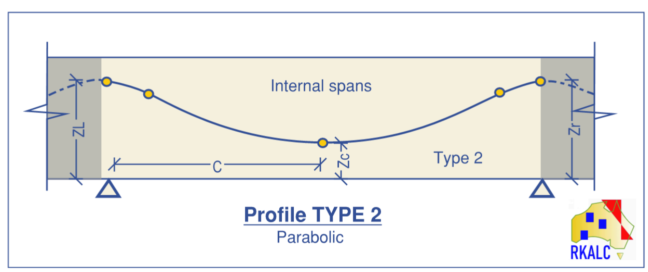


Model geometry and tendon profile.

6. Tendon Profile Types

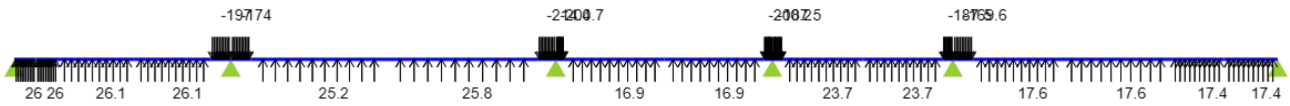


Profile Type 1

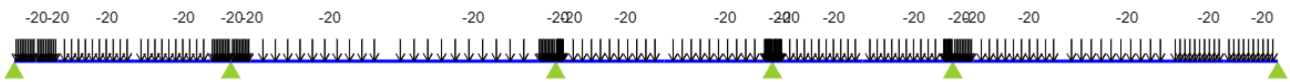


Profile Type 2

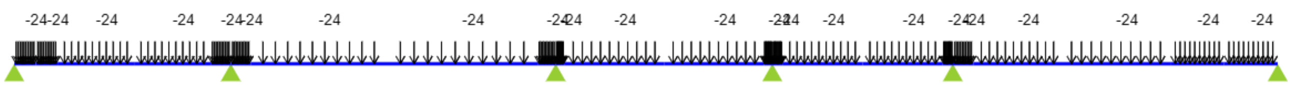
7. Applied Loads



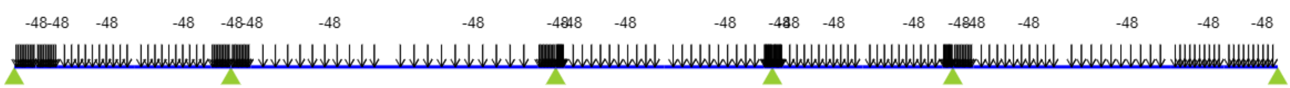
Load Case 1 — PT



Load Case 2 — OW



Load Case 3 — SDL



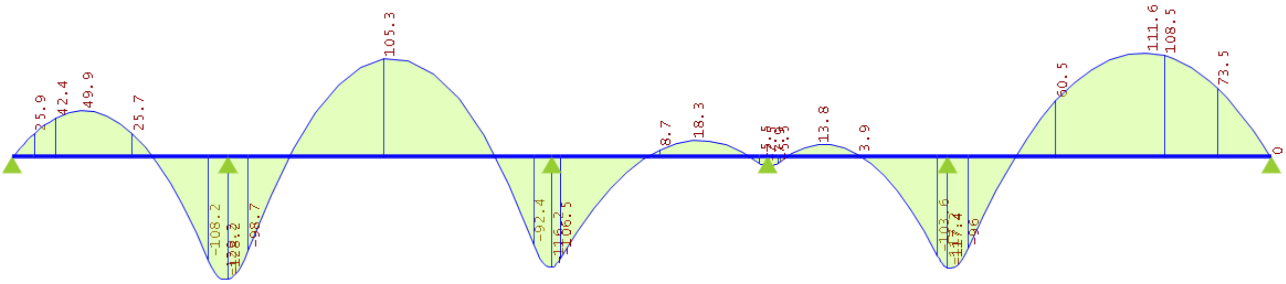
Load Case 4 — LL

8. Analysis and Design Results

Moment, shear, deformation and reinforcement diagrams follow for each analysed load case and combination.

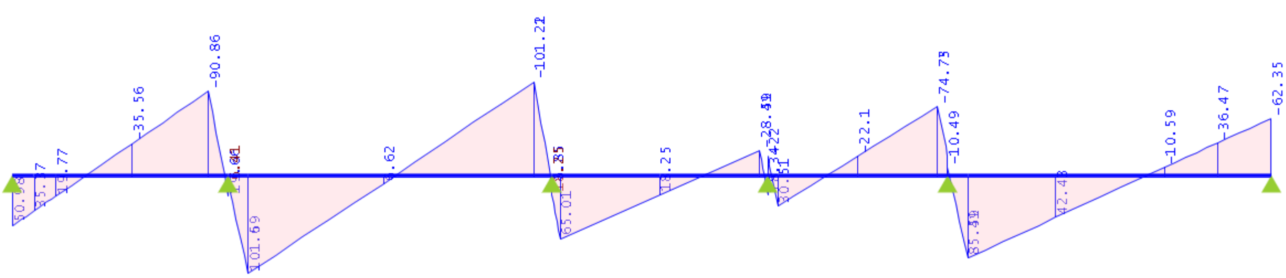
PT

Bending Moment



Bending Moment Diagram - KN.m / PT

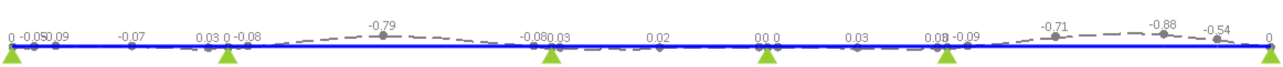
Shear



Shear Force Diagram - KN , m / PT

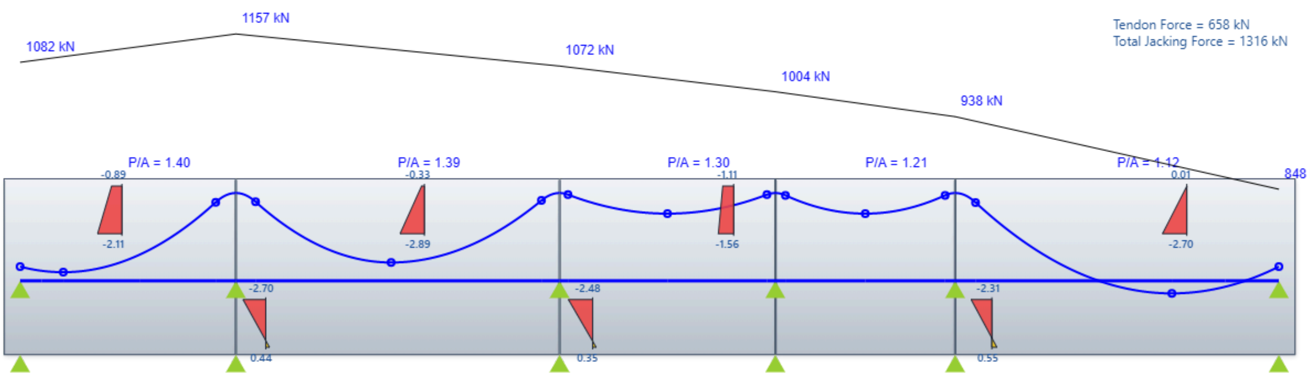
Deformation

Deformations in grey are elasitc without allowance for cracking (full section)
Deformations in red include effective section properties after cracking and creep



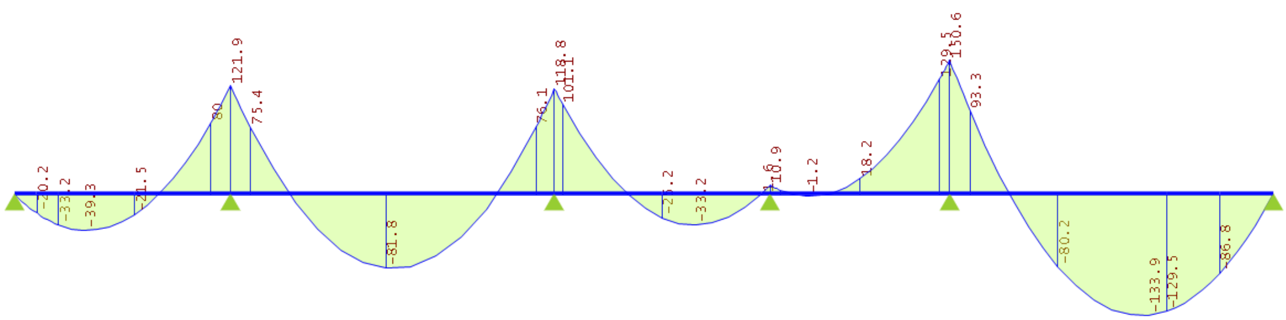
Deformations Diagram - Units: mm, Rad / PT

Section Stress



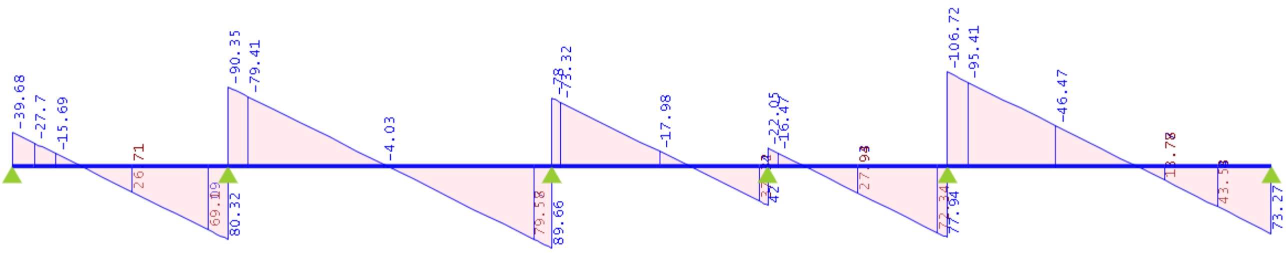
OW

Bending Moment



Bending Moment Diagram - KN.m / OW

Shear



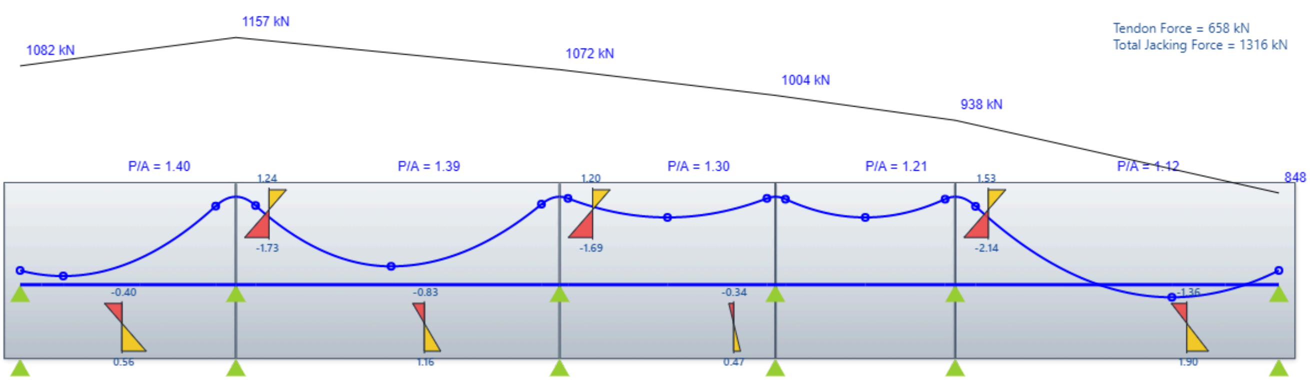
Shear Force Diagram - KN , m / OW

Deformation

Deformations in grey are elasitc without allowance for cracking (full section)
Deformations in red include effective section properties after cracking and creep

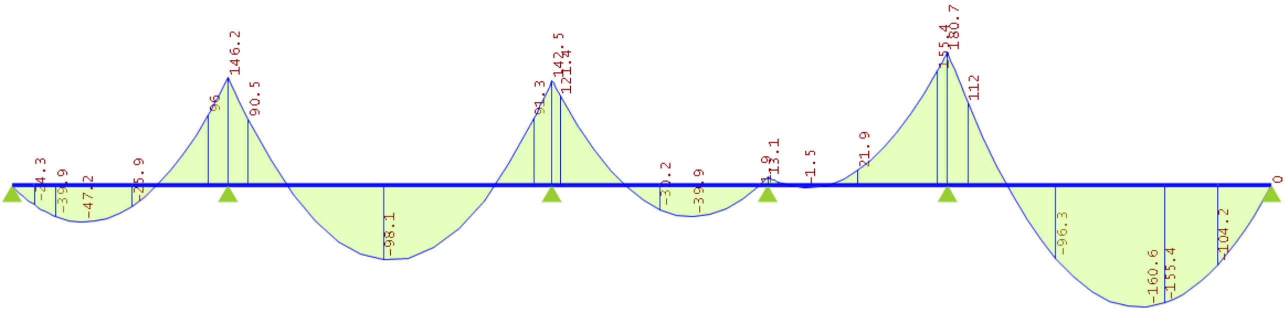
Deformations Diagram - Units: mm, Rad / OW

Section Stress



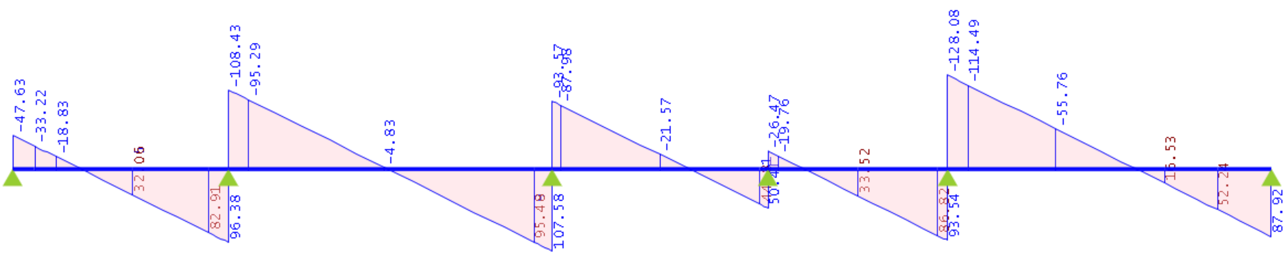
SDL

Bending Moment



Bending Moment Diagram - KN.m / SDL

Shear



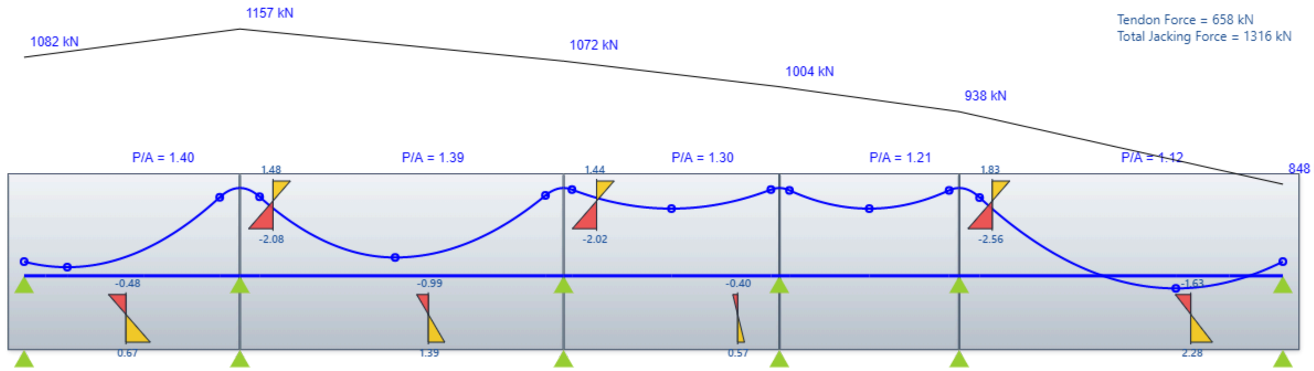
Shear Force Diagram - KN , m / SDL

Deformation

Deformations in grey are elasitc without allowance for cracking (full section)
Deformations in red include effective section properties after cracking and creep

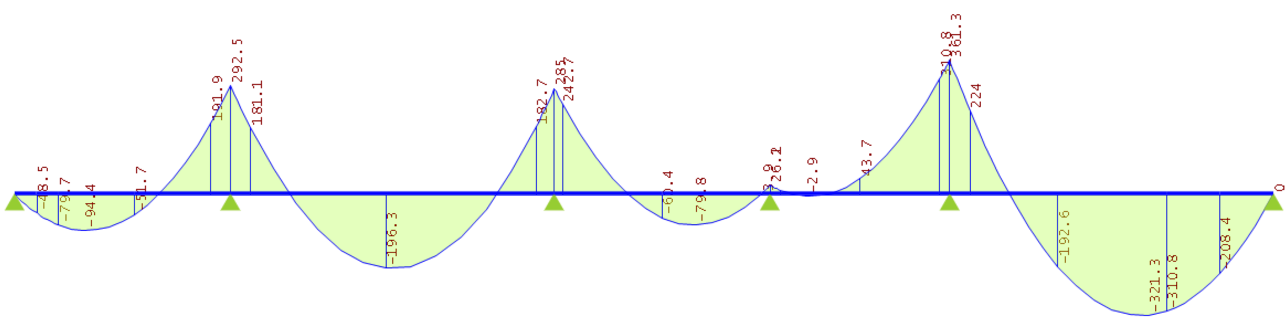
Deformations Diagram - Units: mm, Rad / SDL

Section Stress



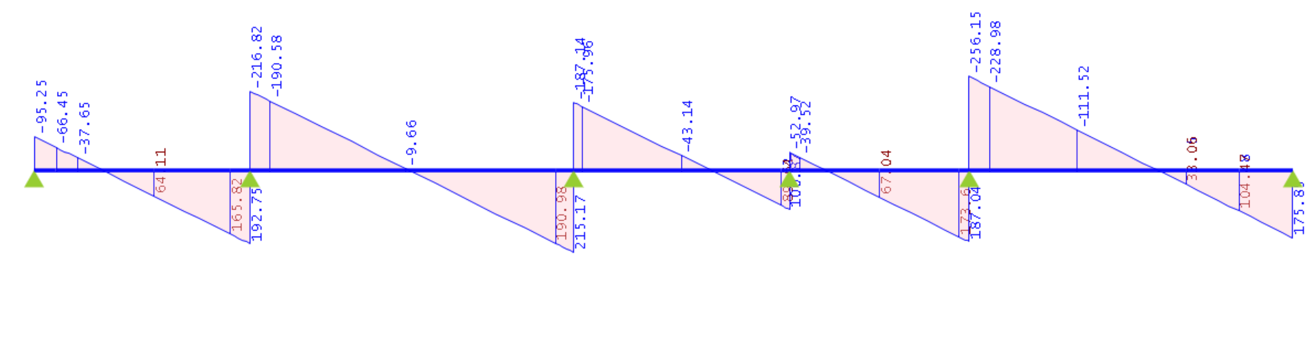
LL

Bending Moment



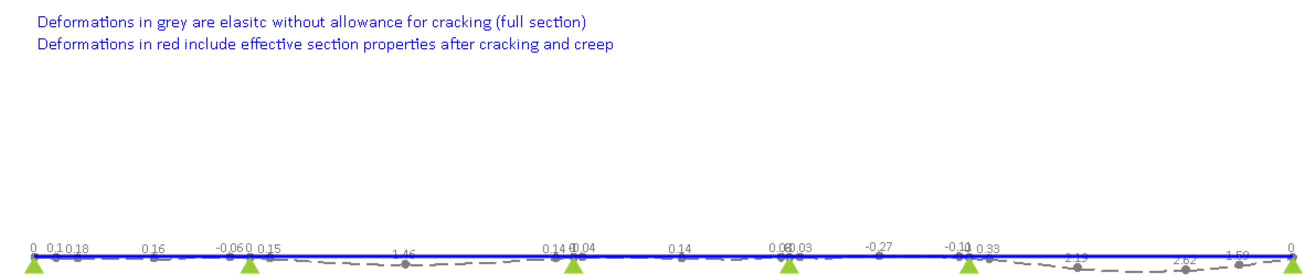
Bending Moment Diagram - KN.m / LL

Shear



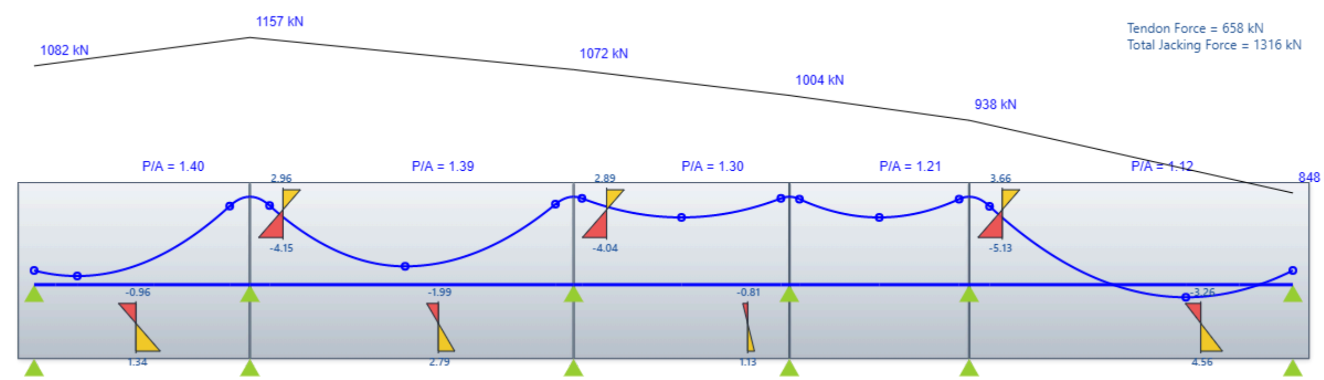
Shear Force Diagram - KN , m / LL

Deformation



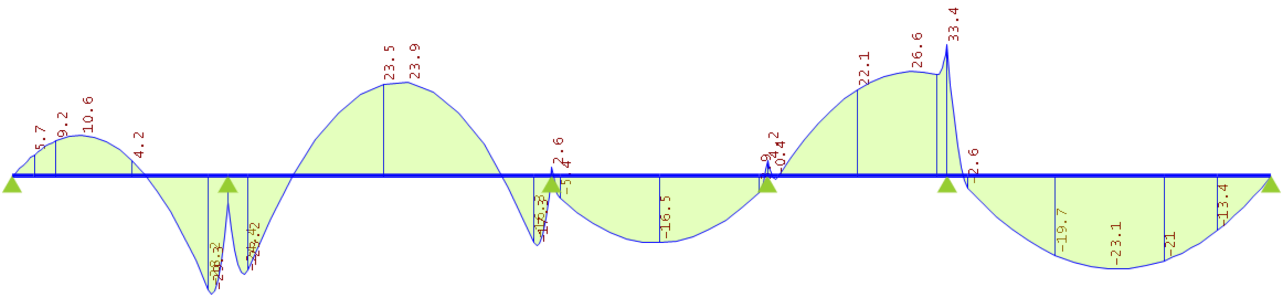
Deformations Diagram - Units: mm, Rad / LL

Section Stress



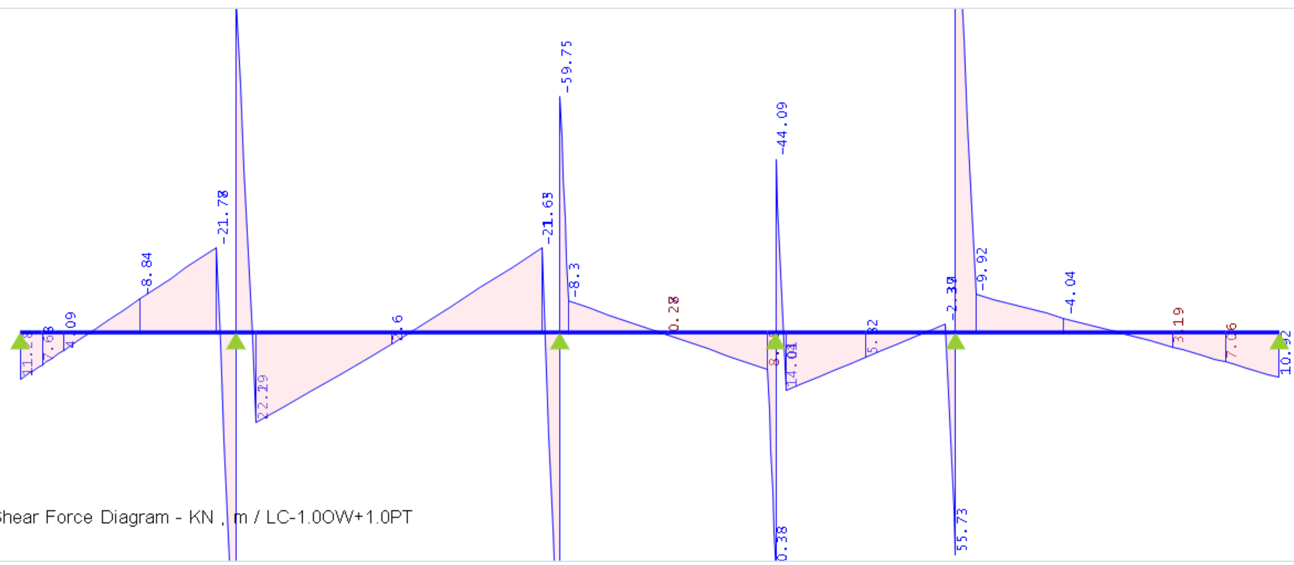
LC-1.0OW+1.0PT

Bending Moment



Bending Moment Diagram - KN.m / LC-1.0OW+1.0PT

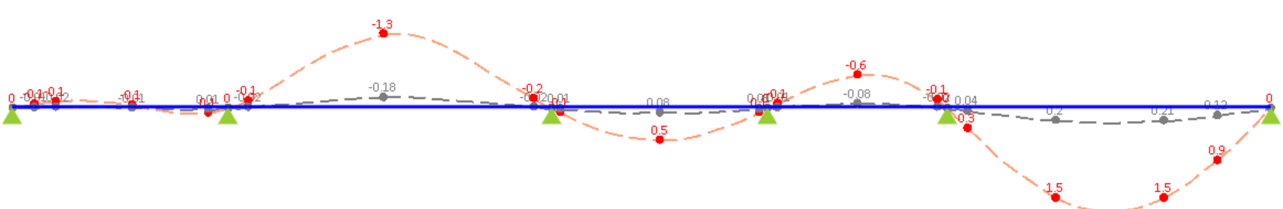
Shear



Shear Force Diagram - KN , m / LC-1.0OW+1.0PT

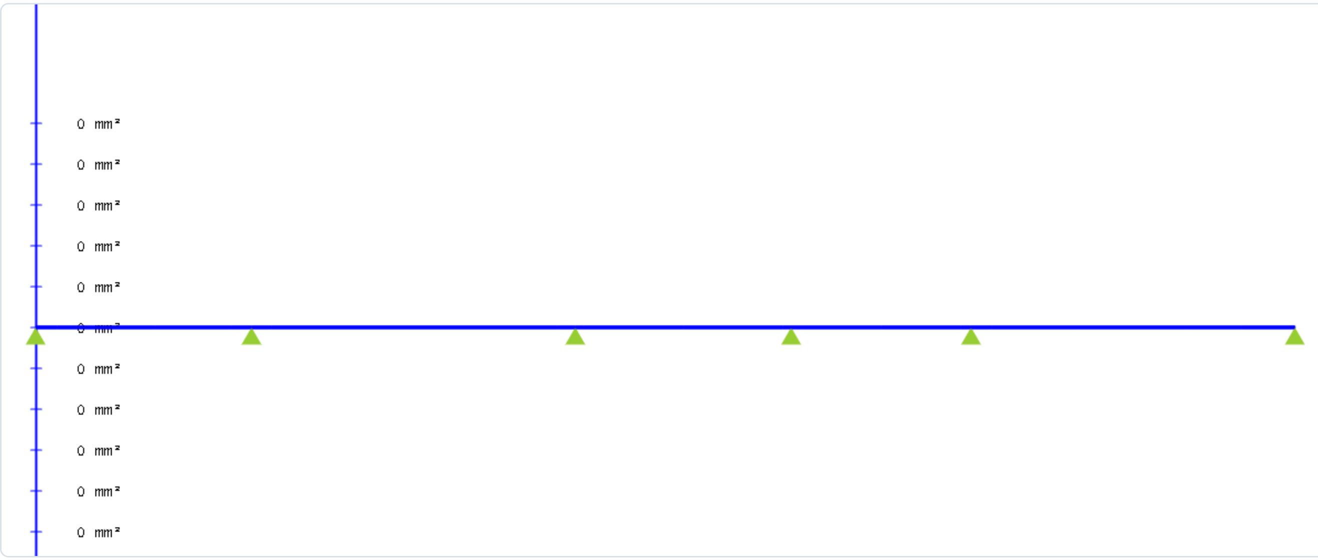
Deformation

Deformations in grey are elasitc without allowance for cracking (full section)
Deformations in red include effective section properties after cracking and creep

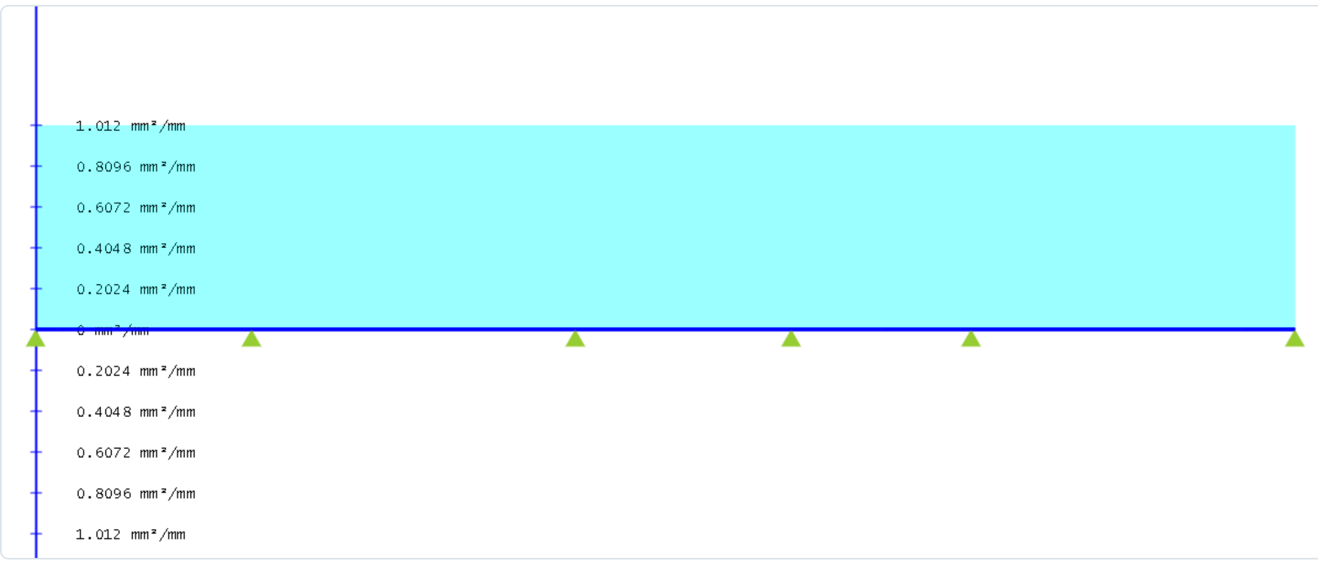


Deformations Diagram - Units: mm, Rad / LC-1.0OW+1.0PT

Required Flexural Reinforcement

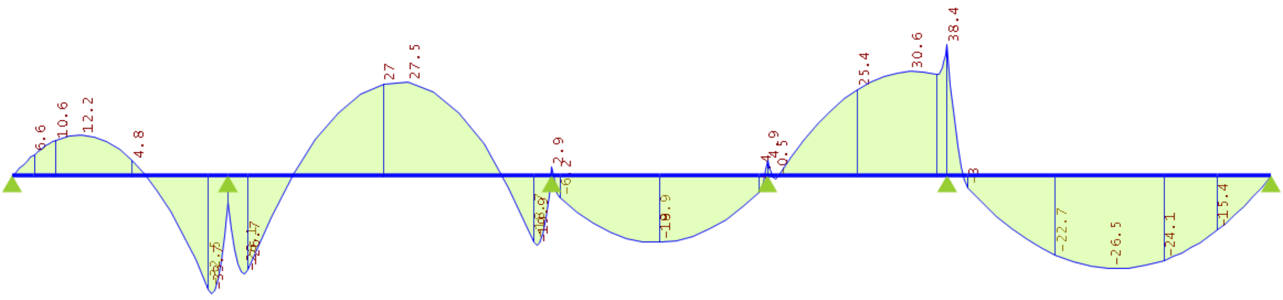


Required Shear Reinforcement



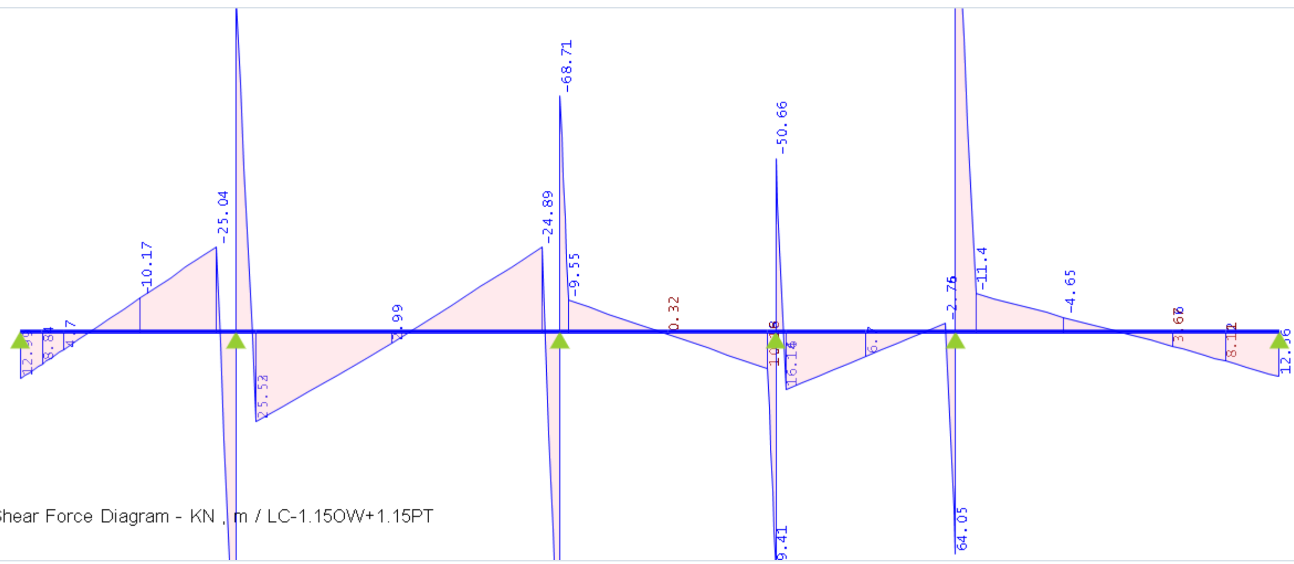
LC-1.15OW+1.15PT

Bending Moment



Bending Moment Diagram - KN.m / LC-1.15OW+1.15PT

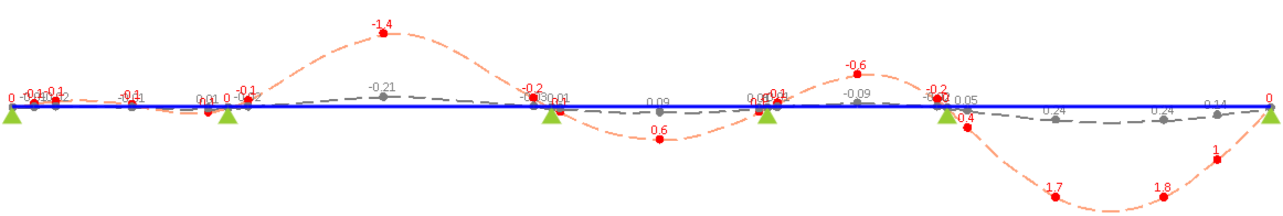
Shear



Shear Force Diagram - KN , m / LC-1.15OW+1.15PT

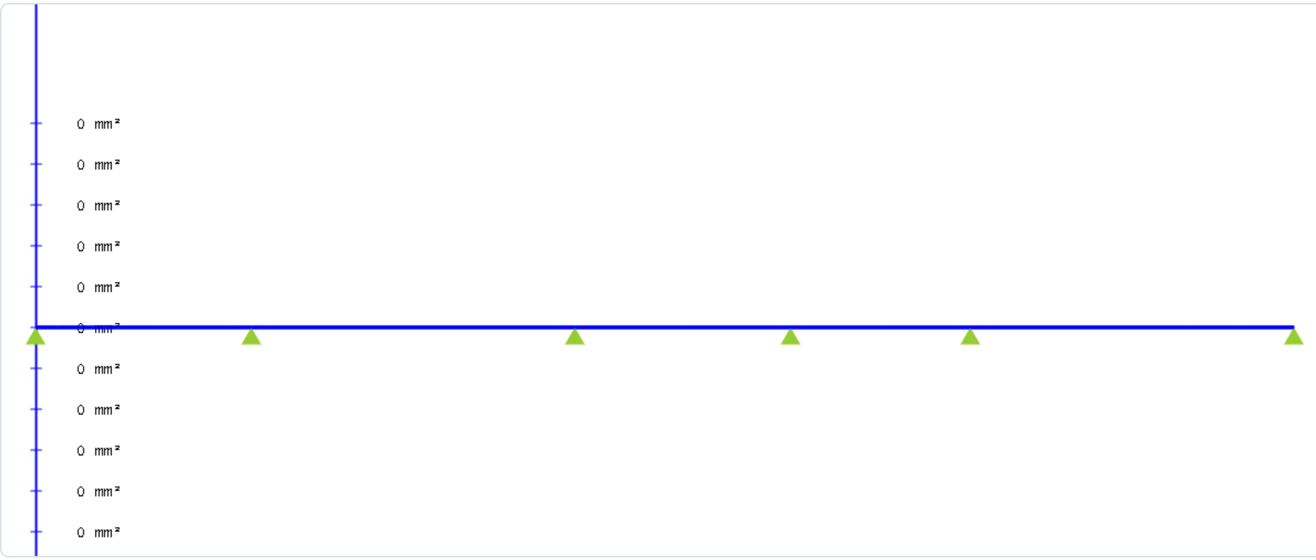
Deformation

Deformations in grey are elasitc without allowance for cracking (full section)
Deformations in red include effective section properties after cracking and creep

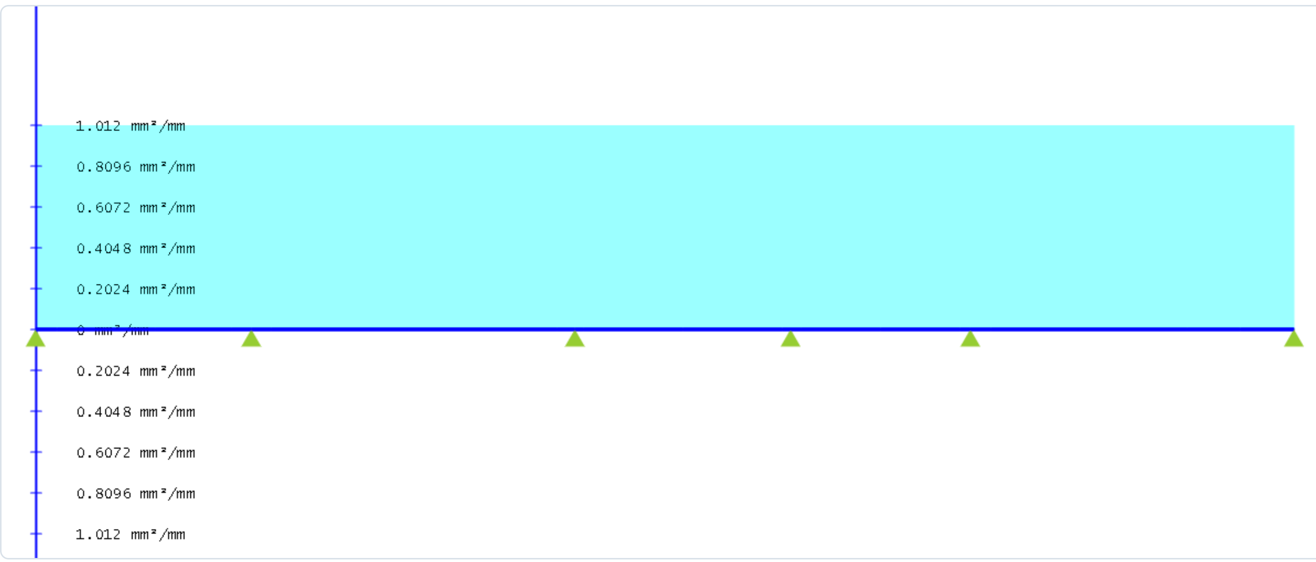


Deformations Diagram - Units: mm, Rad / LC-1.15OW+1.15PT

Required Flexural Reinforcement

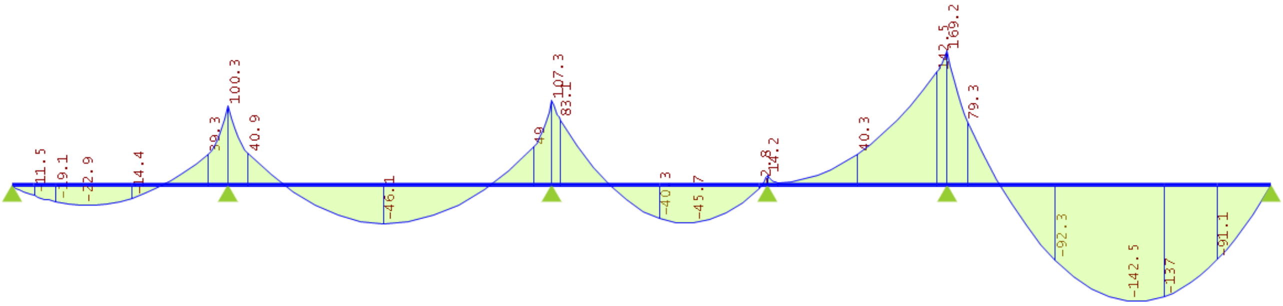


Required Shear Reinforcement



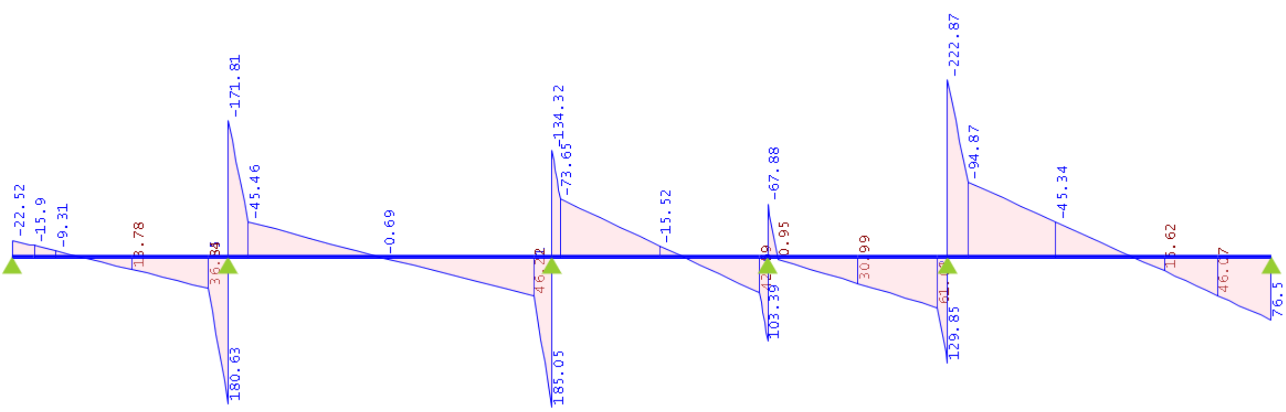
LC-0.9DL+1.1PT

Bending Moment



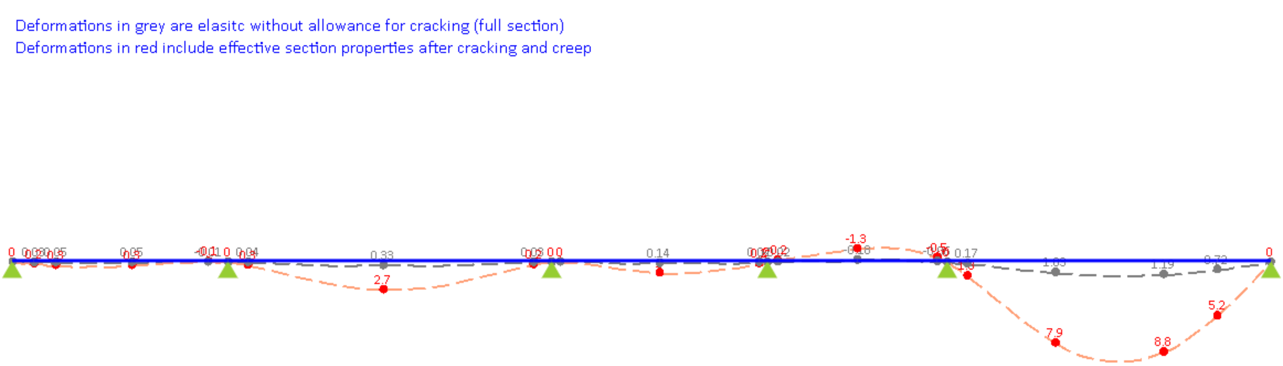
Bending Moment Diagram - KN.m / LC-0.9DL+1.1PT

Shear



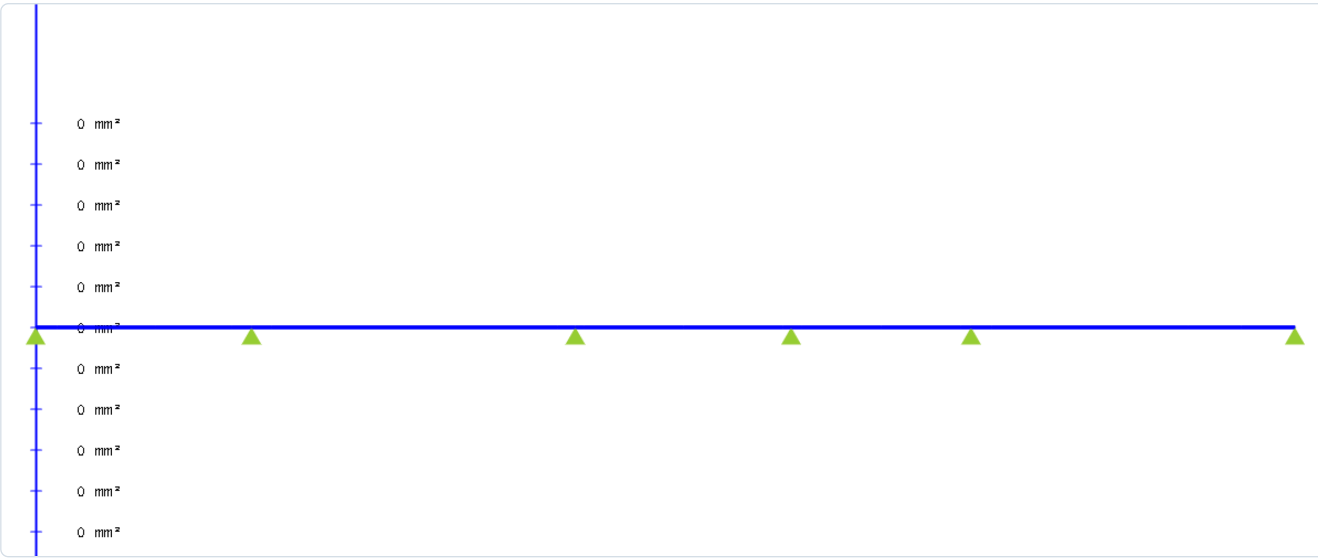
Shear Force Diagram - KN , m / LC-0.9DL+1.1PT

Deformation

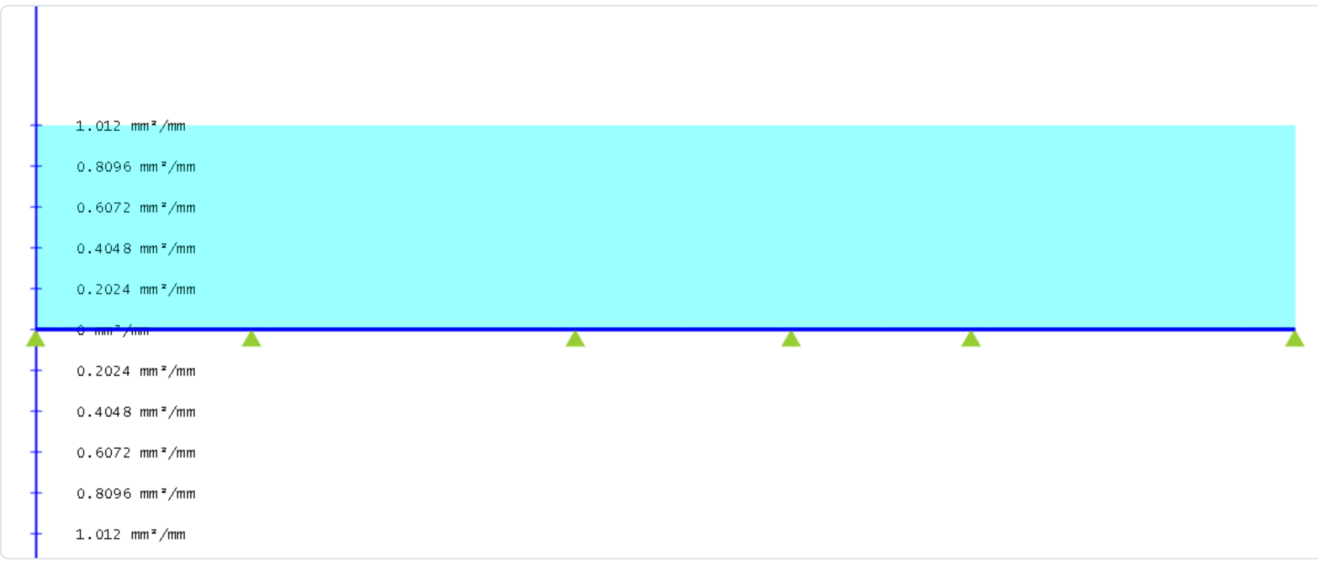


Deformations Diagram - Units: mm, Rad / LC-0.9DL+1.1PT

Required Flexural Reinforcement

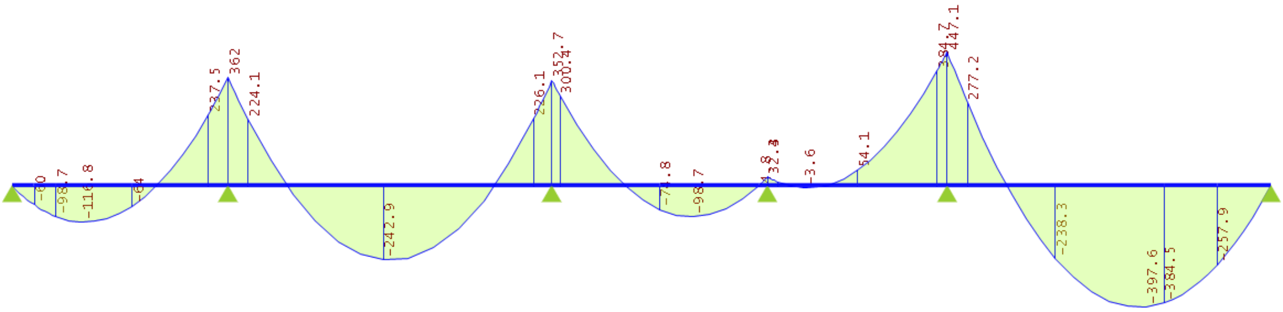


Required Shear Reinforcement



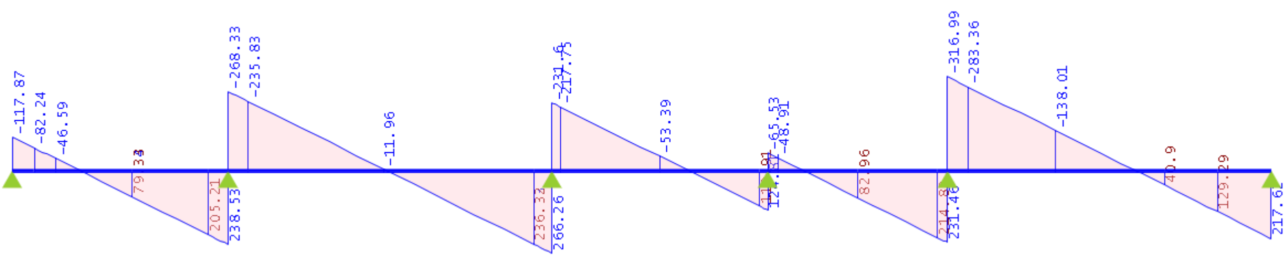
LC-1.35DL

Bending Moment



Bending Moment Diagram - KN.m / LC-1.35DL

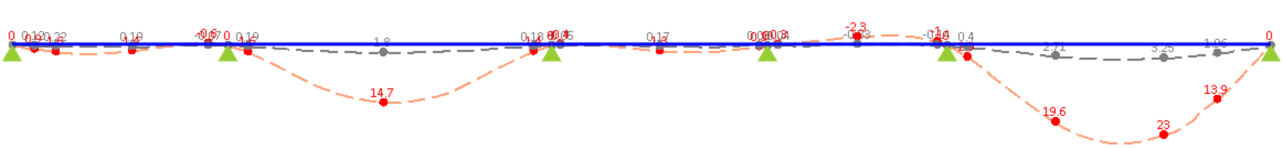
Shear



Shear Force Diagram - KN , m / LC-1.35DL

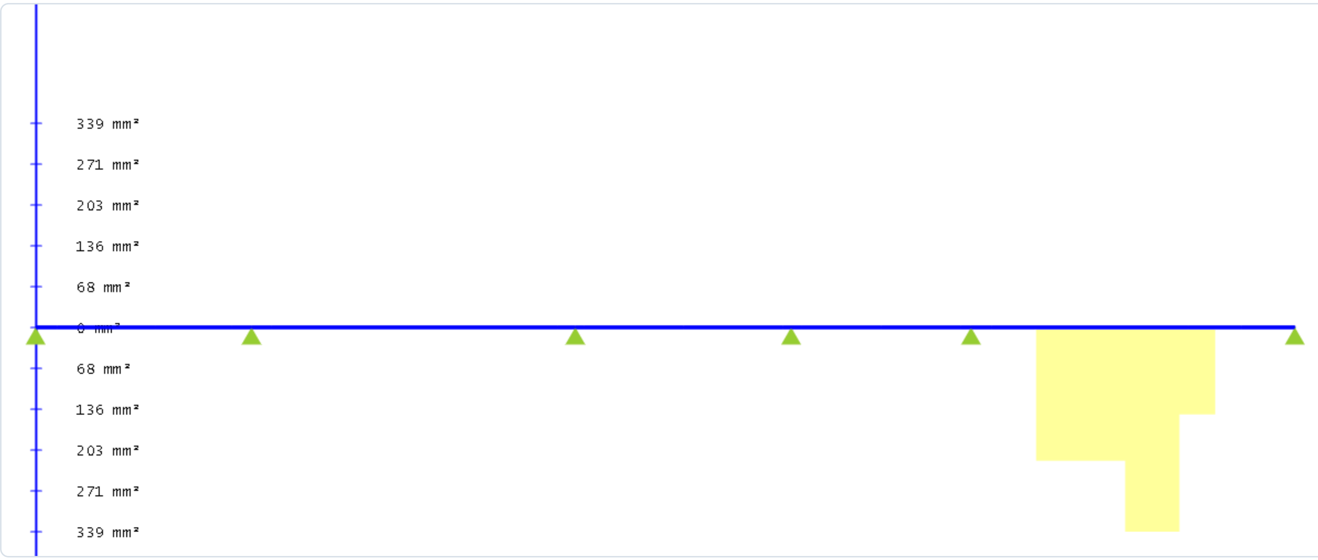
Deformation

Deformations in grey are elasitc without allowance for cracking (full section)
Deformations in red include effective section properties after cracking and creep

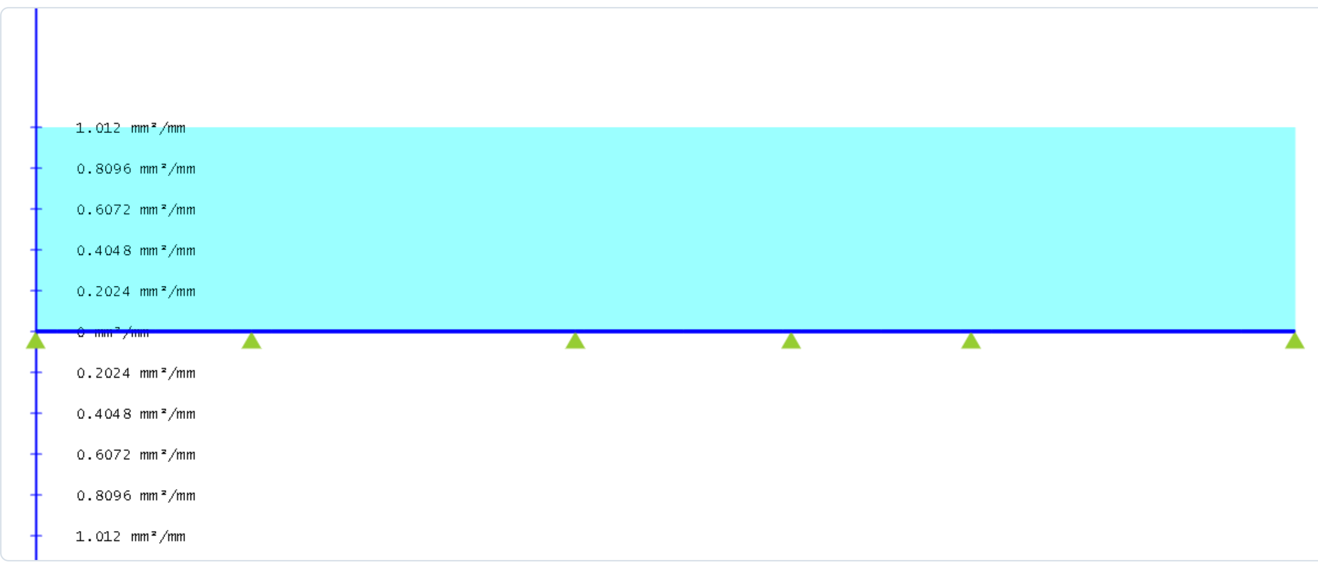


Deformations Diagram - Units: mm, Rad / LC-1.35DL

Required Flexural Reinforcement

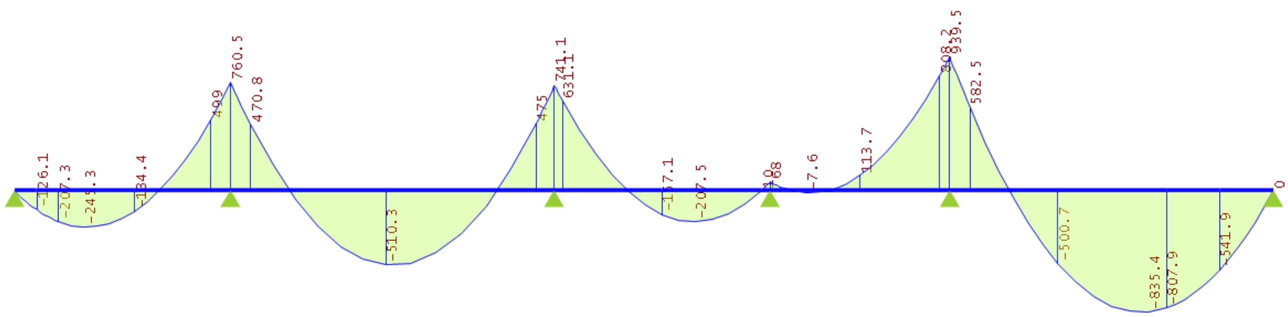


Required Shear Reinforcement



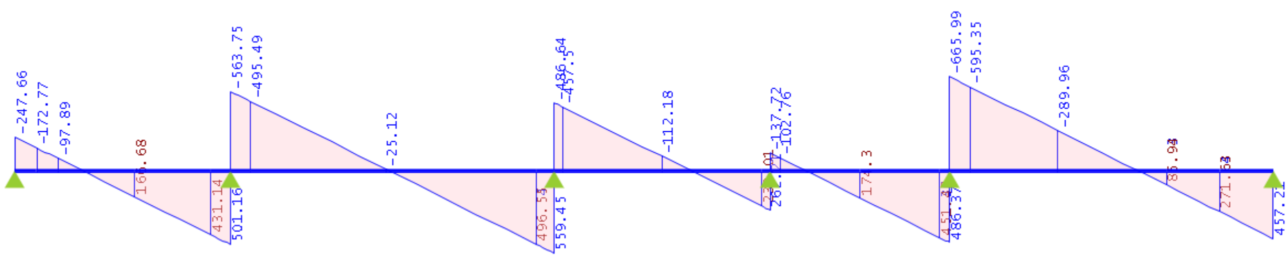
LC-1.2DL+1.5LL

Bending Moment



Bending Moment Diagram - KN.m / LC-1.2DL+1.5LL

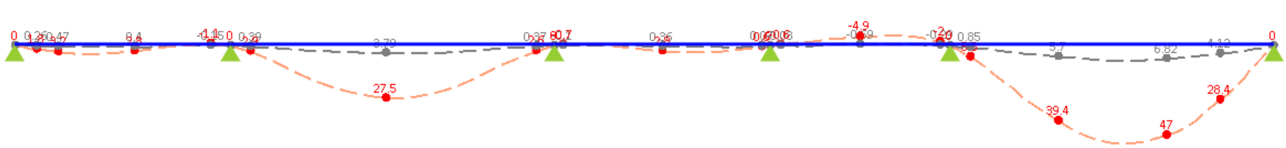
Shear



Shear Force Diagram - KN , m / LC-1.2DL+1.5LL

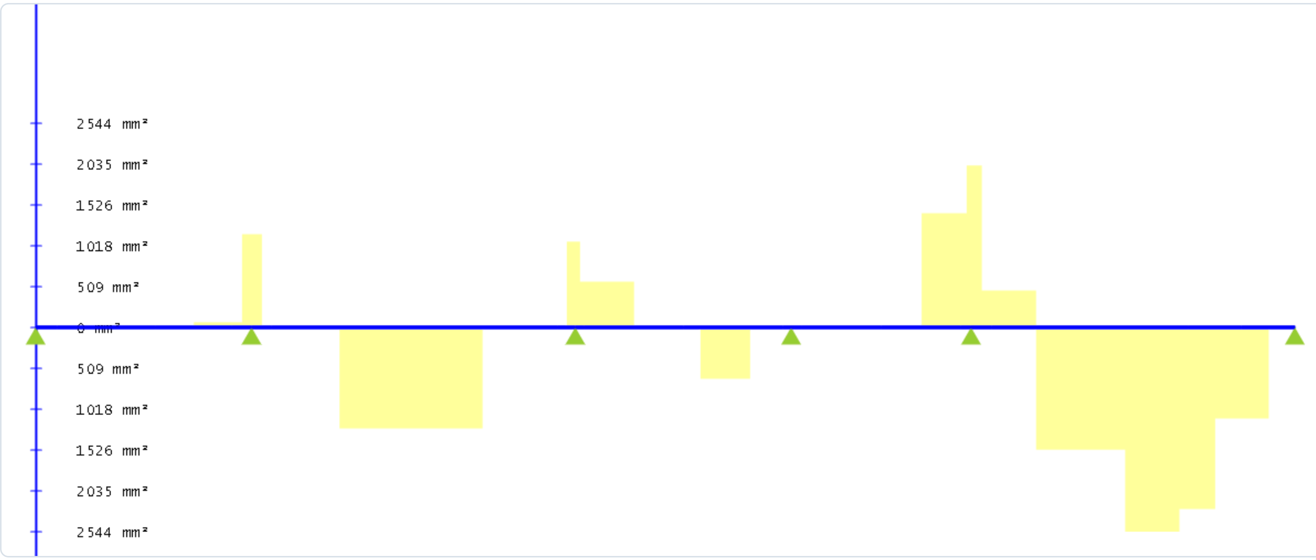
Deformation

Deformations in grey are elasitc without allowance for cracking (full section)
Deformations in red include effective section properties after cracking and creep

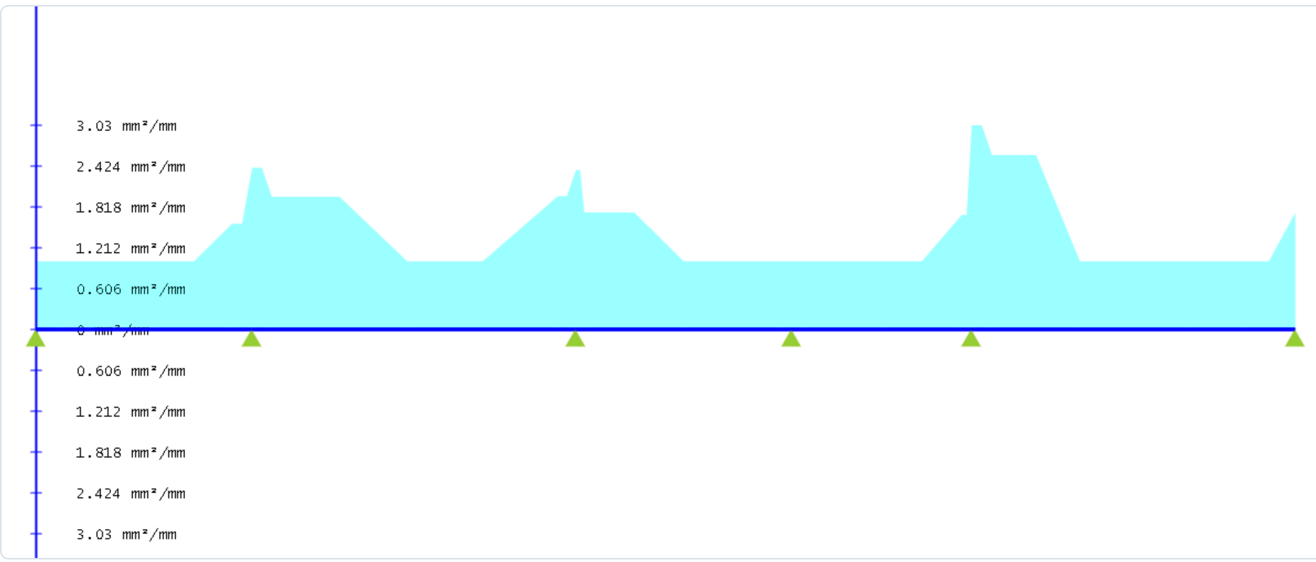


Deformations Diagram - Units: mm, Rad / LC-1.2DL+1.5LL

Required Flexural Reinforcement

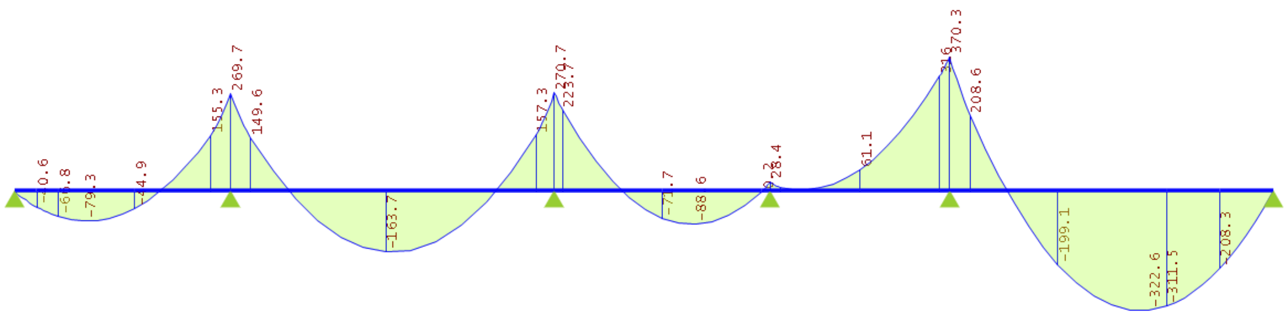


Required Shear Reinforcement



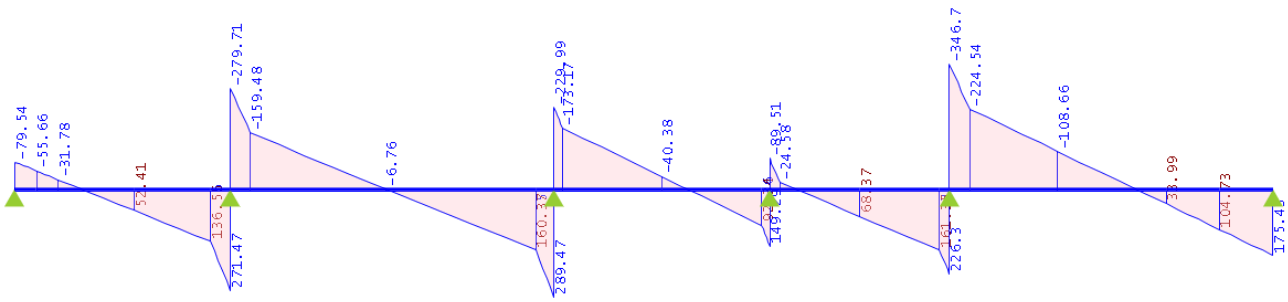
LC-1.0DL+0.4LL+PT

Bending Moment



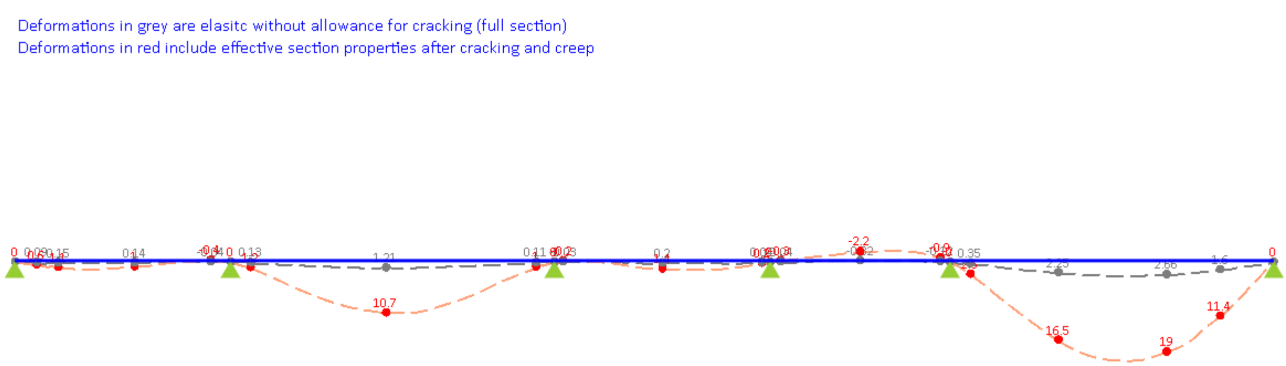
Bending Moment Diagram - KN.m / LC-1.0DL+0.4LL+PT

Shear



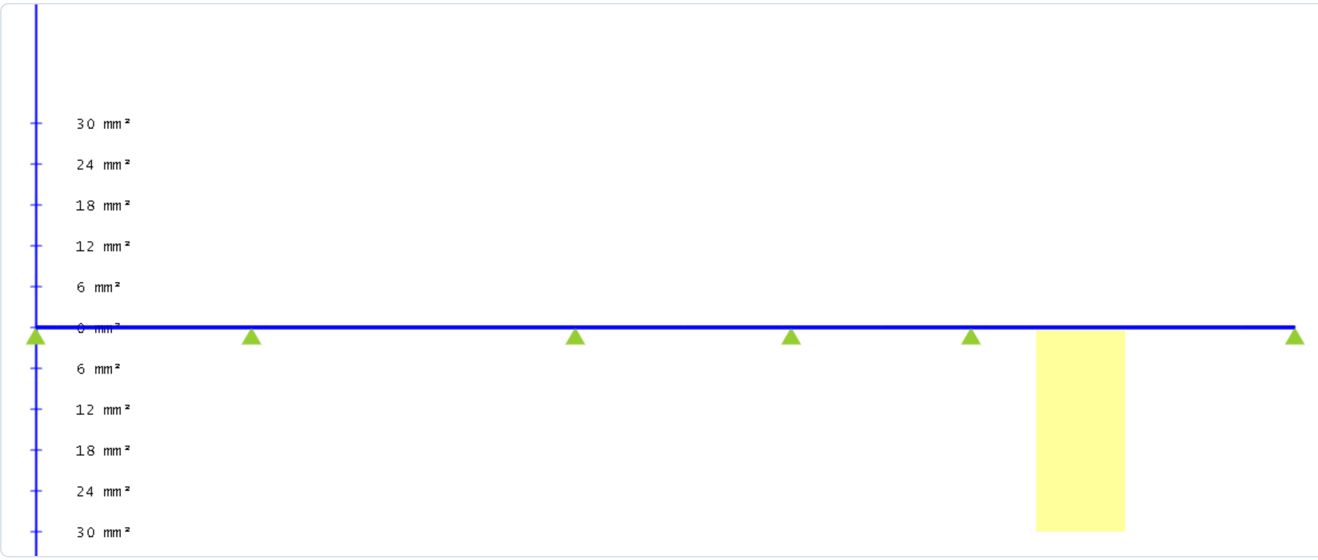
Shear Force Diagram - KN , m / LC-1.0DL+0.4LL+PT

Deformation

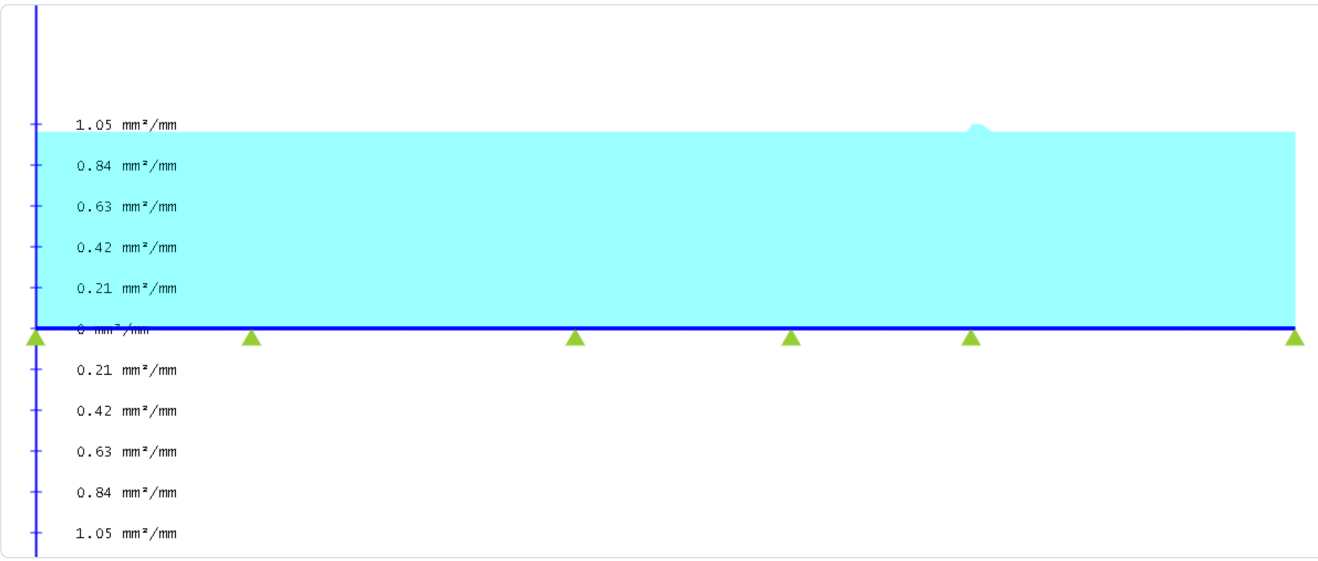


Deformations Diagram - Units: mm, Rad / LC-1.0DL+0.4LL+PT

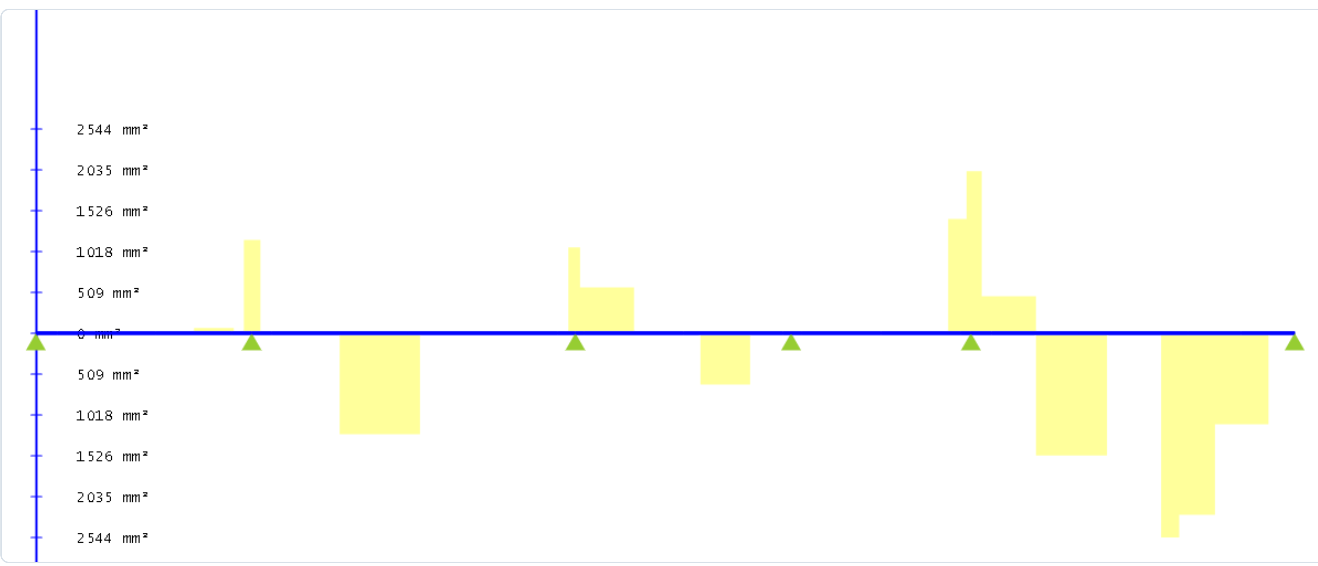
Required Flexural Reinforcement



Required Shear Reinforcement

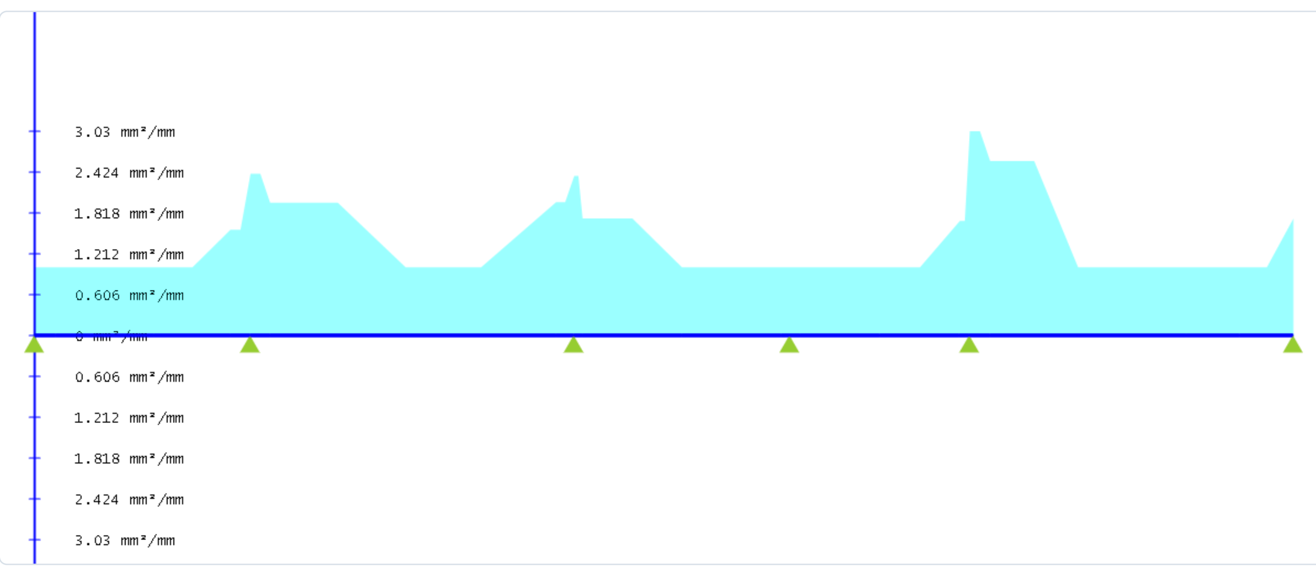


Flexural Reinforcement Envelope



X	Moment	MaxAST	MaxASc	LoadCase	Remarks
0	0	0	0	LC-1.0OW+1.0PT	
600	0	0	0	LC-1.0OW+1.0PT	
1200	0	0	0	LC-1.0OW+1.0PT	
1907	0	0	0	LC-1.0OW+1.0PT	
3320	0	0	0	LC-1.0OW+1.0PT	
5439	0	68	0	LC-1.2DL+1.5LL	
5532	0	0	0	LC-1.0OW+1.0PT	
6000	0	1162	0	LC-1.2DL+1.5LL	
6456	0	0	0	LC-1.0OW+1.0PT	
6547	0	0	0	LC-1.0OW+1.0PT	
10316	0	-1257	0	LC-1.2DL+1.5LL	
11013	0	0	0	LC-1.0OW+1.0PT	
14496	0	0	0	LC-1.0OW+1.0PT	
14580	0	0	0	LC-1.0OW+1.0PT	
15000	0	1070	0	LC-1.2DL+1.5LL	
15233	0	573	0	LC-1.2DL+1.5LL	
18000	0	0	0	LC-1.0OW+1.0PT	
18922	0	-638	0	LC-1.2DL+1.5LL	
20766	0	0	0	LC-1.0OW+1.0PT	
21000	0	0	0	LC-1.0OW+1.0PT	
21187	0	0	0	LC-1.0OW+1.0PT	
21233	0	0	0	LC-1.15OW+1.15PT	
22020	0	0	0	LC-1.35DL	
23500	0	0	0	LC-1.0OW+1.0PT	
24980	0	0	0	LC-1.0OW+1.0PT	
25720	0	1425	0	LC-1.2DL+1.5LL	
26000	0	2019	0	LC-1.2DL+1.5LL	
26566	0	463	0	LC-1.2DL+1.5LL	
29013	0	-1522	0	LC-1.2DL+1.5LL	
30519	0	0	0	LC-1.0OW+1.0PT	
31021	0	0	0	LC-0.9DL+1.1PT	
31523	0	-2544	0	LC-1.2DL+1.5LL	
32025	0	-2262	0	LC-1.2DL+1.5LL	
33513	0	-1132	0	LC-1.2DL+1.5LL	
35000	0	0	0		

Shear Reinforcement Envelope



X	Shear	MaxSV	LoadCase	Remarks
0	11.28	1.012	LC-1.0OW+1.0PT	
600	7.68	1.012	LC-1.0OW+1.0PT	
1200	4.09	1.012	LC-1.0OW+1.0PT	
3320	-8.84	1.012	LC-1.0OW+1.0PT	
5439	431.14	1.57	LC-1.2DL+1.5LL	
6000	-563.75	2.4	LC-1.2DL+1.5LL	
6547	-495.49	1.97	LC-1.2DL+1.5LL	
10316	2.6	1.012	LC-1.0OW+1.0PT	
14496	496.54	1.98	LC-1.2DL+1.5LL	
15000	559.45	2.37	LC-1.2DL+1.5LL	
15233	-457.5	1.74	LC-1.2DL+1.5LL	
18000	0.27	1.012	LC-1.0OW+1.0PT	
20766	8.85	1.012	LC-1.0OW+1.0PT	
21000	60.38	1.012	LC-1.0OW+1.0PT	
21280	14.01	1.012	LC-1.0OW+1.0PT	
23500	5.82	1.012	LC-1.0OW+1.0PT	
25720	451.36	1.7	LC-1.2DL+1.5LL	
26000	-665.99	3.03	LC-1.2DL+1.5LL	
26566	-595.35	2.59	LC-1.2DL+1.5LL	
29013	-4.04	1.012	LC-1.0OW+1.0PT	
32025	3.19	1.012	LC-1.0OW+1.0PT	
33513	7.06	1.012	LC-1.0OW+1.0PT	
35000	457.21	1.74	LC-1.2DL+1.5LL	

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