Direzione Progettazione e Realizzazione Lavori

S.S. 398 "Via Val di Cornia"

Bretella di collegamento tra l'Autostrada Tirrenica A12 e il Porto di Piombino

LOTTO 1 - Svincolo di Geodetica-Gagno

PROGETTO ESECUTIVO

COD. FI2

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PROTOCOLLO	DATA
	MARZO 2019

OPERE D'ARTE MINORI
TOMBINO SCATOLARE VECCHIA CORNIA 2
Relazione Tecnica e di calcolo

CODICE PROGETTO	NOME FILE	REVISIONE	SCALA:
PROGETTO: DPFI12 — LIV. PROG.: E — N. PROG.: 1801	T00-TM02-STR-RE01		
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REV.	DESCRIZIONE	DATA	REDATTO	VERIFICATO	APPROVATO
A	Emissione	29/03/2019	F.Macchioni	V.Rotisciani	N.Granieri

INDICE

1. PREMESSA

Nella presente relazione vengono presentati i calcoli di verifica delle opere strutturali del tombino scatolare "Vecchia Cornia 2" da realizzarsi nell'ambito dell'intervento denominato "*SS. 398 Via Val di Cornia - Bretella di collegamento tra l'Autostrada Tirrenica A12 e il Porto di Piombino - LOTTO 1 - Svincolo di Geodetica-Gagno*".

2. NORMATIVA DI RIFERIMENTO

L. 05.11.1971, n. 1086. Norme per la disciplina delle opere in conglomerato cementizio armato, normale e precompresso ed a struttura metallica

D.M. del 09.01.1996. Norme Tecniche per il calcolo, l'esecuzione ed il collaudo delle strutture in cemento armato, normale e precompresso e per le strutture metalliche.

D.M. del 16.01.1996. Norme Tecniche relative ai "Criteri generali per la verifica di sicurezza delle costruzioni e dei carichi e sovraccarichi".

D.M. del 16.01.1996. Norme Tecniche per le costruzioni in zone sismiche.

Circolare Ministeriale del 04.07.1996 n. 156AA.GG./STC. Istruzioni per l'applicazione delle "Norme tecniche relative ai criteri generali per la verifica di sicurezza delle costruzioni e dei carichi e sovraccarichi" di cui al Decreto Ministeriale 16.01.1996.

L. 02.02.1974, n. 64. Provvedimenti per costruzioni con particolari prescrizioni per zone sismiche.

D.M. LL. PP. 11.03.1988. Norme Tecniche riguardanti le indagini sui terreni e sulle rocce, la stabilità dei pendii naturali e delle scarpate, i criteri generali e le prescrizioni per la progettazione, l'esecuzione ed il collaudo delle opere di sostegno delle terre e delle opere di fondazione.

Circolare Ministeriale del 24.07.1988, n. 30483/STC.

Legge 2 Febbraio 1974 n. 64, art. 1 - D.M. 11 Marzo 1988. Norme Tecniche riguardanti le indagini sui terreni e sulle rocce, la stabilità dei pendii naturali e delle scarpate, i criteri generali e le prescrizioni per la progettazione, l'esecuzione ed il collaudo delle opere di sostegno delle terre e delle opere di fondazione.

Circolare Ministeriale del 15.10.1996 N°252. Istruzioni per l'applicazione delle "Norme Tecniche per il calcolo, l'esecuzione ed il collaudo delle opere in cemento armato normale e precompresso e per le strutture metalliche" di cui al D.M.09.01.1996

Circolare Ministeriale del 10.04.1997 N°65/AA.GG. Istruzioni per l'applicazione delle "Norme Tecniche per le costruzioni in zone sismiche" di cui al D.M.16.01.1996

Ordinanza del Presidente del Consiglio dei Ministri N°3274 del 20.03.2003. Primi elementi in materia di criteri generali per la classificazione sismica del territorio nazionale e di normative tecniche per le costruzioni in zona sismica.

Ordinanza del Presidente del Consiglio dei Ministri N°3431 del 10.05.2005. Ulteriori modifiche ed integrazioni all'ordinanza N°3274.

Norme Tecniche per le Costruzioni - D.M. 14.09.2005 (TU 2005)

Norme Tecniche per le Costruzioni - D.M. 14.01.2008 (NTC 2008)

Norme Tecniche per le Costruzioni - D.M. 17.01.2018 (NTC 2018).

3. INQUADRAMENTO STRATIGRAFICO E GEOTECNICO DEL SITO

La campagna di indagini effettuata ha permesso il riconoscimento dei litotipi, la successione stratigrafica e la caratterizzazione meccanica dei terreni lungo tutto lo sviluppo del tracciato di progetto. I risultati di dette indagini sono descritti nella relazione geotecnica alla quale si rimanda per ulteriori approfondimenti.

3.1 STRATIGRAFIE DI CALCOLO

Facendo riferimento a quanto riportato nella relazione geotecnica, nella tabella che segue sono riportati i valori dei parametri meccanici degli strati interessati dal calcolo delle strutture in esame:

Litotipi		Parametri geotecnici				
Cod.	Descrizione	γ (KN/m^3)	c' (KPa)	ϕ' (deg)	C_u (KPa)	E' (MPa)
UG0	Riporti, coperture antropiche, colmate	18.5	-	35	-	15
UG1	Argille e limi lacustri organici	17.0	10	24	30	-
UG2	Argille e limi molto poco consistenti	19.5	30	25	100	-
UG3	Sabbie limose mediamente addensate	20.0	0	32	-	25
UG4b	Limi sabbioso ghiaiosi molto consistenti	20.0	20	32	-	50
UG4a	Substrato roccioso	26.0	50	40	-	100

La stratigrafia assunta nei calcoli è specificata di seguito, assumendo come quota 0.00 la quota di fondo scavo:

Da 0.00 a -1.20	Litotipo UG2 – Argille e limi poco consistenti
Da -1.20 a -3.50	Litotipo UG3 – Sabbie limose mediamente addensate
Da -3.50 a -8.00	Litotipo UG2 – Argille e limi poco consistenti
Da -8.00 a -9.00	Litotipo UG3 – Sabbie limose mediamente addensate
Da -900 a -	Litotipo UG2 – Argille e limi poco consistenti

La falda risulta ubicata a circa 3.00 m di profondità dal piano di campagna.

Dal punto di vista sismico il sottosuolo è individuato nella categoria "C", come riportato nella Relazione geologica allegata al progetto esecutivo.

Per quanto riguarda il materiale con cui si effettua il riempimento a tergo delle opere, si assumono le seguenti caratteristiche:

Cod.	Descrizione	γ (KN/m^3)	c' (KPa)	ϕ' (deg)
R	Riempimento	18	0	35

Per maggiori dettagli sulle caratteristiche dei terreni si faccia riferimento agli elaborati di carattere geotecnico (relazione geotecnica, profili geotecnici).

4. GEOMETRIA DELL'OPERA

Il tombino in oggetto è costituito da una struttura scatolare in c.a. gettato in opera, di dimensioni interne pari a 8.50 x 4.50 m, con pareti e copertura di spessore pari a 50 cm, e platea di fondazione di spessore pari a 60 cm. Lo sviluppo dell'opera è di circa 81 m.

Per il calcolo viene analizzata una porzione di struttura di lunghezza unitaria, e con i carichi spalmati su tale lunghezza di calcolo.

All'imbocco ed all'uscita del tombino sono presenti muri d'ala di altezza pari a 6.00 m e spessore di 50 cm, con altezza massima del rinterro a tergo di 5.40 m. Le strutture di fondazione, collegate a quelle del tombino, sono costituite da platee di spessore pari a 60 cm.

Per ulteriori dettagli si vedano gli elaborati grafici di progetto.

5. ANALISI DEI CARICHI

I valori dei carichi sono riepilogati di seguito.

5.1 COPERTURA TOMBINO

CARICHI PERMANENTI NON STRUTTURALI

Pacchetto stradale (h=0.70, p.p = 20 kN/m^3)	14.00 kN/m^2
Carico permanente non strutturale totale G_{2k}	14.00 kN/m^2

CARICHI VARIABILI TRAFFICO

Per tenere conto dei carichi derivanti dal traffico stradale, considerando una larghezza della corsia convenzionale pari a 3.00 m in accordo con la Tab. 5.1.I della NTC2018, si applicano i carichi mobili tandem ed i carichi distribuiti sulla corsia, tenendo conto che il tombino è modellato con larghezza unitaria.

Pertanto, per quanto riguarda il carico distribuito, si considera applicato su 1 m di larghezza. Per il carico tandem, si considera invece la presenza di un solo asse di carico (Q_{ik} = 300 kN), in quanto si può ritenere con buona approssimazione che la larghezza di 1.00 m non consente la presenza contemporanea di più di due punti di carico sul tombino, viste le distanze tra gli assi da normativa. I due punti di carico dell'asse sono disposti, per garantire le condizioni più gravose, a distanza di 1.20 m a cavallo della mezzeria della copertura. Le entità dei carichi sono riepilogati di seguito:

Carico distribuito	9.00 kN/m
Carico tandem concentrato	2 x 150 kN

FRENATURA

L'azione dovuta alla frenatura è calcolata secondo la relazione contenuta nelle NTC2018 al par. 5.1.3.5 ed applicata sulla porzione di scatolare di larghezza pari ad 1.00 m:

$q_3 = 0.6\ (2Q_{1k}) + 0.10\ q_{1k}\ w_1\ L = 384.3$ kN

dove:

Q_{1k} = 300 kN, carico asse corsia;

q_{1k} = 9.00 kN/m^2, carico uniformemente distribuito fuori corsia;

w_1= 3.00 m, larghezza della corsia convenzionale;

L = 9.00 m, lunghezza della zona caricata.

La forza di frenatura, applicata a livello della pavimentazione stradale e lungo l'asse della corsia, è assunta uniformemente distribuita sulla lunghezza caricata. Inoltre, considerando la porzione di scatolare di larghezza pari ad 1 m, l'azione di frenatura risulta:

Q_3 = 384.3 / (9.00 x 3.00) = 14.23 kN/m^2 X 1.00 m = 14.23 kN/m

CARICHI TERMICI

Dal momento che le opere in progetto sono completamente interrate e all'interno è presente acqua si ipotizza un gradiente termico tra la faccia esterna e la faccia interna, con una distribuzione a farfalla di valore pari a +/- 15°.

5.2 PLATEA TOMBINO

CARICHI PERMANENTI STRUTTURALI

Peso dell'acqua (H_{max} = 4.50 m)	45.00 kN/m^2
Carico permanente strutturale totale G_{2k}	45.00 kN/m^2

5.3 SPINTA DEL TERRENO SULLE PARETI

Si riportano di seguito i grafici delle spinte del terreno sulle pareti del manufatto tenendo conto della presenza di materiale di riporto a tergo, per il quale si considerano le seguenti caratteristiche geomeccaniche:

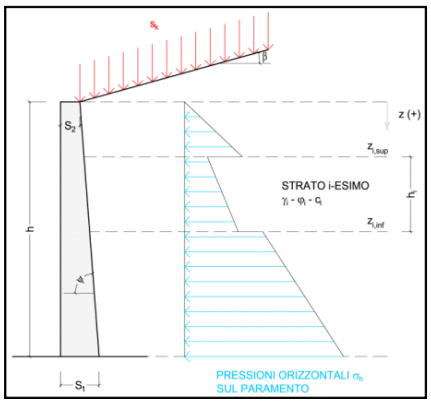
γ_k= 19,0	kN/m^3	peso di volume caratteristico;
φ'_k = 35	°	angolo di operativo attrito caratteristico.

Considerando che le strutture in esame non sono in grado di subire spostamenti sufficienti alla mobilitazione della spinta attiva le azioni agenti sulle stesse verranno calcolate per mezzo del coefficiente di spinta in quiete.

Nel calcolo delle spinte si è tenuto conto di un sovraccarico accidentale sul terreno di 20 kN/m^2.

I risultati e gli andamenti delle pressioni di progetto (comprensive dei fattori parziali di sicurezza), sono riportati nelle tabelle seguenti.

Tutti i valori sono riferiti a una striscia di larghezza unitaria.



GEOMETRIA MURO E RINTERRO

γ_M=	25	kN/m³	Peso per unità di volume
s_1=	0,5	m	Spessore alla base
s_2=	0,5	m	Spessore in testa
h_f=	0,6	m	Altezza suola fondazione
h=	5	m	Altezza paramento
β=	0	°	Ang. terrapieno sull'orizzontale (>0 antiorario)
ψ=	90	°	Ang. par. interna sull'orizzontale (>0 orario)
H=	5,6	m	Altezza totale muro

MODALITA' DI SPINTA

Spinta in quiete

PARAMETRI SISMICI

C — Categoria suolo

T1 - Superficie pianeggiante, pendii e rilievi isolati con inclinazione media i<=15° — Caratteristiche pendio

Muro non in grado di subire spostamenti relativi rispetto al terreno — Caratteristiche pendio

a_g=	0,049	g	Accelerazione orizzontale massima su sito di riferimento rigido orizzontale (riferita all'accel. di gravità g)
F_0=	2,815		Fattore di amplificazione spettrale massima su sito di riferimento rigido orizzontale
T_c^*=	0,275	s	Periodo di inizio del tratto a velocità costante dello spettro in accelerazione orizzontale
C_C=	1,608		Coefficiente che modifica il valore del periodo T_C
S_S=	1,500		Coefficiente di amplificazione stratigrafica
S_T=	1,000		Coefficiente di amplificazione topografica
S=	1,500		Coefficiente che tiene conto della categoria di sottosuolo
a_{max}=	0,074	g	Accelerazione massima attesa al sito (riferita all'accelerazione di gravità g)
β_m=	1,00		Coefficiente di riduzione dell'accelerazione massima attesa al sito
k_h=	0,074		Coefficiente sismico orizzontale
k_v^+=	0,037		Coefficiente sismico verticale con accelerazione diretta verso l'alto
k_v^-=	-0,037		Coefficiente sismico verticale con accelerazione diretta verso il basso
θ_A=	4,06	°	Rotazione addizionale terreno-muro per accelerazione sismica verticale verso l'alto
θ_B=	4,36	°	Rotazione addizionale terreno-muro per accelerazione sismica verticale verso il basso

SOVRACCARICHI SUL RINTERRO

g_{1k}	g_{2k}	q_{1k}		
0	0	20	kN/m²	Carico uniformemente distribuito a tergo del paramento
s_{g1k}	s_{g2k}	s_{q1k}		
1	1	0,3		Coefficiente di riduzione della massa del sovraccarico

Coefficiente parziali di sicurezza dei carichi

γ_{G1}	γ_{G2}	γ_Q	γ_E	
1	1	1	-	Coefficiente parziali di sicurezza dei carichi SLE
1,3	1,5	1,5	-	Coefficiente parziali di sicurezza dei carichi SLU - APPROCCIO 1 - COMB 1 (A1) E APPROCCIO 2
1	1,3	1,3	-	Coefficiente parziali di sicurezza dei carichi SLU - APPROCCIO 1 - COMB 2 (A2)
1	1	1	1	Coefficiente parziali di sicurezza dei carichi in combinazione sismica SLV

Coefficiente parziali di sicurezza per i parametri geotecnici del terreno

γ_γ	γ_φ	$\gamma_{c'}$	
1	1	1	Coefficiente parziali di sicurezza dei parametri geotecnici SLE / SLU - APPROCCIO 1 - COMB 1 (M1), APPROCCIO 2 / SLV
1	1,25	1,25	Coefficiente parziali di sicurezza dei parametri geotecnici - SLU - APPROCCIO 1 - COMB 2 (M2)

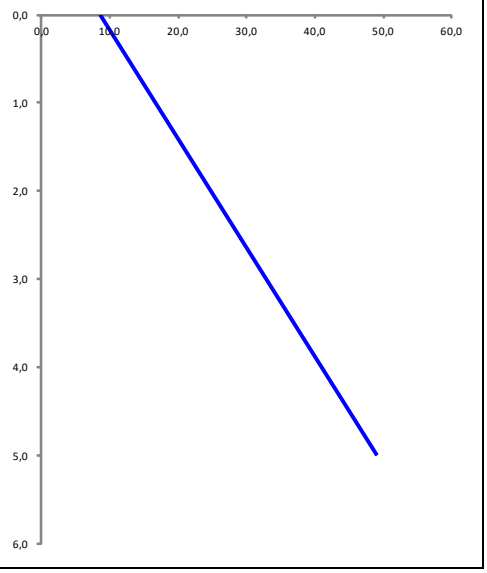
CARATTERISTICHE STRATI TERRENO

				PARAMETRI GEOTECNICI **CARATTERISTICI**				PARAMETRI GEOTECNICI DI PROGETTO **SLE / SLU - APPROCCIO 1 - COMB 1 (M1), APPROCCIO 2 / SLV**				COEFF. DI SPINTA DI PROGETTO **SLE / SLU - APPROCCIO 1 - COMB 1 (M1), APPROCCIO 2 / SLV**				PARAMETRI GEOTECNICI DI PROGETTO **SLU - APPROCCIO 1 - COMB 2 (M2)**				COEFF. DI SPINTA DI PROGETTO **SLU - APPROCCIO 1 - COMB 2 (M2)**			
Strato	z_{sup} [m]	z_{inf} [m]	h [m]	γ_k [kN/m³]	φ_k [°]	δ_k [°]	c_k' [kN/m²]	γ_d [kN/m³]	φ_d [°]	δ_d [°]	c_d' [kN/m²]	$k_{o,d}$ [-]	$k_{s,d}$ [-]	$k_{ea,d}$ [-]	$k_{eb,d}$ [-]	γ_d [kN/m³]	φ_d [°]	δ_d [°]	c_d' [kN/m²]	$k_{o,d}$ [-]	$k_{s,d}$ [-]	$k_{ea,d}$ [-]	$k_{eb,d}$ [-]
1	0,00	5,00	5,00	19,00	35,00	0,00	0,00	19,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	19,00	29,26	0,00	0,00	0,511	0,343	0,388	0,391
2	5,00	5,00	0,00	19,00	35,00	0,00	0,00	19,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	19,00	29,26	0,00	0,00	0,511	0,343	0,388	0,391
3	5,00	5,00	0,00	19,00	35,00	0,00	0,00	19,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	19,00	29,26	0,00	0,00	0,511	0,343	0,388	0,391
4	5,00	5,00	0,00	19,00	35,00	0,00	0,00	19,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	19,00	29,26	0,00	0,00	0,511	0,343	0,388	0,391
5	5,00	5,00	0,00	19,00	35,00	0,00	0,00	19,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	19,00	29,26	0,00	0,00	0,511	0,343	0,388	0,391
6	5,00	5,00	0,00	19,00	35,00	0,00	0,00	19,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	19,00	29,26	0,00	0,00	0,511	0,343	0,388	0,391
7	5,00	5,00	0,00	19,00	35,00	0,00	0,00	19,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	19,00	29,26	0,00	0,00	0,511	0,343	0,388	0,391
8	5,00	5,00	0,00	19,00	35,00	0,00	0,00	19,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	19,00	29,26	0,00	0,00	0,511	0,343	0,388	0,391
9	5,00	5,00	0,00	19,00	35,00	0,00	0,00	19,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	19,00	29,26	0,00	0,00	0,511	0,343	0,388	0,391
10	5,00	5,00	0,00	19,00	35,00	0,00	0,00	19,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	19,00	29,26	0,00	0,00	0,511	0,343	0,388	0,391

PRESSIONI DI PROGETTO SUL PARAMENTO (INCLUDONO I FATTORI DI SICUREZZA PARZIALI DELLE AZIONI)

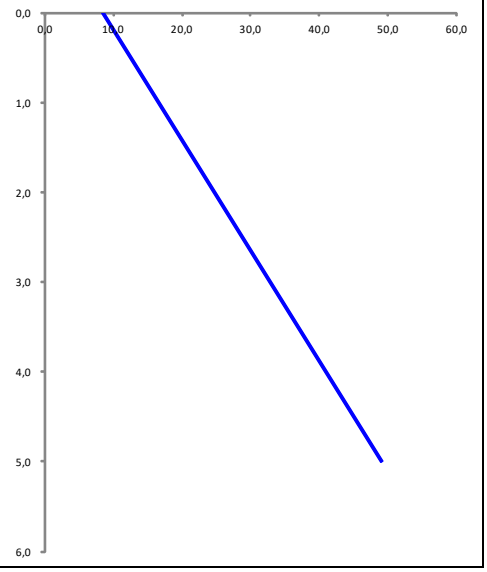
PRESSIONI DI PROGETTO CONDIZIONI STATICHE **SLE**

STRATO	z_{sup} / z_{inf} [m]	k_{hd} [-]	Tensione verticale litostatica σ_{vd} [kN/m²]	σ_{hd} Terreno [kN/m²]	σ_{hd} Sovraccarichi permanenti strutturali [kN/m²]	σ_{hd} Sovraccarichi permanenti non strutturali [kN/m²]	σ_{hd} Sovraccarichi variabili [kN/m²]	**Pressione orizzontale totale di progetto σ_{hdtot} [kN/m²]**
1	0,00	0,43	0,0	0,00	0,00	0,00	8,53	**8,53**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
2	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
3	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
4	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
5	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
6	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
7	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
8	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
9	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
10	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**



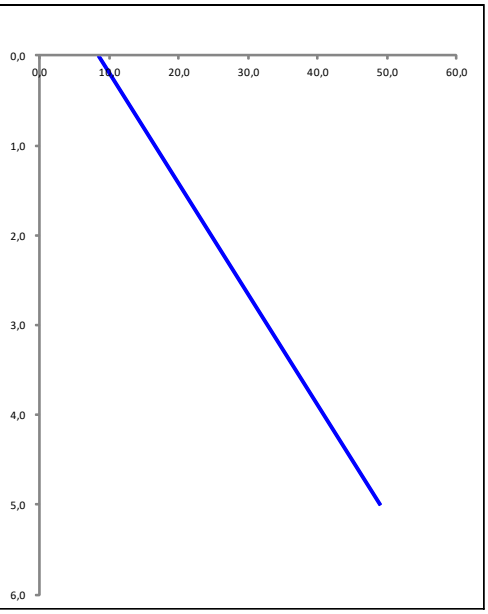
PRESSIONI DI PROGETTO CONDIZIONI STATICHE **SLU APPROCCIO 1 - COMBINAZIONE 1 E APPROCCIO 2**

STRATO	z_{sup} / z_{inf} [m]	k_{hd} [-]	Tensione verticale litostatica σ_{vd} [kN/m²]	σ_{hd} Terreno [kN/m²]	σ_{hd} Sovraccarichi permanenti strutturali [kN/m²]	σ_{hd} Sovraccarichi permanenti non strutturali [kN/m²]	σ_{hd} Sovraccarichi variabili [kN/m²]	**Pressione orizzontale totale di progetto σ_{hdtot} [kN/m²]**
1	0,00	0,43	0,0	0,00	0,00	0,00	12,79	**12,79**
	5,00		95,0	52,66	0,00	0,00	12,79	**65,46**
2	5,00	0,43	95,0	52,66	0,00	0,00	12,79	**65,46**
	5,00		95,0	52,66	0,00	0,00	12,79	**65,46**
3	5,00	0,43	95,0	52,66	0,00	0,00	12,79	**65,46**
	5,00		95,0	52,66	0,00	0,00	12,79	**65,46**
4	5,00	0,43	95,0	52,66	0,00	0,00	12,79	**65,46**
	5,00		95,0	52,66	0,00	0,00	12,79	**65,46**
5	5,00	0,43	95,0	52,66	0,00	0,00	12,79	**65,46**
	5,00		95,0	52,66	0,00	0,00	12,79	**65,46**
6	5,00	0,43	95,0	52,66	0,00	0,00	12,79	**65,46**
	5,00		95,0	52,66	0,00	0,00	12,79	**65,46**
7	5,00	0,43	95,0	52,66	0,00	0,00	12,79	**65,46**
	5,00		95,0	52,66	0,00	0,00	12,79	**65,46**
8	5,00	0,43	95,0	52,66	0,00	0,00	12,79	**65,46**
	5,00		95,0	52,66	0,00	0,00	12,79	**65,46**
9	5,00	0,43	95,0	52,66	0,00	0,00	12,79	**65,46**
	5,00		95,0	52,66	0,00	0,00	12,79	**65,46**
10	5,00	0,43	95,0	52,66	0,00	0,00	12,79	**65,46**
	5,00		95,0	52,66	0,00	0,00	12,79	**65,46**



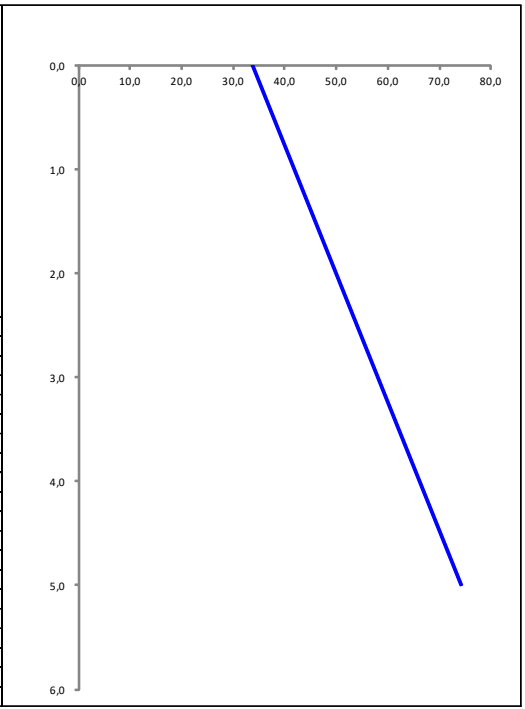
PRESSIONI DI PROGETTO CONDIZIONI STATICHE **SLU APPROCCIO 1 - COMBINAZIONE 2**

STRATO	z_{sup} / z_{inf} [m]	k_{hd} [-]	Tensione verticale litostatica σ_{vd} [kN/m²]	σ_{hd} Terreno [kN/m²]	σ_{hd} Sovraccarichi permanenti strutturali [kN/m²]	σ_{hd} Sovraccarichi permanenti non strutturali [kN/m²]	σ_{hd} Sovraccarichi variabili [kN/m²]	**Pressione orizzontale totale di progetto $\sigma_{hd,tot}$ [kN/m²]**
1	0,00	0,51	0,0	0,00	0,00	0,00	13,29	**13,29**
	5,00		95,0	48,57	0,00	0,00	13,29	**61,87**
2	5,00	0,51	95,0	48,57	0,00	0,00	13,29	**61,87**
	5,00		95,0	48,57	0,00	0,00	13,29	**61,87**
3	5,00	0,51	95,0	48,57	0,00	0,00	13,29	**61,87**
	5,00		95,0	48,57	0,00	0,00	13,29	**61,87**
4	5,00	0,51	95,0	48,57	0,00	0,00	13,29	**61,87**
	5,00		95,0	48,57	0,00	0,00	13,29	**61,87**
5	5,00	0,51	95,0	48,57	0,00	0,00	13,29	**61,87**
	5,00		95,0	48,57	0,00	0,00	13,29	**61,87**
6	5,00	0,51	95,0	48,57	0,00	0,00	13,29	**61,87**
	5,00		95,0	48,57	0,00	0,00	13,29	**61,87**
7	5,00	0,51	95,0	48,57	0,00	0,00	13,29	**61,87**
	5,00		95,0	48,57	0,00	0,00	13,29	**61,87**
8	5,00	0,51	95,0	48,57	0,00	0,00	13,29	**61,87**
	5,00		95,0	48,57	0,00	0,00	13,29	**61,87**
9	5,00	0,51	95,0	48,57	0,00	0,00	13,29	**61,87**
	5,00		95,0	48,57	0,00	0,00	13,29	**61,87**
10	5,00	0,51	95,0	48,57	0,00	0,00	13,29	**61,87**
	5,00		95,0	48,57	0,00	0,00	13,29	**61,87**



PRESSIONI DI PROGETTO CONDIZIONI SISMICHE **SLV**

STRATO	z_{sup} / z_{inf} [m]	k_{hd} [-]	Tensione verticale litostatica σ_{vd} [kN/m²]	σ_{hd} Terreno [kN/m²]	σ_{hd} Sovraccarichi permanenti strutturali [kN/m²]	σ_{hd} Sovraccarichi permanenti non strutturali [kN/m²]	σ_{hd} Sovraccarichi variabili [kN/m²]	Pressione della forza d'inerzia agente sul paramento [kN/m²]	Pressione dell'incremento sismico di spinta [kN/m²]	Pressione incremento sismico spinta sovraccarichi permanenti strutturali [kN/m²]	Pressione incremento sismico spinta sovraccarichi permanenti non strutturali [kN/m²]	Pressione incremento sismico spinta sovraccarichi variabili [kN/m²]	**Pressione orizzontale totale di progetto $\sigma_{hd,tot}$ [kN/m²]**
1	0,00	0,43	0,0	0,00	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**33,83**
	5,00		95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
2	5,00	0,43	95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
	5,00		95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
3	5,00	0,43	95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
	5,00		95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
4	5,00	0,43	95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
	5,00		95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
5	5,00	0,43	95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
	5,00		95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
6	5,00	0,43	95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
	5,00		95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
7	5,00	0,43	95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
	5,00		95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
8	5,00	0,43	95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
	5,00		95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
9	5,00	0,43	95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
	5,00		95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
10	5,00	0,43	95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
	5,00		95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**



5.4 CRITERI DI CALCOLO DELLE AZIONI SISMICHE

Le azioni sismiche di progetto, in base alle quali valutare i diversi stati limite considerati, si definiscono a partire dalla "pericolosità sismica di base" del sito di costruzione.

Tutti i parametri che definiscono tale caratterizzazione dipendono dalla probabilità di superamento PVR dell'evento sismico nel periodo di riferimento VR.

Per il progetto in essere, in accordo con la committenza, sono stati scelti i seguenti valori dei parametri di progetto relativi alla tipologia e all'uso a cui le strutture sono destinate:

Vita nominale V_N = 50 anni

Classe d'uso II (coefficiente d'uso C_U = 1)

Periodo di riferimento per l'azione sismica $V_R = V_N \times C_U = 50 \times 1 = 50$ anni

Gli stati limite rispetto ai quali effettuare le verifiche sono:

STATI LIMITE DI ESERCIZIO (SLE)

SLO – Stato limite di operatività

SLD – Stato limite di danno

STATI LIMITE ULTIMI (SLU)

SLV – Stato limite di salvaguardia della vita

SLC – Stato limite di collasso

Per costruzioni di classe d'uso II le verifiche possono essere limitate ai soli SLD e SLV.

Per gli scopi progettuali l'azione sismica viene definita mediante forme spettrali dipendenti da tre parametri a loro volta funzione della localizzazione geografica del sito e del periodo di ritorno considerato:

a_g – Accelerazione massima orizzontale al sito

F_0 – Valore massimo del fattore di amplificazione dello spettro in accelerazione orizzontale

T^*_C – Periodo di inizio del tratto a velocità costante dello spettro in accelerazione orizzontale

Nel caso in esame, per un periodo di ritorno pari a 475 anni (relativo allo stato SLV) risulta:

a_g = 0.0485 g

F_0 = 2.815

T^*_C = 0.275 s

Dal punto di vista sismico il suolo di fondazione è classificabile come di tipo "C".

L'amplificazione stratigrafica è descritta mediante i coefficienti S_S e S_T che assumono i seguenti valori:

S_S = 1.432

S_T = 1.0 (categoria T1 - superfici pianeggianti, pendii e rilievi isolati con pendenza < 15%)

Pertanto risulta:

$S = S_S \times S_T = 1.432 \times 1.0 = 1.432$

Lo spettro di progetto coincide con quello elastico dal momento che le strutture vengono considerate non dissipative. Pertanto il fattore di struttura impiegato nelle analisi risulta:

q= 1.00, fattore di struttura.

6. CONDIZIONI E COMBINAZIONI DI CARICO

6.1 CONDIZIONI DI CARICO

Con riferimento al D.M. 17 gennaio 2018 le condizioni di carico prese in considerazione saranno le seguenti:

Descrizione	Nome breve	Durata	Psi0	Psi1	Psi2
Pesi strutturali	Pesi	Permanente			
Permanenti portati	Port.	Permanente			
Variabile traffico	Variabile traffico	Media	0.75	0.75	0
Spinta terreno A1-M1	Spinta terreno A1-M1	Permanente	1	1	1
Spinta terreno A2-M2	Spinta terreno A2-M2	Permanente	1	1	1
Sovr accidentale A1-M1	Sovr accidentale A1-M1	Media	0.7	0.5	0.3
Sovr accidentale A2-M2	Sovr accidentale A2-M2	Media	0.7	0.5	0.3
Sisma terreno Y sx	Sisma terreno Y sx	Istantaneo	0	0	0
Sisma terreno Y dx	Sisma terreno Y dx	Istantaneo	0	0	0
Frenatura	Frenatura	Media	0	0	0
ΔT	ΔT	Media	0.6	0.5	0
Sisma X SLV	X SLV				
Sisma Y SLV	Y SLV				
Sisma Z SLV	Z SLV				
Eccentricità Y per sisma X SLV	EY SLV				
Eccentricità X per sisma Y SLV	EX SLV				
Sisma X SLD	X SLD				
Sisma Y SLD	Y SLD				
Sisma Z SLD	Z SLD				
Eccentricità Y per sisma X SLD	EY SLD				
Eccentricità X per sisma Y SLD	EX SLD				
Terreno sisma X SLV	Tr x SLV				
Terreno sisma Y SLV	Tr y SLV				
Terreno sisma Z SLV	Tr z SLV				
Terreno sisma X SLD	Tr x SLD				
Terreno sisma Y SLD	Tr y SLD				
Terreno sisma Z SLD	Tr z SLD				
Rig. Ux	R Ux				
Rig. Uy	R Uy				
Rig. Rz	R Rz				

Una rappresentazione grafica dei carichi agenti per ciascuna delle singole condizioni è fornita ai paragrafi successivi.

6.2 COMBINAZIONI DI CARICO

Le combinazioni di carico da considerare ai fini delle verifiche sono state elaborate tenendo conto di quanto riportato nel D.M.17 gennaio 2018.

- Combinazione fondamentale, generalmente impiegata per gli stati limite ultimi (SLU):

$$\gamma_{G1}\cdot G_1 + \gamma_{G2}\cdot G_2 + \gamma_P\cdot P + \gamma_{Q1}\cdot Q_{k1} + \gamma_{Q2}\cdot\psi_{02}\cdot Q_{k2} + \gamma_{Q3}\cdot\psi_{03}\cdot Q_{k3} + \ldots$$

- Combinazione caratteristica (rara), generalmente impiegata per gli stati limite di esercizio (SLE) irreversibili:

$$G_1 + G_2 + P + Q_{k1} + \Psi_{02}\times Q_{k2} + \Psi_{03}\times Q_{k3} + \ldots$$

- Combinazione frequente, generalmente impiegata per gli stati limite di esercizio (SLE) reversibili:

$$G_1 + G_2 + P + \psi_{11}\cdot Q_{k1} + \psi_{22}\cdot Q_{k2} + \psi_{23}\cdot Q_{k3} + \ldots$$

- Combinazione quasi permanente (SLE), generalmente impiegata per gli effetti a lungo termine:

$$G_1 + G_2 + P + \psi_{21}\cdot Q_{k1} + \psi_{22}\cdot Q_{k2} + \psi_{23}\cdot Q_{k3} + \ldots$$

- Combinazione sismica, impiegata per gli stati limite ultimi e di esercizio connessi all'azione sismica E:

$$E + G_1 + G_2 + P + \Psi_{21}\times Q_{k1} + \Psi_{22}\times Q_{k2} + \ldots$$

γ_{G1} coefficiente parziale del peso proprio della struttura, del terreno e dell'acqua, quando pertinente;

γ_{G2} coefficiente parziale dei pesi propri degli elementi non strutturali;

γ_Q coefficiente parziale delle azioni variabili da traffico;

γ_{Qi} coefficiente parziale delle azioni variabili.

Il coefficiente parziale della precompressione si assume pari a $\gamma_P=1$

I valori dei coefficienti parziali di sicurezza sono riportati nelle tabelle seguenti.

Famiglia SLU

Nome	Nome breve	Pesi	Port.	Variabile traffico	Spinta terreno A1-M1	Spinta terreno A2-M2	Sovr accidentale A1-M1	Sovr accidentale A2-M2	Sisma terreno Y sx	Sisma terreno Y dx	Frenatura	ΔT
1	SLU 1	1.35	1.5	1.35	1.35	0	1.35	0	0	0	0	1.2
2	SLU 2	1.35	1.5	1.35	1.35	0	1.35	0	0	0	0	-1.2
3	SLU 3	1.35	1.5	1.35	1.35	0	1.35	0	0	0	1.2	1.2
4	SLU 4	1.35	1.5	1.35	1.35	0	1.35	0	0	0	1.2	-1.2
5	SLU 5	1	1.3	1.15	0	1	0	1	0	0	0	1
6	SLU 6	1	1.3	1.15	0	1	0	1	0	0	0	-1
7	SLU 7	1	1.3	1.15	0	1	0	1	0	0	1.15	1
8	SLU 8	1	1.3	1.15	0	1	0	1	0	0	1.15	-1
9	SLU 9	1.35	1.5	0.75	1.35	0	1.35	0	0	0	0	1.2

Nome	Nome breve	Pesi	Port.	Variabile traffico	Spinta terreno A1-M1	Spinta terreno A2-M2	Sovr accidentale A1-M1	Sovr accidentale A2-M2	Sisma terreno Y sx	Sisma terreno Y dx	Frenatura	ΔT
10	SLU 10	1.35	1.5	0.75	1.35	0	1.35	0	0	0	0	-1.2
11	SLU 11	1.35	1.5	0.75	1.35	0	1.35	0	0	0	1.2	1.2
12	SLU 12	1.35	1.5	0.75	1.35	0	1.35	0	0	0	1.2	-1.2
13	SLU 13	1	1.3	0.75	0	1	0	1	0	0	0	1
14	SLU 14	1	1.3	0.75	0	1	0	1	0	0	0	-1
15	SLU 15	1	1.3	0.75	0	1	0	1	0	0	1.15	1
16	SLU 16	1	1.3	0.75	0	1	0	1	0	0	1.15	-1
17	SLU 17	1.35	1.5	1.35	1.35	0	0.75	0	0	0	0	1.2
18	SLU 18	1.35	1.5	1.35	1.35	0	0.75	0	0	0	0	-1.2
19	SLU 19	1.35	1.5	1.35	1.35	0	0.75	0	0	0	1.2	1.2
20	SLU 20	1.35	1.5	1.35	1.35	0	0.75	0	0	0	1.2	-1.2
21	SLU 21	1	1.3	1.15	0	1	0	0.75	0	0	0	1
22	SLU 22	1	1.3	1.15	0	1	0	0.75	0	0	0	-1
23	SLU 23	1	1.3	1.15	0	1	0	0.75	0	0	1.15	1
24	SLU 24	1	1.3	1.15	0	1	0	0.75	0	0	1.15	-1
25	SLU 25	1.35	1.5	1.013	1.35	0	1.35	0	0	0	0	1.2
26	SLU 26	1.35	1.5	1.013	1.35	0	1.35	0	0	0	0	-1.2
27	SLU 27	1.35	1.5	1.013	1.35	0	1.35	0	0	0	1.2	1.2
28	SLU 28	1.35	1.5	1.013	1.35	0	1.35	0	0	0	1.2	-1.2
29	SLU 29	1	1.3	1.013	0	1	0	1	0	0	0	1
30	SLU 30	1	1.3	1.013	0	1	0	1	0	0	0	-1
31	SLU 31	1	1.3	1.013	0	1	0	1	0	0	1.15	1
32	SLU 32	1	1.3	1.013	0	1	0	1	0	0	1.15	-1
33	SLU 33	1.35	1.5	1.35	1.35	0	1.013	0	0	0	0	1.2
34	SLU 34	1.35	1.5	1.35	1.35	0	1.013	0	0	0	0	-1.2
35	SLU 35	1.35	1.5	1.35	1.35	0	1.013	0	0	0	1.2	1.2
36	SLU 36	1.35	1.5	1.35	1.35	0	1.013	0	0	0	1.2	-1.2
37	SLU 37	1	1.3	1.15	0	1	0	0.75	0	0	0	1
38	SLU 38	1	1.3	1.15	0	1	0	0.75	0	0	0	-1
39	SLU 39	1	1.3	1.15	0	1	0	0.75	0	0	1.15	1
40	SLU 40	1	1.3	1.15	0	1	0	0.75	0	0	1.15	-1

Famiglia SLE rara

Nome	Nome breve	Pesi	Port.	Variabile traffico	Spinta terreno A1-M1	Spinta terreno A2-M2	Sovr accidentale A1-M1	Sovr accidentale A2-M2	Sisma terreno Y sx	Sisma terreno Y dx	Frenatura	ΔT
1	SLE RA 1	1	1	1.35	1	0	1.35	0	0	0	0	0
2	SLE RA 2	1	1	1.35	1	0	1.35	0	0	0	0	0
3	SLE RA 3	1	1	1.35	1	0	1.35	0	0	0	0	0
4	SLE RA 4	1	1	1.35	0	1	0	1.15	0	0	0	0
5	SLE RA 5	1	1	1.35	0	1	0	1.15	0	0	0	0
6	SLE RA 6	1	1	1.35	0	1	0	1.15	0	0	0	0
7	SLE RA 7	1	1	1.35	1	0	1.013	0	0	0	0	0
8	SLE RA 8	1	1	1.35	1	0	1.013	0	0	0	0	0
9	SLE RA 9	1	1	1.35	1	0	1.013	0	0	0	0	0
10	SLE RA 10	1	1	1.35	0	1	0	0.863	0	0	0	0
11	SLE RA 11	1	1	1.35	0	1	0	0.863	0	0	0	0
12	SLE RA 12	1	1	1.35	0	1	0	0.863	0	0	0	0
13	SLE RA 13	1	1	1.013	1	0	1.35	0	0	0	0	0
14	SLE RA 14	1	1	1.013	1	0	1.35	0	0	0	0	0
15	SLE RA 15	1	1	1.013	1	0	1.35	0	0	0	0	0
16	SLE RA 16	1	1	1.013	0	1	0	1.15	0	0	0	0
17	SLE RA 17	1	1	1.013	0	1	0	1.15	0	0	0	0
18	SLE RA 18	1	1	1.013	0	1	0	1.15	0	0	0	0

Famiglia SLE frequente

Nome	Nome breve	Pesi	Port.	Variabile traffico	Spinta terreno A1-M1	Spinta terreno A2-M2	Sovr accidentale A1-M1	Sovr accidentale A2-M2	Sisma terreno Y sx	Sisma terreno Y dx	Frenatura	ΔT
1	SLE FR 1	1	1	0	0	0	0	0	0	0	0	0
2	SLE FR 2	1	1	0	0	0	0	0	0	0	0	0.5
3	SLE FR 3	1	1	0	0	0	0	0.3	0	0	0	0.5
4	SLE FR 4	1	1	0	0	0	0	0.5	0	0	0	0
5	SLE FR 5	1	1	0	0	0	0.3	0	0	0	0	0.5
6	SLE FR 6	1	1	0	0	0	0.5	0	0	0	0	0
7	SLE FR 7	1	1	0	0	1	0	0	0	0	0	0

Nome	Nome breve	Pesi	Port.	Variabile traffico	Spinta terreno A1-M1	Spinta terreno A2-M2	Sovr accidentale A1-M1	Sovr accidentale A2-M2	Sisma terreno Y sx	Sisma terreno Y dx	Frenatura	ΔT
8	SLE FR 8	1	1	0	0	1	0	0.3	0	0	0	0
9	SLE FR 9	1	1	0	0	1	0.3	0	0	0	0	0
10	SLE FR 10	1	1	0	1	0	0	0	0	0	0	0
11	SLE FR 11	1	1	0	1	0	0.3	0	0	0	0	0
12	SLE FR 12	1	1	0.75	0	0	0	0	0	0	0	0
13	SLE FR 13	1	1	0.75	0	0	0	0.3	0	0	0	0
14	SLE FR 14	1	1	0.75	0	0	0.3	0	0	0	0	0

Famiglia SLE quasi permanente

Nome	Nome breve	Pesi	Port.	Variabile traffico	Spinta terreno A1-M1	Spinta terreno A2-M2	Sovr accidentale A1-M1	Sovr accidentale A2-M2	Sisma terreno Y sx	Sisma terreno Y dx	Frenatura	ΔT
1	SLE QP 1	1	1	0	0	0	0	0	0	0	0	0
2	SLE QP 2	1	1	0	0	0	0	0.3	0	0	0	0
3	SLE QP 3	1	1	0	0	0	0.3	0	0	0	0	0
4	SLE QP 4	1	1	0	0	1	0	0	0	0	0	0
5	SLE QP 5	1	1	0	0	1	0	0.3	0	0	0	0
6	SLE QP 6	1	1	0	0	1	0.3	0	0	0	0	0
7	SLE QP 7	1	1	0	1	0	0	0	0	0	0	0
8	SLE QP 8	1	1	0	1	0	0.3	0	0	0	0	0

Famiglia SLV

Poiché il numero di condizioni elementari previste per le combinazioni di questa famiglia è cospicuo, la tabella verrà spezzata in più parti.

Nome	Nome breve	Pesi	Port.	Variabile traffico	Spinta terreno A1-M1	Spinta terreno A2-M2	Sovr accidentale A1-M1	Sovr accidentale A2-M2	Sisma terreno Y sx	Sisma terreno Y dx	Frenatura
1	SLV 1	1	1	0	0	1	0	0.3	1	1	0
2	SLV 2	1	1	0	0	1	0	0.3	1	1	0
3	SLV 3	1	1	0	0	1	0	0.3	1	1	0
4	SLV 4	1	1	0	0	1	0	0.3	1	1	0
5	SLV 5	1	1	0	0	1	0	0.3	1	1	0
6	SLV 6	1	1	0	0	1	0	0.3	1	1	0
7	SLV 7	1	1	0	0	1	0	0.3	1	1	0
8	SLV 8	1	1	0	0	1	0	0.3	1	1	0
9	SLV 9	1	1	0	0	1	0	0.3	1	1	0
10	SLV 10	1	1	0	0	1	0	0.3	1	1	0
11	SLV 11	1	1	0	0	1	0	0.3	1	1	0
12	SLV 12	1	1	0	0	1	0	0.3	1	1	0
13	SLV 13	1	1	0	0	1	0	0.3	1	1	0
14	SLV 14	1	1	0	0	1	0	0.3	1	1	0
15	SLV 15	1	1	0	0	1	0	0.3	1	1	0
16	SLV 16	1	1	0	0	1	0	0.3	1	1	0
17	SLV 17	1	1	0	0	1	0.3	0	1	1	0
18	SLV 18	1	1	0	0	1	0.3	0	1	1	0
19	SLV 19	1	1	0	0	1	0.3	0	1	1	0
20	SLV 20	1	1	0	0	1	0.3	0	1	1	0
21	SLV 21	1	1	0	0	1	0.3	0	1	1	0
22	SLV 22	1	1	0	0	1	0.3	0	1	1	0
23	SLV 23	1	1	0	0	1	0.3	0	1	1	0
24	SLV 24	1	1	0	0	1	0.3	0	1	1	0
25	SLV 25	1	1	0	0	1	0.3	0	1	1	0
26	SLV 26	1	1	0	0	1	0.3	0	1	1	0
27	SLV 27	1	1	0	0	1	0.3	0	1	1	0
28	SLV 28	1	1	0	0	1	0.3	0	1	1	0
29	SLV 29	1	1	0	0	1	0.3	0	1	1	0
30	SLV 30	1	1	0	0	1	0.3	0	1	1	0
31	SLV 31	1	1	0	0	1	0.3	0	1	1	0
32	SLV 32	1	1	0	0	1	0.3	0	1	1	0
33	SLV 33	1	1	0	1	0	0.3	0	1	1	0
34	SLV 34	1	1	0	1	0	0.3	0	1	1	0
35	SLV 35	1	1	0	1	0	0.3	0	1	1	0

Nome	Nome breve	Pesi	Port.	Variabile traffico	Spinta terreno A1-M1	Spinta terreno A2-M2	Sovr accidentale A1-M1	Sovr accidentale A2-M2	Sisma terreno Y sx	Sisma terreno Y dx	Frenatura
36	SLV 36	1	1	0	1	0	0.3	0	1	1	0
37	SLV 37	1	1	0	1	0	0.3	0	1	1	0
38	SLV 38	1	1	0	1	0	0.3	0	1	1	0
39	SLV 39	1	1	0	1	0	0.3	0	1	1	0
40	SLV 40	1	1	0	1	0	0.3	0	1	1	0
41	SLV 41	1	1	0	1	0	0.3	0	1	1	0
42	SLV 42	1	1	0	1	0	0.3	0	1	1	0
43	SLV 43	1	1	0	1	0	0.3	0	1	1	0
44	SLV 44	1	1	0	1	0	0.3	0	1	1	0
45	SLV 45	1	1	0	1	0	0.3	0	1	1	0
46	SLV 46	1	1	0	1	0	0.3	0	1	1	0
47	SLV 47	1	1	0	1	0	0.3	0	1	1	0
48	SLV 48	1	1	0	1	0	0.3	0	1	1	0

Nome	Nome breve	ΔT	X SLV	Y SLV	Z SLV	EY SLV	EX SLV	Tr x SLV	Tr y SLV	Tr z SLV
1	SLV 1	0	-1	-0.3	0	-1	0.3	-1	-0.3	0
2	SLV 2	0	-1	-0.3	0	1	-0.3	-1	-0.3	0
3	SLV 3	0	-1	0.3	0	-1	0.3	-1	0.3	0
4	SLV 4	0	-1	0.3	0	1	-0.3	-1	0.3	0
5	SLV 5	0	-0.3	-1	0	-0.3	1	-0.3	-1	0
6	SLV 6	0	-0.3	-1	0	0.3	-1	-0.3	-1	0
7	SLV 7	0	-0.3	1	0	-0.3	1	-0.3	1	0
8	SLV 8	0	-0.3	1	0	0.3	-1	-0.3	1	0
9	SLV 9	0	0.3	-1	0	-0.3	1	0.3	-1	0
10	SLV 10	0	0.3	-1	0	0.3	-1	0.3	-1	0
11	SLV 11	0	0.3	1	0	-0.3	1	0.3	1	0
12	SLV 12	0	0.3	1	0	0.3	-1	0.3	1	0
13	SLV 13	0	1	-0.3	0	-1	0.3	1	-0.3	0
14	SLV 14	0	1	-0.3	0	1	-0.3	1	-0.3	0
15	SLV 15	0	1	0.3	0	-1	0.3	1	0.3	0
16	SLV 16	0	1	0.3	0	1	-0.3	1	0.3	0
17	SLV 17	0	-1	-0.3	0	-1	0.3	-1	-0.3	0
18	SLV 18	0	-1	-0.3	0	1	-0.3	-1	-0.3	0
19	SLV 19	0	-1	0.3	0	-1	0.3	-1	0.3	0
20	SLV 20	0	-1	0.3	0	1	-0.3	-1	0.3	0
21	SLV 21	0	-0.3	-1	0	-0.3	1	-0.3	-1	0
22	SLV 22	0	-0.3	-1	0	0.3	-1	-0.3	-1	0
23	SLV 23	0	-0.3	1	0	-0.3	1	-0.3	1	0
24	SLV 24	0	-0.3	1	0	0.3	-1	-0.3	1	0
25	SLV 25	0	0.3	-1	0	-0.3	1	0.3	-1	0
26	SLV 26	0	0.3	-1	0	0.3	-1	0.3	-1	0
27	SLV 27	0	0.3	1	0	-0.3	1	0.3	1	0
28	SLV 28	0	0.3	1	0	0.3	-1	0.3	1	0
29	SLV 29	0	1	-0.3	0	-1	0.3	1	-0.3	0
30	SLV 30	0	1	-0.3	0	1	-0.3	1	-0.3	0
31	SLV 31	0	1	0.3	0	-1	0.3	1	0.3	0
32	SLV 32	0	1	0.3	0	1	-0.3	1	0.3	0
33	SLV 33	0	-1	-0.3	0	-1	0.3	-1	-0.3	0
34	SLV 34	0	-1	-0.3	0	1	-0.3	-1	-0.3	0
35	SLV 35	0	-1	0.3	0	-1	0.3	-1	0.3	0
36	SLV 36	0	-1	0.3	0	1	-0.3	-1	0.3	0
37	SLV 37	0	-0.3	-1	0	-0.3	1	-0.3	-1	0
38	SLV 38	0	-0.3	-1	0	0.3	-1	-0.3	-1	0
39	SLV 39	0	-0.3	1	0	-0.3	1	-0.3	1	0
40	SLV 40	0	-0.3	1	0	0.3	-1	-0.3	1	0
41	SLV 41	0	0.3	-1	0	-0.3	1	0.3	-1	0
42	SLV 42	0	0.3	-1	0	0.3	-1	0.3	-1	0
43	SLV 43	0	0.3	1	0	-0.3	1	0.3	1	0
44	SLV 44	0	0.3	1	0	0.3	-1	0.3	1	0
45	SLV 45	0	1	-0.3	0	-1	0.3	1	-0.3	0
46	SLV 46	0	1	-0.3	0	1	-0.3	1	-0.3	0
47	SLV 47	0	1	0.3	0	-1	0.3	1	0.3	0
48	SLV 48	0	1	0.3	0	1	-0.3	1	0.3	0

7. RISULTATI DELL'ANALISI

La struttura è stata modellata con analisi agli elementi finiti (FEM), mediante il software Sismicad 12.13 della Concrete.

Si riportano di seguito i risultati della modellazione ed i dati di input utilizzati.

7.1 MODELLAZIONE: INPUT

Si riportano di seguito i dati di input del modello di calcolo.

1 Dati generali
1.1 Materiali
1.1.1 Materiali c.a.
Descrizione: descrizione o nome assegnato all'elemento.
Rck: resistenza caratteristica cubica; valore medio nel caso di edificio esistente. [kN/m²]
E: modulo di elasticità longitudinale del materiale per edifici o materiali nuovi. [kN/m²]
G: modulo di elasticità tangenziale del materiale, viene impiegato nella modellazione di aste e di elementi guscio a comportamento ortotropo. [kN/m²]
Poisson: coefficiente di Poisson. Il valore è adimensionale.
γ: peso specifico del materiale. [kN/m³]
α: coefficiente longitudinale di dilatazione termica. [°C-1]

Descrizione	Rck	E	G	Poisson	γ	α
C32/40	40000	33642778	Default (15292172)	0.1	25	0.00001

1.1.2 Curve di materiali c.a.
Descrizione: descrizione o nome assegnato all'elemento.
Curva: curva caratteristica.
Reaz.traz.: reagisce a trazione.
Comp.frag.: ha comportamento fragile.
E.compr.: modulo di elasticità a compressione. [kN/m²]
Incr.compr.: incrudimento di compressione. Il valore è adimensionale.
EpsEc: ε elastico a compressione. Il valore è adimensionale.
EpsUc: ε ultimo a compressione. Il valore è adimensionale.
E.traz.: modulo di elasticità a trazione. [kN/m²]
Incr.traz.: incrudimento di trazione. Il valore è adimensionale.
EpsEt: ε elastico a trazione. Il valore è adimensionale.
EpsUt: ε ultimo a trazione. Il valore è adimensionale.

Descrizione	Curva									
	Reaz.traz.	Comp.frag.	E.compr.	Incr.compr.	EpsEc	EpsUc	E.traz.	Incr.traz.	EpsEt	EpsUt
C32/40	No	Si	33642778	0.001	-0.002	-0.0035	33642778	0.001	0.0000645	0.0000709

1.1.3 Armature
Descrizione: descrizione o nome assegnato all'elemento.
fyk: resistenza caratteristica. [kN/m²]
σamm.: tensione ammissibile. [kN/m²]
Tipo: tipo di barra.
E: modulo di elasticità longitudinale del materiale per edifici o materiali nuovi. [kN/m²]
γ: peso specifico del materiale. [kN/m³]
Poisson: coefficiente di Poisson. Il valore è adimensionale.
α: coefficiente longitudinale di dilatazione termica. [°C-1]

Livello di conoscenza: indica se il materiale è nuovo o esistente, e in tal caso il livello di conoscenza secondo Circ. 02/02/09 n. 617 §C8A. Informazione impiegata solo in analisi D.M. 14-01-08 (N.T.C.).

Descrizione	fyk	σamm.	Tipo	E	γ	Poisson	α	Livello di conoscenza
B450C_1	450000	255000	Aderenza migliorata	206000000	78.5	0.3	0.000012	Nuovo

1.2 Sezioni

1.2.1 Sezioni C.A.

1.2.1.1 Sezioni rettangolari C.A.

Descrizione: descrizione o nome assegnato all'elemento.
Area Tx FEM: area di taglio in direzione X per l'analisi FEM. [m²]
Area Ty FEM: area di taglio in direzione Y per l'analisi FEM. [m²]
JxFEM: momento di inerzia attorno all'asse X per l'analisi FEM. [m4]
JyFEM: momento di inerzia attorno all'asse Y per l'analisi FEM. [m4]
JtFEM: momento d'inerzia torsionale corretto con il fattore di forma per l'analisi FEM. [m4]
H: altezza della sezione. [m]
B: larghezza della sezione. [m]
c.s.: copriferro superiore della sezione. [m]
c.i.: copriferro inferiore della sezione. [m]
c.l.: copriferro laterale della sezione. [m]

Descrizione	Area Tx FEM	Area Ty FEM	JxFEM	JyFEM	JtFEM	H	B	c.s.	c.i.	c.l.
R 100x50	0.416667	0.416667	1.042E-02	4.167E-02	2.854E-02	0.5	1	0.04	0.04	0.04
R 50x100	0.416667	0.416667	4.167E-02	1.042E-02	2.854E-02	1	0.5	0.05	0.05	0.05
R 100x60	0.5	0.5	0.018	0.05	0.044784	0.6	1	0.05	0.05	0.05

1.2.1.2 Caratteristiche inerziali sezioni C.A.

Descrizione: descrizione o nome assegnato all'elemento.
Xg: ascissa del baricentro definita rispetto al sistema geometrico in cui sono definiti i vertici del poligono. [m]
Yg: ordinata del baricentro definita rispetto al sistema geometrico in cui sono definiti i vertici del poligono. [m]
Area: area inerziale nel sistema geometrico centrato nel baricentro. [m²]
Jx: momento d'inerzia attorno all'asse orizzontale baricentrico di definizione della sezione. [m4]
Jy: momento d'inerzia attorno all'asse verticale baricentrico di definizione della sezione. [m4]
Jxy: momento centrifugo rispetto al sistema di riferimento baricentrico di definizione della sezione. [m4]
Jm: momento d'inerzia attorno all'asse baricentrico principale M. [m4]
Jn: momento d'inerzia attorno all'asse baricentrico principale N. [m4]
Alfa: angolo tra gli assi del sistema di riferimento geometrico di definizione e quelli del sistema di riferimento principale. [deg]
Area Tx FEM: area di taglio in direzione X per l'analisi FEM. [m²]
Area Ty FEM: area di taglio in direzione Y per l'analisi FEM. [m²]
JxFEM: momento di inerzia attorno all'asse X per l'analisi FEM. [m4]
JyFEM: momento di inerzia attorno all'asse Y per l'analisi FEM. [m4]
JtFEM: momento d'inerzia torsionale corretto con il fattore di forma per l'analisi FEM. [m4]

Descrizione	Xg	Yg	Area	Jx	Jy	Jxy	Jm	Jn	Alfa	Area Tx FEM	Area Ty FEM	JxFEM	JyFEM	JtFEM
R 100x50	0.5	0.25	0.5	1.0E-2	4.2E-2	0	1.0E-2	4.2E-2	0	0.416667	0.416667	1.04E-02	4.17E-02	2.85E-02
R 50x100	0.25	0.5	0.5	4.2E-2	1.0E-2	0	4.2E-2	1.0E-2	0	0.416667	0.416667	4.17E-02	1.04E-02	2.85E-02
R 100x60	0.5	0.3	0.6	0.018	0.05	0	0.018	0.05	0	0.5	0.5	0.018	0.05	0.044784

2 Preferenze commessa

2.1 Preferenze di analisi

Metodo di analisi	D.M. 17-01-18 (N.T.C.)	
Tipo di costruzione	2 - Costruzioni con livelli di prestazioni ordinari	
Vn	50	
Classe d'uso	II	
Vr	50	
Tipo di analisi	Lineare dinamica	
Località	Livorno, Piombino, Colmata; Latitudine ED50 42,9672° (42° 58' 2''); Longitudine ED50 10,5547° (10° 33' 17''); Altitudine s.l.m. 1,83 m.	
Categoria del suolo	C - Depositi di terreni a grana grossa mediamente addensati o terreni a grana fina mediamente consistenti	
Categoria topografica	T1 - Superficie pianeggiante, pendii e rilievi isolati con inclinazione media i<=15°	
Ss orizzontale SLD	1.5	
Tb orizzontale SLD	0.116	[s]
Tc orizzontale SLD	0.347	[s]
Td orizzontale SLD	1.706	[s]
Ss orizzontale SLV	1.5	
Tb orizzontale SLV	0.148	[s]
Tc orizzontale SLV	0.443	[s]
Td orizzontale SLV	1.794	[s]
St	1	
PVr SLD (%)	63	
Tr SLD	50	
Ag/g SLD	0.0265	
Fo SLD	2.68	
Tc* SLD	0.191	[s]
PVr SLV (%)	10	
Tr SLV	475	
Ag/g SLV	0.0485	
Fo SLV	2.815	
Tc* SLV	0.275	[s]
Smorzamento viscoso (%)	5	
Classe di duttilità	Non dissipativa	
Rotazione del sisma	0	[deg]
Quota dello '0' sismico	0	[m]
Regolarità in pianta	No	
Regolarità in elevazione	No	
Edificio C.A.	Si	
Edificio esistente	No	
T1,x	1.9592	[s]
T1,y	0.32807	[s]
λ SLD,x	1	
λ SLD,y	1	
λ SLV,x	1	
λ SLV,y	1	
Numero modi	4	
Metodo di Ritz	non applicato	
Limite spostamenti interpiano	0.005	
Fattore di comportamento per sisma SLD X	1.5	
Fattore di comportamento per sisma SLD Y	1.5	
Fattore di comportamento per sisma SLV X	1.5	
Fattore di comportamento per sisma SLV Y	1.5	
Coefficiente di sicurezza per carico limite (fondazioni superficiali)	2.3	
Coefficiente di sicurezza per scorrimento (fondazioni superficiali)	1.1	
Coefficiente di sicurezza portanza verticale pali infissi, punta	1.15	
Coefficiente di sicurezza portanza verticale pali infissi, laterale compressione	1.15	
Coefficiente di sicurezza portanza verticale pali infissi, laterale trazione	1.25	
Coefficiente di sicurezza portanza verticale pali trivellati, punta	1.35	
Coefficiente di sicurezza portanza verticale pali trivellati, laterale compressione	1.15	
Coefficiente di sicurezza portanza verticale pali trivellati, laterale trazione	1.25	
Coefficiente di sicurezza portanza verticale micropali, punta	1.35	
Coefficiente di sicurezza portanza verticale micropali, laterale compressione	1.15	
Coefficiente di sicurezza portanza verticale micropali, laterale trazione	1.25	
Coefficiente di sicurezza portanza trasversale pali	1.3	
Fattore di correlazione resistenza caratteristica dei pali in base alle verticali indagate	1.7	
Coefficiente di sicurezza per ribaltamento (plinti superficiali)	1.15	

2.2 Preferenze di verifica

2.2.1 Normativa di verifica in uso

Norma di verifica	D.M. 17-01-18 (N.T.C.)
Cemento armato	Preferenze analisi di verifica in stato limite
Legno	Preferenze di verifica legno D.M. 17-01-18 (N.T.C.)
Acciaio	Preferenze di verifica acciaio D.M. 17-01-18 (N.T.C.)

2.2.2 Normativa di verifica C.A.

Coefficiente di omogeneizzazione	15
γs (fattore di sicurezza parziale per l'acciaio)	1.15
γc (fattore di sicurezza parziale per il calcestruzzo)	1.5
Limite σc/fck in combinazione rara	0.6
Limite σc/fck in combinazione quasi permanente	0.45
Limite σf/fyk in combinazione rara	0.8
Coefficiente di riduzione della τ per cattiva aderenza	0.7
Dimensione limite fessure w1 §4.1.2.2.4	0.0002 [m]
Dimensione limite fessure w2 §4.1.2.2.4	0.0003 [m]
Dimensione limite fessure w3 §4.1.2.2.4	0.0004 [m]
Fattori parziali di sicurezza unitari per meccanismi duttili di strutture esistenti con fattore q	No
Copriferro secondo EC2	No

2.2.4 Normativa di verifica acciaio

γm0	1.05
γm1	1.05
γm2	1.25
Coefficiente riduttivo per effetto vettoriale	0.7
Calcolo coefficienti C1, C2, C3 per Mcr	automatico
Coefficienti α, β per flessione deviata	unitari
Verifica semplificata conservativa	si
L/e0 iniziale per profili accoppiati compressi	500
Metodo semplificato formula (4.2.82)	si
Escludi 6.2.6.7 e 6.2.6.8 in 7.5.4.3 e 7.5.4.5	si
Applica Nota 1 del prospetto 6.2	si
Riduzione fy per tubi tondi di classe 4	no
Effettua la verifica secondo 6.2.8 con irrigidimenti superiori (piastra di base)	si
Limite spostamento relativo interpiano e monopiano colonne	0.00333
Limite spostamento relativo complessivo multipiano colonne	0.002
Considera taglio resistente estremità sagomati	no
Fattori parziali di sicurezza unitari per meccanismi duttili di strutture esistenti con fattore q	no

2.3 Preferenze FEM

Dimensione massima ottimale mesh pareti (default)	0.8
Dimensione massima ottimale mesh piastre (default)	0.8
Tipo di mesh dei gusci (default)	Quadrilateri o triangoli
Tipo di mesh imposta ai gusci	Specifico dell'elemento
Metodo P-Delta	non utilizzato
Analisi buckling	non utilizzata
Rapporto spessore flessionale/membranale gusci muratura verticali	0.2
Spessori membranale e flessionale pareti XLAM da sole tavole verticali	No
Moltiplicatore rigidezza connettori pannelli pareti legno a diaframma	1
Tolleranza di parallelismo	4.99
Tolleranza di unicità punti	0.1
Tolleranza generazione nodi di aste	0.01
Tolleranza di parallelismo in suddivisione aste	4.99
Tolleranza generazione nodi di gusci	0.04
Tolleranza eccentricità carichi concentrati	1
Considera deformazione a taglio delle piastre	No
Modello elastico pareti in muratura	Gusci
Concentra masse pareti nei vertici	No
Segno risultati analisi spettrale	Analisi statica
Memoria utilizzabile dal solutore	8000000
Metodo di risoluzione della matrice	Intel MKL PARDISO
Scrivi commenti nel file di input	No
Scrivi file di output in formato testo	No
Solidi colle e corpi ruvidi (default)	Solidi reali
Moltiplicatore rigidezza molla torsionale applicata ad aste di fondazione	1
Modello trave su suolo alla Winkler nel caso di modellazione lineare	Equilibrio elastico

2.4 Moltiplicatori inerziali

Tipologia: tipo di entità a cui si riferiscono i moltiplicatori inerziali.
J2: moltiplicatore inerziale di J2. Il valore è adimensionale.

J3: moltiplicatore inerziale di J3. Il valore è adimensionale.
Jt: moltiplicatore inerziale di Jt. Il valore è adimensionale.
A: moltiplicatore dell'area della sezione. Il valore è adimensionale.
A2: moltiplicatore dell'area a taglio in direzione 2. Il valore è adimensionale.
A3: moltiplicatore dell'area a taglio in direzione 3. Il valore è adimensionale.
Conci rigidi: fattore di riduzione dei tronchi rigidi. Il valore è adimensionale.

Tipologia	J2	J3	Jt	A	A2	A3	Conci rigidi
Trave C.A.	1	1	0.01	1	1	1	0.5
Pilastro C.A.	1	1	0.01	1	1	1	0.5
Trave di fondazione	1	1	0.01	1	1	1	0.5
Palo	1	1	0.01	1	1	1	0
Trave in legno	1	1	1	1	1	1	1
Colonna in legno	1	1	1	1	1	1	1
Trave in acciaio	1	1	1	1	1	1	1
Colonna in acciaio	1	1	1	1	1	1	1
Trave di reticolare in acciaio	1	1	1	1	1	1	1
Maschio in muratura	0	1	0	1	1	1	1
Trave di accoppiamento in muratura	0	1	0	1	1	1	1
Trave di scala C.A. nervata	1	1	1	1	1	1	0.5
Trave tralicciata	1	1	0.01	1	1	1	0.5

2.5 Preferenze di analisi non lineare FEM

Metodo iterativo	Secante
Tolleranza iterazione	0.00001
Numero massimo iterazioni	50

2.6 Preferenze di analisi carichi superficiali

Detrazione peso proprio solai nelle zone di sovrapposizione	non applicata
Metodo di ripartizione	a zone d'influenza
Percentuale carico calcolato a trave continua	0
Esegui smoothing diagrammi di carico	applicata
Tolleranza smoothing altezza trapezi	0.001[kN/m]
Tolleranza smoothing altezza media trapezi	0.001[kN/m]

3 Quote

3.1 Livelli

Descrizione breve: nome sintetico assegnato al livello.
Descrizione: nome assegnato al livello.
Quota: quota superiore espressa nel sistema di riferimento assoluto. [m]
Spessore: spessore del livello. [m]

Descrizione breve	Descrizione	Quota	Spessore
L1	Fondazione	0	0.6
L2	Piano 1	5	0.5

3.2 Tronchi

Descrizione breve: nome sintetico assegnato al tronco.
Descrizione: nome assegnato al tronco.
Quota 1: riferimento della prima quota di definizione del tronco. esprimibile come livello, falda, piano orizzontale alla Z specificata. [m]
Quota 2: riferimento della seconda quota di definizione del tronco. esprimibile come livello, falda, piano orizzontale alla Z specificata. [m]

Descrizione breve	Descrizione	Quota 1	Quota 2
T1	Fondazione - Soletta	Fondazione	Piano1

1.5 Definizioni di carichi concentrati

Nome: nome identificativo della definizione di carico.
Valori: valori associati alle condizioni di carico.
Condizione: condizione di carico a cui sono associati i valori.
Descrizione: nome assegnato alla condizione elementare.
Fx: componente X del carico concentrato. [kN]
Fy: componente Y del carico concentrato. [kN]
Fz: componente Z del carico concentrato. [kN]
*Mx: componente di momento della coppia concentrata attorno all'asse X. [kN*m]*
*My: componente di momento della coppia concentrata attorno all'asse Y. [kN*m]*
*Mz: componente di momento della coppia concentrata attorno all'asse Z. [kN*m]*

Nome	Valori						
	Condizione	Fx	Fy	Fz	Mx	My	Mz
	Descrizione						
FRENATURA	Pesi strutturali	0	0	0	0	0	0
	Permanenti portati	0	0	0	0	0	0
	Variabile traffico	0	0	0	0	0	0
	Spinta terreno A1-M1	0	0	0	0	0	0
	Spinta terreno A2-M2	0	0	0	0	0	0
	Sovr accidentale A1-M1	0	0	0	0	0	0
	Sovr accidentale A2-M2	0	0	0	0	0	0
	Sisma terreno Y sx	0	0	0	0	0	0
	Sisma terreno Y dx	0	0	0	0	0	0
	Frenatura	0	14.23	0	0	0	0
CARICO TANDEM	Pesi strutturali	0	0	0	0	0	0
	Permanenti portati	0	0	0	0	0	0
	Variabile traffico	0	0	-150	0	0	0
	Spinta terreno A1-M1	0	0	0	0	0	0
	Spinta terreno A2-M2	0	0	0	0	0	0
	Sovr accidentale A1-M1	0	0	0	0	0	0
	Sovr accidentale A2-M2	0	0	0	0	0	0
	Sisma terreno Y sx	0	0	0	0	0	0
	Sisma terreno Y dx	0	0	0	0	0	0
	Frenatura	0	0	0	0	0	0

1.5 Definizioni di carichi lineari

Nome: nome identificativo della definizione di carico.
Valori: valori associati alle condizioni di carico.
Condizione: condizione di carico a cui sono associati i valori.
Descrizione: nome assegnato alla condizione elementare.
Fx i.: valore iniziale della forza, per unità di lunghezza, agente in direzione X. [kN/m]
Fx f.: valore finale della forza, per unità di lunghezza, agente in direzione X. [kN/m]
Fy i.: valore iniziale della forza, per unità di lunghezza, agente in direzione Y. [kN/m]
Fy f.: valore finale della forza, per unità di lunghezza, agente in direzione Y. [kN/m]
Fz i.: valore iniziale della forza, per unità di lunghezza, agente in direzione Z. [kN/m]
Fz f.: valore finale della forza, per unità di lunghezza, agente in direzione Z. [kN/m]
Mx i.: valore iniziale della coppia, per unità di lunghezza, agente attorno l'asse X. [kN]
Mx f.: valore finale della coppia, per unità di lunghezza, agente attorno l'asse X. [kN]
My i.: valore iniziale della coppia, per unità di lunghezza, agente attorno l'asse Y. [kN]
My f.: valore finale della coppia, per unità di lunghezza, agente attorno l'asse Y. [kN]
Mz i.: valore iniziale della coppia, per unità di lunghezza, agente attorno l'asse Z. [kN]

Mz f.: valore finale della coppia, per unità di lunghezza, agente attorno l'asse Z. [kN]

Nome	Valori											
	Condizione	Fx i.	Fx f.	Fy i.	Fy f.	Fz i.	Fz f.	Mx i.	Mx f.	My i.	My f.	Mz i.	Mz f.
	Descrizione												
SOLETTA SUPERIORE	Pesi strutturali	0	0	0	0	0	0	0	0	0	0	0	0
	Permanenti portati	0	0	0	0	-14	-14	0	0	0	0	0	0
	Variabile traffico	0	0	0	0	0	0	0	0	0	0	0	0
	Spinta terreno A1-M1	0	0	0	0	0	0	0	0	0	0	0	0
	Spinta terreno A2-M2	0	0	0	0	0	0	0	0	0	0	0	0
	Sovr accidentale A1-M1	0	0	0	0	0	0	0	0	0	0	0	0
	Sovr accidentale A2-M2	0	0	0	0	0	0	0	0	0	0	0	0
	Sisma terreno Y sx	0	0	0	0	0	0	0	0	0	0	0	0
	Sisma terreno Y dx	0	0	0	0	0	0	0	0	0	0	0	0
	Frenatura	0	0	0	0	0	0	0	0	0	0	0	0
CARICO STRADALE DISTRIBUITO	Pesi strutturali	0	0	0	0	0	0	0	0	0	0	0	0
	Permanenti portati	0	0	0	0	0	0	0	0	0	0	0	0
	Variabile traffico	0	0	0	0	-9	-9	0	0	0	0	0	0
	Spinta terreno A1-M1	0	0	0	0	0	0	0	0	0	0	0	0
	Spinta terreno A2-M2	0	0	0	0	0	0	0	0	0	0	0	0
	Sovr accidentale A1-M1	0	0	0	0	0	0	0	0	0	0	0	0
	Sovr accidentale A2-M2	0	0	0	0	0	0	0	0	0	0	0	0
	Sisma terreno Y sx	0	0	0	0	0	0	0	0	0	0	0	0
	Sisma terreno Y dx	0	0	0	0	0	0	0	0	0	0	0	0
	Frenatura	0	0	0	0	0	0	0	0	0	0	0	0
SPINTA TERRENO Y+	Pesi strutturali	0	0	0	0	0	0	0	0	0	0	0	0
	Permanenti portati	0	0	0	0	0	0	0	0	0	0	0	0
	Variabile traffico	0	0	0	0	0	0	0	0	0	0	0	0
	Spinta terreno A1-M1	0	0	40.5	0	0	0	0	0	0	0	0	0
	Spinta terreno A2-M2	0	0	48.6	0	0	0	0	0	0	0	0	0
	Sovr accidentale A1-M1	0	0	8.5	8.5	0	0	0	0	0	0	0	0
	Sovr accidentale A2-M2	0	0	13.3	13.3	0	0	0	0	0	0	0	0
	Sisma terreno Y sx	0	0	22.2	22.2	0	0	0	0	0	0	0	0
	Sisma terreno Y dx	0	0	-22.2	-22.2	0	0	0	0	0	0	0	0
	Frenatura	0	0	0	0	0	0	0	0	0	0	0	0
SPINTA TERRENO Y-	Pesi strutturali	0	0	0	0	0	0	0	0	0	0	0	0
	Permanenti portati	0	0	0	0	0	0	0	0	0	0	0	0
	Variabile traffico	0	0	0	0	0	0	0	0	0	0	0	0
	Spinta terreno A1-M1	0	0	-40.5	0	0	0	0	0	0	0	0	0
	Spinta terreno A2-M2	0	0	-48.6	0	0	0	0	0	0	0	0	0
	Sovr accidentale A1-M1	0	0	-8.5	-8.5	0	0	0	0	0	0	0	0
	Sovr accidentale A2-M2	0	0	-13.3	-13.3	0	0	0	0	0	0	0	0
	Sisma terreno Y sx	0	0	-22.2	-22.2	0	0	0	0	0	0	0	0
	Sisma terreno Y dx	0	0	22.2	22.2	0	0	0	0	0	0	0	0
	Frenatura	0	0	0	0	0	0	0	0	0	0	0	0
FONDAZIONE	Pesi strutturali	0	0	0	0	-45	-45	0	0	0	0	0	0
	Permanenti portati	0	0	0	0	0	0	0	0	0	0	0	0
	Variabile traffico	0	0	0	0	0	0	0	0	0	0	0	0

Nome	Valori											
	Condizione	Fx i.	Fx f.	Fy i.	Fy f.	Fz i.	Fz f.	Mx i.	Mx f.	My i.	My f.	Mz i.	Mz f.
	Descrizione												
	Spinta terreno A1-M1	0	0	0	0	0	0	0	0	0	0	0	0
	Spinta terreno A2-M2	0	0	0	0	0	0	0	0	0	0	0	0
	Sovr accidentale A1-M1	0	0	0	0	0	0	0	0	0	0	0	0
	Sovr accidentale A2-M2	0	0	0	0	0	0	0	0	0	0	0	0
	Sisma terreno Y sx	0	0	0	0	0	0	0	0	0	0	0	0
	Sisma terreno Y dx	0	0	0	0	0	0	0	0	0	0	0	0
	Frenatura	0	0	0	0	0	0	0	0	0	0	0	0

1.6 Definizioni di carichi termici

Nome: nome identificativo della definizione di carico.

Nome
gradiente_15°
gradiente_15° (-)

Rappresentazione grafica modello input

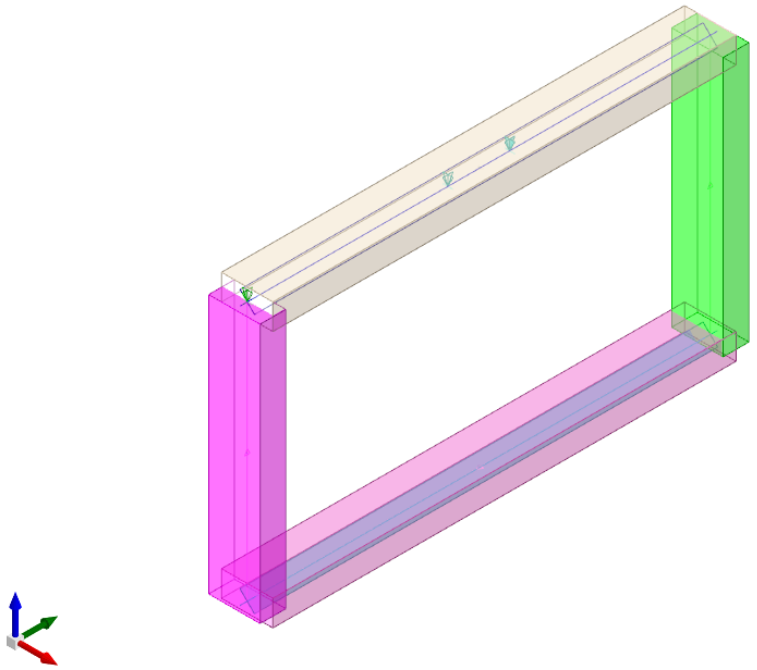


Figura 1 - Rappresentazione Grafica del Modello di Calcolo

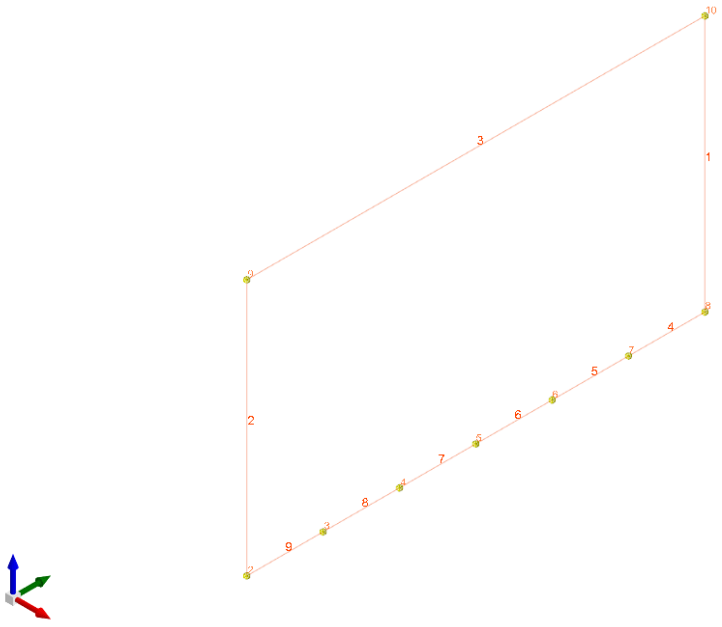


Figura 2 - Rappresentazione Grafica del Modello di Calcolo – Numerazione NODI e ASTE

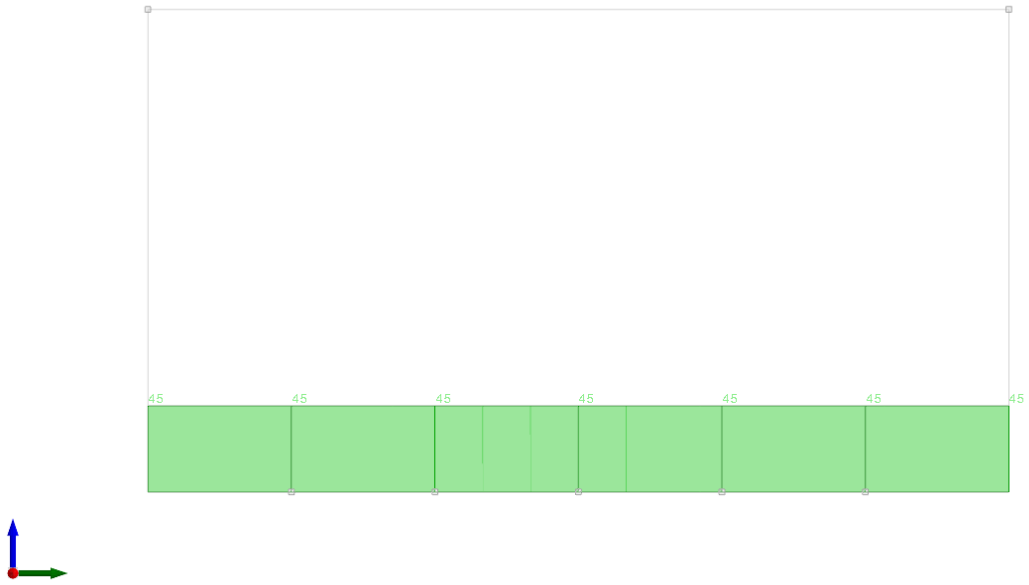


Figura 3 - Condizione permanenti strutturali

Figura 4 - Condizione permanenti NON strutturali

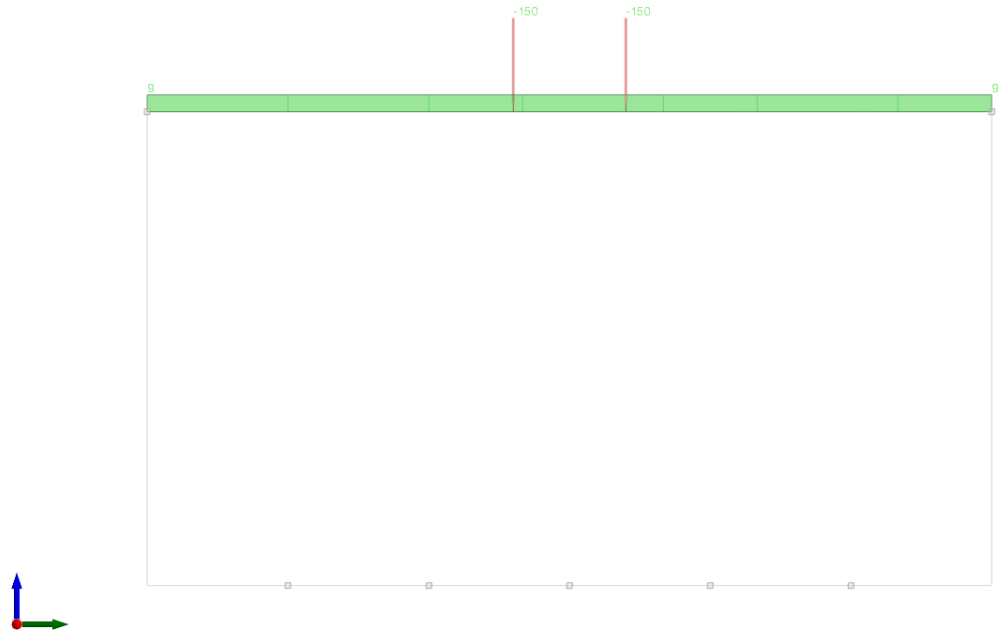


Figura 5 - Condizione sovraccarico variabile traffico

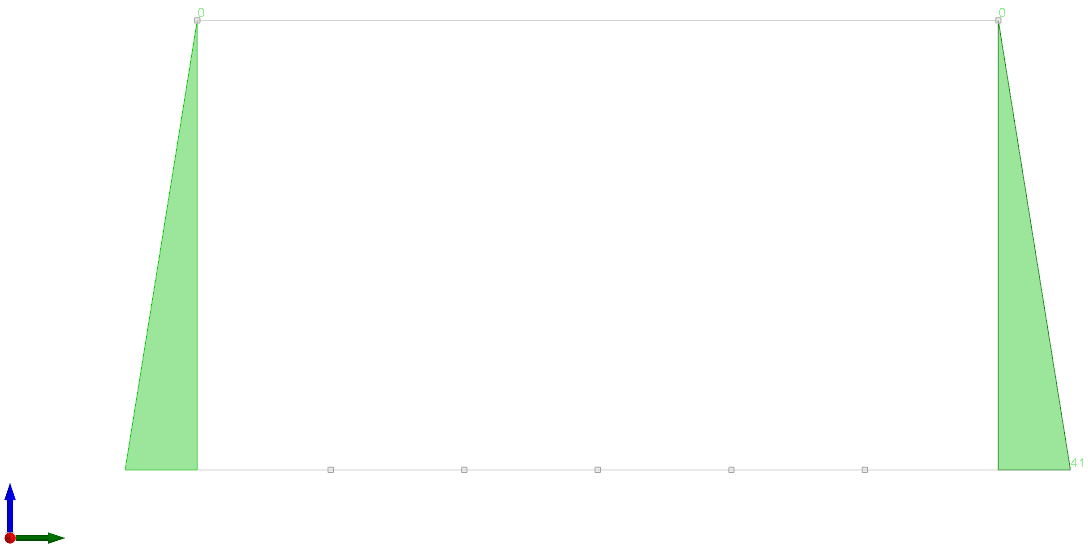


Figura 6 - Condizione spinta terreno A1-M1

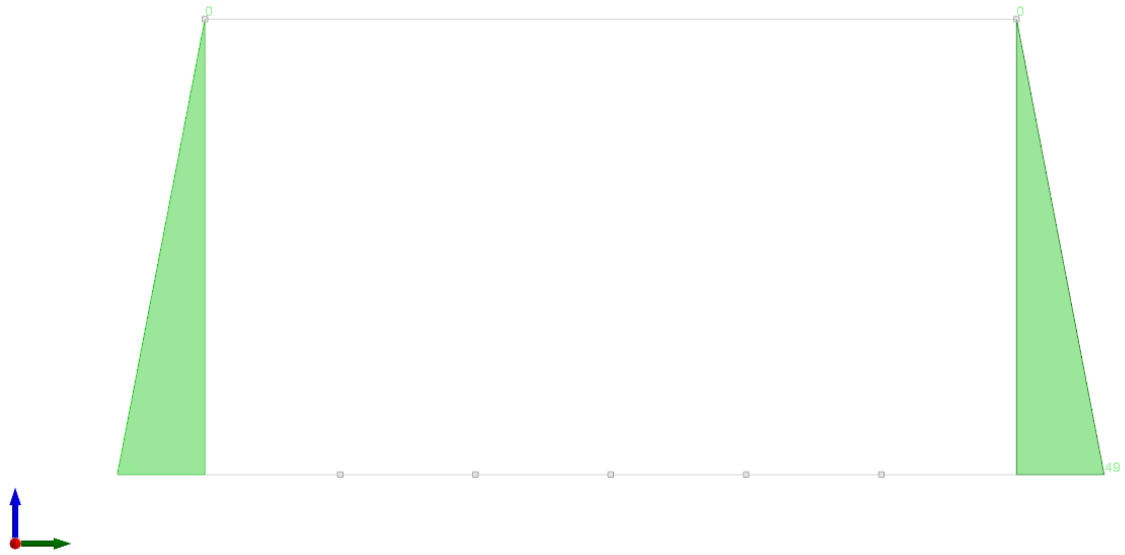


Figura 7 - Condizione spinta terreno A1-M1

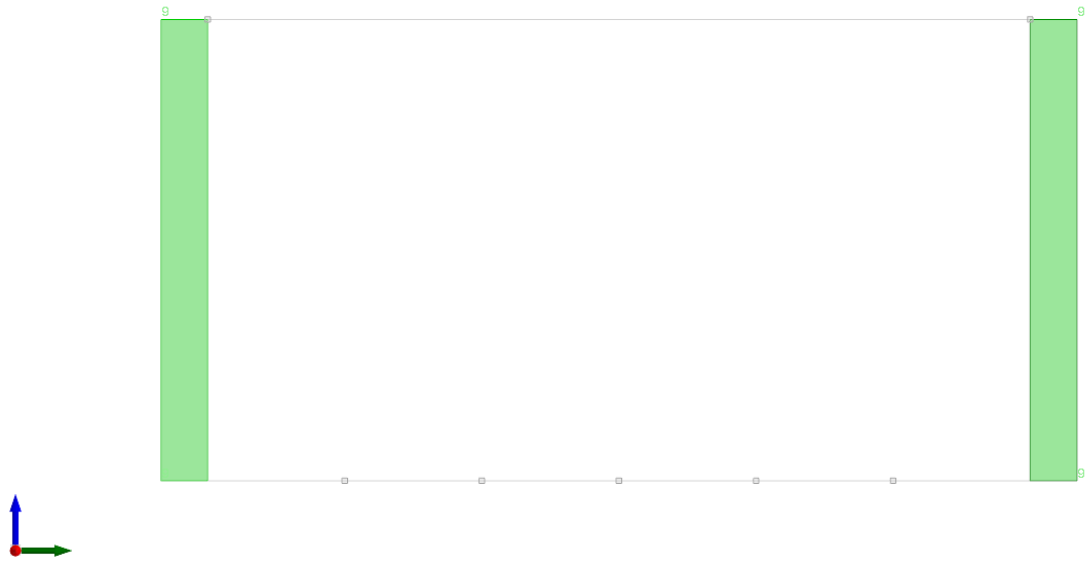


Figura 8 - Condizione sovraccarico accidentale A1-M1

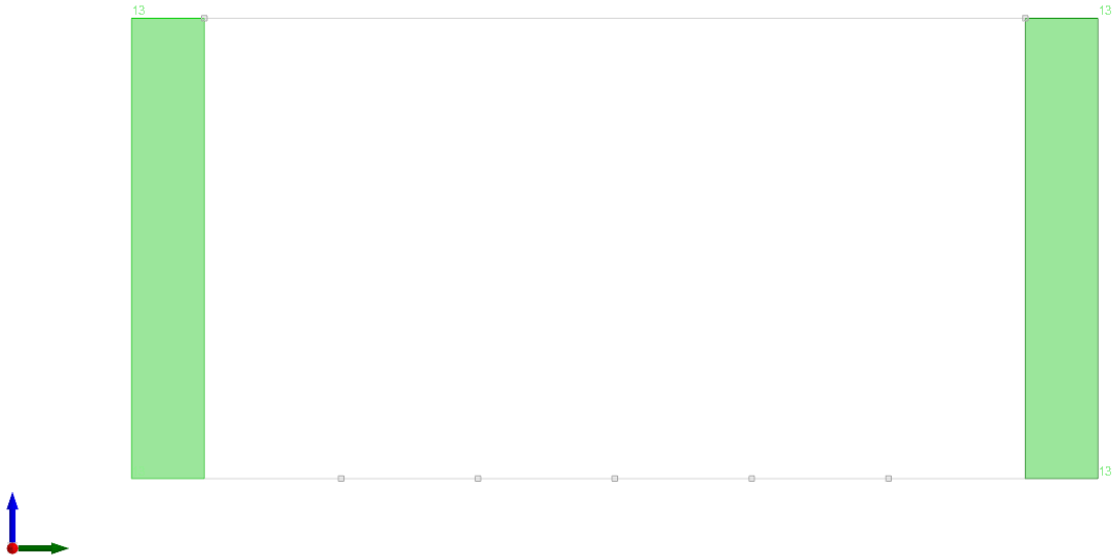


Figura 9 - Condizione sovraccarico accidentale A2-M2

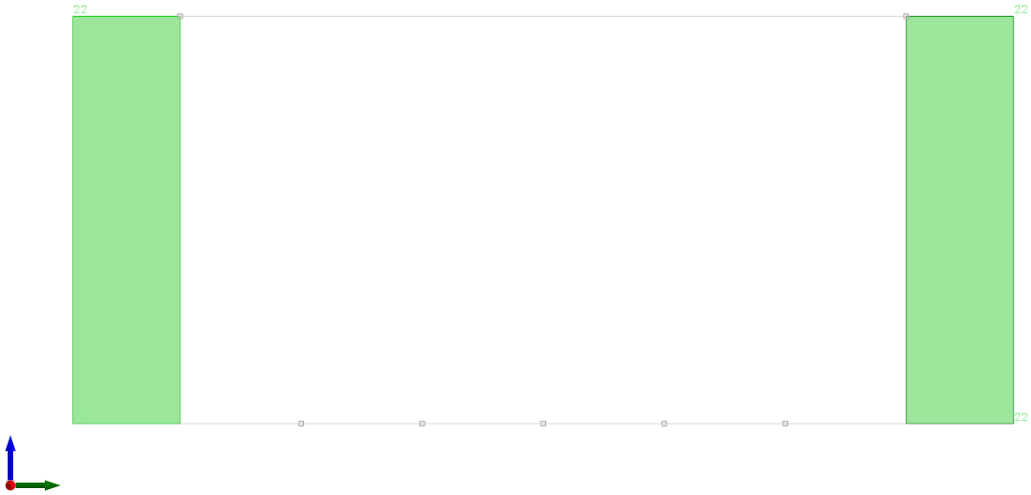


Figura 10 - Condizione sisma terreno +

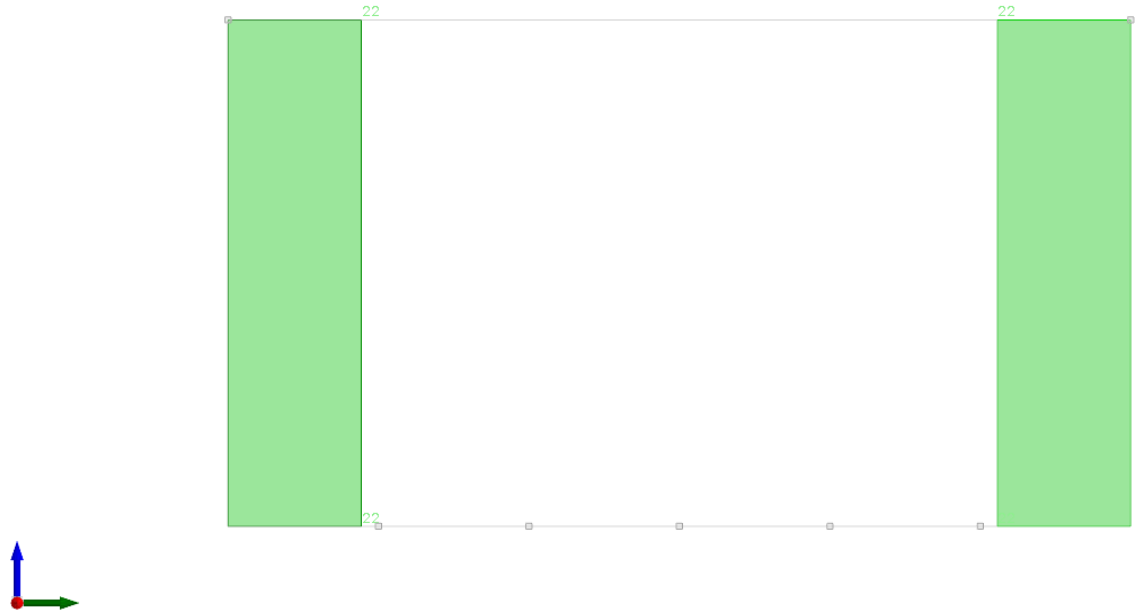


Figura 11 - Condizione sisma terreno –

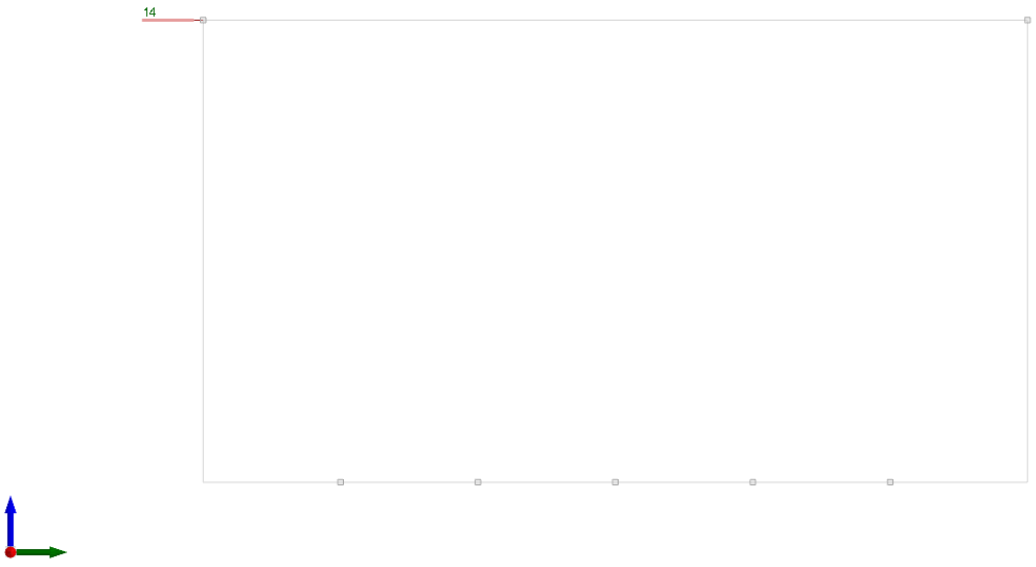


Figura 12 - Condizione frenatura

7.2 MODELLAZIONE: OUTPUT

Si riportano i risultati grafici dell'analisi agli elementi finiti. I valori massimi delle caratteristiche di sollecitazione saranno utilizzati per le successive verifiche.

7.2.1 Convenzioni relative alle caratteristiche di sollecitazione

La convenzione sui segni per i parametri di sollecitazione delle aste è la seguente:

- sforzo normale F1 (N): viene rappresentato nel piano individuato dagli assi 1 e 2. Nel caso di sforzo normale positivo (di trazione) viene disegnato lungo l'asta dalla parte del semiasse 2 positivo;

- F2: viene rappresentato nel piano individuato dagli assi 1 e 2. Nel caso di F2 positivo viene disegnato lungo l'asta dalla parte del semiasse 2 positivo;

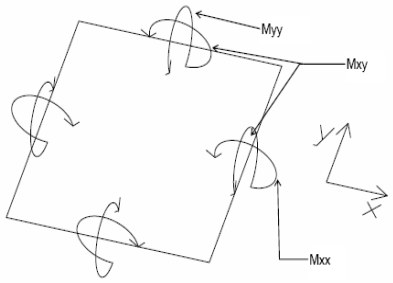
- F3: viene rappresentato nel piano individuato dagli assi 1 e 3. Nel caso di F3 positivo viene disegnato lungo l'asta dalla parte del semiasse 3 positivo;

- momento torcente M1 (Mt): viene rappresentato nel piano individuato dagli assi 1 e 2. Nel caso di momento torcente positivo viene disegnato lungo l'asta dalla parte del semiasse 2 positivo;

- momento M2: viene rappresentato nel piano individuato dagli assi 1 e 3. Nel caso di M2 positivo viene disegnato dalla parte del semiasse 3 negativo;

- momento M3: viene rappresentato nel piano individuato dagli assi 1 e 2. Nel caso di M3 positivo viene disegnato dalla parte del semiasse 2 negativo.

In figura è mostrato un elemento infinitesimo di shell orizzontale con indicato il sistema di riferimento e i parametri di sollecitazione Mxx, Myy, Mxy.



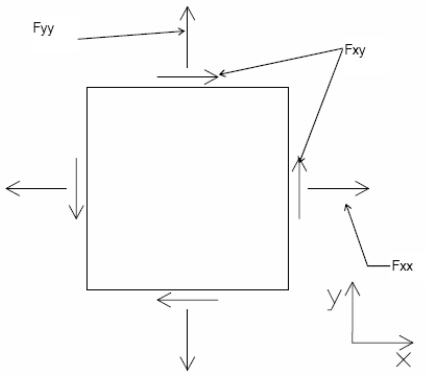
si definiscono:

Mxx: momento flettente [Forza*Lunghezza/Lunghezza] agente sul bordo di normale x (verso positivo indicato dalla freccia in figura che tende le fibre inferiori);

Myy: momento flettente [Forza*Lunghezza/Lunghezza] agente sul bordo di normale y (verso positivo indicato dalla freccia in figura che tende le fibre inferiori);

Mxy: momento torcente [Forza*Lunghezza/Lunghezza] agente sui bordi (verso positivo indicato dalla freccia in figura).

Per quanto riguarda le sollecitazioni estensionali si faccia riferimento alla figura seguente dove per lo stesso elemento infinitesimo di shell orizzontale con indicato il sistema di riferimento e i parametri di sollecitazione Fxx, Fyy, Fxy.



Si definiscono:

Fxx: sforzo estensionale [Forza/Lunghezza] agente sul bordo di normale x (verso positivo indicato dalla freccia in figura che mette in trazione l'elemento);

Fyy: sforzo estensionale [Forza/Lunghezza] agente sul bordo di normale all'asse y (verso positivo indicato dalla freccia in figura che mette in trazione l'elemento);

Fxy: sforzo di taglio [Forza/Lunghezza] agente sui bordi (verso positivo indicato dalla freccia in figura).

Vengono riportati inoltre i tagli fuori dal piano dell'elemento shell:

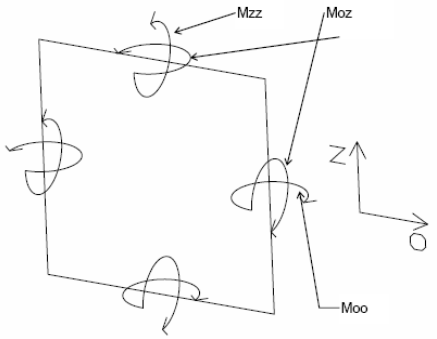
Vx: taglio fuori piano [Forza/Lunghezza] applicato al bordo di normale parallela all'asse x (per il segno si veda l'immagine relativa ai tagli fuori piano nel sistema locale 1, 2, 3 riportata più avanti);

Vy: taglio fuori piano [Forza/Lunghezza] applicato al bordo di normale parallela all'asse y (per il segno si veda l'immagine relativa ai tagli fuori piano nel sistema locale 1, 2, 3 riportata più avanti).

Gusci verticali: pareti e muri

Il sistema di riferimento nel quale sono espressi i parametri di sollecitazione è così definito: "origine appartenente al piano dell'elemento, asse O (ascisse) e z (ordinate) contenuti nel piano dell'elemento e terzo asse ortogonale al piano dell'elemento a formare una terna destrogira". In particolare l'asse O è orizzontale e l'asse z parallelo ed equiverso con l'asse Z globale. Si sottolinea che non ha alcun interesse collocare esattamente nel piano dell'elemento la posizione dell'origine in quanto i parametri di sollecitazione sono invarianti rispetto a tale posizione.

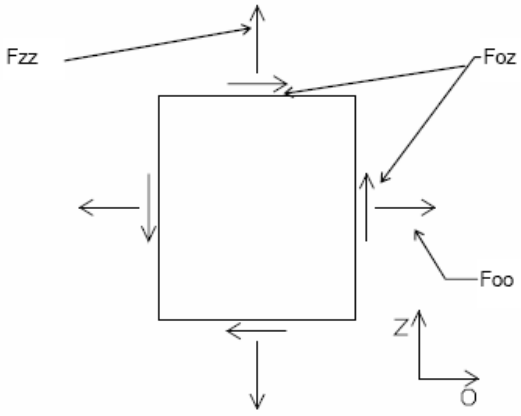
In figura è mostrato un elemento infinitesimo di shell orizzontale con indicato il sistema di riferimento e i parametri di sollecitazione Moo, Mzz, Moz.



Moo: momento flettente distribuito [Forza*Lunghezza/Lunghezza] applicato al bordo di normale parallela all'asse O (verso positivo indicato dalla freccia in figura che tende le fibre inferiori);

Mzz: momento flettente distribuito [Forza*Lunghezza/Lunghezza] applicato al bordo di normale parallela all'asse z (verso positivo indicato dalla freccia in figura che tende le fibre inferiori);

Moz: momento "torcente" distribuito [Forza*Lunghezza/Lunghezza] applicato sui bordi (verso positivo indicato dalla freccia in figura). Per quanto riguarda le sollecitazioni estensionali si faccia riferimento alla figura seguente dove per lo stesso elemento infinitesimo di shell con indicato il sistema di riferimento i parametri di sollecitazione Foo, Fzz, Foz sono rispettivamente:



Fzz: sforzo tensionale distribuito [Forza/Lunghezza] applicato al bordo di normale parallela all'asse z (verso positivo indicato dalla freccia in figura che mette in trazione l'elemento);

Foo: sforzo tensionale distribuito [Forza/Lunghezza] applicato al bordo di normale parallela all'asse O (verso positivo indicato dalla freccia in figura che mette in trazione l'elemento);

Foz: sforzo tagliante distribuito [Forza/Lunghezza] applicato sui bordi (verso positivo indicato dalla freccia in figura).

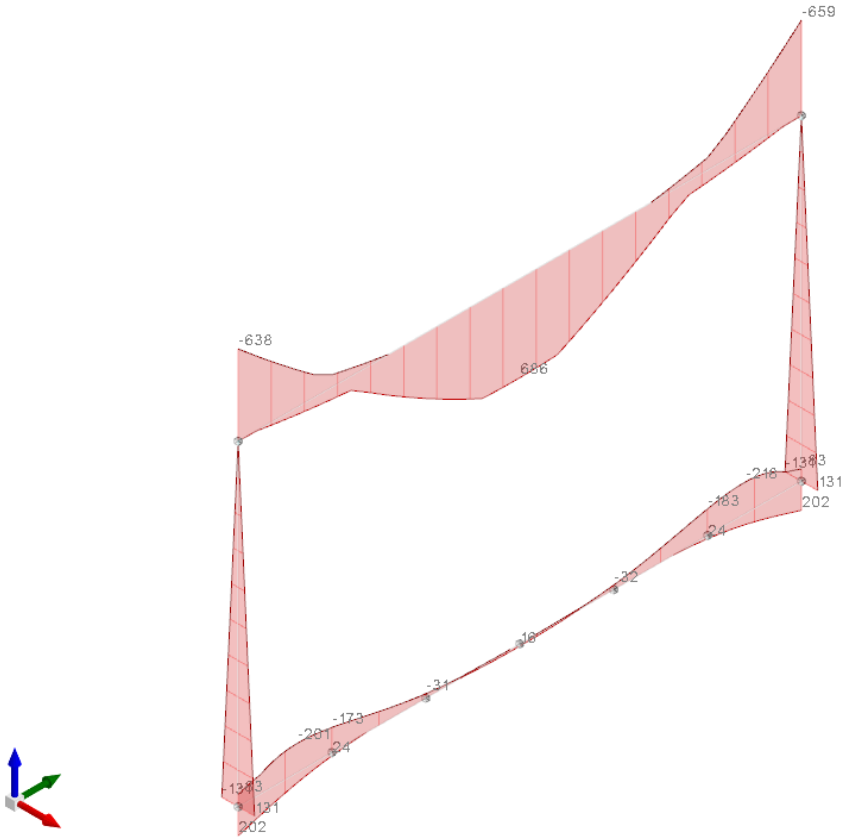


Figura 13 - Inviluppo momento flettente M3

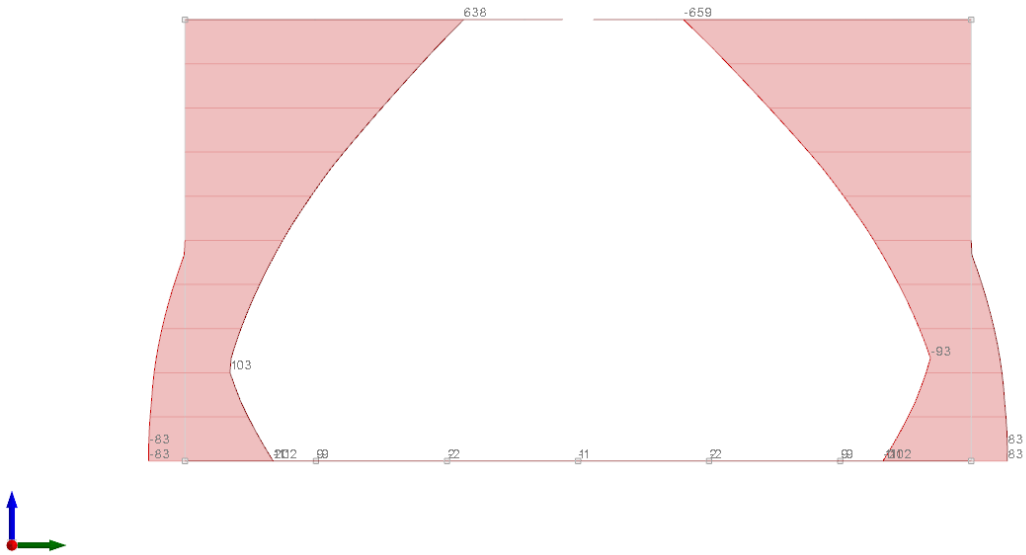


Figura 14 - Inviluppo momento flettente M2

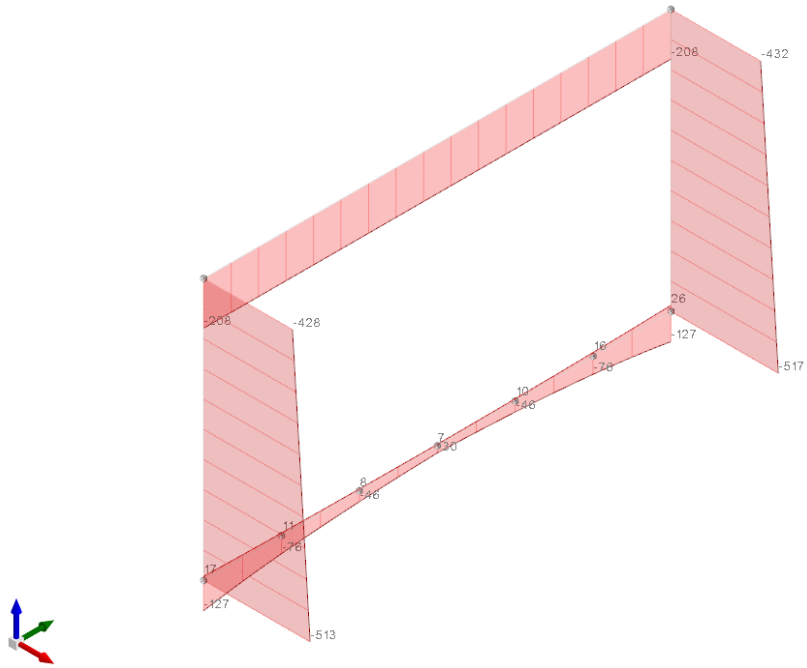


Figura 15 - Inviluppo sforzo assiale N

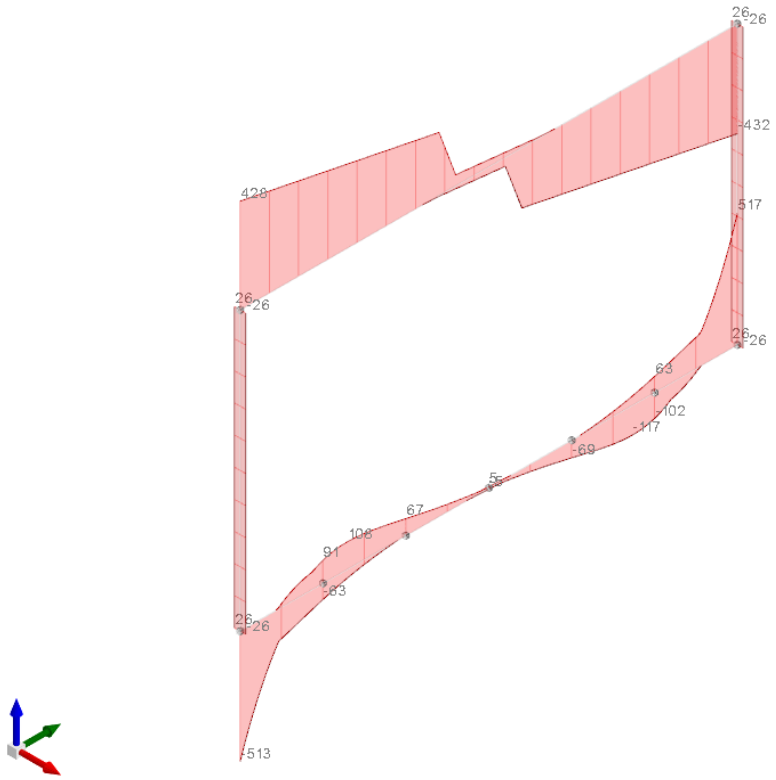


Figura 16 - Inviluppo sforzo di taglio F2

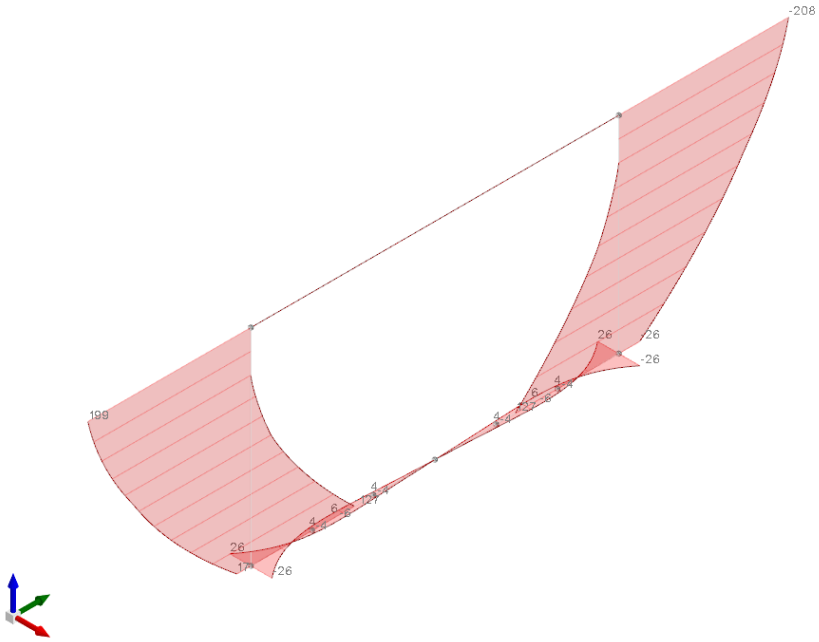


Figura 17 - Inviluppo sforzo di taglio F3

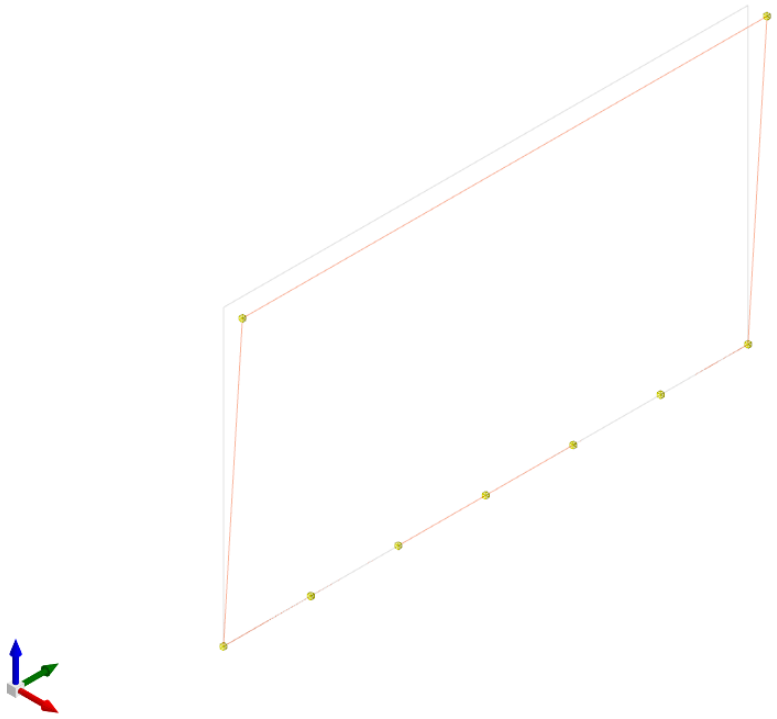


Figura 18 – Spostamenti condizione sisma X SLV

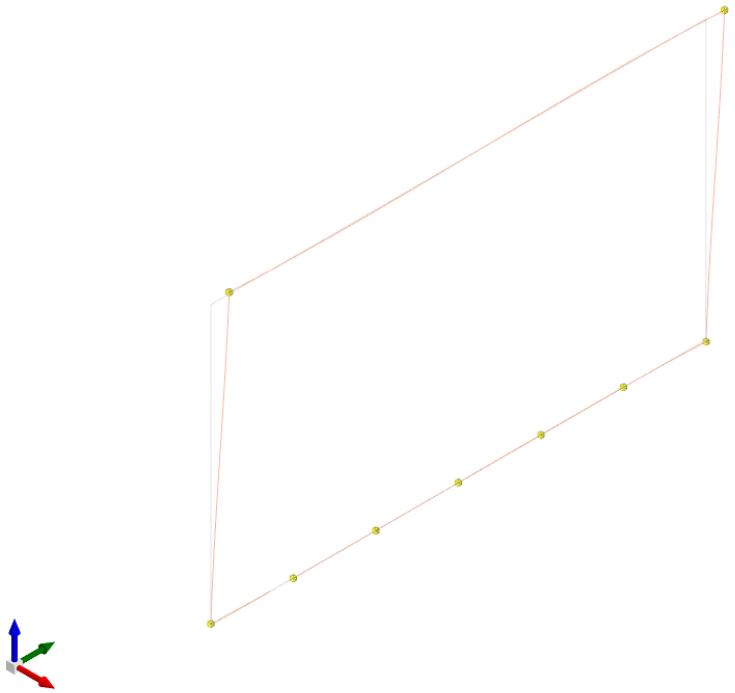


Figura 19 – Spostamenti condizione sisma Y SLV

7.3 VERIFICHE STRUTTURALI

Si riportano di seguito i tabulati di calcolo delle verifiche dei vari elementi strutturali.

7.3.1 Verifiche piedritti

Q.inf.: quota inferiore [m]
Q.sup.: quota superiore [m]
Sezione: sezione impiegata
Esistente: campata esistente
Secondaria: campata secondaria
Dissipativa: campata dissipativa
Sovraresistenza: aliquota di sovraresistenza da assicurare in verifica
Materiale CLS: materiale calcestruzzo impiegato
Materiale Acciaio: materiale/i acciaio impiegato/i
FC: fattore di confidenza riferito al materiale CLS
Posizione: posizione della barra
X: ascissa relativa della barra rispetto al baricentro della sezione [m]
Y: ordinata relativa della barra rispetto al baricentro della sezione [m]
Diametro: diametro nominale della barra [m]
Area: area nominale della barra [m^2]
Q.inf.: quota inferiore della barra [m]
Q.sup.: quota superiore della barra [m]
Materiale: materiale della barra
Quota: quota della sezione [m]
As: area complessiva delle armature verticali [m^2]

%: percentuale di acciaio
At: area delle armature verticali destinata alla verifica di torsione [m²]
Pos.: posizioni barre longitudinali presenti nella sezione
*Mx: momento Mx [kN*m]*
*My: momento My [kN*m]*
N: sforzo normale [kN]
*MRdx: momento resistente in direzione X [kN*m]*
*MRdy: momento resistente in direzione Y [kN*m]*
Comb.: combinazione peggiore
Coeff.s.: coefficiente di sicurezza minimo
Verifica: stato di verifica
ε,cu: deformazione ultima utilizzata per il calcestruzzo [‰]
ε,fk: deformazione ultima utilizzata per l'acciaio [‰]
C.S.: coefficiente di sicurezza minimo
Nmin: compressione massima [kN]
Nlim: compressione limite [kN]
Comb.Nmin: combinazione in cui si ottiene la compressione massima
Ver.: stato di verifica
Staffe: staffatura presente nella sezione
Direzione X: dati della verifica a taglio in direzione X
V: taglio di verifica per la direzione considerata [kN]
N: sforzo normale per la verifica nella direzione considerata [kN]
Comb.: combinazione per la verifica nella direzione considerata
VRd: resistenza a taglio del calcestruzzo non staffato per la verifica nella direzione considerata [kN]
VRsd: resistenza a taglio delle staffe per la verifica nella direzione considerata [kN]
VRcd: resistenza a taglio delle bielle compresse per la verifica nella direzione considerata [kN]
Cot: cotagente delle bielle compresse per la verifica nella direzione considerata
c.s.: coefficiente di sicurezza per la verifica nella direzione considerata
Direzione Y: dati della verifica a taglio in direzione Y
σc,max: tensione massima sul calcestruzzo [kN/m²]
σf,max: tensione massima sull'acciaio [kN/m²]

Verifiche delle sezioni

Verifica a pressoflessione in SLU

Quota	As	%	At	Pos.	Mx	My	N	MRdx	MRdy	Comb.	Coeff.s.	Verifica
0	0.005655	2.3	0	1,2,3,4	-9.7206	-90.3456	-388.82	-99.0748	-920.8259	SLU 12	10.192	Si
0.3	0.005655	2.3	0	1,2,3,4	-12.4537	-82.4534	-498.15	-130.038	-860.9519	SLU 4	10.442	Si
0.6	0.005655	2.2	0	1,3,4	-12.3272	-91.8493	-493.09	-119.2961	-888.8698	SLU 20	9.677	Si
0.9	0.005655	1.1	0	3,4	-12.2006	-107.452	-488.02	-104.0742	-916.5908	SLU 20	8.53	Si
1.2	0.005655	1.1	0	3,4	-12.0741	-127.3471	-482.96	-85.8034	-904.9825	SLU 20	7.106	Si
1.5	0.005655	1.1	0	3,4	11.9475	-151.2501	-477.9	66.9904	-848.0685	SLU 20	5.607	Si
1.8	0.005655	1.1	0	3,4	11.8209	-178.9863	-472.84	51.3436	-777.4173	SLU 20	4.343	Si
2.1	0.005655	1.1	0	3,4	11.6944	-210.1864	-467.77	39.3789	-707.7684	SLU 20	3.367	Si
2.4	0.005655	1.1	0	3,4	11.5678	-244.5111	-462.71	30.9327	-653.83	SLU 20	2.674	Si
2.7	0.005655	1.1	0	3,4	11.5552	-284.6686	-462.21	24.9307	-614.1829	SLU 18	2.158	Si
3	0.005655	1.1	0	3,4	11.4286	-326.9564	-457.14	20.4002	-583.6219	SLU 18	1.785	Si
3.3	0.005655	1.1	0	3,4	11.302	-375.3053	-452.08	16.8204	-558.553	SLU 17	1.488	Si
3.46	0.005655	1.1	0	3,4	11.2347	-402.2083	-449.39	15.3023	-547.8334	SLU 17	1.362	Si
3.6	0.005968	2.7	0	3,4,5,6	11.1755	-426.2814	-447.02	14.8492	-566.4127	SLU 17	1.329	Si
3.9	0.006884	2.6	0	3,5,6	11.0489	-478.9883	-441.96	14.4704	-627.3174	SLU 17	1.31	Si
4.2	0.007637	2.6	0	3,5,6	10.9223	-533.0829	-436.89	13.8308	-675.0351	SLU 17	1.266	Si
4.5	0.007691	1.5	0	5,6	10.7979	-587.7816	-431.92	12.2701	-667.9204	SLU 1	1.136	Si

Verifica a pressoflessione in SLV (domini sostanzialmente elastici)

La struttura oppure parte di essa, è stata dichiarata come non dissipativa pertanto la verifica a pressoflessione, per tutte o solo alcune sezioni, viene eseguita calcolando i momenti resistenti in campo sostanzialmente elastico secondo D.M. 17-01-2018 §7.4.1

Le dilatazioni ultime utilizzate sono le dilatazioni limite elastiche

Quota	As	%	At	Pos.	Mx	My	N	ε,cu	ε,fk	MRdx	MRdy	Comb.	C.S.	Ver.
0	0.005655	2.3	0	1,2,3,4	-36.9627	-165.8945	-150.94	-2.02	2.21	-106.2883	-477.0386	SLV 7	2.876	Si
0.3	0.005655	2.3	0	1,2,3,4	-34.6645	-135.3624	-147.25	-2.02	2.21	-126.0779	-492.3257	SLV 7	3.637	Si
0.6	0.005655	2.2	0	1,3,4	-32.3242	-111.131	-143.5	-2.02	2.21	-148.0748	-509.0826	SLV 39	4.581	Si
0.9	0.005655	1.1	0	3,4	-29.9873	-90.9662	-139.75	-2.02	2.21	-173.8524	-527.38	SLV 39	5.798	Si
1.2	0.005655	1.1	0	3,4	-27.6503	-73.7863	-136	-2.02	2.21	-206.662	-551.4883	SLV 39	7.474	Si
1.5	0.005655	1.1	0	3,4	-25.3134	-59.3807	-132.25	-2.02	2.21	-248.8571	-583.775	SLV 39	9.831	Si
1.8	0.005655	1.1	0	3,4	-76.386	-27.9495	-147.86	-2.02	2.21	-876.9242	-320.8653	SLV 35	11.48	Si
2.1	0.005655	1.1	0	3,4	-68.6169	-29.4023	-144.11	-2.02	2.21	-827.3267	-354.5097	SLV 35	12.057	Si
2.4	0.005655	1.1	0	3,4	-60.8155	-34.5699	-156.93	-2.02	2.21	-732.3132	-416.2755	SLV 33	12.042	Si
2.7	0.005655	1.1	0	3,4	-53.0497	-49.3686	-153.18	-2.02	2.21	-538.4006	-501.0407	SLV 33	10.149	Si
3	0.005655	1.1	0	3,4	-13.5436	-89.3236	-168.75	-2.02	2.21	-89.5031	-590.2971	SLV 37	6.609	Si
3.3	0.005655	1.1	0	3,4	-11.2177	-118.1959	-165	-2.02	2.21	-50.7848	-535.0956	SLV 37	4.527	Si
3.46	0.005655	1.1	0	3,4	-9.9798	-134.1072	-163	-2.02	2.21	-38.4376	-516.5205	SLV 37	3.852	Si
3.6	0.005968	2.7	0	3,4,5,6	-8.8918	-148.3635	-161.25	-2.02	2.21	-31.6255	-527.683	SLV 37	3.557	Si
3.9	0.006884	2.6	0	3,5,6	-6.5659	-179.6129	-157.5	-2.02	2.21	-21.0189	-574.9793	SLV 37	3.201	Si
4.2	0.007637	2.6	0	3,5,6	-4.2399	-211.6956	-153.75	-2.02	2.21	-12.3774	-617.9927	SLV 37	2.919	Si
4.5	0.007691	1.5	0	5,6	-1.9524	-244.7755	-150.06	-2.02	2.21	-4.8663	-610.0988	SLV 5	2.492	Si

Verifica a taglio in famiglia SLU

		Direzione X								Direzione Y								Verifica
Quota	Staffe	V	N	Comb.	VRd	VRsd	VRcd	Cot	c.s.	V	N	Comb.	VRd	VRsd	VRcd	Cot	c.s.	
0	2X/2Y ø10/14.1	40.94	-335.97	SLU 16	231.69	168.37	1876.43	1	5.66	0.02	-503.13	SLU 3	237.1	367.43	2082.54	1	19368.38	Si
0.3	2X/2Y ø10/14.1	-51.78	-502.71	SLU 17	253.1	168.37	1908.55	1	4.89	0.02	-498.15	SLU 3	236.4	367.43	2081.5	1	19368.38	Si
0.6	2X/2Y ø10/14.1	-67.66	-497.64	SLU 17	252.45	168.37	1907.57	1	3.73	0.02	-493.09	SLU 3	235.69	367.43	2080.43	1	19368.38	Si
0.9	2X/2Y ø10/14.1	-82.57	-492.58	SLU 17	251.8	168.37	1906.6	1	3.05	0.02	-488.02	SLU 3	234.98	367.43	2079.37	1	19368.38	Si
1.2	2X/2Y ø10/14.1	-96.52	-487.52	SLU 17	251.15	168.37	1905.62	1	2.6	0.02	-482.96	SLU 3	234.28	367.43	2078.31	1	19368.38	Si
1.5	2X/2Y ø10/14.1	-109.5	-482.46	SLU 17	250.5	168.37	1904.65	1	2.29	0.02	-477.9	SLU 3	233.57	367.43	2077.24	1	19368.38	Si
1.8	2X/2Y ø10/14.1	-121.48	-477.39	SLU 17	249.85	168.37	1903.67	1	2.06	0.02	-472.84	SLU 3	232.86	367.43	2076.18	1	19368.38	Si
2.1	2X/2Y ø10/14.1	-132.48	-472.33	SLU 17	249.2	168.37	1902.7	1	1.88	0.02	-467.77	SLU 3	232.15	367.43	2075.11	1	19368.38	Si
2.4	2X/2Y ø10/14.1	-142.51	-467.27	SLU 17	248.55	168.37	1901.72	1	1.74	0.02	-462.71	SLU 3	231.44	367.43	2074.05	1	19368.38	Si
2.7	2X/2Y ø10/14.1	-152.84	-462.21	SLU 1	247.9	168.37	1900.74	1	1.62	0.02	-457.65	SLU 3	230.73	367.43	2072.99	1	19368.38	Si
3	2X/2Y ø10/14.1	-162.48	-457.14	SLU 1	247.25	168.37	1899.77	1	1.52	0.02	-452.59	SLU 3	230.02	367.43	2071.92	1	19368.38	Si
3.3	2X/2Y ø10/14.1	-171.15	-452.08	SLU 1	246.6	168.37	1898.79	1	1.44	0.02	-447.52	SLU 3	229.31	367.43	2070.86	1	19368.38	Si
3.46	2X/2Y ø10/14.1	-175.36	-449.39	SLU 1	246.25	168.37	1898.28	1	1.4	0.02	-444.83	SLU 3	228.93	367.43	2070.29	1	19368.38	Si
3.6	2X/2Y ø10/14.1	-178.84	-447.02	SLU 1	245.95	168.37	1897.82	1	1.38	0.02	-442.46	SLU 3	228.6	367.43	2069.79	1	19368.38	Si
3.9	2X/2Y ø10/14.1	-185.53	-441.96	SLU 1	245.3	168.37	1896.84	1	1.32	0.02	-437.4	SLU 3	227.89	367.43	2068.73	1	19368.38	Si
4.2	2X/2Y ø10/14.1	-191.26	-436.89	SLU 1	244.65	168.37	1895.87	1	1.28	0.02	-432.34	SLU 3	227.18	367.43	2067.67	1	19368.38	Si
4.5	2X/2Y ø10/14.1	-195.95	-431.92	SLU 1	244.01	168.37	1894.91	1	1.25	0.02	-427.36	SLU 3	226.49	367.43	2066.62	1	19368.38	Si

Verifica a taglio in famiglia SLV

		Direzione X								Direzione Y								Verifica
Quota	Staffe	V	N	Comb.	VRd	VRsd	VRcd	Cot	c.s.	V	N	Comb.	VRd	VRsd	VRcd	Cot	c.s.	
0	2X/2Y ø10/14.1	111.01	-150.94	SLV 7	207.93	168.37	1840.8	1	1.87	25.9	-170.29	SLV 3	190.47	367.43	2012.6	1	14.19	Si
0.3	2X/2Y ø10/14.1	96.81	-147.25	SLV 7	207.46	168.37	1840.09	1	2.14	25.9	-166.61	SLV 3	189.95	367.43	2011.82	1	14.19	Si
0.6	2X/2Y ø10/14.1	83.21	-143.5	SLV 7	206.98	168.37	1839.36	1	2.49	25.9	-162.86	SLV 3	189.43	367.43	2011.04	1	14.19	Si
0.9	2X/2Y ø10/14.1	70.48	-139.75	SLV 7	206.5	168.37	1838.64	1	2.93	25.9	-159.11	SLV 3	188.9	367.43	2010.25	1	14.19	Si
1.2	2X/2Y ø10/14.1	58.6	-136	SLV 7	206.02	168.37	1837.92	1	3.52	25.9	-155.36	SLV 3	188.38	367.43	2009.46	1	14.19	Si
1.5	2X/2Y ø10/14.1	-60.1	-187.48	SLV 41	212.63	168.37	1847.83	1	3.54	25.9	-151.61	SLV 3	187.85	367.43	2008.67	1	14.19	Si
1.8	2X/2Y ø10/14.1	-68.32	-183.73	SLV 41	212.14	168.37	1847.11	1	3.11	25.9	-147.86	SLV 3	187.33	367.43	2007.88	1	14.19	Si
2.1	2X/2Y ø10/14.1	-75.89	-179.98	SLV 25	211.66	168.37	1846.39	1	2.79	25.9	-144.11	SLV 3	186.8	367.43	2007.09	1	14.19	Si
2.4	2X/2Y ø10/14.1	-83.86	-176.23	SLV 25	211.18	168.37	1845.67	1	2.52	25.9	-140.36	SLV 3	186.28	367.43	2006.31	1	14.19	Si
2.7	2X/2Y ø10/14.1	-91.33	-172.48	SLV 9	210.7	168.37	1844.94	1	2.31	25.9	-136.61	SLV 3	185.75	367.43	2005.52	1	14.19	Si
3	2X/2Y ø10/14.1	-98.02	-168.73	SLV 9	210.22	168.37	1844.22	1	2.14	25.9	-132.86	SLV 3	185.23	367.43	2004.73	1	14.19	Si
3.3	2X/2Y ø10/14.1	-103.84	-164.98	SLV 9	209.74	168.37	1843.5	1	2.02	25.9	-129.11	SLV 3	184.7	367.43	2003.94	1	14.19	Si
3.46	2X/2Y ø10/14.1	-106.59	-162.99	SLV 9	209.48	168.37	1843.12	1	1.97	25.9	-127.11	SLV 3	184.42	367.43	2003.52	1	14.19	Si
3.6	2X/2Y ø10/14.1	-108.8	-161.23	SLV 9	209.26	168.37	1842.78	1	1.92	25.9	-125.36	SLV 3	184.17	367.43	2003.15	1	14.19	Si
3.9	2X/2Y ø10/14.1	-112.87	-157.48	SLV 9	208.77	168.37	1842.06	1	1.85	25.9	-121.61	SLV 3	183.65	367.43	2002.37	1	14.19	Si
4.2	2X/2Y ø10/14.1	-116.08	-153.73	SLV 9	208.29	168.37	1841.33	1	1.79	25.9	-117.86	SLV 3	183.12	367.43	2001.58	1	14.19	Si
4.5	2X/2Y ø10/14.1	-118.41	-150.05	SLV 9	207.82	168.37	1840.62	1	1.76	25.9	-114.17	SLV 3	182.61	367.43	2000.8	1	14.19	Si

Verifica delle tensioni in combinazioni rara

Tensione limite del calcestruzzo 19920 kN/m²

Tensione limite dell'acciaio 360000 kN/m²
Coefficiente di omogeneizzazione impiegato 15

Quota	Mx	My	N	Comb.	σc,max	Mx	My	N	Comb.	σf,max	Verifica
0	-0.0265	-37.8892	-371.44	SLE RA 16	-1365	-0.0267	-31.9547	-435.74	SLE RA 4	-17754	Si
0.3	-0.0217	-36.0383	-432.05	SLE RA 4	-1433	-0.0217	-36.0383	-432.05	SLE RA 4	-18500	Si
0.6	-0.0096	-49.4746	-428.3	SLE RA 7	-1686	-0.0096	-49.4746	-428.3	SLE RA 7	-21168	Si
0.9	-0.0051	-69.1817	-424.55	SLE RA 7	-2059	-0.0051	-69.1817	-424.55	SLE RA 7	-25127	Si
1.2	-0.0006	-92.4161	-420.8	SLE RA 7	-2500	-0.0006	-92.4161	-420.8	SLE RA 7	-29812	Si
1.5	0.0039	-118.9672	-417.05	SLE RA 7	-3831	0.0039	-118.9672	-417.05	SLE RA 7	48835	Si
1.8	0.0084	-148.7168	-413.3	SLE RA 7	-4784	0.0084	-148.7168	-413.3	SLE RA 7	76242	Si
2.1	0.0129	-181.3851	-409.55	SLE RA 7	-5818	0.0129	-181.3851	-409.55	SLE RA 7	107255	Si
2.4	0.0174	-216.7158	-405.8	SLE RA 7	-6926	0.0174	-216.7158	-405.8	SLE RA 7	141272	Si
2.7	0.0219	-254.4979	-402.05	SLE RA 7	-8104	0.0219	-254.4979	-402.05	SLE RA 7	177912	Si
3	0.0264	-294.5209	-398.3	SLE RA 7	-9345	0.0264	-294.5209	-398.3	SLE RA 7	216877	Si
3.3	0.0309	-336.5738	-394.55	SLE RA 7	-10645	0.0309	-336.5738	-394.55	SLE RA 7	257911	Si
3.46	0.0332	-359.7264	-392.56	SLE RA 7	-11359	0.0332	-359.7264	-392.56	SLE RA 7	280527	Si
3.6	0.0354	-380.4739	-390.8	SLE RA 7	-11735	0.0354	-380.4739	-390.8	SLE RA 7	287036	Si
3.9	0.0399	-426.0141	-387.05	SLE RA 7	-12320	0.0399	-426.0141	-387.05	SLE RA 7	290323	Si
4.2	0.0444	-472.93	-383.3	SLE RA 7	-12925	0.0444	-472.93	-383.3	SLE RA 7	296982	Si
4.5	0.0491	-521.5617	-379.62	SLE RA 4	-14162	0.0491	-521.5617	-379.62	SLE RA 4	330618	Si

Verifica delle tensioni sul calcestruzzo in combinazioni quasi permanenti

Tensione limite del calcestruzzo 14940 kN/m²
Coefficiente di omogeneizzazione impiegato 15

Quota	Mx	My	N	Comb.	σc,max	Verifica
0	-0.0157	-44.4509	-178.56	SLE QP 5	-1162	Si
0.3	-0.0138	-29.1954	-174.87	SLE QP 5	-862	Si
0.6	0.0026	-32.7897	-171.12	SLE QP 1	-924	Si
0.9	0.0033	-40.1599	-167.37	SLE QP 1	-1060	Si
1.2	0.004	-47.5302	-163.62	SLE QP 1	-1196	Si
1.5	0.0047	-54.9004	-159.87	SLE QP 1	-1331	Si
1.8	0.0054	-62.2707	-156.12	SLE QP 1	-1467	Si
2.1	0.0061	-69.6409	-152.37	SLE QP 1	-1603	Si
2.4	0.0068	-77.0112	-148.62	SLE QP 1	-1738	Si
2.7	0.0075	-84.3814	-144.87	SLE QP 1	-1874	Si
3	0.0082	-91.7517	-141.12	SLE QP 1	-2920	Si
3.3	0.0088	-99.122	-137.37	SLE QP 1	-3147	Si
3.46	0.0092	-103.0448	-135.37	SLE QP 1	-3267	Si
3.6	0.0095	-106.4922	-133.62	SLE QP 1	-3300	Si
3.9	0.0102	-113.8625	-129.87	SLE QP 1	-3313	Si
4.2	0.0109	-121.2327	-126.12	SLE QP 1	-3337	Si
4.5	0.0124	-133.6598	-122.43	SLE QP 5	-3652	Si

Verifica di apertura delle fessure nella famiglia di combinazioni frequente

Valore limite di controllo 0,300 mm
Coefficiente di viscosità Fi = 1.7
Coefficiente di omogeneizzazione impiegato 15

Quota	Mx	My	N	Comb.	Mx,sr	My,sr	N,sr	σs	Ac,eff	ρ,eff	Sm	Wk	Fessurata	Verifica
2.7	0.0194	-208.1422	-287.75	SLE FR 12	0.017	-183.3037	-18330.37	152237	0.11042	0.0266	0.3513	0.000156	Si	Si
3	0.0214	-230.7572	-284	SLE FR 12	0.0168	-180.5331	-18053.31	174577	0.11165	0.0263	0.353	0.000179	Si	Si
3.3	0.0235	-253.3721	-280.25	SLE FR 12	0.0166	-178.3189	-17831.89	196959	0.11265	0.0261	0.3543	0.000203	Si	Si
3.46	0.0246	-265.4091	-278.25	SLE FR 12	0.0165	-177.3125	-17731.25	208885	0.1131	0.026	0.3549	0.000216	Si	Si
3.6	0.0256	-275.9871	-276.5	SLE FR 12	0.0165	-178.2629	-17826.29	209323	0.11264	0.0278	0.3694	0.000225	Si	Si
3.9	0.0277	-298.6021	-272.75	SLE FR 12	0.0169	-181.9132	-18191.32	203292	0.11114	0.033	0.3339	0.000198	Si	Si
4.2	0.0298	-321.2171	-269	SLE FR 12	0.0172	-185.4838	-18548.38	200632	0.11011	0.0367	0.312	0.000185	Si	Si
4.5	0.0319	-343.7893	-265.31	SLE FR 13	0.0172	-184.6537	-18465.37	216054	0.11052	0.0368	0.3086	0.000206	Si	Si

7.3.2 Verifiche traverso superiore

N°: indice progressivo della sezione
Descrizione: descrizione della sezione
Tipo: tipo di sezione

Base: base della sezione [m]
Altezza: altezza della sezione [m]
Copriferro sup.: distanza del bordo della staffa dalla superficie superiore del getto [m]
Copriferro inf.: distanza del bordo della staffa dalla superficie inferiore del getto [m]
Copriferro lat.: distanza del bordo della staffa dalle superfici laterali del getto [m]
x: distanza da asse appoggio sinistro [m]
A sup.: area efficace di armatura longitudinale superiore [m²]
C.b. sup.: distanza dal bordo del baricentro dell'armatura longitudinale superiore [m]
A inf.: area efficace di armatura longitudinale inferiore [m²]
C.b. inf.: distanza dal bordo del baricentro dell'armatura longitudinale inferiore [m]
*M+ela: momento flettente desunto dal solutore che tende le fibre inferiori [kN*m]*
Comb.: combinazione
*M+des: momento flettente di progetto che tende le fibre inferiori [kN*m]*
*M+ult: momento ultimo per trazione delle fibre inferiori [kN*m]*
x/d: rapporto tra posizione asse neutro e altezza utile
*M-ela: momento flettente desunto dal solutore che tende le fibre superiori [kN*m]*
*M-des: momento flettente di progetto che tende le fibre superiori [kN*m]*
*M-ult: momento ultimo per trazione delle fibre superiori [kN*m]*
Verifica: stato di verifica
A st: area di staffe per unità di lunghezza [m²]
A sl: area di armatura longitudinale tesa per valutazione resistenza taglio in assenza di armature a taglio [m²]
A sag: area equivalente di barre piegate per unità di lunghezza [m²]
Vela: taglio elastico [kN]
Vdes: taglio di progetto [kN]
Vrd: resistenza a taglio della sezione senza armature [kN]
Vrcd: sforzo di taglio che produce il cedimento delle bielle [kN]
Vrsd: resistenza a taglio per la presenza delle armature [kN]
Vult: taglio ultimo [kN]
cotgθ: cotg dell'angolo di inclinazione dei puntoni in calcestruzzo
*Mela: momento elastico [kN*m]*
*Mdes: momento di progetto [kN*m]*
σ c: tensione di compressione nel calcestruzzo [kN/m²]
σ f: tensione di trazione nell'acciaio [kN/m²]
Rara: famiglia di combinazione di verifica
Elastica+: massima freccia a sezione interamente reagente di solo calcestruzzo [m]
Elastica-: minima freccia a sezione interamente reagente di solo calcestruzzo [m]
Fess.+: massima freccia a sezione fessurata ed omogeneizzata [m]
Fess.-: minima freccia a sezione fessurata ed omogeneizzata [m]
Quasi permanente: famiglia di combinazione di verifica
Fess. viscosa+: massima freccia a sezione fessurata ed omogeneizzata a viscosità esaurita [m]
Fess. viscosa-: minima freccia a sezione fessurata ed omogeneizzata a viscosità esaurita [m]
l/f: rapporto luce su freccia in combinazione quasi permanente
Bordo: bordo interessato dalla fessura
Rara: famiglia di combinazione per verifica inferiore
Dmax: distanza massima tra le fessure [m]
Esm: dilatazione media delle barre di armatura
Wd: valore di calcolo di apertura delle fessure [m]
Comb: combinazione
Frequente: famiglia di combinazione per verifica inferiore
Quasi permanente: famiglia di combinazione per verifica inferiore
Frequente: famiglia di combinazione di verifica

Le unità di misura delle verifiche elencate nel capitolo sono in [m, kN] ove non espressamente specificato.

Caratteristiche dei materiali

Acciaio: B450C_1 Fyk 450000

Calcestruzzo: C32/40 Rck 40000

Verifiche a flessione in famiglia SLU

x	A sup.	C.b. sup.	A inf.	C.b. inf.	M+ela	Comb.	M+des	M+ult	x/d	M-ela	Comb.	M-des	M-ult	x/d	Verifica
0	0.004285	0.061	0.001422	0.062						-638.1373	SLU 1	-584.9983	-661.0318	0.224	Si
0.25	0.004285	0.061	0.002139	0.062						-533.11	SLU 1	-533.11	-662.4637	0.206	Si
3	0.001571	0.06	0.004976	0.062	454.7167	SLU 20	583.7693	759.5473	0.249						Si
4.5	0.001571	0.06	0.004976	0.062	686.357	SLU 20	734.0148	759.5473	0.249						Si
6	0.001571	0.06	0.004976	0.062	447.785	SLU 18	579.091	759.5473	0.249						Si
8.75	0.004285	0.061	0.002139	0.062						-552.4323	SLU 3	-552.4323	-662.4637	0.206	Si
9	0.004285	0.061	0.001422	0.062						-658.5925	SLU 3	-604.887	-661.0318	0.224	Si

Verifiche a flessione in famiglia SLV (domini sostanzialmente elastici)

La struttura oppure parte di essa, è stata dichiarata come non dissipativa pertanto la verifica a pressoflessione, per tutte o solo alcune sezioni, viene eseguita calcolando i momenti resistenti in campo sostanzialmente elastico secondo D.M. 17-01-2018 §7.4.1

Le dilatazioni ultime utilizzate sono le seguenti

ε,cu= 0.002

ε,fy= 0.0019

x	A sup.	C.b. sup.	A inf.	C.b. inf.	M+ela	Comb.	M+des	M+ult	x/d	M-ela	Comb.	M-des	M-ult	x/d	Verifica
0	0.004285	0.061	0.001422	0.062						-275.124	SLV 5	-256.9305	-630.9501	0.346	Si
0.25	0.004285	0.061	0.002139	0.062	-1.4464	SLV 43	37.4061	328.9324	0.229	-239.3996	SLV 5	-239.3996	-633.0051	0.337	Si
3	0.001571	0.06	0.004976	0.062	132.2463	SLV 39	134.7346	727.6691	0.37						Si
6	0.001571	0.06	0.004976	0.062	132.267	SLV 37	134.7485	727.6691	0.37						Si
7.2	0.001571	0.06	0.002262	0.062	98.6472	SLV 37	116.9404	346.912	0.253	-53.7249	SLV 11	-106.5844	-245.7864	0.21	Si
8.75	0.004285	0.061	0.002139	0.062	-1.4148	SLV 37	37.4377	328.9324	0.229	-239.4312	SLV 11	-239.4312	-633.0051	0.337	Si
9	0.004285	0.061	0.001422	0.062						-275.1557	SLV 11	-256.9622	-630.9501	0.346	Si

Verifiche a taglio in famiglia SLU

x	A st	A sl	A sag	Vela	Comb.	Vdes	Vrd	Vrcd	Vrsd	Vult	cotgθ	Verifica
0	0	0.004285	0	427.61	SLU 17	427.61	269	1120.7	0	269	2.5	Si
0.25	0.0000152	0.004285	0	415.11	SLU 17	415.11	269	1120.7	585.38	585.38	2.5	Si
3	0.0000152	0.004976	0	277.55	SLU 17	277.55	282.52	1118.83	584.4	584.4	2.5	Si
6	0.0000152	0.004976	0	-282.08	SLU 4	-282.08	-282.52	-1118.83	-584.4	-584.4	2.5	Si
8.75	0.0000152	0.004285	0	-419.64	SLU 4	-419.64	-269	-1120.7	-585.38	-585.38	2.5	Si
9	0	0.004285	0	-432.14	SLU 4	-432.14	-269	-1120.7	0	-269	2.5	Si

Verifiche a taglio in famiglia SLV

x	A st	A sl	A sag	Vela	Comb.	Vdes	Vrd	Vrcd	Vrsd	Vult	cotgθ	Verifica
0	0	0.004285	0	146.87	SLV 37	146.87	269	1120.7	0	269	2.5	Si
0.25	0.0000152	0.004285	0	140.25	SLV 37	140.25	269	1120.7	585.38	585.38	2.5	Si
3	0.0000152	0.004976	0	67.38	SLV 37	67.38	282.52	1118.83	584.4	584.4	2.5	Si
6	0.0000152	0.004976	0	-67.38	SLV 11	-67.38	-282.52	-1118.83	-584.4	-584.4	2.5	Si
8.75	0.0000152	0.004285	0	-140.25	SLV 11	-140.25	-269	-1120.7	-585.38	-585.38	2.5	Si
9	0	0.004285	0	-146.87	SLV 11	-146.87	-269	-1120.7	0	-269	2.5	Si

Verifiche delle tensioni in esercizio

x	Mela	Comb.	Mdes	σ c	σ f	Mela	Comb.	Mdes	σ c	Verifica	Rara	Quasi permanente
0	-568.2466	4	-521.4346	13742	17430	0.3211	3600	-150.8162	5	-1360763,62718772	35,8610042185751	130,725
0.25	-475.5889	4	-475.5889	11980	17430	0.2921	3600	-121.999	5	-1219990,47804691	30,7320561632643	130,725
3	393.5254	7	517.8814	12914	17430	0.2755	3600	103.7292	1	1199492,18243793	29,9104391126831	130,725
6	393.4634	7	517.8071	12912	17430	0.2754	3600	103.7293	1	1199492,24493793	29,910440671178	130,725
8.75	-475.583	4	-475.583	11980	17430	0.2921	3600	-121.9991	5	-1219990,79627961	30,7320641796755	130,725
9	-568.2345	4	-521.4256	13741	17430	0.3211	3600	-150.8163	5	-1360763,9560345	35,8610128848676	130,725

Verifica di apertura delle fessure

x	Bordo	Rara				Frequente				Quasi permanente				Verifica
		Dmax	Esm	Wd	Comb	Dmax	Esm	Wd	Comb	Dmax	Esm	Wd	Comb	
0	superiore	0.267	0.00122	0.000327	4	0.267	0.00077	0.000206	13	0.267	0.00024	0.000065	5	Si
0.25	superiore	0.268	0.00108	0.00029	4	0.268	0.00067	0.00018	13	0.268	0.00022	0.000059	5	Si
3	inferiore	0.257	0.00104	0.000267	7	0.257	0.0007	0.000181	12	0.257	0.00019	0.000048	1	Si
4.2	inferiore	0.257	0.0013	0.000334	7	0.257	0.00087	0.000223	12	0.257	0.00021	0.000053	1	Si
6	inferiore	0.257	0.00104	0.000267	7	0.257	0.0007	0.000181	12	0.257	0.00019	0.000048	1	Si
8.75	superiore	0.268	0.00108	0.00029	4	0.268	0.00067	0.00018	13	0.268	0.00022	0.000059	5	Si
9	superiore	0.267	0.00122	0.000327	4	0.267	0.00077	0.000206	13	0.267	0.00024	0.000065	5	Si

Verifica di deformabilità

x	Rara				Frequente				Quasi permanente							Verifica
	Elastica+	Elastica-	Fess.+	Fess.-	Elastica+	Elastica-	Fess.+	Fess.-	Elastica+	Elastica-	Fess. viscosa+	Comb.	Fess. viscosa-	Comb.	I/f	
0.25	0.00056	0.00042	0.00119	0.00082	0.00041	0.00011	0.00074	0.00009	0.00016	0.00011	0.00034	1	0.00023	1	9999	Si
3	0.0088	0.00688	0.01897	0.01333	0.00614	0.00183	0.01081	0.00158	0.00225	0.00183	0.00479	1	0.00386	1	1879	Si
4.5	0.01078	0.00844	0.02358	0.01666	0.00746	0.0022	0.01342	0.0019	0.00268	0.0022	0.0057	1	0.00466	1	1579	Si
6	0.00879	0.00687	0.01896	0.01332	0.00613	0.00183	0.01081	0.00158	0.00225	0.00183	0.00479	1	0.00386	1	1880	Si
8.75	0.00056	0.00042	0.00119	0.00082	0.00041	0.00011	0.00074	0.00009	0.00016	0.00011	0.00034	1	0.00023	1	9999	Si

7.3.3 Verifiche platea di fondazione

Caratteristiche dei materiali

Acciaio: B450C_1 Fyk 450000

Calcestruzzo: C32/40 Rck 40000

Verifiche a flessione in famiglia SLU

x	A sup.	C.b. sup.	A inf.	C.b. inf.	M+ela	Comb.	M+des	M+ult	x/d	M-ela	Comb.	M-des	M-ult	x/d	Verifica
0	0.001571	0.06	0.001571	0.06	105.7314	SLU 12	56.894	261.0548	0.125						Si
0.25	0.001571	0.06	0.001571	0.06	22.1495	SLU 12	22.1495	261.0548	0.125	-101.9827	SLU 17	-190.0159	-261.0548	0.125	Si
3	0.001571	0.06	0.001571	0.06						-31.3306	SLU 2	-70.5432	-261.0548	0.125	Si
6	0.001571	0.06	0.001571	0.06						-31.5732	SLU 4	-72.5965	-261.0548	0.125	Si
7.8	0.001571	0.06	0.001571	0.06						-208.6976	SLU 19	-218.1392	-261.0548	0.125	Si
8.75	0.001571	0.06	0.001571	0.06						-124.8756	SLU 19	-208.9666	-261.0548	0.125	Si
9	0.001571	0.06	0.001571	0.06	83.0413	SLU 10	33.5825	261.0548	0.125	-20.6279	SLU 19	-20.6279	-261.0548	0.125	Si

Verifiche a flessione in famiglia SLV (domini sostanzialmente elastici)

La struttura oppure parte di essa, è stata dichiarata come non dissipativa pertanto la verifica a pressoflessione, per tutte o solo alcune sezioni, viene eseguita calcolando i momenti resistenti in campo sostanzialmente elastico secondo D.M. 17-01-2018 §7.4.1

Le dilatazioni ultime utilizzate sono le seguenti

ε,cu= 0.002

ε,fy= 0.0019

x	A sup.	C.b. sup.	A inf.	C.b. inf.	M+ela	Comb.	M+des	M+ult	x/d	M-ela	Comb.	M-des	M-ult	x/d	Verifica
0	0.001571	0.06	0.001571	0.06	202.0137	SLV 7	182.4308	246.0271	0.213	-82.8615	SLV 41	-82.8615	-246.0271	0.213	Si
0.25	0.001571	0.06	0.001571	0.06	163.3866	SLV 7	163.3866	246.0271	0.213	-122.3683	SLV 41	-142.8227	-246.0271	0.213	Si
3	0.001571	0.06	0.001571	0.06						-13.3641	SLV 5	-34.4471	-246.0271	0.213	Si
6	0.001571	0.06	0.001571	0.06						-13.3619	SLV 7	-34.4462	-246.0271	0.213	Si
8.75	0.001571	0.06	0.001571	0.06	163.3789	SLV 5	163.3789	246.0271	0.213	-122.441	SLV 43	-142.908	-246.0271	0.213	Si
9	0.001571	0.06	0.001571	0.06	201.9382	SLV 5	182.4194	246.0271	0.213	-82.786	SLV 43	-82.786	-246.0271	0.213	Si

Verifiche a taglio in famiglia SLU

x	A st	A sl	A sag	Vela	Comb.	Vdes	Vrd	Vrcd	Vrsd	Vult	cotgθ	Verifica
0	0.0000152	0.001571	0	-512.83	SLU 17	-512.83	-192.77	-1123.93	-589.33	-589.33	2.5	Si
0.25	0.0000152	0.001571	0	-344.24	SLU 4	-344.24	-192.77	-1123.93	-589.33	-589.33	2.5	Si
3	0.0000152	0.001571	0	66.79	SLU 17	66.79	192.77	1123.93	589.33	589.33	2.5	Si
6	0.0000152	0.001571	0	-69.08	SLU 19	-69.08	-192.77	-1123.93	-589.33	-589.33	2.5	Si

x	A st	A sl	A sag	Vela	Comb.	Vdes	Vrd	Vrcd	Vrsd	Vult	cotgθ	Verifica
8.75	0.0000152	0.001571	0	341	SLU 2	341	192.77	1123.93	589.33	589.33	2.5	Si
9	0.0000152	0.001571	0	517.36	SLU 4	517.36	192.77	1123.93	589.33	589.33	2.5	Si

Verifiche a taglio in famiglia SLV

x	A st	A sl	A sag	Vela	Comb.	Vdes	Vrd	Vrcd	Vrsd	Vult	cotgθ	Verifica
0	0.0000152	0.001571	0	-210	SLV 37	-210	-192.77	-1123.93	-589.33	-589.33	2.5	Si
0.25	0.0000152	0.001571	0	-152.35	SLV 7	-152.35	-192.77	-1123.93	-589.33	-589.33	2.5	Si
3	0.0000152	0.001571	0	32.18	SLV 41	32.18	192.77	1123.93	589.33	589.33	2.5	Si
6	0.0000152	0.001571	0	-32.17	SLV 43	-32.17	-192.77	-1123.93	-589.33	-589.33	2.5	Si
8.75	0.0000152	0.001571	0	152.32	SLV 5	152.32	192.77	1123.93	589.33	589.33	2.5	Si
9	0.0000152	0.001571	0	210	SLV 11	210	192.77	1123.93	589.33	589.33	2.5	Si

Verifiche delle tensioni in esercizio

x	Mela	Comb.	Mdes	σ c	σ f	Mela	Comb.	Mdes	σ c	Verifica	Rara	Quasi permanente
0	46.1968	16	26.4633	979	17430	0.0423	3600	64.7467	5	421008,864931552	15,5749230995792	130,725
0.25								25.4936	5	254935,582063929	9,43116028361467	130,725
0.25	-75.8714	7	-153.8234	5691	17430	0.2457	3600	-26.6275	1	-599934,52579995	22,1941504857288	130,725
3	-26.5415	4	-59.7801	2212	17430	0.0955	3600	-11.8866	5	-244797,930004816	9,05612506611007	130,725
6	-26.5398	4	-59.7776	2211	17430	0.0955	3600	-11.8867	5	-244799,454949817	9,05618148036426	130,725
8.75								25.4567	5	254566,502501517	9,41750644807579	130,725
8.75	-76.0573	7	-154.0027	5697	17430	0.246	3600	-26.6987	1	-600646,905147614	22,2205044523119	130,725
9	46.1877	16	26.4513	979	17430	0.0423	3600	64.7467	5	420639,870706199	15,561272421024	130,725

Verifica di apertura delle fessure

x	Bordo	Rara				Frequente				Quasi permanente				Verifica
		Dmax	Esm	Wd	Comb	Dmax	Esm	Wd	Comb	Dmax	Esm	Wd	Comb	
0.25	superiore	0.449	0.00072	0.000321	7	0.449	0.00063	0.000282	12	0.449	0.00028	0.000125	1	Si
7.8	superiore	0.449	0.00076	0.000343	7	0.449	0.00065	0.000294	12	0.449	0.0003	0.000135	1	Si
8.75	superiore	0.449	0.00072	0.000322	7	0.449	0.00063	0.000282	12	0.449	0.00028	0.000125	1	Si

7.3.4 Verifica muro d'ala

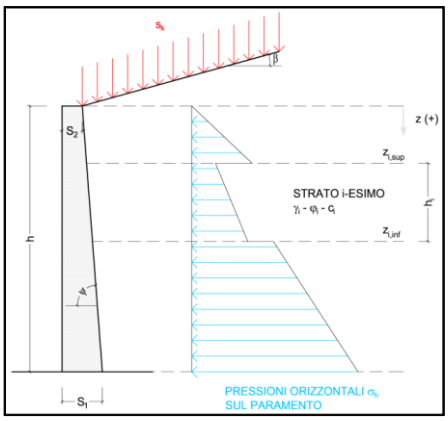
VERIFICHE SLU

Per la verifica dei muri d'ala, si tiene conto della spinta esercitata dal terreno a tergo degli stessi, costituito dal nuovo rilevato stradale (le cui caratteristiche sono riepilogate nei paragrafi precedenti), tenendo conto di un sovraccarico variabile dovuto al traffico veicolare di 20 kN/m^2.

Considerando che il muro presenta uno sviluppo limitato e che risulta strutturalmente collegato alla struttura del tombino scatolare, si può affermare che non risulta in grado di subire spostamenti rispetto al terreno, pertanto la spinta del terreno è valutata come "spinta in quiete".

Il calcolo delle spinte nelle varie combinazioni di carico è riepilogato nelle tabelle di seguito:

Tutti i valori sono riferiti a una striscia di larghezza unitaria.



GEOMETRIA MURO E RINTERRO

γ_M=	25	kN/m³	Peso per unità di volume
s_1=	0,5	m	Spessore alla base
s_2=	0,5	m	Spessore in testa
h_f=	0,6	m	Altezza suola fondazione
h=	5,4	m	Altezza paramento
β=	0	°	Ang. terrapieno sull'orizzontale (>0 antiorario)
ψ=	90	°	Ang. par. interna sull'orizzontale (>0 orario)
H=	6	m	Altezza totale muro

MODALITA' DI SPINTA

Spinta in quiete

PARAMETRI SISMICI

C — Categoria suolo

T1 - Superficie pianeggiante, pendii e rilievi isolati con inclinazione media i<=15° — Caratteristiche pendio

Muro non in grado di subire spostamenti relativi rispetto al terreno — Caratteristiche pendio

a_g=	0,049	g	Accelerazione orizzontale massima su sito di riferimento rigido orizzontale (riferita all'accel. di gravità g)
F_0=	2,815		Fattore di amplificazione spettrale massima su sito di riferimento rigido orizzontale
T_C^*=	0,275	s	Periodo di inizio del tratto a velocità costante dello spettro in accelerazione orizzontale
C_C=	1,608		Coefficiente che modifica il valore del periodo T_C
S_s=	1,500		Coefficiente di amplificazione stratigrafica
S_T=	1,000		Coefficiente di amplificazione topografica
S=	1,500		Coefficiente che tiene conto della categoria di sottosuolo
a_{max}=	0,073	g	Accelerazione massima attesa al sito (riferita all'accelerazione di gravità g)
β_m=	1,00		Coefficiente di riduzione dell'accelerazione massima attesa al sito
k_h=	0,073		Coefficiente sismico orizzontale
k_v^+=	0,036		Coefficiente sismico verticale con accelerazione diretta verso l'alto
k_v^-=	-0,036		Coefficiente sismico verticale con accelerazione diretta verso il basso
θ_A=	4,02	°	Rotazione addizionale terreno-muro per accelerazione sismica verticale verso l'alto
θ_B=	4,32	°	Rotazione addizionale terreno-muro per accelerazione sismica verticale verso il basso

SOVRACCARICHI SUL RINTERRO

g_{1k}	g_{2k}	q_{1k}	
0	0	20	kN/m² — Carico uniformemente distribuito a tergo del paramento
s_{g1k}	s_{g2k}	s_{q1k}	
1	1	0,3	Coefficiente di riduzione della massa del sovraccarico

Coefficiente parziali di sicurezza dei carichi

γ_{G1}	γ_{G2}	γ_Q	γ_E	
1	1	1	-	Coefficiente parziali di sicurezza dei carichi SLE
1,3	1,5	1,5	-	Coefficiente parziali di sicurezza dei carichi SLU - APPROCCIO 1 - COMB 1 (A1) E APPROCCIO 2
1	1,3	1,3	-	Coefficiente parziali di sicurezza dei carichi SLU - APPROCCIO 1 - COMB 2 (A2)
1	1	1	1	Coefficiente parziali di sicurezza dei carichi in combinazione sismica SLV

Coefficiente parziali di sicurezza per i parametri geotecnici del terreno

γ_γ	γ_φ	$\gamma_{c'}$	
1	1	1	Coefficiente parziali di sicurezza dei parametri geotecnici SLE / SLU - APPROCCIO 1 - COMB 1 (M1), APPROCCIO 2 / SLV
1	1,25	1,25	Coefficiente parziali di sicurezza dei parametri geotecnici - SLU - APPROCCIO 1 - COMB 2 (M2)

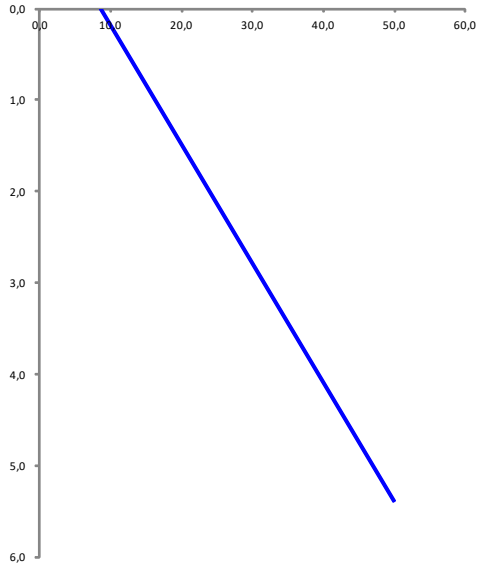
CARATTERISTICHE STRATI TERRENO

				PARAMETRI GEOTECNICI **CARATTERISTICI**				PARAMETRI GEOTECNICI DI PROGETTO **SLE / SLU - APPROCCIO 1 - COMB 1 (M1), APPROCCIO 2 / SLV**				COEFF. DI SPINTA DI PROGETTO **SLE / SLU - APPROCCIO 1 - COMB 1 (M1), APPROCCIO 2 / SLV**				PARAMETRI GEOTECNICI DI PROGETTO **SLU - APPROCCIO 1 - COMB 2 (M2)**				COEFF. DI SPINTA DI PROGETTO **SLU - APPROCCIO 1 - COMB 2 (M2)**			
Strato	z_{sup} [m]	z_{inf} [m]	h [m]	γ_k [kN/m³]	φ_k [°]	δ_k [°]	c_k' [kN/m²]	γ_d [kN/m³]	φ_d [°]	δ_d [°]	c_d' [kN/m²]	$k_{0,d}$ [-]	$k_{s,d}$ [-]	$k_{ea,d}$ [-]	$k_{eb,d}$ [-]	γ_d [kN/m³]	φ_d [°]	δ_d [°]	c_d' [kN/m²]	$k_{0,d}$ [-]	$k_{s,d}$ [-]	$k_{ea,d}$ [-]	$k_{eb,d}$ [-]
1	0,00	5,40	5,40	18,00	35,00	0,00	0,00	18,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	18,00	29,26	0,00	0,00	0,511	0,343	0,387	0,391
2	5,40	5,40	0,00	18,00	35,00	0,00	0,00	18,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	18,00	29,26	0,00	0,00	0,511	0,343	0,387	0,391
3	5,40	5,40	0,00	18,00	35,00	0,00	0,00	18,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	18,00	29,26	0,00	0,00	0,511	0,343	0,387	0,391
4	5,40	5,40	0,00	18,00	35,00	0,00	0,00	18,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	18,00	29,26	0,00	0,00	0,511	0,343	0,387	0,391
5	5,40	5,40	0,00	18,00	35,00	0,00	0,00	18,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	18,00	29,26	0,00	0,00	0,511	0,343	0,387	0,391
6	5,40	5,40	0,00	18,00	35,00	0,00	0,00	18,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	18,00	29,26	0,00	0,00	0,511	0,343	0,387	0,391
7	5,40	5,40	0,00	18,00	35,00	0,00	0,00	18,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	18,00	29,26	0,00	0,00	0,511	0,343	0,387	0,391
8	5,40	5,40	0,00	18,00	35,00	0,00	0,00	18,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	18,00	29,26	0,00	0,00	0,511	0,343	0,387	0,391
9	5,40	5,40	0,00	18,00	35,00	0,00	0,00	18,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	18,00	29,26	0,00	0,00	0,511	0,343	0,387	0,391
10	5,40	5,40	0,00	18,00	35,00	0,00	0,00	18,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	18,00	29,26	0,00	0,00	0,511	0,343	0,387	0,391

PRESSIONI DI PROGETTO SUL PARAMENTO (INCLUDONO I FATTORI DI SICUREZZA PARZIALI DELLE AZIONI)

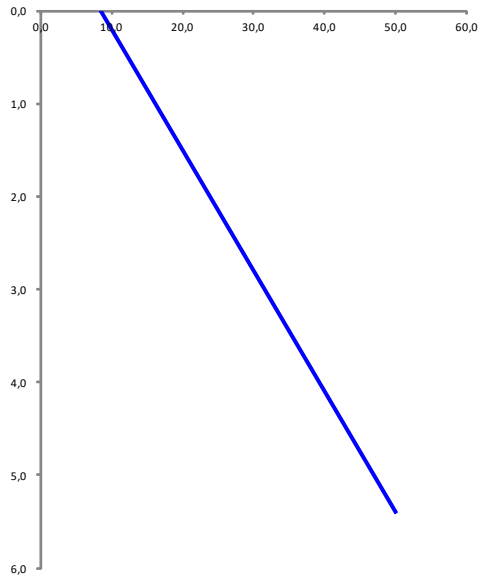
PRESSIONI DI PROGETTO CONDIZIONI STATICHE **SLE**

STRATO	z_{sup} / z_{inf} [m]	k_{hd} [-]	Tensione verticale litostatica σ_{vd} [kN/m²]	σ_{hd} Terreno [kN/m²]	σ_{hd} Sovraccarichi permanenti strutturali [kN/m²]	σ_{hd} Sovraccarichi permanenti non strutturali [kN/m²]	σ_{hd} Sovraccarichi variabili [kN/m²]	**Pressione orizzontale totale di progetto $\sigma_{hd,tot}$ [kN/m²]**
1	0,00	0,43	0,0	0,00	0,00	0,00	8,53	**8,53**
	5,40		97,2	41,45	0,00	0,00	8,53	**49,98**
2	5,40	0,43	97,2	41,45	0,00	0,00	8,53	**49,98**
	5,40		97,2	41,45	0,00	0,00	8,53	**49,98**
3	5,40	0,43	97,2	41,45	0,00	0,00	8,53	**49,98**
	5,40		97,2	41,45	0,00	0,00	8,53	**49,98**
4	5,40	0,43	97,2	41,45	0,00	0,00	8,53	**49,98**
	5,40		97,2	41,45	0,00	0,00	8,53	**49,98**
5	5,40	0,43	97,2	41,45	0,00	0,00	8,53	**49,98**
	5,40		97,2	41,45	0,00	0,00	8,53	**49,98**
6	5,40	0,43	97,2	41,45	0,00	0,00	8,53	**49,98**
	5,40		97,2	41,45	0,00	0,00	8,53	**49,98**
7	5,40	0,43	97,2	41,45	0,00	0,00	8,53	**49,98**
	5,40		97,2	41,45	0,00	0,00	8,53	**49,98**
8	5,40	0,43	97,2	41,45	0,00	0,00	8,53	**49,98**
	5,40		97,2	41,45	0,00	0,00	8,53	**49,98**
9	5,40	0,43	97,2	41,45	0,00	0,00	8,53	**49,98**
	5,40		97,2	41,45	0,00	0,00	8,53	**49,98**
10	5,40	0,43	97,2	41,45	0,00	0,00	8,53	**49,98**
	5,40		97,2	41,45	0,00	0,00	8,53	**49,98**



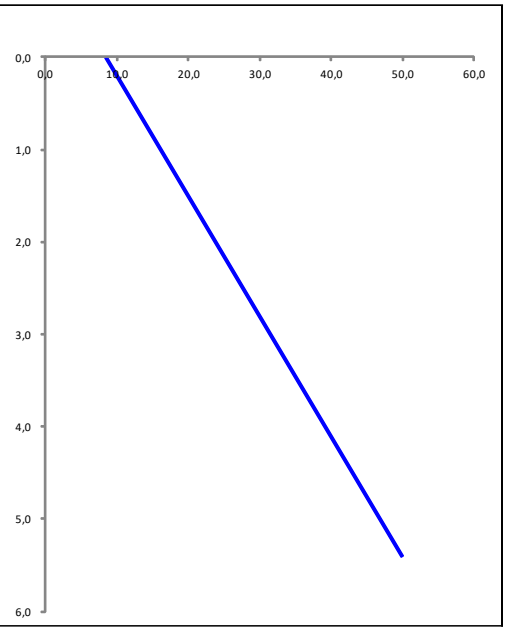
PRESSIONI DI PROGETTO CONDIZIONI STATICHE **SLU APPROCCIO 1 - COMBINAZIONE 1 E APPROCCIO 2**

STRATO	z_{sup} / z_{inf} [m]	k_{hd} [-]	Tensione verticale litostatica σ_{vd} [kN/m²]	σ_{hd} Terreno [kN/m²]	σ_{hd} Sovraccarichi permanenti strutturali [kN/m²]	σ_{hd} Sovraccarichi permanenti non strutturali [kN/m²]	σ_{hd} Sovraccarichi variabili [kN/m²]	**Pressione orizzontale totale di progetto $\sigma_{hd,tot}$ [kN/m²]**
1	0,00	0,43	0,0	0,00	0,00	0,00	12,79	**12,79**
	5,40		97,2	53,88	0,00	0,00	12,79	**66,68**
2	5,40	0,43	97,2	53,88	0,00	0,00	12,79	**66,68**
	5,40		97,2	53,88	0,00	0,00	12,79	**66,68**
3	5,40	0,43	97,2	53,88	0,00	0,00	12,79	**66,68**
	5,40		97,2	53,88	0,00	0,00	12,79	**66,68**
4	5,40	0,43	97,2	53,88	0,00	0,00	12,79	**66,68**
	5,40		97,2	53,88	0,00	0,00	12,79	**66,68**
5	5,40	0,43	97,2	53,88	0,00	0,00	12,79	**66,68**
	5,40		97,2	53,88	0,00	0,00	12,79	**66,68**
6	5,40	0,43	97,2	53,88	0,00	0,00	12,79	**66,68**
	5,40		97,2	53,88	0,00	0,00	12,79	**66,68**
7	5,40	0,43	97,2	53,88	0,00	0,00	12,79	**66,68**
	5,40		97,2	53,88	0,00	0,00	12,79	**66,68**
8	5,40	0,43	97,2	53,88	0,00	0,00	12,79	**66,68**
	5,40		97,2	53,88	0,00	0,00	12,79	**66,68**
9	5,40	0,43	97,2	53,88	0,00	0,00	12,79	**66,68**
	5,40		97,2	53,88	0,00	0,00	12,79	**66,68**
10	5,40	0,43	97,2	53,88	0,00	0,00	12,79	**66,68**
	5,40		97,2	53,88	0,00	0,00	12,79	**66,68**



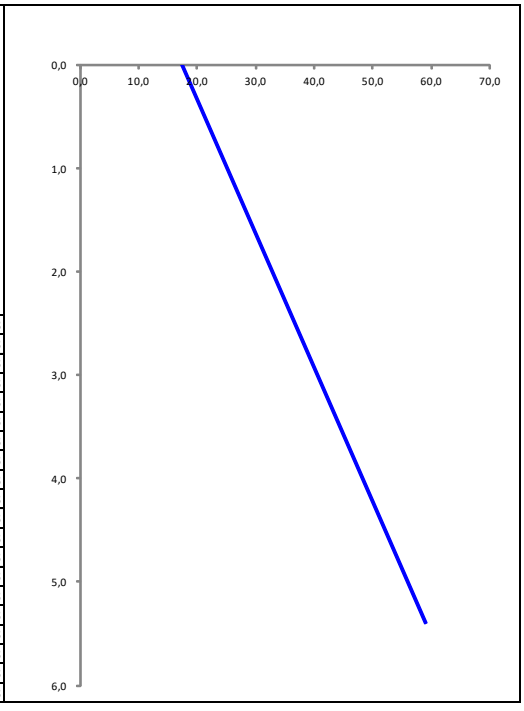
PRESSIONI DI PROGETTO CONDIZIONI STATICHE **SLU APPROCCIO 1 - COMBINAZIONE 2**

STRATO	z_{sup} / z_{inf} [m]	k_{rd} [-]	Tensione verticale litostatica σ_{vd} [kN/m²]	σ_{hd} Terreno [kN/m²]	σ_{hd} Sovraccarichi permanenti strutturali [kN/m²]	σ_{hd} Sovraccarichi permanenti non strutturali [kN/m²]	σ_{hd} Sovraccarichi variabili [kN/m²]	**Pressione orizzontale totale di progetto $\sigma_{hd,tot}$ [kN/m²]**
1	0,00	0,51	0,0	0,00	0,00	0,00	13,29	**13,29**
	5,40		97,2	49,70	0,00	0,00	13,29	**62,99**
2	5,40	0,51	97,2	49,70	0,00	0,00	13,29	**62,99**
	5,40		97,2	49,70	0,00	0,00	13,29	**62,99**
3	5,40	0,51	97,2	49,70	0,00	0,00	13,29	**62,99**
	5,40		97,2	49,70	0,00	0,00	13,29	**62,99**
4	5,40	0,51	97,2	49,70	0,00	0,00	13,29	**62,99**
	5,40		97,2	49,70	0,00	0,00	13,29	**62,99**
5	5,40	0,51	97,2	49,70	0,00	0,00	13,29	**62,99**
	5,40		97,2	49,70	0,00	0,00	13,29	**62,99**
6	5,40	0,51	97,2	49,70	0,00	0,00	13,29	**62,99**
	5,40		97,2	49,70	0,00	0,00	13,29	**62,99**
7	5,40	0,51	97,2	49,70	0,00	0,00	13,29	**62,99**
	5,40		97,2	49,70	0,00	0,00	13,29	**62,99**
8	5,40	0,51	97,2	49,70	0,00	0,00	13,29	**62,99**
	5,40		97,2	49,70	0,00	0,00	13,29	**62,99**
9	5,40	0,51	97,2	49,70	0,00	0,00	13,29	**62,99**
	5,40		97,2	49,70	0,00	0,00	13,29	**62,99**
10	5,40	0,51	97,2	49,70	0,00	0,00	13,29	**62,99**
	5,40		97,2	49,70	0,00	0,00	13,29	**62,99**



PRESSIONI DI PROGETTO CONDIZIONI SISMICHE **SLV**

STRATO	z_{sup} / z_{inf} [m]	k_{rd} [-]	Tensione verticale litostatica σ_{vd} [kN/m²]	σ_{hd} Terreno [kN/m²]	σ_{hd} Sovraccarichi permanenti strutturali [kN/m²]	σ_{hd} Sovraccarichi permanenti non strutturali [kN/m²]	σ_{hd} Sovraccarichi variabili [kN/m²]	Pressione della forza d'inerzia agente sul paramento [kN/m²]	Pressione dell'incremento sismico di spinta [kN/m²]	Pressione incremento sismico spinta sovraccarichi permanenti strutturali [kN/m²]	Pressione incremento sismico spinta sovraccarichi permanenti non strutturali [kN/m²]	Pressione incremento sismico spinta sovraccarichi variabili [kN/m²]	**Pressione orizzontale totale di progetto $\sigma_{hd,tot}$ [kN/m²]**
1	0,00	0,43	0,0	0,00	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**17,48**
	5,40		97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
2	5,40	0,43	97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
	5,40		97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
3	5,40	0,43	97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
	5,40		97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
4	5,40	0,43	97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
	5,40		97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
5	5,40	0,43	97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
	5,40		97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
6	5,40	0,43	97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
	5,40		97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
7	5,40	0,43	97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
	5,40		97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
8	5,40	0,43	97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
	5,40		97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
9	5,40	0,43	97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
	5,40		97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
10	5,40	0,43	97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
	5,40		97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**



A partire dalle pressioni di progetto in condizioni sismiche (più gravose) si calcolano le sollecitazioni alla base del muro, considerando uno schema a mensola, caricata mediante un carico triangolare. Le caratteristiche di sollecitazione risultano:

$M_{sd} = P_{max}\, l^2/6 = 66.7 \times 5.40^2/6 = 324.16$ kNm

$V_{sd} = P_{max}\, l/2 = 66.7 \times 5.40/2 = 180.1$ kN

Considerando la sezione resistente di lunghezza unitaria 100x50 cm armata con Φ20/20 verticali, con rinforzi in zona tesa alla base Φ20/20 verticali e Φ14/20 orizzontali, si hanno le seguenti capacità resistenti:

M_{Rd} = 515.8 kNm, momento resistente

V_{Rd} = 266.9 kN, taglio resistente per elementi privi di specifica armatura

Essendo le sollecitazioni inferiori alle corrispondenti capacità resistenti, la verifica risulta soddisfatta. La medesima verifica è valida per la platea di fondazione, avendo stesse sollecitazioni (alla base della parete) e stessa sezione resistente.

VERIFICA FESSURAZIONE

Per la verifica a fessurazione occorre controllare che la massima apertura delle fessure, per le combinazioni di carico frequente e quasi permanente, siano inferiori ai limiti imposti dalla norma in base alle condizioni di aggressività dell'ambiente, come riportato nella tabella 4.1.IV delle NTC 2018:

Tab. 4.1.IV - *Criteri di scelta dello stato limite di fessurazione*

Gruppi di Esigenze	Condizioni ambientali	Combinazione di azioni	Armatura			
			Sensibile		Poco sensibile	
			Stato limite	w_k	Stato limite	w_k
A	Ordinarie	frequente	apertura fessure	$\leq w_2$	apertura fessure	$\leq w_3$
		quasi permanente	apertura fessure	$\leq w_1$	apertura fessure	$\leq w_2$
B	Aggressive	frequente	apertura fessure	$\leq w_1$	apertura fessure	$\leq w_2$
		quasi permanente	decompressione	-	apertura fessure	$\leq w_1$
C	Molto aggressive	frequente	formazione fessure	-	apertura fessure	$\leq w_1$
		quasi permanente	decompressione	-	apertura fessure	$\leq w_1$

Dove:

w_1 = 0,2 mm

w_2 = 0,3 mm

w^3 = 0,4 mm

Le sollecitazioni flettenti per le combinazioni frequente e quasi permanente, dovute alle pressioni del terreno sul paramento, risultano:

Combinazione frequente

$M_{sd\ FR} = P\ l^2/6 = 47.8 \times 5.40^2/6 = 232.3$ kNm

Combinazione quasi permanente

$M_{sd\ QP} = P\ l^2/6 = 41.44 \times 5.40^2/6 = 201.4$ kNm

Considerando che le condizioni ambientali risultano aggressive, le verifiche di apertura delle fessure sono riepilogate nei tabulati di seguito.

Dati materiali

Acciaio B450C			f_{yk}=	450	N/mm^2
			γ_s=	1,15	
			f_{yd}=	391,3	N/mm^2
			E_s=	2,05E+05	N/mm^2
Calcestruzzo R_{ck}=	40	N/mm^2	f_{cm}=	41,2	N/mm^2
			f_{ck}=	33,2	N/mm^2
			f_{ctm}=	3,1	N/mm^2
			f_{ctk}=	2,2	N/mm^2
			γ_c=	1,5	N/mm^2
			α_{cc}=	0,85	
			f_{cd}=	18,8	N/mm^2
			f_{ctd}=	1,4	N/mm^2
			E_{mc}=	33643	N/mm^2

Dati sezione

Combinazione frequente

M_{sd}=	232,3	kNm	Momento sollecitante
b_w=	1000	mm	Base
h=	500	mm	Altezza totale
c=	50	mm	Copriferro teso
c'=	50	mm	Copriferro compresso
d=	450	mm	Altezza utile
y=	132,8	mm	Posizione asse neutro
σ_s=	185,1	N/mm^2	Tensione agente sull'armatura tesa

Combinazione quasi permanente

M_{sd}=	201,4	kNm	Momento sollecitante
b_w=	1000	mm	Base
h=	500	mm	Altezza totale
c=	50	mm	Copriferro teso
c'=	50	mm	Copriferro compresso
d=	450	mm	Altezza utile
y=	132,8	mm	Posizione asse neutro
σ_s=	173,9	N/mm^2	Tensione agente sull'armatura tes

	ϕ1	ϕ2	ϕ3	ϕ4		
N_ϕ=	5	5	0	0		Numero barre tese
ϕ=	20	20	16	16	mm	Diametro barre tese

	ϕ1	ϕ2	ϕ3	ϕ4		
$N_{\phi'}$=	5	0	0	0		Numero barre compresse
ϕ_l=	20	16	20	20	mm	Diametro barre compresse

Φ_{eq}=	20	mm	Diametro equivalente delle barre
A_s=	**3142**	mm^2	Armatura tesa
A'_s=	**1571**	mm^2	Armatura compressa

Lunga durata — Durata del carico

k_t=	0,4		Coefficiente di durata del carico
$h_{c,eff}$=	122,4	mm	Altezza efficace
$A_{c,eff}$=	122400	mm^2	Area efficace
ρ_{eff}=	0,0257		Rapporto d'armatura efficace
α_e=	6,09		Rapporto moduli elastici

ε_{sm}= 6,30E-04 Rapporto moduli elastici ε_{sm}= 5,76E-04 Rapporto moduli elastici

Aderenza migliorata

Flessione semplice

k_1=	0,8
k_2=	0,5
k_3=	3,4
k_4=	0,425
Δ_{smax}=	302 mm

Combinazione frequente
w_d= 0,191 mm

Combinazione quasi permanente
w_d= 0,174 mm

Aggressive — Condizioni ambientali

w_1=	0,2
w_2=	0,3
w_3=	0,4

Combinazione frequente
w_{dmax}= 0,3

Combinazione quasi permanente
w_{dmax}= 0,2

Verifica

Combinazione frequente **Verifica soddisfatta**
Combinazione quasi permanente **Verifica soddisfatta**

Combinazione di carico	Asse neutro [mm]	Momento sollecitante [kNm]	Tensione acciaio [N/mm^2]	Apertura di calcolo fessure w_d [mm]	Limite normativa w [mm]
Frequente	132,8	232,3	185,1	0,191	0,3
Quasi permanente	132,8	201,4	173,9	0,174	0,2

VERIFICA TENSIONI DI ESERCIZIO

La verifica delle tensioni di esercizio viene eseguita valutando le tensioni che si generano in combinazione caratteristica (rara) e quasi permanente.

Per la verifica si deve controllare che le seguenti disuguaglianze siano verificate:

Massima tensione di compressione del calcestruzzo

$\sigma_{c,max} \leq 0{,}60\ f_{ck}$ per combinazione caratteristica

$\sigma_{c,max} \leq 0{,}45\ f_{ck}$ per combinazione quasi permanente

Massima tensione dell'acciaio

$\sigma_{s,max} \leq 0{,}8\ f_{yk}$ per combinazione caratteristica

Le sollecitazioni di momento flettente in condizioni di esercizio, dovute alle pressioni del terreno sul paramento, risultano:

Combinazione rara

$M_{sd\ RARA} = P\ l^2/6 = 49.98 \times 5.40^2/6 = 242.9$ kNm

Combinazione quasi permanente

$M_{sd\ QP} = P\ l^2/6 = 41.44 \times 5.40^2/6 = 201.4$ kNm

Le massime tensioni di compressione sul calcestruzzo e di trazione sull'acciaio a partire da tali sollecitazioni risultano:

$\sigma_{c,max} = 6.60$ N/mm^2 per combinazione caratteristica

$\sigma_{c,max} = 5.48$ N/mm^2 per combinazione quasi permanente

$\sigma_{s,max} = 193.6$ N/mm^2 per combinazione caratteristica

Pertanto per la verifica si ha:

$\sigma_{c,max} = 6.60 \leq 0{,}60\ f_{ck} = 19.2$ N/mm^2

$\sigma_{c,max} = 5.48 \leq 0{,}45\ f_{ck} = 14.4$ N/mm^2

$\sigma_{s,max} = 193.6 \leq 0{,}8\ f_{yk} = 360$ N/mm^2

Essendo le massime tensioni inferiori ai limiti imposti dalla norma, la verifica risulta soddisfatta.

8. CAPACITÀ PORTANTE DEL TERRENO

Le strutture di fondazione del tombino scatolare sono costituite da una platea in c.a. di spessore pari a 60 cm, con larghezza pari a 9.00 m e sviluppo di 80 m (lunghezza del tombino), il cui piano di posa è disposto ad una profondità di 5.60 m circa.

8.1VALUTAZIONE DELLA COSTANTE DI SOTTOFONDO

La rigidezza delle molle, attraverso la quale viene schematizzata l'interazione terreno-struttura, viene calcolata utilizzando un coefficiente di sottofondo pari a 94000 kN/m^3.

Tale valore è stato valutato mediante la metodologia di Joseph E. Bowles, che permette di stimare la costante di Winkler verticale per fondazioni superficiali rettangolari sulla base della capacità portante (carico ultimo) della fondazione, calcolata tramite la formula di Hansen, con la seguente formula:

$k = 40 \times q_{lim}$

dove la resistenza ultima del terreno corrisponde ad un cedimento w = 2.5 cm, limite per le condizioni di esercizio di una struttura.

In relazione al valore di capacità portante calcolato nei paragrafi successivi si ottiene: k = 40 x 2327 = 93080 kN/m^3. Pertanto in sede di modellazione è stato assunto un valore della costante di sottofondo pari a 94000 kN/m^3.

8.2 VERIFICA DELLA CAPACITÀ PORTANTE DEL COMPLESSO TERRENO-FONDAZIONE

Per il calcolo del carico limite della fondazione del tombino si utilizza la formula di Brinch-Hansen. La verifica viene condotta allo stato limite ultimo secondo l'Approccio di progetto 2:

- Combo 1 : A1 + M1 + R3

In accordo con le sezioni di progetto e con i profili geotecnici, la platea di fondazione del tombino scatolare risulta interessare il litotipo UG2. Pertanto ai fini della verifica della capacità portante si impiegano le caratteristiche di questo litotipo.

I calcoli per la valutazione della pressione limite di progetto sono riepilogati nelle tabelle di seguito:

AZIONI IN TESTA ALLA FONDAZIONE

F_x=	0,00	kN	Forza di taglio in direzione X (Direzione parallela alla base)
F_y=	0,00	kN	Forza di taglio in direzione Y (Direzione parallela alla lunghezza)
F_z=	0,00	kN	Forza in direzione verticale (>0 se di compressione)
M_x=	0,00	kNm	Momento in direzione X
M_y=	0,00	kNm	Momento in direzione Y

CARATTERISTICHE FONDAZIONE

B=	9,00	m	Base
L=	80,00	m	Lunghezza
H=	0,60	m	Altezza
D=	5,60	m	Profondità piano di posa
α=	0	°	Inclinazione del piano di posa

☐ Considera peso proprio fondazione

γ_b=	25,00	kN/m³	Peso per unità di volume fondazione
P_b=	0,00	kN	Peso proprio plinto

AZIONI DALLA BASE DELLA FONDAZIONE

☐ Considera momenti di trasporto

F_{xd}=	0,00	kN	Forza di taglio in direzione X
F_{yd}=	0,00	kN	Forza di taglio in direzione Y
F_{zd}=	0,00	kN	Forza in direzione verticale (>0 se di compressione)
M_{xd}=	0,00	kNm	Momento in direzione X
M_{yd}=	0,00	kNm	Momento in direzione Y

V=	0,00	kN	Componente verticale del carico
H=	0,00	kN	Componente orizzontale del carico
θ_V=	0,00	°	Inclinazione del carico rispetto alla verticale
θ_H=	90,00	°	Inclinazione del carico orizzontale rispetto alla direzione della lunghezza

e_x=	0,00	m	Eccentricità in direzione X
e_y=	0,00	m	Eccentricità in direzione Y

CARATTERISTICHE FONDAZIONE RIDOTTA

B'=	9,00	m	Base ridotta
L'=	80,00	m	Lunghezza ridotta
A'=	720,00		Area ridotta

PARAMETRI DEL TERRENO

γ=	19,5	kN/m³	Peso per unità di volume del terreno di fondazione
φ'=	25	°	Angolo di attrito
c'=	0	kN/m²	Coesione efficace
c_u=	0	kN/m²	Coesione non drenata
γ_r=	25	kN/m³	Peso per unità di volume del terreno di riempimento laterale

K_p=	2,464		Coefficiente di spinta passiva

q=	140,00	kN/m²	Pressione litostatica alla profondità del piano di posa

PARAMETRI DI PORTANZA DELLA FONDAZIONE (BRINCH-HANSEN)

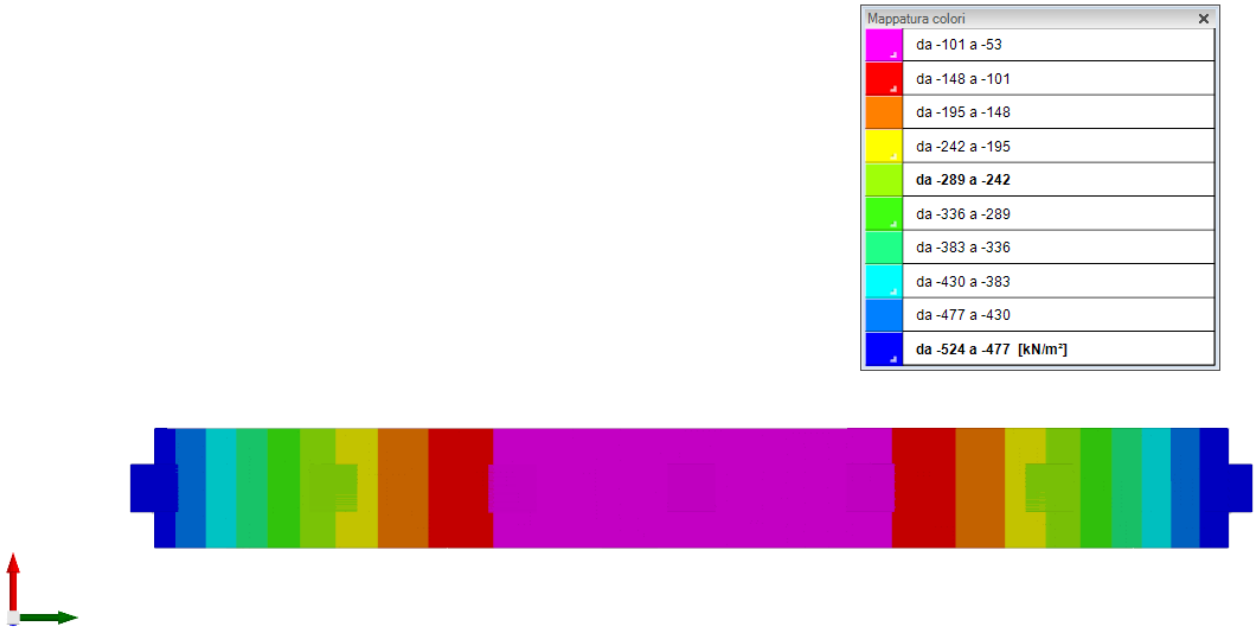
k=	0,62	Fattore di profondità
m_B=	1,90	Parametro di forma per carico agente in direzione della base
m_L=	1,10	Parametro di forma per carico agente in direzione della lunghezza
m=	1,90	Parametro di forma complessivo
N_c=	20,72	
N_q=	10,66	Fattori di capacità portante
N_γ=	9,01	
s_c=	1,05	
s_q=	1,05	Fattori di forma
s_γ=	0,97	
b_c=	1,00	
b_q=	1,00	Fattori di inclinazione del piano di posa
b_γ=	1,00	
i_c=	1,00	
i_q=	1,00	Fattori di inclinazione del carico
i_γ=	1,00	

PRESSIONI LIMITE ED AMMISSIBILI

Condizioni drenate

F.S.=	2,3		Fattore di sicurezza
q_{LIM}=	2327,704	kN/m^2	Pressione limite
$q_{R,D}$=	**1012,05**	kN/m^2	Pressione resistente di progetto

La verifica della capacità portante del complesso terreno fondazione viene effettuata confrontando le pressioni esercitate dalla struttura sul terreno, ottenute dall'analisi ad elementi finiti, con la pressione resistente limite precedentemente determinata. I valori massimi delle pressioni sul terreno sono riportati graficamente nello schema seguente:



Essendo la pressione sul terreno inferiore a quella limite di progetto la verifica risulta soddisfatta.

9. OPERE PROVVISIONALI

9.1 GEOMETRIA DELLE OPERE

Nei successivi paragrafi sono riportate le analisi e le verifiche statiche delle opere provvisionali da realizzare per lo scavo del tombino TM02, costituite da un palancolato metallico infisso nel terreno, con lo scopo sia di garantire la stabilità dello scavo sia la protezione dello stesso nei confronti delle acque di falda.

In funzione della massima profondità di scavo, sono state previste palancole metalliche tipo PU28 in acciaio S275, di lunghezza pari a 9.00 m.

Ai fini dei calcoli si analizza la sezione con altezza di scavo maggiore, pari a circa 4.75 m, che si può considerare rappresentativa di tutte le sezioni presenti, essendo in condizioni più gravose.

Il riepilogo dei risultati dei calcoli di verifica è riportato nei successivi paragrafi. Per i tabulati di calcolo completi si rimanda agli allegati in "Appendice A".

Trattandosi di opere a carattere provvisorio, le analisi e le verifiche sono eseguite in condizioni non sismiche, come previsto dalle NTC 2018.

9.2 CARATTERIZZAZIONE GEOTECNICA TERRENI

Si riportano i parametri di resistenza e deformabilità assunti nel calcolo in accordo con i risultati dei sondaggi riportati nella relazione geotecnica (cfr. paragrafo 2). La geometria delle stratigrafie di calcolo sono riportate nel paragrafo relativo alla modellazione numerica.

Da 0.00 a -3.20	UG0 – Riporti, coperture antropiche, colmate
Da -3.20 a -5.55	UG2 – Argille e limi molto poco consistenti
Da -5.55 a -6.15	UG3 – Sabbie limose mediamente addensate
Da -6.15 a -11.50	UG2 – Argille e limi molto poco consistenti
Da -11.50 a -13.10	UG3 – Sabbie limose mediamente addensate
Da -13.10 a -20.40	UG2 – Argille e limi molto poco consistenti

Strato di Terreno	Terreno	γ dry kN/m^3	γ sat kN/m^3	ø' °	c' kPa	Modulo Elastico	Kvc kN/m^3	Kur kN/m^3
1	UG0	18.5	18.5	35	0	Winkler	3143.04	9429.13

Strato di Terreno	Terreno	γ dry kN/m^3	γ sat kN/m^3	ø' °	c' kPa	Modulo Elastico	Kvc kN/m^3	Kur kN/m^3
2	UG2	19.5	19.5	25	30	Winkler	3143.04	9429.13
3	UG3	20	20	32	0	Winkler	3143.04	9429.13
4	UG2	19.5	19.5	25	30	Winkler	3143.04	9429.13
5	UG3	20	20	32	0	Winkler	3143.04	9429.13
6	UG2	19.5	19.5	25	30	Winkler	3143.04	9429.13

9.3 MODELLAZIONE NUMERICA

L'analisi dello stato tenso-deformativo e le verifiche strutturali della palancolata sono state eseguite mediante il software di calcolo PARATIEPLUS, programma non lineare agli elementi finiti per l'analisi di strutture di sostegno flessibili.

Si è considerato un comportamento piano nelle deformazioni, analizzando una striscia di parete di larghezza unitaria.

Si riportano di seguito i modelli di calcolo adottati per ciascuna paratia analizzata.

Nelle modellazioni è implementata la seguente successione di step:

Step 1: Condizione Geostatica – è definito il profilo del terreno ed i carichi superficiali.

Step 2: Scavo per il raggiungimento del fondo scavo provvisorio.

Stratigrafia
Tipo : POLYLINE
Punti
(-25;-1.78)
(-20.78;-1.34)
(-18.51;-1.18)
(-16.05;-1.15)
(-14.83;-0.82)
(-13.46;-0.11)
(-12.34;-0.03)
(-9.91;-0.36)
(-3.9;-0.18)
(-2.15;-0.29)
(0;0)
(1.14;0.16)
(5.67;-1.19)
(9.01;-1.58)
(12.74;-3.68)
(25;-4.4)
(30;-30)
(-30;-30)
OCR : 1

Tipo : POLYLINE
Punti
(-25;-3.2)
(-20;-3.2)
(0;-3.2)
(25;-3.2)
(30;-30)
(-30;-30)
OCR : 1

Tipo : POLYLINE
Punti
(-25;-5.55)
(-20;-5.55)
(0;-5.55)
(20;-5.55)
(25;-5.55)
(30;-30)
(-30;-30)
OCR : 1

Tipo : POLYLINE
Punti
(-25;-6.15)
(-20;-6.15)
(0;-6.15)
(20;-6.15)
(25;-6.15)
(27;-30)
(-25;-30)
OCR : 1

Tipo : POLYLINE
Punti
(-25;-11.5)
(-20;-11.5)
(0;-11.5)
(20;-11.5)
(25;-11.5)
(27;-30)
(-25;-30)
OCR : 1

Tipo : POLYLINE
Punti

(-25;-13.1)
(0;-13.1)
(25;-13.1)
(25;-13.1)
(27;-30)
(-25;-30)
OCR : 1

3. Descrizione Pareti

X : 0 m
Quota in alto : 0.3 m
Quota di fondo : -8.7 m
Muro di sinistra

Sezione : pal
Area equivalente : 0.02161 m
Inerzia equivalente : 0.0006 m4/m
Profilo palancola : PU_28

4. Fasi di Calcolo
Stage 1

Scavo
Muro di sinistra
Lato monte : 0 m
Lato valle : 0 m

Linea di scavo di sinistra (Irregolare)
(-25;-1.88)
(-20.78;-1.34)
(-18.5;-1.19)
(-16.05;-1.15)
(-14.82;-0.81)
(-13.46;-0.11)
(-12.34;-0.03)
(-9.91;-0.36)
(-3.9;-0.18)
(-2.16;-0.3)
(0;0)
Linea di scavo di destra (Irregolare)
(0;0)
(1.14;0.16)
(5.67;-1.19)
(9.015;-1.58)
(12.74;-3.68)
(25;-4.4)
Carichi
Carico lineare in superficie : SurfaceSurcharge
X iniziale : 1.45 m

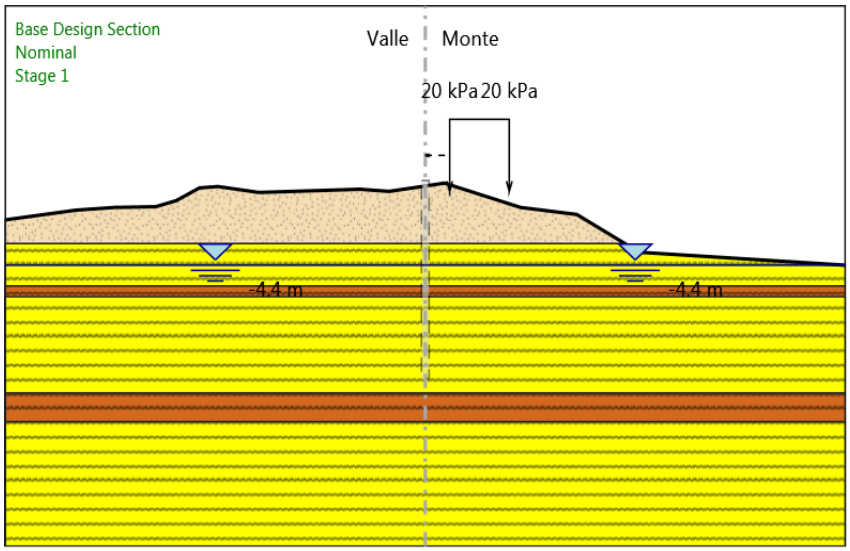
X finale : 5 m
Pressione iniziale : 20 kPa
Pressione finale : 20 kPa

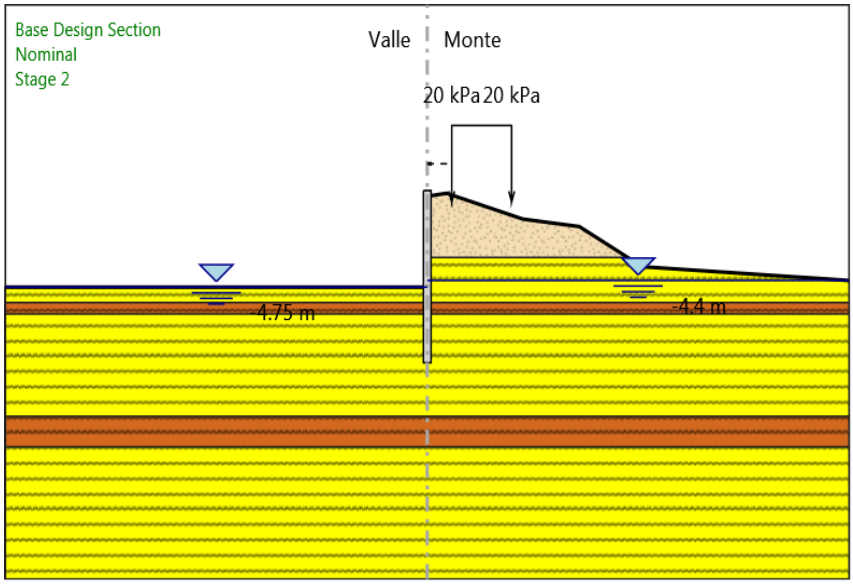
Stage 2
Scavo
Muro di sinistra
Lato monte : 0 m
Lato valle : -4.75 m

Linea di scavo di sinistra (Orizzontale)
-4.75 m
Linea di scavo di destra (Irregolare)
(0;0)
(1.14;0.16)
(5.67;-1.19)
(9.01;-1.58)
(12.74;-3.68)
(25;-4.4)

Carichi
Carico lineare in superficie : SurfaceSurcharge
X iniziale : 1.45 m
X finale : 5 m
Pressione iniziale : 20 kPa
Pressione finale : 20 kPa

Elementi strutturali
Paratia : WallElement_New
X : 0 m
Quota in alto : 0.3 m
Quota di fondo : -8.7 m
Sezione : pal





9.4 ANALISI DEI CARICHI

9.4.1 Combinazioni di carico

Le verifiche di resistenza allo stato limite ultimo sono state effettuate considerando le seguenti combinazioni di carico:

- Combinazione 1: A1 + M1 + R1

- Combinazione 2: A2 + M2 + R1

tenendo conto dei coefficienti parziali riportati nelle tabelle 6.2.I, 6.2.II e 6.5.I delle NTC2018 e riportate nelle tabelle seguenti.

		Coefficiente γ_F	EQU	A1 STR	A2 GEO
Carichi permanenti	favorevoli sfavorevoli	γ_{G1}	0,9 1,1	1,0 1,3	1,0 1,0
Carichi permanenti non strutturali[1]	favorevoli sfavorevoli	γ_{G2}	0,0 1,5	0,0 1,5	0,0 1,3
Carichi variabili	favorevoli sfavorevoli	γ_{Q}	0,0 1,5	0,0 1,5	0,0 1,3
[1]Nel caso in cui i carichi permanenti non strutturali (ad es. carichi permanenti portati) siano compiutamente definiti si potranno adottare per essi gli stessi coefficienti validi per le azioni permanenti.					

Tabella 5: Coefficienti parziali per le azioni o per l'effetto delle azioni (Tab.6.2.I NTC2018)

PARAMETRO	GRANDEZZA ALLA QUALE APPLICARE IL COEFFICIENTE PARZIALE	COEFFICIENTE PARZIALE γ_M	(M1)	(M2)
Tangente dell'angolo di resistenza al taglio	$\tan \varphi'_k$	$\gamma_{\varphi'}$	1,0	1,25
Coesione efficace	c'_k	$\gamma_{c'}$	1,0	1,25
Resistenza non drenata	c_{uk}	γ_{cu}	1,0	1,4
Peso dell'unità di volume	γ	γ_γ	1,0	1,0

Tabella 6: Coefficienti parziali per i parametri geotecnici del terreno (Tab.6.2.II NTC2018)

Nelle verifiche per il dimensionamento geotecnico del palancolato (GEO) si considera lo sviluppo di meccanismi di collasso determinati dalla mobilitazione della resistenza del terreno e in particolare dal raggiungimento delle condizioni di equilibrio limite nel terreno interagente con la paratia. L'analisi è stata condotta con la Combinazione 2 (A2+M2+R1), in cui i parametri di resistenza del terreno sono ridotti tramite i coefficienti parziali M2 e le azioni sono amplificate tramite i coefficienti parziali A2.

Nelle verifiche strutturali (STR) si considerano gli stati limite ultimi per raggiungimento della resistenza degli elementi strutturali. Le analisi sono condotte in accordo sia con la Combinazione 1 (A1+M1+R1), in cui i parametri di resistenza del terreno (M1) sono unitari e le azioni sono amplificate mediante i coefficienti parziali A, che con la Combinazione 2 (A2+M2+R1), in cui i parametri di resistenza del terreno sono ridotti tramite i coefficienti parziali M2 e le azioni sono amplificate tramite i coefficienti parziali A2.

Per gli spostamenti si considera, inoltre, la combinazione SLE (rara, frequente e quasi permanente), in cui tutti i fattori parziali di sicurezza sono unitari (azioni e resistenze caratteristichei).

Le combinazioni di carico impiegate nelle analisi sono riepilogate di seguito.

Coefficienti A

Nome	Carichi Permanenti Sfavorevoli	Carichi Permanenti Favorevoli	Carichi Variabili Sfavorevoli	Carichi Variabili Favorevoli	Pressioni Acqua Lato Monte	Pressioni Acqua Lato Valle	Carichi Permanenti Destabilizzanti	Carichi Permanenti Stabilizzanti	Carichi Variabili Destabilizzanti	Carichi Permanenti Destabilizzanti	Carichi Permanenti Stabilizzanti	Carichi Variabili Destabilizzanti
Simbolo	γG	γG	γQ	γQ	γG	γG	γGdst	γGstb	γQdst	γGdst	γGstb	γQdst
NTC2018: SLE	1	1	1	1	1	1	1	1	1	1	1	1
NTC2018: A1+M1+R1	1.3	1	1.5	1	1.3	1	1	1	1	1.3	0.9	1
NTC2018: A2+M2+R1	1	1	1.3	1	1	1	1	1	1	1.3	0.9	1

Coefficienti M

Nome	Parziale su tan(ø')	Parziale su c'	Parziale su Su	Parziale su qu	Parziale su peso specifico
Simbolo	γφ	γc	γcu	γqu	γγ
NTC2018: SLE	1	1	1	1	1
NTC2018: A1+M1+R1	1	1	1	1	1
NTC2018: A2+M2+R1	1.25	1.25	1.4	1	1

Coefficienti R

Nome	Parziale resistenza terreno (es. Kp)	Parziale resistenza tiranti permanenti	Parziale resistenza Tiranti temporanei	Parziale elementi strutturali
Simbolo	γRe	γap	γat	
NTC2018: SLE	1	1	1	1
NTC2018: A1+M1+R1)	1	1.2	1.1	1
NTC2018: A2+M2+R1	1	1.2	1.1	1

Per tenere conto della circolazione di veicoli al tetto dello scavo, si considera un sovraccarico pari a 20 kN/m^2.

9.5 RISULTATI DELLE ANALISI

Nei paragrafi seguenti si riportano i risultati delle analisi condotte per il modello implementato, con le indicazioni dei valori massimi delle sollecitazioni flettenti e taglianti e delle rispettive profondità. I valori riportati sono relativi all'analisi al metro lineare.

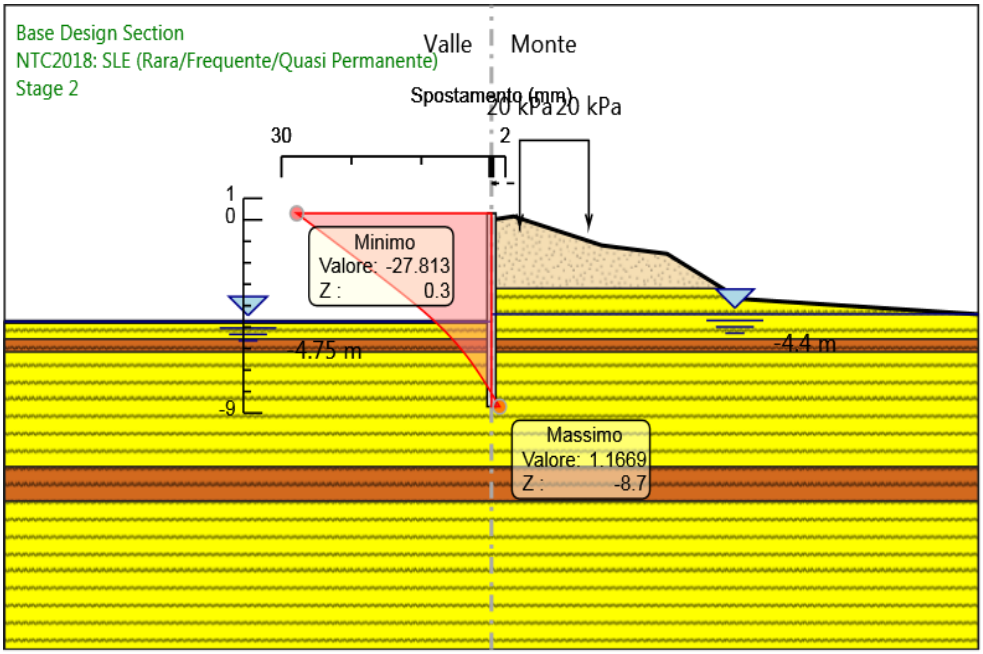


Figura 20 – SLE – Inviluppo spostamenti

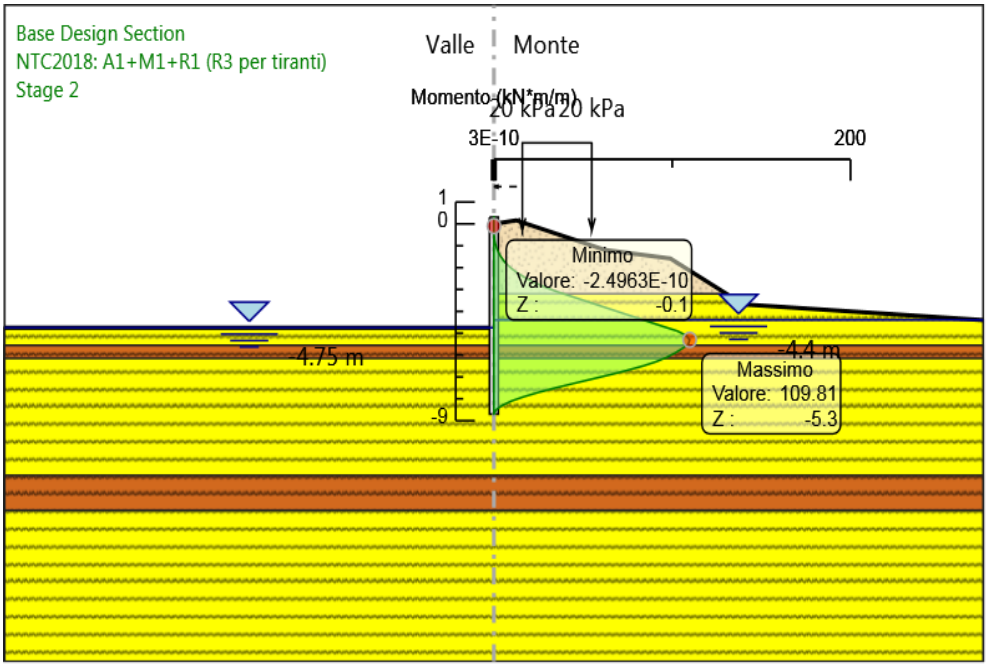


Figura 21 – SLU (A1-M1-R1) – Inviluppo momento flettente

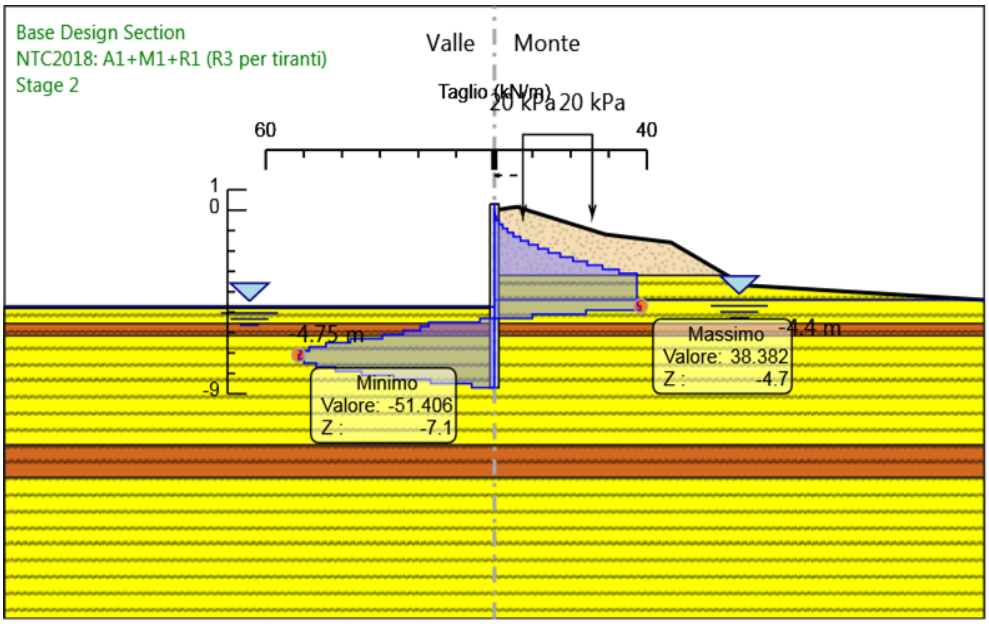


Figura 22 – SLU (A1-M1-R1) – Inviluppo taglio

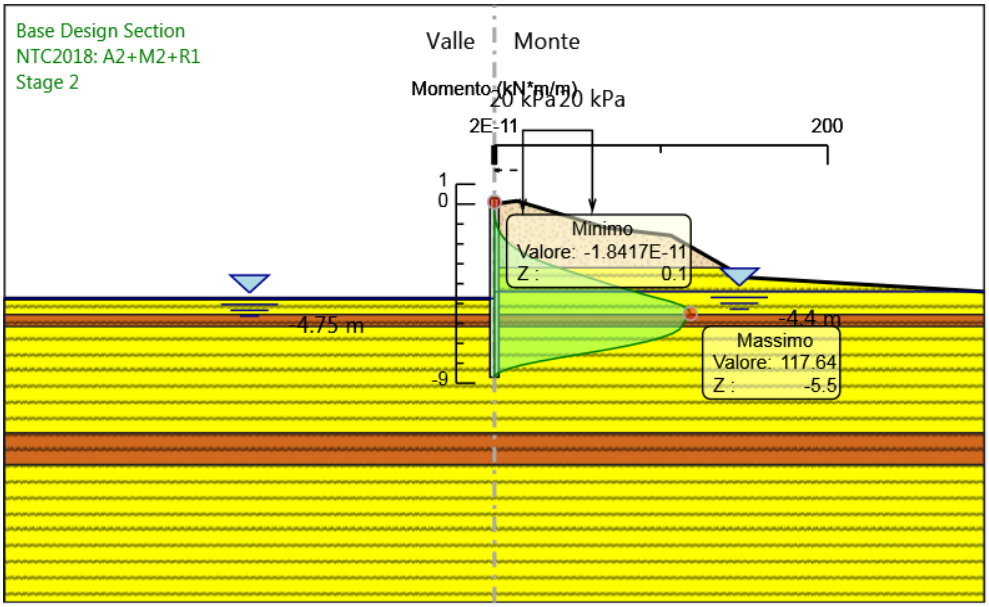


Figura 23 – SLU (A2-M2-R2) – Inviluppo momento flettente

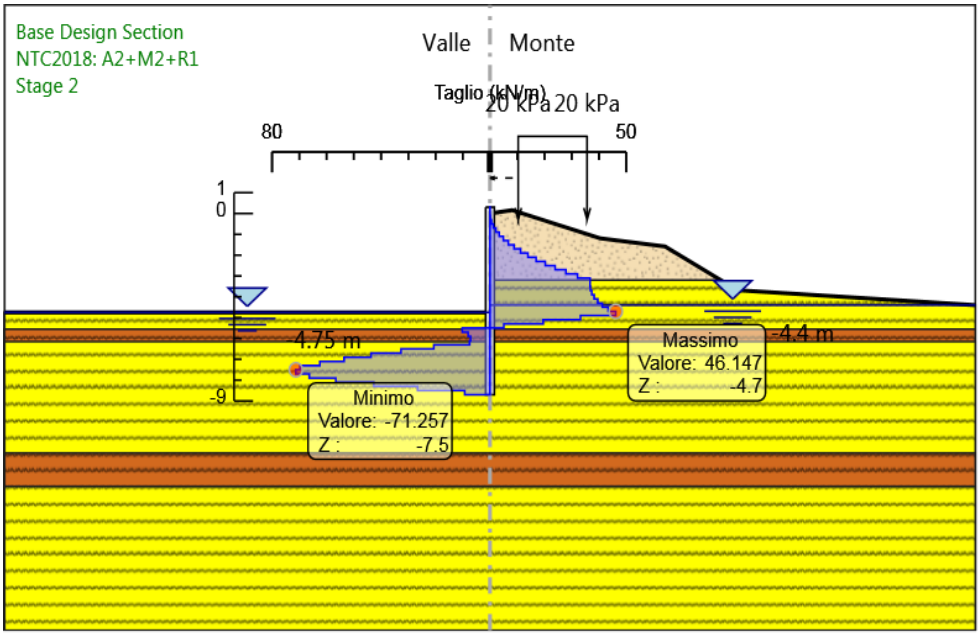


Figura 24 – SLU (A2-M2-R2) – Inviluppo taglio

9.6 VERIFICHE GEOTECNICHE

Le verifiche geotecniche sono svolte valutando il coefficiente di sicurezza in termini di rapporto di mobilitazione della spinta passiva, cioè come rapporto tra spinta passiva mobilitata al piede della paratia e la spinta passiva mobilitabile. La verifica è soddisfatta se tale rapporto è inferiore all'unità.

Max. Rapporto Spinte (Efficace/Passiva): 0.46

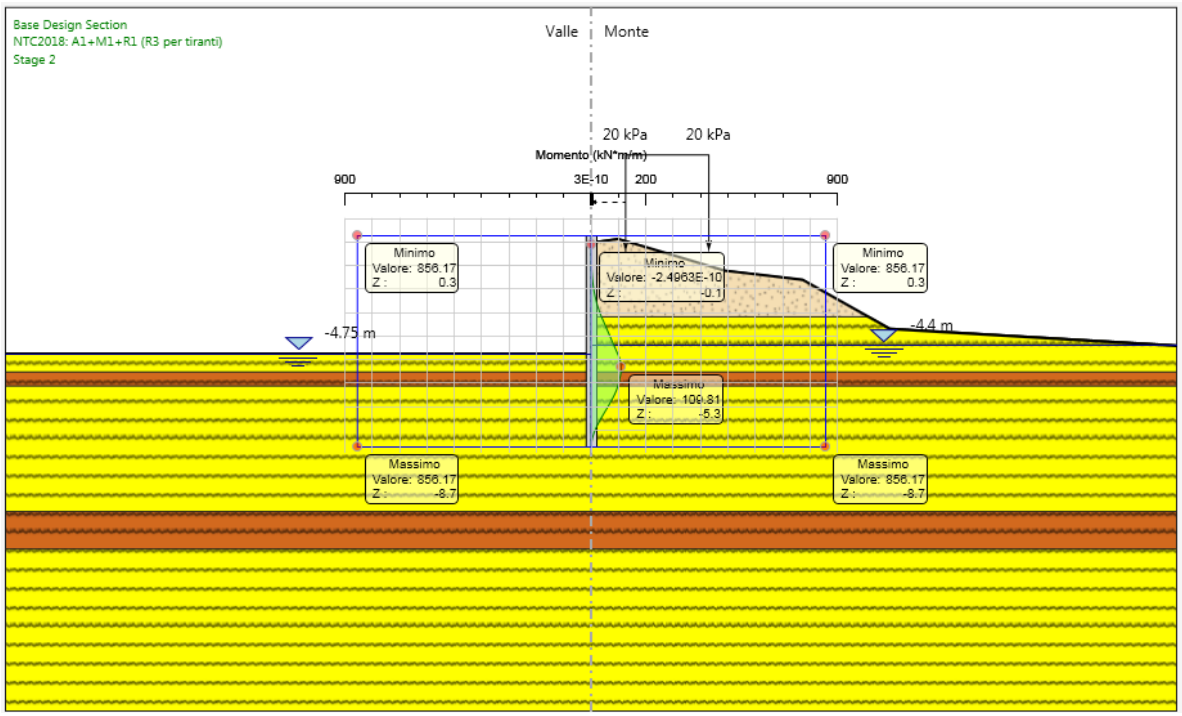
Combinazione GEO (A2-M2-R1)

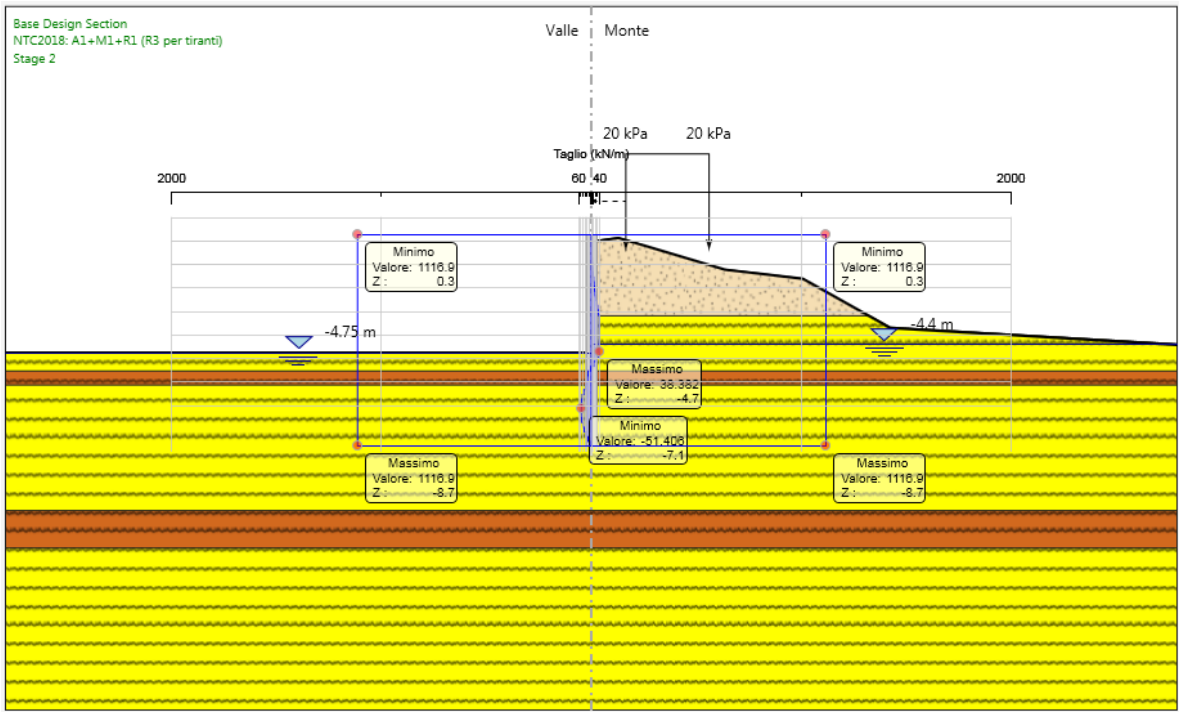
9.7 VERIFICHE STRUTTURALI

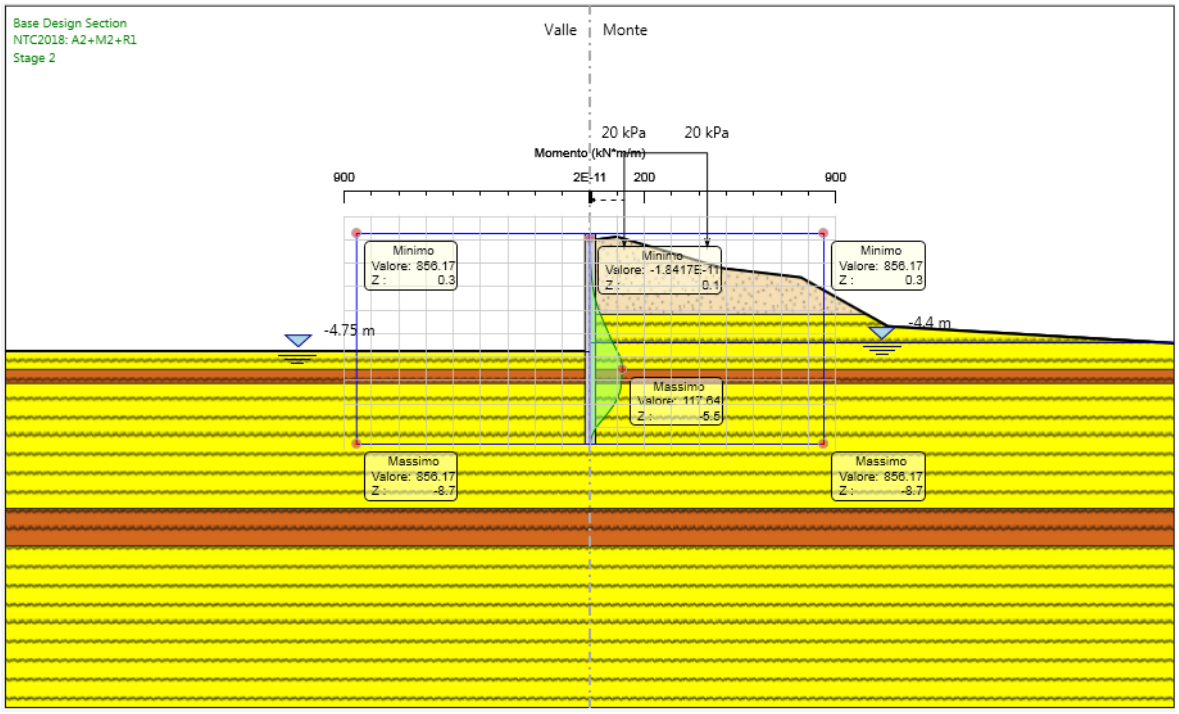
Il palancolato è previsto con profili PU28 in acciaio S275.

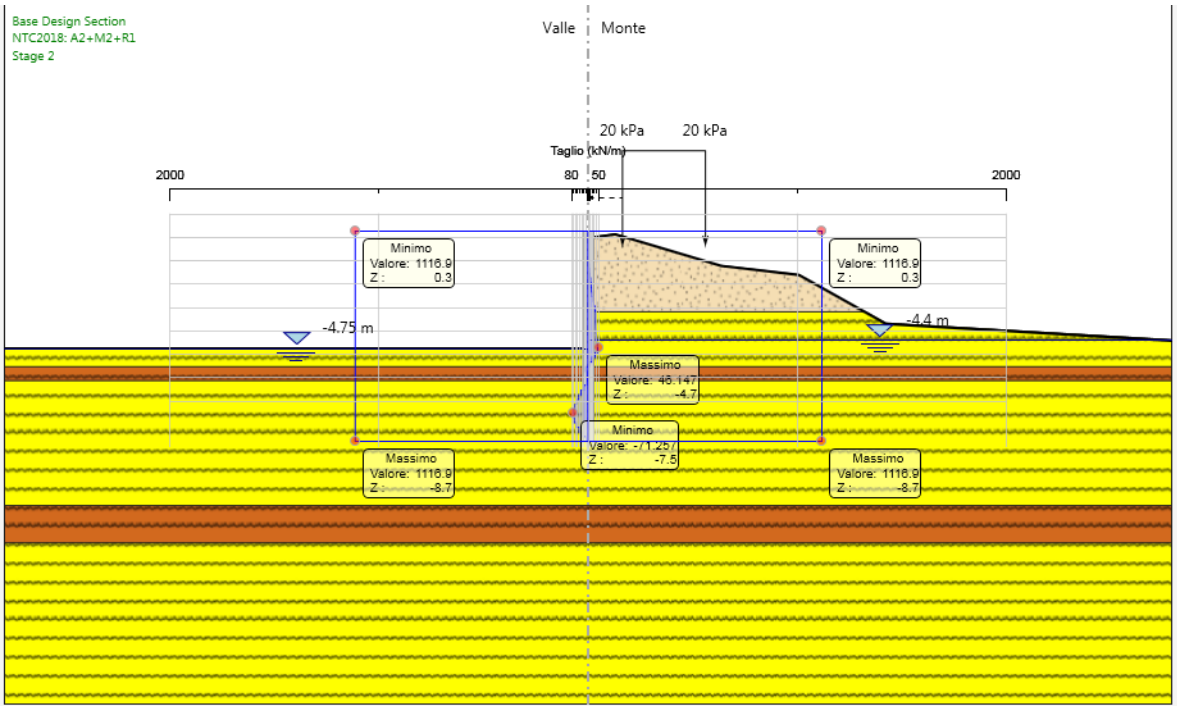
Si riporta di seguito il confronto tra le sollecitazioni massime agenti, di momento flettente e taglio, e le capacità resistenti nell'inviluppo allo SLU per entrambe le combinazioni considerate, per ciascuna paratia analizzata.

Essendo le sollecitazioni inferiori alle resistenze, le verifiche risultano soddisfatte.


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 2
Valle
Monte
20 kPa
20 kPa
Momento (kN*m/m)
900
3E-10
200
900
Minimo
Valore: 856.17
Z : 0.3
Minimo
Valore: -2.4963E-10
Z : -0.1
Minimo
Valore: 856.17
Z : 0.3
-4.75 m
-4.4 m
Massimo
Valore: 109.81
Z : -5.3
Massimo
Valore: 856.17
Z : -8.7
Massimo
Valore: 856.17
Z : -8.7


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 2
Valle
Monte
20 kPa
20 kPa
Taglio (kN/m)
2000
60
40
2000
Minimo
Valore: 1116.9
Z : 0.3
Minimo
Valore: 1116.9
Z : 0.3
-4.75 m
-4.4 m
Massimo
Valore: 38.382
Z : -4.7
Minimo
Valore: -51.406
Z : -7.1
Massimo
Valore: 1116.9
Z : -8.7
Massimo
Valore: 1116.9
Z : -8.7


Base Design Section
NTC2018: A2+M2+R1
Stage 2
Valle
Monte
20 kPa
20 kPa
Momento (kN*m/m)
900
2E-11
200
900
Minimo
Valore: 856.17
Z : 0.3
Minimo
Valore: -1.8417E-11
Z : 0.1
Minimo
Valore: 856.17
Z : 0.3
-4.75 m
-4.4 m
Massimo
Valore: 117.64
Z : -5.5
Massimo
Valore: 856.17
Z : -8.7
Massimo
Valore: 856.17
Z : -8.7


Base Design Section
NTC2018: A2+M2+R1
Stage 2
Valle
Monte
20 kPa
20 kPa
Taglio (kN/m)
2000
80
50
2000
Minimo
Valore: 1116.9
Z : 0.3
Minimo
Valore: 1116.9
Z : 0.3
-4.75 m
-4.4 m
Massimo
Valore: 46.147
Z : -4.7
Minimo
Valore: -71.257
Z : -7.5
Massimo
Valore: 1116.9
Z : -8.7
Massimo
Valore: 1116.9
Z : -8.7

APPENDICE "A" – TABULATI DI CALCOLO OPERE PROVVISIONALI

5.1. Risultati NTC2018: SLE (Rara/Frequente/Quasi Permanente)
5.1.1. Tabella Spostamento NTC2018: SLE (Rara/Frequente/Quasi Permanente) - LEFT Stage: Stage 1
Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Tipo Risultato: Spostamento Muro: LEFT

Stage	Z (m)	Spostamento (mm)
Stage 1	0.3	0
Stage 1	0.1	0
Stage 1	-0.1	0
Stage 1	-0.3	0
Stage 1	-0.5	0
Stage 1	-0.7	0
Stage 1	-0.9	0
Stage 1	-1.1	0
Stage 1	-1.3	0
Stage 1	-1.5	0
Stage 1	-1.7	0
Stage 1	-1.9	0
Stage 1	-2.1	0
Stage 1	-2.3	0
Stage 1	-2.5	0
Stage 1	-2.7	0
Stage 1	-2.9	0
Stage 1	-3.1	0
Stage 1	-3.3	0
Stage 1	-3.5	0
Stage 1	-3.7	0
Stage 1	-3.9	0
Stage 1	-4.1	0
Stage 1	-4.3	0
Stage 1	-4.5	0
Stage 1	-4.7	0
Stage 1	-4.9	0
Stage 1	-5.1	0
Stage 1	-5.3	0
Stage 1	-5.5	0
Stage 1	-5.7	0
Stage 1	-5.9	0
Stage 1	-6.1	0
Stage 1	-6.3	0
Stage 1	-6.5	0
Stage 1	-6.7	0
Stage 1	-6.9	0
Stage 1	-7.1	0
Stage 1	-7.3	0
Stage 1	-7.5	0
Stage 1	-7.7	0
Stage 1	-7.9	0
Stage 1	-8.1	0
Stage 1	-8.3	0
Stage 1	-8.5	0
Stage 1	-8.7	0

5.1.2. Tabella Risultati Paratia NTC2018: SLE (Rara/Frequente/Quasi Permanente) - Left Wall - Stage: Stage 1
Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Risultati Paratia Muro: LEFT

Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	0.3	0	0
Stage 1	0.1	0	0
Stage 1	-0.1	0	0
Stage 1	-0.3	0	0
Stage 1	-0.5	0	0
Stage 1	-0.7	0	0
Stage 1	-0.9	0	0
Stage 1	-1.1	0	0
Stage 1	-1.3	0	0
Stage 1	-1.5	0	0
Stage 1	-1.7	0	0
Stage 1	-1.9	0	0
Stage 1	-2.1	0	0
Stage 1	-2.3	0	0
Stage 1	-2.5	0	0
Stage 1	-2.7	0	0
Stage 1	-2.9	0	0
Stage 1	-3.1	0	0
Stage 1	-3.3	0	0
Stage 1	-3.5	0	0
Stage 1	-3.7	0	0
Stage 1	-3.9	0	0
Stage 1	-4.1	0	0
Stage 1	-4.3	0	0
Stage 1	-4.5	0	0
Stage 1	-4.7	0	0
Stage 1	-4.9	0	0

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	-5.1	0	0
Stage 1	-5.3	0	0
Stage 1	-5.5	0	0
Stage 1	-5.7	0	0
Stage 1	-5.9	0	0
Stage 1	-6.1	0	0
Stage 1	-6.3	0	0
Stage 1	-6.5	0	0
Stage 1	-6.7	0	0
Stage 1	-6.9	0	0
Stage 1	-7.1	0	0
Stage 1	-7.3	0	0
Stage 1	-7.5	0	0
Stage 1	-7.7	0	0
Stage 1	-7.9	0	0
Stage 1	-8.1	0	0
Stage 1	-8.3	0	0
Stage 1	-8.5	0	0
Stage 1	-8.7	0	0

5.1.3. Tabella Spostamento NTC2018: SLE (Rara/Frequente/Quasi Permanente) - LEFT Stage: Stage 2

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 2	0.3	-27.81
Stage 2	0.1	-27
Stage 2	-0.1	-26.18
Stage 2	-0.3	-25.37
Stage 2	-0.5	-24.56
Stage 2	-0.7	-23.74
Stage 2	-0.9	-22.93
Stage 2	-1.1	-22.11
Stage 2	-1.3	-21.3
Stage 2	-1.5	-20.49
Stage 2	-1.7	-19.67
Stage 2	-1.9	-18.86
Stage 2	-2.1	-18.05
Stage 2	-2.3	-17.25
Stage 2	-2.5	-16.45
Stage 2	-2.7	-15.65
Stage 2	-2.9	-14.85
Stage 2	-3.1	-14.07
Stage 2	-3.3	-13.29
Stage 2	-3.5	-12.52
Stage 2	-3.7	-11.76
Stage 2	-3.9	-11.01
Stage 2	-4.1	-10.28
Stage 2	-4.3	-9.57
Stage 2	-4.5	-8.88
Stage 2	-4.7	-8.2
Stage 2	-4.9	-7.55
Stage 2	-5.1	-6.92
Stage 2	-5.3	-6.31
Stage 2	-5.5	-5.73
Stage 2	-5.7	-5.18
Stage 2	-5.9	-4.64
Stage 2	-6.1	-4.13
Stage 2	-6.3	-3.65
Stage 2	-6.5	-3.18
Stage 2	-6.7	-2.73
Stage 2	-6.9	-2.3
Stage 2	-7.1	-1.89
Stage 2	-7.3	-1.48
Stage 2	-7.5	-1.09
Stage 2	-7.7	-0.71
Stage 2	-7.9	-0.33
Stage 2	-8.1	0.05
Stage 2	-8.3	0.42
Stage 2	-8.5	0.79
Stage 2	-8.7	1.17

5.1.4. Tabella Risultati Paratia NTC2018: SLE (Rara/Frequente/Quasi Permanente) - Left Wall - Stage: Stage 2

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	0.3	0	0
Stage 2	0.1	0	0
Stage 2	0.1	0	0
Stage 2	-0.1	0	0
Stage 2	-0.1	0	0
Stage 2	-0.3	0.02	0.11
Stage 2	-0.5	0.11	0.42
Stage 2	-0.7	0.3	0.95
Stage 2	-0.9	0.63	1.69
Stage 2	-1.1	1.16	2.66
Stage 2	-1.3	1.93	3.84
Stage 2	-1.5	2.99	5.26
Stage 2	-1.7	4.37	6.91

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Risultati Paratia Muro: LEFT

Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	-1.9	6.13	8.8
Stage 2	-2.1	8.31	10.92
Stage 2	-2.3	10.97	13.27
Stage 2	-2.5	14.14	15.87
Stage 2	-2.7	17.88	18.72
Stage 2	-2.9	22.25	21.82
Stage 2	-3.1	27.28	25.17
Stage 2	-3.3	33.03	28.76
Stage 2	-3.5	38.79	28.76
Stage 2	-3.7	44.54	28.76
Stage 2	-3.9	50.29	28.76
Stage 2	-4.1	56.04	28.76
Stage 2	-4.3	61.79	28.76
Stage 2	-4.5	67.54	28.76
Stage 2	-4.7	73.33	28.95
Stage 2	-4.9	79.24	29.52
Stage 2	-5.1	82.94	18.49
Stage 2	-5.3	84.47	7.67
Stage 2	-5.5	83.89	-2.91
Stage 2	-5.7	81.24	-13.26
Stage 2	-5.9	78.25	-14.94
Stage 2	-6.1	74.57	-18.4
Stage 2	-6.3	70.04	-22.62
Stage 2	-6.5	64.23	-29.07
Stage 2	-6.7	57.43	-34.02
Stage 2	-6.9	49.95	-37.37
Stage 2	-7.1	42.11	-39.2
Stage 2	-7.3	34.2	-39.54
Stage 2	-7.5	26.51	-38.45
Stage 2	-7.7	19.33	-35.95
Stage 2	-7.9	12.91	-32.07
Stage 2	-8.1	7.55	-26.82
Stage 2	-8.3	3.49	-20.28
Stage 2	-8.5	0.92	-12.87
Stage 2	-8.7	0	-4.58

5.2. Risultati NTC2018: A1+M1+R1 (R3 per tiranti)

5.2.1. Tabella Risultati Paratia NTC2018: A1+M1+R1 (R3 per tiranti) - Left Wall - Stage: Stage 1

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti) Risultati Paratia Muro: LEFT

Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	0.3	0	0
Stage 1	0.1	0	0
Stage 1	-0.1	0	0
Stage 1	-0.3	0	0
Stage 1	-0.5	0	0
Stage 1	-0.7	0	0
Stage 1	-0.9	0	0
Stage 1	-1.1	0	0
Stage 1	-1.3	0	0
Stage 1	-1.5	0	0
Stage 1	-1.7	0	0
Stage 1	-1.9	0	0
Stage 1	-2.1	0	0
Stage 1	-2.3	0	0
Stage 1	-2.5	0	0
Stage 1	-2.7	0	0
Stage 1	-2.9	0	0
Stage 1	-3.1	0	0
Stage 1	-3.3	0	0
Stage 1	-3.5	0	0
Stage 1	-3.7	0	0
Stage 1	-3.9	0	0
Stage 1	-4.1	0	0
Stage 1	-4.3	0	0
Stage 1	-4.5	0	0
Stage 1	-4.7	0	0
Stage 1	-4.9	0	0
Stage 1	-5.1	0	0
Stage 1	-5.3	0	0
Stage 1	-5.5	0	0
Stage 1	-5.7	0	0
Stage 1	-5.9	0	0
Stage 1	-6.1	0	0
Stage 1	-6.3	0	0
Stage 1	-6.5	0	0
Stage 1	-6.7	0	0
Stage 1	-6.9	0	0
Stage 1	-7.1	0	0
Stage 1	-7.3	0	0
Stage 1	-7.5	0	0
Stage 1	-7.7	0	0
Stage 1	-7.9	0	0
Stage 1	-8.1	0	0
Stage 1	-8.3	0	0
Stage 1	-8.5	0	0
Stage 1	-8.7	0	0

5.2.2. Tabella Risultati Paratia NTC2018: A1+M1+R1 (R3 per tiranti) - Left Wall - Stage: Stage 2

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	0.3	0	0
Stage 2	0.1	0	0
Stage 2	0.1	0	0
Stage 2	-0.1	0	0
Stage 2	-0.1	0	0
Stage 2	-0.3	0.03	0.14
Stage 2	-0.5	0.14	0.55
Stage 2	-0.7	0.38	1.23
Stage 2	-0.9	0.82	2.2
Stage 2	-1.1	1.51	3.45
Stage 2	-1.3	2.51	5
Stage 2	-1.5	3.88	6.84
Stage 2	-1.7	5.68	8.99
Stage 2	-1.9	7.97	11.44
Stage 2	-2.1	10.81	14.19
Stage 2	-2.3	14.26	17.25
Stage 2	-2.5	18.38	20.63
Stage 2	-2.7	23.25	24.34
Stage 2	-2.9	28.92	28.37
Stage 2	-3.1	35.47	32.72
Stage 2	-3.3	42.94	37.39
Stage 2	-3.5	50.42	37.39
Stage 2	-3.7	57.9	37.39
Stage 2	-3.9	65.38	37.39
Stage 2	-4.1	72.85	37.39
Stage 2	-4.3	80.33	37.39
Stage 2	-4.5	87.81	37.39
Stage 2	-4.7	95.33	37.64
Stage 2	-4.9	103.01	38.38
Stage 2	-5.1	107.82	24.03
Stage 2	-5.3	109.81	9.97
Stage 2	-5.5	109.06	-3.78
Stage 2	-5.7	105.61	-17.24
Stage 2	-5.9	101.72	-19.42
Stage 2	-6.1	96.94	-23.92
Stage 2	-6.3	91.06	-29.41
Stage 2	-6.5	83.5	-37.8
Stage 2	-6.7	74.65	-44.22
Stage 2	-6.9	64.94	-48.58
Stage 2	-7.1	54.75	-50.96
Stage 2	-7.3	44.47	-51.41
Stage 2	-7.5	34.47	-49.98
Stage 2	-7.7	25.12	-46.73
Stage 2	-7.9	16.79	-41.68
Stage 2	-8.1	9.81	-34.87
Stage 2	-8.3	4.54	-26.37
Stage 2	-8.5	1.19	-16.73
Stage 2	-8.7	0	-5.96

5.3. Risultati NTC2018: A2+M2+R1

5.3.1. Tabella Risultati Paratia NTC2018: A2+M2+R1 - Left Wall - Stage: Stage 1

Design Assumption: NTC2018: A2+M2+R1	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	0.3	0	0
Stage 1	0.1	0	0
Stage 1	-0.1	0	0
Stage 1	-0.3	0	0
Stage 1	-0.5	0	0
Stage 1	-0.7	0	0
Stage 1	-0.9	0	0
Stage 1	-1.1	0	0
Stage 1	-1.3	0	0
Stage 1	-1.5	0	0
Stage 1	-1.7	0	0
Stage 1	-1.9	0	0
Stage 1	-2.1	0	0
Stage 1	-2.3	0	0
Stage 1	-2.5	0	0
Stage 1	-2.7	0	0
Stage 1	-2.9	0	0
Stage 1	-3.1	0	0
Stage 1	-3.3	0	0
Stage 1	-3.5	0	0
Stage 1	-3.7	0	0
Stage 1	-3.9	0	0
Stage 1	-4.1	0	0
Stage 1	-4.3	0	0
Stage 1	-4.5	0	0
Stage 1	-4.7	0	0
Stage 1	-4.9	0	0
Stage 1	-5.1	0	0
Stage 1	-5.3	0	0
Stage 1	-5.5	0	0

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia Muro: LEFT

Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	-5.7	0	0
Stage 1	-5.9	0	0
Stage 1	-6.1	0	0
Stage 1	-6.3	0	0
Stage 1	-6.5	0	0
Stage 1	-6.7	0	0
Stage 1	-6.9	0	0
Stage 1	-7.1	0	0
Stage 1	-7.3	0	0
Stage 1	-7.5	0	0
Stage 1	-7.7	0	0
Stage 1	-7.9	0	0
Stage 1	-8.1	0	0
Stage 1	-8.3	0	0
Stage 1	-8.5	0	0
Stage 1	-8.7	0	0

5.3.2. Tabella Risultati Paratia NTC2018: A2+M2+R1 - Left Wall - Stage: Stage 2
Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia Muro: LEFT

Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	0.3	0	0
Stage 2	0.1	0	0
Stage 2	0.1	0	0
Stage 2	-0.1	0	0
Stage 2	-0.1	0	0
Stage 2	-0.3	0.03	0.13
Stage 2	-0.5	0.13	0.54
Stage 2	-0.7	0.38	1.21
Stage 2	-0.9	0.81	2.16
Stage 2	-1.1	1.49	3.39
Stage 2	-1.3	2.47	4.91
Stage 2	-1.5	3.81	6.72
Stage 2	-1.7	5.58	8.83
Stage 2	-1.9	7.83	11.24
Stage 2	-2.1	10.62	13.94
Stage 2	-2.3	14.01	16.95
Stage 2	-2.5	18.06	20.27
Stage 2	-2.7	22.84	23.91
Stage 2	-2.9	28.42	27.87
Stage 2	-3.1	34.84	32.15
Stage 2	-3.3	42.19	36.73
Stage 2	-3.5	49.54	36.73
Stage 2	-3.7	56.9	36.84
Stage 2	-3.9	64.37	37.34
Stage 2	-4.1	72.02	38.24
Stage 2	-4.3	79.93	39.54
Stage 2	-4.5	88.17	41.21
Stage 2	-4.7	96.85	43.38
Stage 2	-4.9	106.08	46.15
Stage 2	-5.1	112.72	33.21
Stage 2	-5.3	116.62	19.52
Stage 2	-5.5	117.64	5.07
Stage 2	-5.7	115.6	-10.16
Stage 2	-5.9	114	-8.03
Stage 2	-6.1	112.57	-7.14
Stage 2	-6.3	111.07	-7.49
Stage 2	-6.5	106.95	-20.62
Stage 2	-6.7	100.41	-32.67
Stage 2	-6.9	91.68	-43.64
Stage 2	-7.1	80.97	-53.55
Stage 2	-7.3	68.49	-62.42
Stage 2	-7.5	54.54	-69.75
Stage 2	-7.7	40.29	-71.26
Stage 2	-7.9	27.02	-66.32
Stage 2	-8.1	15.7	-56.6
Stage 2	-8.3	7.17	-42.65
Stage 2	-8.5	1.85	-26.58
Stage 2	-8.7	0	-9.27

7. Allegati
7.1. Design Assumption : Nominal - File di Paratie - File di output (.out)

```
+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                         |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                         |
|                                  Exe Time :14 May 2019       17:56:44                                                   |
+-------------------------------------------------------------------------------------------------------------------------+

                  ***********************************************************
                  *                                                         *
                  *  PARATIE PLUS Non-Linear Spring Engine                  *
                  *                                                         *
                  *          AN ELASTOPLASTIC FINITE ELEMENT PROGRAM        *
                  *          FOR FLEXIBLE EARTH-RETAINING STRUCTURES        *
```

```
*                                                      *
*          Written by Ce.A.S. s.r.l. (ITALY)           *
*          with the scientific supervision of          *
*          Roberto Nova - full professor SOIL MECHANICS *
*          at Politecnico di Milano (ITALY)            *
*                                                      *
********************************************************
*                                                      *
*  RELEASE   2018.1     *Build date:Jun 29, 2018*    *
*                                                      *
*                                                      *
*  Ce.A.S.     S.R.L   CENTRO DI ANALISI STRUTTURALE    *
*              VIALE   GIUSTINIANO 10                  *
*              20129   M I L A N O  (ITALIA)           *
*  TEL.        +39 02 2020221                          *
*                                                      *
*  email       bruno.becci@ceas.it                     *
*  Web Page    www.ceas.it     www.paratieplus.com     *
********************************************************



 JOB : NewProject.BaseDesignSection_28.Nominal_64
 STARTING
ACCEPTED   &lt;FILE,GENW                                                                    &gt;
ACCEPTED   &lt;FILE,PLOTTER,BINARY                                                          &gt;
ACCEPTED   &lt;SOLVE TOTAL_STRESS                                                           &gt;
ACCEPTED   &lt;PARAM ITEMAX 40                                                              &gt;
ACCEPTED   &lt;CONTROL HINGES 0 0.0001 0.001                                                &gt;


                 ********************************************************
                 *                                                      *
                 *  WARNING : PORE PRESSURES ARE AUTOMATICALLY COMPUTED  *
                 *    BY THE PROGRAM.                                   *
                 ********************************************************

PRELIMINARY OPERATIONS CPU TIME     0.01 [sec]


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                    NewProject.BaseDesignSection_28.Nominal_64                                           |
|                                  Exe Time :14 May 2019       17:56:44                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


INPUT FILE HAS BEEN GENERATED BY WALGEN PROGRAM


New Project


NO. OF NODAL POINTS (NUMNP) ...................    46
NO. OF COORDINATES  (NCOORD)...................     2
NO. OF NODE DOFS    (NDOF).....................     2
NO. OF EQUATIONS    (NEQ)......................    92
NO. OF CONSTRAINTS CARDS (NVINC)...............     0
NO. OF ELEMENT GROUPS (NEG)....................     3
NO. OF SOLUTION STEPS (NSTE)...................     2
NO. OF ELEMENT SETS ATTACHED TO SLAVE NODES ...     0
NO. OF RECORD FROM WALGEN .....................   101
NO. OF LONG NAMES (LASTNAME) ..................    13
LENGTH UNIT CHOICE ............................     3 (M   )
FORCE  UNIT CHOICE ............................     3 (KN  )
MAX PORE PRESSURE TABLE LENGTH.................     1
NO. OF ELEMENT GROUPS REQUIRING ADD. SLIP DOF .     0


IDOFA (01) =  2  Y-DISPL.F
IDOFA (02) =  4   X-ROT. F

 RELEVANT ITEMS UNITS

 STRESSES                  kPa
 Y-DISPLACEMENTS           m
 ROTATIONS                 RADIANS
 BEAM AND SLAB MOMENTS     kN*m/m
 BEAM SHEAR FORCES         kN/m
 ANCHOR FORCES             kN/m
 AXIAL FORCES IN TRUSSES   kN/m
 AXIAL FORCES SPRINGS      kN/m
 Y-REACTIONS               kN/m
 X-MOMENT REACTIONS        kN*m/m
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 ETC.


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                         |
|                                 Exe Time :14 May 2019       17:56:44                                                    |
+-------------------------------------------------------------------------------------------------------------------------+
                   P R E P R O C E S S O R     D A T A

                   N O.  O F   C O M M A N D S    101

    1 : UNIT  m kN
    2 : TITLE New Project
    3 : DELTA 0.2
    4 : option param itemax 40
    5 : option control hinges 0 0.0001 0.001
    6 : WALL LeftWall_32 0 -8.7 0.3 -1
    7 : SOIL 0_L LeftWall_32 -8.7 0.3 2 0
    8 : SOIL 0_R LeftWall_32 -8.7 0.3 1 180
    9 : LDATA UG0_2_10_L_0 0 LeftWall_32
   10 : ATREST 0.5 0.5 1
   11 : WEIGHT 18.5 8.5 10
   12 : PERMEABILITY 0.0001
   13 : RESISTANCE 0 35 0 0 0
   14 : WINKLER 3143 9429.1
   15 : ENDL
   16 : LDATA UG2_4_11_L_0 -3.2 LeftWall_32
   17 : ATREST 0.531 0.5 1
   18 : WEIGHT 19.5 9.5 10
   19 : PERMEABILITY 1E-07
   20 : RESISTANCE 30 25 0 0 0
   21 : WINKLER 3143 9429.1
   22 : ENDL
   23 : LDATA UG3_4271_12_L_0 -5.55 LeftWall_32
   24 : ATREST 0.531 0.5 1
   25 : WEIGHT 20 10 10
   26 : PERMEABILITY 1E-07
   27 : RESISTANCE 0 32 0 0 0
   28 : WINKLER 3143 9429.1
   29 : ENDL
   30 : LDATA UG2_4_26346_L_0 -6.15 LeftWall_32
   31 : ATREST 0.531 0.5 1
   32 : WEIGHT 19.5 9.5 10
   33 : PERMEABILITY 1E-07
   34 : RESISTANCE 30 25 0 0 0
   35 : WINKLER 3143 9429.1
   36 : ENDL
   37 : MATERIAL S275_115 2.1E+08
   38 : BEAM WallElement_New_28707 LeftWall_32 -8.7 0.3 S275_115 0.19777 00 00 0
   39 : STRIP LeftWall_32 1 2 1.45 3.55 -0.3 20 45
   40 : STEP Stage1_31
   41 : CHANGE UG0_2_10_L_0 U-FRICT=35 LeftWall_32
   42 : CHANGE UG0_2_10_L_0 D-FRICT=35 LeftWall_32
   43 : CHANGE UG0_2_10_L_0 U-KA=0.285 LeftWall_32
   44 : CHANGE UG0_2_10_L_0 U-KP=4.647 LeftWall_32
   45 : CHANGE UG0_2_10_L_0 D-KA=0.253 LeftWall_32
   46 : CHANGE UG0_2_10_L_0 D-KP=5.105 LeftWall_32
   47 : CHANGE UG2_4_11_L_0 U-FRICT=25 LeftWall_32
   48 : CHANGE UG2_4_11_L_0 D-FRICT=25 LeftWall_32
   49 : CHANGE UG2_4_11_L_0 U-KA=0.394 LeftWall_32
   50 : CHANGE UG2_4_11_L_0 U-KP=2.403 LeftWall_32
   51 : CHANGE UG2_4_11_L_0 D-KA=0.38 LeftWall_32
   52 : CHANGE UG2_4_11_L_0 D-KP=2.947 LeftWall_32
   53 : CHANGE UG3_4271_12_L_0 U-FRICT=32 LeftWall_32
   54 : CHANGE UG3_4271_12_L_0 D-FRICT=32 LeftWall_32
   55 : CHANGE UG3_4271_12_L_0 U-KA=0.3 LeftWall_32
   56 : CHANGE UG3_4271_12_L_0 U-KP=3.436 LeftWall_32
   57 : CHANGE UG3_4271_12_L_0 D-KA=0.289 LeftWall_32
   58 : CHANGE UG3_4271_12_L_0 D-KP=4.44 LeftWall_32
   59 : CHANGE UG2_4_26346_L_0 U-FRICT=25 LeftWall_32
   60 : CHANGE UG2_4_26346_L_0 D-FRICT=25 LeftWall_32
   61 : CHANGE UG2_4_26346_L_0 U-KA=0.378 LeftWall_32
   62 : CHANGE UG2_4_26346_L_0 U-KP=2.306 LeftWall_32
   63 : CHANGE UG2_4_26346_L_0 D-KA=0.388 LeftWall_32
   64 : CHANGE UG2_4_26346_L_0 D-KP=3.053 LeftWall_32
   65 : CHANGE UG0_2_10_L_0 U-COHE=0 LeftWall_32
   66 : CHANGE UG0_2_10_L_0 U-ADHES=0 LeftWall_32
   67 : CHANGE UG0_2_10_L_0 D-COHE=0 LeftWall_32
   68 : CHANGE UG0_2_10_L_0 D-ADHES=0 LeftWall_32
   69 : CHANGE UG2_4_11_L_0 U-COHE=30 LeftWall_32
   70 : CHANGE UG2_4_11_L_0 U-ADHES=0 LeftWall_32
   71 : CHANGE UG2_4_11_L_0 D-COHE=30 LeftWall_32
   72 : CHANGE UG2_4_11_L_0 D-ADHES=0 LeftWall_32
   73 : CHANGE UG3_4271_12_L_0 U-COHE=0 LeftWall_32
   74 : CHANGE UG3_4271_12_L_0 U-ADHES=0 LeftWall_32
```

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   75 : CHANGE UG3_4271_12_L_0 D-COHE=0 LeftWall_32
   76 : CHANGE UG3_4271_12_L_0 D-ADHES=0 LeftWall_32
   77 : CHANGE UG2_4_26346_L_0 U-COHE=30 LeftWall_32
   78 : CHANGE UG2_4_26346_L_0 U-ADHES=0 LeftWall_32
   79 : CHANGE UG2_4_26346_L_0 D-COHE=30 LeftWall_32
   80 : CHANGE UG2_4_26346_L_0 D-ADHES=0 LeftWall_32
   81 : SETWALL LeftWall_32
   82 : GEOM 0 0
   83 : SURCHARGE 0 0 0 0
   84 : WATER -4.4 0 -8.7 0 0
   85 : ENDSTEP
   86 : STEP Stage2_28513
   87 : CHANGE UG0_2_10_L_0 D-KA=0.271 LeftWall_32
   88 : CHANGE UG0_2_10_L_0 D-KP=5.879 LeftWall_32
   89 : CHANGE UG2_4_11_L_0 D-KA=0.406 LeftWall_32
   90 : CHANGE UG2_4_11_L_0 D-KP=3.222 LeftWall_32
   91 : CHANGE UG3_4271_12_L_0 D-KA=0.307 LeftWall_32
   92 : CHANGE UG3_4271_12_L_0 D-KP=4.845 LeftWall_32
   93 : CHANGE UG2_4_26346_L_0 U-KP=2.305 LeftWall_32
   94 : CHANGE UG2_4_26346_L_0 D-KA=0.406 LeftWall_32
   95 : CHANGE UG2_4_26346_L_0 D-KP=3.222 LeftWall_32
   96 : SETWALL LeftWall_32
   97 : GEOM 0 -4.75
   98 : SURCHARGE 0 0 0 0
   99 : WATER -4.4 0.35 -8.7 0 0
  100 : ADD WallElement_New_28707
  101 : ENDSTEP


+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                     NewProject.BaseDesignSection_28.Nominal_64                                        |
|                                  Exe Time :14 May 2019       17:56:44                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
N O D A L    P O I N T    D A T A
---------------------------------

NODE     Y-COORD     Z-COORD / NODE     Y-COORD     Z-COORD / NODE     Y-COORD     Z-COORD / NODE     Y-COORD     Z-COORD /

   1  0.0000     0.30000     /    2  0.0000     0.10000     /    3  0.0000    -0.10000     /    4  0.0000    -0.30000     /
   5  0.0000    -0.50000     /    6  0.0000    -0.70000     /    7  0.0000    -0.90000     /    8  0.0000     -1.1000     /
   9  0.0000     -1.3000     /   10  0.0000     -1.5000     /   11  0.0000     -1.7000     /   12  0.0000     -1.9000     /
  13  0.0000     -2.1000     /   14  0.0000     -2.3000     /   15  0.0000     -2.5000     /   16  0.0000     -2.7000     /
  17  0.0000     -2.9000     /   18  0.0000     -3.1000     /   19  0.0000     -3.3000     /   20  0.0000     -3.5000     /
  21  0.0000     -3.7000     /   22  0.0000     -3.9000     /   23  0.0000     -4.1000     /   24  0.0000     -4.3000     /
  25  0.0000     -4.5000     /   26  0.0000     -4.7000     /   27  0.0000     -4.9000     /   28  0.0000     -5.1000     /
  29  0.0000     -5.3000     /   30  0.0000     -5.5000     /   31  0.0000     -5.7000     /   32  0.0000     -5.9000     /
  33  0.0000     -6.1000     /   34  0.0000     -6.3000     /   35  0.0000     -6.5000     /   36  0.0000     -6.7000     /
  37  0.0000     -6.9000     /   38  0.0000     -7.1000     /   39  0.0000     -7.3000     /   40  0.0000     -7.5000     /
  41  0.0000     -7.7000     /   42  0.0000     -7.9000     /   43  0.0000     -8.1000     /   44  0.0000     -8.3000     /
  45  0.0000     -8.5000     /   46  0.0000     -8.7000     /


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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                     NewProject.BaseDesignSection_28.Nominal_64                                        |
|                                  Exe Time :14 May 2019       17:56:44                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  1

0_L                                                    :
   5  46   0   1   0   0   0   0   0   0   0   0   0   0   4   0   0   0   0
.....................................
.........2D PLASTIC SOIL ..........
.....................................

element group behaviour throughout stage analysis

stage   status
-------------------
    1   active
    2   active

 material set no.    1

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  1.00000


 material set no.    2

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  2.00000
```

```
 material set no.    3

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  3.00000


 material set no.    4

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  4.00000


 element data
```

el	n	mat	area	.....	.....	.....	flag
1	1	1	0.1000	0.000	0.000	0.000	2.000
2	2	1	0.2000	0.000	0.000	0.000	2.000
3	3	1	0.2000	0.000	0.000	0.000	2.000
4	4	1	0.2000	0.000	0.000	0.000	2.000
5	5	1	0.2000	0.000	0.000	0.000	2.000
6	6	1	0.2000	0.000	0.000	0.000	2.000
7	7	1	0.2000	0.000	0.000	0.000	2.000
8	8	1	0.2000	0.000	0.000	0.000	2.000
9	9	1	0.2000	0.000	0.000	0.000	2.000
10	10	1	0.2000	0.000	0.000	0.000	2.000
11	11	1	0.2000	0.000	0.000	0.000	2.000
12	12	1	0.2000	0.000	0.000	0.000	2.000
13	13	1	0.2000	0.000	0.000	0.000	2.000
14	14	1	0.2000	0.000	0.000	0.000	2.000
15	15	1	0.2000	0.000	0.000	0.000	2.000
16	16	1	0.2000	0.000	0.000	0.000	2.000
17	17	1	0.2000	0.000	0.000	0.000	2.000
18	18	1	0.2000	0.000	0.000	0.000	2.000
19	19	2	0.2000	0.000	0.000	0.000	2.000
20	20	2	0.2000	0.000	0.000	0.000	2.000
21	21	2	0.2000	0.000	0.000	0.000	2.000
22	22	2	0.2000	0.000	0.000	0.000	2.000
23	23	2	0.2000	0.000	0.000	0.000	2.000
24	24	2	0.2000	0.000	0.000	0.000	2.000
25	25	2	0.2000	0.000	0.000	0.000	2.000
26	26	2	0.2000	0.000	0.000	0.000	2.000
27	27	2	0.2000	0.000	0.000	0.000	2.000
28	28	2	0.2000	0.000	0.000	0.000	2.000
29	29	2	0.2000	0.000	0.000	0.000	2.000
30	30	2	0.2000	0.000	0.000	0.000	2.000
31	31	3	0.2000	0.000	0.000	0.000	2.000
32	32	3	0.2000	0.000	0.000	0.000	2.000
33	33	3	0.2000	0.000	0.000	0.000	2.000
34	34	4	0.2000	0.000	0.000	0.000	2.000
35	35	4	0.2000	0.000	0.000	0.000	2.000
36	36	4	0.2000	0.000	0.000	0.000	2.000
37	37	4	0.2000	0.000	0.000	0.000	2.000
38	38	4	0.2000	0.000	0.000	0.000	2.000
39	39	4	0.2000	0.000	0.000	0.000	2.000
40	40	4	0.2000	0.000	0.000	0.000	2.000
41	41	4	0.2000	0.000	0.000	0.000	2.000
42	42	4	0.2000	0.000	0.000	0.000	2.000
43	43	4	0.2000	0.000	0.000	0.000	2.000
44	44	4	0.2000	0.000	0.000	0.000	2.000
45	45	4	0.2000	0.000	0.000	0.000	2.000
46	46	4	0.1000	0.000	0.000	0.000	2.000

```
+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                         |
|                                     NewProject.BaseDesignSection_28.Nominal_64                                          |
|                                  Exe Time :14 May 2019       17:56:44                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  2

0_R                                                    :
    5  46   0   1   0   0   0   0   0   0   0   0   0   0   0   4   0   0   0   0
.....................................
.........2D PLASTIC SOIL ..........
.....................................

element group behaviour throughout stage analysis

stage   status
-------------------
    1   active
    2   active
```

```
 material set no.    1

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  1.00000


 material set no.    2

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  2.00000


 material set no.    3

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  3.00000


 material set no.    4

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  4.00000


 element data
```

el	n	mat	area	.....	.....	.....	flag
1	1	1	0.1000	0.000	0.000	0.000	1.000
2	2	1	0.2000	0.000	0.000	0.000	1.000
3	3	1	0.2000	0.000	0.000	0.000	1.000
4	4	1	0.2000	0.000	0.000	0.000	1.000
5	5	1	0.2000	0.000	0.000	0.000	1.000
6	6	1	0.2000	0.000	0.000	0.000	1.000
7	7	1	0.2000	0.000	0.000	0.000	1.000
8	8	1	0.2000	0.000	0.000	0.000	1.000
9	9	1	0.2000	0.000	0.000	0.000	1.000
10	10	1	0.2000	0.000	0.000	0.000	1.000
11	11	1	0.2000	0.000	0.000	0.000	1.000
12	12	1	0.2000	0.000	0.000	0.000	1.000
13	13	1	0.2000	0.000	0.000	0.000	1.000
14	14	1	0.2000	0.000	0.000	0.000	1.000
15	15	1	0.2000	0.000	0.000	0.000	1.000
16	16	1	0.2000	0.000	0.000	0.000	1.000
17	17	1	0.2000	0.000	0.000	0.000	1.000
18	18	1	0.2000	0.000	0.000	0.000	1.000
19	19	2	0.2000	0.000	0.000	0.000	1.000
20	20	2	0.2000	0.000	0.000	0.000	1.000
21	21	2	0.2000	0.000	0.000	0.000	1.000
22	22	2	0.2000	0.000	0.000	0.000	1.000
23	23	2	0.2000	0.000	0.000	0.000	1.000
24	24	2	0.2000	0.000	0.000	0.000	1.000
25	25	2	0.2000	0.000	0.000	0.000	1.000
26	26	2	0.2000	0.000	0.000	0.000	1.000
27	27	2	0.2000	0.000	0.000	0.000	1.000
28	28	2	0.2000	0.000	0.000	0.000	1.000
29	29	2	0.2000	0.000	0.000	0.000	1.000
30	30	2	0.2000	0.000	0.000	0.000	1.000
31	31	3	0.2000	0.000	0.000	0.000	1.000
32	32	3	0.2000	0.000	0.000	0.000	1.000
33	33	3	0.2000	0.000	0.000	0.000	1.000
34	34	4	0.2000	0.000	0.000	0.000	1.000
35	35	4	0.2000	0.000	0.000	0.000	1.000
36	36	4	0.2000	0.000	0.000	0.000	1.000
37	37	4	0.2000	0.000	0.000	0.000	1.000
38	38	4	0.2000	0.000	0.000	0.000	1.000
39	39	4	0.2000	0.000	0.000	0.000	1.000
40	40	4	0.2000	0.000	0.000	0.000	1.000
41	41	4	0.2000	0.000	0.000	0.000	1.000
42	42	4	0.2000	0.000	0.000	0.000	1.000
43	43	4	0.2000	0.000	0.000	0.000	1.000
44	44	4	0.2000	0.000	0.000	0.000	1.000
45	45	4	0.2000	0.000	0.000	0.000	1.000
46	46	4	0.1000	0.000	0.000	0.000	1.000

```
+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                       NewProject.BaseDesignSection_28.Nominal_64                                      |
|                                  Exe Time :14 May 2019       17:56:44                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  3

WallElement_New_28707                                    :
   2  45   0   1   0   0   0   0   0   0   0   0   0   0   1   0   0   1   0
```

```
.....................................
.........2D WALL ELEMENT...........
.....................................

element group behaviour throughout stage analysis

stage   status
-------------------
    1  inactive
    2   active

 material set no.    1

 prop( 1) young modulus      0.210000E+09
 prop( 2) modification  time  0.00000
 prop( 3) new young modulus   0.00000
 prop( 4) poisson ratio       0.00000
 prop( 5) future ............ 0.00000

 no. of step variable items:     1
 step  inertia multipier
--------------------------
    1   1.000
    2   1.000

 element data

   el    na    nb  mat      erc1      erc2     thick      by-i      by-j
-------------------------------------------------------------

    1     1     2    1     0.000     0.000    0.1978     0.000     0.000
    2     2     3    1     0.000     0.000    0.1978     0.000     0.000
    3     3     4    1     0.000     0.000    0.1978     0.000     0.000
    4     4     5    1     0.000     0.000    0.1978     0.000     0.000
    5     5     6    1     0.000     0.000    0.1978     0.000     0.000
    6     6     7    1     0.000     0.000    0.1978     0.000     0.000
    7     7     8    1     0.000     0.000    0.1978     0.000     0.000
    8     8     9    1     0.000     0.000    0.1978     0.000     0.000
    9     9    10    1     0.000     0.000    0.1978     0.000     0.000
   10    10    11    1     0.000     0.000    0.1978     0.000     0.000
   11    11    12    1     0.000     0.000    0.1978     0.000     0.000
   12    12    13    1     0.000     0.000    0.1978     0.000     0.000
   13    13    14    1     0.000     0.000    0.1978     0.000     0.000
   14    14    15    1     0.000     0.000    0.1978     0.000     0.000
   15    15    16    1     0.000     0.000    0.1978     0.000     0.000
   16    16    17    1     0.000     0.000    0.1978     0.000     0.000
   17    17    18    1     0.000     0.000    0.1978     0.000     0.000
   18    18    19    1     0.000     0.000    0.1978     0.000     0.000
   19    19    20    1     0.000     0.000    0.1978     0.000     0.000
   20    20    21    1     0.000     0.000    0.1978     0.000     0.000
   21    21    22    1     0.000     0.000    0.1978     0.000     0.000
   22    22    23    1     0.000     0.000    0.1978     0.000     0.000
   23    23    24    1     0.000     0.000    0.1978     0.000     0.000
   24    24    25    1     0.000     0.000    0.1978     0.000     0.000
   25    25    26    1     0.000     0.000    0.1978     0.000     0.000
   26    26    27    1     0.000     0.000    0.1978     0.000     0.000
   27    27    28    1     0.000     0.000    0.1978     0.000     0.000
   28    28    29    1     0.000     0.000    0.1978     0.000     0.000
   29    29    30    1     0.000     0.000    0.1978     0.000     0.000
   30    30    31    1     0.000     0.000    0.1978     0.000     0.000
   31    31    32    1     0.000     0.000    0.1978     0.000     0.000
   32    32    33    1     0.000     0.000    0.1978     0.000     0.000
   33    33    34    1     0.000     0.000    0.1978     0.000     0.000
   34    34    35    1     0.000     0.000    0.1978     0.000     0.000
   35    35    36    1     0.000     0.000    0.1978     0.000     0.000
   36    36    37    1     0.000     0.000    0.1978     0.000     0.000
   37    37    38    1     0.000     0.000    0.1978     0.000     0.000
   38    38    39    1     0.000     0.000    0.1978     0.000     0.000
   39    39    40    1     0.000     0.000    0.1978     0.000     0.000
   40    40    41    1     0.000     0.000    0.1978     0.000     0.000
   41    41    42    1     0.000     0.000    0.1978     0.000     0.000
   42    42    43    1     0.000     0.000    0.1978     0.000     0.000
   43    43    44    1     0.000     0.000    0.1978     0.000     0.000
   44    44    45    1     0.000     0.000    0.1978     0.000     0.000
   45    45    46    1     0.000     0.000    0.1978     0.000     0.000


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                         |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                         |
|                                  Exe Time :14 May 2019       17:56:44                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


NO. OF NODAL LOADS   (NLOAD) ...................    0
NO. OF LOAD CURVES   (NLCUR) ...................    4
```

```
MAXIMUM POINTS/LCURVE (NPTM)...................    5


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                         |
|                                  Exe Time :14 May 2019       17:56:44                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
L O A D     D A T A


    LOAD FUNCTION NUMBER   =    1
    NUMBER OF TIME POINTS  =    5

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       0.80000    0.0000E+00
       1.00000    0.1000E+01
       1.20000    0.0000E+00
       3.00000    0.0000E+00


    LOAD FUNCTION NUMBER   =    2
    NUMBER OF TIME POINTS  =    5

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       1.80000    0.0000E+00
       2.00000    0.1000E+01
       2.20000    0.0000E+00
       3.00000    0.0000E+00


    LOAD FUNCTION NUMBER   =    3
    NUMBER OF TIME POINTS  =    4

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       0.80000    0.0000E+00
       1.00000    0.1000E+01
       3.00000    0.1000E+01


    LOAD FUNCTION NUMBER   =    4
    NUMBER OF TIME POINTS  =    4

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       1.80000    0.0000E+00
       2.00000    0.1000E+01
       3.00000    0.1000E+01

NO. OF DISTRIBUTED LOAD CARDS     0



+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                         |
|                                  Exe Time :14 May 2019       17:56:44                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
L O A D     B A L A N C E

STEP     1 TOTAL APPLIED LOAD IN DIR.  2  Y-DISPL.F       0.0000000
STEP     1 TOTAL APPLIED LOAD IN DIR.  4   X-ROT. F       0.0000000

STEP     2 TOTAL APPLIED LOAD IN DIR.  2  Y-DISPL.F       0.0000000
STEP     2 TOTAL APPLIED LOAD IN DIR.  4   X-ROT. F       0.0000000


                    LOAD INPUT SECTION COMPLETED
```

```
+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                         |
|                                  Exe Time :14 May 2019       17:56:44                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


NO. OF LAYERS ..............................    4
NO. OF DATA PER LAYER.......................  100


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                         |
|                                  Exe Time :14 May 2019       17:56:44                                                   |
+-------------------------------------------------------------------------------------------------------------------------+

LAYER DESCRIPTORS FOR STEP NO.    1


 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    1 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  8.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= 0.30000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  18.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  8.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.28500     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  4.6470     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-03 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;= 0.30000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.25300     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  5.1050     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-03 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    2 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  9.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -3.2000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  19.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  9.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   8&lt;U-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.39400     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  2.4030     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.38000     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  2.9470     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    3 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  10.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -5.5500     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  20.000     (BOTH WALLS)
```

```
ITEM NO.   6&lt;GAMMAB  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.30000     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.4360     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.28900     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  4.4400     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    4 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  11.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -6.1500     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  19.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  9.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   8&lt;U-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.37800     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  2.3060     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.38800     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.0530     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

LAYER DESCRIPTORS FOR STEP NO.    2


 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    1 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  8.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= 0.30000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  18.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  8.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.28500     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  4.6470     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-03 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;= 0.30000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.27100     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  5.8790     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-03 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    2 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  9.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -3.2000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  19.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  9.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   8&lt;U-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.39400     WALL NO.        1
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ITEM NO.  11&lt;U-KP    &gt;=  2.4030     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.40600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.2220     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    3 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  10.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -5.5500     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  20.000     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.30000     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.4360     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.30700     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  4.8450     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    4 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  11.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -6.1500     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  19.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  9.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   8&lt;U-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.37800     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  2.3050     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.40600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.2220     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)


DEFAULT WATER UNIT WEIGHT =  10.000
AVERAGED ON     8 VALUES



+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)    NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                         |
|                                    Exe Time :14 May 2019       17:56:44                                                 |
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PHASE DESCRIPTORS


STEP  NO.     1
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	LEFT WALL	RIGHT WALL
Y	0.000	-0.9990E+30
Z-PC	0.000	0.000
Z-EXCAVATION	0.000	0.000
Z-WATER_TABLE	-4.400	-0.9990E+30
Q_AT_THE_FREE_FIELD_LEVEL	0.000	0.000
ZQ	0.000	0.000
DZW_OF_THE_WATER_TABLE	0.000	0.000
QS_ON_THE_EXCAVATION_SIDE	0.000	0.000
ZQS	0.000	-0.9990E+30
ZCUT	0.000	0.000
BALANCE LEVEL FOR PORE PRESSURES	-8.700	-8.700
WATER_BEHAVIOUR_FLAG (LINING OPT)	0.000	0.000
PORE_UPDATE_FLAG	0.000	0.000
PORE_TAB. _FLAG (gt.0= use tabs)	0.000	0.000
lateral thrusts reduction elevatio	0.000	0.000
Downhill reduction factor for effe	0.000	0.000
Downhill reduction factor for pore	0.000	0.000
Uphill reduction factor for effect	0.000	0.000
Uphill reduction factor for pore p	0.000	0.000
SEISMIC HORIZONTAL ACCEL. Kh [g]	0.000	0.000
UPHILL VERTICAL ACCEL. Kv_uh [g]	0.000	0.000
DOWNHILL VERTICAL ACCEL.Kv_dh [g]	0.000	0.000
UPHILL BETA ANGLE (SLOPE) [deg]	0.000	0.000
UPHILL DELTA/PHI RATIO	0.000	0.000
DOWNHILL BETA ANGLE (SLOPE) [deg]	0.000	0.000
DOWNHILL DELTA/PHI RATIO	0.000	0.000
DYN.WATER BEHAVIOUR	0.000	0.000
Excess pore pressure RATIO Ru	0.000	0.000
SEISMIC PRESSURE LOWER VALUE	0.000	0.000
SEISMIC PRESSURE UPPER VALUE	0.000	0.000
SEISMIC PRESSURE LOWER LEVEL	0.000	0.000
SEISMIC PRESSURE UPPER LEVEL	0.000	0.000

==========end of step 1

STEP NO. 2

	LEFT WALL	RIGHT WALL
Y	0.000	-0.9990E+30
Z-PC	0.000	0.000
Z-EXCAVATION	-4.750	0.000
Z-WATER_TABLE	-4.400	-0.9990E+30
Q_AT_THE_FREE_FIELD_LEVEL	0.000	0.000
ZQ	0.000	0.000
DZW_OF_THE_WATER_TABLE	0.3500	0.000
QS_ON_THE_EXCAVATION_SIDE	0.000	0.000
ZQS	0.000	-0.9990E+30
ZCUT	0.000	0.000
BALANCE LEVEL FOR PORE PRESSURES	-8.700	-8.700
WATER_BEHAVIOUR_FLAG (LINING OPT)	0.000	0.000
PORE_UPDATE_FLAG	0.000	0.000
PORE_TAB. _FLAG (gt.0= use tabs)	0.000	0.000
lateral thrusts reduction elevatio	0.000	0.000
Downhill reduction factor for effe	0.000	0.000
Downhill reduction factor for pore	0.000	0.000
Uphill reduction factor for effect	0.000	0.000
Uphill reduction factor for pore p	0.000	0.000
SEISMIC HORIZONTAL ACCEL. Kh [g]	0.000	0.000
UPHILL VERTICAL ACCEL. Kv_uh [g]	0.000	0.000
DOWNHILL VERTICAL ACCEL.Kv_dh [g]	0.000	0.000
UPHILL BETA ANGLE (SLOPE) [deg]	0.000	0.000
UPHILL DELTA/PHI RATIO	0.000	0.000
DOWNHILL BETA ANGLE (SLOPE) [deg]	0.000	0.000
DOWNHILL DELTA/PHI RATIO	0.000	0.000
DYN.WATER BEHAVIOUR	0.000	0.000
Excess pore pressure RATIO Ru	0.000	0.000
SEISMIC PRESSURE LOWER VALUE	0.000	0.000
SEISMIC PRESSURE UPPER VALUE	0.000	0.000
SEISMIC PRESSURE LOWER LEVEL	0.000	0.000
SEISMIC PRESSURE UPPER LEVEL	0.000	0.000

==========end of step 2

LEFT-HAND WALL

LOWER LEVEL -8.70000
UPPER LEVEL 0.30000

RIGHT-HAND WALL

LOWER LEVEL -8.70000
UPPER LEVEL 0.30000

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|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                    NewProject.BaseDesignSection_28.Nominal_64                                           |
|                                 Exe Time :14 May 2019       17:56:44                                                    |
+-------------------------------------------------------------------------------------------------------------------------+
 I N I T I A L    S T R E S S    T A B L E S

            S E C T I O N

 NUMBER OF DEFINED TABLES             1


INPUT DATA FOR INITIAL STRESS SET NO.    1
PERTAINING SOIL ELEMENTS AT Y-COORD    0.0000

ACTIVATION TIME                              1.0000
END TIME (TIME BEYOND WHICH IT IS REMOVED)   2.0000

TYPE BOUSSINESQ

 HORIZONTAL DISTANCE (DY)           1.45000000000000
 FOUNDATION WIDTH    (B)            3.55000000000000
 ZETA-F.....                      -0.300000000000000
 Q-F .....                          20.0000000000000
 BETA .....                         45.0000000000000
 BEHAVIOUR (0=FREE, 1=REFLECTING)  0.000000000000000E+000


 ELEMENT GROUPS BACKUP AREA CAN STAY IN CORE AT
 POSITION        2653

 NO. OF D.P.W  FOR THIS AREA       5436
 MAX NO. OF D.P.W. AVAILABLE      81920
 ** MAX NO OF ITERATIONS SET TO          40

ITER     0 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.1202E+05 RIMNOR= 0.000
           RENORM=0.2209E-28 REMNOR= 0.000     RATIO =0.4286E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 21.27     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.1202E+05 RDR   = 0.000
           RATIOT=0.4286E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    85 NODE     43 DOF   1  Y-DISPL.F
           MIN UN=-.1776E-14 IEQ=    37 NODE     19 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     1 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.1202E+05 RIMNOR= 0.000
           RENORM=0.2209E-28 REMNOR= 0.000     RATIO =0.4286E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 21.27     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.1202E+05 RDR   = 0.000
           RATIOT=0.4286E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    85 NODE     43 DOF   1  Y-DISPL.F
           MIN UN=-.1776E-14 IEQ=    37 NODE     19 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.1202E+05 RIMNOR= 0.000
           RENORM=0.2209E-28 REMNOR= 0.000     RATIO =0.4286E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 21.27     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.1202E+05 RDR   = 0.000
           RATIOT=0.4286E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    85 NODE     43 DOF   1  Y-DISPL.F
           MIN UN=-.1776E-14 IEQ=    37 NODE     19 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0



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|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                    NewProject.BaseDesignSection_28.Nominal_64                                           |
|                                 Exe Time :14 May 2019       17:56:44                                                    |
+-------------------------------------------------------------------------------------------------------------------------+
New Project
SOLUTION REACHED USING     2 ITERATIONS ON   40

P R I N T   O U T   F O R   T I M E   S T E P    1     ( AT TIME   1.000     )

PRINT OUT OF ACTIVE COMPONENTS (FIXED NODES ARE NOT PRINTED OUT)
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```
          Y-DISPL.F        X-ROT. F
           (02)             (04)            (

ALL NODAL POINTS HAVE ZERO DISPLACEMENT COMPONENTS


+-----------------------------------------------------------------------------------------------------------+
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*  |
|                                                                                                           |
|                                   NewProject.BaseDesignSection_28.Nominal_64                              |
|                               Exe Time :14 May 2019       17:56:44                                        |
+-----------------------------------------------------------------------------------------------------------+
New Project


S T R E S S    R E S U L T S    F O R    G R O U P   N O.    1

0_L                                                            :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   46
C U R R E N T    T I M E    I S      1.0000

 HARDENING 2D SOIL ELEMENT

 ****** TOTAL STRESS FORMULATION *****
```

EL *	FORCE	DISPL-Y	VERTICAL-P	HORIZON.-P	MAX-V-P	MAX-H-P	STATE	STIFFNESS	Z-LEVEL	PORE	E
FACTOR	UFACTOR	Peq	Su_a	Su_p	LAYER						
1	0.000	--	--	--	--	--	REMOVED	--	0.3000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
2	0.000	--	--	--	--	--	REMOVED	--	0.1000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
3 D	0.1850	0.000	1.850	0.9250	1.850	0.9250	V-C	3143.	-0.1000	0.000	
1.000	1.000	0.9250	0.000	0.000	UG0_2_10_L_0						
4 D	0.5550	0.000	5.550	2.775	5.550	2.775	V-C	3143.	-0.3000	0.000	
1.000	1.000	2.775	0.000	0.000	UG0_2_10_L_0						
5 D	1.170	0.000	9.250	5.851	9.250	5.851	V-C	3143.	-0.5000	0.000	
1.000	1.000	5.851	0.000	0.000	UG0_2_10_L_0						
6 D	1.761	0.000	12.95	8.806	12.95	8.806	V-C	3143.	-0.7000	0.000	
1.000	1.000	8.806	0.000	0.000	UG0_2_10_L_0						
7 D	2.312	0.000	16.65	11.56	16.65	11.56	V-C	3143.	-0.9000	0.000	
1.000	1.000	11.56	0.000	0.000	UG0_2_10_L_0						
8 D	2.815	0.000	20.35	14.07	20.35	14.07	V-C	3143.	-1.100	0.000	
1.000	1.000	14.07	0.000	0.000	UG0_2_10_L_0						
9 D	3.273	0.000	24.05	16.36	24.05	16.36	V-C	3143.	-1.300	0.000	
1.000	1.000	16.36	0.000	0.000	UG0_2_10_L_0						
10 D	3.692	0.000	27.75	18.46	27.75	18.46	V-C	3143.	-1.500	0.000	
1.000	1.000	18.46	0.000	0.000	UG0_2_10_L_0						
11 D	4.081	0.000	31.45	20.40	31.45	20.40	V-C	3143.	-1.700	0.000	
1.000	1.000	20.40	0.000	0.000	UG0_2_10_L_0						
12 D	4.447	0.000	35.15	22.24	35.15	22.24	V-C	3143.	-1.900	0.000	
1.000	1.000	22.24	0.000	0.000	UG0_2_10_L_0						
13 D	4.798	0.000	38.85	23.99	38.85	23.99	V-C	3143.	-2.100	0.000	
1.000	1.000	23.99	0.000	0.000	UG0_2_10_L_0						
14 D	5.138	0.000	42.55	25.69	42.55	25.69	V-C	3143.	-2.300	0.000	
1.000	1.000	25.69	0.000	0.000	UG0_2_10_L_0						
15 D	5.471	0.000	46.25	27.35	46.25	27.35	V-C	3143.	-2.500	0.000	
1.000	1.000	27.35	0.000	0.000	UG0_2_10_L_0						
16 D	5.800	0.000	49.95	29.00	49.95	29.00	V-C	3143.	-2.700	0.000	
1.000	1.000	29.00	0.000	0.000	UG0_2_10_L_0						
17 D	6.127	0.000	53.65	30.64	53.65	30.64	V-C	3143.	-2.900	0.000	
1.000	1.000	30.64	0.000	0.000	UG0_2_10_L_0						
18 D	6.454	0.000	57.35	32.27	57.35	32.27	V-C	3143.	-3.100	0.000	
1.000	1.000	32.27	0.000	0.000	UG0_2_10_L_0						
19 D	7.170	2.8259E-18	61.15	35.85	61.15	35.85	V-C	3143.	-3.300	0.000	
1.000	1.000	35.85	0.000	0.000	UG2_4_11_L_0						
20 D	7.542	0.000	65.05	37.71	65.05	37.71	V-C	3143.	-3.500	0.000	
1.000	1.000	37.71	0.000	0.000	UG2_4_11_L_0						
21 D	7.916	0.000	68.95	39.58	68.95	39.58	V-C	3143.	-3.700	0.000	
1.000	1.000	39.58	0.000	0.000	UG2_4_11_L_0						
22 D	8.292	0.000	72.85	41.46	72.85	41.46	V-C	3143.	-3.900	0.000	
1.000	1.000	41.46	0.000	0.000	UG2_4_11_L_0						
23 D	8.670	0.000	76.75	43.35	76.75	43.35	V-C	3143.	-4.100	0.000	
1.000	1.000	43.35	0.000	0.000	UG2_4_11_L_0						
24 D	9.050	0.000	80.65	45.25	80.65	45.25	V-C	3143.	-4.300	0.000	
1.000	1.000	45.25	0.000	0.000	UG2_4_11_L_0						
25 D	9.526	0.000	83.55	46.63	83.55	46.63	V-C	3143.	-4.500	1.000	
1.000	1.000	47.63	0.000	0.000	UG2_4_11_L_0						
26 D	10.10	0.000	85.45	47.49	85.45	47.49	V-C	3143.	-4.700	3.000	
1.000	1.000	50.49	0.000	0.000	UG2_4_11_L_0						
27 D	10.67	0.000	87.35	48.36	87.35	48.36	V-C	3143.	-4.900	5.000	
1.000	1.000	53.36	0.000	0.000	UG2_4_11_L_0						

28 D	11.25	0.000	89.25	49.24	89.25	49.24	V-C	3143.	-5.100	7.000	
1.000	1.000	56.24	0.000	0.000	UG2_4_11_L_0						
29 D	11.82	0.000	91.15	50.12	91.15	50.12	V-C	3143.	-5.300	9.000	
1.000	1.000	59.12	0.000	0.000	UG2_4_11_L_0						
30 D	12.40	0.000	93.05	51.02	93.05	51.02	V-C	3143.	-5.500	11.00	
1.000	1.000	62.02	0.000	0.000	UG2_4_11_L_0						
31 D	12.99	0.000	95.02	51.96	95.02	51.96	V-C	3143.	-5.700	13.00	
1.000	1.000	64.96	0.000	0.000	UG3_4271_12_L_0						
32 D	13.59	0.000	97.02	52.93	97.02	52.93	V-C	3143.	-5.900	15.00	
1.000	1.000	67.93	0.000	0.000	UG3_4271_12_L_0						
33 D	14.18	-2.8259E-18	99.02	53.90	99.02	53.90	V-C	3143.	-6.100	17.00	
1.000	1.000	70.90	0.000	0.000	UG3_4271_12_L_0						
34 D	14.77	-2.8259E-18	100.9	54.84	100.9	54.84	V-C	3143.	-6.300	19.00	
1.000	1.000	73.84	0.000	0.000	UG2_4_26346_L_0						
35 D	15.35	0.000	102.8	55.77	102.8	55.77	V-C	3143.	-6.500	21.00	
1.000	1.000	76.77	0.000	0.000	UG2_4_26346_L_0						
36 D	15.94	0.000	104.7	56.71	104.7	56.71	V-C	3143.	-6.700	23.00	
1.000	1.000	79.71	0.000	0.000	UG2_4_26346_L_0						
37 D	16.53	0.000	106.6	57.65	106.6	57.65	V-C	3143.	-6.900	25.00	
1.000	1.000	82.65	0.000	0.000	UG2_4_26346_L_0						
38 D	17.12	0.000	108.5	58.60	108.5	58.60	V-C	3143.	-7.100	27.00	
1.000	1.000	85.60	0.000	0.000	UG2_4_26346_L_0						
39 D	17.71	0.000	110.4	59.55	110.4	59.55	V-C	3143.	-7.300	29.00	
1.000	1.000	88.55	0.000	0.000	UG2_4_26346_L_0						
40 D	18.30	0.000	112.3	60.51	112.3	60.51	V-C	3143.	-7.500	31.00	
1.000	1.000	91.51	0.000	0.000	UG2_4_26346_L_0						
41 D	18.89	0.000	114.2	61.47	114.2	61.47	V-C	3143.	-7.700	33.00	
1.000	1.000	94.47	0.000	0.000	UG2_4_26346_L_0						
42 D	19.49	0.000	116.1	62.43	116.1	62.43	V-C	3143.	-7.900	35.00	
1.000	1.000	97.43	0.000	0.000	UG2_4_26346_L_0						
43 D	20.08	-5.6518E-18	118.0	63.39	118.0	63.39	V-C	3143.	-8.100	37.00	
1.000	1.000	100.4	0.000	0.000	UG2_4_26346_L_0						
44 D	20.67	0.000	119.9	64.36	119.9	64.36	V-C	3143.	-8.300	39.00	
1.000	1.000	103.4	0.000	0.000	UG2_4_26346_L_0						
45 D	21.27	0.000	121.8	65.34	121.8	65.34	V-C	3143.	-8.500	41.00	
1.000	1.000	106.3	0.000	0.000	UG2_4_26346_L_0						
46 D	10.93	0.000	123.8	66.31	123.8	66.31	V-C	3143.	-8.700	43.00	
1.000	1.000	109.3	0.000	0.000	UG2_4_26346_L_0						

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|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                     NewProject.BaseDesignSection_28.Nominal_64                                        |
|                                  Exe Time :14 May 2019       17:56:44                                                 |
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New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   2

0_R                                                    :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   46
C U R R E N T   T I M E   I S      1.0000

 HARDENING 2D SOIL ELEMENT

 ****** TOTAL STRESS FORMULATION *****
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EL * FACTOR	FORCE UFACTOR	DISPL-Y Peq	VERTICAL-P Su_a	HORIZON.-P Su_p	MAX-V-P LAYER	MAX-H-P	STATE	STIFFNESS	Z-LEVEL	PORE	E
1	0.000	--	--	--	--	--	REMOVED	--	0.3000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
2	0.000	--	--	--	--	--	REMOVED	--	0.1000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
3 D	0.1850	0.000	1.850	0.9250	1.850	0.9250	V-C	3143.	-0.1000	0.000	
1.000	1.000	0.9250	0.000	0.000	UG0_2_10_L_0						
4 D	0.5550	0.000	5.550	2.775	5.550	2.775	V-C	3143.	-0.3000	0.000	
1.000	1.000	2.775	0.000	0.000	UG0_2_10_L_0						
5 D	1.170	0.000	9.261	5.851	9.261	5.851	V-C	3143.	-0.5000	0.000	
1.000	1.000	5.851	0.000	0.000	UG0_2_10_L_0						
6 D	1.761	0.000	13.03	8.806	13.03	8.806	V-C	3143.	-0.7000	0.000	
1.000	1.000	8.806	0.000	0.000	UG0_2_10_L_0						
7 D	2.312	0.000	16.89	11.56	16.89	11.56	V-C	3143.	-0.9000	0.000	
1.000	1.000	11.56	0.000	0.000	UG0_2_10_L_0						
8 D	2.815	0.000	20.85	14.07	20.85	14.07	V-C	3143.	-1.100	0.000	
1.000	1.000	14.07	0.000	0.000	UG0_2_10_L_0						
9 D	3.273	0.000	24.89	16.36	24.89	16.36	V-C	3143.	-1.300	0.000	
1.000	1.000	16.36	0.000	0.000	UG0_2_10_L_0						
10 D	3.692	0.000	28.97	18.46	28.97	18.46	V-C	3143.	-1.500	0.000	
1.000	1.000	18.46	0.000	0.000	UG0_2_10_L_0						
11 D	4.081	0.000	33.07	20.40	33.07	20.40	V-C	3143.	-1.700	0.000	
1.000	1.000	20.40	0.000	0.000	UG0_2_10_L_0						
12 D	4.447	0.000	37.17	22.24	37.17	22.24	V-C	3143.	-1.900	0.000	
1.000	1.000	22.24	0.000	0.000	UG0_2_10_L_0						

13 D	4.798	0.000	41.25	23.99	41.25	23.99	V-C	3143.	-2.100	0.000
1.000	1.000	23.99	0.000	0.000	UG0_2_10_L_0					
14 D	5.138	0.000	45.58	25.69	45.58	25.69	V-C	3143.	-2.300	0.000
1.000	1.000	25.69	0.000	0.000	UG0_2_10_L_0					
15 D	5.471	0.000	50.11	27.35	50.11	27.35	V-C	3143.	-2.500	0.000
1.000	1.000	27.35	0.000	0.000	UG0_2_10_L_0					
16 D	5.800	0.000	54.38	29.00	54.38	29.00	V-C	3143.	-2.700	0.000
1.000	1.000	29.00	0.000	0.000	UG0_2_10_L_0					
17 D	6.127	0.000	58.71	30.64	58.71	30.64	V-C	3143.	-2.900	0.000
1.000	1.000	30.64	0.000	0.000	UG0_2_10_L_0					
18 D	6.454	0.000	62.97	32.27	62.97	32.27	V-C	3143.	-3.100	0.000
1.000	1.000	32.27	0.000	0.000	UG0_2_10_L_0					
19 D	7.170	-2.8259E-18	67.15	35.85	67.15	35.85	V-C	3143.	-3.300	0.000
1.000	1.000	35.85	0.000	0.000	UG2_4_11_L_0					
20 D	7.542	0.000	71.50	37.71	71.50	37.71	V-C	3143.	-3.500	0.000
1.000	1.000	37.71	0.000	0.000	UG2_4_11_L_0					
21 D	7.916	0.000	75.70	39.58	75.70	39.58	V-C	3143.	-3.700	0.000
1.000	1.000	39.58	0.000	0.000	UG2_4_11_L_0					
22 D	8.292	0.000	79.97	41.46	79.97	41.46	V-C	3143.	-3.900	0.000
1.000	1.000	41.46	0.000	0.000	UG2_4_11_L_0					
23 D	8.670	0.000	84.20	43.35	84.20	43.35	V-C	3143.	-4.100	0.000
1.000	1.000	43.35	0.000	0.000	UG2_4_11_L_0					
24 D	9.050	0.000	88.32	45.25	88.32	45.25	V-C	3143.	-4.300	0.000
1.000	1.000	45.25	0.000	0.000	UG2_4_11_L_0					
25 D	9.526	0.000	91.51	46.63	91.51	46.63	V-C	3143.	-4.500	1.000
1.000	1.000	47.63	0.000	0.000	UG2_4_11_L_0					
26 D	10.10	0.000	93.67	47.49	93.67	47.49	V-C	3143.	-4.700	3.000
1.000	1.000	50.49	0.000	0.000	UG2_4_11_L_0					
27 D	10.67	0.000	95.73	48.36	95.73	48.36	V-C	3143.	-4.900	5.000
1.000	1.000	53.36	0.000	0.000	UG2_4_11_L_0					
28 D	11.25	0.000	97.86	49.24	97.86	49.24	V-C	3143.	-5.100	7.000
1.000	1.000	56.24	0.000	0.000	UG2_4_11_L_0					
29 D	11.82	0.000	99.90	50.12	99.90	50.12	V-C	3143.	-5.300	9.000
1.000	1.000	59.12	0.000	0.000	UG2_4_11_L_0					
30 D	12.40	0.000	101.6	51.02	101.6	51.02	V-C	3143.	-5.500	11.00
1.000	1.000	62.02	0.000	0.000	UG2_4_11_L_0					
31 D	12.99	0.000	103.4	51.96	103.4	51.96	V-C	3143.	-5.700	13.00
1.000	1.000	64.96	0.000	0.000	UG3_4271_12_L_0					
32 D	13.59	0.000	105.2	52.93	105.2	52.93	V-C	3143.	-5.900	15.00
1.000	1.000	67.93	0.000	0.000	UG3_4271_12_L_0					
33 D	14.18	2.8259E-18	107.0	53.90	107.0	53.90	V-C	3143.	-6.100	17.00
1.000	1.000	70.90	0.000	0.000	UG3_4271_12_L_0					
34 D	14.77	2.8259E-18	108.7	54.84	108.7	54.84	V-C	3143.	-6.300	19.00
1.000	1.000	73.84	0.000	0.000	UG2_4_26346_L_0					
35 D	15.35	0.000	110.5	55.77	110.5	55.77	V-C	3143.	-6.500	21.00
1.000	1.000	76.77	0.000	0.000	UG2_4_26346_L_0					
36 D	15.94	0.000	112.2	56.71	112.2	56.71	V-C	3143.	-6.700	23.00
1.000	1.000	79.71	0.000	0.000	UG2_4_26346_L_0					
37 D	16.53	0.000	113.9	57.65	113.9	57.65	V-C	3143.	-6.900	25.00
1.000	1.000	82.65	0.000	0.000	UG2_4_26346_L_0					
38 D	17.12	0.000	115.7	58.60	115.7	58.60	V-C	3143.	-7.100	27.00
1.000	1.000	85.60	0.000	0.000	UG2_4_26346_L_0					
39 D	17.71	0.000	117.5	59.55	117.5	59.55	V-C	3143.	-7.300	29.00
1.000	1.000	88.55	0.000	0.000	UG2_4_26346_L_0					
40 D	18.30	0.000	119.2	60.51	119.2	60.51	V-C	3143.	-7.500	31.00
1.000	1.000	91.51	0.000	0.000	UG2_4_26346_L_0					
41 D	18.89	0.000	121.0	61.47	121.0	61.47	V-C	3143.	-7.700	33.00
1.000	1.000	94.47	0.000	0.000	UG2_4_26346_L_0					
42 D	19.49	0.000	122.8	62.43	122.8	62.43	V-C	3143.	-7.900	35.00
1.000	1.000	97.43	0.000	0.000	UG2_4_26346_L_0					
43 D	20.08	5.6518E-18	124.5	63.39	124.5	63.39	V-C	3143.	-8.100	37.00
1.000	1.000	100.4	0.000	0.000	UG2_4_26346_L_0					
44 D	20.67	0.000	126.3	64.36	126.3	64.36	V-C	3143.	-8.300	39.00
1.000	1.000	103.4	0.000	0.000	UG2_4_26346_L_0					
45 D	21.27	0.000	128.1	65.34	128.1	65.34	V-C	3143.	-8.500	41.00
1.000	1.000	106.3	0.000	0.000	UG2_4_26346_L_0					
46 D	10.93	0.000	129.9	66.31	129.9	66.31	V-C	3143.	-8.700	43.00
1.000	1.000	109.3	0.000	0.000	UG2_4_26346_L_0					

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|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                         |
|                                     NewProject.BaseDesignSection_28.Nominal_64                                          |
|                                  Exe Time :14 May 2019       17:56:44                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   3

WallElement_New_28707                                    :
ELEMENT TYPE    2 NO.OF ELEMENTS. IN THIS GROUP   45
C U R R E N T   T I M E   I S      1.0000

 WALL2D ELEMENT
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   EL      TA          TB          MA          MB
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***** NO ONE ELEMENT ACTIVE AT CURRENT STEP *****

ITER      0 RNORM = 0.000      RMNORM= 0.000
            RINORM= 7736.      RIMNOR= 0.000
            RENORM= 1845.      REMNOR= 0.000     RATIO =0.4884     TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 21.10      RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 7736.      RDR   = 0.000
            RATIOT=0.4884      RATIOR= 0.000
            MAX UN= 0.000      IEQ=     92 NODE     46 DOF   2   X-ROT. F
            MIN UN=-10.09      IEQ=     51 NODE     26 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER      2 RNORM = 0.000      RMNORM= 0.000
            RINORM= 7736.      RIMNOR= 0.000
            RENORM= 82.46      REMNOR=0.3245E-20 RATIO =0.1032     TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 21.10      RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 7736.      RDR   = 0.000
            RATIOT=0.1032      RATIOR= 0.000
            MAX UN=0.2398E-09 IEQ=     37 NODE     19 DOF   1  Y-DISPL.F
            MIN UN=-2.779      IEQ=      7 NODE      4 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER      3 RNORM = 0.000      RMNORM= 0.000
            RINORM= 7736.      RIMNOR= 0.000
            RENORM= 90.04      REMNOR=0.2998E-19 RATIO =0.1079     TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 21.10      RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 7736.      RDR   = 0.000
            RATIOT=0.1079      RATIOR= 0.000
            MAX UN=0.9649E-09 IEQ=     15 NODE      8 DOF   1  Y-DISPL.F
            MIN UN=-6.167      IEQ=     37 NODE     19 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER      4 RNORM = 0.000      RMNORM= 0.000
            RINORM= 7736.      RIMNOR= 0.000
            RENORM= 26.29      REMNOR=0.1423E-19 RATIO =0.5829E-01 TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 21.10      RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 7736.      RDR   = 0.000
            RATIOT=0.5829E-01 RATIOR= 0.000
            MAX UN=0.2421      IEQ=     91 NODE     46 DOF   1  Y-DISPL.F
            MIN UN=-3.260      IEQ=     49 NODE     25 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER      5 RNORM = 0.000      RMNORM= 0.000
            RINORM= 7736.      RIMNOR= 0.000
            RENORM= 3.006      REMNOR=0.3013E-19 RATIO =0.1971E-01 TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 21.10      RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 7736.      RDR   = 0.000
            RATIOT=0.1971E-01 RATIOR= 0.000
            MAX UN=0.3951      IEQ=     87 NODE     44 DOF   1  Y-DISPL.F
            MIN UN=-1.566      IEQ=     57 NODE     29 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER      6 RNORM = 0.000      RMNORM= 0.000
            RINORM= 7736.      RIMNOR= 0.000
            RENORM=0.1947E-01 REMNOR=0.2287E-19 RATIO =0.1586E-02 TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 21.10      RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 7736.      RDR   = 0.000
            RATIOT=0.1586E-02 RATIOR= 0.000
            MAX UN=0.5797E-01 IEQ=     85 NODE     43 DOF   1  Y-DISPL.F
            MIN UN=-.1269      IEQ=     67 NODE     34 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER      7 RNORM = 0.000      RMNORM= 0.000
            RINORM= 7736.      RIMNOR= 0.000
            RENORM=0.6388E-17 REMNOR=0.1714E-19 RATIO =0.2874E-10 TOLER =0.1000E-03      CONVERGED !
            RFMAX = 21.10      RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 7736.      RDR   = 0.000
            RATIOT=0.2874E-10 RATIOR= 0.000
            MAX UN=0.8194E-09 IEQ=     31 NODE     16 DOF   1  Y-DISPL.F
            MIN UN=-.9890E-09 IEQ=     15 NODE      8 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0
```

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+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                         |
|                                  Exe Time :14 May 2019       17:56:44                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
New Project
SOLUTION REACHED USING     7 ITERATIONS ON   40

P R I N T   O U T   F O R   T I M E   S T E P    2     ( AT TIME   2.000     )

PRINT OUT OF ACTIVE COMPONENTS (FIXED NODES ARE NOT PRINTED OUT)

          Y-DISPL.F        X-ROT. F
            (02)             (04)           (
    1  -2.7812839E-02   4.0714608E-03
    2  -2.6998547E-02   4.0714608E-03
    3  -2.6184255E-02   4.0714608E-03
    4  -2.5369964E-02   4.0714452E-03
    5  -2.4555682E-02   4.0713518E-03
    6  -2.3741436E-02   4.0710557E-03
    7  -2.2927286E-02   4.0703692E-03
    8  -2.2113331E-02   4.0690405E-03
    9  -2.1299733E-02   4.0667516E-03
   10  -2.0486721E-02   4.0631173E-03
   11  -1.9674606E-02   4.0576843E-03
   12  -1.8863802E-02   4.0499299E-03
   13  -1.8054829E-02   4.0392626E-03
   14  -1.7248335E-02   4.0250220E-03
   15  -1.6445107E-02   4.0064769E-03
   16  -1.5646085E-02   3.9828212E-03
   17  -1.4852378E-02   3.9531751E-03
   18  -1.4065278E-02   3.9165863E-03
   19  -1.3286274E-02   3.8720299E-03
   20  -1.2517032E-02   3.8189756E-03
   21  -1.1759247E-02   3.7574233E-03
   22  -1.1014625E-02   3.6873734E-03
   23  -1.0284868E-02   3.6088261E-03
   24  -9.5716652E-03   3.5217806E-03
   25  -8.8767218E-03   3.4262373E-03
   26  -8.2017387E-03   3.3221679E-03
   27  -7.5484306E-03   3.2094592E-03
   28  -6.9184310E-03   3.0896576E-03
   29  -6.3128284E-03   2.9659912E-03
   30  -5.7320814E-03   2.8416212E-03
   31  -5.1760207E-03   2.7196395E-03
   32  -4.6439479E-03   2.6018241E-03
   33  -4.1349651E-03   2.4889356E-03
   34  -3.6479722E-03   2.3821071E-03
   35  -3.1816131E-03   2.2829160E-03
   36  -2.7341844E-03   2.1930459E-03
   37  -2.3036916E-03   2.1137228E-03
   38  -1.8879411E-03   2.0457124E-03
   39  -1.4846330E-03   1.9893357E-03
   40  -1.0914407E-03   1.9444814E-03
   41  -7.0610771E-04   1.9106187E-03
   42  -3.2652331E-04   1.8868044E-03
   43   4.9194064E-05   1.8716901E-03
   44   4.2261483E-04   1.8635352E-03
   45   7.9493287E-04   1.8602790E-03
   46   1.1669058E-03   1.8596018E-03


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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                         |
|                                  Exe Time :14 May 2019       17:56:44                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   1

0_L                                                    :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   46
C U R R E N T   T I M E   I S      2.0000

 HARDENING 2D SOIL ELEMENT

 ****** TOTAL STRESS FORMULATION *****

 EL *   FORCE     DISPL-Y  VERTICAL-P  HORIZON.-P     MAX-V-P     MAX-H-P          STATE   STIFFNESS Z-LEVEL      PORE       E
```

FACTOR	UFACTOR	Peq	Su_a	Su_p	LAYER					
1	0.000	--	--	--	--	--	REMOVED	--	0.3000	0.000
1.000	1.000	0.000	0.000	0.000	not available					
2	0.000	--	--	--	--	--	REMOVED	--	0.1000	0.000
1.000	1.000	0.000	0.000	0.000	not available					
3	0.000	--	--	--	--	--	REMOVED	--	-0.1000	0.000
1.000	1.000	0.000	0.000	0.000	not available					
4	0.000	--	--	--	--	--	REMOVED	--	-0.3000	0.000
1.000	1.000	0.000	0.000	0.000	not available					
5	0.000	--	--	--	--	--	REMOVED	--	-0.5000	0.000
1.000	1.000	0.000	0.000	0.000	not available					
6	0.000	--	--	--	--	--	REMOVED	--	-0.7000	0.000
1.000	1.000	0.000	0.000	0.000	not available					
7	0.000	--	--	--	--	--	REMOVED	--	-0.9000	0.000
1.000	1.000	0.000	0.000	0.000	not available					
8	0.000	--	--	--	--	--	REMOVED	--	-1.100	0.000
1.000	1.000	0.000	0.000	0.000	not available					
9	0.000	--	--	--	--	--	REMOVED	--	-1.300	0.000
1.000	1.000	0.000	0.000	0.000	not available					
10	0.000	--	--	--	--	--	REMOVED	--	-1.500	0.000
1.000	1.000	0.000	0.000	0.000	not available					
11	0.000	--	--	--	--	--	REMOVED	--	-1.700	0.000
1.000	1.000	0.000	0.000	0.000	not available					
12	0.000	--	--	--	--	--	REMOVED	--	-1.900	0.000
1.000	1.000	0.000	0.000	0.000	not available					
13	0.000	--	--	--	--	--	REMOVED	--	-2.100	0.000
1.000	1.000	0.000	0.000	0.000	not available					
14	0.000	--	--	--	--	--	REMOVED	--	-2.300	0.000
1.000	1.000	0.000	0.000	0.000	not available					
15	0.000	--	--	--	--	--	REMOVED	--	-2.500	0.000
1.000	1.000	0.000	0.000	0.000	not available					
16	0.000	--	--	--	--	--	REMOVED	--	-2.700	0.000
1.000	1.000	0.000	0.000	0.000	not available					
17	0.000	--	--	--	--	--	REMOVED	--	-2.900	0.000
1.000	1.000	0.000	0.000	0.000	not available					
18	0.000	--	--	--	--	--	REMOVED	--	-3.100	0.000
1.000	1.000	0.000	0.000	0.000	not available					
19	0.000	--	--	--	--	--	REMOVED	--	-3.300	0.000
1.000	1.000	0.000	0.000	0.000	not available					
20	0.000	--	--	--	--	--	REMOVED	--	-3.500	0.000
1.000	1.000	0.000	0.000	0.000	not available					
21	0.000	--	--	--	--	--	REMOVED	--	-3.700	0.000
1.000	1.000	0.000	0.000	0.000	not available					
22	0.000	--	--	--	--	--	REMOVED	--	-3.900	0.000
1.000	1.000	0.000	0.000	0.000	not available					
23	0.000	--	--	--	--	--	REMOVED	--	-4.100	0.000
1.000	1.000	0.000	0.000	0.000	not available					
24	0.000	--	--	--	--	--	REMOVED	--	-4.300	0.000
1.000	1.000	0.000	0.000	0.000	not available					
25	0.000	--	--	--	--	--	REMOVED	--	-4.500	0.000
1.000	1.000	0.000	0.000	0.000	not available					
26	0.000	--	--	--	--	--	REMOVED	--	-4.700	0.000
1.000	1.000	0.000	0.000	0.000	not available					
27 D	12.02	7.5484E-03	1.361	58.55	87.35	58.55	V-C	3143.	-4.900	1.564
1.000	1.000	60.11	0.000	0.000	UG2_4_11_L_0					
28 D	12.36	6.9184E-03	3.177	58.16	89.25	58.16	V-C	3143.	-5.100	3.648
1.000	1.000	61.81	0.000	0.000	UG2_4_11_L_0					
29 D	12.67	6.3128E-03	4.992	57.61	91.15	57.61	V-C	3143.	-5.300	5.733
1.000	1.000	63.34	0.000	0.000	UG2_4_11_L_0					
30 D	12.97	5.7321E-03	6.807	57.02	93.05	57.02	V-C	3143.	-5.500	7.818
1.000	1.000	64.84	0.000	0.000	UG2_4_11_L_0					
31 D	10.41	5.1760E-03	8.697	42.14	95.02	51.96	PASSIVE	0.000	-5.700	9.903
1.000	1.000	52.04	0.000	0.000	UG3_4271_12_L_0					
32 D	12.68	4.6439E-03	10.61	51.42	97.02	52.93	PASSIVE	0.000	-5.900	11.99
1.000	1.000	63.40	0.000	0.000	UG3_4271_12_L_0					
33 D	13.94	4.1350E-03	12.53	55.60	99.02	55.60	V-C	3143.	-6.100	14.07
1.000	1.000	69.68	0.000	0.000	UG3_4271_12_L_0					
34 D	14.27	3.6480E-03	14.37	55.18	100.9	55.18	V-C	3143.	-6.300	16.16
1.000	1.000	71.34	0.000	0.000	UG2_4_26346_L_0					
35 D	14.21	3.1816E-03	16.18	52.82	102.8	55.77	UL-RL	9429.	-6.500	18.24
1.000	1.000	71.06	0.000	0.000	UG2_4_26346_L_0					
36 D	14.05	2.7342E-03	18.00	49.92	104.7	56.71	UL-RL	9429.	-6.700	20.33
1.000	1.000	70.25	0.000	0.000	UG2_4_26346_L_0					
37 D	13.91	2.3037E-03	19.81	47.15	106.6	57.65	UL-RL	9429.	-6.900	22.41
1.000	1.000	69.56	0.000	0.000	UG2_4_26346_L_0					
38 D	13.80	1.8879E-03	21.63	44.49	108.5	58.60	UL-RL	9429.	-7.100	24.50
1.000	1.000	68.99	0.000	0.000	UG2_4_26346_L_0					
39 D	13.70	1.4846E-03	23.44	41.92	110.4	59.55	UL-RL	9429.	-7.300	26.58
1.000	1.000	68.50	0.000	0.000	UG2_4_26346_L_0					
40 D	13.62	1.0914E-03	25.26	39.43	112.3	60.51	UL-RL	9429.	-7.500	28.67
1.000	1.000	68.09	0.000	0.000	UG2_4_26346_L_0					
41 D	13.55	7.0611E-04	27.07	36.99	114.2	61.47	UL-RL	9429.	-7.700	30.75
1.000	1.000	67.74	0.000	0.000	UG2_4_26346_L_0					
42 D	13.49	3.2652E-04	28.89	34.59	116.1	62.43	UL-RL	9429.	-7.900	32.84
1.000	1.000	67.43	0.000	0.000	UG2_4_26346_L_0					
43 D	13.43	-4.9194E-05	30.70	32.22	118.0	63.39	UL-RL	9429.	-8.100	34.92

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1.000       1.000       67.14       0.000       0.000     UG2_4_26346_L_0
  44 D   13.37     -4.2261E-04   32.52       29.85       119.9       64.36          UL-RL   9429.      -8.300       37.01
1.000       1.000       66.86       0.000       0.000     UG2_4_26346_L_0
  45 D   13.31     -7.9493E-04   34.33       27.48       121.8       65.34          UL-RL   9429.      -8.500       39.09
1.000       1.000       66.57       0.000       0.000     UG2_4_26346_L_0
  46 D   6.629     -1.1669E-03   36.15       25.11       123.8       66.31          UL-RL   9429.      -8.700       41.18
1.000       1.000       66.29       0.000       0.000     UG2_4_26346_L_0


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 |                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
 |                                                                                                                         |
 |                                      NewProject.BaseDesignSection_28.Nominal_64                                         |
 |                                   Exe Time :14 May 2019       17:56:44                                                  |
 +-------------------------------------------------------------------------------------------------------------------------+
 New Project


 S T R E S S    R E S U L T S    F O R    G R O U P    N O.    2

 0_R                                                          :
 ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   46
 C U R R E N T    T I M E    I S      2.0000

  HARDENING 2D SOIL ELEMENT

  ****** TOTAL STRESS FORMULATION *****

  EL *   FORCE      DISPL-Y  VERTICAL-P  HORIZON.-P     MAX-V-P     MAX-H-P           STATE   STIFFNESS Z-LEVEL      PORE       E
FACTOR    UFACTOR       Peq          Su_a        Su_p     LAYER
 ------------------------------------------------------------------------------------------------------------------------------
------------------------------------------------------------------------------------------
   1     0.000         --          --          --          --          --          REMOVED     --       0.3000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   2     0.000         --          --          --          --          --          REMOVED     --       0.1000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   3 D  0.1055     -2.6184E-02   1.850      0.5272       1.850      0.9250         ACTIVE   0.000      -0.1000       0.000
1.000       1.000      0.5272       0.000       0.000     UG0_2_10_L_0
   4 D  0.3163     -2.5370E-02   5.550       1.582       5.550       2.775         ACTIVE   0.000      -0.3000       0.000
1.000       1.000       1.582       0.000       0.000     UG0_2_10_L_0
   5 D  0.5279     -2.4556E-02   9.261       2.639       9.261       5.851         ACTIVE   0.000      -0.5000       0.000
1.000       1.000       2.639       0.000       0.000     UG0_2_10_L_0
   6 D  0.7427     -2.3741E-02   13.03       3.713       13.03       8.806         ACTIVE   0.000      -0.7000       0.000
1.000       1.000       3.713       0.000       0.000     UG0_2_10_L_0
   7 D  0.9628     -2.2927E-02   16.89       4.814       16.89       11.56         ACTIVE   0.000      -0.9000       0.000
1.000       1.000       4.814       0.000       0.000     UG0_2_10_L_0
   8 D   1.188     -2.2113E-02   20.85       5.942       20.85       14.07         ACTIVE   0.000       -1.100       0.000
1.000       1.000       5.942       0.000       0.000     UG0_2_10_L_0
   9 D   1.418     -2.1300E-02   24.89       7.092       24.89       16.36         ACTIVE   0.000       -1.300       0.000
1.000       1.000       7.092       0.000       0.000     UG0_2_10_L_0
  10 D   1.651     -2.0487E-02   28.97       8.256       28.97       18.46         ACTIVE   0.000       -1.500       0.000
1.000       1.000       8.256       0.000       0.000     UG0_2_10_L_0
  11 D   1.885     -1.9675E-02   33.07       9.426       33.07       20.40         ACTIVE   0.000       -1.700       0.000
1.000       1.000       9.426       0.000       0.000     UG0_2_10_L_0
  12 D   2.119     -1.8864E-02   37.17       10.59       37.17       22.24         ACTIVE   0.000       -1.900       0.000
1.000       1.000       10.59       0.000       0.000     UG0_2_10_L_0
  13 D   2.351     -1.8055E-02   41.25       11.76       41.25       23.99         ACTIVE   0.000       -2.100       0.000
1.000       1.000       11.76       0.000       0.000     UG0_2_10_L_0
  14 D   2.598     -1.7248E-02   45.58       12.99       45.58       25.69         ACTIVE   0.000       -2.300       0.000
1.000       1.000       12.99       0.000       0.000     UG0_2_10_L_0
  15 D   2.856     -1.6445E-02   50.11       14.28       50.11       27.35         ACTIVE   0.000       -2.500       0.000
1.000       1.000       14.28       0.000       0.000     UG0_2_10_L_0
  16 D   3.100     -1.5646E-02   54.38       15.50       54.38       29.00         ACTIVE   0.000       -2.700       0.000
1.000       1.000       15.50       0.000       0.000     UG0_2_10_L_0
  17 D   3.347     -1.4852E-02   58.71       16.73       58.71       30.64         ACTIVE   0.000       -2.900       0.000
1.000       1.000       16.73       0.000       0.000     UG0_2_10_L_0
  18 D   3.589     -1.4065E-02   62.97       17.95       62.97       32.27         ACTIVE   0.000       -3.100       0.000
1.000       1.000       17.95       0.000       0.000     UG0_2_10_L_0
  19 D   0.000     -1.3286E-02   67.15       0.000       67.15       35.85         ACTIVE   0.000       -3.300       0.000
1.000       1.000       0.000       0.000       0.000     UG2_4_11_L_0
  20 D   0.000     -1.2517E-02   71.50       0.000       71.50       37.71         ACTIVE   0.000       -3.500       0.000
1.000       1.000       0.000       0.000       0.000     UG2_4_11_L_0
  21 D   0.000     -1.1759E-02   75.70       0.000       75.70       39.58         ACTIVE   0.000       -3.700       0.000
1.000       1.000       0.000       0.000       0.000     UG2_4_11_L_0
  22 D   0.000     -1.1015E-02   79.97       0.000       79.97       41.46         ACTIVE   0.000       -3.900       0.000
1.000       1.000       0.000       0.000       0.000     UG2_4_11_L_0
  23 D   0.000     -1.0285E-02   84.20       0.000       84.20       43.35         ACTIVE   0.000       -4.100       0.000
1.000       1.000       0.000       0.000       0.000     UG2_4_11_L_0
  24 D   0.000     -9.5717E-03   88.32       0.000       88.32       45.25         ACTIVE   0.000       -4.300       0.000
1.000       1.000       0.000       0.000       0.000     UG2_4_11_L_0
  25 D  0.1915     -8.8767E-03   91.55       0.000       91.55       46.65         ACTIVE   0.000       -4.500      0.9576
1.000       1.000      0.9576       0.000       0.000     UG2_4_11_L_0
  26 D  0.5745     -8.2017E-03   93.80       0.000       93.80       47.56         ACTIVE   0.000       -4.700       2.873
1.000       1.000       2.873       0.000       0.000     UG2_4_11_L_0
  27 D  0.9858     -7.5484E-03   95.95      0.1409       95.95       48.47         ACTIVE   0.000       -4.900       4.788
1.000       1.000       4.929       0.000       0.000     UG2_4_11_L_0
  28 D   1.543     -6.9184E-03   98.16       1.012       98.16       49.39         ACTIVE   0.000       -5.100       6.703
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1.000       1.000       7.715       0.000       0.000     UG2_4_11_L_0
  29 D   2.094     -6.3128E-03   100.3       1.850       100.3       50.33          ACTIVE   0.000      -5.300       8.618
1.000       1.000       10.47       0.000       0.000     UG2_4_11_L_0
  30 D   2.616     -5.7321E-03   102.1       2.547       102.1       51.27          ACTIVE   0.000      -5.500       10.53
1.000       1.000       13.08       0.000       0.000     UG2_4_11_L_0
  31 D   8.724     -5.1760E-03   103.9       31.17       103.9       52.26          ACTIVE   0.000      -5.700       12.45
1.000       1.000       43.62       0.000       0.000     UG3_4271_12_L_0
  32 D   9.221     -4.6439E-03   105.8       31.74       105.8       53.27          ACTIVE   0.000      -5.900       14.36
1.000       1.000       46.10       0.000       0.000     UG3_4271_12_L_0
  33 D   9.718     -4.1350E-03   107.7       32.31       107.7       54.28          ACTIVE   0.000      -6.100       16.28
1.000       1.000       48.59       0.000       0.000     UG3_4271_12_L_0
  34 D   7.813     -3.6480E-03   109.5       20.87       109.5       55.27           UL-RL   9429.      -6.300       18.19
1.000       1.000       39.07       0.000       0.000     UG2_4_26346_L_0
  35 D   9.271     -3.1816E-03   111.4       26.25       111.4       56.25           UL-RL   9429.      -6.500       20.11
1.000       1.000       46.35       0.000       0.000     UG2_4_26346_L_0
  36 D   10.69     -2.7342E-03   113.2       31.45       113.2       57.23           UL-RL   9429.      -6.700       22.02
1.000       1.000       53.47       0.000       0.000     UG2_4_26346_L_0
  37 D   12.09     -2.3037E-03   115.0       36.49       115.0       58.21           UL-RL   9429.      -6.900       23.94
1.000       1.000       60.43       0.000       0.000     UG2_4_26346_L_0
  38 D   13.45     -1.8879E-03   116.8       41.41       116.8       59.21           UL-RL   9429.      -7.100       25.85
1.000       1.000       67.26       0.000       0.000     UG2_4_26346_L_0
  39 D   14.79     -1.4846E-03   118.7       46.21       118.7       60.20           UL-RL   9429.      -7.300       27.77
1.000       1.000       73.97       0.000       0.000     UG2_4_26346_L_0
  40 D   16.12     -1.0914E-03   120.5       50.91       120.5       61.20           UL-RL   9429.      -7.500       29.68
1.000       1.000       80.60       0.000       0.000     UG2_4_26346_L_0
  41 D   17.43     -7.0611E-04   122.4       55.55       122.4       62.21           UL-RL   9429.      -7.700       31.60
1.000       1.000       87.15       0.000       0.000     UG2_4_26346_L_0
  42 D   18.73     -3.2652E-04   124.2       60.14       124.2       63.22           UL-RL   9429.      -7.900       33.52
1.000       1.000       93.65       0.000       0.000     UG2_4_26346_L_0
  43 D   19.96      4.9194E-05   126.1       64.38       126.1       64.38            V-C    3143.      -8.100       35.43
1.000       1.000       99.81       0.000       0.000     UG2_4_26346_L_0
  44 D   20.78      4.2261E-04   128.0       66.57       128.0       66.57            V-C    3143.      -8.300       37.35
1.000       1.000       103.9       0.000       0.000     UG2_4_26346_L_0
  45 D   21.60      7.9493E-04   129.8       68.76       129.8       68.76            V-C    3143.      -8.500       39.26
1.000       1.000       108.0       0.000       0.000     UG2_4_26346_L_0
  46 D   11.21      1.1669E-03   131.7       70.95       131.7       70.95            V-C    3143.      -8.700       41.18
1.000       1.000       112.1       0.000       0.000     UG2_4_26346_L_0
```

```
+-------------------------------------------------------------------------------------------------------------------------+
|                    PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                         |
|                                   Exe Time :14 May 2019       17:56:44                                                  |
+-------------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S    R E S U L T S    F O R    G R O U P    N O.    3

WallElement_New_28707                                              :
ELEMENT TYPE    2 NO.OF ELEMENTS. IN THIS GROUP   45
C U R R E N T    T I M E    I S      2.0000

 WALL2D ELEMENT

   EL      TA          TB          MA          MB
-----------------------------------------------------
    1-4.99497E-10 4.99497E-10-5.01501E-11 5.28360E-11
    2 2.00970E-10-2.00970E-10-8.25304E-11 1.84185E-10
    3-0.10545     0.10545    -1.92021E-10-2.10900E-02
    4-0.42180     0.42180     2.10900E-02-0.10545
    5-0.94966     0.94966     0.10545    -0.29538
    6 -1.6923      1.6923     0.29538    -0.63385
    7 -2.6551      2.6551     0.63385     -1.1649
    8 -3.8436      3.8436      1.1649     -1.9336
    9 -5.2621      5.2621      1.9336     -2.9860
   10 -6.9133      6.9133      2.9860     -4.3687
   11 -8.7984      8.7984      4.3687     -6.1284
   12 -10.917      10.917      6.1284     -8.3118
   13 -13.269      13.269      8.3118     -10.966
   14 -15.867      15.867      10.966     -14.139
   15 -18.723      18.723      14.139     -17.884
   16 -21.823      21.823      17.884     -22.248
   17 -25.169      25.169      22.248     -27.282
   18 -28.759      28.759      27.282     -33.034
   19 -28.759      28.759      33.034     -38.785
   20 -28.759      28.759      38.785     -44.537
   21 -28.759      28.759      44.537     -50.289
   22 -28.759      28.759      50.289     -56.040
   23 -28.759      28.759      56.040     -61.792
   24 -28.759      28.759      61.792     -67.544
   25 -28.950      28.950      67.544     -73.334
   26 -29.525      29.525      73.334     -79.239
   27 -18.487      18.487      79.239     -82.936
   28 -7.6680      7.6680      82.936     -84.470
   29  2.9065     -2.9065      84.470     -83.889
```

```
   30  13.258     -13.258      83.889     -81.237
   31  14.942     -14.942      81.237     -78.249
   32  18.402     -18.402      78.249     -74.568
   33  22.619     -22.619      74.568     -70.044
   34  29.074     -29.074      70.044     -64.230
   35  34.015     -34.015      64.230     -57.427
   36  37.372     -37.372      57.427     -49.952
   37  39.198     -39.198      49.952     -42.113
   38  39.543     -39.543      42.113     -34.204
   39  38.448     -38.448      34.204     -26.515
   40  35.947     -35.947      26.515     -19.325
   41  32.065     -32.065      19.325     -12.912
   42  26.820     -26.820      12.912     -7.5481
   43  20.284     -20.284      7.5481     -3.4912
   44  12.872     -12.872      3.4912    -0.91672
   45  4.5835     -4.5835     0.91672    -2.17426E-12


+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                     NewProject.BaseDesignSection_28.Nominal_64                                                |
|                                  Exe Time :14 May 2019       17:56:44                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+


     F I N A L    I N C R E M E N T A L    A N A L Y S I S

                    S U M M A R Y

     STEP                                  NO. OF ITERATIONS

        1           CONVERGENCE :YES                      2
        2           CONVERGENCE :YES                      7


 END OF PROCESS FOR PROBLEM
New Project
NONLINEAR SOLUTION CPU TIME ....    0.03 [sec]
DATABASE  CREATION CPU TIME.....    0.08 [sec]
```

7.2. Design Assumption : NTC2018: SLE (Rara/Frequente/Quasi Permanente) - File di Paratie - File di output (.out)

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                              |
|                                  Exe Time :14 May 2019       17:56:44                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+


                  ***********************************************************
                  *                                                         *
                  *  PARATIE PLUS Non-Linear Spring Engine                  *
                  *                                                         *
                  *          AN ELASTOPLASTIC FINITE ELEMENT PROGRAM        *
                  *          FOR FLEXIBLE EARTH-RETAINING STRUCTURES        *
                  *                                                         *
                  *          Written by Ce.A.S. s.r.l. (ITALY)              *
                  *          with the scientific supervision of             *
                  *          Roberto Nova - full professor SOIL MECHANICS   *
                  *          at Politecnico di Milano (ITALY)               *
                  *                                                         *
                  ***********************************************************
                  *                                                         *
                  *  RELEASE   2018.1     *Build date:Jun 29, 2018*    *    *
                  *                                                         *
                  *                                                         *
                  *  Ce.A.S.     S.R.L   CENTRO DI ANALISI STRUTTURALE      *
                  *              VIALE   GIUSTINIANO 10                     *
                  *              20129   M I L A N O  (ITALIA)              *
                  *  TEL.        +39 02 2020221                             *
                  *                                                         *
                  *  email       bruno.becci@ceas.it                        *
                  *  Web Page    www.ceas.it     www.paratieplus.com        *
                  ***********************************************************


 JOB : NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116
 STARTING
ACCEPTED   &lt;FILE,GENW                                                                    &gt;
ACCEPTED   &lt;FILE,PLOTTER,BINARY                                                          &gt;
ACCEPTED   &lt;SOLVE TOTAL_STRESS                                                           &gt;
ACCEPTED   &lt;PARAM ITEMAX 40                                                              &gt;
```

```
ACCEPTED   &lt;CONTROL HINGES 0 0.0001 0.001                                                    &gt;


                  ************************************************************
                  *                                                          *
                  *  WARNING : PORE PRESSURES ARE AUTOMATICALLY COMPUTED     *
                  *    BY THE PROGRAM.                                       *
                  ************************************************************

PRELIMINARY OPERATIONS CPU TIME     0.00 [sec]


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                        |
|                                 Exe Time :14 May 2019       17:56:44                                                    |
+-------------------------------------------------------------------------------------------------------------------------+


INPUT FILE HAS BEEN GENERATED BY WALGEN PROGRAM


New Project


NO. OF NODAL POINTS (NUMNP) ...................    46
NO. OF COORDINATES  (NCOORD)...................     2
NO. OF NODE DOFS    (NDOF).....................     2
NO. OF EQUATIONS    (NEQ)......................    92
NO. OF CONSTRAINTS CARDS (NVINC)...............     0
NO. OF ELEMENT GROUPS (NEG)....................     3
NO. OF SOLUTION STEPS (NSTE)...................     2
NO. OF ELEMENT SETS ATTACHED TO SLAVE NODES ...     0
NO. OF RECORD FROM WALGEN .....................   101
NO. OF LONG NAMES (LASTNAME) ..................    13
LENGTH UNIT CHOICE ............................     3 (M   )
FORCE  UNIT CHOICE ............................     3 (KN  )
MAX PORE PRESSURE TABLE LENGTH.................     1
NO. OF ELEMENT GROUPS REQUIRING ADD. SLIP DOF .     0


IDOFA (01) =  2  Y-DISPL.F
IDOFA (02) =  4   X-ROT. F

 RELEVANT ITEMS UNITS

 STRESSES                  kPa
 Y-DISPLACEMENTS           m
 ROTATIONS                 RADIANS
 BEAM AND SLAB MOMENTS     kN*m/m
 BEAM SHEAR FORCES         kN/m
 ANCHOR FORCES             kN/m
 AXIAL FORCES IN TRUSSES   kN/m
 AXIAL FORCES SPRINGS      kN/m
 Y-REACTIONS               kN/m
 X-MOMENT REACTIONS        kN*m/m
 ETC.


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                        |
|                                 Exe Time :14 May 2019       17:56:44                                                    |
+-------------------------------------------------------------------------------------------------------------------------+
                  P R E P R O C E S S O R     D A T A

                  N O.  O F   C O M M A N D S    101

    1 : UNIT  m kN
    2 : TITLE New Project
    3 : DELTA 0.2
    4 : option param itemax 40
    5 : option control hinges 0 0.0001 0.001
    6 : WALL LeftWall_32 0 -8.7 0.3 -1
    7 : SOIL 0_L LeftWall_32 -8.7 0.3 2 0
    8 : SOIL 0_R LeftWall_32 -8.7 0.3 1 180
    9 : LDATA UG0_2_10_L_0 0 LeftWall_32
   10 : ATREST 0.5 0.5 1
   11 : WEIGHT 18.5 8.5 10
   12 : PERMEABILITY 0.0001
   13 : RESISTANCE 0 35 0 0 0
   14 : WINKLER 3143 9429.1
   15 : ENDL
```

```
 16 : LDATA UG2_4_11_L_0 -3.2 LeftWall_32
 17 : ATREST 0.531 0.5 1
 18 : WEIGHT 19.5 9.5 10
 19 : PERMEABILITY 1E-07
 20 : RESISTANCE 30 25 0 0 0
 21 : WINKLER 3143 9429.1
 22 : ENDL
 23 : LDATA UG3_4271_12_L_0 -5.55 LeftWall_32
 24 : ATREST 0.531 0.5 1
 25 : WEIGHT 20 10 10
 26 : PERMEABILITY 1E-07
 27 : RESISTANCE 0 32 0 0 0
 28 : WINKLER 3143 9429.1
 29 : ENDL
 30 : LDATA UG2_4_26346_L_0 -6.15 LeftWall_32
 31 : ATREST 0.531 0.5 1
 32 : WEIGHT 19.5 9.5 10
 33 : PERMEABILITY 1E-07
 34 : RESISTANCE 30 25 0 0 0
 35 : WINKLER 3143 9429.1
 36 : ENDL
 37 : MATERIAL S275_115 2.1E+08
 38 : BEAM WallElement_New_28707 LeftWall_32 -8.7 0.3 S275_115 0.19777 00 00 0
 39 : STRIP LeftWall_32 1 2 1.45 3.55 -0.3 20 45
 40 : STEP Stage1_31
 41 : CHANGE UG0_2_10_L_0 U-FRICT=35 LeftWall_32
 42 : CHANGE UG0_2_10_L_0 D-FRICT=35 LeftWall_32
 43 : CHANGE UG0_2_10_L_0 U-KA=0.285 LeftWall_32
 44 : CHANGE UG0_2_10_L_0 U-KP=4.647 LeftWall_32
 45 : CHANGE UG0_2_10_L_0 D-KA=0.253 LeftWall_32
 46 : CHANGE UG0_2_10_L_0 D-KP=5.105 LeftWall_32
 47 : CHANGE UG2_4_11_L_0 U-FRICT=25 LeftWall_32
 48 : CHANGE UG2_4_11_L_0 D-FRICT=25 LeftWall_32
 49 : CHANGE UG2_4_11_L_0 U-KA=0.394 LeftWall_32
 50 : CHANGE UG2_4_11_L_0 U-KP=2.403 LeftWall_32
 51 : CHANGE UG2_4_11_L_0 D-KA=0.38 LeftWall_32
 52 : CHANGE UG2_4_11_L_0 D-KP=2.947 LeftWall_32
 53 : CHANGE UG3_4271_12_L_0 U-FRICT=32 LeftWall_32
 54 : CHANGE UG3_4271_12_L_0 D-FRICT=32 LeftWall_32
 55 : CHANGE UG3_4271_12_L_0 U-KA=0.3 LeftWall_32
 56 : CHANGE UG3_4271_12_L_0 U-KP=3.436 LeftWall_32
 57 : CHANGE UG3_4271_12_L_0 D-KA=0.289 LeftWall_32
 58 : CHANGE UG3_4271_12_L_0 D-KP=4.44 LeftWall_32
 59 : CHANGE UG2_4_26346_L_0 U-FRICT=25 LeftWall_32
 60 : CHANGE UG2_4_26346_L_0 D-FRICT=25 LeftWall_32
 61 : CHANGE UG2_4_26346_L_0 U-KA=0.378 LeftWall_32
 62 : CHANGE UG2_4_26346_L_0 U-KP=2.306 LeftWall_32
 63 : CHANGE UG2_4_26346_L_0 D-KA=0.388 LeftWall_32
 64 : CHANGE UG2_4_26346_L_0 D-KP=3.053 LeftWall_32
 65 : CHANGE UG0_2_10_L_0 U-COHE=0 LeftWall_32
 66 : CHANGE UG0_2_10_L_0 U-ADHES=0 LeftWall_32
 67 : CHANGE UG0_2_10_L_0 D-COHE=0 LeftWall_32
 68 : CHANGE UG0_2_10_L_0 D-ADHES=0 LeftWall_32
 69 : CHANGE UG2_4_11_L_0 U-COHE=30 LeftWall_32
 70 : CHANGE UG2_4_11_L_0 U-ADHES=0 LeftWall_32
 71 : CHANGE UG2_4_11_L_0 D-COHE=30 LeftWall_32
 72 : CHANGE UG2_4_11_L_0 D-ADHES=0 LeftWall_32
 73 : CHANGE UG3_4271_12_L_0 U-COHE=0 LeftWall_32
 74 : CHANGE UG3_4271_12_L_0 U-ADHES=0 LeftWall_32
 75 : CHANGE UG3_4271_12_L_0 D-COHE=0 LeftWall_32
 76 : CHANGE UG3_4271_12_L_0 D-ADHES=0 LeftWall_32
 77 : CHANGE UG2_4_26346_L_0 U-COHE=30 LeftWall_32
 78 : CHANGE UG2_4_26346_L_0 U-ADHES=0 LeftWall_32
 79 : CHANGE UG2_4_26346_L_0 D-COHE=30 LeftWall_32
 80 : CHANGE UG2_4_26346_L_0 D-ADHES=0 LeftWall_32
 81 : SETWALL LeftWall_32
 82 : GEOM 0 0
 83 : SURCHARGE 0 0 0 0
 84 : WATER -4.4 0 -8.7 0 0
 85 : ENDSTEP
 86 : STEP Stage2_28513
 87 : CHANGE UG0_2_10_L_0 D-KA=0.271 LeftWall_32
 88 : CHANGE UG0_2_10_L_0 D-KP=5.879 LeftWall_32
 89 : CHANGE UG2_4_11_L_0 D-KA=0.406 LeftWall_32
 90 : CHANGE UG2_4_11_L_0 D-KP=3.222 LeftWall_32
 91 : CHANGE UG3_4271_12_L_0 D-KA=0.307 LeftWall_32
 92 : CHANGE UG3_4271_12_L_0 D-KP=4.845 LeftWall_32
 93 : CHANGE UG2_4_26346_L_0 U-KP=2.305 LeftWall_32
 94 : CHANGE UG2_4_26346_L_0 D-KA=0.406 LeftWall_32
 95 : CHANGE UG2_4_26346_L_0 D-KP=3.222 LeftWall_32
 96 : SETWALL LeftWall_32
 97 : GEOM 0 -4.75
 98 : SURCHARGE 0 0 0 0
 99 : WATER -4.4 0.35 -8.7 0 0
100 : ADD WallElement_New_28707
101 : ENDSTEP
```

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                              |
|                                  Exe Time :14 May 2019       17:56:44                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
N O D A L    P O I N T    D A T A
--------------------------------

NODE     Y-COORD     Z-COORD / NODE     Y-COORD     Z-COORD / NODE     Y-COORD     Z-COORD / NODE     Y-COORD     Z-COORD /

   1  0.0000     0.30000     /    2  0.0000     0.10000     /    3  0.0000    -0.10000     /    4  0.0000    -0.30000     /
   5  0.0000    -0.50000     /    6  0.0000    -0.70000     /    7  0.0000    -0.90000     /    8  0.0000     -1.1000     /
   9  0.0000     -1.3000     /   10  0.0000     -1.5000     /   11  0.0000     -1.7000     /   12  0.0000     -1.9000     /
  13  0.0000     -2.1000     /   14  0.0000     -2.3000     /   15  0.0000     -2.5000     /   16  0.0000     -2.7000     /
  17  0.0000     -2.9000     /   18  0.0000     -3.1000     /   19  0.0000     -3.3000     /   20  0.0000     -3.5000     /
  21  0.0000     -3.7000     /   22  0.0000     -3.9000     /   23  0.0000     -4.1000     /   24  0.0000     -4.3000     /
  25  0.0000     -4.5000     /   26  0.0000     -4.7000     /   27  0.0000     -4.9000     /   28  0.0000     -5.1000     /
  29  0.0000     -5.3000     /   30  0.0000     -5.5000     /   31  0.0000     -5.7000     /   32  0.0000     -5.9000     /
  33  0.0000     -6.1000     /   34  0.0000     -6.3000     /   35  0.0000     -6.5000     /   36  0.0000     -6.7000     /
  37  0.0000     -6.9000     /   38  0.0000     -7.1000     /   39  0.0000     -7.3000     /   40  0.0000     -7.5000     /
  41  0.0000     -7.7000     /   42  0.0000     -7.9000     /   43  0.0000     -8.1000     /   44  0.0000     -8.3000     /
  45  0.0000     -8.5000     /   46  0.0000     -8.7000     /


+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                              |
|                                  Exe Time :14 May 2019       17:56:44                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  1

0_L                                                    :
   5  46   0   1   0   0   0   0   0   0   0   0   0   0   0   4   0   0   0   0
.....................................
.........2D PLASTIC SOIL ..........
.....................................

element group behaviour throughout stage analysis

stage   status
------------------
    1   active
    2   active

 material set no.    1

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  1.00000


 material set no.    2

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  2.00000


 material set no.    3

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  3.00000


 material set no.    4

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  4.00000


 element data

   el    n  mat      area      .....     .....     .....      flag
-------------------------------------------------------------------

    1    1    1   0.1000     0.000     0.000     0.000     2.000
    2    2    1   0.2000     0.000     0.000     0.000     2.000
    3    3    1   0.2000     0.000     0.000     0.000     2.000
    4    4    1   0.2000     0.000     0.000     0.000     2.000
    5    5    1   0.2000     0.000     0.000     0.000     2.000
    6    6    1   0.2000     0.000     0.000     0.000     2.000
    7    7    1   0.2000     0.000     0.000     0.000     2.000
    8    8    1   0.2000     0.000     0.000     0.000     2.000
    9    9    1   0.2000     0.000     0.000     0.000     2.000
   10   10    1   0.2000     0.000     0.000     0.000     2.000
   11   11    1   0.2000     0.000     0.000     0.000     2.000
```

12	12	1	0.2000	0.000	0.000	0.000	2.000
13	13	1	0.2000	0.000	0.000	0.000	2.000
14	14	1	0.2000	0.000	0.000	0.000	2.000
15	15	1	0.2000	0.000	0.000	0.000	2.000
16	16	1	0.2000	0.000	0.000	0.000	2.000
17	17	1	0.2000	0.000	0.000	0.000	2.000
18	18	1	0.2000	0.000	0.000	0.000	2.000
19	19	2	0.2000	0.000	0.000	0.000	2.000
20	20	2	0.2000	0.000	0.000	0.000	2.000
21	21	2	0.2000	0.000	0.000	0.000	2.000
22	22	2	0.2000	0.000	0.000	0.000	2.000
23	23	2	0.2000	0.000	0.000	0.000	2.000
24	24	2	0.2000	0.000	0.000	0.000	2.000
25	25	2	0.2000	0.000	0.000	0.000	2.000
26	26	2	0.2000	0.000	0.000	0.000	2.000
27	27	2	0.2000	0.000	0.000	0.000	2.000
28	28	2	0.2000	0.000	0.000	0.000	2.000
29	29	2	0.2000	0.000	0.000	0.000	2.000
30	30	2	0.2000	0.000	0.000	0.000	2.000
31	31	3	0.2000	0.000	0.000	0.000	2.000
32	32	3	0.2000	0.000	0.000	0.000	2.000
33	33	3	0.2000	0.000	0.000	0.000	2.000
34	34	4	0.2000	0.000	0.000	0.000	2.000
35	35	4	0.2000	0.000	0.000	0.000	2.000
36	36	4	0.2000	0.000	0.000	0.000	2.000
37	37	4	0.2000	0.000	0.000	0.000	2.000
38	38	4	0.2000	0.000	0.000	0.000	2.000
39	39	4	0.2000	0.000	0.000	0.000	2.000
40	40	4	0.2000	0.000	0.000	0.000	2.000
41	41	4	0.2000	0.000	0.000	0.000	2.000
42	42	4	0.2000	0.000	0.000	0.000	2.000
43	43	4	0.2000	0.000	0.000	0.000	2.000
44	44	4	0.2000	0.000	0.000	0.000	2.000
45	45	4	0.2000	0.000	0.000	0.000	2.000
46	46	4	0.1000	0.000	0.000	0.000	2.000

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                     |
|                                                                                                                               |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                              |
|                                 Exe Time :14 May 2019       17:56:44                                                          |
+-------------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  2

0_R                                                    :
   5  46   0   1   0   0   0   0   0   0   0   0   0   0   0   4   0   0   0   0
.....................................
.........2D PLASTIC SOIL ..........
.....................................

element group behaviour throughout stage analysis

stage   status
------------------
    1   active
    2   active

 material set no.    1

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  1.00000


 material set no.    2

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  2.00000


 material set no.    3

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  3.00000


 material set no.    4

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  4.00000


 element data

   el    n  mat      area     .....     .....     .....      flag
-------------------------------------------------------------------
```

1	1	1	0.1000	0.000	0.000	0.000	1.000
2	2	1	0.2000	0.000	0.000	0.000	1.000
3	3	1	0.2000	0.000	0.000	0.000	1.000
4	4	1	0.2000	0.000	0.000	0.000	1.000
5	5	1	0.2000	0.000	0.000	0.000	1.000
6	6	1	0.2000	0.000	0.000	0.000	1.000
7	7	1	0.2000	0.000	0.000	0.000	1.000
8	8	1	0.2000	0.000	0.000	0.000	1.000
9	9	1	0.2000	0.000	0.000	0.000	1.000
10	10	1	0.2000	0.000	0.000	0.000	1.000
11	11	1	0.2000	0.000	0.000	0.000	1.000
12	12	1	0.2000	0.000	0.000	0.000	1.000
13	13	1	0.2000	0.000	0.000	0.000	1.000
14	14	1	0.2000	0.000	0.000	0.000	1.000
15	15	1	0.2000	0.000	0.000	0.000	1.000
16	16	1	0.2000	0.000	0.000	0.000	1.000
17	17	1	0.2000	0.000	0.000	0.000	1.000
18	18	1	0.2000	0.000	0.000	0.000	1.000
19	19	2	0.2000	0.000	0.000	0.000	1.000
20	20	2	0.2000	0.000	0.000	0.000	1.000
21	21	2	0.2000	0.000	0.000	0.000	1.000
22	22	2	0.2000	0.000	0.000	0.000	1.000
23	23	2	0.2000	0.000	0.000	0.000	1.000
24	24	2	0.2000	0.000	0.000	0.000	1.000
25	25	2	0.2000	0.000	0.000	0.000	1.000
26	26	2	0.2000	0.000	0.000	0.000	1.000
27	27	2	0.2000	0.000	0.000	0.000	1.000
28	28	2	0.2000	0.000	0.000	0.000	1.000
29	29	2	0.2000	0.000	0.000	0.000	1.000
30	30	2	0.2000	0.000	0.000	0.000	1.000
31	31	3	0.2000	0.000	0.000	0.000	1.000
32	32	3	0.2000	0.000	0.000	0.000	1.000
33	33	3	0.2000	0.000	0.000	0.000	1.000
34	34	4	0.2000	0.000	0.000	0.000	1.000
35	35	4	0.2000	0.000	0.000	0.000	1.000
36	36	4	0.2000	0.000	0.000	0.000	1.000
37	37	4	0.2000	0.000	0.000	0.000	1.000
38	38	4	0.2000	0.000	0.000	0.000	1.000
39	39	4	0.2000	0.000	0.000	0.000	1.000
40	40	4	0.2000	0.000	0.000	0.000	1.000
41	41	4	0.2000	0.000	0.000	0.000	1.000
42	42	4	0.2000	0.000	0.000	0.000	1.000
43	43	4	0.2000	0.000	0.000	0.000	1.000
44	44	4	0.2000	0.000	0.000	0.000	1.000
45	45	4	0.2000	0.000	0.000	0.000	1.000
46	46	4	0.1000	0.000	0.000	0.000	1.000

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                     |
|                                                                                                                               |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                              |
|                                  Exe Time :14 May 2019       17:56:44                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  3

WallElement_New_28707                                          :
   2  45   0   1   0   0   0   0   0   0   0   0   0   0   1   0   0   1   0
.....................................
..........2D WALL ELEMENT...........
.....................................

element group behaviour throughout stage analysis

stage   status
------------------
    1  inactive
    2   active

 material set no.    1

 prop( 1) young modulus      0.210000E+09
 prop( 2) modification  time  0.00000
 prop( 3) new young modulus   0.00000
 prop( 4) poisson ratio       0.00000
 prop( 5) future ............ 0.00000

 no. of step variable items:     1
 step  inertia multipier
--------------------------
    1   1.000
    2   1.000

 element data

   el    na    nb  mat      erc1      erc2     thick      by-i      by-j
-------------------------------------------------------------------
```

1	1	2	1	0.000	0.000	0.1978	0.000	0.000
2	2	3	1	0.000	0.000	0.1978	0.000	0.000
3	3	4	1	0.000	0.000	0.1978	0.000	0.000
4	4	5	1	0.000	0.000	0.1978	0.000	0.000
5	5	6	1	0.000	0.000	0.1978	0.000	0.000
6	6	7	1	0.000	0.000	0.1978	0.000	0.000
7	7	8	1	0.000	0.000	0.1978	0.000	0.000
8	8	9	1	0.000	0.000	0.1978	0.000	0.000
9	9	10	1	0.000	0.000	0.1978	0.000	0.000
10	10	11	1	0.000	0.000	0.1978	0.000	0.000
11	11	12	1	0.000	0.000	0.1978	0.000	0.000
12	12	13	1	0.000	0.000	0.1978	0.000	0.000
13	13	14	1	0.000	0.000	0.1978	0.000	0.000
14	14	15	1	0.000	0.000	0.1978	0.000	0.000
15	15	16	1	0.000	0.000	0.1978	0.000	0.000
16	16	17	1	0.000	0.000	0.1978	0.000	0.000
17	17	18	1	0.000	0.000	0.1978	0.000	0.000
18	18	19	1	0.000	0.000	0.1978	0.000	0.000
19	19	20	1	0.000	0.000	0.1978	0.000	0.000
20	20	21	1	0.000	0.000	0.1978	0.000	0.000
21	21	22	1	0.000	0.000	0.1978	0.000	0.000
22	22	23	1	0.000	0.000	0.1978	0.000	0.000
23	23	24	1	0.000	0.000	0.1978	0.000	0.000
24	24	25	1	0.000	0.000	0.1978	0.000	0.000
25	25	26	1	0.000	0.000	0.1978	0.000	0.000
26	26	27	1	0.000	0.000	0.1978	0.000	0.000
27	27	28	1	0.000	0.000	0.1978	0.000	0.000
28	28	29	1	0.000	0.000	0.1978	0.000	0.000
29	29	30	1	0.000	0.000	0.1978	0.000	0.000
30	30	31	1	0.000	0.000	0.1978	0.000	0.000
31	31	32	1	0.000	0.000	0.1978	0.000	0.000
32	32	33	1	0.000	0.000	0.1978	0.000	0.000
33	33	34	1	0.000	0.000	0.1978	0.000	0.000
34	34	35	1	0.000	0.000	0.1978	0.000	0.000
35	35	36	1	0.000	0.000	0.1978	0.000	0.000
36	36	37	1	0.000	0.000	0.1978	0.000	0.000
37	37	38	1	0.000	0.000	0.1978	0.000	0.000
38	38	39	1	0.000	0.000	0.1978	0.000	0.000
39	39	40	1	0.000	0.000	0.1978	0.000	0.000
40	40	41	1	0.000	0.000	0.1978	0.000	0.000
41	41	42	1	0.000	0.000	0.1978	0.000	0.000
42	42	43	1	0.000	0.000	0.1978	0.000	0.000
43	43	44	1	0.000	0.000	0.1978	0.000	0.000
44	44	45	1	0.000	0.000	0.1978	0.000	0.000
45	45	46	1	0.000	0.000	0.1978	0.000	0.000

```
+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                         |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                        |
|                                  Exe Time :14 May 2019       17:56:44                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


NO. OF NODAL LOADS   (NLOAD) ...................    0
NO. OF LOAD CURVES   (NLCUR) ...................    4
MAXIMUM POINTS/LCURVE (NPTM)....................    5


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                         |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                        |
|                                  Exe Time :14 May 2019       17:56:44                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
L O A D     D A T A


    LOAD FUNCTION NUMBER   =    1
    NUMBER OF TIME POINTS  =    5

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       0.80000    0.0000E+00
       1.00000    0.1000E+01
       1.20000    0.0000E+00
       3.00000    0.0000E+00


    LOAD FUNCTION NUMBER   =    2
    NUMBER OF TIME POINTS  =    5
```

```
    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       1.80000    0.0000E+00
       2.00000    0.1000E+01
       2.20000    0.0000E+00
       3.00000    0.0000E+00


    LOAD FUNCTION NUMBER   =    3
    NUMBER OF TIME POINTS  =    4

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       0.80000    0.0000E+00
       1.00000    0.1000E+01
       3.00000    0.1000E+01


    LOAD FUNCTION NUMBER   =    4
    NUMBER OF TIME POINTS  =    4

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       1.80000    0.0000E+00
       2.00000    0.1000E+01
       3.00000    0.1000E+01

NO. OF DISTRIBUTED LOAD CARDS     0



+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                        |
|                                   Exe Time :14 May 2019       17:56:44                                                  |
+-------------------------------------------------------------------------------------------------------------------------+
L O A D     B A L A N C E

STEP     1 TOTAL APPLIED LOAD IN DIR.  2  Y-DISPL.F       0.0000000
STEP     1 TOTAL APPLIED LOAD IN DIR.  4   X-ROT. F       0.0000000

STEP     2 TOTAL APPLIED LOAD IN DIR.  2  Y-DISPL.F       0.0000000
STEP     2 TOTAL APPLIED LOAD IN DIR.  4   X-ROT. F       0.0000000


                      LOAD INPUT SECTION COMPLETED



+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                        |
|                                   Exe Time :14 May 2019       17:56:44                                                  |
+-------------------------------------------------------------------------------------------------------------------------+


NO. OF LAYERS .................................    4
NO. OF DATA PER LAYER.........................  100


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                        |
|                                   Exe Time :14 May 2019       17:56:44                                                  |
+-------------------------------------------------------------------------------------------------------------------------+

LAYER DESCRIPTORS FOR STEP NO.    1


 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    1 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  8.0000     (BOTH WALLS)
```

```
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= 0.30000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  18.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  8.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.28500     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  4.6470     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-03 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;= 0.30000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.25300     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  5.1050     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-03 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    2 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  9.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -3.2000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  19.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  9.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   8&lt;U-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.39400     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  2.4030     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.38000     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  2.9470     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    3 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  10.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -5.5500     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  20.000     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.30000     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.4360     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.28900     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  4.4400     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    4 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  11.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -6.1500     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  19.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  9.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   8&lt;U-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  25.000     (BOTH WALLS)
```

```
ITEM NO.  10&lt;U-KA    &gt;= 0.37800     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  2.3060     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.38800     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.0530     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

LAYER DESCRIPTORS FOR STEP NO.    2


 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    1 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  8.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= 0.30000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  18.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  8.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.28500     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  4.6470     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-03 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;= 0.30000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.27100     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  5.8790     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-03 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    2 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  9.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -3.2000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  19.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  9.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   8&lt;U-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.39400     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  2.4030     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.40600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.2220     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    3 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  10.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -5.5500     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  20.000     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.30000     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.4360     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
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ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.30700     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  4.8450     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    4 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  11.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -6.1500     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  19.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  9.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   8&lt;U-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.37800     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  2.3050     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.40600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.2220     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)


DEFAULT WATER UNIT WEIGHT =  10.000
AVERAGED ON     8 VALUES



+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                      |
|                                    Exe Time :14 May 2019       17:56:44                                               |
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PHASE DESCRIPTORS


STEP  NO.     1
                                      LEFT WALL    RIGHT WALL
Y                                      0.000       -0.9990E+30
Z-PC                                   0.000         0.000
Z-EXCAVATION                           0.000         0.000
Z-WATER_TABLE                         -4.400       -0.9990E+30
Q_AT_THE_FREE_FIELD_LEVEL              0.000         0.000
ZQ                                     0.000         0.000
DZW_OF_THE_WATER_TABLE                 0.000         0.000
QS_ON_THE_EXCAVATION_SIDE              0.000         0.000
ZQS                                    0.000       -0.9990E+30
ZCUT                                   0.000         0.000
BALANCE LEVEL FOR PORE PRESSURES      -8.700        -8.700
WATER_BEHAVIOUR_FLAG (LINING OPT)      0.000         0.000
PORE_UPDATE_FLAG                       0.000         0.000
PORE_TAB. _FLAG (gt.0= use tabs)       0.000         0.000
lateral thrusts reduction elevatio     0.000         0.000
Downhill reduction factor for effe     0.000         0.000
Downhill reduction factor for pore     0.000         0.000
Uphill reduction factor for effect     0.000         0.000
Uphill reduction factor for pore p     0.000         0.000
SEISMIC HORIZONTAL ACCEL. Kh [g]       0.000         0.000
UPHILL VERTICAL ACCEL.  Kv_uh [g]      0.000         0.000
DOWNHILL VERTICAL ACCEL.Kv_dh [g]      0.000         0.000
UPHILL BETA ANGLE (SLOPE) [deg]        0.000         0.000
UPHILL DELTA/PHI RATIO                 0.000         0.000
DOWNHILL BETA ANGLE (SLOPE) [deg]      0.000         0.000
DOWNHILL DELTA/PHI RATIO               0.000         0.000
DYN.WATER BEHAVIOUR                    0.000         0.000
Excess pore pressure RATIO Ru          0.000         0.000
SEISMIC PRESSURE LOWER VALUE           0.000         0.000
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SEISMIC PRESSURE UPPER VALUE            0.000         0.000
SEISMIC PRESSURE LOWER LEVEL            0.000         0.000
SEISMIC PRESSURE UPPER LEVEL            0.000         0.000

================================================================================================================end of step    1


STEP  NO.     2
                                      LEFT WALL    RIGHT WALL
Y                                      0.000       -0.9990E+30
Z-PC                                   0.000         0.000
Z-EXCAVATION                          -4.750         0.000
Z-WATER_TABLE                         -4.400       -0.9990E+30
Q_AT_THE_FREE_FIELD_LEVEL              0.000         0.000
ZQ                                     0.000         0.000
DZW_OF_THE_WATER_TABLE                0.3500         0.000
QS_ON_THE_EXCAVATION_SIDE              0.000         0.000
ZQS                                    0.000       -0.9990E+30
ZCUT                                   0.000         0.000
BALANCE LEVEL FOR PORE PRESSURES      -8.700        -8.700
WATER_BEHAVIOUR_FLAG (LINING OPT)      0.000         0.000
PORE_UPDATE_FLAG                       0.000         0.000
PORE_TAB. _FLAG (gt.0= use tabs)       0.000         0.000
lateral thrusts reduction elevatio     0.000         0.000
Downhill reduction factor for effe     0.000         0.000
Downhill reduction factor for pore     0.000         0.000
Uphill reduction factor for effect     0.000         0.000
Uphill reduction factor for pore p     0.000         0.000
SEISMIC HORIZONTAL ACCEL. Kh [g]       0.000         0.000
UPHILL VERTICAL ACCEL.  Kv_uh [g]      0.000         0.000
DOWNHILL VERTICAL ACCEL.Kv_dh [g]      0.000         0.000
UPHILL BETA ANGLE (SLOPE) [deg]        0.000         0.000
UPHILL DELTA/PHI RATIO                 0.000         0.000
DOWNHILL BETA ANGLE (SLOPE) [deg]      0.000         0.000
DOWNHILL DELTA/PHI RATIO               0.000         0.000
DYN.WATER BEHAVIOUR                    0.000         0.000
Excess pore pressure RATIO Ru          0.000         0.000
SEISMIC PRESSURE LOWER VALUE           0.000         0.000
SEISMIC PRESSURE UPPER VALUE           0.000         0.000
SEISMIC PRESSURE LOWER LEVEL           0.000         0.000
SEISMIC PRESSURE UPPER LEVEL           0.000         0.000

================================================================================================================end of step    2


 LEFT-HAND WALL

 LOWER  LEVEL          -8.70000
 UPPER  LEVEL           0.30000

 RIGHT-HAND WALL

 LOWER  LEVEL          -8.70000
 UPPER  LEVEL           0.30000




+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
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|                                   Exe Time :14 May 2019       17:56:44                                                  |
+-------------------------------------------------------------------------------------------------------------------------+
 I N I T I A L    S T R E S S    T A B L E S

            S E C T I O N

 NUMBER OF DEFINED TABLES             1


INPUT DATA FOR INITIAL STRESS SET NO.    1
PERTAINING SOIL ELEMENTS AT Y-COORD    0.0000

ACTIVATION TIME                              1.0000
END TIME (TIME BEYOND WHICH IT IS REMOVED)   2.0000

TYPE BOUSSINESQ

 HORIZONTAL DISTANCE (DY)           1.45000000000000
 FOUNDATION WIDTH    (B)            3.55000000000000
 ZETA-F.....                       -0.300000000000000
 Q-F .....                          20.0000000000000
 BETA .....                         45.0000000000000
 BEHAVIOUR (0=FREE, 1=REFLECTING)  0.000000000000000E+000
```

```
 ELEMENT GROUPS BACKUP AREA CAN STAY IN CORE AT
 POSITION        2653

 NO. OF D.P.W  FOR THIS AREA       5436
 MAX NO. OF D.P.W. AVAILABLE      81920
 ** MAX NO OF ITERATIONS SET TO          40

ITER     0 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.1202E+05 RIMNOR= 0.000
           RENORM=0.2209E-28 REMNOR= 0.000     RATIO =0.4286E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 21.27     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.1202E+05 RDR   = 0.000
           RATIOT=0.4286E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    85 NODE     43 DOF   1  Y-DISPL.F
           MIN UN=-.1776E-14 IEQ=    37 NODE     19 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     1 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.1202E+05 RIMNOR= 0.000
           RENORM=0.2209E-28 REMNOR= 0.000     RATIO =0.4286E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 21.27     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.1202E+05 RDR   = 0.000
           RATIOT=0.4286E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    85 NODE     43 DOF   1  Y-DISPL.F
           MIN UN=-.1776E-14 IEQ=    37 NODE     19 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.1202E+05 RIMNOR= 0.000
           RENORM=0.2209E-28 REMNOR= 0.000     RATIO =0.4286E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 21.27     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.1202E+05 RDR   = 0.000
           RATIOT=0.4286E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    85 NODE     43 DOF   1  Y-DISPL.F
           MIN UN=-.1776E-14 IEQ=    37 NODE     19 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0



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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                      |
|                                    Exe Time :14 May 2019       17:56:44                                               |
+-----------------------------------------------------------------------------------------------------------------------+
New Project
SOLUTION REACHED USING     2 ITERATIONS ON   40

P R I N T   O U T   F O R   T I M E   S T E P    1     ( AT TIME   1.000     )

PRINT OUT OF ACTIVE COMPONENTS (FIXED NODES ARE NOT PRINTED OUT)

          Y-DISPL.F        X-ROT. F
           (02)            (04)           (


ALL NODAL POINTS HAVE ZERO DISPLACEMENT COMPONENTS



+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                      |
|                                    Exe Time :14 May 2019       17:56:44                                               |
+-----------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   1

0_L                                                    :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   46
C U R R E N T   T I M E   I S      1.0000

 HARDENING 2D SOIL ELEMENT

 ****** TOTAL STRESS FORMULATION *****
```

EL *	FORCE	DISPL-Y	VERTICAL-P	HORIZON.-P	MAX-V-P	MAX-H-P	STATE	STIFFNESS	Z-LEVEL	PORE	E
FACTOR	UFACTOR	Peq	Su_a	Su_p	LAYER						
1	0.000	--	--	--	--	--	REMOVED	--	0.3000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
2	0.000	--	--	--	--	--	REMOVED	--	0.1000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
3 D	0.1850	0.000	1.850	0.9250	1.850	0.9250	V-C	3143.	-0.1000	0.000	
1.000	1.000	0.9250	0.000	0.000	UG0_2_10_L_0						
4 D	0.5550	0.000	5.550	2.775	5.550	2.775	V-C	3143.	-0.3000	0.000	
1.000	1.000	2.775	0.000	0.000	UG0_2_10_L_0						
5 D	1.170	0.000	9.250	5.851	9.250	5.851	V-C	3143.	-0.5000	0.000	
1.000	1.000	5.851	0.000	0.000	UG0_2_10_L_0						
6 D	1.761	0.000	12.95	8.806	12.95	8.806	V-C	3143.	-0.7000	0.000	
1.000	1.000	8.806	0.000	0.000	UG0_2_10_L_0						
7 D	2.312	0.000	16.65	11.56	16.65	11.56	V-C	3143.	-0.9000	0.000	
1.000	1.000	11.56	0.000	0.000	UG0_2_10_L_0						
8 D	2.815	0.000	20.35	14.07	20.35	14.07	V-C	3143.	-1.100	0.000	
1.000	1.000	14.07	0.000	0.000	UG0_2_10_L_0						
9 D	3.273	0.000	24.05	16.36	24.05	16.36	V-C	3143.	-1.300	0.000	
1.000	1.000	16.36	0.000	0.000	UG0_2_10_L_0						
10 D	3.692	0.000	27.75	18.46	27.75	18.46	V-C	3143.	-1.500	0.000	
1.000	1.000	18.46	0.000	0.000	UG0_2_10_L_0						
11 D	4.081	0.000	31.45	20.40	31.45	20.40	V-C	3143.	-1.700	0.000	
1.000	1.000	20.40	0.000	0.000	UG0_2_10_L_0						
12 D	4.447	0.000	35.15	22.24	35.15	22.24	V-C	3143.	-1.900	0.000	
1.000	1.000	22.24	0.000	0.000	UG0_2_10_L_0						
13 D	4.798	0.000	38.85	23.99	38.85	23.99	V-C	3143.	-2.100	0.000	
1.000	1.000	23.99	0.000	0.000	UG0_2_10_L_0						
14 D	5.138	0.000	42.55	25.69	42.55	25.69	V-C	3143.	-2.300	0.000	
1.000	1.000	25.69	0.000	0.000	UG0_2_10_L_0						
15 D	5.471	0.000	46.25	27.35	46.25	27.35	V-C	3143.	-2.500	0.000	
1.000	1.000	27.35	0.000	0.000	UG0_2_10_L_0						
16 D	5.800	0.000	49.95	29.00	49.95	29.00	V-C	3143.	-2.700	0.000	
1.000	1.000	29.00	0.000	0.000	UG0_2_10_L_0						
17 D	6.127	0.000	53.65	30.64	53.65	30.64	V-C	3143.	-2.900	0.000	
1.000	1.000	30.64	0.000	0.000	UG0_2_10_L_0						
18 D	6.454	0.000	57.35	32.27	57.35	32.27	V-C	3143.	-3.100	0.000	
1.000	1.000	32.27	0.000	0.000	UG0_2_10_L_0						
19 D	7.170	2.8259E-18	61.15	35.85	61.15	35.85	V-C	3143.	-3.300	0.000	
1.000	1.000	35.85	0.000	0.000	UG2_4_11_L_0						
20 D	7.542	0.000	65.05	37.71	65.05	37.71	V-C	3143.	-3.500	0.000	
1.000	1.000	37.71	0.000	0.000	UG2_4_11_L_0						
21 D	7.916	0.000	68.95	39.58	68.95	39.58	V-C	3143.	-3.700	0.000	
1.000	1.000	39.58	0.000	0.000	UG2_4_11_L_0						
22 D	8.292	0.000	72.85	41.46	72.85	41.46	V-C	3143.	-3.900	0.000	
1.000	1.000	41.46	0.000	0.000	UG2_4_11_L_0						
23 D	8.670	0.000	76.75	43.35	76.75	43.35	V-C	3143.	-4.100	0.000	
1.000	1.000	43.35	0.000	0.000	UG2_4_11_L_0						
24 D	9.050	0.000	80.65	45.25	80.65	45.25	V-C	3143.	-4.300	0.000	
1.000	1.000	45.25	0.000	0.000	UG2_4_11_L_0						
25 D	9.526	0.000	83.55	46.63	83.55	46.63	V-C	3143.	-4.500	1.000	
1.000	1.000	47.63	0.000	0.000	UG2_4_11_L_0						
26 D	10.10	0.000	85.45	47.49	85.45	47.49	V-C	3143.	-4.700	3.000	
1.000	1.000	50.49	0.000	0.000	UG2_4_11_L_0						
27 D	10.67	0.000	87.35	48.36	87.35	48.36	V-C	3143.	-4.900	5.000	
1.000	1.000	53.36	0.000	0.000	UG2_4_11_L_0						
28 D	11.25	0.000	89.25	49.24	89.25	49.24	V-C	3143.	-5.100	7.000	
1.000	1.000	56.24	0.000	0.000	UG2_4_11_L_0						
29 D	11.82	0.000	91.15	50.12	91.15	50.12	V-C	3143.	-5.300	9.000	
1.000	1.000	59.12	0.000	0.000	UG2_4_11_L_0						
30 D	12.40	0.000	93.05	51.02	93.05	51.02	V-C	3143.	-5.500	11.00	
1.000	1.000	62.02	0.000	0.000	UG2_4_11_L_0						
31 D	12.99	0.000	95.02	51.96	95.02	51.96	V-C	3143.	-5.700	13.00	
1.000	1.000	64.96	0.000	0.000	UG3_4271_12_L_0						
32 D	13.59	0.000	97.02	52.93	97.02	52.93	V-C	3143.	-5.900	15.00	
1.000	1.000	67.93	0.000	0.000	UG3_4271_12_L_0						
33 D	14.18	-2.8259E-18	99.02	53.90	99.02	53.90	V-C	3143.	-6.100	17.00	
1.000	1.000	70.90	0.000	0.000	UG3_4271_12_L_0						
34 D	14.77	-2.8259E-18	100.9	54.84	100.9	54.84	V-C	3143.	-6.300	19.00	
1.000	1.000	73.84	0.000	0.000	UG2_4_26346_L_0						
35 D	15.35	0.000	102.8	55.77	102.8	55.77	V-C	3143.	-6.500	21.00	
1.000	1.000	76.77	0.000	0.000	UG2_4_26346_L_0						
36 D	15.94	0.000	104.7	56.71	104.7	56.71	V-C	3143.	-6.700	23.00	
1.000	1.000	79.71	0.000	0.000	UG2_4_26346_L_0						
37 D	16.53	0.000	106.6	57.65	106.6	57.65	V-C	3143.	-6.900	25.00	
1.000	1.000	82.65	0.000	0.000	UG2_4_26346_L_0						
38 D	17.12	0.000	108.5	58.60	108.5	58.60	V-C	3143.	-7.100	27.00	
1.000	1.000	85.60	0.000	0.000	UG2_4_26346_L_0						
39 D	17.71	0.000	110.4	59.55	110.4	59.55	V-C	3143.	-7.300	29.00	
1.000	1.000	88.55	0.000	0.000	UG2_4_26346_L_0						
40 D	18.30	0.000	112.3	60.51	112.3	60.51	V-C	3143.	-7.500	31.00	
1.000	1.000	91.51	0.000	0.000	UG2_4_26346_L_0						
41 D	18.89	0.000	114.2	61.47	114.2	61.47	V-C	3143.	-7.700	33.00	
1.000	1.000	94.47	0.000	0.000	UG2_4_26346_L_0						
42 D	19.49	0.000	116.1	62.43	116.1	62.43	V-C	3143.	-7.900	35.00	
1.000	1.000	97.43	0.000	0.000	UG2_4_26346_L_0						

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  43 D   20.08     -5.6518E-18   118.0       63.39       118.0       63.39            V-C   3143.      -8.100       37.00
1.000       1.000       100.4       0.000       0.000     UG2_4_26346_L_0
  44 D   20.67       0.000       119.9       64.36       119.9       64.36            V-C   3143.      -8.300       39.00
1.000       1.000       103.4       0.000       0.000     UG2_4_26346_L_0
  45 D   21.27       0.000       121.8       65.34       121.8       65.34            V-C   3143.      -8.500       41.00
1.000       1.000       106.3       0.000       0.000     UG2_4_26346_L_0
  46 D   10.93       0.000       123.8       66.31       123.8       66.31            V-C   3143.      -8.700       43.00
1.000       1.000       109.3       0.000       0.000     UG2_4_26346_L_0


 +-------------------------------------------------------------------------------------------------------------------------+
 |                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
 |                                                                                                                         |
 |                     NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                         |
 |                                Exe Time :14 May 2019       17:56:44                                                     |
 +-------------------------------------------------------------------------------------------------------------------------+
 New Project


 S T R E S S   R E S U L T S   F O R   G R O U P   N O.   2

 0_R                                                                :
 ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   46
 C U R R E N T   T I M E   I S      1.0000

  HARDENING 2D SOIL ELEMENT

  ****** TOTAL STRESS FORMULATION *****

  EL *   FORCE      DISPL-Y  VERTICAL-P  HORIZON.-P     MAX-V-P     MAX-H-P           STATE   STIFFNESS Z-LEVEL      PORE       E
FACTOR    UFACTOR        Peq          Su_a        Su_p      LAYER
 ------------------------------------------------------------------------------------------------------------------------------
------------------------------------------------------------------------------------
   1     0.000         --          --          --          --          --           REMOVED     --        0.3000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   2     0.000         --          --          --          --          --           REMOVED     --        0.1000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   3 D  0.1850       0.000       1.850      0.9250       1.850      0.9250            V-C   3143.     -0.1000       0.000
1.000       1.000      0.9250       0.000       0.000     UG0_2_10_L_0
   4 D  0.5550       0.000       5.550       2.775       5.550       2.775            V-C   3143.     -0.3000       0.000
1.000       1.000       2.775       0.000       0.000     UG0_2_10_L_0
   5 D   1.170       0.000       9.261       5.851       9.261       5.851            V-C   3143.     -0.5000       0.000
1.000       1.000       5.851       0.000       0.000     UG0_2_10_L_0
   6 D   1.761       0.000       13.03       8.806       13.03       8.806            V-C   3143.     -0.7000       0.000
1.000       1.000       8.806       0.000       0.000     UG0_2_10_L_0
   7 D   2.312       0.000       16.89       11.56       16.89       11.56            V-C   3143.     -0.9000       0.000
1.000       1.000       11.56       0.000       0.000     UG0_2_10_L_0
   8 D   2.815       0.000       20.85       14.07       20.85       14.07            V-C   3143.      -1.100       0.000
1.000       1.000       14.07       0.000       0.000     UG0_2_10_L_0
   9 D   3.273       0.000       24.89       16.36       24.89       16.36            V-C   3143.      -1.300       0.000
1.000       1.000       16.36       0.000       0.000     UG0_2_10_L_0
  10 D   3.692       0.000       28.97       18.46       28.97       18.46            V-C   3143.      -1.500       0.000
1.000       1.000       18.46       0.000       0.000     UG0_2_10_L_0
  11 D   4.081       0.000       33.07       20.40       33.07       20.40            V-C   3143.      -1.700       0.000
1.000       1.000       20.40       0.000       0.000     UG0_2_10_L_0
  12 D   4.447       0.000       37.17       22.24       37.17       22.24            V-C   3143.      -1.900       0.000
1.000       1.000       22.24       0.000       0.000     UG0_2_10_L_0
  13 D   4.798       0.000       41.25       23.99       41.25       23.99            V-C   3143.      -2.100       0.000
1.000       1.000       23.99       0.000       0.000     UG0_2_10_L_0
  14 D   5.138       0.000       45.58       25.69       45.58       25.69            V-C   3143.      -2.300       0.000
1.000       1.000       25.69       0.000       0.000     UG0_2_10_L_0
  15 D   5.471       0.000       50.11       27.35       50.11       27.35            V-C   3143.      -2.500       0.000
1.000       1.000       27.35       0.000       0.000     UG0_2_10_L_0
  16 D   5.800       0.000       54.38       29.00       54.38       29.00            V-C   3143.      -2.700       0.000
1.000       1.000       29.00       0.000       0.000     UG0_2_10_L_0
  17 D   6.127       0.000       58.71       30.64       58.71       30.64            V-C   3143.      -2.900       0.000
1.000       1.000       30.64       0.000       0.000     UG0_2_10_L_0
  18 D   6.454       0.000       62.97       32.27       62.97       32.27            V-C   3143.      -3.100       0.000
1.000       1.000       32.27       0.000       0.000     UG0_2_10_L_0
  19 D   7.170     -2.8259E-18   67.15       35.85       67.15       35.85            V-C   3143.      -3.300       0.000
1.000       1.000       35.85       0.000       0.000     UG2_4_11_L_0
  20 D   7.542       0.000       71.50       37.71       71.50       37.71            V-C   3143.      -3.500       0.000
1.000       1.000       37.71       0.000       0.000     UG2_4_11_L_0
  21 D   7.916       0.000       75.70       39.58       75.70       39.58            V-C   3143.      -3.700       0.000
1.000       1.000       39.58       0.000       0.000     UG2_4_11_L_0
  22 D   8.292       0.000       79.97       41.46       79.97       41.46            V-C   3143.      -3.900       0.000
1.000       1.000       41.46       0.000       0.000     UG2_4_11_L_0
  23 D   8.670       0.000       84.20       43.35       84.20       43.35            V-C   3143.      -4.100       0.000
1.000       1.000       43.35       0.000       0.000     UG2_4_11_L_0
  24 D   9.050       0.000       88.32       45.25       88.32       45.25            V-C   3143.      -4.300       0.000
1.000       1.000       45.25       0.000       0.000     UG2_4_11_L_0
  25 D   9.526       0.000       91.51       46.63       91.51       46.63            V-C   3143.      -4.500       1.000
1.000       1.000       47.63       0.000       0.000     UG2_4_11_L_0
  26 D   10.10       0.000       93.67       47.49       93.67       47.49            V-C   3143.      -4.700       3.000
1.000       1.000       50.49       0.000       0.000     UG2_4_11_L_0
  27 D   10.67       0.000       95.73       48.36       95.73       48.36            V-C   3143.      -4.900       5.000
1.000       1.000       53.36       0.000       0.000     UG2_4_11_L_0
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  28 D   11.25       0.000       97.86       49.24       97.86       49.24            V-C   3143.      -5.100       7.000
1.000       1.000       56.24       0.000       0.000     UG2_4_11_L_0
  29 D   11.82       0.000       99.90       50.12       99.90       50.12            V-C   3143.      -5.300       9.000
1.000       1.000       59.12       0.000       0.000     UG2_4_11_L_0
  30 D   12.40       0.000       101.6       51.02       101.6       51.02            V-C   3143.      -5.500       11.00
1.000       1.000       62.02       0.000       0.000     UG2_4_11_L_0
  31 D   12.99       0.000       103.4       51.96       103.4       51.96            V-C   3143.      -5.700       13.00
1.000       1.000       64.96       0.000       0.000     UG3_4271_12_L_0
  32 D   13.59       0.000       105.2       52.93       105.2       52.93            V-C   3143.      -5.900       15.00
1.000       1.000       67.93       0.000       0.000     UG3_4271_12_L_0
  33 D   14.18     2.8259E-18    107.0       53.90       107.0       53.90            V-C   3143.      -6.100       17.00
1.000       1.000       70.90       0.000       0.000     UG3_4271_12_L_0
  34 D   14.77     2.8259E-18    108.7       54.84       108.7       54.84            V-C   3143.      -6.300       19.00
1.000       1.000       73.84       0.000       0.000     UG2_4_26346_L_0
  35 D   15.35       0.000       110.5       55.77       110.5       55.77            V-C   3143.      -6.500       21.00
1.000       1.000       76.77       0.000       0.000     UG2_4_26346_L_0
  36 D   15.94       0.000       112.2       56.71       112.2       56.71            V-C   3143.      -6.700       23.00
1.000       1.000       79.71       0.000       0.000     UG2_4_26346_L_0
  37 D   16.53       0.000       113.9       57.65       113.9       57.65            V-C   3143.      -6.900       25.00
1.000       1.000       82.65       0.000       0.000     UG2_4_26346_L_0
  38 D   17.12       0.000       115.7       58.60       115.7       58.60            V-C   3143.      -7.100       27.00
1.000       1.000       85.60       0.000       0.000     UG2_4_26346_L_0
  39 D   17.71       0.000       117.5       59.55       117.5       59.55            V-C   3143.      -7.300       29.00
1.000       1.000       88.55       0.000       0.000     UG2_4_26346_L_0
  40 D   18.30       0.000       119.2       60.51       119.2       60.51            V-C   3143.      -7.500       31.00
1.000       1.000       91.51       0.000       0.000     UG2_4_26346_L_0
  41 D   18.89       0.000       121.0       61.47       121.0       61.47            V-C   3143.      -7.700       33.00
1.000       1.000       94.47       0.000       0.000     UG2_4_26346_L_0
  42 D   19.49       0.000       122.8       62.43       122.8       62.43            V-C   3143.      -7.900       35.00
1.000       1.000       97.43       0.000       0.000     UG2_4_26346_L_0
  43 D   20.08     5.6518E-18    124.5       63.39       124.5       63.39            V-C   3143.      -8.100       37.00
1.000       1.000       100.4       0.000       0.000     UG2_4_26346_L_0
  44 D   20.67       0.000       126.3       64.36       126.3       64.36            V-C   3143.      -8.300       39.00
1.000       1.000       103.4       0.000       0.000     UG2_4_26346_L_0
  45 D   21.27       0.000       128.1       65.34       128.1       65.34            V-C   3143.      -8.500       41.00
1.000       1.000       106.3       0.000       0.000     UG2_4_26346_L_0
  46 D   10.93       0.000       129.9       66.31       129.9       66.31            V-C   3143.      -8.700       43.00
1.000       1.000       109.3       0.000       0.000     UG2_4_26346_L_0


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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                         |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                        |
|                                 Exe Time :14 May 2019       17:56:44                                                    |
+-------------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   3

WallElement_New_28707                                    :
ELEMENT TYPE    2 NO.OF ELEMENTS. IN THIS GROUP   45
C U R R E N T   T I M E   I S      1.0000

 WALL2D ELEMENT

   EL      TA          TB          MA          MB
-----------------------------------------------------

***** NO ONE ELEMENT ACTIVE AT CURRENT STEP *****

ITER     0 RNORM = 0.000     RMNORM= 0.000
           RINORM= 7736.     RIMNOR= 0.000
           RENORM= 1845.     REMNOR= 0.000     RATIO =0.4884     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 21.10     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 7736.     RDR   = 0.000
           RATIOT=0.4884     RATIOR= 0.000
           MAX UN= 0.000     IEQ=    92 NODE     46 DOF   2   X-ROT. F
           MIN UN=-10.09     IEQ=    51 NODE     26 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM= 7736.     RIMNOR= 0.000
           RENORM= 82.46     REMNOR=0.3245E-20 RATIO =0.1032     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 21.10     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 7736.     RDR   = 0.000
           RATIOT=0.1032     RATIOR= 0.000
           MAX UN=0.2398E-09 IEQ=    37 NODE     19 DOF   1  Y-DISPL.F
           MIN UN=-2.779     IEQ=     7 NODE      4 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     3 RNORM = 0.000     RMNORM= 0.000
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           RINORM= 7736.     RIMNOR= 0.000
           RENORM= 90.04     REMNOR=0.2998E-19 RATIO =0.1079     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 21.10     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 7736.     RDR   = 0.000
           RATIOT=0.1079     RATIOR= 0.000
           MAX UN=0.9649E-09 IEQ=    15 NODE      8 DOF   1  Y-DISPL.F
           MIN UN=-6.167     IEQ=    37 NODE     19 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0

ITER     4 RNORM = 0.000     RMNORM= 0.000
           RINORM= 7736.     RIMNOR= 0.000
           RENORM= 26.29     REMNOR=0.1423E-19 RATIO =0.5829E-01 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 21.10     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 7736.     RDR   = 0.000
           RATIOT=0.5829E-01 RATIOR= 0.000
           MAX UN=0.2421     IEQ=    91 NODE     46 DOF   1  Y-DISPL.F
           MIN UN=-3.260     IEQ=    49 NODE     25 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0

ITER     5 RNORM = 0.000     RMNORM= 0.000
           RINORM= 7736.     RIMNOR= 0.000
           RENORM= 3.006     REMNOR=0.3013E-19 RATIO =0.1971E-01 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 21.10     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 7736.     RDR   = 0.000
           RATIOT=0.1971E-01 RATIOR= 0.000
           MAX UN=0.3951     IEQ=    87 NODE     44 DOF   1  Y-DISPL.F
           MIN UN=-1.566     IEQ=    57 NODE     29 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0

ITER     6 RNORM = 0.000     RMNORM= 0.000
           RINORM= 7736.     RIMNOR= 0.000
           RENORM=0.1947E-01 REMNOR=0.2287E-19 RATIO =0.1586E-02 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 21.10     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 7736.     RDR   = 0.000
           RATIOT=0.1586E-02 RATIOR= 0.000
           MAX UN=0.5797E-01 IEQ=    85 NODE     43 DOF   1  Y-DISPL.F
           MIN UN=-.1269     IEQ=    67 NODE     34 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0

ITER     7 RNORM = 0.000     RMNORM= 0.000
           RINORM= 7736.     RIMNOR= 0.000
           RENORM=0.6388E-17 REMNOR=0.1714E-19 RATIO =0.2874E-10 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 21.10     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 7736.     RDR   = 0.000
           RATIOT=0.2874E-10 RATIOR= 0.000
           MAX UN=0.8194E-09 IEQ=    31 NODE     16 DOF   1  Y-DISPL.F
           MIN UN=-.9890E-09 IEQ=    15 NODE      8 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                      |
|                                  Exe Time :14 May 2019       17:56:44                                                 |
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New Project
SOLUTION REACHED USING     7 ITERATIONS ON   40

P R I N T   O U T   F O R   T I M E   S T E P    2     ( AT TIME   2.000     )

PRINT OUT OF ACTIVE COMPONENTS (FIXED NODES ARE NOT PRINTED OUT)

          Y-DISPL.F        X-ROT. F
            (02)             (04)            (
    1  -2.7812839E-02   4.0714608E-03
    2  -2.6998547E-02   4.0714608E-03
    3  -2.6184255E-02   4.0714608E-03
    4  -2.5369964E-02   4.0714452E-03
    5  -2.4555682E-02   4.0713518E-03
    6  -2.3741436E-02   4.0710557E-03
    7  -2.2927286E-02   4.0703692E-03
    8  -2.2113331E-02   4.0690405E-03
    9  -2.1299733E-02   4.0667516E-03
   10  -2.0486721E-02   4.0631173E-03
   11  -1.9674606E-02   4.0576843E-03
   12  -1.8863802E-02   4.0499299E-03
```

13	-1.8054829E-02	4.0392626E-03
14	-1.7248335E-02	4.0250220E-03
15	-1.6445107E-02	4.0064769E-03
16	-1.5646085E-02	3.9828212E-03
17	-1.4852378E-02	3.9531751E-03
18	-1.4065278E-02	3.9165863E-03
19	-1.3286274E-02	3.8720299E-03
20	-1.2517032E-02	3.8189756E-03
21	-1.1759247E-02	3.7574233E-03
22	-1.1014625E-02	3.6873734E-03
23	-1.0284868E-02	3.6088261E-03
24	-9.5716652E-03	3.5217806E-03
25	-8.8767218E-03	3.4262373E-03
26	-8.2017387E-03	3.3221679E-03
27	-7.5484306E-03	3.2094592E-03
28	-6.9184310E-03	3.0896576E-03
29	-6.3128284E-03	2.9659912E-03
30	-5.7320814E-03	2.8416212E-03
31	-5.1760207E-03	2.7196395E-03
32	-4.6439479E-03	2.6018241E-03
33	-4.1349651E-03	2.4889356E-03
34	-3.6479722E-03	2.3821071E-03
35	-3.1816131E-03	2.2829160E-03
36	-2.7341844E-03	2.1930459E-03
37	-2.3036916E-03	2.1137228E-03
38	-1.8879411E-03	2.0457124E-03
39	-1.4846330E-03	1.9893357E-03
40	-1.0914407E-03	1.9444814E-03
41	-7.0610771E-04	1.9106187E-03
42	-3.2652331E-04	1.8868044E-03
43	4.9194064E-05	1.8716901E-03
44	4.2261483E-04	1.8635352E-03
45	7.9493287E-04	1.8602790E-03
46	1.1669058E-03	1.8596018E-03

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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                              |
|                                  Exe Time :14 May 2019       17:56:44                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   1

0_L                                                    :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   46
C U R R E N T   T I M E   I S      2.0000

 HARDENING 2D SOIL ELEMENT

 ****** TOTAL STRESS FORMULATION *****

  EL *   FORCE      DISPL-Y  VERTICAL-P  HORIZON.-P     MAX-V-P     MAX-H-P           STATE   STIFFNESS Z-LEVEL      PORE       E
FACTOR    UFACTOR        Peq          Su_a         Su_p     LAYER
 ------------------------------------------------------------------------------------------------------------------------------
--------------------------------------------------------------------------------
   1     0.000         --          --          --          --          --          REMOVED     --       0.3000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   2     0.000         --          --          --          --          --          REMOVED     --       0.1000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   3     0.000         --          --          --          --          --          REMOVED     --      -0.1000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   4     0.000         --          --          --          --          --          REMOVED     --      -0.3000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   5     0.000         --          --          --          --          --          REMOVED     --      -0.5000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   6     0.000         --          --          --          --          --          REMOVED     --      -0.7000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   7     0.000         --          --          --          --          --          REMOVED     --      -0.9000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   8     0.000         --          --          --          --          --          REMOVED     --       -1.100       0.000
1.000       1.000       0.000       0.000       0.000     not available
   9     0.000         --          --          --          --          --          REMOVED     --       -1.300       0.000
1.000       1.000       0.000       0.000       0.000     not available
  10     0.000         --          --          --          --          --          REMOVED     --       -1.500       0.000
1.000       1.000       0.000       0.000       0.000     not available
  11     0.000         --          --          --          --          --          REMOVED     --       -1.700       0.000
1.000       1.000       0.000       0.000       0.000     not available
  12     0.000         --          --          --          --          --          REMOVED     --       -1.900       0.000
1.000       1.000       0.000       0.000       0.000     not available
  13     0.000         --          --          --          --          --          REMOVED     --       -2.100       0.000
1.000       1.000       0.000       0.000       0.000     not available
  14     0.000         --          --          --          --          --          REMOVED     --       -2.300       0.000
1.000       1.000       0.000       0.000       0.000     not available
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15	0.000	--	--	--	--	--	REMOVED	--	-2.500	0.000	1.000
1.000	1.000	0.000	0.000	0.000	not available						
16	0.000	--	--	--	--	--	REMOVED	--	-2.700	0.000	1.000
1.000	1.000	0.000	0.000	0.000	not available						
17	0.000	--	--	--	--	--	REMOVED	--	-2.900	0.000	1.000
1.000	1.000	0.000	0.000	0.000	not available						
18	0.000	--	--	--	--	--	REMOVED	--	-3.100	0.000	1.000
1.000	1.000	0.000	0.000	0.000	not available						
19	0.000	--	--	--	--	--	REMOVED	--	-3.300	0.000	1.000
1.000	1.000	0.000	0.000	0.000	not available						
20	0.000	--	--	--	--	--	REMOVED	--	-3.500	0.000	1.000
1.000	1.000	0.000	0.000	0.000	not available						
21	0.000	--	--	--	--	--	REMOVED	--	-3.700	0.000	1.000
1.000	1.000	0.000	0.000	0.000	not available						
22	0.000	--	--	--	--	--	REMOVED	--	-3.900	0.000	1.000
1.000	1.000	0.000	0.000	0.000	not available						
23	0.000	--	--	--	--	--	REMOVED	--	-4.100	0.000	1.000
1.000	1.000	0.000	0.000	0.000	not available						
24	0.000	--	--	--	--	--	REMOVED	--	-4.300	0.000	1.000
1.000	1.000	0.000	0.000	0.000	not available						
25	0.000	--	--	--	--	--	REMOVED	--	-4.500	0.000	1.000
1.000	1.000	0.000	0.000	0.000	not available						
26	0.000	--	--	--	--	--	REMOVED	--	-4.700	0.000	1.000
1.000	1.000	0.000	0.000	0.000	not available						
27 D	12.02	7.5484E-03	1.361	58.55	87.35	58.55	V-C	3143.	-4.900	1.564	1.000
1.000	1.000	60.11	0.000	0.000	UG2_4_11_L_0						
28 D	12.36	6.9184E-03	3.177	58.16	89.25	58.16	V-C	3143.	-5.100	3.648	1.000
1.000	1.000	61.81	0.000	0.000	UG2_4_11_L_0						
29 D	12.67	6.3128E-03	4.992	57.61	91.15	57.61	V-C	3143.	-5.300	5.733	1.000
1.000	1.000	63.34	0.000	0.000	UG2_4_11_L_0						
30 D	12.97	5.7321E-03	6.807	57.02	93.05	57.02	V-C	3143.	-5.500	7.818	1.000
1.000	1.000	64.84	0.000	0.000	UG2_4_11_L_0						
31 D	10.41	5.1760E-03	8.697	42.14	95.02	51.96	PASSIVE	0.000	-5.700	9.903	1.000
1.000	1.000	52.04	0.000	0.000	UG3_4271_12_L_0						
32 D	12.68	4.6439E-03	10.61	51.42	97.02	52.93	PASSIVE	0.000	-5.900	11.99	1.000
1.000	1.000	63.40	0.000	0.000	UG3_4271_12_L_0						
33 D	13.94	4.1350E-03	12.53	55.60	99.02	55.60	V-C	3143.	-6.100	14.07	1.000
1.000	1.000	69.68	0.000	0.000	UG3_4271_12_L_0						
34 D	14.27	3.6480E-03	14.37	55.18	100.9	55.18	V-C	3143.	-6.300	16.16	1.000
1.000	1.000	71.34	0.000	0.000	UG2_4_26346_L_0						
35 D	14.21	3.1816E-03	16.18	52.82	102.8	55.77	UL-RL	9429.	-6.500	18.24	1.000
1.000	1.000	71.06	0.000	0.000	UG2_4_26346_L_0						
36 D	14.05	2.7342E-03	18.00	49.92	104.7	56.71	UL-RL	9429.	-6.700	20.33	1.000
1.000	1.000	70.25	0.000	0.000	UG2_4_26346_L_0						
37 D	13.91	2.3037E-03	19.81	47.15	106.6	57.65	UL-RL	9429.	-6.900	22.41	1.000
1.000	1.000	69.56	0.000	0.000	UG2_4_26346_L_0						
38 D	13.80	1.8879E-03	21.63	44.49	108.5	58.60	UL-RL	9429.	-7.100	24.50	1.000
1.000	1.000	68.99	0.000	0.000	UG2_4_26346_L_0						
39 D	13.70	1.4846E-03	23.44	41.92	110.4	59.55	UL-RL	9429.	-7.300	26.58	1.000
1.000	1.000	68.50	0.000	0.000	UG2_4_26346_L_0						
40 D	13.62	1.0914E-03	25.26	39.43	112.3	60.51	UL-RL	9429.	-7.500	28.67	1.000
1.000	1.000	68.09	0.000	0.000	UG2_4_26346_L_0						
41 D	13.55	7.0611E-04	27.07	36.99	114.2	61.47	UL-RL	9429.	-7.700	30.75	1.000
1.000	1.000	67.74	0.000	0.000	UG2_4_26346_L_0						
42 D	13.49	3.2652E-04	28.89	34.59	116.1	62.43	UL-RL	9429.	-7.900	32.84	1.000
1.000	1.000	67.43	0.000	0.000	UG2_4_26346_L_0						
43 D	13.43	-4.9194E-05	30.70	32.22	118.0	63.39	UL-RL	9429.	-8.100	34.92	1.000
1.000	1.000	67.14	0.000	0.000	UG2_4_26346_L_0						
44 D	13.37	-4.2261E-04	32.52	29.85	119.9	64.36	UL-RL	9429.	-8.300	37.01	1.000
1.000	1.000	66.86	0.000	0.000	UG2_4_26346_L_0						
45 D	13.31	-7.9493E-04	34.33	27.48	121.8	65.34	UL-RL	9429.	-8.500	39.09	1.000
1.000	1.000	66.57	0.000	0.000	UG2_4_26346_L_0						
46 D	6.629	-1.1669E-03	36.15	25.11	123.8	66.31	UL-RL	9429.	-8.700	41.18	1.000
1.000	1.000	66.29	0.000	0.000	UG2_4_26346_L_0						

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|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                     NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                       |
|                                Exe Time :14 May 2019       17:56:44                                                   |
+-----------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   2

0_R                                                    :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   46
C U R R E N T   T I M E   I S      2.0000

 HARDENING 2D SOIL ELEMENT

 ****** TOTAL STRESS FORMULATION *****

  EL *   FORCE      DISPL-Y  VERTICAL-P  HORIZON.-P     MAX-V-P     MAX-H-P          STATE   STIFFNESS Z-LEVEL      PORE       E
FACTOR    UFACTOR       Peq          Su_a        Su_p     LAYER
```

1	0.000	--	--	--	--	--	REMOVED	--	0.3000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
2	0.000	--	--	--	--	--	REMOVED	--	0.1000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
3 D	0.1055	-2.6184E-02	1.850	0.5272	1.850	0.9250	ACTIVE	0.000	-0.1000	0.000	
1.000	1.000	0.5272	0.000	0.000	UG0_2_10_L_0						
4 D	0.3163	-2.5370E-02	5.550	1.582	5.550	2.775	ACTIVE	0.000	-0.3000	0.000	
1.000	1.000	1.582	0.000	0.000	UG0_2_10_L_0						
5 D	0.5279	-2.4556E-02	9.261	2.639	9.261	5.851	ACTIVE	0.000	-0.5000	0.000	
1.000	1.000	2.639	0.000	0.000	UG0_2_10_L_0						
6 D	0.7427	-2.3741E-02	13.03	3.713	13.03	8.806	ACTIVE	0.000	-0.7000	0.000	
1.000	1.000	3.713	0.000	0.000	UG0_2_10_L_0						
7 D	0.9628	-2.2927E-02	16.89	4.814	16.89	11.56	ACTIVE	0.000	-0.9000	0.000	
1.000	1.000	4.814	0.000	0.000	UG0_2_10_L_0						
8 D	1.188	-2.2113E-02	20.85	5.942	20.85	14.07	ACTIVE	0.000	-1.100	0.000	
1.000	1.000	5.942	0.000	0.000	UG0_2_10_L_0						
9 D	1.418	-2.1300E-02	24.89	7.092	24.89	16.36	ACTIVE	0.000	-1.300	0.000	
1.000	1.000	7.092	0.000	0.000	UG0_2_10_L_0						
10 D	1.651	-2.0487E-02	28.97	8.256	28.97	18.46	ACTIVE	0.000	-1.500	0.000	
1.000	1.000	8.256	0.000	0.000	UG0_2_10_L_0						
11 D	1.885	-1.9675E-02	33.07	9.426	33.07	20.40	ACTIVE	0.000	-1.700	0.000	
1.000	1.000	9.426	0.000	0.000	UG0_2_10_L_0						
12 D	2.119	-1.8864E-02	37.17	10.59	37.17	22.24	ACTIVE	0.000	-1.900	0.000	
1.000	1.000	10.59	0.000	0.000	UG0_2_10_L_0						
13 D	2.351	-1.8055E-02	41.25	11.76	41.25	23.99	ACTIVE	0.000	-2.100	0.000	
1.000	1.000	11.76	0.000	0.000	UG0_2_10_L_0						
14 D	2.598	-1.7248E-02	45.58	12.99	45.58	25.69	ACTIVE	0.000	-2.300	0.000	
1.000	1.000	12.99	0.000	0.000	UG0_2_10_L_0						
15 D	2.856	-1.6445E-02	50.11	14.28	50.11	27.35	ACTIVE	0.000	-2.500	0.000	
1.000	1.000	14.28	0.000	0.000	UG0_2_10_L_0						
16 D	3.100	-1.5646E-02	54.38	15.50	54.38	29.00	ACTIVE	0.000	-2.700	0.000	
1.000	1.000	15.50	0.000	0.000	UG0_2_10_L_0						
17 D	3.347	-1.4852E-02	58.71	16.73	58.71	30.64	ACTIVE	0.000	-2.900	0.000	
1.000	1.000	16.73	0.000	0.000	UG0_2_10_L_0						
18 D	3.589	-1.4065E-02	62.97	17.95	62.97	32.27	ACTIVE	0.000	-3.100	0.000	
1.000	1.000	17.95	0.000	0.000	UG0_2_10_L_0						
19 D	0.000	-1.3286E-02	67.15	0.000	67.15	35.85	ACTIVE	0.000	-3.300	0.000	
1.000	1.000	0.000	0.000	0.000	UG2_4_11_L_0						
20 D	0.000	-1.2517E-02	71.50	0.000	71.50	37.71	ACTIVE	0.000	-3.500	0.000	
1.000	1.000	0.000	0.000	0.000	UG2_4_11_L_0						
21 D	0.000	-1.1759E-02	75.70	0.000	75.70	39.58	ACTIVE	0.000	-3.700	0.000	
1.000	1.000	0.000	0.000	0.000	UG2_4_11_L_0						
22 D	0.000	-1.1015E-02	79.97	0.000	79.97	41.46	ACTIVE	0.000	-3.900	0.000	
1.000	1.000	0.000	0.000	0.000	UG2_4_11_L_0						
23 D	0.000	-1.0285E-02	84.20	0.000	84.20	43.35	ACTIVE	0.000	-4.100	0.000	
1.000	1.000	0.000	0.000	0.000	UG2_4_11_L_0						
24 D	0.000	-9.5717E-03	88.32	0.000	88.32	45.25	ACTIVE	0.000	-4.300	0.000	
1.000	1.000	0.000	0.000	0.000	UG2_4_11_L_0						
25 D	0.1915	-8.8767E-03	91.55	0.000	91.55	46.65	ACTIVE	0.000	-4.500	0.9576	
1.000	1.000	0.9576	0.000	0.000	UG2_4_11_L_0						
26 D	0.5745	-8.2017E-03	93.80	0.000	93.80	47.56	ACTIVE	0.000	-4.700	2.873	
1.000	1.000	2.873	0.000	0.000	UG2_4_11_L_0						
27 D	0.9858	-7.5484E-03	95.95	0.1409	95.95	48.47	ACTIVE	0.000	-4.900	4.788	
1.000	1.000	4.929	0.000	0.000	UG2_4_11_L_0						
28 D	1.543	-6.9184E-03	98.16	1.012	98.16	49.39	ACTIVE	0.000	-5.100	6.703	
1.000	1.000	7.715	0.000	0.000	UG2_4_11_L_0						
29 D	2.094	-6.3128E-03	100.3	1.850	100.3	50.33	ACTIVE	0.000	-5.300	8.618	
1.000	1.000	10.47	0.000	0.000	UG2_4_11_L_0						
30 D	2.616	-5.7321E-03	102.1	2.547	102.1	51.27	ACTIVE	0.000	-5.500	10.53	
1.000	1.000	13.08	0.000	0.000	UG2_4_11_L_0						
31 D	8.724	-5.1760E-03	103.9	31.17	103.9	52.26	ACTIVE	0.000	-5.700	12.45	
1.000	1.000	43.62	0.000	0.000	UG3_4271_12_L_0						
32 D	9.221	-4.6439E-03	105.8	31.74	105.8	53.27	ACTIVE	0.000	-5.900	14.36	
1.000	1.000	46.10	0.000	0.000	UG3_4271_12_L_0						
33 D	9.718	-4.1350E-03	107.7	32.31	107.7	54.28	ACTIVE	0.000	-6.100	16.28	
1.000	1.000	48.59	0.000	0.000	UG3_4271_12_L_0						
34 D	7.813	-3.6480E-03	109.5	20.87	109.5	55.27	UL-RL	9429.	-6.300	18.19	
1.000	1.000	39.07	0.000	0.000	UG2_4_26346_L_0						
35 D	9.271	-3.1816E-03	111.4	26.25	111.4	56.25	UL-RL	9429.	-6.500	20.11	
1.000	1.000	46.35	0.000	0.000	UG2_4_26346_L_0						
36 D	10.69	-2.7342E-03	113.2	31.45	113.2	57.23	UL-RL	9429.	-6.700	22.02	
1.000	1.000	53.47	0.000	0.000	UG2_4_26346_L_0						
37 D	12.09	-2.3037E-03	115.0	36.49	115.0	58.21	UL-RL	9429.	-6.900	23.94	
1.000	1.000	60.43	0.000	0.000	UG2_4_26346_L_0						
38 D	13.45	-1.8879E-03	116.8	41.41	116.8	59.21	UL-RL	9429.	-7.100	25.85	
1.000	1.000	67.26	0.000	0.000	UG2_4_26346_L_0						
39 D	14.79	-1.4846E-03	118.7	46.21	118.7	60.20	UL-RL	9429.	-7.300	27.77	
1.000	1.000	73.97	0.000	0.000	UG2_4_26346_L_0						
40 D	16.12	-1.0914E-03	120.5	50.91	120.5	61.20	UL-RL	9429.	-7.500	29.68	
1.000	1.000	80.60	0.000	0.000	UG2_4_26346_L_0						
41 D	17.43	-7.0611E-04	122.4	55.55	122.4	62.21	UL-RL	9429.	-7.700	31.60	
1.000	1.000	87.15	0.000	0.000	UG2_4_26346_L_0						
42 D	18.73	-3.2652E-04	124.2	60.14	124.2	63.22	UL-RL	9429.	-7.900	33.52	
1.000	1.000	93.65	0.000	0.000	UG2_4_26346_L_0						
43 D	19.96	4.9194E-05	126.1	64.38	126.1	64.38	V-C	3143.	-8.100	35.43	
1.000	1.000	99.81	0.000	0.000	UG2_4_26346_L_0						

```
  44 D   20.78      4.2261E-04   128.0       66.57       128.0       66.57            V-C   3143.      -8.300       37.35
1.000       1.000       103.9       0.000       0.000     UG2_4_26346_L_0
  45 D   21.60      7.9493E-04   129.8       68.76       129.8       68.76            V-C   3143.      -8.500       39.26
1.000       1.000       108.0       0.000       0.000     UG2_4_26346_L_0
  46 D   11.21      1.1669E-03   131.7       70.95       131.7       70.95            V-C   3143.      -8.700       41.18
1.000       1.000       112.1       0.000       0.000     UG2_4_26346_L_0


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                         |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                        |
|                                  Exe Time :14 May 2019       17:56:44                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   3

WallElement_New_28707                                          :
ELEMENT TYPE    2 NO.OF ELEMENTS. IN THIS GROUP   45
C U R R E N T   T I M E   I S      2.0000

 WALL2D ELEMENT

   EL      TA          TB          MA          MB
-----------------------------------------------------
    1-4.99497E-10 4.99497E-10-5.01501E-11 5.28360E-11
    2 2.00970E-10-2.00970E-10-8.25304E-11 1.84185E-10
    3-0.10545     0.10545    -1.92021E-10-2.10900E-02
    4-0.42180     0.42180     2.10900E-02-0.10545
    5-0.94966     0.94966     0.10545    -0.29538
    6 -1.6923      1.6923     0.29538    -0.63385
    7 -2.6551      2.6551     0.63385     -1.1649
    8 -3.8436      3.8436      1.1649     -1.9336
    9 -5.2621      5.2621      1.9336     -2.9860
   10 -6.9133      6.9133      2.9860     -4.3687
   11 -8.7984      8.7984      4.3687     -6.1284
   12 -10.917      10.917      6.1284     -8.3118
   13 -13.269      13.269      8.3118     -10.966
   14 -15.867      15.867      10.966     -14.139
   15 -18.723      18.723      14.139     -17.884
   16 -21.823      21.823      17.884     -22.248
   17 -25.169      25.169      22.248     -27.282
   18 -28.759      28.759      27.282     -33.034
   19 -28.759      28.759      33.034     -38.785
   20 -28.759      28.759      38.785     -44.537
   21 -28.759      28.759      44.537     -50.289
   22 -28.759      28.759      50.289     -56.040
   23 -28.759      28.759      56.040     -61.792
   24 -28.759      28.759      61.792     -67.544
   25 -28.950      28.950      67.544     -73.334
   26 -29.525      29.525      73.334     -79.239
   27 -18.487      18.487      79.239     -82.936
   28 -7.6680      7.6680      82.936     -84.470
   29  2.9065     -2.9065      84.470     -83.889
   30  13.258     -13.258      83.889     -81.237
   31  14.942     -14.942      81.237     -78.249
   32  18.402     -18.402      78.249     -74.568
   33  22.619     -22.619      74.568     -70.044
   34  29.074     -29.074      70.044     -64.230
   35  34.015     -34.015      64.230     -57.427
   36  37.372     -37.372      57.427     -49.952
   37  39.198     -39.198      49.952     -42.113
   38  39.543     -39.543      42.113     -34.204
   39  38.448     -38.448      34.204     -26.515
   40  35.947     -35.947      26.515     -19.325
   41  32.065     -32.065      19.325     -12.912
   42  26.820     -26.820      12.912     -7.5481
   43  20.284     -20.284      7.5481     -3.4912
   44  12.872     -12.872      3.4912    -0.91672
   45  4.5835     -4.5835     0.91672    -2.17426E-12


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                         |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                        |
|                                  Exe Time :14 May 2019       17:56:44                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


    F I N A L   I N C R E M E N T A L   A N A L Y S I S

                S U M M A R Y
```

```
     STEP                                NO. OF ITERATIONS

        1          CONVERGENCE :YES                    2
        2          CONVERGENCE :YES                    7


 END OF PROCESS FOR PROBLEM
New Project
NONLINEAR SOLUTION CPU TIME ....    0.04 [sec]
DATABASE  CREATION CPU TIME.....    0.08 [sec]
```

7.3. Design Assumption : NTC2018: A1+M1+R1 (R3 per tiranti) - File di Paratie - File di output (.out)

```
+-------------------------------------------------------------------------------------------------------------------------+
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                            NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                               |
|                                  Exe Time :14 May 2019       17:56:45                                                   |
+-------------------------------------------------------------------------------------------------------------------------+

                  ***********************************************************
                  *                                                         *
                  *  PARATIE PLUS Non-Linear Spring Engine                  *
                  *                                                         *
                  *          AN ELASTOPLASTIC FINITE ELEMENT PROGRAM        *
                  *          FOR FLEXIBLE EARTH-RETAINING STRUCTURES        *
                  *                                                         *
                  *          Written by Ce.A.S. s.r.l. (ITALY)              *
                  *          with the scientific supervision of             *
                  *          Roberto Nova - full professor SOIL MECHANICS   *
                  *          at Politecnico di Milano (ITALY)               *
                  *                                                         *
                  ***********************************************************
                  *                                                         *
                  *  RELEASE   2018.1     *Build date:Jun 29, 2018*    *
                  *                                                         *
                  *                                                         *
                  *  Ce.A.S.     S.R.L   CENTRO DI ANALISI STRUTTURALE      *
                  *              VIALE   GIUSTINIANO 10                     *
                  *              20129   M I L A N O  (ITALIA)              *
                  *  TEL.        +39 02 2020221                             *
                  *                                                         *
                  *  email       bruno.becci@ceas.it                        *
                  *  Web Page    www.ceas.it     www.paratieplus.com        *
                  ***********************************************************



 JOB : NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147
 STARTING
ACCEPTED   &lt;FILE,GENW                                                                    &gt;
ACCEPTED   &lt;FILE,PLOTTER,BINARY                                                          &gt;
ACCEPTED   &lt;SOLVE TOTAL_STRESS                                                           &gt;
ACCEPTED   &lt;PARAM ITEMAX 40                                                              &gt;
ACCEPTED   &lt;CONTROL HINGES 0 0.0001 0.001                                                &gt;


                  ***********************************************************
                  *                                                         *
                  *  WARNING : PORE PRESSURES ARE AUTOMATICALLY COMPUTED    *
                  *    BY THE PROGRAM.                                      *
                  ***********************************************************

PRELIMINARY OPERATIONS CPU TIME     0.01 [sec]


+-------------------------------------------------------------------------------------------------------------------------+
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                            NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                               |
|                                  Exe Time :14 May 2019       17:56:45                                                   |
+-------------------------------------------------------------------------------------------------------------------------+

INPUT FILE HAS BEEN GENERATED BY WALGEN PROGRAM

New Project

NO. OF NODAL POINTS  (NUMNP) ...................   46
NO. OF COORDINATES   (NCOORD)...................    2
NO. OF NODE DOFS     (NDOF).....................    2
```

```
NO. OF EQUATIONS    (NEQ).....................    92
NO. OF CONSTRAINTS CARDS (NVINC).............     0
NO. OF ELEMENT GROUPS (NEG)..................     3
NO. OF SOLUTION STEPS (NSTE).................     2
NO. OF ELEMENT SETS ATTACHED TO SLAVE NODES ...    0
NO. OF RECORD FROM WALGEN ...................   101
NO. OF LONG NAMES (LASTNAME) ................    13
LENGTH UNIT CHOICE ..........................     3 (M   )
FORCE  UNIT CHOICE ..........................     3 (KN  )
MAX PORE PRESSURE TABLE LENGTH...............     1
NO. OF ELEMENT GROUPS REQUIRING ADD. SLIP DOF .   0


IDOFA (01) =  2  Y-DISPL.F
IDOFA (02) =  4   X-ROT. F

 RELEVANT ITEMS UNITS

 STRESSES                  kPa
 Y-DISPLACEMENTS           m
 ROTATIONS                 RADIANS
 BEAM AND SLAB MOMENTS     kN*m/m
 BEAM SHEAR FORCES         kN/m
 ANCHOR FORCES             kN/m
 AXIAL FORCES IN TRUSSES   kN/m
 AXIAL FORCES SPRINGS      kN/m
 Y-REACTIONS               kN/m
 X-MOMENT REACTIONS        kN*m/m
 ETC.


+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                             NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                            |
|                                   Exe Time :14 May 2019       17:56:45                                                |
+-----------------------------------------------------------------------------------------------------------------------+
                   P R E P R O C E S S O R     D A T A

                   N O.  O F   C O M M A N D S    101

    1 : UNIT  m kN
    2 : TITLE New Project
    3 : DELTA 0.2
    4 : option param itemax 40
    5 : option control hinges 0 0.0001 0.001
    6 : WALL LeftWall_32 0 -8.7 0.3 -1
    7 : SOIL 0_L LeftWall_32 -8.7 0.3 2 0
    8 : SOIL 0_R LeftWall_32 -8.7 0.3 1 180
    9 : LDATA UG0_2_10_L_0 0 LeftWall_32
   10 : ATREST 0.5 0.5 1
   11 : WEIGHT 18.5 8.5 10
   12 : PERMEABILITY 0.0001
   13 : RESISTANCE 0 35 0 0 0
   14 : WINKLER 3143 9429.1
   15 : ENDL
   16 : LDATA UG2_4_11_L_0 -3.2 LeftWall_32
   17 : ATREST 0.531 0.5 1
   18 : WEIGHT 19.5 9.5 10
   19 : PERMEABILITY 1E-07
   20 : RESISTANCE 30 25 0 0 0
   21 : WINKLER 3143 9429.1
   22 : ENDL
   23 : LDATA UG3_4271_12_L_0 -5.55 LeftWall_32
   24 : ATREST 0.531 0.5 1
   25 : WEIGHT 20 10 10
   26 : PERMEABILITY 1E-07
   27 : RESISTANCE 0 32 0 0 0
   28 : WINKLER 3143 9429.1
   29 : ENDL
   30 : LDATA UG2_4_26346_L_0 -6.15 LeftWall_32
   31 : ATREST 0.531 0.5 1
   32 : WEIGHT 19.5 9.5 10
   33 : PERMEABILITY 1E-07
   34 : RESISTANCE 30 25 0 0 0
   35 : WINKLER 3143 9429.1
   36 : ENDL
   37 : MATERIAL S275_115 2.1E+08
   38 : BEAM WallElement_New_28707 LeftWall_32 -8.7 0.3 S275_115 0.19777 00 00 0
   39 : STRIP LeftWall_32 1 2 1.45 3.55 -0.3 20 45
   40 : STEP Stage1_31
   41 : CHANGE UG0_2_10_L_0 U-FRICT=35 LeftWall_32
   42 : CHANGE UG0_2_10_L_0 D-FRICT=35 LeftWall_32
   43 : CHANGE UG0_2_10_L_0 U-KA=0.285 LeftWall_32
   44 : CHANGE UG0_2_10_L_0 U-KP=4.647 LeftWall_32
   45 : CHANGE UG0_2_10_L_0 D-KA=0.253 LeftWall_32
   46 : CHANGE UG0_2_10_L_0 D-KP=5.105 LeftWall_32
```

```
  47 : CHANGE UG2_4_11_L_0 U-FRICT=25 LeftWall_32
  48 : CHANGE UG2_4_11_L_0 D-FRICT=25 LeftWall_32
  49 : CHANGE UG2_4_11_L_0 U-KA=0.394 LeftWall_32
  50 : CHANGE UG2_4_11_L_0 U-KP=2.403 LeftWall_32
  51 : CHANGE UG2_4_11_L_0 D-KA=0.38 LeftWall_32
  52 : CHANGE UG2_4_11_L_0 D-KP=2.947 LeftWall_32
  53 : CHANGE UG3_4271_12_L_0 U-FRICT=32 LeftWall_32
  54 : CHANGE UG3_4271_12_L_0 D-FRICT=32 LeftWall_32
  55 : CHANGE UG3_4271_12_L_0 U-KA=0.3 LeftWall_32
  56 : CHANGE UG3_4271_12_L_0 U-KP=3.436 LeftWall_32
  57 : CHANGE UG3_4271_12_L_0 D-KA=0.289 LeftWall_32
  58 : CHANGE UG3_4271_12_L_0 D-KP=4.44 LeftWall_32
  59 : CHANGE UG2_4_26346_L_0 U-FRICT=25 LeftWall_32
  60 : CHANGE UG2_4_26346_L_0 D-FRICT=25 LeftWall_32
  61 : CHANGE UG2_4_26346_L_0 U-KA=0.378 LeftWall_32
  62 : CHANGE UG2_4_26346_L_0 U-KP=2.306 LeftWall_32
  63 : CHANGE UG2_4_26346_L_0 D-KA=0.388 LeftWall_32
  64 : CHANGE UG2_4_26346_L_0 D-KP=3.053 LeftWall_32
  65 : CHANGE UG0_2_10_L_0 U-COHE=0 LeftWall_32
  66 : CHANGE UG0_2_10_L_0 U-ADHES=0 LeftWall_32
  67 : CHANGE UG0_2_10_L_0 D-COHE=0 LeftWall_32
  68 : CHANGE UG0_2_10_L_0 D-ADHES=0 LeftWall_32
  69 : CHANGE UG2_4_11_L_0 U-COHE=30 LeftWall_32
  70 : CHANGE UG2_4_11_L_0 U-ADHES=0 LeftWall_32
  71 : CHANGE UG2_4_11_L_0 D-COHE=30 LeftWall_32
  72 : CHANGE UG2_4_11_L_0 D-ADHES=0 LeftWall_32
  73 : CHANGE UG3_4271_12_L_0 U-COHE=0 LeftWall_32
  74 : CHANGE UG3_4271_12_L_0 U-ADHES=0 LeftWall_32
  75 : CHANGE UG3_4271_12_L_0 D-COHE=0 LeftWall_32
  76 : CHANGE UG3_4271_12_L_0 D-ADHES=0 LeftWall_32
  77 : CHANGE UG2_4_26346_L_0 U-COHE=30 LeftWall_32
  78 : CHANGE UG2_4_26346_L_0 U-ADHES=0 LeftWall_32
  79 : CHANGE UG2_4_26346_L_0 D-COHE=30 LeftWall_32
  80 : CHANGE UG2_4_26346_L_0 D-ADHES=0 LeftWall_32
  81 : SETWALL LeftWall_32
  82 : GEOM 0 0
  83 : SURCHARGE 0 0 0 0
  84 : WATER -4.4 0 -8.7 0 0
  85 : ENDSTEP
  86 : STEP Stage2_28513
  87 : CHANGE UG0_2_10_L_0 D-KA=0.271 LeftWall_32
  88 : CHANGE UG0_2_10_L_0 D-KP=5.879 LeftWall_32
  89 : CHANGE UG2_4_11_L_0 D-KA=0.406 LeftWall_32
  90 : CHANGE UG2_4_11_L_0 D-KP=3.222 LeftWall_32
  91 : CHANGE UG3_4271_12_L_0 D-KA=0.307 LeftWall_32
  92 : CHANGE UG3_4271_12_L_0 D-KP=4.845 LeftWall_32
  93 : CHANGE UG2_4_26346_L_0 U-KP=2.305 LeftWall_32
  94 : CHANGE UG2_4_26346_L_0 D-KA=0.406 LeftWall_32
  95 : CHANGE UG2_4_26346_L_0 D-KP=3.222 LeftWall_32
  96 : SETWALL LeftWall_32
  97 : GEOM 0 -4.75
  98 : SURCHARGE 0 0 0 0
  99 : WATER -4.4 0.35 -8.7 0 0
 100 : ADD WallElement_New_28707
 101 : ENDSTEP


+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                           |
|                                    Exe Time :14 May 2019       17:56:45                                               |
+-----------------------------------------------------------------------------------------------------------------------+
N O D A L    P O I N T    D A T A
--------------------------------

NODE     Y-COORD     Z-COORD / NODE     Y-COORD     Z-COORD / NODE     Y-COORD     Z-COORD / NODE     Y-COORD     Z-COORD /

   1  0.0000     0.30000     /    2  0.0000     0.10000     /    3  0.0000    -0.10000     /    4  0.0000    -0.30000     /
   5  0.0000    -0.50000     /    6  0.0000    -0.70000     /    7  0.0000    -0.90000     /    8  0.0000     -1.1000     /
   9  0.0000     -1.3000     /   10  0.0000     -1.5000     /   11  0.0000     -1.7000     /   12  0.0000     -1.9000     /
  13  0.0000     -2.1000     /   14  0.0000     -2.3000     /   15  0.0000     -2.5000     /   16  0.0000     -2.7000     /
  17  0.0000     -2.9000     /   18  0.0000     -3.1000     /   19  0.0000     -3.3000     /   20  0.0000     -3.5000     /
  21  0.0000     -3.7000     /   22  0.0000     -3.9000     /   23  0.0000     -4.1000     /   24  0.0000     -4.3000     /
  25  0.0000     -4.5000     /   26  0.0000     -4.7000     /   27  0.0000     -4.9000     /   28  0.0000     -5.1000     /
  29  0.0000     -5.3000     /   30  0.0000     -5.5000     /   31  0.0000     -5.7000     /   32  0.0000     -5.9000     /
  33  0.0000     -6.1000     /   34  0.0000     -6.3000     /   35  0.0000     -6.5000     /   36  0.0000     -6.7000     /
  37  0.0000     -6.9000     /   38  0.0000     -7.1000     /   39  0.0000     -7.3000     /   40  0.0000     -7.5000     /
  41  0.0000     -7.7000     /   42  0.0000     -7.9000     /   43  0.0000     -8.1000     /   44  0.0000     -8.3000     /
  45  0.0000     -8.5000     /   46  0.0000     -8.7000     /


+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                           |
```

```
|                                Exe Time :14 May 2019       17:56:45                                           |
+---------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  1

0_L                                                                      :
   5  46   0   1   0   0   0   0   0   0   0   0   0   0   0   4   0   0   0   0
....................................
..........2D PLASTIC SOIL ..........
....................................

element group behaviour throughout stage analysis

stage   status
-------------------
    1   active
    2   active

 material set no.    1

 prop( 1) angle             0.00000
 prop( 2) layer as foreseen  1.00000


 material set no.    2

 prop( 1) angle             0.00000
 prop( 2) layer as foreseen  2.00000


 material set no.    3

 prop( 1) angle             0.00000
 prop( 2) layer as foreseen  3.00000


 material set no.    4

 prop( 1) angle             0.00000
 prop( 2) layer as foreseen  4.00000


 element data

   el     n  mat      area     .....     .....     .....      flag
-----------------------------------------------------------------

    1     1    1   0.1000    0.000     0.000     0.000     2.000
    2     2    1   0.2000    0.000     0.000     0.000     2.000
    3     3    1   0.2000    0.000     0.000     0.000     2.000
    4     4    1   0.2000    0.000     0.000     0.000     2.000
    5     5    1   0.2000    0.000     0.000     0.000     2.000
    6     6    1   0.2000    0.000     0.000     0.000     2.000
    7     7    1   0.2000    0.000     0.000     0.000     2.000
    8     8    1   0.2000    0.000     0.000     0.000     2.000
    9     9    1   0.2000    0.000     0.000     0.000     2.000
   10    10    1   0.2000    0.000     0.000     0.000     2.000
   11    11    1   0.2000    0.000     0.000     0.000     2.000
   12    12    1   0.2000    0.000     0.000     0.000     2.000
   13    13    1   0.2000    0.000     0.000     0.000     2.000
   14    14    1   0.2000    0.000     0.000     0.000     2.000
   15    15    1   0.2000    0.000     0.000     0.000     2.000
   16    16    1   0.2000    0.000     0.000     0.000     2.000
   17    17    1   0.2000    0.000     0.000     0.000     2.000
   18    18    1   0.2000    0.000     0.000     0.000     2.000
   19    19    2   0.2000    0.000     0.000     0.000     2.000
   20    20    2   0.2000    0.000     0.000     0.000     2.000
   21    21    2   0.2000    0.000     0.000     0.000     2.000
   22    22    2   0.2000    0.000     0.000     0.000     2.000
   23    23    2   0.2000    0.000     0.000     0.000     2.000
   24    24    2   0.2000    0.000     0.000     0.000     2.000
   25    25    2   0.2000    0.000     0.000     0.000     2.000
   26    26    2   0.2000    0.000     0.000     0.000     2.000
   27    27    2   0.2000    0.000     0.000     0.000     2.000
   28    28    2   0.2000    0.000     0.000     0.000     2.000
   29    29    2   0.2000    0.000     0.000     0.000     2.000
   30    30    2   0.2000    0.000     0.000     0.000     2.000
   31    31    3   0.2000    0.000     0.000     0.000     2.000
   32    32    3   0.2000    0.000     0.000     0.000     2.000
   33    33    3   0.2000    0.000     0.000     0.000     2.000
   34    34    4   0.2000    0.000     0.000     0.000     2.000
   35    35    4   0.2000    0.000     0.000     0.000     2.000
   36    36    4   0.2000    0.000     0.000     0.000     2.000
   37    37    4   0.2000    0.000     0.000     0.000     2.000
   38    38    4   0.2000    0.000     0.000     0.000     2.000
   39    39    4   0.2000    0.000     0.000     0.000     2.000
   40    40    4   0.2000    0.000     0.000     0.000     2.000
   41    41    4   0.2000    0.000     0.000     0.000     2.000
   42    42    4   0.2000    0.000     0.000     0.000     2.000
```

```
   43   43    4   0.2000     0.000     0.000     0.000     2.000
   44   44    4   0.2000     0.000     0.000     0.000     2.000
   45   45    4   0.2000     0.000     0.000     0.000     2.000
   46   46    4   0.1000     0.000     0.000     0.000     2.000


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                         |
|                                 NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                          |
|                                       Exe Time :14 May 2019       17:56:45                                              |
+-------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  2

0_R                                                          :
   5  46   0   1   0   0   0   0   0   0   0   0   0   0   0   4   0   0   0   0
.....................................
.........2D PLASTIC SOIL ..........
.....................................

element group behaviour throughout stage analysis

stage   status
------------------
    1   active
    2   active

 material set no.    1

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  1.00000


 material set no.    2

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  2.00000


 material set no.    3

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  3.00000


 material set no.    4

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  4.00000


 element data

   el    n  mat      area      .....     .....     .....      flag
-------------------------------------------------------------------

    1    1    1   0.1000     0.000     0.000     0.000     1.000
    2    2    1   0.2000     0.000     0.000     0.000     1.000
    3    3    1   0.2000     0.000     0.000     0.000     1.000
    4    4    1   0.2000     0.000     0.000     0.000     1.000
    5    5    1   0.2000     0.000     0.000     0.000     1.000
    6    6    1   0.2000     0.000     0.000     0.000     1.000
    7    7    1   0.2000     0.000     0.000     0.000     1.000
    8    8    1   0.2000     0.000     0.000     0.000     1.000
    9    9    1   0.2000     0.000     0.000     0.000     1.000
   10   10    1   0.2000     0.000     0.000     0.000     1.000
   11   11    1   0.2000     0.000     0.000     0.000     1.000
   12   12    1   0.2000     0.000     0.000     0.000     1.000
   13   13    1   0.2000     0.000     0.000     0.000     1.000
   14   14    1   0.2000     0.000     0.000     0.000     1.000
   15   15    1   0.2000     0.000     0.000     0.000     1.000
   16   16    1   0.2000     0.000     0.000     0.000     1.000
   17   17    1   0.2000     0.000     0.000     0.000     1.000
   18   18    1   0.2000     0.000     0.000     0.000     1.000
   19   19    2   0.2000     0.000     0.000     0.000     1.000
   20   20    2   0.2000     0.000     0.000     0.000     1.000
   21   21    2   0.2000     0.000     0.000     0.000     1.000
   22   22    2   0.2000     0.000     0.000     0.000     1.000
   23   23    2   0.2000     0.000     0.000     0.000     1.000
   24   24    2   0.2000     0.000     0.000     0.000     1.000
   25   25    2   0.2000     0.000     0.000     0.000     1.000
   26   26    2   0.2000     0.000     0.000     0.000     1.000
   27   27    2   0.2000     0.000     0.000     0.000     1.000
   28   28    2   0.2000     0.000     0.000     0.000     1.000
   29   29    2   0.2000     0.000     0.000     0.000     1.000
   30   30    2   0.2000     0.000     0.000     0.000     1.000
   31   31    3   0.2000     0.000     0.000     0.000     1.000
```

32	32	3	0.2000	0.000	0.000	0.000	1.000
33	33	3	0.2000	0.000	0.000	0.000	1.000
34	34	4	0.2000	0.000	0.000	0.000	1.000
35	35	4	0.2000	0.000	0.000	0.000	1.000
36	36	4	0.2000	0.000	0.000	0.000	1.000
37	37	4	0.2000	0.000	0.000	0.000	1.000
38	38	4	0.2000	0.000	0.000	0.000	1.000
39	39	4	0.2000	0.000	0.000	0.000	1.000
40	40	4	0.2000	0.000	0.000	0.000	1.000
41	41	4	0.2000	0.000	0.000	0.000	1.000
42	42	4	0.2000	0.000	0.000	0.000	1.000
43	43	4	0.2000	0.000	0.000	0.000	1.000
44	44	4	0.2000	0.000	0.000	0.000	1.000
45	45	4	0.2000	0.000	0.000	0.000	1.000
46	46	4	0.1000	0.000	0.000	0.000	1.000

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                                   |
|                                    Exe Time :14 May 2019       17:56:45                                                       |
+-------------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  3

WallElement_New_28707                                          :
   2  45   0   1   0   0   0   0   0   0   0   0   0   0   0   1   0   0   1   0
.....................................
..........2D WALL ELEMENT...........
.....................................

element group behaviour throughout stage analysis

stage   status
------------------
    1  inactive
    2   active

 material set no.    1

 prop( 1) young modulus      0.210000E+09
 prop( 2) modification  time  0.00000
 prop( 3) new young modulus   0.00000
 prop( 4) poisson ratio       0.00000
 prop( 5) future ..... 0.00000

 no. of step variable items:     1
 step  inertia multipier
--------------------------
    1   1.000
    2   1.000

 element data
```

el	na	nb	mat	erc1	erc2	thick	by-i	by-j
1	1	2	1	0.000	0.000	0.1978	0.000	0.000
2	2	3	1	0.000	0.000	0.1978	0.000	0.000
3	3	4	1	0.000	0.000	0.1978	0.000	0.000
4	4	5	1	0.000	0.000	0.1978	0.000	0.000
5	5	6	1	0.000	0.000	0.1978	0.000	0.000
6	6	7	1	0.000	0.000	0.1978	0.000	0.000
7	7	8	1	0.000	0.000	0.1978	0.000	0.000
8	8	9	1	0.000	0.000	0.1978	0.000	0.000
9	9	10	1	0.000	0.000	0.1978	0.000	0.000
10	10	11	1	0.000	0.000	0.1978	0.000	0.000
11	11	12	1	0.000	0.000	0.1978	0.000	0.000
12	12	13	1	0.000	0.000	0.1978	0.000	0.000
13	13	14	1	0.000	0.000	0.1978	0.000	0.000
14	14	15	1	0.000	0.000	0.1978	0.000	0.000
15	15	16	1	0.000	0.000	0.1978	0.000	0.000
16	16	17	1	0.000	0.000	0.1978	0.000	0.000
17	17	18	1	0.000	0.000	0.1978	0.000	0.000
18	18	19	1	0.000	0.000	0.1978	0.000	0.000
19	19	20	1	0.000	0.000	0.1978	0.000	0.000
20	20	21	1	0.000	0.000	0.1978	0.000	0.000
21	21	22	1	0.000	0.000	0.1978	0.000	0.000
22	22	23	1	0.000	0.000	0.1978	0.000	0.000
23	23	24	1	0.000	0.000	0.1978	0.000	0.000
24	24	25	1	0.000	0.000	0.1978	0.000	0.000
25	25	26	1	0.000	0.000	0.1978	0.000	0.000
26	26	27	1	0.000	0.000	0.1978	0.000	0.000
27	27	28	1	0.000	0.000	0.1978	0.000	0.000
28	28	29	1	0.000	0.000	0.1978	0.000	0.000
29	29	30	1	0.000	0.000	0.1978	0.000	0.000
30	30	31	1	0.000	0.000	0.1978	0.000	0.000

31	31	32	1	0.000	0.000	0.1978	0.000	0.000
32	32	33	1	0.000	0.000	0.1978	0.000	0.000
33	33	34	1	0.000	0.000	0.1978	0.000	0.000
34	34	35	1	0.000	0.000	0.1978	0.000	0.000
35	35	36	1	0.000	0.000	0.1978	0.000	0.000
36	36	37	1	0.000	0.000	0.1978	0.000	0.000
37	37	38	1	0.000	0.000	0.1978	0.000	0.000
38	38	39	1	0.000	0.000	0.1978	0.000	0.000
39	39	40	1	0.000	0.000	0.1978	0.000	0.000
40	40	41	1	0.000	0.000	0.1978	0.000	0.000
41	41	42	1	0.000	0.000	0.1978	0.000	0.000
42	42	43	1	0.000	0.000	0.1978	0.000	0.000
43	43	44	1	0.000	0.000	0.1978	0.000	0.000
44	44	45	1	0.000	0.000	0.1978	0.000	0.000
45	45	46	1	0.000	0.000	0.1978	0.000	0.000

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                                   |
|                                    Exe Time :14 May 2019       17:56:45                                                       |
+-------------------------------------------------------------------------------------------------------------------------------+


NO. OF NODAL LOADS   (NLOAD) ...................    0
NO. OF LOAD CURVES   (NLCUR) ...................    4
MAXIMUM POINTS/LCURVE (NPTM)....................    5


+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                                   |
|                                    Exe Time :14 May 2019       17:56:45                                                       |
+-------------------------------------------------------------------------------------------------------------------------------+
L O A D     D A T A


    LOAD FUNCTION NUMBER   =    1
    NUMBER OF TIME POINTS  =    5

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       0.80000    0.0000E+00
       1.00000    0.1000E+01
       1.20000    0.0000E+00
       3.00000    0.0000E+00


    LOAD FUNCTION NUMBER   =    2
    NUMBER OF TIME POINTS  =    5

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       1.80000    0.0000E+00
       2.00000    0.1000E+01
       2.20000    0.0000E+00
       3.00000    0.0000E+00


    LOAD FUNCTION NUMBER   =    3
    NUMBER OF TIME POINTS  =    4

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       0.80000    0.0000E+00
       1.00000    0.1000E+01
       3.00000    0.1000E+01


    LOAD FUNCTION NUMBER   =    4
    NUMBER OF TIME POINTS  =    4

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       1.80000    0.0000E+00
       2.00000    0.1000E+01
```

```
       3.00000    0.1000E+01

NO. OF DISTRIBUTED LOAD CARDS     0



+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*             |
|                                                                                                                       |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                           |
|                                    Exe Time :14 May 2019       17:56:45                                               |
+-----------------------------------------------------------------------------------------------------------------------+
L O A D     B A L A N C E

STEP     1 TOTAL APPLIED LOAD IN DIR.  2  Y-DISPL.F       0.0000000
STEP     1 TOTAL APPLIED LOAD IN DIR.  4   X-ROT. F       0.0000000

STEP     2 TOTAL APPLIED LOAD IN DIR.  2  Y-DISPL.F       0.0000000
STEP     2 TOTAL APPLIED LOAD IN DIR.  4   X-ROT. F       0.0000000


                     LOAD INPUT SECTION COMPLETED



+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*             |
|                                                                                                                       |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                           |
|                                    Exe Time :14 May 2019       17:56:45                                               |
+-----------------------------------------------------------------------------------------------------------------------+


NO. OF LAYERS ..............................    4
NO. OF DATA PER LAYER.......................  100



+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*             |
|                                                                                                                       |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                           |
|                                    Exe Time :14 May 2019       17:56:45                                               |
+-----------------------------------------------------------------------------------------------------------------------+

LAYER DESCRIPTORS FOR STEP NO.    1


 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    1 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  8.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= 0.30000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  18.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  8.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.28500     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  4.6470     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-03 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;= 0.30000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.25300     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  5.1050     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-03 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    2 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  9.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -3.2000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  19.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  9.5000     (BOTH WALLS)
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ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   8&lt;U-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.39400     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  2.4030     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.38000     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  2.9470     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    3 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  10.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -5.5500     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  20.000     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.30000     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.4360     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.28900     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  4.4400     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    4 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  11.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -6.1500     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  19.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  9.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   8&lt;U-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.37800     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  2.3060     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.38800     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.0530     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

LAYER DESCRIPTORS FOR STEP NO.    2


 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    1 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  8.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= 0.30000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  18.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  8.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.28500     WALL NO.        1
```

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ITEM NO.  11&lt;U-KP    &gt;=  4.6470     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-03 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;= 0.30000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.27100     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  5.8790     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-03 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    2 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  9.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -3.2000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  19.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  9.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   8&lt;U-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.39400     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  2.4030     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.40600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.2220     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    3 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  10.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -5.5500     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  20.000     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.30000     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.4360     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.30700     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  4.8450     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    4 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  11.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -6.1500     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  19.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  9.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   8&lt;U-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.37800     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  2.3050     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
```

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ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.40600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.2220     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)


DEFAULT WATER UNIT WEIGHT =  10.000
AVERAGED ON     8 VALUES



+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                           |
|                                    Exe Time :14 May 2019      17:56:45                                                |
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PHASE DESCRIPTORS


STEP  NO.     1
                                      LEFT WALL    RIGHT WALL
Y                                      0.000       -0.9990E+30
Z-PC                                   0.000         0.000
Z-EXCAVATION                           0.000         0.000
Z-WATER_TABLE                         -4.400       -0.9990E+30
Q_AT_THE_FREE_FIELD_LEVEL              0.000         0.000
ZQ                                     0.000         0.000
DZW_OF_THE_WATER_TABLE                 0.000         0.000
QS_ON_THE_EXCAVATION_SIDE              0.000         0.000
ZQS                                    0.000       -0.9990E+30
ZCUT                                   0.000         0.000
BALANCE LEVEL FOR PORE PRESSURES      -8.700        -8.700
WATER_BEHAVIOUR_FLAG (LINING OPT)      0.000         0.000
PORE_UPDATE_FLAG                       0.000         0.000
PORE_TAB. _FLAG (gt.0= use tabs)       0.000         0.000
lateral thrusts reduction elevatio     0.000         0.000
Downhill reduction factor for effe     0.000         0.000
Downhill reduction factor for pore     0.000         0.000
Uphill reduction factor for effect     0.000         0.000
Uphill reduction factor for pore p     0.000         0.000
SEISMIC HORIZONTAL ACCEL. Kh [g]       0.000         0.000
UPHILL VERTICAL ACCEL.  Kv_uh [g]      0.000         0.000
DOWNHILL VERTICAL ACCEL.Kv_dh [g]      0.000         0.000
UPHILL BETA ANGLE (SLOPE) [deg]        0.000         0.000
UPHILL DELTA/PHI RATIO                 0.000         0.000
DOWNHILL BETA ANGLE (SLOPE) [deg]      0.000         0.000
DOWNHILL DELTA/PHI RATIO               0.000         0.000
DYN.WATER BEHAVIOUR                    0.000         0.000
Excess pore pressure RATIO Ru          0.000         0.000
SEISMIC PRESSURE LOWER VALUE           0.000         0.000
SEISMIC PRESSURE UPPER VALUE           0.000         0.000
SEISMIC PRESSURE LOWER LEVEL           0.000         0.000
SEISMIC PRESSURE UPPER LEVEL           0.000         0.000

=============================================================================================================end of step    1


STEP  NO.     2
                                      LEFT WALL    RIGHT WALL
Y                                      0.000       -0.9990E+30
Z-PC                                   0.000         0.000
Z-EXCAVATION                          -4.750         0.000
Z-WATER_TABLE                         -4.400       -0.9990E+30
Q_AT_THE_FREE_FIELD_LEVEL              0.000         0.000
ZQ                                     0.000         0.000
DZW_OF_THE_WATER_TABLE                 0.3500        0.000
QS_ON_THE_EXCAVATION_SIDE              0.000         0.000
ZQS                                    0.000       -0.9990E+30
ZCUT                                   0.000         0.000
BALANCE LEVEL FOR PORE PRESSURES      -8.700        -8.700
WATER_BEHAVIOUR_FLAG (LINING OPT)      0.000         0.000
PORE_UPDATE_FLAG                       0.000         0.000
PORE_TAB. _FLAG (gt.0= use tabs)       0.000         0.000
lateral thrusts reduction elevatio     0.000         0.000
Downhill reduction factor for effe     0.000         0.000
Downhill reduction factor for pore     0.000         0.000
Uphill reduction factor for effect     0.000         0.000
Uphill reduction factor for pore p     0.000         0.000
SEISMIC HORIZONTAL ACCEL. Kh [g]       0.000         0.000
UPHILL VERTICAL ACCEL.  Kv_uh [g]      0.000         0.000
DOWNHILL VERTICAL ACCEL.Kv_dh [g]      0.000         0.000
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UPHILL BETA ANGLE (SLOPE) [deg]          0.000          0.000
UPHILL DELTA/PHI RATIO                   0.000          0.000
DOWNHILL BETA ANGLE (SLOPE) [deg]        0.000          0.000
DOWNHILL DELTA/PHI RATIO                 0.000          0.000
DYN.WATER BEHAVIOUR                      0.000          0.000
Excess pore pressure RATIO Ru            0.000          0.000
SEISMIC PRESSURE LOWER VALUE             0.000          0.000
SEISMIC PRESSURE UPPER VALUE             0.000          0.000
SEISMIC PRESSURE LOWER LEVEL             0.000          0.000
SEISMIC PRESSURE UPPER LEVEL             0.000          0.000

==========================================================================================================end of step    2


 LEFT-HAND WALL

 LOWER  LEVEL          -8.70000
 UPPER  LEVEL           0.30000

 RIGHT-HAND WALL

 LOWER  LEVEL          -8.70000
 UPPER  LEVEL           0.30000



+------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                        |
|                             NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                             |
|                                   Exe Time :14 May 2019       17:56:45                                                 |
+------------------------------------------------------------------------------------------------------------------------+
 I N I T I A L    S T R E S S    T A B L E S

            S E C T I O N

 NUMBER OF DEFINED TABLES             1


INPUT DATA FOR INITIAL STRESS SET NO.    1
PERTAINING SOIL ELEMENTS AT Y-COORD    0.0000

ACTIVATION TIME                              1.0000
END TIME (TIME BEYOND WHICH IT IS REMOVED)   2.0000

TYPE BOUSSINESQ

 HORIZONTAL DISTANCE (DY)           1.45000000000000
 FOUNDATION WIDTH    (B)            3.55000000000000
 ZETA-F.....                       -0.300000000000000
 Q-F .....                          20.0000000000000
 BETA .....                         45.0000000000000
 BEHAVIOUR (0=FREE, 1=REFLECTING)  0.000000000000000E+000


 ELEMENT GROUPS BACKUP AREA CAN STAY IN CORE AT
 POSITION        2653

 NO. OF D.P.W  FOR THIS AREA       5436
 MAX NO. OF D.P.W. AVAILABLE      81920
 ** MAX NO OF ITERATIONS SET TO          40

ITER     0 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.1202E+05 RIMNOR= 0.000
           RENORM=0.2209E-28 REMNOR= 0.000     RATIO =0.4286E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 21.27     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.1202E+05 RDR   = 0.000
           RATIOT=0.4286E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    85 NODE     43 DOF   1  Y-DISPL.F
           MIN UN=-.1776E-14 IEQ=    37 NODE     19 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     1 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.1202E+05 RIMNOR= 0.000
           RENORM=0.2209E-28 REMNOR= 0.000     RATIO =0.4286E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 21.27     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.1202E+05 RDR   = 0.000
           RATIOT=0.4286E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    85 NODE     43 DOF   1  Y-DISPL.F
           MIN UN=-.1776E-14 IEQ=    37 NODE     19 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0
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ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.1202E+05 RIMNOR= 0.000
           RENORM=0.2209E-28 REMNOR= 0.000     RATIO =0.4286E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 21.27     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.1202E+05 RDR   = 0.000
           RATIOT=0.4286E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    85 NODE     43 DOF   1  Y-DISPL.F
           MIN UN=-.1776E-14 IEQ=    37 NODE     19 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0



+---------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                           |
|                             NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                                |
|                                   Exe Time :14 May 2019       17:56:45                                                    |
+---------------------------------------------------------------------------------------------------------------------------+
New Project
SOLUTION REACHED USING     2 ITERATIONS ON   40

P R I N T   O U T   F O R   T I M E   S T E P    1     ( AT TIME   1.000     )

PRINT OUT OF ACTIVE COMPONENTS (FIXED NODES ARE NOT PRINTED OUT)

          Y-DISPL.F        X-ROT. F
           (02)             (04)            (

ALL NODAL POINTS HAVE ZERO DISPLACEMENT COMPONENTS



+---------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                           |
|                             NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                                |
|                                   Exe Time :14 May 2019       17:56:45                                                    |
+---------------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   1

0_L                                                    :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   46
C U R R E N T   T I M E   I S      1.0000

 HARDENING 2D SOIL ELEMENT

 ****** TOTAL STRESS FORMULATION *****

  EL *   FORCE     DISPL-Y  VERTICAL-P  HORIZON.-P     MAX-V-P     MAX-H-P           STATE   STIFFNESS Z-LEVEL      PORE       E
FACTOR    UFACTOR       Peq          Su_a        Su_p     LAYER
 ---------------------------------------------------------------------------------------------------------------------------
---------------------------------------------------------------------------------------------
   1     0.000         --          --          --          --          --          REMOVED     --       0.3000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   2     0.000         --          --          --          --          --          REMOVED     --       0.1000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   3 D  0.1850       0.000       1.850      0.9250       1.850      0.9250           V-C   3143.     -0.1000       0.000
1.000       1.000      0.9250       0.000       0.000     UG0_2_10_L_0
   4 D  0.5550       0.000       5.550       2.775       5.550       2.775           V-C   3143.     -0.3000       0.000
1.000       1.000       2.775       0.000       0.000     UG0_2_10_L_0
   5 D   1.170       0.000       9.250       5.851       9.250       5.851           V-C   3143.     -0.5000       0.000
1.000       1.000       5.851       0.000       0.000     UG0_2_10_L_0
   6 D   1.761       0.000       12.95       8.806       12.95       8.806           V-C   3143.     -0.7000       0.000
1.000       1.000       8.806       0.000       0.000     UG0_2_10_L_0
   7 D   2.312       0.000       16.65       11.56       16.65       11.56           V-C   3143.     -0.9000       0.000
1.000       1.000       11.56       0.000       0.000     UG0_2_10_L_0
   8 D   2.815       0.000       20.35       14.07       20.35       14.07           V-C   3143.      -1.100       0.000
1.000       1.000       14.07       0.000       0.000     UG0_2_10_L_0
   9 D   3.273       0.000       24.05       16.36       24.05       16.36           V-C   3143.      -1.300       0.000
1.000       1.000       16.36       0.000       0.000     UG0_2_10_L_0
  10 D   3.692       0.000       27.75       18.46       27.75       18.46           V-C   3143.      -1.500       0.000
1.000       1.000       18.46       0.000       0.000     UG0_2_10_L_0
  11 D   4.081       0.000       31.45       20.40       31.45       20.40           V-C   3143.      -1.700       0.000
1.000       1.000       20.40       0.000       0.000     UG0_2_10_L_0
  12 D   4.447       0.000       35.15       22.24       35.15       22.24           V-C   3143.      -1.900       0.000
1.000       1.000       22.24       0.000       0.000     UG0_2_10_L_0
  13 D   4.798       0.000       38.85       23.99       38.85       23.99           V-C   3143.      -2.100       0.000
1.000       1.000       23.99       0.000       0.000     UG0_2_10_L_0
  14 D   5.138       0.000       42.55       25.69       42.55       25.69           V-C   3143.      -2.300       0.000
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1.000       1.000       25.69       0.000       0.000     UG0_2_10_L_0
  15 D   5.471       0.000       46.25       27.35       46.25       27.35             V-C   3143.      -2.500       0.000
1.000       1.000       27.35       0.000       0.000     UG0_2_10_L_0
  16 D   5.800       0.000       49.95       29.00       49.95       29.00             V-C   3143.      -2.700       0.000
1.000       1.000       29.00       0.000       0.000     UG0_2_10_L_0
  17 D   6.127       0.000       53.65       30.64       53.65       30.64             V-C   3143.      -2.900       0.000
1.000       1.000       30.64       0.000       0.000     UG0_2_10_L_0
  18 D   6.454       0.000       57.35       32.27       57.35       32.27             V-C   3143.      -3.100       0.000
1.000       1.000       32.27       0.000       0.000     UG0_2_10_L_0
  19 D   7.170     2.8259E-18    61.15       35.85       61.15       35.85             V-C   3143.      -3.300       0.000
1.000       1.000       35.85       0.000       0.000     UG2_4_11_L_0
  20 D   7.542       0.000       65.05       37.71       65.05       37.71             V-C   3143.      -3.500       0.000
1.000       1.000       37.71       0.000       0.000     UG2_4_11_L_0
  21 D   7.916       0.000       68.95       39.58       68.95       39.58             V-C   3143.      -3.700       0.000
1.000       1.000       39.58       0.000       0.000     UG2_4_11_L_0
  22 D   8.292       0.000       72.85       41.46       72.85       41.46             V-C   3143.      -3.900       0.000
1.000       1.000       41.46       0.000       0.000     UG2_4_11_L_0
  23 D   8.670       0.000       76.75       43.35       76.75       43.35             V-C   3143.      -4.100       0.000
1.000       1.000       43.35       0.000       0.000     UG2_4_11_L_0
  24 D   9.050       0.000       80.65       45.25       80.65       45.25             V-C   3143.      -4.300       0.000
1.000       1.000       45.25       0.000       0.000     UG2_4_11_L_0
  25 D   9.526       0.000       83.55       46.63       83.55       46.63             V-C   3143.      -4.500       1.000
1.000       1.000       47.63       0.000       0.000     UG2_4_11_L_0
  26 D   10.10       0.000       85.45       47.49       85.45       47.49             V-C   3143.      -4.700       3.000
1.000       1.000       50.49       0.000       0.000     UG2_4_11_L_0
  27 D   10.67       0.000       87.35       48.36       87.35       48.36             V-C   3143.      -4.900       5.000
1.000       1.000       53.36       0.000       0.000     UG2_4_11_L_0
  28 D   11.25       0.000       89.25       49.24       89.25       49.24             V-C   3143.      -5.100       7.000
1.000       1.000       56.24       0.000       0.000     UG2_4_11_L_0
  29 D   11.82       0.000       91.15       50.12       91.15       50.12             V-C   3143.      -5.300       9.000
1.000       1.000       59.12       0.000       0.000     UG2_4_11_L_0
  30 D   12.40       0.000       93.05       51.02       93.05       51.02             V-C   3143.      -5.500       11.00
1.000       1.000       62.02       0.000       0.000     UG2_4_11_L_0
  31 D   12.99       0.000       95.02       51.96       95.02       51.96             V-C   3143.      -5.700       13.00
1.000       1.000       64.96       0.000       0.000     UG3_4271_12_L_0
  32 D   13.59       0.000       97.02       52.93       97.02       52.93             V-C   3143.      -5.900       15.00
1.000       1.000       67.93       0.000       0.000     UG3_4271_12_L_0
  33 D   14.18     -2.8259E-18    99.02       53.90       99.02       53.90             V-C   3143.      -6.100       17.00
1.000       1.000       70.90       0.000       0.000     UG3_4271_12_L_0
  34 D   14.77     -2.8259E-18    100.9       54.84       100.9       54.84             V-C   3143.      -6.300       19.00
1.000       1.000       73.84       0.000       0.000     UG2_4_26346_L_0
  35 D   15.35       0.000       102.8       55.77       102.8       55.77             V-C   3143.      -6.500       21.00
1.000       1.000       76.77       0.000       0.000     UG2_4_26346_L_0
  36 D   15.94       0.000       104.7       56.71       104.7       56.71             V-C   3143.      -6.700       23.00
1.000       1.000       79.71       0.000       0.000     UG2_4_26346_L_0
  37 D   16.53       0.000       106.6       57.65       106.6       57.65             V-C   3143.      -6.900       25.00
1.000       1.000       82.65       0.000       0.000     UG2_4_26346_L_0
  38 D   17.12       0.000       108.5       58.60       108.5       58.60             V-C   3143.      -7.100       27.00
1.000       1.000       85.60       0.000       0.000     UG2_4_26346_L_0
  39 D   17.71       0.000       110.4       59.55       110.4       59.55             V-C   3143.      -7.300       29.00
1.000       1.000       88.55       0.000       0.000     UG2_4_26346_L_0
  40 D   18.30       0.000       112.3       60.51       112.3       60.51             V-C   3143.      -7.500       31.00
1.000       1.000       91.51       0.000       0.000     UG2_4_26346_L_0
  41 D   18.89       0.000       114.2       61.47       114.2       61.47             V-C   3143.      -7.700       33.00
1.000       1.000       94.47       0.000       0.000     UG2_4_26346_L_0
  42 D   19.49       0.000       116.1       62.43       116.1       62.43             V-C   3143.      -7.900       35.00
1.000       1.000       97.43       0.000       0.000     UG2_4_26346_L_0
  43 D   20.08     -5.6518E-18    118.0       63.39       118.0       63.39             V-C   3143.      -8.100       37.00
1.000       1.000       100.4       0.000       0.000     UG2_4_26346_L_0
  44 D   20.67       0.000       119.9       64.36       119.9       64.36             V-C   3143.      -8.300       39.00
1.000       1.000       103.4       0.000       0.000     UG2_4_26346_L_0
  45 D   21.27       0.000       121.8       65.34       121.8       65.34             V-C   3143.      -8.500       41.00
1.000       1.000       106.3       0.000       0.000     UG2_4_26346_L_0
  46 D   10.93       0.000       123.8       66.31       123.8       66.31             V-C   3143.      -8.700       43.00
1.000       1.000       109.3       0.000       0.000     UG2_4_26346_L_0


+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                                   |
|                                    Exe Time :14 May 2019      17:56:45                                                        |
+-------------------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   2

0_R                                                  :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   46
C U R R E N T   T I M E   I S      1.0000

 HARDENING 2D SOIL ELEMENT

 ****** TOTAL STRESS FORMULATION *****

 EL *   FORCE     DISPL-Y  VERTICAL-P  HORIZON.-P     MAX-V-P     MAX-H-P          STATE   STIFFNESS Z-LEVEL      PORE       E
```

FACTOR	UFACTOR	Peq	Su_a	Su_p	LAYER					
1	0.000	--	--	--	--	--	REMOVED	--	0.3000	0.000
1.000	1.000	0.000	0.000	0.000	not available					
2	0.000	--	--	--	--	--	REMOVED	--	0.1000	0.000
1.000	1.000	0.000	0.000	0.000	not available					
3 D	0.1850	0.000	1.850	0.9250	1.850	0.9250	V-C	3143.	-0.1000	0.000
1.000	1.000	0.9250	0.000	0.000	UG0_2_10_L_0					
4 D	0.5550	0.000	5.550	2.775	5.550	2.775	V-C	3143.	-0.3000	0.000
1.000	1.000	2.775	0.000	0.000	UG0_2_10_L_0					
5 D	1.170	0.000	9.261	5.851	9.261	5.851	V-C	3143.	-0.5000	0.000
1.000	1.000	5.851	0.000	0.000	UG0_2_10_L_0					
6 D	1.761	0.000	13.03	8.806	13.03	8.806	V-C	3143.	-0.7000	0.000
1.000	1.000	8.806	0.000	0.000	UG0_2_10_L_0					
7 D	2.312	0.000	16.89	11.56	16.89	11.56	V-C	3143.	-0.9000	0.000
1.000	1.000	11.56	0.000	0.000	UG0_2_10_L_0					
8 D	2.815	0.000	20.85	14.07	20.85	14.07	V-C	3143.	-1.100	0.000
1.000	1.000	14.07	0.000	0.000	UG0_2_10_L_0					
9 D	3.273	0.000	24.89	16.36	24.89	16.36	V-C	3143.	-1.300	0.000
1.000	1.000	16.36	0.000	0.000	UG0_2_10_L_0					
10 D	3.692	0.000	28.97	18.46	28.97	18.46	V-C	3143.	-1.500	0.000
1.000	1.000	18.46	0.000	0.000	UG0_2_10_L_0					
11 D	4.081	0.000	33.07	20.40	33.07	20.40	V-C	3143.	-1.700	0.000
1.000	1.000	20.40	0.000	0.000	UG0_2_10_L_0					
12 D	4.447	0.000	37.17	22.24	37.17	22.24	V-C	3143.	-1.900	0.000
1.000	1.000	22.24	0.000	0.000	UG0_2_10_L_0					
13 D	4.798	0.000	41.25	23.99	41.25	23.99	V-C	3143.	-2.100	0.000
1.000	1.000	23.99	0.000	0.000	UG0_2_10_L_0					
14 D	5.138	0.000	45.58	25.69	45.58	25.69	V-C	3143.	-2.300	0.000
1.000	1.000	25.69	0.000	0.000	UG0_2_10_L_0					
15 D	5.471	0.000	50.11	27.35	50.11	27.35	V-C	3143.	-2.500	0.000
1.000	1.000	27.35	0.000	0.000	UG0_2_10_L_0					
16 D	5.800	0.000	54.38	29.00	54.38	29.00	V-C	3143.	-2.700	0.000
1.000	1.000	29.00	0.000	0.000	UG0_2_10_L_0					
17 D	6.127	0.000	58.71	30.64	58.71	30.64	V-C	3143.	-2.900	0.000
1.000	1.000	30.64	0.000	0.000	UG0_2_10_L_0					
18 D	6.454	0.000	62.97	32.27	62.97	32.27	V-C	3143.	-3.100	0.000
1.000	1.000	32.27	0.000	0.000	UG0_2_10_L_0					
19 D	7.170	-2.8259E-18	67.15	35.85	67.15	35.85	V-C	3143.	-3.300	0.000
1.000	1.000	35.85	0.000	0.000	UG2_4_11_L_0					
20 D	7.542	0.000	71.50	37.71	71.50	37.71	V-C	3143.	-3.500	0.000
1.000	1.000	37.71	0.000	0.000	UG2_4_11_L_0					
21 D	7.916	0.000	75.70	39.58	75.70	39.58	V-C	3143.	-3.700	0.000
1.000	1.000	39.58	0.000	0.000	UG2_4_11_L_0					
22 D	8.292	0.000	79.97	41.46	79.97	41.46	V-C	3143.	-3.900	0.000
1.000	1.000	41.46	0.000	0.000	UG2_4_11_L_0					
23 D	8.670	0.000	84.20	43.35	84.20	43.35	V-C	3143.	-4.100	0.000
1.000	1.000	43.35	0.000	0.000	UG2_4_11_L_0					
24 D	9.050	0.000	88.32	45.25	88.32	45.25	V-C	3143.	-4.300	0.000
1.000	1.000	45.25	0.000	0.000	UG2_4_11_L_0					
25 D	9.526	0.000	91.51	46.63	91.51	46.63	V-C	3143.	-4.500	1.000
1.000	1.000	47.63	0.000	0.000	UG2_4_11_L_0					
26 D	10.10	0.000	93.67	47.49	93.67	47.49	V-C	3143.	-4.700	3.000
1.000	1.000	50.49	0.000	0.000	UG2_4_11_L_0					
27 D	10.67	0.000	95.73	48.36	95.73	48.36	V-C	3143.	-4.900	5.000
1.000	1.000	53.36	0.000	0.000	UG2_4_11_L_0					
28 D	11.25	0.000	97.86	49.24	97.86	49.24	V-C	3143.	-5.100	7.000
1.000	1.000	56.24	0.000	0.000	UG2_4_11_L_0					
29 D	11.82	0.000	99.90	50.12	99.90	50.12	V-C	3143.	-5.300	9.000
1.000	1.000	59.12	0.000	0.000	UG2_4_11_L_0					
30 D	12.40	0.000	101.6	51.02	101.6	51.02	V-C	3143.	-5.500	11.00
1.000	1.000	62.02	0.000	0.000	UG2_4_11_L_0					
31 D	12.99	0.000	103.4	51.96	103.4	51.96	V-C	3143.	-5.700	13.00
1.000	1.000	64.96	0.000	0.000	UG3_4271_12_L_0					
32 D	13.59	0.000	105.2	52.93	105.2	52.93	V-C	3143.	-5.900	15.00
1.000	1.000	67.93	0.000	0.000	UG3_4271_12_L_0					
33 D	14.18	2.8259E-18	107.0	53.90	107.0	53.90	V-C	3143.	-6.100	17.00
1.000	1.000	70.90	0.000	0.000	UG3_4271_12_L_0					
34 D	14.77	2.8259E-18	108.7	54.84	108.7	54.84	V-C	3143.	-6.300	19.00
1.000	1.000	73.84	0.000	0.000	UG2_4_26346_L_0					
35 D	15.35	0.000	110.5	55.77	110.5	55.77	V-C	3143.	-6.500	21.00
1.000	1.000	76.77	0.000	0.000	UG2_4_26346_L_0					
36 D	15.94	0.000	112.2	56.71	112.2	56.71	V-C	3143.	-6.700	23.00
1.000	1.000	79.71	0.000	0.000	UG2_4_26346_L_0					
37 D	16.53	0.000	113.9	57.65	113.9	57.65	V-C	3143.	-6.900	25.00
1.000	1.000	82.65	0.000	0.000	UG2_4_26346_L_0					
38 D	17.12	0.000	115.7	58.60	115.7	58.60	V-C	3143.	-7.100	27.00
1.000	1.000	85.60	0.000	0.000	UG2_4_26346_L_0					
39 D	17.71	0.000	117.5	59.55	117.5	59.55	V-C	3143.	-7.300	29.00
1.000	1.000	88.55	0.000	0.000	UG2_4_26346_L_0					
40 D	18.30	0.000	119.2	60.51	119.2	60.51	V-C	3143.	-7.500	31.00
1.000	1.000	91.51	0.000	0.000	UG2_4_26346_L_0					
41 D	18.89	0.000	121.0	61.47	121.0	61.47	V-C	3143.	-7.700	33.00
1.000	1.000	94.47	0.000	0.000	UG2_4_26346_L_0					
42 D	19.49	0.000	122.8	62.43	122.8	62.43	V-C	3143.	-7.900	35.00
1.000	1.000	97.43	0.000	0.000	UG2_4_26346_L_0					
43 D	20.08	5.6518E-18	124.5	63.39	124.5	63.39	V-C	3143.	-8.100	37.00

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1.000       1.000       100.4       0.000       0.000     UG2_4_26346_L_0
  44 D   20.67       0.000       126.3       64.36       126.3       64.36            V-C   3143.      -8.300       39.00
1.000       1.000       103.4       0.000       0.000     UG2_4_26346_L_0
  45 D   21.27       0.000       128.1       65.34       128.1       65.34            V-C   3143.      -8.500       41.00
1.000       1.000       106.3       0.000       0.000     UG2_4_26346_L_0
  46 D   10.93       0.000       129.9       66.31       129.9       66.31            V-C   3143.      -8.700       43.00
1.000       1.000       109.3       0.000       0.000     UG2_4_26346_L_0


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 |                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
 |                                                                                                                       |
 |                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                           |
 |                                    Exe Time :14 May 2019      17:56:45                                                |
 +-----------------------------------------------------------------------------------------------------------------------+
 New Project


 S T R E S S   R E S U L T S   F O R   G R O U P   N O.   3

 WallElement_New_28707                                          :
 ELEMENT TYPE    2 NO.OF ELEMENTS. IN THIS GROUP   45
 C U R R E N T   T I M E   I S      1.0000

  WALL2D ELEMENT

    EL      TA          TB          MA          MB
 ---------------------------------------------------

 ***** NO ONE ELEMENT ACTIVE AT CURRENT STEP *****

 ITER      0 RNORM = 0.000     RMNORM= 0.000
             RINORM= 7736.     RIMNOR= 0.000
             RENORM= 1845.     REMNOR= 0.000     RATIO =0.4884     TOLER =0.1000E-03  NOT CONVERGED
             RFMAX = 21.10     RMMAX = 0.000
             RTSMAL=0.1000E-03 RMSMAL= 0.000
             RDT   = 7736.     RDR   = 0.000
             RATIOT=0.4884     RATIOR= 0.000
             MAX UN= 0.000     IEQ=    92 NODE     46 DOF   2   X-ROT. F
             MIN UN=-10.09     IEQ=    51 NODE     26 DOF   1  Y-DISPL.F
             NO. OF CONTACT CONSTRAINT VIOLATIONS     0


 ITER      2 RNORM = 0.000     RMNORM= 0.000
             RINORM= 7736.     RIMNOR= 0.000
             RENORM= 82.46     REMNOR=0.3245E-20 RATIO =0.1032     TOLER =0.1000E-03  NOT CONVERGED
             RFMAX = 21.10     RMMAX = 0.000
             RTSMAL=0.1000E-03 RMSMAL= 0.000
             RDT   = 7736.     RDR   = 0.000
             RATIOT=0.1032     RATIOR= 0.000
             MAX UN=0.2398E-09 IEQ=    37 NODE     19 DOF   1  Y-DISPL.F
             MIN UN=-2.779     IEQ=     7 NODE      4 DOF   1  Y-DISPL.F
             NO. OF CONTACT CONSTRAINT VIOLATIONS     0


 ITER      3 RNORM = 0.000     RMNORM= 0.000
             RINORM= 7736.     RIMNOR= 0.000
             RENORM= 90.04     REMNOR=0.2998E-19 RATIO =0.1079     TOLER =0.1000E-03  NOT CONVERGED
             RFMAX = 21.10     RMMAX = 0.000
             RTSMAL=0.1000E-03 RMSMAL= 0.000
             RDT   = 7736.     RDR   = 0.000
             RATIOT=0.1079     RATIOR= 0.000
             MAX UN=0.9649E-09 IEQ=    15 NODE      8 DOF   1  Y-DISPL.F
             MIN UN=-6.167     IEQ=    37 NODE     19 DOF   1  Y-DISPL.F
             NO. OF CONTACT CONSTRAINT VIOLATIONS     0


 ITER      4 RNORM = 0.000     RMNORM= 0.000
             RINORM= 7736.     RIMNOR= 0.000
             RENORM= 26.29     REMNOR=0.1423E-19 RATIO =0.5829E-01 TOLER =0.1000E-03  NOT CONVERGED
             RFMAX = 21.10     RMMAX = 0.000
             RTSMAL=0.1000E-03 RMSMAL= 0.000
             RDT   = 7736.     RDR   = 0.000
             RATIOT=0.5829E-01 RATIOR= 0.000
             MAX UN=0.2421     IEQ=    91 NODE     46 DOF   1  Y-DISPL.F
             MIN UN=-3.260     IEQ=    49 NODE     25 DOF   1  Y-DISPL.F
             NO. OF CONTACT CONSTRAINT VIOLATIONS     0


 ITER      5 RNORM = 0.000     RMNORM= 0.000
             RINORM= 7736.     RIMNOR= 0.000
             RENORM= 3.006     REMNOR=0.3013E-19 RATIO =0.1971E-01 TOLER =0.1000E-03  NOT CONVERGED
             RFMAX = 21.10     RMMAX = 0.000
             RTSMAL=0.1000E-03 RMSMAL= 0.000
             RDT   = 7736.     RDR   = 0.000
             RATIOT=0.1971E-01 RATIOR= 0.000
             MAX UN=0.3951     IEQ=    87 NODE     44 DOF   1  Y-DISPL.F
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           MIN UN=-1.566     IEQ=    57 NODE     29 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     6 RNORM = 0.000     RMNORM= 0.000
           RINORM= 7736.     RIMNOR= 0.000
           RENORM=0.1947E-01 REMNOR=0.2287E-19 RATIO =0.1586E-02 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 21.10     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 7736.     RDR   = 0.000
           RATIOT=0.1586E-02 RATIOR= 0.000
           MAX UN=0.5797E-01 IEQ=    85 NODE     43 DOF   1  Y-DISPL.F
           MIN UN=-.1269     IEQ=    67 NODE     34 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     7 RNORM = 0.000     RMNORM= 0.000
           RINORM= 7736.     RIMNOR= 0.000
           RENORM=0.6388E-17 REMNOR=0.1714E-19 RATIO =0.2874E-10 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 21.10     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 7736.     RDR   = 0.000
           RATIOT=0.2874E-10 RATIOR= 0.000
           MAX UN=0.8194E-09 IEQ=    31 NODE     16 DOF   1  Y-DISPL.F
           MIN UN=-.9890E-09 IEQ=    15 NODE      8 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0



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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                           |
|                                    Exe Time :14 May 2019      17:56:45                                                |
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New Project
SOLUTION REACHED USING     7 ITERATIONS ON   40

P R I N T   O U T   F O R   T I M E   S T E P    2     ( AT TIME   2.000     )

PRINT OUT OF ACTIVE COMPONENTS (FIXED NODES ARE NOT PRINTED OUT)

          Y-DISPL.F        X-ROT. F
            (02)             (04)            (
    1  -2.7812839E-02   4.0714608E-03
    2  -2.6998547E-02   4.0714608E-03
    3  -2.6184255E-02   4.0714608E-03
    4  -2.5369964E-02   4.0714452E-03
    5  -2.4555682E-02   4.0713518E-03
    6  -2.3741436E-02   4.0710557E-03
    7  -2.2927286E-02   4.0703692E-03
    8  -2.2113331E-02   4.0690405E-03
    9  -2.1299733E-02   4.0667516E-03
   10  -2.0486721E-02   4.0631173E-03
   11  -1.9674606E-02   4.0576843E-03
   12  -1.8863802E-02   4.0499299E-03
   13  -1.8054829E-02   4.0392626E-03
   14  -1.7248335E-02   4.0250220E-03
   15  -1.6445107E-02   4.0064769E-03
   16  -1.5646085E-02   3.9828212E-03
   17  -1.4852378E-02   3.9531751E-03
   18  -1.4065278E-02   3.9165863E-03
   19  -1.3286274E-02   3.8720299E-03
   20  -1.2517032E-02   3.8189756E-03
   21  -1.1759247E-02   3.7574233E-03
   22  -1.1014625E-02   3.6873734E-03
   23  -1.0284868E-02   3.6088261E-03
   24  -9.5716652E-03   3.5217806E-03
   25  -8.8767218E-03   3.4262373E-03
   26  -8.2017387E-03   3.3221679E-03
   27  -7.5484306E-03   3.2094592E-03
   28  -6.9184310E-03   3.0896576E-03
   29  -6.3128284E-03   2.9659912E-03
   30  -5.7320814E-03   2.8416212E-03
   31  -5.1760207E-03   2.7196395E-03
   32  -4.6439479E-03   2.6018241E-03
   33  -4.1349651E-03   2.4889356E-03
   34  -3.6479722E-03   2.3821071E-03
   35  -3.1816131E-03   2.2829160E-03
   36  -2.7341844E-03   2.1930459E-03
   37  -2.3036916E-03   2.1137228E-03
   38  -1.8879411E-03   2.0457124E-03
   39  -1.4846330E-03   1.9893357E-03
   40  -1.0914407E-03   1.9444814E-03
   41  -7.0610771E-04   1.9106187E-03
   42  -3.2652331E-04   1.8868044E-03
   43   4.9194064E-05   1.8716901E-03
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```
   44   4.2261483E-04   1.8635352E-03
   45   7.9493287E-04   1.8602790E-03
   46   1.1669058E-03   1.8596018E-03


+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                                   |
|                                    Exe Time :14 May 2019      17:56:45                                                        |
+-------------------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   1

0_L                                                    :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   46
C U R R E N T   T I M E   I S      2.0000

 HARDENING 2D SOIL ELEMENT

 ****** TOTAL STRESS FORMULATION *****

  EL *   FORCE      DISPL-Y  VERTICAL-P  HORIZON.-P     MAX-V-P     MAX-H-P          STATE   STIFFNESS Z-LEVEL      PORE       E
FACTOR    UFACTOR       Peq          Su_a         Su_p     LAYER
 ------------------------------------------------------------------------------------------------------------------------------
-------------------------------------------------------------------------------
   1     0.000         --          --          --          --          --          REMOVED     --       0.3000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   2     0.000         --          --          --          --          --          REMOVED     --       0.1000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   3     0.000         --          --          --          --          --          REMOVED     --      -0.1000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   4     0.000         --          --          --          --          --          REMOVED     --      -0.3000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   5     0.000         --          --          --          --          --          REMOVED     --      -0.5000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   6     0.000         --          --          --          --          --          REMOVED     --      -0.7000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   7     0.000         --          --          --          --          --          REMOVED     --      -0.9000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   8     0.000         --          --          --          --          --          REMOVED     --       -1.100       0.000
1.000       1.000       0.000       0.000       0.000     not available
   9     0.000         --          --          --          --          --          REMOVED     --       -1.300       0.000
1.000       1.000       0.000       0.000       0.000     not available
  10     0.000         --          --          --          --          --          REMOVED     --       -1.500       0.000
1.000       1.000       0.000       0.000       0.000     not available
  11     0.000         --          --          --          --          --          REMOVED     --       -1.700       0.000
1.000       1.000       0.000       0.000       0.000     not available
  12     0.000         --          --          --          --          --          REMOVED     --       -1.900       0.000
1.000       1.000       0.000       0.000       0.000     not available
  13     0.000         --          --          --          --          --          REMOVED     --       -2.100       0.000
1.000       1.000       0.000       0.000       0.000     not available
  14     0.000         --          --          --          --          --          REMOVED     --       -2.300       0.000
1.000       1.000       0.000       0.000       0.000     not available
  15     0.000         --          --          --          --          --          REMOVED     --       -2.500       0.000
1.000       1.000       0.000       0.000       0.000     not available
  16     0.000         --          --          --          --          --          REMOVED     --       -2.700       0.000
1.000       1.000       0.000       0.000       0.000     not available
  17     0.000         --          --          --          --          --          REMOVED     --       -2.900       0.000
1.000       1.000       0.000       0.000       0.000     not available
  18     0.000         --          --          --          --          --          REMOVED     --       -3.100       0.000
1.000       1.000       0.000       0.000       0.000     not available
  19     0.000         --          --          --          --          --          REMOVED     --       -3.300       0.000
1.000       1.000       0.000       0.000       0.000     not available
  20     0.000         --          --          --          --          --          REMOVED     --       -3.500       0.000
1.000       1.000       0.000       0.000       0.000     not available
  21     0.000         --          --          --          --          --          REMOVED     --       -3.700       0.000
1.000       1.000       0.000       0.000       0.000     not available
  22     0.000         --          --          --          --          --          REMOVED     --       -3.900       0.000
1.000       1.000       0.000       0.000       0.000     not available
  23     0.000         --          --          --          --          --          REMOVED     --       -4.100       0.000
1.000       1.000       0.000       0.000       0.000     not available
  24     0.000         --          --          --          --          --          REMOVED     --       -4.300       0.000
1.000       1.000       0.000       0.000       0.000     not available
  25     0.000         --          --          --          --          --          REMOVED     --       -4.500       0.000
1.000       1.000       0.000       0.000       0.000     not available
  26     0.000         --          --          --          --          --          REMOVED     --       -4.700       0.000
1.000       1.000       0.000       0.000       0.000     not available
  27 D   12.02      7.5484E-03   1.361       58.55       87.35       58.55           V-C   3143.       -4.900       1.564
1.000       1.000       60.11       0.000       0.000     UG2_4_11_L_0
  28 D   12.36      6.9184E-03   3.177       58.16       89.25       58.16           V-C   3143.       -5.100       3.648
1.000       1.000       61.81       0.000       0.000     UG2_4_11_L_0
  29 D   12.67      6.3128E-03   4.992       57.61       91.15       57.61           V-C   3143.       -5.300       5.733
1.000       1.000       63.34       0.000       0.000     UG2_4_11_L_0
  30 D   12.97      5.7321E-03   6.807       57.02       93.05       57.02           V-C   3143.       -5.500       7.818
```

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1.000     1.000      64.84      0.000      0.000     UG2_4_11_L_0
  31 D   10.41     5.1760E-03  8.697      42.14     95.02      51.96          PASSIVE  0.000      -5.700        9.903
1.000     1.000      52.04      0.000      0.000     UG3_4271_12_L_0
  32 D   12.68     4.6439E-03  10.61      51.42     97.02      52.93          PASSIVE  0.000      -5.900        11.99
1.000     1.000      63.40      0.000      0.000     UG3_4271_12_L_0
  33 D   13.94     4.1350E-03  12.53      55.60     99.02      55.60              V-C  3143.      -6.100        14.07
1.000     1.000      69.68      0.000      0.000     UG3_4271_12_L_0
  34 D   14.27     3.6480E-03  14.37      55.18     100.9      55.18              V-C  3143.      -6.300        16.16
1.000     1.000      71.34      0.000      0.000     UG2_4_26346_L_0
  35 D   14.21     3.1816E-03  16.18      52.82     102.8      55.77            UL-RL  9429.      -6.500        18.24
1.000     1.000      71.06      0.000      0.000     UG2_4_26346_L_0
  36 D   14.05     2.7342E-03  18.00      49.92     104.7      56.71            UL-RL  9429.      -6.700        20.33
1.000     1.000      70.25      0.000      0.000     UG2_4_26346_L_0
  37 D   13.91     2.3037E-03  19.81      47.15     106.6      57.65            UL-RL  9429.      -6.900        22.41
1.000     1.000      69.56      0.000      0.000     UG2_4_26346_L_0
  38 D   13.80     1.8879E-03  21.63      44.49     108.5      58.60            UL-RL  9429.      -7.100        24.50
1.000     1.000      68.99      0.000      0.000     UG2_4_26346_L_0
  39 D   13.70     1.4846E-03  23.44      41.92     110.4      59.55            UL-RL  9429.      -7.300        26.58
1.000     1.000      68.50      0.000      0.000     UG2_4_26346_L_0
  40 D   13.62     1.0914E-03  25.26      39.43     112.3      60.51            UL-RL  9429.      -7.500        28.67
1.000     1.000      68.09      0.000      0.000     UG2_4_26346_L_0
  41 D   13.55     7.0611E-04  27.07      36.99     114.2      61.47            UL-RL  9429.      -7.700        30.75
1.000     1.000      67.74      0.000      0.000     UG2_4_26346_L_0
  42 D   13.49     3.2652E-04  28.89      34.59     116.1      62.43            UL-RL  9429.      -7.900        32.84
1.000     1.000      67.43      0.000      0.000     UG2_4_26346_L_0
  43 D   13.43    -4.9194E-05  30.70      32.22     118.0      63.39            UL-RL  9429.      -8.100        34.92
1.000     1.000      67.14      0.000      0.000     UG2_4_26346_L_0
  44 D   13.37    -4.2261E-04  32.52      29.85     119.9      64.36            UL-RL  9429.      -8.300        37.01
1.000     1.000      66.86      0.000      0.000     UG2_4_26346_L_0
  45 D   13.31    -7.9493E-04  34.33      27.48     121.8      65.34            UL-RL  9429.      -8.500        39.09
1.000     1.000      66.57      0.000      0.000     UG2_4_26346_L_0
  46 D   6.629    -1.1669E-03  36.15      25.11     123.8      66.31            UL-RL  9429.      -8.700        41.18
1.000     1.000      66.29      0.000      0.000     UG2_4_26346_L_0


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 |                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
 |                                                                                                                       |
 |                             NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                            |
 |                                   Exe Time :14 May 2019        17:56:45                                               |
 +-----------------------------------------------------------------------------------------------------------------------+
 New Project


 S T R E S S    R E S U L T S    F O R    G R O U P  N O.   2

 0_R                                                                  :
 ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   46
 C U R R E N T    T I M E    I S       2.0000

  HARDENING 2D SOIL ELEMENT

  ****** TOTAL STRESS FORMULATION *****

  EL *   FORCE     DISPL-Y  VERTICAL-P  HORIZON.-P     MAX-V-P     MAX-H-P           STATE   STIFFNESS Z-LEVEL      PORE        E
FACTOR   UFACTOR       Peq           Su_a         Su_p      LAYER
 ------------------------------------------------------------------------------------------------------------------------------
 ----------------------------------------------------------------------------------------
   1     0.000        --         --         --         --         --          REMOVED     --         0.3000        0.000
1.000     1.000      0.000      0.000      0.000     not available
   2     0.000        --         --         --         --         --          REMOVED     --         0.1000        0.000
1.000     1.000      0.000      0.000      0.000     not available
   3 D  0.1055    -2.6184E-02  1.850      0.5272     1.850      0.9250           ACTIVE  0.000      -0.1000       0.000
1.000     1.000      0.5272     0.000      0.000     UG0_2_10_L_0
   4 D  0.3163    -2.5370E-02  5.550      1.582      5.550      2.775            ACTIVE  0.000      -0.3000       0.000
1.000     1.000      1.582      0.000      0.000     UG0_2_10_L_0
   5 D  0.5279    -2.4556E-02  9.261      2.639      9.261      5.851            ACTIVE  0.000      -0.5000       0.000
1.000     1.000      2.639      0.000      0.000     UG0_2_10_L_0
   6 D  0.7427    -2.3741E-02  13.03      3.713      13.03      8.806            ACTIVE  0.000      -0.7000       0.000
1.000     1.000      3.713      0.000      0.000     UG0_2_10_L_0
   7 D  0.9628    -2.2927E-02  16.89      4.814      16.89      11.56            ACTIVE  0.000      -0.9000       0.000
1.000     1.000      4.814      0.000      0.000     UG0_2_10_L_0
   8 D  1.188     -2.2113E-02  20.85      5.942      20.85      14.07            ACTIVE  0.000      -1.100        0.000
1.000     1.000      5.942      0.000      0.000     UG0_2_10_L_0
   9 D  1.418     -2.1300E-02  24.89      7.092      24.89      16.36            ACTIVE  0.000      -1.300        0.000
1.000     1.000      7.092      0.000      0.000     UG0_2_10_L_0
  10 D  1.651     -2.0487E-02  28.97      8.256      28.97      18.46            ACTIVE  0.000      -1.500        0.000
1.000     1.000      8.256      0.000      0.000     UG0_2_10_L_0
  11 D  1.885     -1.9675E-02  33.07      9.426      33.07      20.40            ACTIVE  0.000      -1.700        0.000
1.000     1.000      9.426      0.000      0.000     UG0_2_10_L_0
  12 D  2.119     -1.8864E-02  37.17      10.59      37.17      22.24            ACTIVE  0.000      -1.900        0.000
1.000     1.000      10.59      0.000      0.000     UG0_2_10_L_0
  13 D  2.351     -1.8055E-02  41.25      11.76      41.25      23.99            ACTIVE  0.000      -2.100        0.000
1.000     1.000      11.76      0.000      0.000     UG0_2_10_L_0
  14 D  2.598     -1.7248E-02  45.58      12.99      45.58      25.69            ACTIVE  0.000      -2.300        0.000
1.000     1.000      12.99      0.000      0.000     UG0_2_10_L_0
  15 D  2.856     -1.6445E-02  50.11      14.28      50.11      27.35            ACTIVE  0.000      -2.500        0.000
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1.000       1.000       14.28       0.000       0.000     UG0_2_10_L_0
  16 D   3.100     -1.5646E-02   54.38       15.50       54.38       29.00          ACTIVE   0.000      -2.700       0.000
1.000       1.000       15.50       0.000       0.000     UG0_2_10_L_0
  17 D   3.347     -1.4852E-02   58.71       16.73       58.71       30.64          ACTIVE   0.000      -2.900       0.000
1.000       1.000       16.73       0.000       0.000     UG0_2_10_L_0
  18 D   3.589     -1.4065E-02   62.97       17.95       62.97       32.27          ACTIVE   0.000      -3.100       0.000
1.000       1.000       17.95       0.000       0.000     UG0_2_10_L_0
  19 D   0.000     -1.3286E-02   67.15       0.000       67.15       35.85          ACTIVE   0.000      -3.300       0.000
1.000       1.000       0.000       0.000       0.000     UG2_4_11_L_0
  20 D   0.000     -1.2517E-02   71.50       0.000       71.50       37.71          ACTIVE   0.000      -3.500       0.000
1.000       1.000       0.000       0.000       0.000     UG2_4_11_L_0
  21 D   0.000     -1.1759E-02   75.70       0.000       75.70       39.58          ACTIVE   0.000      -3.700       0.000
1.000       1.000       0.000       0.000       0.000     UG2_4_11_L_0
  22 D   0.000     -1.1015E-02   79.97       0.000       79.97       41.46          ACTIVE   0.000      -3.900       0.000
1.000       1.000       0.000       0.000       0.000     UG2_4_11_L_0
  23 D   0.000     -1.0285E-02   84.20       0.000       84.20       43.35          ACTIVE   0.000      -4.100       0.000
1.000       1.000       0.000       0.000       0.000     UG2_4_11_L_0
  24 D   0.000     -9.5717E-03   88.32       0.000       88.32       45.25          ACTIVE   0.000      -4.300       0.000
1.000       1.000       0.000       0.000       0.000     UG2_4_11_L_0
  25 D  0.1915     -8.8767E-03   91.55       0.000       91.55       46.65          ACTIVE   0.000      -4.500      0.9576
1.000       1.000      0.9576       0.000       0.000     UG2_4_11_L_0
  26 D  0.5745     -8.2017E-03   93.80       0.000       93.80       47.56          ACTIVE   0.000      -4.700       2.873
1.000       1.000       2.873       0.000       0.000     UG2_4_11_L_0
  27 D  0.9858     -7.5484E-03   95.95      0.1409       95.95       48.47          ACTIVE   0.000      -4.900       4.788
1.000       1.000       4.929       0.000       0.000     UG2_4_11_L_0
  28 D   1.543     -6.9184E-03   98.16       1.012       98.16       49.39          ACTIVE   0.000      -5.100       6.703
1.000       1.000       7.715       0.000       0.000     UG2_4_11_L_0
  29 D   2.094     -6.3128E-03   100.3       1.850       100.3       50.33          ACTIVE   0.000      -5.300       8.618
1.000       1.000       10.47       0.000       0.000     UG2_4_11_L_0
  30 D   2.616     -5.7321E-03   102.1       2.547       102.1       51.27          ACTIVE   0.000      -5.500       10.53
1.000       1.000       13.08       0.000       0.000     UG2_4_11_L_0
  31 D   8.724     -5.1760E-03   103.9       31.17       103.9       52.26          ACTIVE   0.000      -5.700       12.45
1.000       1.000       43.62       0.000       0.000     UG3_4271_12_L_0
  32 D   9.221     -4.6439E-03   105.8       31.74       105.8       53.27          ACTIVE   0.000      -5.900       14.36
1.000       1.000       46.10       0.000       0.000     UG3_4271_12_L_0
  33 D   9.718     -4.1350E-03   107.7       32.31       107.7       54.28          ACTIVE   0.000      -6.100       16.28
1.000       1.000       48.59       0.000       0.000     UG3_4271_12_L_0
  34 D   7.813     -3.6480E-03   109.5       20.87       109.5       55.27           UL-RL   9429.      -6.300       18.19
1.000       1.000       39.07       0.000       0.000     UG2_4_26346_L_0
  35 D   9.271     -3.1816E-03   111.4       26.25       111.4       56.25           UL-RL   9429.      -6.500       20.11
1.000       1.000       46.35       0.000       0.000     UG2_4_26346_L_0
  36 D   10.69     -2.7342E-03   113.2       31.45       113.2       57.23           UL-RL   9429.      -6.700       22.02
1.000       1.000       53.47       0.000       0.000     UG2_4_26346_L_0
  37 D   12.09     -2.3037E-03   115.0       36.49       115.0       58.21           UL-RL   9429.      -6.900       23.94
1.000       1.000       60.43       0.000       0.000     UG2_4_26346_L_0
  38 D   13.45     -1.8879E-03   116.8       41.41       116.8       59.21           UL-RL   9429.      -7.100       25.85
1.000       1.000       67.26       0.000       0.000     UG2_4_26346_L_0
  39 D   14.79     -1.4846E-03   118.7       46.21       118.7       60.20           UL-RL   9429.      -7.300       27.77
1.000       1.000       73.97       0.000       0.000     UG2_4_26346_L_0
  40 D   16.12     -1.0914E-03   120.5       50.91       120.5       61.20           UL-RL   9429.      -7.500       29.68
1.000       1.000       80.60       0.000       0.000     UG2_4_26346_L_0
  41 D   17.43     -7.0611E-04   122.4       55.55       122.4       62.21           UL-RL   9429.      -7.700       31.60
1.000       1.000       87.15       0.000       0.000     UG2_4_26346_L_0
  42 D   18.73     -3.2652E-04   124.2       60.14       124.2       63.22           UL-RL   9429.      -7.900       33.52
1.000       1.000       93.65       0.000       0.000     UG2_4_26346_L_0
  43 D   19.96      4.9194E-05   126.1       64.38       126.1       64.38             V-C   3143.      -8.100       35.43
1.000       1.000       99.81       0.000       0.000     UG2_4_26346_L_0
  44 D   20.78      4.2261E-04   128.0       66.57       128.0       66.57             V-C   3143.      -8.300       37.35
1.000       1.000       103.9       0.000       0.000     UG2_4_26346_L_0
  45 D   21.60      7.9493E-04   129.8       68.76       129.8       68.76             V-C   3143.      -8.500       39.26
1.000       1.000       108.0       0.000       0.000     UG2_4_26346_L_0
  46 D   11.21      1.1669E-03   131.7       70.95       131.7       70.95             V-C   3143.      -8.700       41.18
1.000       1.000       112.1       0.000       0.000     UG2_4_26346_L_0


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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                         |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                             |
|                                    Exe Time :14 May 2019       17:56:45                                                 |
+-------------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   3

WallElement_New_28707                                  :
ELEMENT TYPE    2 NO.OF ELEMENTS. IN THIS GROUP   45
C U R R E N T   T I M E   I S      2.0000

 WALL2D ELEMENT

   EL      TA          TB          MA          MB
-------------------------------------------------------
    1-4.99497E-10 4.99497E-10-5.01501E-11 5.28360E-11
    2 2.00970E-10-2.00970E-10-8.25304E-11 1.84185E-10
    3-0.10545     0.10545    -1.92021E-10-2.10900E-02
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     4-0.42180     0.42180     2.10900E-02-0.10545
     5-0.94966     0.94966     0.10545    -0.29538
     6 -1.6923      1.6923     0.29538    -0.63385
     7 -2.6551      2.6551     0.63385     -1.1649
     8 -3.8436      3.8436      1.1649     -1.9336
     9 -5.2621      5.2621      1.9336     -2.9860
    10 -6.9133      6.9133      2.9860     -4.3687
    11 -8.7984      8.7984      4.3687     -6.1284
    12 -10.917      10.917      6.1284     -8.3118
    13 -13.269      13.269      8.3118     -10.966
    14 -15.867      15.867      10.966     -14.139
    15 -18.723      18.723      14.139     -17.884
    16 -21.823      21.823      17.884     -22.248
    17 -25.169      25.169      22.248     -27.282
    18 -28.759      28.759      27.282     -33.034
    19 -28.759      28.759      33.034     -38.785
    20 -28.759      28.759      38.785     -44.537
    21 -28.759      28.759      44.537     -50.289
    22 -28.759      28.759      50.289     -56.040
    23 -28.759      28.759      56.040     -61.792
    24 -28.759      28.759      61.792     -67.544
    25 -28.950      28.950      67.544     -73.334
    26 -29.525      29.525      73.334     -79.239
    27 -18.487      18.487      79.239     -82.936
    28 -7.6680      7.6680      82.936     -84.470
    29  2.9065     -2.9065      84.470     -83.889
    30  13.258     -13.258      83.889     -81.237
    31  14.942     -14.942      81.237     -78.249
    32  18.402     -18.402      78.249     -74.568
    33  22.619     -22.619      74.568     -70.044
    34  29.074     -29.074      70.044     -64.230
    35  34.015     -34.015      64.230     -57.427
    36  37.372     -37.372      57.427     -49.952
    37  39.198     -39.198      49.952     -42.113
    38  39.543     -39.543      42.113     -34.204
    39  38.448     -38.448      34.204     -26.515
    40  35.947     -35.947      26.515     -19.325
    41  32.065     -32.065      19.325     -12.912
    42  26.820     -26.820      12.912     -7.5481
    43  20.284     -20.284      7.5481     -3.4912
    44  12.872     -12.872      3.4912    -0.91672
    45  4.5835     -4.5835     0.91672    -2.17426E-12


+-------------------------------------------------------------------------------------------------------------------------+
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                            NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                               |
|                                  Exe Time :14 May 2019       17:56:45                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


     F I N A L    I N C R E M E N T A L    A N A L Y S I S

                    S U M M A R Y

     STEP                                  NO. OF ITERATIONS

        1           CONVERGENCE :YES                       2
        2           CONVERGENCE :YES                       7


  END OF PROCESS FOR PROBLEM
 New Project
 NONLINEAR SOLUTION CPU TIME ....     0.05 [sec]
 DATABASE  CREATION CPU TIME.....     0.09 [sec]
```

7.4. Design Assumption : NTC2018: A2+M2+R1 - File di Paratie - File di output (.out)

```
+-------------------------------------------------------------------------------------------------------------------------+
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                     |
|                                  Exe Time :14 May 2019       17:56:45                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


                  ***********************************************************
                  *                                                         *
                  *  PARATIE PLUS Non-Linear Spring Engine                  *
                  *                                                         *
                  *          AN ELASTOPLASTIC FINITE ELEMENT PROGRAM        *
                  *          FOR FLEXIBLE EARTH-RETAINING STRUCTURES        *
                  *                                                         *
                  *          Written by Ce.A.S. s.r.l. (ITALY)              *
                  *          with the scientific supervision of             *
```

```
*          Roberto Nova - full professor SOIL MECHANICS  *
*          at Politecnico di Milano (ITALY)              *
*                                                        *
**********************************************************
*                                                        *
*  RELEASE   2018.1     *Build date:Jun 29, 2018*    *
*                                                        *
*                                                        *
*  Ce.A.S.     S.R.L   CENTRO DI ANALISI STRUTTURALE     *
*              VIALE   GIUSTINIANO 10                    *
*              20129   M I L A N O  (ITALIA)             *
*  TEL.        +39 02 2020221                            *
*                                                        *
*  email       bruno.becci@ceas.it                       *
*  Web Page    www.ceas.it     www.paratieplus.com       *
**********************************************************



 JOB : NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178
 STARTING
ACCEPTED   &lt;FILE,GENW                                                                    &gt;
ACCEPTED   &lt;FILE,PLOTTER,BINARY                                                          &gt;
ACCEPTED   &lt;SOLVE TOTAL_STRESS                                                           &gt;
ACCEPTED   &lt;PARAM ITEMAX 40                                                              &gt;
ACCEPTED   &lt;CONTROL HINGES 0 0.0001 0.001                                                &gt;


                **********************************************************
                *                                                        *
                *  WARNING : PORE PRESSURES ARE AUTOMATICALLY COMPUTED   *
                *    BY THE PROGRAM.                                     *
                **********************************************************

PRELIMINARY OPERATIONS CPU TIME     0.00 [sec]


+-----------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                   |
|                                                                                                                             |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                         |
|                                  Exe Time :14 May 2019       17:56:45                                                       |
+-----------------------------------------------------------------------------------------------------------------------------+


INPUT FILE HAS BEEN GENERATED BY WALGEN PROGRAM


New Project


NO. OF NODAL POINTS (NUMNP) ...................    46
NO. OF COORDINATES  (NCOORD)...................     2
NO. OF NODE DOFS    (NDOF).....................     2
NO. OF EQUATIONS    (NEQ)......................    92
NO. OF CONSTRAINTS CARDS (NVINC)...............     0
NO. OF ELEMENT GROUPS (NEG)....................     3
NO. OF SOLUTION STEPS (NSTE)...................     2
NO. OF ELEMENT SETS ATTACHED TO SLAVE NODES ...     0
NO. OF RECORD FROM WALGEN .....................   100
NO. OF LONG NAMES (LASTNAME) ..................    13
LENGTH UNIT CHOICE ............................     3 (M   )
FORCE  UNIT CHOICE ............................     3 (KN  )
MAX PORE PRESSURE TABLE LENGTH.................     1
NO. OF ELEMENT GROUPS REQUIRING ADD. SLIP DOF .     0


IDOFA (01) =  2  Y-DISPL.F
IDOFA (02) =  4   X-ROT. F

 RELEVANT ITEMS UNITS

 STRESSES                  kPa
 Y-DISPLACEMENTS           m
 ROTATIONS                 RADIANS
 BEAM AND SLAB MOMENTS     kN*m/m
 BEAM SHEAR FORCES         kN/m
 ANCHOR FORCES             kN/m
 AXIAL FORCES IN TRUSSES   kN/m
 AXIAL FORCES SPRINGS      kN/m
 Y-REACTIONS               kN/m
 X-MOMENT REACTIONS        kN*m/m
 ETC.
```

```
+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                     |
|                                  Exe Time :14 May 2019       17:56:45                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
                   P R E P R O C E S S O R     D A T A

                   N O.  O F   C O M M A N D S    100

    1 : UNIT  m kN
    2 : TITLE New Project
    3 : DELTA 0.2
    4 : option param itemax 40
    5 : option control hinges 0 0.0001 0.001
    6 : WALL LeftWall_32 0 -8.7 0.3 -1
    7 : SOIL 0_L LeftWall_32 -8.7 0.3 2 0
    8 : SOIL 0_R LeftWall_32 -8.7 0.3 1 180
    9 : LDATA UG0_2_10_L_0 0 LeftWall_32
   10 : ATREST 0.5 0.5 1
   11 : WEIGHT 18.5 8.5 10
   12 : PERMEABILITY 0.0001
   13 : RESISTANCE 0 35 0 0 0
   14 : WINKLER 3143 9429.1
   15 : ENDL
   16 : LDATA UG2_4_11_L_0 -3.2 LeftWall_32
   17 : ATREST 0.531 0.5 1
   18 : WEIGHT 19.5 9.5 10
   19 : PERMEABILITY 1E-07
   20 : RESISTANCE 30 25 0 0 0
   21 : WINKLER 3143 9429.1
   22 : ENDL
   23 : LDATA UG3_4271_12_L_0 -5.55 LeftWall_32
   24 : ATREST 0.531 0.5 1
   25 : WEIGHT 20 10 10
   26 : PERMEABILITY 1E-07
   27 : RESISTANCE 0 32 0 0 0
   28 : WINKLER 3143 9429.1
   29 : ENDL
   30 : LDATA UG2_4_26346_L_0 -6.15 LeftWall_32
   31 : ATREST 0.531 0.5 1
   32 : WEIGHT 19.5 9.5 10
   33 : PERMEABILITY 1E-07
   34 : RESISTANCE 30 25 0 0 0
   35 : WINKLER 3143 9429.1
   36 : ENDL
   37 : MATERIAL S275_115 2.1E+08
   38 : BEAM WallElement_New_28707 LeftWall_32 -8.7 0.3 S275_115 0.19777 00 00 0
   39 : STRIP LeftWall_32 1 2 1.45 3.55 -0.3 20 45
   40 : STEP Stage1_31
   41 : CHANGE UG0_2_10_L_0 U-FRICT=29.256 LeftWall_32
   42 : CHANGE UG0_2_10_L_0 D-FRICT=29.256 LeftWall_32
   43 : CHANGE UG0_2_10_L_0 U-KA=0.364 LeftWall_32
   44 : CHANGE UG0_2_10_L_0 U-KP=3.314 LeftWall_32
   45 : CHANGE UG0_2_10_L_0 D-KA=0.318 LeftWall_32
   46 : CHANGE UG0_2_10_L_0 D-KP=3.613 LeftWall_32
   47 : CHANGE UG2_4_11_L_0 U-FRICT=20.458 LeftWall_32
   48 : CHANGE UG2_4_11_L_0 D-FRICT=20.458 LeftWall_32
   49 : CHANGE UG2_4_11_L_0 U-KA=0.466 LeftWall_32
   50 : CHANGE UG2_4_11_L_0 U-KP=1.913 LeftWall_32
   51 : CHANGE UG2_4_11_L_0 D-KA=0.449 LeftWall_32
   52 : CHANGE UG2_4_11_L_0 D-KP=2.334 LeftWall_32
   53 : CHANGE UG3_4271_12_L_0 U-FRICT=26.56 LeftWall_32
   54 : CHANGE UG3_4271_12_L_0 D-FRICT=26.56 LeftWall_32
   55 : CHANGE UG3_4271_12_L_0 U-KA=0.372 LeftWall_32
   56 : CHANGE UG3_4271_12_L_0 U-KP=2.553 LeftWall_32
   57 : CHANGE UG3_4271_12_L_0 D-KA=0.357 LeftWall_32
   58 : CHANGE UG3_4271_12_L_0 D-KP=3.246 LeftWall_32
   59 : CHANGE UG2_4_26346_L_0 U-FRICT=20.458 LeftWall_32
   60 : CHANGE UG2_4_26346_L_0 D-FRICT=20.458 LeftWall_32
   61 : CHANGE UG2_4_26346_L_0 U-KA=0.446 LeftWall_32
   62 : CHANGE UG2_4_26346_L_0 U-KP=1.834 LeftWall_32
   63 : CHANGE UG2_4_26346_L_0 D-KA=0.46 LeftWall_32
   64 : CHANGE UG2_4_26346_L_0 D-KP=2.412 LeftWall_32
   65 : CHANGE UG0_2_10_L_0 U-COHE=0 LeftWall_32
   66 : CHANGE UG0_2_10_L_0 U-ADHES=0 LeftWall_32
   67 : CHANGE UG0_2_10_L_0 D-COHE=0 LeftWall_32
   68 : CHANGE UG0_2_10_L_0 D-ADHES=0 LeftWall_32
   69 : CHANGE UG2_4_11_L_0 U-COHE=24 LeftWall_32
   70 : CHANGE UG2_4_11_L_0 U-ADHES=0 LeftWall_32
   71 : CHANGE UG2_4_11_L_0 D-COHE=24 LeftWall_32
   72 : CHANGE UG2_4_11_L_0 D-ADHES=0 LeftWall_32
   73 : CHANGE UG3_4271_12_L_0 U-COHE=0 LeftWall_32
   74 : CHANGE UG3_4271_12_L_0 U-ADHES=0 LeftWall_32
   75 : CHANGE UG3_4271_12_L_0 D-COHE=0 LeftWall_32
   76 : CHANGE UG3_4271_12_L_0 D-ADHES=0 LeftWall_32
   77 : CHANGE UG2_4_26346_L_0 U-COHE=24 LeftWall_32
```

```
  78 : CHANGE UG2_4_26346_L_0 U-ADHES=0 LeftWall_32
  79 : CHANGE UG2_4_26346_L_0 D-COHE=24 LeftWall_32
  80 : CHANGE UG2_4_26346_L_0 D-ADHES=0 LeftWall_32
  81 : SETWALL LeftWall_32
  82 : GEOM 0 0
  83 : SURCHARGE 0 0 0 0
  84 : WATER -4.4 0 -8.7 0 0
  85 : ENDSTEP
  86 : STEP Stage2_28513
  87 : CHANGE UG0_2_10_L_0 D-KA=0.343 LeftWall_32
  88 : CHANGE UG0_2_10_L_0 D-KP=4.102 LeftWall_32
  89 : CHANGE UG2_4_11_L_0 D-KA=0.482 LeftWall_32
  90 : CHANGE UG2_4_11_L_0 D-KP=2.535 LeftWall_32
  91 : CHANGE UG3_4271_12_L_0 D-KA=0.382 LeftWall_32
  92 : CHANGE UG3_4271_12_L_0 D-KP=3.512 LeftWall_32
  93 : CHANGE UG2_4_26346_L_0 D-KA=0.482 LeftWall_32
  94 : CHANGE UG2_4_26346_L_0 D-KP=2.535 LeftWall_32
  95 : SETWALL LeftWall_32
  96 : GEOM 0 -4.75
  97 : SURCHARGE 0 0 0 0
  98 : WATER -4.4 0.35 -8.7 0 0
  99 : ADD WallElement_New_28707
 100 : ENDSTEP


+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                   |
|                                  Exe Time :14 May 2019       17:56:45                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
N O D A L    P O I N T    D A T A
---------------------------------

NODE     Y-COORD     Z-COORD / NODE     Y-COORD     Z-COORD / NODE     Y-COORD     Z-COORD / NODE     Y-COORD     Z-COORD /

   1  0.0000     0.30000     /    2  0.0000     0.10000     /    3  0.0000    -0.10000     /    4  0.0000    -0.30000     /
   5  0.0000    -0.50000     /    6  0.0000    -0.70000     /    7  0.0000    -0.90000     /    8  0.0000     -1.1000     /
   9  0.0000     -1.3000     /   10  0.0000     -1.5000     /   11  0.0000     -1.7000     /   12  0.0000     -1.9000     /
  13  0.0000     -2.1000     /   14  0.0000     -2.3000     /   15  0.0000     -2.5000     /   16  0.0000     -2.7000     /
  17  0.0000     -2.9000     /   18  0.0000     -3.1000     /   19  0.0000     -3.3000     /   20  0.0000     -3.5000     /
  21  0.0000     -3.7000     /   22  0.0000     -3.9000     /   23  0.0000     -4.1000     /   24  0.0000     -4.3000     /
  25  0.0000     -4.5000     /   26  0.0000     -4.7000     /   27  0.0000     -4.9000     /   28  0.0000     -5.1000     /
  29  0.0000     -5.3000     /   30  0.0000     -5.5000     /   31  0.0000     -5.7000     /   32  0.0000     -5.9000     /
  33  0.0000     -6.1000     /   34  0.0000     -6.3000     /   35  0.0000     -6.5000     /   36  0.0000     -6.7000     /
  37  0.0000     -6.9000     /   38  0.0000     -7.1000     /   39  0.0000     -7.3000     /   40  0.0000     -7.5000     /
  41  0.0000     -7.7000     /   42  0.0000     -7.9000     /   43  0.0000     -8.1000     /   44  0.0000     -8.3000     /
  45  0.0000     -8.5000     /   46  0.0000     -8.7000     /


+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                   |
|                                  Exe Time :14 May 2019       17:56:45                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  1

0_L                                                    :
   5  46   0   1   0   0   0   0   0   0   0   0   0   0   0   4   0   0   0   0
.....................................
..........2D PLASTIC SOIL ..........
.....................................

element group behaviour throughout stage analysis

stage   status
------------------
    1   active
    2   active

 material set no.    1

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  1.00000


 material set no.    2

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  2.00000


 material set no.    3

 prop( 1) angle              0.00000
```

```
 prop( 2) layer as foreseen  3.00000


 material set no.    4

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  4.00000


 element data

   el    n  mat      area      .....     .....     .....      flag
-------------------------------------------------------------------

    1    1    1   0.1000      0.000     0.000     0.000     2.000
    2    2    1   0.2000      0.000     0.000     0.000     2.000
    3    3    1   0.2000      0.000     0.000     0.000     2.000
    4    4    1   0.2000      0.000     0.000     0.000     2.000
    5    5    1   0.2000      0.000     0.000     0.000     2.000
    6    6    1   0.2000      0.000     0.000     0.000     2.000
    7    7    1   0.2000      0.000     0.000     0.000     2.000
    8    8    1   0.2000      0.000     0.000     0.000     2.000
    9    9    1   0.2000      0.000     0.000     0.000     2.000
   10   10    1   0.2000      0.000     0.000     0.000     2.000
   11   11    1   0.2000      0.000     0.000     0.000     2.000
   12   12    1   0.2000      0.000     0.000     0.000     2.000
   13   13    1   0.2000      0.000     0.000     0.000     2.000
   14   14    1   0.2000      0.000     0.000     0.000     2.000
   15   15    1   0.2000      0.000     0.000     0.000     2.000
   16   16    1   0.2000      0.000     0.000     0.000     2.000
   17   17    1   0.2000      0.000     0.000     0.000     2.000
   18   18    1   0.2000      0.000     0.000     0.000     2.000
   19   19    2   0.2000      0.000     0.000     0.000     2.000
   20   20    2   0.2000      0.000     0.000     0.000     2.000
   21   21    2   0.2000      0.000     0.000     0.000     2.000
   22   22    2   0.2000      0.000     0.000     0.000     2.000
   23   23    2   0.2000      0.000     0.000     0.000     2.000
   24   24    2   0.2000      0.000     0.000     0.000     2.000
   25   25    2   0.2000      0.000     0.000     0.000     2.000
   26   26    2   0.2000      0.000     0.000     0.000     2.000
   27   27    2   0.2000      0.000     0.000     0.000     2.000
   28   28    2   0.2000      0.000     0.000     0.000     2.000
   29   29    2   0.2000      0.000     0.000     0.000     2.000
   30   30    2   0.2000      0.000     0.000     0.000     2.000
   31   31    3   0.2000      0.000     0.000     0.000     2.000
   32   32    3   0.2000      0.000     0.000     0.000     2.000
   33   33    3   0.2000      0.000     0.000     0.000     2.000
   34   34    4   0.2000      0.000     0.000     0.000     2.000
   35   35    4   0.2000      0.000     0.000     0.000     2.000
   36   36    4   0.2000      0.000     0.000     0.000     2.000
   37   37    4   0.2000      0.000     0.000     0.000     2.000
   38   38    4   0.2000      0.000     0.000     0.000     2.000
   39   39    4   0.2000      0.000     0.000     0.000     2.000
   40   40    4   0.2000      0.000     0.000     0.000     2.000
   41   41    4   0.2000      0.000     0.000     0.000     2.000
   42   42    4   0.2000      0.000     0.000     0.000     2.000
   43   43    4   0.2000      0.000     0.000     0.000     2.000
   44   44    4   0.2000      0.000     0.000     0.000     2.000
   45   45    4   0.2000      0.000     0.000     0.000     2.000
   46   46    4   0.1000      0.000     0.000     0.000     2.000


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                         |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                     |
|                                  Exe Time :14 May 2019       17:56:45                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  2

0_R                                                    :
   5  46   0   1   0   0   0   0   0   0   0   0   0   0   0   4   0   0   0   0
.....................................
..........2D PLASTIC SOIL ..........
.....................................

element group behaviour throughout stage analysis

stage   status
------------------
    1   active
    2   active

 material set no.    1

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  1.00000
```

```
 material set no.    2

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  2.00000


 material set no.    3

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  3.00000


 material set no.    4

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  4.00000


 element data

   el    n  mat      area      .....     .....     .....      flag
-------------------------------------------------------------------

    1    1    1   0.1000     0.000     0.000     0.000     1.000
    2    2    1   0.2000     0.000     0.000     0.000     1.000
    3    3    1   0.2000     0.000     0.000     0.000     1.000
    4    4    1   0.2000     0.000     0.000     0.000     1.000
    5    5    1   0.2000     0.000     0.000     0.000     1.000
    6    6    1   0.2000     0.000     0.000     0.000     1.000
    7    7    1   0.2000     0.000     0.000     0.000     1.000
    8    8    1   0.2000     0.000     0.000     0.000     1.000
    9    9    1   0.2000     0.000     0.000     0.000     1.000
   10   10    1   0.2000     0.000     0.000     0.000     1.000
   11   11    1   0.2000     0.000     0.000     0.000     1.000
   12   12    1   0.2000     0.000     0.000     0.000     1.000
   13   13    1   0.2000     0.000     0.000     0.000     1.000
   14   14    1   0.2000     0.000     0.000     0.000     1.000
   15   15    1   0.2000     0.000     0.000     0.000     1.000
   16   16    1   0.2000     0.000     0.000     0.000     1.000
   17   17    1   0.2000     0.000     0.000     0.000     1.000
   18   18    1   0.2000     0.000     0.000     0.000     1.000
   19   19    2   0.2000     0.000     0.000     0.000     1.000
   20   20    2   0.2000     0.000     0.000     0.000     1.000
   21   21    2   0.2000     0.000     0.000     0.000     1.000
   22   22    2   0.2000     0.000     0.000     0.000     1.000
   23   23    2   0.2000     0.000     0.000     0.000     1.000
   24   24    2   0.2000     0.000     0.000     0.000     1.000
   25   25    2   0.2000     0.000     0.000     0.000     1.000
   26   26    2   0.2000     0.000     0.000     0.000     1.000
   27   27    2   0.2000     0.000     0.000     0.000     1.000
   28   28    2   0.2000     0.000     0.000     0.000     1.000
   29   29    2   0.2000     0.000     0.000     0.000     1.000
   30   30    2   0.2000     0.000     0.000     0.000     1.000
   31   31    3   0.2000     0.000     0.000     0.000     1.000
   32   32    3   0.2000     0.000     0.000     0.000     1.000
   33   33    3   0.2000     0.000     0.000     0.000     1.000
   34   34    4   0.2000     0.000     0.000     0.000     1.000
   35   35    4   0.2000     0.000     0.000     0.000     1.000
   36   36    4   0.2000     0.000     0.000     0.000     1.000
   37   37    4   0.2000     0.000     0.000     0.000     1.000
   38   38    4   0.2000     0.000     0.000     0.000     1.000
   39   39    4   0.2000     0.000     0.000     0.000     1.000
   40   40    4   0.2000     0.000     0.000     0.000     1.000
   41   41    4   0.2000     0.000     0.000     0.000     1.000
   42   42    4   0.2000     0.000     0.000     0.000     1.000
   43   43    4   0.2000     0.000     0.000     0.000     1.000
   44   44    4   0.2000     0.000     0.000     0.000     1.000
   45   45    4   0.2000     0.000     0.000     0.000     1.000
   46   46    4   0.1000     0.000     0.000     0.000     1.000


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                         |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                     |
|                                  Exe Time :14 May 2019       17:56:45                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  3

WallElement_New_28707                                    :
   2  45   0   1   0   0   0   0   0   0   0   0   0   0   1   0   0   1   0
.....................................
.........2D WALL ELEMENT...........
.....................................
```

```
element group behaviour throughout stage analysis

stage   status
------------------
    1  inactive
    2   active

 material set no.    1

 prop( 1) young modulus      0.210000E+09
 prop( 2) modification  time  0.00000
 prop( 3) new young modulus   0.00000
 prop( 4) poisson ratio       0.00000
 prop( 5) future ..... 0.00000

 no. of step variable items:     1
 step  inertia multipier
-------------------------
    1   1.000
    2   1.000

 element data
```

el	na	nb	mat	erc1	erc2	thick	by-i	by-j
1	1	2	1	0.000	0.000	0.1978	0.000	0.000
2	2	3	1	0.000	0.000	0.1978	0.000	0.000
3	3	4	1	0.000	0.000	0.1978	0.000	0.000
4	4	5	1	0.000	0.000	0.1978	0.000	0.000
5	5	6	1	0.000	0.000	0.1978	0.000	0.000
6	6	7	1	0.000	0.000	0.1978	0.000	0.000
7	7	8	1	0.000	0.000	0.1978	0.000	0.000
8	8	9	1	0.000	0.000	0.1978	0.000	0.000
9	9	10	1	0.000	0.000	0.1978	0.000	0.000
10	10	11	1	0.000	0.000	0.1978	0.000	0.000
11	11	12	1	0.000	0.000	0.1978	0.000	0.000
12	12	13	1	0.000	0.000	0.1978	0.000	0.000
13	13	14	1	0.000	0.000	0.1978	0.000	0.000
14	14	15	1	0.000	0.000	0.1978	0.000	0.000
15	15	16	1	0.000	0.000	0.1978	0.000	0.000
16	16	17	1	0.000	0.000	0.1978	0.000	0.000
17	17	18	1	0.000	0.000	0.1978	0.000	0.000
18	18	19	1	0.000	0.000	0.1978	0.000	0.000
19	19	20	1	0.000	0.000	0.1978	0.000	0.000
20	20	21	1	0.000	0.000	0.1978	0.000	0.000
21	21	22	1	0.000	0.000	0.1978	0.000	0.000
22	22	23	1	0.000	0.000	0.1978	0.000	0.000
23	23	24	1	0.000	0.000	0.1978	0.000	0.000
24	24	25	1	0.000	0.000	0.1978	0.000	0.000
25	25	26	1	0.000	0.000	0.1978	0.000	0.000
26	26	27	1	0.000	0.000	0.1978	0.000	0.000
27	27	28	1	0.000	0.000	0.1978	0.000	0.000
28	28	29	1	0.000	0.000	0.1978	0.000	0.000
29	29	30	1	0.000	0.000	0.1978	0.000	0.000
30	30	31	1	0.000	0.000	0.1978	0.000	0.000
31	31	32	1	0.000	0.000	0.1978	0.000	0.000
32	32	33	1	0.000	0.000	0.1978	0.000	0.000
33	33	34	1	0.000	0.000	0.1978	0.000	0.000
34	34	35	1	0.000	0.000	0.1978	0.000	0.000
35	35	36	1	0.000	0.000	0.1978	0.000	0.000
36	36	37	1	0.000	0.000	0.1978	0.000	0.000
37	37	38	1	0.000	0.000	0.1978	0.000	0.000
38	38	39	1	0.000	0.000	0.1978	0.000	0.000
39	39	40	1	0.000	0.000	0.1978	0.000	0.000
40	40	41	1	0.000	0.000	0.1978	0.000	0.000
41	41	42	1	0.000	0.000	0.1978	0.000	0.000
42	42	43	1	0.000	0.000	0.1978	0.000	0.000
43	43	44	1	0.000	0.000	0.1978	0.000	0.000
44	44	45	1	0.000	0.000	0.1978	0.000	0.000
45	45	46	1	0.000	0.000	0.1978	0.000	0.000

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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                   |
|                                  Exe Time :14 May 2019       17:56:45                                                 |
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NO. OF NODAL LOADS   (NLOAD) ...................    0
NO. OF LOAD CURVES   (NLCUR) ...................    4
MAXIMUM POINTS/LCURVE (NPTM)....................    5
```

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+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                   NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                    |
|                                   Exe Time :14 May 2019       17:56:45                                                  |
+-------------------------------------------------------------------------------------------------------------------------+
L O A D     D A T A


    LOAD FUNCTION NUMBER   =    1
    NUMBER OF TIME POINTS  =    5

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       0.80000    0.0000E+00
       1.00000    0.1000E+01
       1.20000    0.0000E+00
       3.00000    0.0000E+00


    LOAD FUNCTION NUMBER   =    2
    NUMBER OF TIME POINTS  =    5

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       1.80000    0.0000E+00
       2.00000    0.1000E+01
       2.20000    0.0000E+00
       3.00000    0.0000E+00


    LOAD FUNCTION NUMBER   =    3
    NUMBER OF TIME POINTS  =    4

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       0.80000    0.0000E+00
       1.00000    0.1000E+01
       3.00000    0.1000E+01


    LOAD FUNCTION NUMBER   =    4
    NUMBER OF TIME POINTS  =    4

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       1.80000    0.0000E+00
       2.00000    0.1000E+01
       3.00000    0.1000E+01

NO. OF DISTRIBUTED LOAD CARDS     0



+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                   NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                    |
|                                   Exe Time :14 May 2019       17:56:45                                                  |
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L O A D     B A L A N C E

STEP     1 TOTAL APPLIED LOAD IN DIR.  2  Y-DISPL.F       0.0000000
STEP     1 TOTAL APPLIED LOAD IN DIR.  4   X-ROT. F       0.0000000

STEP     2 TOTAL APPLIED LOAD IN DIR.  2  Y-DISPL.F       0.0000000
STEP     2 TOTAL APPLIED LOAD IN DIR.  4   X-ROT. F       0.0000000


                    LOAD INPUT SECTION COMPLETED
```

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+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                    NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                   |
|                                    Exe Time :14 May 2019       17:56:45                                                 |
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NO. OF LAYERS ..............................    4
NO. OF DATA PER LAYER.......................  100


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                    NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                   |
|                                    Exe Time :14 May 2019       17:56:45                                                 |
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LAYER DESCRIPTORS FOR STEP NO.    1


 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    1 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  8.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= 0.30000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  18.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  8.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  29.256     WALL NO.        1
ITEM NO.   9&lt;U-FRICT &gt;=  35.000     WALL NO.        2
ITEM NO.  10&lt;U-KA    &gt;= 0.36400     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.3140     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-03 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;= 0.30000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  29.256     WALL NO.        1
ITEM NO.  59&lt;D-FRICT &gt;=  35.000     WALL NO.        2
ITEM NO.  60&lt;D-KA    &gt;= 0.31800     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.6130     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-03 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    2 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  9.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -3.2000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  19.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  9.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   8&lt;U-COHE  &gt;=  24.000     WALL NO.        1
ITEM NO.   8&lt;U-COHE  &gt;=  30.000     WALL NO.        2
ITEM NO.   9&lt;U-FRICT &gt;=  20.458     WALL NO.        1
ITEM NO.   9&lt;U-FRICT &gt;=  25.000     WALL NO.        2
ITEM NO.  10&lt;U-KA    &gt;= 0.46600     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  1.9130     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  24.000     WALL NO.        1
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     WALL NO.        2
ITEM NO.  59&lt;D-FRICT &gt;=  20.458     WALL NO.        1
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     WALL NO.        2
ITEM NO.  60&lt;D-KA    &gt;= 0.44900     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  2.3340     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    3 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  10.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
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ITEM NO.   3&lt;LEVEL   &gt;= -5.5500     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  20.000     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  26.560     WALL NO.        1
ITEM NO.   9&lt;U-FRICT &gt;=  32.000     WALL NO.        2
ITEM NO.  10&lt;U-KA    &gt;= 0.37200     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  2.5530     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  26.560     WALL NO.        1
ITEM NO.  59&lt;D-FRICT &gt;=  32.000     WALL NO.        2
ITEM NO.  60&lt;D-KA    &gt;= 0.35700     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.2460     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    4 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  11.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -6.1500     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  19.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  9.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   8&lt;U-COHE  &gt;=  24.000     WALL NO.        1
ITEM NO.   8&lt;U-COHE  &gt;=  30.000     WALL NO.        2
ITEM NO.   9&lt;U-FRICT &gt;=  20.458     WALL NO.        1
ITEM NO.   9&lt;U-FRICT &gt;=  25.000     WALL NO.        2
ITEM NO.  10&lt;U-KA    &gt;= 0.44600     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  1.8340     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  24.000     WALL NO.        1
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     WALL NO.        2
ITEM NO.  59&lt;D-FRICT &gt;=  20.458     WALL NO.        1
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     WALL NO.        2
ITEM NO.  60&lt;D-KA    &gt;= 0.46000     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  2.4120     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

LAYER DESCRIPTORS FOR STEP NO.    2


 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    1 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  8.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= 0.30000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  18.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  8.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  29.256     WALL NO.        1
ITEM NO.   9&lt;U-FRICT &gt;=  35.000     WALL NO.        2
ITEM NO.  10&lt;U-KA    &gt;= 0.36400     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.3140     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-03 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;= 0.30000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  29.256     WALL NO.        1
ITEM NO.  59&lt;D-FRICT &gt;=  35.000     WALL NO.        2
ITEM NO.  60&lt;D-KA    &gt;= 0.34300     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  4.1020     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-03 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    2 FOR STEP NO.    2
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ITEM NO.   1&lt;NAME    &gt;=  9.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -3.2000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  19.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  9.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   8&lt;U-COHE  &gt;=  24.000     WALL NO.        1
ITEM NO.   8&lt;U-COHE  &gt;=  30.000     WALL NO.        2
ITEM NO.   9&lt;U-FRICT &gt;=  20.458     WALL NO.        1
ITEM NO.   9&lt;U-FRICT &gt;=  25.000     WALL NO.        2
ITEM NO.  10&lt;U-KA    &gt;= 0.46600     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  1.9130     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  24.000     WALL NO.        1
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     WALL NO.        2
ITEM NO.  59&lt;D-FRICT &gt;=  20.458     WALL NO.        1
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     WALL NO.        2
ITEM NO.  60&lt;D-KA    &gt;= 0.48200     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  2.5350     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    3 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  10.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -5.5500     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  20.000     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  26.560     WALL NO.        1
ITEM NO.   9&lt;U-FRICT &gt;=  32.000     WALL NO.        2
ITEM NO.  10&lt;U-KA    &gt;= 0.37200     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  2.5530     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  26.560     WALL NO.        1
ITEM NO.  59&lt;D-FRICT &gt;=  32.000     WALL NO.        2
ITEM NO.  60&lt;D-KA    &gt;= 0.38200     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.5120     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    4 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  11.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -6.1500     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  19.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  9.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   8&lt;U-COHE  &gt;=  24.000     WALL NO.        1
ITEM NO.   8&lt;U-COHE  &gt;=  30.000     WALL NO.        2
ITEM NO.   9&lt;U-FRICT &gt;=  20.458     WALL NO.        1
ITEM NO.   9&lt;U-FRICT &gt;=  25.000     WALL NO.        2
ITEM NO.  10&lt;U-KA    &gt;= 0.44600     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  1.8340     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  24.000     WALL NO.        1
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     WALL NO.        2
ITEM NO.  59&lt;D-FRICT &gt;=  20.458     WALL NO.        1
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     WALL NO.        2
ITEM NO.  60&lt;D-KA    &gt;= 0.48200     WALL NO.        1
```

ITEM NO. 61<D-KP   >= 2.5350   WALL NO.   1
ITEM NO. 77<D-PERM >= 0.10000E-06 (BOTH WALLS)

DEFAULT WATER UNIT WEIGHT = 10.000
AVERAGED ON   8 VALUES

| PARATIEPLUS(TM) NLS ENGINE RELEASE 2018.1 FULL VERSION *Build date:Jun 29, 2018* |
| NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178 |
| Exe Time :14 May 2019 17:56:45 |

PHASE DESCRIPTORS

STEP NO.   1

	LEFT WALL	RIGHT WALL
Y	0.000	-0.9990E+30
Z-PC	0.000	0.000
Z-EXCAVATION	0.000	0.000
Z-WATER_TABLE	-4.400	-0.9990E+30
Q_AT_THE_FREE_FIELD_LEVEL	0.000	0.000
ZQ	0.000	0.000
DZW_OF_THE_WATER_TABLE	0.000	0.000
QS_ON_THE_EXCAVATION_SIDE	0.000	0.000
ZQS	0.000	-0.9990E+30
ZCUT	0.000	0.000
BALANCE LEVEL FOR PORE PRESSURES	-8.700	-8.700
WATER_BEHAVIOUR_FLAG (LINING OPT)	0.000	0.000
PORE_UPDATE_FLAG	0.000	0.000
PORE_TAB. _FLAG (gt.0= use tabs)	0.000	0.000
lateral thrusts reduction elevatio	0.000	0.000
Downhill reduction factor for effe	0.000	0.000
Downhill reduction factor for pore	0.000	0.000
Uphill reduction factor for effect	0.000	0.000
Uphill reduction factor for pore p	0.000	0.000
SEISMIC HORIZONTAL ACCEL. Kh [g]	0.000	0.000
UPHILL VERTICAL ACCEL. Kv_uh [g]	0.000	0.000
DOWNHILL VERTICAL ACCEL.Kv_dh [g]	0.000	0.000
UPHILL BETA ANGLE (SLOPE) [deg]	0.000	0.000
UPHILL DELTA/PHI RATIO	0.000	0.000
DOWNHILL BETA ANGLE (SLOPE) [deg]	0.000	0.000
DOWNHILL DELTA/PHI RATIO	0.000	0.000
DYN.WATER BEHAVIOUR	0.000	0.000
Excess pore pressure RATIO Ru	0.000	0.000
SEISMIC PRESSURE LOWER VALUE	0.000	0.000
SEISMIC PRESSURE UPPER VALUE	0.000	0.000
SEISMIC PRESSURE LOWER LEVEL	0.000	0.000
SEISMIC PRESSURE UPPER LEVEL	0.000	0.000

==========end of step 1

STEP NO.   2

	LEFT WALL	RIGHT WALL
Y	0.000	-0.9990E+30
Z-PC	0.000	0.000
Z-EXCAVATION	-4.750	0.000
Z-WATER_TABLE	-4.400	-0.9990E+30
Q_AT_THE_FREE_FIELD_LEVEL	0.000	0.000
ZQ	0.000	0.000
DZW_OF_THE_WATER_TABLE	0.3500	0.000
QS_ON_THE_EXCAVATION_SIDE	0.000	0.000
ZQS	0.000	-0.9990E+30
ZCUT	0.000	0.000
BALANCE LEVEL FOR PORE PRESSURES	-8.700	-8.700
WATER_BEHAVIOUR_FLAG (LINING OPT)	0.000	0.000
PORE_UPDATE_FLAG	0.000	0.000
PORE_TAB. _FLAG (gt.0= use tabs)	0.000	0.000
lateral thrusts reduction elevatio	0.000	0.000
Downhill reduction factor for effe	0.000	0.000
Downhill reduction factor for pore	0.000	0.000
Uphill reduction factor for effect	0.000	0.000
Uphill reduction factor for pore p	0.000	0.000
SEISMIC HORIZONTAL ACCEL. Kh [g]	0.000	0.000
UPHILL VERTICAL ACCEL. Kv_uh [g]	0.000	0.000
DOWNHILL VERTICAL ACCEL.Kv_dh [g]	0.000	0.000
UPHILL BETA ANGLE (SLOPE) [deg]	0.000	0.000
UPHILL DELTA/PHI RATIO	0.000	0.000
DOWNHILL BETA ANGLE (SLOPE) [deg]	0.000	0.000
DOWNHILL DELTA/PHI RATIO	0.000	0.000
DYN.WATER BEHAVIOUR	0.000	0.000
Excess pore pressure RATIO Ru	0.000	0.000

```
SEISMIC PRESSURE LOWER VALUE            0.000         0.000
SEISMIC PRESSURE UPPER VALUE            0.000         0.000
SEISMIC PRESSURE LOWER LEVEL            0.000         0.000
SEISMIC PRESSURE UPPER LEVEL            0.000         0.000

================================================================================================================end of step    2


 LEFT-HAND WALL

 LOWER  LEVEL          -8.70000
 UPPER  LEVEL           0.30000

 RIGHT-HAND WALL

 LOWER  LEVEL          -8.70000
 UPPER  LEVEL           0.30000



+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                 NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                    |
|                                 Exe Time :14 May 2019       17:56:45                                                  |
+-----------------------------------------------------------------------------------------------------------------------+
 I N I T I A L    S T R E S S    T A B L E S

            S E C T I O N

 NUMBER OF DEFINED TABLES             1


INPUT DATA FOR INITIAL STRESS SET NO.    1
PERTAINING SOIL ELEMENTS AT Y-COORD    0.0000

ACTIVATION TIME                              1.0000
END TIME (TIME BEYOND WHICH IT IS REMOVED)   2.0000

TYPE BOUSSINESQ

 HORIZONTAL DISTANCE (DY)           1.45000000000000
 FOUNDATION WIDTH    (B)            3.55000000000000
 ZETA-F.....                       -0.300000000000000
 Q-F .....                          20.0000000000000
 BETA .....                         45.0000000000000
 BEHAVIOUR (0=FREE, 1=REFLECTING)  0.000000000000000E+000


 ELEMENT GROUPS BACKUP AREA CAN STAY IN CORE AT
 POSITION        2653

 NO. OF D.P.W  FOR THIS AREA       5436
 MAX NO. OF D.P.W. AVAILABLE      81920
 ** MAX NO OF ITERATIONS SET TO          40

ITER     0 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.1202E+05 RIMNOR= 0.000
           RENORM=0.2209E-28 REMNOR= 0.000     RATIO =0.4286E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 21.27     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.1202E+05 RDR   = 0.000
           RATIOT=0.4286E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    85 NODE     43 DOF   1  Y-DISPL.F
           MIN UN=-.1776E-14 IEQ=    37 NODE     19 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     1 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.1202E+05 RIMNOR= 0.000
           RENORM=0.2209E-28 REMNOR= 0.000     RATIO =0.4286E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 21.27     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.1202E+05 RDR   = 0.000
           RATIOT=0.4286E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    85 NODE     43 DOF   1  Y-DISPL.F
           MIN UN=-.1776E-14 IEQ=    37 NODE     19 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.1202E+05 RIMNOR= 0.000
           RENORM=0.2209E-28 REMNOR= 0.000     RATIO =0.4286E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 21.27     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
```

```
 RDT   =0.1202E+05 RDR   = 0.000
 RATIOT=0.4286E-16 RATIOR= 0.000
 MAX UN=0.3553E-14 IEQ=    85 NODE     43 DOF   1  Y-DISPL.F
 MIN UN=-.1776E-14 IEQ=    37 NODE     19 DOF   1  Y-DISPL.F
 NO. OF CONTACT CONSTRAINT VIOLATIONS     0


+---------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                           |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                       |
|                                  Exe Time :14 May 2019       17:56:45                                                     |
+---------------------------------------------------------------------------------------------------------------------------+
New Project
SOLUTION REACHED USING     2 ITERATIONS ON   40

P R I N T   O U T   F O R   T I M E   S T E P    1     ( AT TIME   1.000     )

PRINT OUT OF ACTIVE COMPONENTS (FIXED NODES ARE NOT PRINTED OUT)

          Y-DISPL.F        X-ROT. F
           (02)             (04)           (


ALL NODAL POINTS HAVE ZERO DISPLACEMENT COMPONENTS



+---------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                           |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                       |
|                                  Exe Time :14 May 2019       17:56:45                                                     |
+---------------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   1

0_L                                                    :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   46
C U R R E N T   T I M E   I S      1.0000

 HARDENING 2D SOIL ELEMENT

 ****** TOTAL STRESS FORMULATION *****

  EL *   FORCE     DISPL-Y  VERTICAL-P  HORIZON.-P     MAX-V-P     MAX-H-P           STATE   STIFFNESS Z-LEVEL      PORE       E
FACTOR    UFACTOR       Peq          Su_a         Su_p     LAYER
-------------------------------------------------------------------------------------------------------------------------------
-------------------------------------------------------------------------------
   1     0.000         --          --          --          --          --          REMOVED     --       0.3000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   2     0.000         --          --          --          --          --          REMOVED     --       0.1000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   3 D  0.1850       0.000       1.850      0.9250       1.850      0.9250           V-C   3143.      -0.1000       0.000
1.000       1.000      0.9250       0.000       0.000     UG0_2_10_L_0
   4 D  0.5550       0.000       5.550       2.775       5.550       2.775           V-C   3143.      -0.3000       0.000
1.000       1.000       2.775       0.000       0.000     UG0_2_10_L_0
   5 D   1.170       0.000       9.250       5.851       9.250       5.851           V-C   3143.      -0.5000       0.000
1.000       1.000       5.851       0.000       0.000     UG0_2_10_L_0
   6 D   1.761       0.000       12.95       8.806       12.95       8.806           V-C   3143.      -0.7000       0.000
1.000       1.000       8.806       0.000       0.000     UG0_2_10_L_0
   7 D   2.312       0.000       16.65       11.56       16.65       11.56           V-C   3143.      -0.9000       0.000
1.000       1.000       11.56       0.000       0.000     UG0_2_10_L_0
   8 D   2.815       0.000       20.35       14.07       20.35       14.07           V-C   3143.       -1.100       0.000
1.000       1.000       14.07       0.000       0.000     UG0_2_10_L_0
   9 D   3.273       0.000       24.05       16.36       24.05       16.36           V-C   3143.       -1.300       0.000
1.000       1.000       16.36       0.000       0.000     UG0_2_10_L_0
  10 D   3.692       0.000       27.75       18.46       27.75       18.46           V-C   3143.       -1.500       0.000
1.000       1.000       18.46       0.000       0.000     UG0_2_10_L_0
  11 D   4.081       0.000       31.45       20.40       31.45       20.40           V-C   3143.       -1.700       0.000
1.000       1.000       20.40       0.000       0.000     UG0_2_10_L_0
  12 D   4.447       0.000       35.15       22.24       35.15       22.24           V-C   3143.       -1.900       0.000
1.000       1.000       22.24       0.000       0.000     UG0_2_10_L_0
  13 D   4.798       0.000       38.85       23.99       38.85       23.99           V-C   3143.       -2.100       0.000
1.000       1.000       23.99       0.000       0.000     UG0_2_10_L_0
  14 D   5.138       0.000       42.55       25.69       42.55       25.69           V-C   3143.       -2.300       0.000
1.000       1.000       25.69       0.000       0.000     UG0_2_10_L_0
  15 D   5.471       0.000       46.25       27.35       46.25       27.35           V-C   3143.       -2.500       0.000
1.000       1.000       27.35       0.000       0.000     UG0_2_10_L_0
  16 D   5.800       0.000       49.95       29.00       49.95       29.00           V-C   3143.       -2.700       0.000
1.000       1.000       29.00       0.000       0.000     UG0_2_10_L_0
  17 D   6.127       0.000       53.65       30.64       53.65       30.64           V-C   3143.       -2.900       0.000
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1.000       1.000       30.64       0.000       0.000     UG0_2_10_L_0
  18 D   6.454       0.000       57.35       32.27       57.35       32.27            V-C   3143.      -3.100       0.000
1.000       1.000       32.27       0.000       0.000     UG0_2_10_L_0
  19 D   7.170      2.8259E-18   61.15       35.85       61.15       35.85            V-C   3143.      -3.300       0.000
1.000       1.000       35.85       0.000       0.000     UG2_4_11_L_0
  20 D   7.542       0.000       65.05       37.71       65.05       37.71            V-C   3143.      -3.500       0.000
1.000       1.000       37.71       0.000       0.000     UG2_4_11_L_0
  21 D   7.916       0.000       68.95       39.58       68.95       39.58            V-C   3143.      -3.700       0.000
1.000       1.000       39.58       0.000       0.000     UG2_4_11_L_0
  22 D   8.292       0.000       72.85       41.46       72.85       41.46            V-C   3143.      -3.900       0.000
1.000       1.000       41.46       0.000       0.000     UG2_4_11_L_0
  23 D   8.670       0.000       76.75       43.35       76.75       43.35            V-C   3143.      -4.100       0.000
1.000       1.000       43.35       0.000       0.000     UG2_4_11_L_0
  24 D   9.050       0.000       80.65       45.25       80.65       45.25            V-C   3143.      -4.300       0.000
1.000       1.000       45.25       0.000       0.000     UG2_4_11_L_0
  25 D   9.526       0.000       83.55       46.63       83.55       46.63            V-C   3143.      -4.500       1.000
1.000       1.000       47.63       0.000       0.000     UG2_4_11_L_0
  26 D   10.10       0.000       85.45       47.49       85.45       47.49            V-C   3143.      -4.700       3.000
1.000       1.000       50.49       0.000       0.000     UG2_4_11_L_0
  27 D   10.67       0.000       87.35       48.36       87.35       48.36            V-C   3143.      -4.900       5.000
1.000       1.000       53.36       0.000       0.000     UG2_4_11_L_0
  28 D   11.25       0.000       89.25       49.24       89.25       49.24            V-C   3143.      -5.100       7.000
1.000       1.000       56.24       0.000       0.000     UG2_4_11_L_0
  29 D   11.82       0.000       91.15       50.12       91.15       50.12            V-C   3143.      -5.300       9.000
1.000       1.000       59.12       0.000       0.000     UG2_4_11_L_0
  30 D   12.40       0.000       93.05       51.02       93.05       51.02            V-C   3143.      -5.500       11.00
1.000       1.000       62.02       0.000       0.000     UG2_4_11_L_0
  31 D   12.99       0.000       95.02       51.96       95.02       51.96            V-C   3143.      -5.700       13.00
1.000       1.000       64.96       0.000       0.000     UG3_4271_12_L_0
  32 D   13.59       0.000       97.02       52.93       97.02       52.93            V-C   3143.      -5.900       15.00
1.000       1.000       67.93       0.000       0.000     UG3_4271_12_L_0
  33 D   14.18      -2.8259E-18   99.02       53.90       99.02       53.90            V-C   3143.      -6.100       17.00
1.000       1.000       70.90       0.000       0.000     UG3_4271_12_L_0
  34 D   14.77      -2.8259E-18   100.9       54.84       100.9       54.84            V-C   3143.      -6.300       19.00
1.000       1.000       73.84       0.000       0.000     UG2_4_26346_L_0
  35 D   15.35       0.000       102.8       55.77       102.8       55.77            V-C   3143.      -6.500       21.00
1.000       1.000       76.77       0.000       0.000     UG2_4_26346_L_0
  36 D   15.94       0.000       104.7       56.71       104.7       56.71            V-C   3143.      -6.700       23.00
1.000       1.000       79.71       0.000       0.000     UG2_4_26346_L_0
  37 D   16.53       0.000       106.6       57.65       106.6       57.65            V-C   3143.      -6.900       25.00
1.000       1.000       82.65       0.000       0.000     UG2_4_26346_L_0
  38 D   17.12       0.000       108.5       58.60       108.5       58.60            V-C   3143.      -7.100       27.00
1.000       1.000       85.60       0.000       0.000     UG2_4_26346_L_0
  39 D   17.71       0.000       110.4       59.55       110.4       59.55            V-C   3143.      -7.300       29.00
1.000       1.000       88.55       0.000       0.000     UG2_4_26346_L_0
  40 D   18.30       0.000       112.3       60.51       112.3       60.51            V-C   3143.      -7.500       31.00
1.000       1.000       91.51       0.000       0.000     UG2_4_26346_L_0
  41 D   18.89       0.000       114.2       61.47       114.2       61.47            V-C   3143.      -7.700       33.00
1.000       1.000       94.47       0.000       0.000     UG2_4_26346_L_0
  42 D   19.49       0.000       116.1       62.43       116.1       62.43            V-C   3143.      -7.900       35.00
1.000       1.000       97.43       0.000       0.000     UG2_4_26346_L_0
  43 D   20.08      -5.6518E-18   118.0       63.39       118.0       63.39            V-C   3143.      -8.100       37.00
1.000       1.000       100.4       0.000       0.000     UG2_4_26346_L_0
  44 D   20.67       0.000       119.9       64.36       119.9       64.36            V-C   3143.      -8.300       39.00
1.000       1.000       103.4       0.000       0.000     UG2_4_26346_L_0
  45 D   21.27       0.000       121.8       65.34       121.8       65.34            V-C   3143.      -8.500       41.00
1.000       1.000       106.3       0.000       0.000     UG2_4_26346_L_0
  46 D   10.93       0.000       123.8       66.31       123.8       66.31            V-C   3143.      -8.700       43.00
1.000       1.000       109.3       0.000       0.000     UG2_4_26346_L_0


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|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                           |
|                                  Exe Time :14 May 2019       17:56:45                                                         |
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New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   2

0_R                                                    :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   46
C U R R E N T   T I M E   I S      1.0000

 HARDENING 2D SOIL ELEMENT

 ****** TOTAL STRESS FORMULATION *****

  EL *   FORCE      DISPL-Y  VERTICAL-P  HORIZON.-P     MAX-V-P     MAX-H-P           STATE   STIFFNESS Z-LEVEL      PORE       E
FACTOR    UFACTOR       Peq          Su_a        Su_p     LAYER
 ------------------------------------------------------------------------------------------------------------------------------
------------------------------------------------------------------------------------
   1     0.000         --          --          --          --          --          REMOVED     --       0.3000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   2     0.000         --          --          --          --          --          REMOVED     --       0.1000       0.000
```

1.000	1.000	0.000	0.000	0.000	not available						
3 D	0.1850	0.000	1.850	0.9250	1.850	0.9250	V-C	3143.	-0.1000	0.000	
1.000	1.000	0.9250	0.000	0.000	UG0_2_10_L_0						
4 D	0.5550	0.000	5.550	2.775	5.550	2.775	V-C	3143.	-0.3000	0.000	
1.000	1.000	2.775	0.000	0.000	UG0_2_10_L_0						
5 D	1.170	0.000	9.261	5.851	9.261	5.851	V-C	3143.	-0.5000	0.000	
1.000	1.000	5.851	0.000	0.000	UG0_2_10_L_0						
6 D	1.761	0.000	13.03	8.806	13.03	8.806	V-C	3143.	-0.7000	0.000	
1.000	1.000	8.806	0.000	0.000	UG0_2_10_L_0						
7 D	2.312	0.000	16.89	11.56	16.89	11.56	V-C	3143.	-0.9000	0.000	
1.000	1.000	11.56	0.000	0.000	UG0_2_10_L_0						
8 D	2.815	0.000	20.85	14.07	20.85	14.07	V-C	3143.	-1.100	0.000	
1.000	1.000	14.07	0.000	0.000	UG0_2_10_L_0						
9 D	3.273	0.000	24.89	16.36	24.89	16.36	V-C	3143.	-1.300	0.000	
1.000	1.000	16.36	0.000	0.000	UG0_2_10_L_0						
10 D	3.692	0.000	28.97	18.46	28.97	18.46	V-C	3143.	-1.500	0.000	
1.000	1.000	18.46	0.000	0.000	UG0_2_10_L_0						
11 D	4.081	0.000	33.07	20.40	33.07	20.40	V-C	3143.	-1.700	0.000	
1.000	1.000	20.40	0.000	0.000	UG0_2_10_L_0						
12 D	4.447	0.000	37.17	22.24	37.17	22.24	V-C	3143.	-1.900	0.000	
1.000	1.000	22.24	0.000	0.000	UG0_2_10_L_0						
13 D	4.798	0.000	41.25	23.99	41.25	23.99	V-C	3143.	-2.100	0.000	
1.000	1.000	23.99	0.000	0.000	UG0_2_10_L_0						
14 D	5.138	0.000	45.58	25.69	45.58	25.69	V-C	3143.	-2.300	0.000	
1.000	1.000	25.69	0.000	0.000	UG0_2_10_L_0						
15 D	5.471	0.000	50.11	27.35	50.11	27.35	V-C	3143.	-2.500	0.000	
1.000	1.000	27.35	0.000	0.000	UG0_2_10_L_0						
16 D	5.800	0.000	54.38	29.00	54.38	29.00	V-C	3143.	-2.700	0.000	
1.000	1.000	29.00	0.000	0.000	UG0_2_10_L_0						
17 D	6.127	0.000	58.71	30.64	58.71	30.64	V-C	3143.	-2.900	0.000	
1.000	1.000	30.64	0.000	0.000	UG0_2_10_L_0						
18 D	6.454	0.000	62.97	32.27	62.97	32.27	V-C	3143.	-3.100	0.000	
1.000	1.000	32.27	0.000	0.000	UG0_2_10_L_0						
19 D	7.170	-2.8259E-18	67.15	35.85	67.15	35.85	V-C	3143.	-3.300	0.000	
1.000	1.000	35.85	0.000	0.000	UG2_4_11_L_0						
20 D	7.542	0.000	71.50	37.71	71.50	37.71	V-C	3143.	-3.500	0.000	
1.000	1.000	37.71	0.000	0.000	UG2_4_11_L_0						
21 D	7.916	0.000	75.70	39.58	75.70	39.58	V-C	3143.	-3.700	0.000	
1.000	1.000	39.58	0.000	0.000	UG2_4_11_L_0						
22 D	8.292	0.000	79.97	41.46	79.97	41.46	V-C	3143.	-3.900	0.000	
1.000	1.000	41.46	0.000	0.000	UG2_4_11_L_0						
23 D	8.670	0.000	84.20	43.35	84.20	43.35	V-C	3143.	-4.100	0.000	
1.000	1.000	43.35	0.000	0.000	UG2_4_11_L_0						
24 D	9.050	0.000	88.32	45.25	88.32	45.25	V-C	3143.	-4.300	0.000	
1.000	1.000	45.25	0.000	0.000	UG2_4_11_L_0						
25 D	9.526	0.000	91.51	46.63	91.51	46.63	V-C	3143.	-4.500	1.000	
1.000	1.000	47.63	0.000	0.000	UG2_4_11_L_0						
26 D	10.10	0.000	93.67	47.49	93.67	47.49	V-C	3143.	-4.700	3.000	
1.000	1.000	50.49	0.000	0.000	UG2_4_11_L_0						
27 D	10.67	0.000	95.73	48.36	95.73	48.36	V-C	3143.	-4.900	5.000	
1.000	1.000	53.36	0.000	0.000	UG2_4_11_L_0						
28 D	11.25	0.000	97.86	49.24	97.86	49.24	V-C	3143.	-5.100	7.000	
1.000	1.000	56.24	0.000	0.000	UG2_4_11_L_0						
29 D	11.82	0.000	99.90	50.12	99.90	50.12	V-C	3143.	-5.300	9.000	
1.000	1.000	59.12	0.000	0.000	UG2_4_11_L_0						
30 D	12.40	0.000	101.6	51.02	101.6	51.02	V-C	3143.	-5.500	11.00	
1.000	1.000	62.02	0.000	0.000	UG2_4_11_L_0						
31 D	12.99	0.000	103.4	51.96	103.4	51.96	V-C	3143.	-5.700	13.00	
1.000	1.000	64.96	0.000	0.000	UG3_4271_12_L_0						
32 D	13.59	0.000	105.2	52.93	105.2	52.93	V-C	3143.	-5.900	15.00	
1.000	1.000	67.93	0.000	0.000	UG3_4271_12_L_0						
33 D	14.18	2.8259E-18	107.0	53.90	107.0	53.90	V-C	3143.	-6.100	17.00	
1.000	1.000	70.90	0.000	0.000	UG3_4271_12_L_0						
34 D	14.77	2.8259E-18	108.7	54.84	108.7	54.84	V-C	3143.	-6.300	19.00	
1.000	1.000	73.84	0.000	0.000	UG2_4_26346_L_0						
35 D	15.35	0.000	110.5	55.77	110.5	55.77	V-C	3143.	-6.500	21.00	
1.000	1.000	76.77	0.000	0.000	UG2_4_26346_L_0						
36 D	15.94	0.000	112.2	56.71	112.2	56.71	V-C	3143.	-6.700	23.00	
1.000	1.000	79.71	0.000	0.000	UG2_4_26346_L_0						
37 D	16.53	0.000	113.9	57.65	113.9	57.65	V-C	3143.	-6.900	25.00	
1.000	1.000	82.65	0.000	0.000	UG2_4_26346_L_0						
38 D	17.12	0.000	115.7	58.60	115.7	58.60	V-C	3143.	-7.100	27.00	
1.000	1.000	85.60	0.000	0.000	UG2_4_26346_L_0						
39 D	17.71	0.000	117.5	59.55	117.5	59.55	V-C	3143.	-7.300	29.00	
1.000	1.000	88.55	0.000	0.000	UG2_4_26346_L_0						
40 D	18.30	0.000	119.2	60.51	119.2	60.51	V-C	3143.	-7.500	31.00	
1.000	1.000	91.51	0.000	0.000	UG2_4_26346_L_0						
41 D	18.89	0.000	121.0	61.47	121.0	61.47	V-C	3143.	-7.700	33.00	
1.000	1.000	94.47	0.000	0.000	UG2_4_26346_L_0						
42 D	19.49	0.000	122.8	62.43	122.8	62.43	V-C	3143.	-7.900	35.00	
1.000	1.000	97.43	0.000	0.000	UG2_4_26346_L_0						
43 D	20.08	5.6518E-18	124.5	63.39	124.5	63.39	V-C	3143.	-8.100	37.00	
1.000	1.000	100.4	0.000	0.000	UG2_4_26346_L_0						
44 D	20.67	0.000	126.3	64.36	126.3	64.36	V-C	3143.	-8.300	39.00	
1.000	1.000	103.4	0.000	0.000	UG2_4_26346_L_0						
45 D	21.27	0.000	128.1	65.34	128.1	65.34	V-C	3143.	-8.500	41.00	
1.000	1.000	106.3	0.000	0.000	UG2_4_26346_L_0						
46 D	10.93	0.000	129.9	66.31	129.9	66.31	V-C	3143.	-8.700	43.00	

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1.000       1.000       109.3       0.000       0.000     UG2_4_26346_L_0


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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                    NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                         |
|                                    Exe Time :14 May 2019       17:56:45                                                       |
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New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   3

WallElement_New_28707                                        :
ELEMENT TYPE    2 NO.OF ELEMENTS. IN THIS GROUP   45
C U R R E N T   T I M E   I S      1.0000

 WALL2D ELEMENT

   EL      TA          TB          MA          MB
-----------------------------------------------------

***** NO ONE ELEMENT ACTIVE AT CURRENT STEP *****

ITER     0 RNORM = 0.000     RMNORM= 0.000
           RINORM= 7736.     RIMNOR= 0.000
           RENORM= 1845.     REMNOR= 0.000     RATIO =0.4884     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 21.10     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 7736.     RDR   = 0.000
           RATIOT=0.4884     RATIOR= 0.000
           MAX UN= 0.000     IEQ=    92 NODE     46 DOF   2   X-ROT. F
           MIN UN=-10.09     IEQ=    51 NODE     26 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM= 7736.     RIMNOR= 0.000
           RENORM= 146.7     REMNOR=0.3245E-20 RATIO =0.1377     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 21.10     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 7736.     RDR   = 0.000
           RATIOT=0.1377     RATIOR= 0.000
           MAX UN=0.2398E-09 IEQ=    37 NODE     19 DOF   1  Y-DISPL.F
           MIN UN=-3.892     IEQ=    61 NODE     31 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     3 RNORM = 0.000     RMNORM= 0.000
           RINORM= 7736.     RIMNOR= 0.000
           RENORM= 219.3     REMNOR=0.3903E-19 RATIO =0.1684     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 21.10     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 7736.     RDR   = 0.000
           RATIOT=0.1684     RATIOR= 0.000
           MAX UN=0.1142E-08 IEQ=    23 NODE     12 DOF   1  Y-DISPL.F
           MIN UN=-7.997     IEQ=    37 NODE     19 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     4 RNORM = 0.000     RMNORM= 0.000
           RINORM= 7736.     RIMNOR= 0.000
           RENORM= 426.0     REMNOR=0.1392E-18 RATIO =0.2346     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 21.10     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 7736.     RDR   = 0.000
           RATIOT=0.2346     RATIOR= 0.000
           MAX UN= 3.021     IEQ=    89 NODE     45 DOF   1  Y-DISPL.F
           MIN UN=-18.58     IEQ=    59 NODE     30 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     5 RNORM = 0.000     RMNORM= 0.000
           RINORM= 7736.     RIMNOR= 0.000
           RENORM= 23.12     REMNOR=0.1091E-18 RATIO =0.5467E-01 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 21.10     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 7736.     RDR   = 0.000
           RATIOT=0.5467E-01 RATIOR= 0.000
           MAX UN= 1.472     IEQ=    91 NODE     46 DOF   1  Y-DISPL.F
           MIN UN=-3.283     IEQ=    53 NODE     27 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     6 RNORM = 0.000     RMNORM= 0.000
           RINORM= 7736.     RIMNOR= 0.000
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           RENORM= 6.384     REMNOR=0.2334E-18 RATIO =0.2873E-01 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 21.10     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 7736.     RDR   = 0.000
           RATIOT=0.2873E-01 RATIOR= 0.000
           MAX UN= 1.228     IEQ=    87 NODE     44 DOF   1  Y-DISPL.F
           MIN UN=-1.927     IEQ=    75 NODE     38 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     7 RNORM = 0.000     RMNORM= 0.000
           RINORM= 7736.     RIMNOR= 0.000
           RENORM=0.8784E-16 REMNOR=0.2144E-18 RATIO =0.1066E-09 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 21.10     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 7736.     RDR   = 0.000
           RATIOT=0.1066E-09 RATIOR= 0.000
           MAX UN=0.4168E-08 IEQ=    15 NODE      8 DOF   1  Y-DISPL.F
           MIN UN=-.3806E-08 IEQ=    13 NODE      7 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0



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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                   |
|                                  Exe Time :14 May 2019       17:56:45                                                 |
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New Project
SOLUTION REACHED USING     7 ITERATIONS ON   40

P R I N T   O U T   F O R   T I M E   S T E P    2     ( AT TIME   2.000     )

PRINT OUT OF ACTIVE COMPONENTS (FIXED NODES ARE NOT PRINTED OUT)

          Y-DISPL.F        X-ROT. F
            (02)             (04)            (
    1  -8.7012172E-02   1.1753637E-02
    2  -8.4661444E-02   1.1753637E-02
    3  -8.2310717E-02   1.1753637E-02
    4  -7.9959991E-02   1.1753617E-02
    5  -7.7609277E-02   1.1753498E-02
    6  -7.5258609E-02   1.1753119E-02
    7  -7.2908062E-02   1.1752243E-02
    8  -7.0557767E-02   1.1750546E-02
    9  -6.8207926E-02   1.1747622E-02
   10  -6.5858832E-02   1.1742981E-02
   11  -6.3510887E-02   1.1736042E-02
   12  -6.1164613E-02   1.1726138E-02
   13  -5.8820680E-02   1.1712513E-02
   14  -5.6479912E-02   1.1694326E-02
   15  -5.4143316E-02   1.1670640E-02
   16  -5.1812092E-02   1.1640427E-02
   17  -4.9487655E-02   1.1602563E-02
   18  -4.7171657E-02   1.1555832E-02
   19  -4.4866001E-02   1.1498925E-02
   20  -4.2572811E-02   1.1431165E-02
   21  -4.0294248E-02   1.1352534E-02
   22  -3.8032517E-02   1.1262944E-02
   23  -3.5789826E-02   1.1162187E-02
   24  -3.3568419E-02   1.1049939E-02
   25  -3.1370646E-02   1.0925761E-02
   26  -2.9198948E-02   1.0789084E-02
   27  -2.7055894E-02   1.0639180E-02
   28  -2.4944068E-02   1.0477552E-02
   29  -2.2865403E-02   1.0308134E-02
   30  -2.0821056E-02   1.0135084E-02
   31  -1.8811319E-02   9.9627863E-03
   32  -1.6835763E-02   9.7931773E-03
   33  -1.4893909E-02   9.6258108E-03
   34  -1.2985304E-02   9.4606045E-03
   35  -1.1109390E-02   9.2995511E-03
   36  -9.2649586E-03   9.1463716E-03
   37  -7.4500896E-03   9.0044669E-03
   38  -5.6622144E-03   8.8769225E-03
   39  -3.8981870E-03   8.7665138E-03
   40  -2.1543159E-03   8.6756323E-03
   41  -4.2654529E-04   8.6055835E-03
   42   1.2892725E-03   8.5558608E-03
   43   2.9970098E-03   8.5242991E-03
   44   4.6999613E-03   8.5074020E-03
   45   6.4006440E-03   8.5007340E-03
   46   8.1006421E-03   8.4993638E-03
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|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                           |
|                                  Exe Time :14 May 2019       17:56:45                                                         |
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New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   1

0_L                                                    :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   46
C U R R E N T   T I M E   I S      2.0000

  HARDENING 2D SOIL ELEMENT

  ****** TOTAL STRESS FORMULATION *****

  EL *   FORCE     DISPL-Y  VERTICAL-P  HORIZON.-P     MAX-V-P     MAX-H-P          STATE   STIFFNESS Z-LEVEL      PORE       E
FACTOR    UFACTOR       Peq          Su_a        Su_p     LAYER
 ------------------------------------------------------------------------------------------------------------------------------
----------------------------------------------------------------------------------------------
   1     0.000         --          --          --          --          --          REMOVED     --       0.3000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   2     0.000         --          --          --          --          --          REMOVED     --       0.1000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   3     0.000         --          --          --          --          --          REMOVED     --      -0.1000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   4     0.000         --          --          --          --          --          REMOVED     --      -0.3000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   5     0.000         --          --          --          --          --          REMOVED     --      -0.5000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   6     0.000         --          --          --          --          --          REMOVED     --      -0.7000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   7     0.000         --          --          --          --          --          REMOVED     --      -0.9000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   8     0.000         --          --          --          --          --          REMOVED     --       -1.100       0.000
1.000       1.000       0.000       0.000       0.000     not available
   9     0.000         --          --          --          --          --          REMOVED     --       -1.300       0.000
1.000       1.000       0.000       0.000       0.000     not available
  10     0.000         --          --          --          --          --          REMOVED     --       -1.500       0.000
1.000       1.000       0.000       0.000       0.000     not available
  11     0.000         --          --          --          --          --          REMOVED     --       -1.700       0.000
1.000       1.000       0.000       0.000       0.000     not available
  12     0.000         --          --          --          --          --          REMOVED     --       -1.900       0.000
1.000       1.000       0.000       0.000       0.000     not available
  13     0.000         --          --          --          --          --          REMOVED     --       -2.100       0.000
1.000       1.000       0.000       0.000       0.000     not available
  14     0.000         --          --          --          --          --          REMOVED     --       -2.300       0.000
1.000       1.000       0.000       0.000       0.000     not available
  15     0.000         --          --          --          --          --          REMOVED     --       -2.500       0.000
1.000       1.000       0.000       0.000       0.000     not available
  16     0.000         --          --          --          --          --          REMOVED     --       -2.700       0.000
1.000       1.000       0.000       0.000       0.000     not available
  17     0.000         --          --          --          --          --          REMOVED     --       -2.900       0.000
1.000       1.000       0.000       0.000       0.000     not available
  18     0.000         --          --          --          --          --          REMOVED     --       -3.100       0.000
1.000       1.000       0.000       0.000       0.000     not available
  19     0.000         --          --          --          --          --          REMOVED     --       -3.300       0.000
1.000       1.000       0.000       0.000       0.000     not available
  20     0.000         --          --          --          --          --          REMOVED     --       -3.500       0.000
1.000       1.000       0.000       0.000       0.000     not available
  21     0.000         --          --          --          --          --          REMOVED     --       -3.700       0.000
1.000       1.000       0.000       0.000       0.000     not available
  22     0.000         --          --          --          --          --          REMOVED     --       -3.900       0.000
1.000       1.000       0.000       0.000       0.000     not available
  23     0.000         --          --          --          --          --          REMOVED     --       -4.100       0.000
1.000       1.000       0.000       0.000       0.000     not available
  24     0.000         --          --          --          --          --          REMOVED     --       -4.300       0.000
1.000       1.000       0.000       0.000       0.000     not available
  25     0.000         --          --          --          --          --          REMOVED     --       -4.500       0.000
1.000       1.000       0.000       0.000       0.000     not available
  26     0.000         --          --          --          --          --          REMOVED     --       -4.700       0.000
1.000       1.000       0.000       0.000       0.000     not available
  27 D   16.29      2.7056E-02   1.361       79.88       87.35       79.88       PASSIVE   0.000      -4.900       1.564
1.000       1.000       81.44       0.000       0.000     UG2_4_11_L_0
  28 D   17.62      2.4944E-02   3.177       84.48       89.25       84.48       PASSIVE   0.000      -5.100       3.648
1.000       1.000       88.12       0.000       0.000     UG2_4_11_L_0
  29 D   18.96      2.2865E-02   4.992       89.08       91.15       89.08       PASSIVE   0.000      -5.300       5.733
1.000       1.000       94.81       0.000       0.000     UG2_4_11_L_0
  30 D   20.30      2.0821E-02   6.807       93.68       93.05       93.68       PASSIVE   0.000      -5.500       7.818
1.000       1.000       101.5       0.000       0.000     UG2_4_11_L_0
  31 D   8.089      1.8811E-02   8.697       30.54       95.02       51.96       PASSIVE   0.000      -5.700       9.903
1.000       1.000       40.45       0.000       0.000     UG3_4271_12_L_0
  32 D   9.852      1.6836E-02   10.61       37.27       97.02       52.93       PASSIVE   0.000      -5.900       11.99
1.000       1.000       49.26       0.000       0.000     UG3_4271_12_L_0
```

33 D	11.61	1.4894E-02	12.53	44.00	99.02	53.90	PASSIVE	0.000	-6.100	14.07	
1.000	1.000	58.07	0.000	0.000	UG3_4271_12_L_0						
34 D	20.14	1.2985E-02	14.37	84.53	100.9	84.53	V-C	3143.	-6.300	16.16	
1.000	1.000	100.7	0.000	0.000	UG2_4_26346_L_0						
35 D	19.59	1.1109E-02	16.18	79.71	102.8	79.71	V-C	3143.	-6.500	18.24	
1.000	1.000	97.95	0.000	0.000	UG2_4_26346_L_0						
36 D	19.06	9.2650E-03	18.00	74.97	104.7	74.97	V-C	3143.	-6.700	20.33	
1.000	1.000	95.30	0.000	0.000	UG2_4_26346_L_0						
37 D	18.55	7.4501E-03	19.81	70.33	106.6	70.33	V-C	3143.	-6.900	22.41	
1.000	1.000	92.74	0.000	0.000	UG2_4_26346_L_0						
38 D	18.05	5.6622E-03	21.63	65.76	108.5	65.76	V-C	3143.	-7.100	24.50	
1.000	1.000	90.26	0.000	0.000	UG2_4_26346_L_0						
39 D	17.57	3.8982E-03	23.44	61.26	110.4	61.26	V-C	3143.	-7.300	26.58	
1.000	1.000	87.84	0.000	0.000	UG2_4_26346_L_0						
40 D	15.62	2.1543E-03	25.26	49.45	112.3	60.51	UL-RL	9429.	-7.500	28.67	
1.000	1.000	78.12	0.000	0.000	UG2_4_26346_L_0						
41 D	13.02	4.2655E-04	27.07	34.35	114.2	61.47	UL-RL	9429.	-7.700	30.75	
1.000	1.000	65.10	0.000	0.000	UG2_4_26346_L_0						
42 D	10.44	-1.2893E-03	28.89	19.36	116.1	62.43	UL-RL	9429.	-7.900	32.84	
1.000	1.000	52.19	0.000	0.000	UG2_4_26346_L_0						
43 D	7.868	-2.9970E-03	30.70	4.420	118.0	63.39	UL-RL	9429.	-8.100	34.92	
1.000	1.000	39.34	0.000	0.000	UG2_4_26346_L_0						
44 D	7.401	-4.7000E-03	32.52	0.000	119.9	64.36	ACTIVE	0.000	-8.300	37.01	
1.000	1.000	37.01	0.000	0.000	UG2_4_26346_L_0						
45 D	7.818	-6.4006E-03	34.33	0.000	121.8	65.34	ACTIVE	0.000	-8.500	39.09	
1.000	1.000	39.09	0.000	0.000	UG2_4_26346_L_0						
46 D	4.118	-8.1006E-03	36.15	0.000	123.8	66.31	ACTIVE	0.000	-8.700	41.18	
1.000	1.000	41.18	0.000	0.000	UG2_4_26346_L_0						

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|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                   |
|                                                                                                                             |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                         |
|                                  Exe Time :14 May 2019       17:56:45                                                       |
+-----------------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   2

0_R                                                    :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   46
C U R R E N T   T I M E   I S      2.0000

  HARDENING 2D SOIL ELEMENT

  ****** TOTAL STRESS FORMULATION *****
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EL * FACTOR	FORCE UFACTOR	DISPL-Y Peq	VERTICAL-P Su_a	HORIZON.-P Su_p	MAX-V-P LAYER	MAX-H-P	STATE	STIFFNESS	Z-LEVEL	PORE	E
1	0.000	--	--	--	--	--	REMOVED	--	0.3000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
2	0.000	--	--	--	--	--	REMOVED	--	0.1000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
3 D	0.1347	-8.2311E-02	1.850	0.6734	1.850	0.9250	ACTIVE	0.000	-0.1000	0.000	
1.000	1.000	0.6734	0.000	0.000	UG0_2_10_L_0						
4 D	0.4040	-7.9960E-02	5.550	2.020	5.550	2.775	ACTIVE	0.000	-0.3000	0.000	
1.000	1.000	2.020	0.000	0.000	UG0_2_10_L_0						
5 D	0.6742	-7.7609E-02	9.261	3.371	9.261	5.851	ACTIVE	0.000	-0.5000	0.000	
1.000	1.000	3.371	0.000	0.000	UG0_2_10_L_0						
6 D	0.9485	-7.5259E-02	13.03	4.743	13.03	8.806	ACTIVE	0.000	-0.7000	0.000	
1.000	1.000	4.743	0.000	0.000	UG0_2_10_L_0						
7 D	1.230	-7.2908E-02	16.89	6.148	16.89	11.56	ACTIVE	0.000	-0.9000	0.000	
1.000	1.000	6.148	0.000	0.000	UG0_2_10_L_0						
8 D	1.518	-7.0558E-02	20.85	7.589	20.85	14.07	ACTIVE	0.000	-1.100	0.000	
1.000	1.000	7.589	0.000	0.000	UG0_2_10_L_0						
9 D	1.812	-6.8208E-02	24.89	9.058	24.89	16.36	ACTIVE	0.000	-1.300	0.000	
1.000	1.000	9.058	0.000	0.000	UG0_2_10_L_0						
10 D	2.109	-6.5859E-02	28.97	10.54	28.97	18.46	ACTIVE	0.000	-1.500	0.000	
1.000	1.000	10.54	0.000	0.000	UG0_2_10_L_0						
11 D	2.408	-6.3511E-02	33.07	12.04	33.07	20.40	ACTIVE	0.000	-1.700	0.000	
1.000	1.000	12.04	0.000	0.000	UG0_2_10_L_0						
12 D	2.706	-6.1165E-02	37.17	13.53	37.17	22.24	ACTIVE	0.000	-1.900	0.000	
1.000	1.000	13.53	0.000	0.000	UG0_2_10_L_0						
13 D	3.003	-5.8821E-02	41.25	15.02	41.25	23.99	ACTIVE	0.000	-2.100	0.000	
1.000	1.000	15.02	0.000	0.000	UG0_2_10_L_0						
14 D	3.318	-5.6480E-02	45.58	16.59	45.58	25.69	ACTIVE	0.000	-2.300	0.000	
1.000	1.000	16.59	0.000	0.000	UG0_2_10_L_0						
15 D	3.648	-5.4143E-02	50.11	18.24	50.11	27.35	ACTIVE	0.000	-2.500	0.000	
1.000	1.000	18.24	0.000	0.000	UG0_2_10_L_0						
16 D	3.959	-5.1812E-02	54.38	19.79	54.38	29.00	ACTIVE	0.000	-2.700	0.000	
1.000	1.000	19.79	0.000	0.000	UG0_2_10_L_0						
17 D	4.274	-4.9488E-02	58.71	21.37	58.71	30.64	ACTIVE	0.000	-2.900	0.000	
1.000	1.000	21.37	0.000	0.000	UG0_2_10_L_0						

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  18 D   4.584     -4.7172E-02   62.97       22.92       62.97       32.27          ACTIVE   0.000      -3.100       0.000
1.000       1.000       22.92       0.000       0.000     UG0_2_10_L_0
  19 D   0.000     -4.4866E-02   67.15       0.000       67.15       35.85          ACTIVE   0.000      -3.300       0.000
1.000       1.000       0.000       0.000       0.000     UG2_4_11_L_0
  20 D  0.1100     -4.2573E-02   71.50      0.5501       71.50       37.71          ACTIVE   0.000      -3.500       0.000
1.000       1.000      0.5501       0.000       0.000     UG2_4_11_L_0
  21 D  0.5014     -4.0294E-02   75.70       2.507       75.70       39.58          ACTIVE   0.000      -3.700       0.000
1.000       1.000       2.507       0.000       0.000     UG2_4_11_L_0
  22 D  0.8995     -3.8033E-02   79.97       4.497       79.97       41.46          ACTIVE   0.000      -3.900       0.000
1.000       1.000       4.497       0.000       0.000     UG2_4_11_L_0
  23 D   1.294     -3.5790E-02   84.20       6.471       84.20       43.35          ACTIVE   0.000      -4.100       0.000
1.000       1.000       6.471       0.000       0.000     UG2_4_11_L_0
  24 D   1.678     -3.3568E-02   88.32       8.391       88.32       45.25          ACTIVE   0.000      -4.300       0.000
1.000       1.000       8.391       0.000       0.000     UG2_4_11_L_0
  25 D   2.170     -3.1371E-02   91.55       9.895       91.55       46.65          ACTIVE   0.000      -4.500      0.9576
1.000       1.000       10.85       0.000       0.000     UG2_4_11_L_0
  26 D   2.763     -2.9199E-02   93.80       10.94       93.80       47.56          ACTIVE   0.000      -4.700       2.873
1.000       1.000       13.81       0.000       0.000     UG2_4_11_L_0
  27 D   3.346     -2.7056E-02   95.95       11.94       95.95       48.47          ACTIVE   0.000      -4.900       4.788
1.000       1.000       16.73       0.000       0.000     UG2_4_11_L_0
  28 D   3.936     -2.4944E-02   98.16       12.97       98.16       49.39          ACTIVE   0.000      -5.100       6.703
1.000       1.000       19.68       0.000       0.000     UG2_4_11_L_0
  29 D   4.517     -2.2865E-02   100.3       13.96       100.3       50.33          ACTIVE   0.000      -5.300       8.618
1.000       1.000       22.58       0.000       0.000     UG2_4_11_L_0
  30 D   5.065     -2.0821E-02   102.1       14.79       102.1       51.27          ACTIVE   0.000      -5.500       10.53
1.000       1.000       25.32       0.000       0.000     UG2_4_11_L_0
  31 D   10.22     -1.8811E-02   103.9       38.65       103.9       52.26          ACTIVE   0.000      -5.700       12.45
1.000       1.000       51.10       0.000       0.000     UG3_4271_12_L_0
  32 D   10.74     -1.6836E-02   105.8       39.36       105.8       53.27          ACTIVE   0.000      -5.900       14.36
1.000       1.000       53.72       0.000       0.000     UG3_4271_12_L_0
  33 D   11.27     -1.4894E-02   107.7       40.06       107.7       54.28          ACTIVE   0.000      -6.100       16.28
1.000       1.000       56.34       0.000       0.000     UG3_4271_12_L_0
  34 D   6.998     -1.2985E-02   109.5       16.80       109.5       55.27          ACTIVE   0.000      -6.300       18.19
1.000       1.000       34.99       0.000       0.000     UG2_4_26346_L_0
  35 D   7.543     -1.1109E-02   111.4       17.61       111.4       56.25          ACTIVE   0.000      -6.500       20.11
1.000       1.000       37.72       0.000       0.000     UG2_4_26346_L_0
  36 D   8.089     -9.2650E-03   113.2       18.42       113.2       57.23          ACTIVE   0.000      -6.700       22.02
1.000       1.000       40.44       0.000       0.000     UG2_4_26346_L_0
  37 D   8.635     -7.4501E-03   115.0       19.24       115.0       58.21          ACTIVE   0.000      -6.900       23.94
1.000       1.000       43.18       0.000       0.000     UG2_4_26346_L_0
  38 D   9.182     -5.6622E-03   116.8       20.05       116.8       59.21          ACTIVE   0.000      -7.100       25.85
1.000       1.000       45.91       0.000       0.000     UG2_4_26346_L_0
  39 D   10.24     -3.8982E-03   118.7       23.45       118.7       60.20          UL-RL    9429.      -7.300       27.77
1.000       1.000       51.22       0.000       0.000     UG2_4_26346_L_0
  40 D   14.12     -2.1543E-03   120.5       40.89       120.5       61.20          UL-RL    9429.      -7.500       29.68
1.000       1.000       70.58       0.000       0.000     UG2_4_26346_L_0
  41 D   17.96     -4.2655E-04   122.4       58.19       122.4       62.21          UL-RL    9429.      -7.700       31.60
1.000       1.000       89.79       0.000       0.000     UG2_4_26346_L_0
  42 D   20.16      1.2893E-03   124.2       67.27       124.2       67.27            V-C    3143.      -7.900       33.52
1.000       1.000       100.8       0.000       0.000     UG2_4_26346_L_0
  43 D   21.82      2.9970E-03   126.1       73.65       126.1       73.65            V-C    3143.      -8.100       35.43
1.000       1.000       109.1       0.000       0.000     UG2_4_26346_L_0
  44 D   23.47      4.7000E-03   128.0       80.01       128.0       80.01            V-C    3143.      -8.300       37.35
1.000       1.000       117.4       0.000       0.000     UG2_4_26346_L_0
  45 D   25.13      6.4006E-03   129.8       86.38       129.8       86.38            V-C    3143.      -8.500       39.26
1.000       1.000       125.6       0.000       0.000     UG2_4_26346_L_0
  46 D   13.39      8.1006E-03   131.7       92.74       131.7       92.74            V-C    3143.      -8.700       41.18
1.000       1.000       133.9       0.000       0.000     UG2_4_26346_L_0


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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                         |
|                                    NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                   |
|                                    Exe Time :14 May 2019       17:56:45                                                 |
+-------------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S    R E S U L T S    F O R    G R O U P    N O.    3

WallElement_New_28707                                    :
ELEMENT TYPE    2 NO.OF ELEMENTS. IN THIS GROUP   45
C U R R E N T    T I M E    I S      2.0000

 WALL2D ELEMENT

   EL      TA          TB          MA          MB
-----------------------------------------------------
    1-1.90994E-10 1.90994E-10 1.13687E-13 1.84173E-11
    2 1.97724E-09-1.97724E-09 1.87924E-10-7.52607E-11
    3-0.13468     0.13468     6.53699E-11-2.69360E-02
    4-0.53872     0.53872     2.69360E-02-0.13468
    5 -1.2129      1.2129     0.13468    -0.37726
    6 -2.1614      2.1614     0.37726    -0.80955
    7 -3.3911      3.3911     0.80955     -1.4878
    8 -4.9090      4.9090      1.4878     -2.4696
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  9 -6.7207      6.7207      2.4696     -3.8137
 10 -8.8297      8.8297      3.8137     -5.5796
 11 -11.237      11.237      5.5796     -7.8271
 12 -13.943      13.943      7.8271     -10.616
 13 -16.947      16.947      10.616     -14.005
 14 -20.265      20.265      14.005     -18.058
 15 -23.913      23.913      18.058     -22.841
 16 -27.872      27.872      22.841     -28.415
 17 -32.146      32.146      28.415     -34.844
 18 -36.730      36.730      34.844     -42.190
 19 -36.730      36.730      42.190     -49.536
 20 -36.840      36.840      49.536     -56.904
 21 -37.342      37.342      56.904     -64.373
 22 -38.241      38.241      64.373     -72.021
 23 -39.535      39.535      72.021     -79.928
 24 -41.214      41.214      79.928     -88.171
 25 -43.384      43.384      88.171     -96.848
 26 -46.147      46.147      96.848     -106.08
 27 -33.206      33.206      106.08     -112.72
 28 -19.516      19.516      112.72     -116.62
 29 -5.0704      5.0704      116.62     -117.64
 30  10.164     -10.164      117.64     -115.60
 31  8.0332     -8.0332      115.60     -114.00
 32  7.1404     -7.1404      114.00     -112.57
 33  7.4854     -7.4854      112.57     -111.07
 34  20.624     -20.624      111.07     -106.95
 35  32.671     -32.671      106.95     -100.41
 36  43.642     -43.642      100.41     -91.683
 37  53.555     -53.555      91.683     -80.972
 38  62.424     -62.424      80.972     -68.488
 39  69.749     -69.749      68.488     -54.538
 40  71.257     -71.257      54.538     -40.287
 41  66.320     -66.320      40.287     -27.023
 42  56.601     -56.601      27.023     -15.702
 43  42.654     -42.654      15.702     -7.1715
 44  26.583     -26.583      7.1715     -1.8548
 45  9.2739     -9.2739      1.8548    -5.45697E-12


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                         |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                     |
|                                  Exe Time :14 May 2019       17:56:45                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


    F I N A L    I N C R E M E N T A L    A N A L Y S I S

                  S U M M A R Y

    STEP                                  NO. OF ITERATIONS

       1          CONVERGENCE :YES                      2
       2          CONVERGENCE :YES                      7


 END OF PROCESS FOR PROBLEM
New Project
NONLINEAR SOLUTION CPU TIME ....    0.06 [sec]
DATABASE  CREATION CPU TIME.....    0.08 [sec]
```

7.5. Design Assumption : Nominal - File di SteelWorld - Report esteso (.ext)

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.     1
                                                          14 May 2019       17:56:46
                          DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------

                      ************************************
                      *                                  *
                      *              *   *               *
                      *           *         *            *
                      *         *             *          *
                      *        *    E  C  3    *         *
                      *        *               *         *
                      *         *     VER     *          *
                      *           *         *            *
                      *              *   *               *
                      *                                  *
                      ************************************
                      *                                  *
                      *  ref.EN  1993-5: February 2007   *
```

```
*      EUROCODE 3 - part 5         *
*      Design of Steel Structures  *
*                                  *
*           A PART OF              *
*                                  *
*       S T E E L W O R L D        *
*                                  *
*  VERSION:         RELEASE: 4.4   *
*                                  *
* IN USE BY Ce.A.S. s.r.l.         *
*                                  *
************************************
*       ATTEMPT NO.       1        *
*                                  *
************************************

          VERIFICATIONS WILL BE PERFORMED FOR LCASES 1 TO 4

      MEMBERS IN THE RANGE '*              ' WILL BE INCLUDED
```

CHECK OF DIRECTLY INPUT MEMBER LW0_S0

ELEMENT LW0_S0 SHAPE SEC_0 TYPE U
MATERIAL MAT_0 SHAPE NATURE =ROLLED

PRESCRIBED ACTIONS FOR CASE 1 SUBCASE 1

PT	X	N	T2	T3	MT	M2	M3
	m	kN	kN	kN	kN*m	kN*m	kN*m
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.200	0.000	0.000	0.000	0.000	0.000	0.000
3	0.400	0.000	0.000	0.000	0.000	0.000	0.000
4	0.600	0.000	0.000	0.000	0.000	0.000	0.000
5	0.800	0.000	0.000	0.000	0.000	0.000	0.000
6	1.000	0.000	0.000	0.000	0.000	0.000	0.000
7	1.200	0.000	0.000	0.000	0.000	0.000	0.000
8	1.400	0.000	0.000	0.000	0.000	0.000	0.000
9	1.600	0.000	0.000	0.000	0.000	0.000	0.000
10	1.800	0.000	0.000	0.000	0.000	0.000	0.000
11	2.000	0.000	0.000	0.000	0.000	0.000	0.000
12	2.200	0.000	0.000	0.000	0.000	0.000	0.000
13	2.400	0.000	0.000	0.000	0.000	0.000	0.000
14	2.600	0.000	0.000	0.000	0.000	0.000	0.000
15	2.800	0.000	0.000	0.000	0.000	0.000	0.000
16	3.000	0.000	0.000	0.000	0.000	0.000	0.000
17	3.200	0.000	0.000	0.000	0.000	0.000	0.000
18	3.400	0.000	0.000	0.000	0.000	0.000	0.000
19	3.600	0.000	0.000	0.000	0.000	0.000	0.000
20	3.800	0.000	0.000	0.000	0.000	0.000	0.000
21	4.000	0.000	0.000	0.000	0.000	0.000	0.000
22	4.200	0.000	0.000	0.000	0.000	0.000	0.000
23	4.400	0.000	0.000	0.000	0.000	0.000	0.000
24	4.600	0.000	0.000	0.000	0.000	0.000	0.000
25	4.800	0.000	0.000	0.000	0.000	0.000	0.000
26	5.000	0.000	0.000	0.000	0.000	0.000	0.000
27	5.200	0.000	0.000	0.000	0.000	0.000	0.000
28	5.400	0.000	0.000	0.000	0.000	0.000	0.000
29	5.600	0.000	0.000	0.000	0.000	0.000	0.000
30	5.800	0.000	0.000	0.000	0.000	0.000	0.000
31	6.000	0.000	0.000	0.000	0.000	0.000	0.000
32	6.200	0.000	0.000	0.000	0.000	0.000	0.000
33	6.400	0.000	0.000	0.000	0.000	0.000	0.000
34	6.600	0.000	0.000	0.000	0.000	0.000	0.000
35	6.800	0.000	0.000	0.000	0.000	0.000	0.000
36	7.000	0.000	0.000	0.000	0.000	0.000	0.000
37	7.200	0.000	0.000	0.000	0.000	0.000	0.000
38	7.400	0.000	0.000	0.000	0.000	0.000	0.000
39	7.600	0.000	0.000	0.000	0.000	0.000	0.000

```
                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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40     7.800  0.000      0.000      0.000      0.000      0.000      0.000
41     8.000  0.000      0.000      0.000      0.000      0.000      0.000
42     8.200  0.000      0.000      0.000      0.000      0.000      0.000
43     8.400  0.000      0.000      0.000      0.000      0.000      0.000
44     8.600  0.000      0.000      0.000      0.000      0.000      0.000
45     8.800  0.000      0.000      0.000      0.000      0.000      0.000
46     9.000  0.000      0.000      0.000      0.000      0.000      0.000


EC3:       CSTVEREC3P MODULE: START
           ************************

           Partial safety factors as used in this code
           Gamma M0  =    1.050
           Gamma M1  =    1.050
           Gamma M2  =    1.250


EC3 PILING: START RESISTANCE CHECKS


           Section no.     1 at x=  0.000000     [mm]
           selected class for current cross section =  2

                betab     1.000
                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


            Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

           Section no.     1 at x=  0.000000     [mm]
           selected class for current cross section =  2
           resist. ratio according to 5.1       =    0.000
           resist. ratio according to 5.4       =    0.000
           max. resist. ratio (max. among above)=    0.000
           web buckling ratio (5.7)             =    0.000

           Section no.     2 at x=  200.0000     [mm]
           selected class for current cross section =  2


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                       PAG.     4
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


            Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

           Section no.     2 at x=  200.0000     [mm]
           selected class for current cross section =  2
           resist. ratio according to 5.1       =    0.000
           resist. ratio according to 5.4       =    0.000
           max. resist. ratio (max. among above)=    0.000
           web buckling ratio (5.7)             =    0.000

           Section no.     3 at x=  400.0000     [mm]
           selected class for current cross section =  2

                betab     1.000
                 Wply    0.3269E+07
```

```
                fy     275.0
           gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     4 at x=  600.0000     [mm]


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.     5
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000



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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.     6
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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```
          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000


--------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.     7
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
```

```
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000


-------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.     8
                                                    14 May 2019       17:56:46
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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          web buckling ratio (5.7)             =    0.000

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000


-------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.     9
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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          max. resist. ratio (max. among above)=    0.000
```

```
          web buckling ratio (5.7)             =    0.000

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000


-------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    10
                                                    14 May 2019       17:56:46
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-------------------------------------------------------------------------------
                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------

          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2
```

```
               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2


-------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                       PAG.    11
                                                    14 May 2019       17:56:46
                        DEFAULT TITLE FOR STEEL-WORLD
-------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------

          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    17 at x=  3200.000     [mm]


-------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                       PAG.    12
                                                    14 May 2019       17:56:46
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------

          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
```

```
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)              =    0.000

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1        =    0.000
          resist. ratio according to 5.4        =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)              =    0.000

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09



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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                       PAG.    13
                                                    14 May 2019       17:56:46
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1        =    0.000
          resist. ratio according to 5.4        =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)              =    0.000

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1        =    0.000
          resist. ratio according to 5.4        =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)              =    0.000

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2
```

```
                betab     1.000
                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    14
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          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction




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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    15
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
```

```
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction



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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    16
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    27 at x=  5200.000     [mm]
```

```
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    17
                                                    14 May 2019       17:56:46
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09




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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    18
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2
```

```
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



--------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                      PAG.    19
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000
```

```
          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



--------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    20
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


--------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    21
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    35 at x=  6799.998     [mm]
```

```
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050



--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    22
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5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000
```

```
          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050


-------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    23
                                                      14 May 2019       17:56:46
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5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    41 at x=  7999.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0


-------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    24
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             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09
```

```
          Section no.    41 at x=  7999.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    42 at x=  8199.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    42 at x=  8199.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    43 at x=  8399.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    25
                                                    14 May 2019       17:56:46
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                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    43 at x=  8399.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    44 at x=  8599.996     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    44 at x=  8599.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
```

```
          web buckling ratio (5.7)             =    0.000

          Section no.    45 at x=  8799.996     [mm]
          selected class for current cross section =  2

               betab     1.000


-------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    26
                                                      14 May 2019       17:56:46
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------

                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    45 at x=  8799.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    46 at x=  9000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    46 at x=  9000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Summary of resistance checks over all the sections
          max selected class: 2, at station no.  46
          maximum resistance   ratio              =    0.000


-------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    27
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          maximum web buckling ratio             =    0.000

EC3 PILING: START BUCKLING CHECKS


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  1
           zstart      =  0.000000     [mm]  zend=    300.0000     [mm]
           buckl. length about x-x      =  300.0000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION
```

```
Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      0.0000     XMAX =      300.00
               BXMIN=      0.0000     BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      9000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : PSI         0.0000
  "     "    Cm          0.0000
  "     "    MQ          0.0000
  "     "    Mmax        0.0000
  "     "    MQ/Mmax&lt;1/50 -&gt; LINEAR
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      =  0.0000
          Max. bending moment (abs value) [kNm]=  0.0000


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


          No axial compression: skipping buckling


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  2
           zstart      =  300.0000     [mm]  zend=    9000.000     [mm]
           buckl. length about x-x      =  8700.000     [mm]



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CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      300.00     XMAX =      9000.0
               BXMIN=      0.0000     BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      9000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : PSI         0.0000
  "     "    Cm          0.0000
  "     "    MQ          0.0000
  "     "    Mmax        0.0000
  "     "    MQ/Mmax&lt;1/50 -&gt; LINEAR
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      =  0.0000
          Max. bending moment (abs value) [kNm]=  0.0000


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


          No axial compression: skipping buckling


LCASE          1  SUBCASE    1
FOUND AT ACTION FILE LINE N.       64
EC3_EN_1993-5:20   RESISTANCE RATIO            0.000
                   AXIAL   BUCKLING RATIO      0.000
                   LATERAL BUCKLING RATIO      0.000
                   LOCAL   BUCKLING RATIO      0.000
                   RETURNED ERROR CODE            0
```

PRESCRIBED ACTIONS FOR CASE 2 SUBCASE 1

PT	X	N	T2	T3	MT	M2	M3
	m	kN	kN	kN	kN*m	kN*m	kN*m
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.200	0.000	0.000	0.000	0.000	0.000	0.000

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3	0.400	0.000	0.000	0.000	0.000	0.000	0.000
4	0.600	0.000	0.000	0.000	0.000	0.000	0.000
5	0.800	0.000	0.000	0.000	0.000	0.000	0.000
6	1.000	0.000	0.000	0.000	0.000	0.000	0.000
7	1.200	0.000	0.000	0.000	0.000	0.000	0.000
8	1.400	0.000	0.000	0.000	0.000	0.000	0.000
9	1.600	0.000	0.000	0.000	0.000	0.000	0.000
10	1.800	0.000	0.000	0.000	0.000	0.000	0.000
11	2.000	0.000	0.000	0.000	0.000	0.000	0.000
12	2.200	0.000	0.000	0.000	0.000	0.000	0.000
13	2.400	0.000	0.000	0.000	0.000	0.000	0.000
14	2.600	0.000	0.000	0.000	0.000	0.000	0.000
15	2.800	0.000	0.000	0.000	0.000	0.000	0.000
16	3.000	0.000	0.000	0.000	0.000	0.000	0.000
17	3.200	0.000	0.000	0.000	0.000	0.000	0.000
18	3.400	0.000	0.000	0.000	0.000	0.000	0.000
19	3.600	0.000	0.000	0.000	0.000	0.000	0.000
20	3.800	0.000	0.000	0.000	0.000	0.000	0.000
21	4.000	0.000	0.000	0.000	0.000	0.000	0.000
22	4.200	0.000	0.000	0.000	0.000	0.000	0.000
23	4.400	0.000	0.000	0.000	0.000	0.000	0.000
24	4.600	0.000	0.000	0.000	0.000	0.000	0.000
25	4.800	0.000	0.000	0.000	0.000	0.000	0.000
26	5.000	0.000	0.000	0.000	0.000	0.000	0.000
27	5.200	0.000	0.000	0.000	0.000	0.000	0.000
28	5.400	0.000	0.000	0.000	0.000	0.000	0.000
29	5.600	0.000	0.000	0.000	0.000	0.000	0.000
30	5.800	0.000	0.000	0.000	0.000	0.000	0.000
31	6.000	0.000	0.000	0.000	0.000	0.000	0.000
32	6.200	0.000	0.000	0.000	0.000	0.000	0.000
33	6.400	0.000	0.000	0.000	0.000	0.000	0.000
34	6.600	0.000	0.000	0.000	0.000	0.000	0.000
35	6.800	0.000	0.000	0.000	0.000	0.000	0.000
36	7.000	0.000	0.000	0.000	0.000	0.000	0.000
37	7.200	0.000	0.000	0.000	0.000	0.000	0.000
38	7.400	0.000	0.000	0.000	0.000	0.000	0.000
39	7.600	0.000	0.000	0.000	0.000	0.000	0.000
40	7.800	0.000	0.000	0.000	0.000	0.000	0.000
41	8.000	0.000	0.000	0.000	0.000	0.000	0.000
42	8.200	0.000	0.000	0.000	0.000	0.000	0.000
43	8.400	0.000	0.000	0.000	0.000	0.000	0.000
44	8.600	0.000	0.000	0.000	0.000	0.000	0.000
45	8.800	0.000	0.000	0.000	0.000	0.000	0.000
46	9.000	0.000	0.000	0.000	0.000	0.000	0.000

EC3: CSTVEREC3P MODULE: START

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****

Partial safety factors as used in this code
Gamma M0 = 1.050
Gamma M1 = 1.050
Gamma M2 = 1.250

EC3 PILING: START RESISTANCE CHECKS

Section no. 1 at x= 0.000000 [mm]

```
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09




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--------------------------------------------------------------------------------

           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
```

```
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



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--------------------------------------------------------------------------------


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    33
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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000
```

```
          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


--------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                       PAG.    34
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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
```

```
                fy      275.0
          gammaM0       1.050


--------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    35
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--------------------------------------------------------------------------------

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050


--------------------------------------------------------------------------------
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--------------------------------------------------------------------------------


5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000
```

```
          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0


--------------------------------------------------------------------------------
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--------------------------------------------------------------------------------

             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
```

```
                Wply     0.3269E+07


-------------------------------------------------------------------------------
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-------------------------------------------------------------------------------

                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply     0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2

               betab     1.000


-------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                          PAG.    39
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------

                Wply     0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
```

```
          web buckling ratio (5.7)             =    0.000

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2



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--------------------------------------------------------------------------------

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
```

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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                       PAG.    41
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               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    24 at x=  4600.000     [mm]



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--------------------------------------------------------------------------------

          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
```

```
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)              =    0.000

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1        =    0.000
          resist. ratio according to 5.4        =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)              =    0.000



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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1        =    0.000
          resist. ratio according to 5.4        =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)              =    0.000

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1        =    0.000
          resist. ratio according to 5.4        =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)              =    0.000
```

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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    44
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000


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--------------------------------------------------------------------------------

          web buckling ratio (5.7)             =    0.000

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2
```

```
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                      PAG.    46
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------

          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000


-------------------------------------------------------------------------------
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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    47
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------------------------------------------------------------------------------

          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2


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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    48
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
------------------------------------------------------------------------------

          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    36 at x=  6999.998     [mm]
```

```
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    37 at x=  7199.998     [mm]


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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                       PAG.    49
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-------------------------------------------------------------------------------

          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09



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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                       PAG.    50
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          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    41 at x=  7999.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09


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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    51
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-------------------------------------------------------------------------------


          Section no.    41 at x=  7999.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    42 at x=  8199.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09
```

```
          Section no.    42 at x=  8199.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    43 at x=  8399.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction



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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    52
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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    43 at x=  8399.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    44 at x=  8599.996     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    44 at x=  8599.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    45 at x=  8799.996     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction



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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    53
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    45 at x=  8799.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    46 at x=  9000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    46 at x=  9000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Summary of resistance checks over all the sections
          max salected class: 2, at station no.  46
          maximum resistance   ratio               =    0.000
          maximum web buckling ratio               =    0.000

EC3 PILING: START BUCKLING CHECKS


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  1
           zstart      =  0.000000     [mm]  zend=    300.0000     [mm]
           buckl. length about x-x      =  300.0000     [mm]




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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                      PAG.    54
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CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      0.0000     XMAX =      300.00
               BXMIN=      0.0000     BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      9000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : PSI         0.0000
  "     "    Cm          0.0000
  "     "    MQ          0.0000
  "     "    Mmax        0.0000
  "     "    MQ/Mmax&lt;1/50 -&gt; LINEAR
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      =  0.0000
          Max. bending moment (abs value) [kNm]=  0.0000


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********
```

```
******* EUROCODE 3 PART 5 - 2007 ******

          No axial compression: skipping buckling


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  2
           zstart      =  300.0000     [mm]  zend=    9000.000     [mm]
           buckl. length about x-x      =  8700.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3    : XMIN =      300.00     XMAX =      9000.0
                BXMIN=      0.0000     BXMAX=      0.0000
                X(1) =      0.0000     X(N) =      9000.0



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               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : PSI          0.0000
  "     "    Cm           0.0000
  "     "    MQ           0.0000
  "     "    Mmax         0.0000
  "     "    MQ/Mmax&lt;1/50 -&gt; LINEAR
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      =  0.0000
          Max. bending moment (abs value) [kNm]=  0.0000


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


          No axial compression: skipping buckling


LCASE          2  SUBCASE    1
FOUND AT ACTION FILE LINE N.      180
EC3_EN_1993-5:20   RESISTANCE RATIO            0.000
                   AXIAL   BUCKLING RATIO      0.000
                   LATERAL BUCKLING RATIO      0.000
                   LOCAL   BUCKLING RATIO      0.000
                   RETURNED ERROR CODE            0

PRESCRIBED ACTIONS FOR CASE        3 SUBCASE    1

PT      X           N          T2          T3          MT          M2          M3
        m          kN          kN          kN          kN*m        kN*m        kN*m
 1     0.000  0.000       0.000       0.000       0.000       0.000       0.000
 2     0.200  0.000       0.000       0.000       0.000       0.000       0.000
 3     0.400  0.000       0.000       0.000       0.000       0.000       0.000
 4     0.600  0.000       0.000       0.000       0.000       0.000       0.000
 5     0.800  0.000       0.000       0.000       0.000       0.000       0.000
 6     1.000  0.000       0.000       0.000       0.000       0.000       0.000
 7     1.200  0.000       0.000       0.000       0.000       0.000       0.000
 8     1.400  0.000       0.000       0.000       0.000       0.000       0.000
 9     1.600  0.000       0.000       0.000       0.000       0.000       0.000
10     1.800  0.000       0.000       0.000       0.000       0.000       0.000
11     2.000  0.000       0.000       0.000       0.000       0.000       0.000
12     2.200  0.000       0.000       0.000       0.000       0.000       0.000



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13     2.400  0.000      0.000      0.000      0.000      0.000      0.000
14     2.600  0.000      0.000      0.000      0.000      0.000      0.000
15     2.800  0.000      0.000      0.000      0.000      0.000      0.000
16     3.000  0.000      0.000      0.000      0.000      0.000      0.000
17     3.200  0.000      0.000      0.000      0.000      0.000      0.000
18     3.400  0.000      0.000      0.000      0.000      0.000      0.000
19     3.600  0.000      0.000      0.000      0.000      0.000      0.000
20     3.800  0.000      0.000      0.000      0.000      0.000      0.000
21     4.000  0.000      0.000      0.000      0.000      0.000      0.000
22     4.200  0.000      0.000      0.000      0.000      0.000      0.000
23     4.400  0.000      0.000      0.000      0.000      0.000      0.000
24     4.600  0.000      0.000      0.000      0.000      0.000      0.000
25     4.800  0.000      0.000      0.000      0.000      0.000      0.000
26     5.000  0.000      0.000      0.000      0.000      0.000      0.000
27     5.200  0.000      0.000      0.000      0.000      0.000      0.000
28     5.400  0.000      0.000      0.000      0.000      0.000      0.000
29     5.600  0.000      0.000      0.000      0.000      0.000      0.000
30     5.800  0.000      0.000      0.000      0.000      0.000      0.000
31     6.000  0.000      0.000      0.000      0.000      0.000      0.000
32     6.200  0.000      0.000      0.000      0.000      0.000      0.000
33     6.400  0.000      0.000      0.000      0.000      0.000      0.000
34     6.600  0.000      0.000      0.000      0.000      0.000      0.000
35     6.800  0.000      0.000      0.000      0.000      0.000      0.000
36     7.000  0.000      0.000      0.000      0.000      0.000      0.000
37     7.200  0.000      0.000      0.000      0.000      0.000      0.000
38     7.400  0.000      0.000      0.000      0.000      0.000      0.000
39     7.600  0.000      0.000      0.000      0.000      0.000      0.000
40     7.800  0.000      0.000      0.000      0.000      0.000      0.000
41     8.000  0.000      0.000      0.000      0.000      0.000      0.000
42     8.200  0.000      0.000      0.000      0.000      0.000      0.000
43     8.400  0.000      0.000      0.000      0.000      0.000      0.000
44     8.600  0.000      0.000      0.000      0.000      0.000      0.000
45     8.800  0.000      0.000      0.000      0.000      0.000      0.000
46     9.000  0.000      0.000      0.000      0.000      0.000      0.000


EC3:       CSTVEREC3P MODULE: START
           **********************

           Partial safety factors as used in this code
           Gamma M0  =    1.050
           Gamma M1  =    1.050
           Gamma M2  =    1.250


EC3 PILING: START RESISTANCE CHECKS



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           Section no.     1 at x=  0.000000     [mm]
           selected class for current cross section =  2

                betab     1.000
                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


            Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

           Section no.     1 at x=  0.000000     [mm]
           selected class for current cross section =  2
           resist. ratio according to 5.1       =    0.000
           resist. ratio according to 5.4       =    0.000
           max. resist. ratio (max. among above)=    0.000
           web buckling ratio (5.7)             =    0.000

           Section no.     2 at x=  200.0000     [mm]
```

```
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000


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          web buckling ratio (5.7)             =    0.000

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000


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          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000


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          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000
```

```
          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2


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          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    10 at x=  1800.000     [mm]


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```
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09



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          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000
```

```
          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09


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          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction



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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09
```

```
          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction



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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
```

```
          web buckling ratio (5.7)             =    0.000

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09




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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09
```

```
          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



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           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
```

```
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)              =    0.000

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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           Moment resistance: no need to consider shear reduction
```

```
5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050



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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                      PAG.    72
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
```

```
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    73
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0


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             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction
```

```
5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    75
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                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2
```

```
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2

               betab     1.000


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                Wply    0.3269E+07
                  fy     275.0
            gammaM0      1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
            gammaM0      1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2



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               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
            gammaM0      1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction
```

```
5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    41 at x=  7999.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    41 at x=  7999.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    42 at x=  8199.997     [mm]
          selected class for current cross section =  2


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               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    42 at x=  8199.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    43 at x=  8399.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    43 at x=  8399.997     [mm]
```

```
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    44 at x=  8599.996     [mm]


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          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    44 at x=  8599.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    45 at x=  8799.996     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    45 at x=  8799.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000



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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    80
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          Section no.    46 at x=  9000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09
```

```
          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    46 at x=  9000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Summary of resistance checks over all the sections
          max selected class: 2, at station no.  46
          maximum resistance   ratio               =    0.000
          maximum web buckling ratio               =    0.000

EC3 PILING: START BUCKLING CHECKS


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  1
           zstart      =  0.000000     [mm]  zend=    300.0000     [mm]
           buckl. length about x-x      =  300.0000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      0.0000     XMAX =      300.00
               BXMIN=      0.0000     BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      9000.0
               M(1) =      0.0000     M(N) =      0.0000



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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    81
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Table B.3  : PSI          0.0000
  "     "    Cm           0.0000
  "     "    MQ           0.0000
  "     "    Mmax         0.0000
  "     "    MQ/Mmax&lt;1/50 -&gt; LINEAR
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      =  0.0000
          Max. bending moment (abs value) [kNm]=  0.0000


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


          No axial compression: skipping buckling


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  2
           zstart      =  300.0000     [mm]  zend=    9000.000     [mm]
           buckl. length about x-x      =  8700.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      300.00     XMAX =      9000.0
               BXMIN=      0.0000     BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      9000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : PSI          0.0000
  "     "    Cm           0.0000
  "     "    MQ           0.0000
```

```
  "     "    Mmax        0.0000
  "     "    MQ/Mmax&lt;1/50 -&gt; LINEAR
Annex B:    TABLE   B.3

          Moment about axis:     Y


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                          PAG.    82
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          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      =  0.0000
          Max. bending moment (abs value) [kNm]=  0.0000


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


          No axial compression: skipping buckling


LCASE          3  SUBCASE    1
FOUND AT ACTION FILE LINE N.      296
EC3_EN_1993-5:20   RESISTANCE RATIO            0.000
                   AXIAL   BUCKLING RATIO      0.000
                   LATERAL BUCKLING RATIO      0.000
                   LOCAL   BUCKLING RATIO      0.000
                   RETURNED ERROR CODE             0

PRESCRIBED ACTIONS FOR CASE        4 SUBCASE    1

PT     X          N          T2         T3         MT         M2         M3
       m         kN         kN         kN         kN*m       kN*m       kN*m
 1     0.000  0.000      0.000      0.000      0.000      0.000      0.000
 2     0.200  0.000      0.000      0.000      0.000      0.000      0.000
 3     0.400  0.000      0.000      0.000      0.000      0.000      0.000
 4     0.600  0.000      0.000      0.000      0.000      0.000      0.000
 5     0.800  0.000      0.000      0.000      0.000      0.000      0.000
 6     1.000  0.000      0.000      0.000      0.000      0.000      0.000
 7     1.200  0.000      0.000      0.000      0.000      0.000      0.000
 8     1.400  0.000      0.000      0.000      0.000      0.000      0.000
 9     1.600  0.000      0.000      0.000      0.000      0.000      0.000
10     1.800  0.000      0.000      0.000      0.000      0.000      0.000
11     2.000  0.000      0.000      0.000      0.000      0.000      0.000
12     2.200  0.000      0.000      0.000      0.000      0.000      0.000
13     2.400  0.000      0.000      0.000      0.000      0.000      0.000
14     2.600  0.000      0.000      0.000      0.000      0.000      0.000
15     2.800  0.000      0.000      0.000      0.000      0.000      0.000
16     3.000  0.000      0.000      0.000      0.000      0.000      0.000
17     3.200  0.000      0.000      0.000      0.000      0.000      0.000
18     3.400  0.000      0.000      0.000      0.000      0.000      0.000
19     3.600  0.000      0.000      0.000      0.000      0.000      0.000
20     3.800  0.000      0.000      0.000      0.000      0.000      0.000
21     4.000  0.000      0.000      0.000      0.000      0.000      0.000
22     4.200  0.000      0.000      0.000      0.000      0.000      0.000


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                          PAG.    83
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23     4.400  0.000      0.000      0.000      0.000      0.000      0.000
24     4.600  0.000      0.000      0.000      0.000      0.000      0.000
25     4.800  0.000      0.000      0.000      0.000      0.000      0.000
26     5.000  0.000      0.000      0.000      0.000      0.000      0.000
27     5.200  0.000      0.000      0.000      0.000      0.000      0.000
28     5.400  0.000      0.000      0.000      0.000      0.000      0.000
29     5.600  0.000      0.000      0.000      0.000      0.000      0.000
30     5.800  0.000      0.000      0.000      0.000      0.000      0.000
31     6.000  0.000      0.000      0.000      0.000      0.000      0.000
32     6.200  0.000      0.000      0.000      0.000      0.000      0.000
33     6.400  0.000      0.000      0.000      0.000      0.000      0.000
```

```
34     6.600  0.000      0.000      0.000      0.000      0.000      0.000
35     6.800  0.000      0.000      0.000      0.000      0.000      0.000
36     7.000  0.000      0.000      0.000      0.000      0.000      0.000
37     7.200  0.000      0.000      0.000      0.000      0.000      0.000
38     7.400  0.000      0.000      0.000      0.000      0.000      0.000
39     7.600  0.000      0.000      0.000      0.000      0.000      0.000
40     7.800  0.000      0.000      0.000      0.000      0.000      0.000
41     8.000  0.000      0.000      0.000      0.000      0.000      0.000
42     8.200  0.000      0.000      0.000      0.000      0.000      0.000
43     8.400  0.000      0.000      0.000      0.000      0.000      0.000
44     8.600  0.000      0.000      0.000      0.000      0.000      0.000
45     8.800  0.000      0.000      0.000      0.000      0.000      0.000
46     9.000  0.000      0.000      0.000      0.000      0.000      0.000


EC3:       CSTVEREC3P MODULE: START
           ************************

           Partial safety factors as used in this code
           Gamma M0  =    1.050
           Gamma M1  =    1.050
           Gamma M2  =    1.250


EC3 PILING: START RESISTANCE CHECKS


           Section no.     1 at x=  0.000000     [mm]
           selected class for current cross section =  2

                betab     1.000
                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------



            Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

           Section no.     1 at x=  0.000000     [mm]
           selected class for current cross section =  2
           resist. ratio according to 5.1       =    0.000
           resist. ratio according to 5.4       =    0.000
           max. resist. ratio (max. among above)=    0.000
           web buckling ratio (5.7)             =    0.000

           Section no.     2 at x=  200.0000     [mm]
           selected class for current cross section =  2

                betab     1.000
                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


            Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

           Section no.     2 at x=  200.0000     [mm]
           selected class for current cross section =  2
           resist. ratio according to 5.1       =    0.000
           resist. ratio according to 5.4       =    0.000
           max. resist. ratio (max. among above)=    0.000
           web buckling ratio (5.7)             =    0.000

           Section no.     3 at x=  400.0000     [mm]
           selected class for current cross section =  2
```

```
                betab     1.000
                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                       PAG.    85
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-----------------------------------------------------------------------------

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                       PAG.    86
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-----------------------------------------------------------------------------
                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-----------------------------------------------------------------------------

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
```

```
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0


-------------------------------------------------------------------------------
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-------------------------------------------------------------------------------

             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     9 at x=  1600.000     [mm]
```

```
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07


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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    88
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-------------------------------------------------------------------------------

                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2

               betab     1.000


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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    89
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                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2
```

```
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2



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--------------------------------------------------------------------------------

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000
```

```
          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2


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--------------------------------------------------------------------------------


               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    17 at x=  3200.000     [mm]



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--------------------------------------------------------------------------------

          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    17 at x=  3200.000     [mm]
```

```
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000



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          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
```

```
          web buckling ratio (5.7)             =    0.000


-------------------------------------------------------------------------------
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          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000


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          web buckling ratio (5.7)             =    0.000

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09
```

```
          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000


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          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    97
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          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2



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--------------------------------------------------------------------------------

          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction
```

```
5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    30 at x=  5799.999     [mm]


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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                      PAG.    99
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--------------------------------------------------------------------------------

          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09
```

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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   100
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09


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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   101
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          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction
```

```
5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction




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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                      PAG.   102
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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction



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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   103
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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    41 at x=  7999.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09
```

```
           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    41 at x=  7999.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    42 at x=  8199.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09




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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    42 at x=  8199.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    43 at x=  8399.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    43 at x=  8399.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    44 at x=  8599.996     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09




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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    44 at x=  8599.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    45 at x=  8799.996     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    45 at x=  8799.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    46 at x=  9000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    46 at x=  9000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Summary of resistance checks over all the sections
          max selected class: 2, at station no.  46
          maximum resistance   ratio                =    0.000
          maximum web buckling ratio                =    0.000

EC3 PILING: START BUCKLING CHECKS


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  1
           zstart      =  0.000000     [mm]  zend=    300.0000     [mm]
           buckl. length about x-x      =  300.0000     [mm]
```

```
CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      0.0000     XMAX =      300.00
               BXMIN=      0.0000     BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      9000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : PSI         0.0000
  "     "    Cm          0.0000
  "     "    MQ          0.0000
  "     "    Mmax        0.0000
  "     "    MQ/Mmax&lt;1/50 -&gt; LINEAR
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      =  0.0000


------------------------------------------------------------------------------
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          Max. bending moment (abs value) [kNm]=  0.0000


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


          No axial compression: skipping buckling


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  2
           zstart      =  300.0000     [mm]  zend=    9000.000     [mm]
           buckl. length about x-x      =  8700.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      300.00     XMAX =      9000.0
               BXMIN=      0.0000     BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      9000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : PSI         0.0000
  "     "    Cm          0.0000
  "     "    MQ          0.0000
  "     "    Mmax        0.0000
  "     "    MQ/Mmax&lt;1/50 -&gt; LINEAR
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      =  0.0000
          Max. bending moment (abs value) [kNm]=  0.0000


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********



------------------------------------------------------------------------------
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CHECK OF DIRECTLY INPUT MEMBER LW0_S0

******* EUROCODE 3 PART 5 - 2007 ******

No axial compression: skipping buckling

LCASE 4 SUBCASE 1
FOUND AT ACTION FILE LINE N. 412
EC3_EN_1993-5:20 RESISTANCE RATIO 0.000
AXIAL BUCKLING RATIO 0.000
LATERAL BUCKLING RATIO 0.000
LOCAL BUCKLING RATIO 0.000
RETURNED ERROR CODE 0

MEMBER LW0_S0
MAX RESISTANCE RATIO 0.000 FOR LCASE 4
MAX AXIAL BUCKLING RATIO 0.000 FOR LCASE 4
MAX LATERAL BUCKLING RATIO 0.000 FOR LCASE 4
MAX LOCAL BUCKLING RATIO 0.000 FOR LCASE 4

CHECK OF DIRECTLY INPUT MEMBER LW0_S1

ELEMENT LW0_S1 SHAPE SEC_0 TYPE U
MATERIAL MAT_0 SHAPE NATURE =ROLLED

PRESCRIBED ACTIONS FOR CASE 1 SUBCASE 1

PT	X	N	T2	T3	MT	M2	M3
	m	kN	kN	kN	kN*m	kN*m	kN*m
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.200	0.000	0.000	0.000	0.000	0.000	0.000
3	0.400	0.000	0.000	0.1054	0.000	0.000	0.000
4	0.600	0.000	0.000	0.4218	0.000	0.2109E-01	0.000
5	0.800	0.000	0.000	0.9497	0.000	0.1054	0.000
6	1.000	0.000	0.000	1.692	0.000	0.2954	0.000
7	1.200	0.000	0.000	2.655	0.000	0.6338	0.000
8	1.400	0.000	0.000	3.844	0.000	1.165	0.000
9	1.600	0.000	0.000	5.262	0.000	1.934	0.000
10	1.800	0.000	0.000	6.913	0.000	2.986	0.000
11	2.000	0.000	0.000	8.798	0.000	4.369	0.000
12	2.200	0.000	0.000	10.92	0.000	6.128	0.000
13	2.400	0.000	0.000	13.27	0.000	8.312	0.000
14	2.600	0.000	0.000	15.87	0.000	10.97	0.000
15	2.800	0.000	0.000	18.72	0.000	14.14	0.000
16	3.000	0.000	0.000	21.82	0.000	17.88	0.000
17	3.200	0.000	0.000	25.17	0.000	22.25	0.000
18	3.400	0.000	0.000	28.76	0.000	27.28	0.000
19	3.600	0.000	0.000	28.76	0.000	33.03	0.000
20	3.800	0.000	0.000	28.76	0.000	38.79	0.000
21	4.000	0.000	0.000	28.76	0.000	44.54	0.000
22	4.200	0.000	0.000	28.76	0.000	50.29	0.000
23	4.400	0.000	0.000	28.76	0.000	56.04	0.000
24	4.600	0.000	0.000	28.76	0.000	61.79	0.000
25	4.800	0.000	0.000	28.95	0.000	67.54	0.000
26	5.000	0.000	0.000	29.52	0.000	73.33	0.000
27	5.200	0.000	0.000	18.49	0.000	79.24	0.000
28	5.400	0.000	0.000	7.668	0.000	82.94	0.000
29	5.600	0.000	0.000	-2.906	0.000	84.47	0.000
30	5.800	0.000	0.000	-13.26	0.000	83.89	0.000
31	6.000	0.000	0.000	-14.94	0.000	81.24	0.000
32	6.200	0.000	0.000	-18.40	0.000	78.25	0.000
33	6.400	0.000	0.000	-22.62	0.000	74.57	0.000
34	6.600	0.000	0.000	-29.07	0.000	70.04	0.000
35	6.800	0.000	0.000	-34.02	0.000	64.23	0.000
36	7.000	0.000	0.000	-37.37	0.000	57.43	0.000
37	7.200	0.000	0.000	-39.20	0.000	49.95	0.000
38	7.400	0.000	0.000	-39.54	0.000	42.11	0.000
39	7.600	0.000	0.000	-38.45	0.000	34.20	0.000

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40     7.800  0.000      0.000     -35.95      0.000      26.51      0.000
41     8.000  0.000      0.000     -32.07      0.000      19.33      0.000
42     8.200  0.000      0.000     -26.82      0.000      12.91      0.000
43     8.400  0.000      0.000     -20.28      0.000      7.548      0.000
44     8.600  0.000      0.000     -12.87      0.000      3.491      0.000
45     8.800  0.000      0.000     -4.583      0.000     0.9167      0.000
46     9.000  0.000      0.000     -4.583      0.000      0.000      0.000


EC3:       CSTVEREC3P MODULE: START
           **********************

           Partial safety factors as used in this code
           Gamma M0  =    1.050
           Gamma M1  =    1.050
           Gamma M2  =    1.250


EC3 PILING: START RESISTANCE CHECKS


           Section no.     1 at x=  0.000000     [mm]
           selected class for current cross section =  2

                betab     1.000
                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


            Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

           Section no.     1 at x=  0.000000     [mm]
           selected class for current cross section =  2
           resist. ratio according to 5.1       =    0.000
           resist. ratio according to 5.4       =    0.000
           max. resist. ratio (max. among above)=    0.000
           web buckling ratio (5.7)             =    0.000

           Section no.     2 at x=  200.0000     [mm]
           selected class for current cross section =  2


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                betab     1.000
                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


            Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

           Section no.     2 at x=  200.0000     [mm]
           selected class for current cross section =  2
           resist. ratio according to 5.1       =    0.000
           resist. ratio according to 5.4       =    0.000
           max. resist. ratio (max. among above)=    0.000
           web buckling ratio (5.7)             =    0.000

           Section no.     3 at x=  400.0000     [mm]
           selected class for current cross section =  2
```

```
5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = 0.1054     kN , VplRd =  1117.     kN, ratio = 0.9441E-04

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000



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          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = 0.4218     kN , VplRd =  1117.     kN, ratio = 0.3776E-03

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = 0.9497     kN , VplRd =  1117.     kN, ratio = 0.8502E-03

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09




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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S1
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          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.001
          max. resist. ratio (max. among above)=    0.001
          web buckling ratio (5.7)             =    0.000

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  1.692     kN , VplRd =  1117.     kN, ratio = 0.1515E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.002
          max. resist. ratio (max. among above)=    0.002
          web buckling ratio (5.7)             =    0.000

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  2.655     kN , VplRd =  1117.     kN, ratio = 0.2377E-02



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              betab     1.000
               Wply    0.3269E+07
                 fy     275.0
            gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.001
          resist. ratio according to 5.4       =    0.002
          max. resist. ratio (max. among above)=    0.002
          web buckling ratio (5.7)             =    0.000

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  3.844     kN , VplRd =  1117.     kN, ratio = 0.3441E-02
```

```
               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.001
          resist. ratio according to 5.4       =    0.003
          max. resist. ratio (max. among above)=    0.003


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          web buckling ratio (5.7)             =    0.000

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  5.262     kN , VplRd =  1117.     kN, ratio = 0.4711E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.002
          resist. ratio according to 5.4       =    0.005
          max. resist. ratio (max. among above)=    0.005
          web buckling ratio (5.7)             =    0.000

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  6.913     kN , VplRd =  1117.     kN, ratio = 0.6190E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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```
5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.003
          resist. ratio according to 5.4       =    0.006
          max. resist. ratio (max. among above)=    0.006
          web buckling ratio (5.7)             =    0.000

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  8.798     kN , VplRd =  1117.     kN, ratio = 0.7877E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.005
          resist. ratio according to 5.4       =    0.008
          max. resist. ratio (max. among above)=    0.008
          web buckling ratio (5.7)             =    0.000

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  10.92     kN , VplRd =  1117.     kN, ratio = 0.9774E-02

               betab     1.000


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                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.007
          resist. ratio according to 5.4       =    0.010
          max. resist. ratio (max. among above)=    0.010
          web buckling ratio (5.7)             =    0.000

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  13.27     kN , VplRd =  1117.     kN, ratio = 0.1188E-01

               betab     1.000
                Wply    0.3269E+07
```

```
                fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.010
          resist. ratio according to 5.4       =    0.012
          max. resist. ratio (max. among above)=    0.012
          web buckling ratio (5.7)             =    0.000


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          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  15.87     kN , VplRd =  1117.     kN, ratio = 0.1421E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.013
          resist. ratio according to 5.4       =    0.014
          max. resist. ratio (max. among above)=    0.014
          web buckling ratio (5.7)             =    0.000

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  18.72     kN , VplRd =  1117.     kN, ratio = 0.1676E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction



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```
5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.017
          resist. ratio according to 5.4       =    0.017
          max. resist. ratio (max. among above)=    0.017
          web buckling ratio (5.7)             =    0.000

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  21.82     kN , VplRd =  1117.     kN, ratio = 0.1954E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.021
          resist. ratio according to 5.4       =    0.020
          max. resist. ratio (max. among above)=    0.021
          web buckling ratio (5.7)             =    0.000

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  25.17     kN , VplRd =  1117.     kN, ratio = 0.2253E-01

               betab     1.000
                Wply    0.3269E+07


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                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.026
          resist. ratio according to 5.4       =    0.023
          max. resist. ratio (max. among above)=    0.026
          web buckling ratio (5.7)             =    0.000

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  28.76     kN , VplRd =  1117.     kN, ratio = 0.2575E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050
```

```
5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.032
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.032
          web buckling ratio (5.7)             =    0.000



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          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  28.76     kN , VplRd =  1117.     kN, ratio = 0.2575E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.039
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.039
          web buckling ratio (5.7)             =    0.000

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  28.76     kN , VplRd =  1117.     kN, ratio = 0.2575E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction



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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    20 at x=  3800.000     [mm]
```

```
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.045
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.045
          web buckling ratio (5.7)             =    0.000

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  28.76     kN , VplRd =  1117.     kN, ratio = 0.2575E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.052
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.052
          web buckling ratio (5.7)             =    0.000

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  28.76     kN , VplRd =  1117.     kN, ratio = 0.2575E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0


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             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.059
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.059
          web buckling ratio (5.7)             =    0.000

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  28.76     kN , VplRd =  1117.     kN, ratio = 0.2575E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09
```

```
          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.065
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.065
          web buckling ratio (5.7)             =    0.000

          Section no.    24 at x=  4600.000     [mm]


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          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  28.76     kN , VplRd =  1117.     kN, ratio = 0.2575E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.072
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.072
          web buckling ratio (5.7)             =    0.000

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  28.95     kN , VplRd =  1117.     kN, ratio = 0.2592E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09


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          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.079
          resist. ratio according to 5.4       =    0.026
```

```
          max. resist. ratio (max. among above)=    0.079
          web buckling ratio (5.7)              =    0.000

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  29.52     kN , VplRd =  1117.     kN, ratio = 0.2643E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1        =    0.086
          resist. ratio according to 5.4        =    0.026
          max. resist. ratio (max. among above)=    0.086
          web buckling ratio (5.7)              =    0.000

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  18.49     kN , VplRd =  1117.     kN, ratio = 0.1655E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050



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5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1        =    0.093
          resist. ratio according to 5.4        =    0.017
          max. resist. ratio (max. among above)=    0.093
          web buckling ratio (5.7)              =    0.000

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  7.668     kN , VplRd =  1117.     kN, ratio = 0.6865E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction
```

```
5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.097
          resist. ratio according to 5.4       =    0.007
          max. resist. ratio (max. among above)=    0.097
          web buckling ratio (5.7)             =    0.000

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2


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5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -2.906     kN , VplRd =  1117.     kN, ratio = 0.2602E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.099
          resist. ratio according to 5.4       =    0.003
          max. resist. ratio (max. among above)=    0.099
          web buckling ratio (5.7)             =    0.000

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -13.26     kN , VplRd =  1117.     kN, ratio = 0.1187E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09



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          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.098
          resist. ratio according to 5.4       =    0.012
          max. resist. ratio (max. among above)=    0.098
          web buckling ratio (5.7)             =    0.000
```

```
          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -14.94     kN , VplRd =  1117.     kN, ratio = 0.1338E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.095
          resist. ratio according to 5.4       =    0.013
          max. resist. ratio (max. among above)=    0.095
          web buckling ratio (5.7)             =    0.000

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -18.40     kN , VplRd =  1117.     kN, ratio = 0.1648E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050



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5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.091
          resist. ratio according to 5.4       =    0.016
          max. resist. ratio (max. among above)=    0.091
          web buckling ratio (5.7)             =    0.000

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -22.62     kN , VplRd =  1117.     kN, ratio = 0.2025E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09
```

```
          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.087
          resist. ratio according to 5.4       =    0.020
          max. resist. ratio (max. among above)=    0.087
          web buckling ratio (5.7)             =    0.000

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2



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5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -29.07     kN , VplRd =  1117.     kN, ratio = 0.2603E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.082
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.082
          web buckling ratio (5.7)             =    0.000

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -34.02     kN , VplRd =  1117.     kN, ratio = 0.3045E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    35 at x=  6799.998     [mm]



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          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.075
          resist. ratio according to 5.4       =    0.030
          max. resist. ratio (max. among above)=    0.075
          web buckling ratio (5.7)             =    0.000

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2
```

```
5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -37.37     kN , VplRd =  1117.     kN, ratio = 0.3346E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.067
          resist. ratio according to 5.4       =    0.033
          max. resist. ratio (max. among above)=    0.067
          web buckling ratio (5.7)             =    0.000

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -39.20     kN , VplRd =  1117.     kN, ratio = 0.3509E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.058
          resist. ratio according to 5.4       =    0.035
          max. resist. ratio (max. among above)=    0.058
          web buckling ratio (5.7)             =    0.000

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -39.54     kN , VplRd =  1117.     kN, ratio = 0.3540E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.049
```

```
          resist. ratio according to 5.4       =    0.035
          max. resist. ratio (max. among above)=    0.049
          web buckling ratio (5.7)             =    0.000

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check


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          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -38.45     kN , VplRd =  1117.     kN, ratio = 0.3442E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.040
          resist. ratio according to 5.4       =    0.034
          max. resist. ratio (max. among above)=    0.040
          web buckling ratio (5.7)             =    0.000

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -35.95     kN , VplRd =  1117.     kN, ratio = 0.3218E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2


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          resist. ratio according to 5.1       =    0.031
          resist. ratio according to 5.4       =    0.032
          max. resist. ratio (max. among above)=    0.032
          web buckling ratio (5.7)             =    0.000

          Section no.    41 at x=  7999.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -32.07     kN , VplRd =  1117.     kN, ratio = 0.2871E-01
```

```
                betab     1.000
                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    41 at x=  7999.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.023
          resist. ratio according to 5.4       =    0.029
          max. resist. ratio (max. among above)=    0.029
          web buckling ratio (5.7)             =    0.000

          Section no.    42 at x=  8199.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -26.82     kN , VplRd =  1117.     kN, ratio = 0.2401E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    42 at x=  8199.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.015
          resist. ratio according to 5.4       =    0.024
          max. resist. ratio (max. among above)=    0.024
          web buckling ratio (5.7)             =    0.000

          Section no.    43 at x=  8399.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -20.28     kN , VplRd =  1117.     kN, ratio = 0.1816E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    43 at x=  8399.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.009
          resist. ratio according to 5.4       =    0.018
          max. resist. ratio (max. among above)=    0.018
          web buckling ratio (5.7)             =    0.000
```

```
          Section no.    44 at x=  8599.996     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2


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          Vsd = -12.87     kN , VplRd =  1117.     kN, ratio = 0.1152E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    44 at x=  8599.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.004
          resist. ratio according to 5.4       =    0.012
          max. resist. ratio (max. among above)=    0.012
          web buckling ratio (5.7)             =    0.000

          Section no.    45 at x=  8799.996     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -4.583     kN , VplRd =  1117.     kN, ratio = 0.4104E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    45 at x=  8799.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.001


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          resist. ratio according to 5.4       =    0.004
          max. resist. ratio (max. among above)=    0.004
          web buckling ratio (5.7)             =    0.000

          Section no.    46 at x=  9000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -4.583     kN , VplRd =  1117.     kN, ratio = 0.4104E-02

               betab     1.000
                Wply    0.3269E+07
```

```
                fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

         Section no.    46 at x=  9000.000     [mm]
         selected class for current cross section =  2
         resist. ratio according to 5.1       =    0.000
         resist. ratio according to 5.4       =    0.004
         max. resist. ratio (max. among above)=    0.004
         web buckling ratio (5.7)             =    0.000

         Summary of resistance checks over all the sections
         max selected class: 2, at station no.  46
         maximum resistance   ratio              =    0.099
         maximum web buckling ratio              =    0.000

EC3 PILING: START BUCKLING CHECKS


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  1
           zstart      =  0.000000     [mm]  zend=    5050.000     [mm]
           buckl. length about x-x      =  5050.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION



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Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      0.0000     XMAX =      5050.0
               BXMIN=      0.0000     BXMAX=     0.74810E+08
               X(1) =      0.0000     X(N) =      9000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.15112E+17
  "    "   : ERR Q M - PARABOLA CENTR.  0.17057E+17
Table B.3  : PSI         0.0000
  "     "    ALPHA      0.13328
  "     "    Cm unif.   0.40000
  "     "    Cm conc.   0.40000
  "     "    Cm avrg.   0.40000
  "     "    Cm     .   0.40000
Annex B:    TABLE   B.3

         Moment about axis:     Y
         Bracing in direction:  Z
         Equiv. uniform moment factor Cm      = 0.40000
         Max. bending moment (abs value) [kNm]=  74.810


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


         No axial compression: skipping buckling


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  2
           zstart      =  5050.000     [mm]  zend=    9000.000     [mm]
           buckl. length about x-x      =  3950.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION
```

```
Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      5050.0     XMAX =      9000.0
               BXMIN=     0.74810E+08 BXMAX=      0.0000



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               X(1) =      0.0000     X(N) =      9000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.93389E+16
  "    "   : ERR Q M - PARABOLA CENTR.  0.17392E+17
Table B.3  : PSI          0.0000
  "     "    ALPHA      0.75514
  "     "    Cm unif.   0.80411
  "     "    Cm conc.   0.80411
  "     "    Cm avrg.   0.80411
  "     "    Cm     .   0.80411
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      = 0.80411
          Max. bending moment (abs value) [kNm]=  84.470


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


          No axial compression: skipping buckling


LCASE          1  SUBCASE    1
FOUND AT ACTION FILE LINE N.      122
EC3_EN_1993-5:20   RESISTANCE RATIO            0.099
                   AXIAL   BUCKLING RATIO      0.000
                   LATERAL BUCKLING RATIO      0.000
                   LOCAL   BUCKLING RATIO      0.000
                   RETURNED ERROR CODE            0

PRESCRIBED ACTIONS FOR CASE        2 SUBCASE    1

PT      X          N          T2         T3         MT         M2         M3
        m         kN         kN         kN        kN*m       kN*m       kN*m
 1     0.000  0.000      0.000      0.000      0.000      0.000      0.000
 2     0.200  0.000      0.000      0.000      0.000      0.000      0.000
 3     0.400  0.000      0.000     0.1054      0.000      0.000      0.000
 4     0.600  0.000      0.000     0.4218      0.000   0.2109E-01    0.000
 5     0.800  0.000      0.000     0.9497      0.000     0.1054      0.000
 6     1.000  0.000      0.000      1.692      0.000     0.2954      0.000
 7     1.200  0.000      0.000      2.655      0.000     0.6338      0.000
 8     1.400  0.000      0.000      3.844      0.000      1.165      0.000



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 9     1.600  0.000      0.000      5.262      0.000      1.934      0.000
10     1.800  0.000      0.000      6.913      0.000      2.986      0.000
11     2.000  0.000      0.000      8.798      0.000      4.369      0.000
12     2.200  0.000      0.000      10.92      0.000      6.128      0.000
13     2.400  0.000      0.000      13.27      0.000      8.312      0.000
14     2.600  0.000      0.000      15.87      0.000      10.97      0.000
15     2.800  0.000      0.000      18.72      0.000      14.14      0.000
16     3.000  0.000      0.000      21.82      0.000      17.88      0.000
17     3.200  0.000      0.000      25.17      0.000      22.25      0.000
18     3.400  0.000      0.000      28.76      0.000      27.28      0.000
19     3.600  0.000      0.000      28.76      0.000      33.03      0.000
20     3.800  0.000      0.000      28.76      0.000      38.79      0.000
```

21	4.000	0.000	0.000	28.76	0.000	44.54	0.000
22	4.200	0.000	0.000	28.76	0.000	50.29	0.000
23	4.400	0.000	0.000	28.76	0.000	56.04	0.000
24	4.600	0.000	0.000	28.76	0.000	61.79	0.000
25	4.800	0.000	0.000	28.95	0.000	67.54	0.000
26	5.000	0.000	0.000	29.52	0.000	73.33	0.000
27	5.200	0.000	0.000	18.49	0.000	79.24	0.000
28	5.400	0.000	0.000	7.668	0.000	82.94	0.000
29	5.600	0.000	0.000	-2.906	0.000	84.47	0.000
30	5.800	0.000	0.000	-13.26	0.000	83.89	0.000
31	6.000	0.000	0.000	-14.94	0.000	81.24	0.000
32	6.200	0.000	0.000	-18.40	0.000	78.25	0.000
33	6.400	0.000	0.000	-22.62	0.000	74.57	0.000
34	6.600	0.000	0.000	-29.07	0.000	70.04	0.000
35	6.800	0.000	0.000	-34.02	0.000	64.23	0.000
36	7.000	0.000	0.000	-37.37	0.000	57.43	0.000
37	7.200	0.000	0.000	-39.20	0.000	49.95	0.000
38	7.400	0.000	0.000	-39.54	0.000	42.11	0.000
39	7.600	0.000	0.000	-38.45	0.000	34.20	0.000
40	7.800	0.000	0.000	-35.95	0.000	26.51	0.000
41	8.000	0.000	0.000	-32.07	0.000	19.33	0.000
42	8.200	0.000	0.000	-26.82	0.000	12.91	0.000
43	8.400	0.000	0.000	-20.28	0.000	7.548	0.000
44	8.600	0.000	0.000	-12.87	0.000	3.491	0.000
45	8.800	0.000	0.000	-4.583	0.000	0.9167	0.000
46	9.000	0.000	0.000	-4.583	0.000	0.000	0.000

```
EC3:      CSTVEREC3P MODULE: START
          **********************

          Partial safety factors as used in this code
          Gamma M0  =    1.050
          Gamma M1  =    1.050
          Gamma M2  =    1.250


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EC3 PILING: START RESISTANCE CHECKS


          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction
```

```
5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     2 at x=  200.0000     [mm]


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          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = 0.1054     kN , VplRd =  1117.     kN, ratio = 0.9441E-04

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = 0.4218     kN , VplRd =  1117.     kN, ratio = 0.3776E-03

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000
```

```
          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = 0.9497     kN , VplRd =  1117.     kN, ratio = 0.8502E-03

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.001
          max. resist. ratio (max. among above)=    0.001
          web buckling ratio (5.7)             =    0.000

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check


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          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  1.692     kN , VplRd =  1117.     kN, ratio = 0.1515E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.002
          max. resist. ratio (max. among above)=    0.002
          web buckling ratio (5.7)             =    0.000

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  2.655     kN , VplRd =  1117.     kN, ratio = 0.2377E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09
```

```
          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2


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          resist. ratio according to 5.1       =    0.001
          resist. ratio according to 5.4       =    0.002
          max. resist. ratio (max. among above)=    0.002
          web buckling ratio (5.7)             =    0.000

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  3.844     kN , VplRd =  1117.     kN, ratio = 0.3441E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.001
          resist. ratio according to 5.4       =    0.003
          max. resist. ratio (max. among above)=    0.003
          web buckling ratio (5.7)             =    0.000

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  5.262     kN , VplRd =  1117.     kN, ratio = 0.4711E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.002
          resist. ratio according to 5.4       =    0.005
          max. resist. ratio (max. among above)=    0.005
          web buckling ratio (5.7)             =    0.000

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2
```

```
5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  6.913     kN , VplRd =  1117.     kN, ratio = 0.6190E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.003
          resist. ratio according to 5.4       =    0.006
          max. resist. ratio (max. among above)=    0.006
          web buckling ratio (5.7)             =    0.000

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2


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          Vsd =  8.798     kN , VplRd =  1117.     kN, ratio = 0.7877E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.005
          resist. ratio according to 5.4       =    0.008
          max. resist. ratio (max. among above)=    0.008
          web buckling ratio (5.7)             =    0.000

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  10.92     kN , VplRd =  1117.     kN, ratio = 0.9774E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2
```

```
          resist. ratio according to 5.1       =    0.007


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          resist. ratio according to 5.4       =    0.010
          max. resist. ratio (max. among above)=    0.010
          web buckling ratio (5.7)             =    0.000

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  13.27     kN , VplRd =  1117.     kN, ratio = 0.1188E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.010
          resist. ratio according to 5.4       =    0.012
          max. resist. ratio (max. among above)=    0.012
          web buckling ratio (5.7)             =    0.000

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  15.87     kN , VplRd =  1117.     kN, ratio = 0.1421E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09




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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.013
          resist. ratio according to 5.4       =    0.014
          max. resist. ratio (max. among above)=    0.014
          web buckling ratio (5.7)             =    0.000

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
```

```
          Vsd =  18.72     kN , VplRd =  1117.     kN, ratio = 0.1676E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.017
          resist. ratio according to 5.4       =    0.017
          max. resist. ratio (max. among above)=    0.017
          web buckling ratio (5.7)             =    0.000

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  21.82     kN , VplRd =  1117.     kN, ratio = 0.1954E-01


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               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.021
          resist. ratio according to 5.4       =    0.020
          max. resist. ratio (max. among above)=    0.021
          web buckling ratio (5.7)             =    0.000

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  25.17     kN , VplRd =  1117.     kN, ratio = 0.2253E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.026
          resist. ratio according to 5.4       =    0.023
```

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          max. resist. ratio (max. among above)=    0.026
          web buckling ratio (5.7)             =    0.000

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  28.76     kN , VplRd =  1117.     kN, ratio = 0.2575E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.032
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.032
          web buckling ratio (5.7)             =    0.000

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  28.76     kN , VplRd =  1117.     kN, ratio = 0.2575E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09




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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.039
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.039
          web buckling ratio (5.7)             =    0.000

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  28.76     kN , VplRd =  1117.     kN, ratio = 0.2575E-01

               betab     1.000
```

```
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.045
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.045
          web buckling ratio (5.7)             =    0.000

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  28.76     kN , VplRd =  1117.     kN, ratio = 0.2575E-01



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               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.052
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.052
          web buckling ratio (5.7)             =    0.000

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  28.76     kN , VplRd =  1117.     kN, ratio = 0.2575E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.059
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.059
```

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          web buckling ratio (5.7)             =    0.000

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  28.76     kN , VplRd =  1117.     kN, ratio = 0.2575E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.065
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.065
          web buckling ratio (5.7)             =    0.000

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  28.76     kN , VplRd =  1117.     kN, ratio = 0.2575E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.072
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.072
          web buckling ratio (5.7)             =    0.000

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  28.95     kN , VplRd =  1117.     kN, ratio = 0.2592E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
```

```
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.079
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.079
          web buckling ratio (5.7)             =    0.000

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  29.52     kN , VplRd =  1117.     kN, ratio = 0.2643E-01

               betab     1.000


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                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.086
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.086
          web buckling ratio (5.7)             =    0.000

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  18.49     kN , VplRd =  1117.     kN, ratio = 0.1655E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.093
          resist. ratio according to 5.4       =    0.017
          max. resist. ratio (max. among above)=    0.093
          web buckling ratio (5.7)             =    0.000


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          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  7.668     kN , VplRd =  1117.     kN, ratio = 0.6865E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.097
          resist. ratio according to 5.4       =    0.007
          max. resist. ratio (max. among above)=    0.097
          web buckling ratio (5.7)             =    0.000

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -2.906     kN , VplRd =  1117.     kN, ratio = 0.2602E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction



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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.099
          resist. ratio according to 5.4       =    0.003
          max. resist. ratio (max. among above)=    0.099
          web buckling ratio (5.7)             =    0.000

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -13.26     kN , VplRd =  1117.     kN, ratio = 0.1187E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09
```

```
          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.098
          resist. ratio according to 5.4       =    0.012
          max. resist. ratio (max. among above)=    0.098
          web buckling ratio (5.7)             =    0.000

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -14.94     kN , VplRd =  1117.     kN, ratio = 0.1338E-01

               betab     1.000
                Wply    0.3269E+07



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                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.095
          resist. ratio according to 5.4       =    0.013
          max. resist. ratio (max. among above)=    0.095
          web buckling ratio (5.7)             =    0.000

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -18.40     kN , VplRd =  1117.     kN, ratio = 0.1648E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.091
          resist. ratio according to 5.4       =    0.016
          max. resist. ratio (max. among above)=    0.091
          web buckling ratio (5.7)             =    0.000



-------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                      PAG.   161
                                                    14 May 2019       17:56:46
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```
                        DEFAULT TITLE FOR STEEL-WORLD
------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
------------------------------------------------------------------------------

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -22.62     kN , VplRd =  1117.     kN, ratio = 0.2025E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.087
          resist. ratio according to 5.4       =    0.020
          max. resist. ratio (max. among above)=    0.087
          web buckling ratio (5.7)             =    0.000

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -29.07     kN , VplRd =  1117.     kN, ratio = 0.2603E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction




------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   162
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------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
------------------------------------------------------------------------------

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.082
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.082
          web buckling ratio (5.7)             =    0.000

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -34.02     kN , VplRd =  1117.     kN, ratio = 0.3045E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09
```

```
           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.075
          resist. ratio according to 5.4       =    0.030
          max. resist. ratio (max. among above)=    0.075
          web buckling ratio (5.7)             =    0.000

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -37.37     kN , VplRd =  1117.     kN, ratio = 0.3346E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0



-------------------------------------------------------------------------------
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
-------------------------------------------------------------------------------

             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.067
          resist. ratio according to 5.4       =    0.033
          max. resist. ratio (max. among above)=    0.067
          web buckling ratio (5.7)             =    0.000

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -39.20     kN , VplRd =  1117.     kN, ratio = 0.3509E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.058
          resist. ratio according to 5.4       =    0.035
          max. resist. ratio (max. among above)=    0.058
          web buckling ratio (5.7)             =    0.000

          Section no.    38 at x=  7399.998     [mm]



-------------------------------------------------------------------------------
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S1
-------------------------------------------------------------------------------

          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -39.54     kN , VplRd =  1117.     kN, ratio = 0.3540E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.049
          resist. ratio according to 5.4       =    0.035
          max. resist. ratio (max. among above)=    0.049
          web buckling ratio (5.7)             =    0.000

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -38.45     kN , VplRd =  1117.     kN, ratio = 0.3442E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09


-------------------------------------------------------------------------------
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-------------------------------------------------------------------------------


          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.040
          resist. ratio according to 5.4       =    0.034
          max. resist. ratio (max. among above)=    0.040
          web buckling ratio (5.7)             =    0.000

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -35.95     kN , VplRd =  1117.     kN, ratio = 0.3218E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction
```

```
5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.031
          resist. ratio according to 5.4       =    0.032
          max. resist. ratio (max. among above)=    0.032
          web buckling ratio (5.7)             =    0.000

          Section no.    41 at x=  7999.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -32.07     kN , VplRd =  1117.     kN, ratio = 0.2871E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050



--------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                       PAG.   166
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--------------------------------------------------------------------------------
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--------------------------------------------------------------------------------

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    41 at x=  7999.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.023
          resist. ratio according to 5.4       =    0.029
          max. resist. ratio (max. among above)=    0.029
          web buckling ratio (5.7)             =    0.000

          Section no.    42 at x=  8199.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -26.82     kN , VplRd =  1117.     kN, ratio = 0.2401E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    42 at x=  8199.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.015
          resist. ratio according to 5.4       =    0.024
          max. resist. ratio (max. among above)=    0.024
          web buckling ratio (5.7)             =    0.000

          Section no.    43 at x=  8399.997     [mm]
          selected class for current cross section =  2



--------------------------------------------------------------------------------
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
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```

```
5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -20.28     kN , VplRd =  1117.     kN, ratio = 0.1816E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    43 at x=  8399.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.009
          resist. ratio according to 5.4       =    0.018
          max. resist. ratio (max. among above)=    0.018
          web buckling ratio (5.7)             =    0.000

          Section no.    44 at x=  8599.996     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -12.87     kN , VplRd =  1117.     kN, ratio = 0.1152E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09



--------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.   168
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--------------------------------------------------------------------------------

          Section no.    44 at x=  8599.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.004
          resist. ratio according to 5.4       =    0.012
          max. resist. ratio (max. among above)=    0.012
          web buckling ratio (5.7)             =    0.000

          Section no.    45 at x=  8799.996     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -4.583     kN , VplRd =  1117.     kN, ratio = 0.4104E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    45 at x=  8799.996     [mm]
```

```
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.001
          resist. ratio according to 5.4       =    0.004
          max. resist. ratio (max. among above)=    0.004
          web buckling ratio (5.7)             =    0.000

          Section no.    46 at x=  9000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -4.583     kN , VplRd =  1117.     kN, ratio = 0.4104E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050



--------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.   169
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--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    46 at x=  9000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.004
          max. resist. ratio (max. among above)=    0.004
          web buckling ratio (5.7)             =    0.000

          Summary of resistance checks over all the sections
          max selected class: 2, at station no.  46
          maximum resistance   ratio               =    0.099
          maximum web buckling ratio               =    0.000

EC3 PILING: START BUCKLING CHECKS


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  1
           zstart      =  0.000000     [mm]  zend=    5050.000     [mm]
           buckl. length about x-x      =  5050.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      0.0000     XMAX =      5050.0
               BXMIN=      0.0000     BXMAX=     0.74810E+08
               X(1) =      0.0000     X(N) =      9000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.15112E+17
  "    "   : ERR Q M - PARABOLA CENTR.  0.17057E+17
Table B.3  : PSI          0.0000
  "     "    ALPHA      0.13328
  "     "    Cm unif.   0.40000
  "     "    Cm conc.   0.40000
  "     "    Cm avrg.   0.40000
  "     "    Cm     .   0.40000



--------------------------------------------------------------------------------
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--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

Annex B:    TABLE   B.3
```

```
          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      = 0.40000
          Max. bending moment (abs value) [kNm]=  74.810


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


          No axial compression: skipping buckling


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  2
           zstart      =  5050.000     [mm]  zend=    9000.000     [mm]
           buckl. length about x-x      =  3950.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      5050.0     XMAX =      9000.0
               BXMIN=     0.74810E+08 BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      9000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.93389E+16
  "    "   : ERR Q M - PARABOLA CENTR.  0.17392E+17
Table B.3  : PSI         0.0000
  "     "    ALPHA      0.75514
  "     "    Cm unif.   0.80411
  "     "    Cm conc.   0.80411
  "     "    Cm avrg.   0.80411
  "     "    Cm     .   0.80411
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      = 0.80411


--------------------------------------------------------------------------------
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--------------------------------------------------------------------------------

          Max. bending moment (abs value) [kNm]=  84.470


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


          No axial compression: skipping buckling


LCASE          2  SUBCASE    1
FOUND AT ACTION FILE LINE N.      238
EC3_EN_1993-5:20   RESISTANCE RATIO            0.099
                   AXIAL   BUCKLING RATIO       0.000
                   LATERAL BUCKLING RATIO       0.000
                   LOCAL   BUCKLING RATIO       0.000
                   RETURNED ERROR CODE             0

PRESCRIBED ACTIONS FOR CASE        3 SUBCASE    1

PT      X          N          T2         T3         MT         M2         M3
        m         kN          kN         kN        kN*m       kN*m       kN*m
 1     0.000  0.000      0.000      0.000      0.000      0.000      0.000
 2     0.200  0.000      0.000      0.000      0.000      0.000      0.000
 3     0.400  0.000      0.000     0.1371      0.000      0.000      0.000
 4     0.600  0.000      0.000     0.5483      0.000     0.2742E-01  0.000
 5     0.800  0.000      0.000      1.235      0.000     0.1371      0.000
```

6	1.000	0.000	0.000	2.200	0.000	0.3840	0.000
7	1.200	0.000	0.000	3.452	0.000	0.8240	0.000
8	1.400	0.000	0.000	4.997	0.000	1.514	0.000
9	1.600	0.000	0.000	6.841	0.000	2.514	0.000
10	1.800	0.000	0.000	8.987	0.000	3.882	0.000
11	2.000	0.000	0.000	11.44	0.000	5.679	0.000
12	2.200	0.000	0.000	14.19	0.000	7.967	0.000
13	2.400	0.000	0.000	17.25	0.000	10.81	0.000
14	2.600	0.000	0.000	20.63	0.000	14.26	0.000
15	2.800	0.000	0.000	24.34	0.000	18.38	0.000
16	3.000	0.000	0.000	28.37	0.000	23.25	0.000
17	3.200	0.000	0.000	32.72	0.000	28.92	0.000
18	3.400	0.000	0.000	37.39	0.000	35.47	0.000
19	3.600	0.000	0.000	37.39	0.000	42.94	0.000
20	3.800	0.000	0.000	37.39	0.000	50.42	0.000
21	4.000	0.000	0.000	37.39	0.000	57.90	0.000
22	4.200	0.000	0.000	37.39	0.000	65.38	0.000
23	4.400	0.000	0.000	37.39	0.000	72.85	0.000
24	4.600	0.000	0.000	37.39	0.000	80.33	0.000

25	4.800	0.000	0.000	37.64	0.000	87.81	0.000
26	5.000	0.000	0.000	38.38	0.000	95.33	0.000
27	5.200	0.000	0.000	24.03	0.000	103.0	0.000
28	5.400	0.000	0.000	9.968	0.000	107.8	0.000
29	5.600	0.000	0.000	-3.778	0.000	109.8	0.000
30	5.800	0.000	0.000	-17.24	0.000	109.1	0.000
31	6.000	0.000	0.000	-19.42	0.000	105.6	0.000
32	6.200	0.000	0.000	-23.92	0.000	101.7	0.000
33	6.400	0.000	0.000	-29.41	0.000	96.94	0.000
34	6.600	0.000	0.000	-37.80	0.000	91.06	0.000
35	6.800	0.000	0.000	-44.22	0.000	83.50	0.000
36	7.000	0.000	0.000	-48.58	0.000	74.65	0.000
37	7.200	0.000	0.000	-50.96	0.000	64.94	0.000
38	7.400	0.000	0.000	-51.41	0.000	54.75	0.000
39	7.600	0.000	0.000	-49.98	0.000	44.47	0.000
40	7.800	0.000	0.000	-46.73	0.000	34.47	0.000
41	8.000	0.000	0.000	-41.68	0.000	25.12	0.000
42	8.200	0.000	0.000	-34.87	0.000	16.79	0.000
43	8.400	0.000	0.000	-26.37	0.000	9.812	0.000
44	8.600	0.000	0.000	-16.73	0.000	4.539	0.000
45	8.800	0.000	0.000	-5.959	0.000	1.192	0.000
46	9.000	0.000	0.000	-5.959	0.000	0.000	0.000

```
EC3:      CSTVEREC3P MODULE: START
          **********************

          Partial safety factors as used in this code
          Gamma M0  =    1.050
          Gamma M1  =    1.050
          Gamma M2  =    1.250


EC3 PILING: START RESISTANCE CHECKS


          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
            gammaM0      1.050

5.2.2(2):     McRd= 0.8562E+09
```

```
           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = 0.1371     kN , VplRd =  1117.     kN, ratio = 0.1227E-03

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0


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             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = 0.5483     kN , VplRd =  1117.     kN, ratio = 0.4909E-03

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050
```

```
5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     5 at x=  800.0000     [mm]


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          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  1.235     kN , VplRd =  1117.     kN, ratio = 0.1105E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.001
          max. resist. ratio (max. among above)=    0.001
          web buckling ratio (5.7)             =    0.000

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  2.200     kN , VplRd =  1117.     kN, ratio = 0.1970E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09


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          Section no.     6 at x=  1000.000     [mm]
```

```
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.002
          max. resist. ratio (max. among above)=    0.002
          web buckling ratio (5.7)             =    0.000

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  3.452     kN , VplRd =  1117.     kN, ratio = 0.3090E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.001
          resist. ratio according to 5.4       =    0.003
          max. resist. ratio (max. among above)=    0.003
          web buckling ratio (5.7)             =    0.000

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  4.997     kN , VplRd =  1117.     kN, ratio = 0.4474E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050


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5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.002
          resist. ratio according to 5.4       =    0.004
          max. resist. ratio (max. among above)=    0.004
          web buckling ratio (5.7)             =    0.000

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  6.841     kN , VplRd =  1117.     kN, ratio = 0.6125E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09
```

```
          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.003
          resist. ratio according to 5.4       =    0.006
          max. resist. ratio (max. among above)=    0.006
          web buckling ratio (5.7)             =    0.000

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2


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5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  8.987     kN , VplRd =  1117.     kN, ratio = 0.8047E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.005
          resist. ratio according to 5.4       =    0.008
          max. resist. ratio (max. among above)=    0.008
          web buckling ratio (5.7)             =    0.000

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  11.44     kN , VplRd =  1117.     kN, ratio = 0.1024E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09



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          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.007
          resist. ratio according to 5.4       =    0.010
```

```
          max. resist. ratio (max. among above)=    0.010
          web buckling ratio (5.7)              =    0.000

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  14.19     kN , VplRd =  1117.     kN, ratio = 0.1271E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1        =    0.009
          resist. ratio according to 5.4        =    0.013
          max. resist. ratio (max. among above)=    0.013
          web buckling ratio (5.7)              =    0.000

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  17.25     kN , VplRd =  1117.     kN, ratio = 0.1544E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050



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5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1        =    0.013
          resist. ratio according to 5.4        =    0.015
          max. resist. ratio (max. among above)=    0.015
          web buckling ratio (5.7)              =    0.000

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  20.63     kN , VplRd =  1117.     kN, ratio = 0.1847E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction
```

```
5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.017
          resist. ratio according to 5.4       =    0.018
          max. resist. ratio (max. among above)=    0.018
          web buckling ratio (5.7)             =    0.000

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2



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5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  24.34     kN , VplRd =  1117.     kN, ratio = 0.2179E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.021
          resist. ratio according to 5.4       =    0.022
          max. resist. ratio (max. among above)=    0.022
          web buckling ratio (5.7)             =    0.000

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  28.37     kN , VplRd =  1117.     kN, ratio = 0.2540E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    16 at x=  3000.000     [mm]



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          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.027
          resist. ratio according to 5.4       =    0.025
          max. resist. ratio (max. among above)=    0.027
          web buckling ratio (5.7)             =    0.000
```

```
          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  32.72     kN , VplRd =  1117.     kN, ratio = 0.2930E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.034
          resist. ratio according to 5.4       =    0.029
          max. resist. ratio (max. among above)=    0.034
          web buckling ratio (5.7)             =    0.000

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  37.39     kN , VplRd =  1117.     kN, ratio = 0.3347E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.041
          resist. ratio according to 5.4       =    0.033
          max. resist. ratio (max. among above)=    0.041
          web buckling ratio (5.7)             =    0.000

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  37.39     kN , VplRd =  1117.     kN, ratio = 0.3347E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09
```

```
          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.050
          resist. ratio according to 5.4       =    0.033
          max. resist. ratio (max. among above)=    0.050
          web buckling ratio (5.7)             =    0.000

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check


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          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  37.39     kN , VplRd =  1117.     kN, ratio = 0.3347E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.059
          resist. ratio according to 5.4       =    0.033
          max. resist. ratio (max. among above)=    0.059
          web buckling ratio (5.7)             =    0.000

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  37.39     kN , VplRd =  1117.     kN, ratio = 0.3347E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2


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          resist. ratio according to 5.1       =    0.068
          resist. ratio according to 5.4       =    0.033
          max. resist. ratio (max. among above)=    0.068
          web buckling ratio (5.7)             =    0.000

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
```

```
5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  37.39     kN , VplRd =  1117.     kN, ratio = 0.3347E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.076
          resist. ratio according to 5.4       =    0.033
          max. resist. ratio (max. among above)=    0.076
          web buckling ratio (5.7)             =    0.000

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  37.39     kN , VplRd =  1117.     kN, ratio = 0.3347E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.085
          resist. ratio according to 5.4       =    0.033
          max. resist. ratio (max. among above)=    0.085
          web buckling ratio (5.7)             =    0.000

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  37.39     kN , VplRd =  1117.     kN, ratio = 0.3347E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.094
```

```
          resist. ratio according to 5.4       =    0.033
          max. resist. ratio (max. among above)=    0.094
          web buckling ratio (5.7)             =    0.000

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2

 5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2


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          Vsd =  37.64     kN , VplRd =  1117.     kN, ratio = 0.3370E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

 5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


 5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.103
          resist. ratio according to 5.4       =    0.034
          max. resist. ratio (max. among above)=    0.103
          web buckling ratio (5.7)             =    0.000

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2

 5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  38.38     kN , VplRd =  1117.     kN, ratio = 0.3436E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

 5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


 5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.111


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          resist. ratio according to 5.4       =    0.034
          max. resist. ratio (max. among above)=    0.111
          web buckling ratio (5.7)             =    0.000

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2

 5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  24.03     kN , VplRd =  1117.     kN, ratio = 0.2152E-01
```

```
               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.120
          resist. ratio according to 5.4       =    0.022
          max. resist. ratio (max. among above)=    0.120
          web buckling ratio (5.7)             =    0.000

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  9.968     kN , VplRd =  1117.     kN, ratio = 0.8925E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09
```



```
           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.126
          resist. ratio according to 5.4       =    0.009
          max. resist. ratio (max. among above)=    0.126
          web buckling ratio (5.7)             =    0.000

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -3.778     kN , VplRd =  1117.     kN, ratio = 0.3383E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.128
          resist. ratio according to 5.4       =    0.003
          max. resist. ratio (max. among above)=    0.128
          web buckling ratio (5.7)             =    0.000
```

```
          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -17.24     kN , VplRd =  1117.     kN, ratio = 0.1543E-01


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               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
            gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.127
          resist. ratio according to 5.4       =    0.015
          max. resist. ratio (max. among above)=    0.127
          web buckling ratio (5.7)             =    0.000

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -19.42     kN , VplRd =  1117.     kN, ratio = 0.1739E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
            gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.123
          resist. ratio according to 5.4       =    0.017


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          max. resist. ratio (max. among above)=    0.123
          web buckling ratio (5.7)             =    0.000

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -23.92     kN , VplRd =  1117.     kN, ratio = 0.2142E-01

               betab     1.000
                Wply    0.3269E+07
```

```
                fy     275.0
          gammaM0      1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.119
          resist. ratio according to 5.4       =    0.021
          max. resist. ratio (max. among above)=    0.119
          web buckling ratio (5.7)             =    0.000

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -29.41     kN , VplRd =  1117.     kN, ratio = 0.2633E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09




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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.113
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.113
          web buckling ratio (5.7)             =    0.000

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -37.80     kN , VplRd =  1117.     kN, ratio = 0.3384E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.106
          resist. ratio according to 5.4       =    0.034
          max. resist. ratio (max. among above)=    0.106
          web buckling ratio (5.7)             =    0.000

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2
```

```
5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -44.22     kN , VplRd =  1117.     kN, ratio = 0.3959E-01



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               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.098
          resist. ratio according to 5.4       =    0.040
          max. resist. ratio (max. among above)=    0.098
          web buckling ratio (5.7)             =    0.000

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -48.58     kN , VplRd =  1117.     kN, ratio = 0.4350E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.087
          resist. ratio according to 5.4       =    0.043
          max. resist. ratio (max. among above)=    0.087



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          web buckling ratio (5.7)             =    0.000

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -50.96     kN , VplRd =  1117.     kN, ratio = 0.4562E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050
```

```
5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.076
          resist. ratio according to 5.4       =    0.046
          max. resist. ratio (max. among above)=    0.076
          web buckling ratio (5.7)             =    0.000

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -51.41     kN , VplRd =  1117.     kN, ratio = 0.4602E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.064
          resist. ratio according to 5.4       =    0.046
          max. resist. ratio (max. among above)=    0.064
          web buckling ratio (5.7)             =    0.000

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -49.98     kN , VplRd =  1117.     kN, ratio = 0.4475E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.052
          resist. ratio according to 5.4       =    0.045
          max. resist. ratio (max. among above)=    0.052
          web buckling ratio (5.7)             =    0.000

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
```

```
          Vsd = -46.73     kN , VplRd =  1117.     kN, ratio = 0.4184E-01

               betab     1.000


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                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.040
          resist. ratio according to 5.4       =    0.042
          max. resist. ratio (max. among above)=    0.042
          web buckling ratio (5.7)             =    0.000

          Section no.    41 at x=  7999.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -41.68     kN , VplRd =  1117.     kN, ratio = 0.3732E-01

               betab     1.000
                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    41 at x=  7999.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.029
          resist. ratio according to 5.4       =    0.037
          max. resist. ratio (max. among above)=    0.037
          web buckling ratio (5.7)             =    0.000


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          Section no.    42 at x=  8199.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -34.87     kN , VplRd =  1117.     kN, ratio = 0.3122E-01

               betab     1.000
                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09
```

```
           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    42 at x=  8199.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.020
          resist. ratio according to 5.4       =    0.031
          max. resist. ratio (max. among above)=    0.031
          web buckling ratio (5.7)             =    0.000

          Section no.    43 at x=  8399.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -26.37     kN , VplRd =  1117.     kN, ratio = 0.2361E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction



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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    43 at x=  8399.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.011
          resist. ratio according to 5.4       =    0.024
          max. resist. ratio (max. among above)=    0.024
          web buckling ratio (5.7)             =    0.000

          Section no.    44 at x=  8599.996     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -16.73     kN , VplRd =  1117.     kN, ratio = 0.1498E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    44 at x=  8599.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.005
          resist. ratio according to 5.4       =    0.015
          max. resist. ratio (max. among above)=    0.015
          web buckling ratio (5.7)             =    0.000

          Section no.    45 at x=  8799.996     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -5.959     kN , VplRd =  1117.     kN, ratio = 0.5335E-02

               betab     1.000
```

```
                Wply     0.3269E+07


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                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    45 at x=  8799.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.001
          resist. ratio according to 5.4       =    0.005
          max. resist. ratio (max. among above)=    0.005
          web buckling ratio (5.7)             =    0.000

          Section no.    46 at x=  9000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -5.959     kN , VplRd =  1117.     kN, ratio = 0.5335E-02

               betab     1.000
                Wply     0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    46 at x=  9000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.005
          max. resist. ratio (max. among above)=    0.005
          web buckling ratio (5.7)             =    0.000



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          Summary of resistance checks over all the sections
          max selected class: 2, at station no.  46
          maximum resistance   ratio               =    0.128
          maximum web buckling ratio               =    0.000

EC3 PILING: START BUCKLING CHECKS


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  1
           zstart      =  0.000000     [mm]  zend=    5050.000     [mm]
           buckl. length about x-x      =  5050.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z
```

```
TABLE  B.3   : XMIN =      0.0000     XMAX =      5050.0
               BXMIN=      0.0000     BXMAX=     0.97253E+08
               X(1) =      0.0000     X(N) =      9000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.25540E+17
  "    "   : ERR Q M - PARABOLA CENTR.  0.28826E+17
Table B.3  : PSI         0.0000
  "     "    ALPHA      0.13328
  "     "    Cm unif.   0.40000
  "     "    Cm conc.   0.40000
  "     "    Cm avrg.   0.40000
  "     "    Cm     .   0.40000
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      = 0.40000
          Max. bending moment (abs value) [kNm]=  97.253


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******




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          No axial compression: skipping buckling


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  2
           zstart      =  5050.000     [mm]  zend=    9000.000     [mm]
           buckl. length about x-x      =  3950.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      5050.0     XMAX =      9000.0
               BXMIN=     0.97253E+08 BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      9000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.15783E+17
  "    "   : ERR Q M - PARABOLA CENTR.  0.29393E+17
Table B.3  : PSI         0.0000
  "     "    ALPHA      0.75514
  "     "    Cm unif.   0.80411
  "     "    Cm conc.   0.80411
  "     "    Cm avrg.   0.80411
  "     "    Cm     .   0.80411
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      = 0.80411
          Max. bending moment (abs value) [kNm]=  109.81


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


          No axial compression: skipping buckling



--------------------------------------------------------------------------------
```

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LCASE          3  SUBCASE    1
FOUND AT ACTION FILE LINE N.      354
EC3_EN_1993-5:20   RESISTANCE RATIO            0.128
                   AXIAL   BUCKLING RATIO       0.000
                   LATERAL BUCKLING RATIO       0.000
                   LOCAL   BUCKLING RATIO       0.000
                   RETURNED ERROR CODE              0

PRESCRIBED ACTIONS FOR CASE        4 SUBCASE    1

PT     X          N          T2         T3          MT         M2         M3
       m         kN          kN         kN         kN*m       kN*m       kN*m
 1     0.000  0.000      0.000      0.000      0.000      0.000      0.000
 2     0.200  0.000      0.000      0.000      0.000      0.000      0.000
 3     0.400  0.000      0.000     0.1347      0.000      0.000      0.000
 4     0.600  0.000      0.000     0.5387      0.000     0.2694E-01  0.000
 5     0.800  0.000      0.000      1.213      0.000     0.1347      0.000
 6     1.000  0.000      0.000      2.161      0.000     0.3773      0.000
 7     1.200  0.000      0.000      3.391      0.000     0.8095      0.000
 8     1.400  0.000      0.000      4.909      0.000      1.488      0.000
 9     1.600  0.000      0.000      6.721      0.000      2.470      0.000
10     1.800  0.000      0.000      8.830      0.000      3.814      0.000
11     2.000  0.000      0.000      11.24      0.000      5.580      0.000
12     2.200  0.000      0.000      13.94      0.000      7.827      0.000
13     2.400  0.000      0.000      16.95      0.000      10.62      0.000
14     2.600  0.000      0.000      20.27      0.000      14.01      0.000
15     2.800  0.000      0.000      23.91      0.000      18.06      0.000
16     3.000  0.000      0.000      27.87      0.000      22.84      0.000
17     3.200  0.000      0.000      32.15      0.000      28.42      0.000
18     3.400  0.000      0.000      36.73      0.000      34.84      0.000
19     3.600  0.000      0.000      36.73      0.000      42.19      0.000
20     3.800  0.000      0.000      36.84      0.000      49.54      0.000
21     4.000  0.000      0.000      37.34      0.000      56.90      0.000
22     4.200  0.000      0.000      38.24      0.000      64.37      0.000
23     4.400  0.000      0.000      39.54      0.000      72.02      0.000
24     4.600  0.000      0.000      41.21      0.000      79.93      0.000
25     4.800  0.000      0.000      43.38      0.000      88.17      0.000
26     5.000  0.000      0.000      46.15      0.000      96.85      0.000
27     5.200  0.000      0.000      33.21      0.000      106.1      0.000
28     5.400  0.000      0.000      19.52      0.000      112.7      0.000
29     5.600  0.000      0.000      5.070      0.000      116.6      0.000
30     5.800  0.000      0.000     -10.16      0.000      117.6      0.000
31     6.000  0.000      0.000     -8.033      0.000      115.6      0.000
32     6.200  0.000      0.000     -7.140      0.000      114.0      0.000
33     6.400  0.000      0.000     -7.485      0.000      112.6      0.000
34     6.600  0.000      0.000     -20.62      0.000      111.1      0.000
35     6.800  0.000      0.000     -32.67      0.000      106.9      0.000
36     7.000  0.000      0.000     -43.64      0.000      100.4      0.000
37     7.200  0.000      0.000     -53.55      0.000      91.68      0.000
38     7.400  0.000      0.000     -62.42      0.000      80.97      0.000
39     7.600  0.000      0.000     -69.75      0.000      68.49      0.000
40     7.800  0.000      0.000     -71.26      0.000      54.54      0.000
41     8.000  0.000      0.000     -66.32      0.000      40.29      0.000


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42     8.200  0.000      0.000     -56.60      0.000      27.02      0.000
43     8.400  0.000      0.000     -42.65      0.000      15.70      0.000
44     8.600  0.000      0.000     -26.58      0.000      7.171      0.000
45     8.800  0.000      0.000     -9.274      0.000      1.855      0.000
46     9.000  0.000      0.000     -9.274      0.000      0.000      0.000


EC3:       CSTVEREC3P MODULE: START
           **********************

           Partial safety factors as used in this code
           Gamma M0  =    1.050
           Gamma M1  =    1.050
           Gamma M2  =    1.250
```

```
EC3 PILING: START RESISTANCE CHECKS


          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2

               betab     1.000



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                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = 0.1347     kN , VplRd =  1117.     kN, ratio = 0.1206E-03

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
```

```
          web buckling ratio (5.7)            =    0.000


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          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = 0.5387     kN , VplRd =  1117.     kN, ratio = 0.4823E-03

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  1.213     kN , VplRd =  1117.     kN, ratio = 0.1086E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction



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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.001
          max. resist. ratio (max. among above)=    0.001
          web buckling ratio (5.7)             =    0.000

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  2.161     kN , VplRd =  1117.     kN, ratio = 0.1935E-02

               betab     1.000
```

```
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.002
          max. resist. ratio (max. among above)=    0.002
          web buckling ratio (5.7)             =    0.000

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  3.391     kN , VplRd =  1117.     kN, ratio = 0.3036E-02

               betab     1.000
                Wply    0.3269E+07


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                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.001
          resist. ratio according to 5.4       =    0.003
          max. resist. ratio (max. among above)=    0.003
          web buckling ratio (5.7)             =    0.000

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  4.909     kN , VplRd =  1117.     kN, ratio = 0.4395E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.002
          resist. ratio according to 5.4       =    0.004
          max. resist. ratio (max. among above)=    0.004
          web buckling ratio (5.7)             =    0.000
```

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          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  6.721     kN , VplRd =  1117.     kN, ratio = 0.6017E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.003
          resist. ratio according to 5.4       =    0.006
          max. resist. ratio (max. among above)=    0.006
          web buckling ratio (5.7)             =    0.000

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  8.830     kN , VplRd =  1117.     kN, ratio = 0.7905E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction




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--------------------------------------------------------------------------------

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.004
          resist. ratio according to 5.4       =    0.008
          max. resist. ratio (max. among above)=    0.008
          web buckling ratio (5.7)             =    0.000

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  11.24     kN , VplRd =  1117.     kN, ratio = 0.1006E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050
```

```
5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.007
          resist. ratio according to 5.4       =    0.010
          max. resist. ratio (max. among above)=    0.010
          web buckling ratio (5.7)             =    0.000

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  13.94     kN , VplRd =  1117.     kN, ratio = 0.1248E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0


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             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.009
          resist. ratio according to 5.4       =    0.012
          max. resist. ratio (max. among above)=    0.012
          web buckling ratio (5.7)             =    0.000

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  16.95     kN , VplRd =  1117.     kN, ratio = 0.1517E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.012
          resist. ratio according to 5.4       =    0.015
          max. resist. ratio (max. among above)=    0.015
          web buckling ratio (5.7)             =    0.000

          Section no.    14 at x=  2600.000     [mm]
```

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          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  20.27     kN , VplRd =  1117.     kN, ratio = 0.1814E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.016
          resist. ratio according to 5.4       =    0.018
          max. resist. ratio (max. among above)=    0.018
          web buckling ratio (5.7)             =    0.000

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  23.91     kN , VplRd =  1117.     kN, ratio = 0.2141E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09


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          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.021
          resist. ratio according to 5.4       =    0.021
          max. resist. ratio (max. among above)=    0.021
          web buckling ratio (5.7)             =    0.000

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  27.87     kN , VplRd =  1117.     kN, ratio = 0.2495E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09
```

```
          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.027
          resist. ratio according to 5.4       =    0.025
          max. resist. ratio (max. among above)=    0.027
          web buckling ratio (5.7)             =    0.000

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  32.15     kN , VplRd =  1117.     kN, ratio = 0.2878E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050



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5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.033
          resist. ratio according to 5.4       =    0.029
          max. resist. ratio (max. among above)=    0.033
          web buckling ratio (5.7)             =    0.000

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  36.73     kN , VplRd =  1117.     kN, ratio = 0.3289E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.041
          resist. ratio according to 5.4       =    0.033
          max. resist. ratio (max. among above)=    0.041
          web buckling ratio (5.7)             =    0.000

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2


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5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  36.73     kN , VplRd =  1117.     kN, ratio = 0.3289E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.049
          resist. ratio according to 5.4       =    0.033
          max. resist. ratio (max. among above)=    0.049
          web buckling ratio (5.7)             =    0.000

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  36.84     kN , VplRd =  1117.     kN, ratio = 0.3298E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09



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          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.058
          resist. ratio according to 5.4       =    0.033
          max. resist. ratio (max. among above)=    0.058
          web buckling ratio (5.7)             =    0.000

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  37.34     kN , VplRd =  1117.     kN, ratio = 0.3343E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09
```

```
           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.066
          resist. ratio according to 5.4       =    0.033
          max. resist. ratio (max. among above)=    0.066
          web buckling ratio (5.7)             =    0.000

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  38.24     kN , VplRd =  1117.     kN, ratio = 0.3424E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050



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5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.075
          resist. ratio according to 5.4       =    0.034
          max. resist. ratio (max. among above)=    0.075
          web buckling ratio (5.7)             =    0.000

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  39.54     kN , VplRd =  1117.     kN, ratio = 0.3540E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.084
          resist. ratio according to 5.4       =    0.035
          max. resist. ratio (max. among above)=    0.084
          web buckling ratio (5.7)             =    0.000

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2



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5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  41.21     kN , VplRd =  1117.     kN, ratio = 0.3690E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.093
          resist. ratio according to 5.4       =    0.037
          max. resist. ratio (max. among above)=    0.093
          web buckling ratio (5.7)             =    0.000

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  43.38     kN , VplRd =  1117.     kN, ratio = 0.3884E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    25 at x=  4800.000     [mm]


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          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.103
          resist. ratio according to 5.4       =    0.039
          max. resist. ratio (max. among above)=    0.103
          web buckling ratio (5.7)             =    0.000

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  46.15     kN , VplRd =  1117.     kN, ratio = 0.4132E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction
```

```
5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.113
          resist. ratio according to 5.4       =    0.041
          max. resist. ratio (max. among above)=    0.113
          web buckling ratio (5.7)             =    0.000

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  33.21     kN , VplRd =  1117.     kN, ratio = 0.2973E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.124
          resist. ratio according to 5.4       =    0.030
          max. resist. ratio (max. among above)=    0.124
          web buckling ratio (5.7)             =    0.000

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  19.52     kN , VplRd =  1117.     kN, ratio = 0.1747E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.132
          resist. ratio according to 5.4       =    0.017
          max. resist. ratio (max. among above)=    0.132
          web buckling ratio (5.7)             =    0.000

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check


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          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  5.070     kN , VplRd =  1117.     kN, ratio = 0.4540E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.136
          resist. ratio according to 5.4       =    0.005
          max. resist. ratio (max. among above)=    0.136
          web buckling ratio (5.7)             =    0.000

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -10.16     kN , VplRd =  1117.     kN, ratio = 0.9100E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2


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          resist. ratio according to 5.1       =    0.137
          resist. ratio according to 5.4       =    0.009
          max. resist. ratio (max. among above)=    0.137
          web buckling ratio (5.7)             =    0.000

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -8.033     kN , VplRd =  1117.     kN, ratio = 0.7192E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    31 at x=  5999.999     [mm]
```

```
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.135
          resist. ratio according to 5.4       =    0.007
          max. resist. ratio (max. among above)=    0.135
          web buckling ratio (5.7)             =    0.000

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -7.140     kN , VplRd =  1117.     kN, ratio = 0.6393E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.133
          resist. ratio according to 5.4       =    0.006
          max. resist. ratio (max. among above)=    0.133
          web buckling ratio (5.7)             =    0.000

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -7.485     kN , VplRd =  1117.     kN, ratio = 0.6702E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.131
          resist. ratio according to 5.4       =    0.007
          max. resist. ratio (max. among above)=    0.131
          web buckling ratio (5.7)             =    0.000

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2



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          Vsd = -20.62     kN , VplRd =  1117.     kN, ratio = 0.1847E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.130
          resist. ratio according to 5.4       =    0.018
          max. resist. ratio (max. among above)=    0.130
          web buckling ratio (5.7)             =    0.000

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -32.67     kN , VplRd =  1117.     kN, ratio = 0.2925E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.125


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          resist. ratio according to 5.4       =    0.029
          max. resist. ratio (max. among above)=    0.125
          web buckling ratio (5.7)             =    0.000

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -43.64     kN , VplRd =  1117.     kN, ratio = 0.3907E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.117
          resist. ratio according to 5.4       =    0.039
```

```
          max. resist. ratio (max. among above)=    0.117
          web buckling ratio (5.7)              =    0.000

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -53.55     kN , VplRd =  1117.     kN, ratio = 0.4795E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.107
          resist. ratio according to 5.4       =    0.048
          max. resist. ratio (max. among above)=    0.107
          web buckling ratio (5.7)             =    0.000

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -62.42     kN , VplRd =  1117.     kN, ratio = 0.5589E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.095
          resist. ratio according to 5.4       =    0.056
          max. resist. ratio (max. among above)=    0.095
          web buckling ratio (5.7)             =    0.000

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -69.75     kN , VplRd =  1117.     kN, ratio = 0.6245E-01


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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
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```
                betab     1.000
                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.080
          resist. ratio according to 5.4       =    0.062
          max. resist. ratio (max. among above)=    0.080
          web buckling ratio (5.7)             =    0.000

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -71.26     kN , VplRd =  1117.     kN, ratio = 0.6380E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.064
          resist. ratio according to 5.4       =    0.064


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          max. resist. ratio (max. among above)=    0.064
          web buckling ratio (5.7)             =    0.000

          Section no.    41 at x=  7999.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -66.32     kN , VplRd =  1117.     kN, ratio = 0.5938E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    41 at x=  7999.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.047
          resist. ratio according to 5.4       =    0.059
          max. resist. ratio (max. among above)=    0.059
          web buckling ratio (5.7)             =    0.000
```

```
          Section no.    42 at x=  8199.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -56.60     kN , VplRd =  1117.     kN, ratio = 0.5068E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09




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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    42 at x=  8199.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.032
          resist. ratio according to 5.4       =    0.051
          max. resist. ratio (max. among above)=    0.051
          web buckling ratio (5.7)             =    0.000

          Section no.    43 at x=  8399.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -42.65     kN , VplRd =  1117.     kN, ratio = 0.3819E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    43 at x=  8399.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.018
          resist. ratio according to 5.4       =    0.038
          max. resist. ratio (max. among above)=    0.038
          web buckling ratio (5.7)             =    0.000

          Section no.    44 at x=  8599.996     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -26.58     kN , VplRd =  1117.     kN, ratio = 0.2380E-01



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               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
```

```
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    44 at x=  8599.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.008
          resist. ratio according to 5.4       =    0.024
          max. resist. ratio (max. among above)=    0.024
          web buckling ratio (5.7)             =    0.000

          Section no.    45 at x=  8799.996     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -9.274     kN , VplRd =  1117.     kN, ratio = 0.8303E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    45 at x=  8799.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.002
          resist. ratio according to 5.4       =    0.008
          max. resist. ratio (max. among above)=    0.008


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          web buckling ratio (5.7)             =    0.000

          Section no.    46 at x=  9000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -9.274     kN , VplRd =  1117.     kN, ratio = 0.8303E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    46 at x=  9000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.008
          max. resist. ratio (max. among above)=    0.008
          web buckling ratio (5.7)             =    0.000

          Summary of resistance checks over all the sections
          max selected class: 2, at station no.  46
          maximum resistance   ratio               =    0.137
```

```
          maximum web buckling ratio              =    0.000

EC3 PILING: START BUCKLING CHECKS


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  1
           zstart      =  0.000000     [mm]  zend=    5050.000     [mm]
           buckl. length about x-x      =  5050.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z


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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
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TABLE  B.3   : XMIN =      0.0000     XMAX =      5050.0
               BXMIN=      0.0000     BXMAX=     0.99155E+08
               X(1) =      0.0000     X(N) =      9000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.27172E+17
  "    "   : ERR Q M - PARABOLA CENTR.  0.30525E+17
Table B.3  : PSI         0.0000
  "     "    ALPHA      0.12843
  "     "    Cm unif.   0.40000
  "     "    Cm conc.   0.40000
  "     "    Cm avrg.   0.40000
  "     "    Cm     .   0.40000
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      = 0.40000
          Max. bending moment (abs value) [kNm]=  99.155


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


          No axial compression: skipping buckling


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  2
           zstart      =  5050.000     [mm]  zend=    9000.000     [mm]
           buckl. length about x-x      =  3950.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      5050.0     XMAX =      9000.0
               BXMIN=     0.99155E+08 BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      9000.0
               M(1) =      0.0000     M(N) =      0.0000



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Table B.3  : ERR Q M - BILINEAR         0.15158E+17
  "    "   : ERR Q M - PARABOLA CENTR.  0.35734E+17
Table B.3  : PSI         0.0000
  "     "    ALPHA      0.99833
```

```
  "     "    Cm unif.   0.99992
  "     "    Cm conc.   0.99983
  "     "    Cm avrg.   0.99986
  "     "    Cm     .   0.99983
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      = 0.99983
          Max. bending moment (abs value) [kNm]=  117.64


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


          No axial compression: skipping buckling


LCASE          4  SUBCASE    1
FOUND AT ACTION FILE LINE N.      464
EC3_EN_1993-5:20   RESISTANCE RATIO            0.137
                   AXIAL   BUCKLING RATIO      0.000
                   LATERAL BUCKLING RATIO      0.000
                   LOCAL   BUCKLING RATIO      0.000
                   RETURNED ERROR CODE            0

MEMBER LW0_S1
                 MAX RESISTANCE RATIO            0.137 FOR LCASE        4
                 MAX AXIAL   BUCKLING RATIO      0.000 FOR LCASE        4
                 MAX LATERAL BUCKLING RATIO      0.000 FOR LCASE        4
                 MAX LOCAL   BUCKLING RATIO      0.000 FOR LCASE        4
```