Anas
GRUPPO FS ITALIANE

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 1
Relazione Tecnica e di calcolo

CODICE PROGETTO	NOME FILE	REVISIONE	SCALA:
PROGETTO: DPFI12 — LIV. PROG.: E — N. PROG.: 1801	T00-TM01-STR-RE01		
CODICE ELAB.: T00TM01STRRE01		A	-

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 1" 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 3.00m 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 8.00 x 4.50 m, con pareti, copertura di spessore pari a 50 cm e platea di fondazione di spessore pari a 60 cm. Lo sviluppo dell'opera è di circa 101.50 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. MATERIALI

5.1 CALCESTRUZZO

Il calcestruzzo può essere preconfezionato in centrale di betonaggio o impastato in cantiere con inerti di caratteristiche meccaniche appropriate, granulometria e rapporto acqua-cemento controllati.

Gli impasti devono essere preparati e trasportati in modo da escludere pericoli di segregazione dei componenti e di prematuro inizio della presa al momento del getto.

I componenti dovranno soddisfare i seguenti requisiti normativi:

Leganti	-	L. 26/05/1965 n. 595
	-	Norme serie EN 197 armonizzata
Aggregati	-	UNI EN 12620 armonizzata
	-	UNI EN 13055-1 armonizzata
	-	UNI 8520-1 : 2005
	-	UNI 8520-2: 2005
Aggiunte	-	EN 450-1
	-	UNI EN 206-1 :2006
	-	UNI 11104:2004
Additivi	-	EN 934-2 armonizzata
Acqua di impasto	-	UNI EN 1008: 2003

Le miscele di calcestruzzo da utilizzare nel confezionamento degli elementi saranno progettate in funzione della resistenza caratteristica richiesta, della carpenteria, delle armature e del tipo di getto.

CALCESTRUZZO TIPO 1 (Platea e pareti tombino)

Classe di resistenza	C32/40 ($R_{ck} = 40$ N/mm^2)
Classe di esposizione (UNI EN 206-1)	XA2
Classe di consistenza	S4
Rapporto acqua – cemento (a/c)	0.50
Contenuto minimo di cemento	340 kg/m^3
Resistenza cilindrica caratteristica a compressione	$f_{ck} = 0.83 \cdot R_{ck} = 33.2$ N/mm^2
Resistenza media a compressione	$f_{cm} = f_{ck} + 8 = 41.2$ N/mm^2
Resistenza media a trazione semplice	$f_{ctm} = 0.30 \cdot f_{ck}^{2/3} = 3.1$ N/mm^2

Resistenza caratteristica a trazione semplice	$f_{ctk} = 0.7 \cdot f_{ctm} = 2.17$ N/mm^2
Fattore parz. di sicurezza resistenza	$\gamma_c = 1.5$
Coeff. Riduttivo per resistenze di lunga durata	$\alpha_{cc} = 0.85$
Resistenza di calcolo a compressione	$f_{cd} = \frac{\alpha_{cc} \cdot f_{ck}}{\gamma_c} = 18.81$ N/mm^2
Resistenza di calcolo a trazione	$f_{ctd} = \frac{f_{ctk}}{\gamma_c} = 1.44$ N/mm^2
Modulo di elasticità	$E_{cm} = 22000 \cdot \left[\frac{f_{cm}}{10}\right]^{0.3} = 33642.8$ N/mm^2
Copriferro di calcolo	5 cm

Calcestruzzo magro per fondazione:

Si prevede un calcestruzzo di classe C 12/15.

5.2 ACCIAIO PER CALCESTRUZZO ARMATO

Si prevede l'impiego di acciaio del tipo B450C saldabile controllato in stabilimento.

L'accertamento delle proprietà meccaniche dovrà essere conforme alle seguenti normative sull'acciaio: EN 10002/1° (marzo 1990)-UNI 564 (febbraio 1960)-UNI 6407 (marzo 1969).

Acciaio	B450C
Tensione di rottura nominale	$f_{tk} = 540$ N/mm^2
Tensione di snervamento nominale	$f_{yk} = 450$ N/mm^2
Allungamento a rottura caratteristico	$(A_{gt})_k \geq 7.5$ %
Coefficiente parziale di sicurezza:	$\phi_s = 1.15$
Tensione di snervamento di calcolo:	$f_{yd} = \frac{f_{yk}}{\gamma_s} = 391$ N/mm^2

Le caratteristiche degli acciai impiegati saranno comprovate mediante prove su campioni da prelevare in cantiere in fase di esecuzione dell'opera con le modalità prescritte nel D.M. 14.01.08.

6. ANALISI DEI CARICHI

I valori dei carichi sono riepilogati di seguito.

6.1 COPERTURA TOMBINO

CARICHI PERMANENTI STRUTTURALI

Rilevato stradale (h=0.80 m, p.p = 19 kN/m^3)	15.20 kN/m^2
Carico permanente strutturale totale G_{1k}	15.20 kN/m^2

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°.

6.2 PLATEA TOMBINO

CARICHI PERMANENTI STRUTTURALI

Peso dell'acqua (H_{max} = 4.50 m)	45.00 kN/m^2
Carico permanente strutturale totale G_{1k}	45.00 kN/m^2

6.3 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:

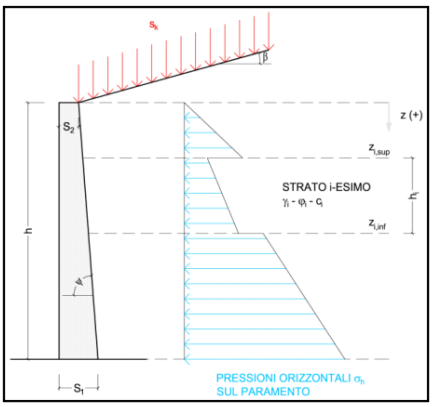
γ_k= 19,0	kN/m^3	peso di volume caratteristico;
φ'_k = 35	°	angolo di operativo attrito caratteristico.

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}=	0,073	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_{q1k}	s_{q2k}	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)

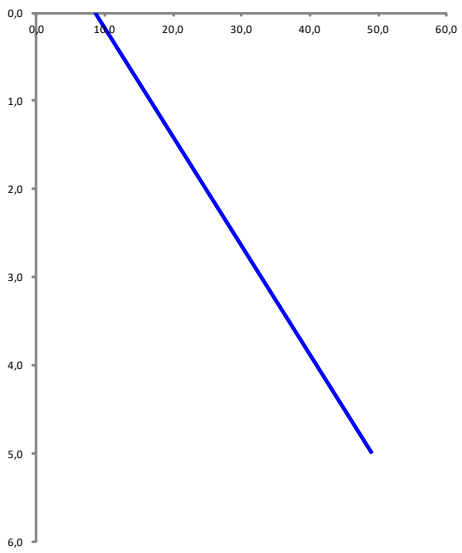
CARATTERISTICHE STRATI TERRENO

				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	5,00	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	0,387	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	0,387	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	0,387	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	0,387	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	0,387	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	0,387	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	0,387	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	0,387	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	0,387	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	0,387	0,391

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

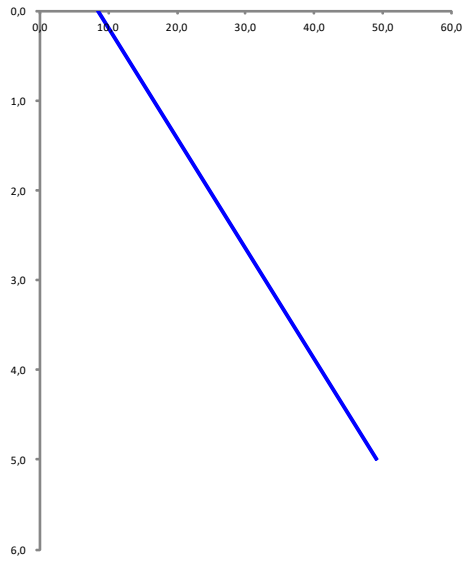
PRESSIONI DI PROGETTO CONDIZIONI STATICHE **SLE**

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**
	5,00		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**



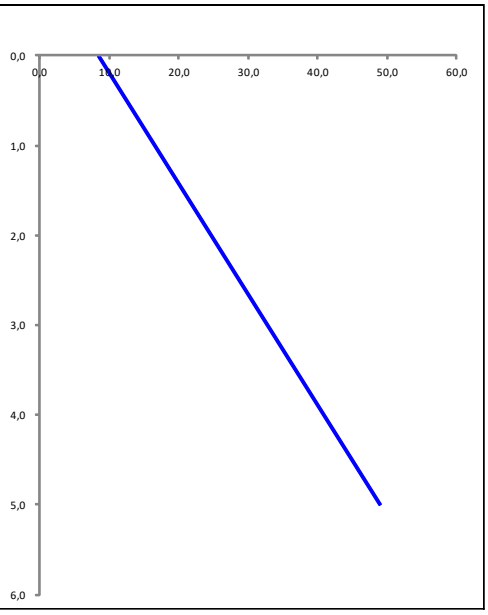
PRESSIONI DI PROGETTO CONDIZIONI STATICHE **SLU APPROCCIO 1 - COMBINAZIONE 1 E APPROCCIO 2**

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 $\sigma_{hd,tot}$ [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**



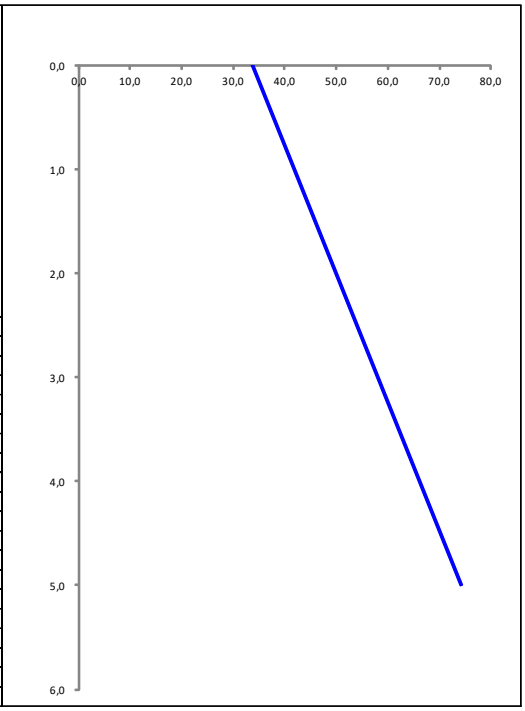
PRESSIONI DI PROGETTO CONDIZIONI STATICHE **SLU APPROCCIO 1 - COMBINAZIONE 2**

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**



6.4 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.

7. CONDIZIONI E COMBINAZIONI DI CARICO

7.1 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.

7.2 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

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
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

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
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
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

Nome	Nome breve	ΔT	X SLV	Y SLV	Z SLV	EY SLV	EX SLV	Tr x SLV	Tr y SLV	Tr z SLV
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

8. 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.

8.1 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 50x100	0.416667	0.416667	4.167E-02	1.042E-02	2.854E-02	1	0.5	0.05	0.05	0.05
R 100x50_1	0.416667	0.416667	1.042E-02	4.167E-02	2.854E-02	0.5	1	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 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 100x50_1	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 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 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	0.5
L2	Piano 1	5.00	0.6

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	-15.2	-15.2	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

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												
	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
	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

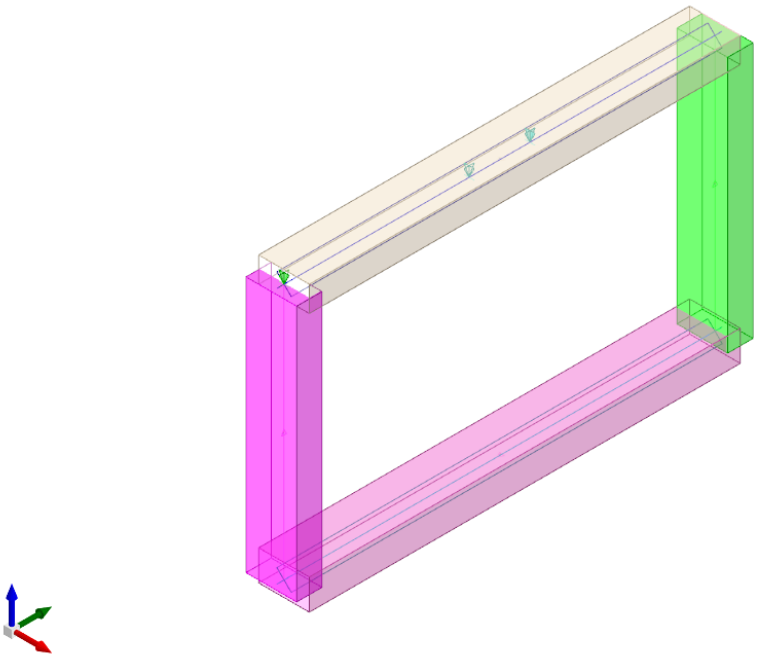


Figura 1 - Rappresentazione Grafica del Modello di Calcolo

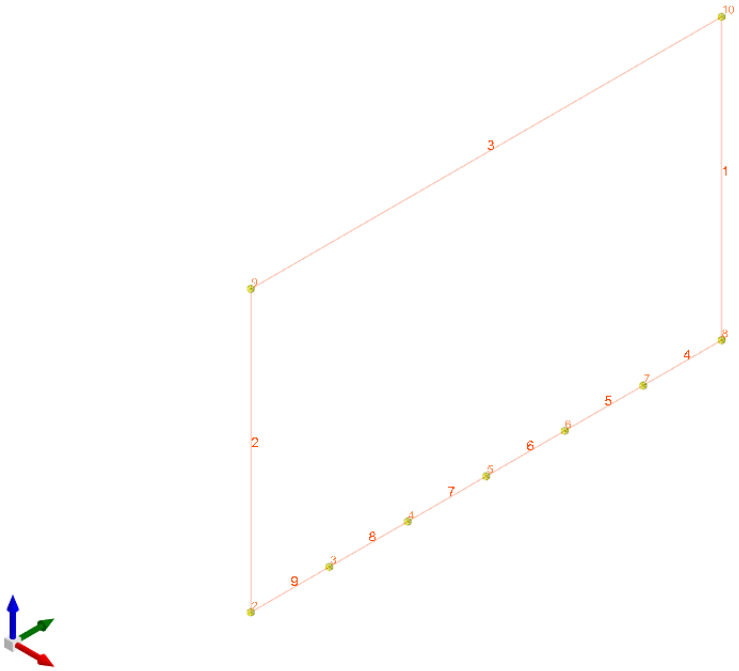


Figura 2 - Rappresentazione Grafica del Modello di Calcolo – Numerazione NODI e ASTE

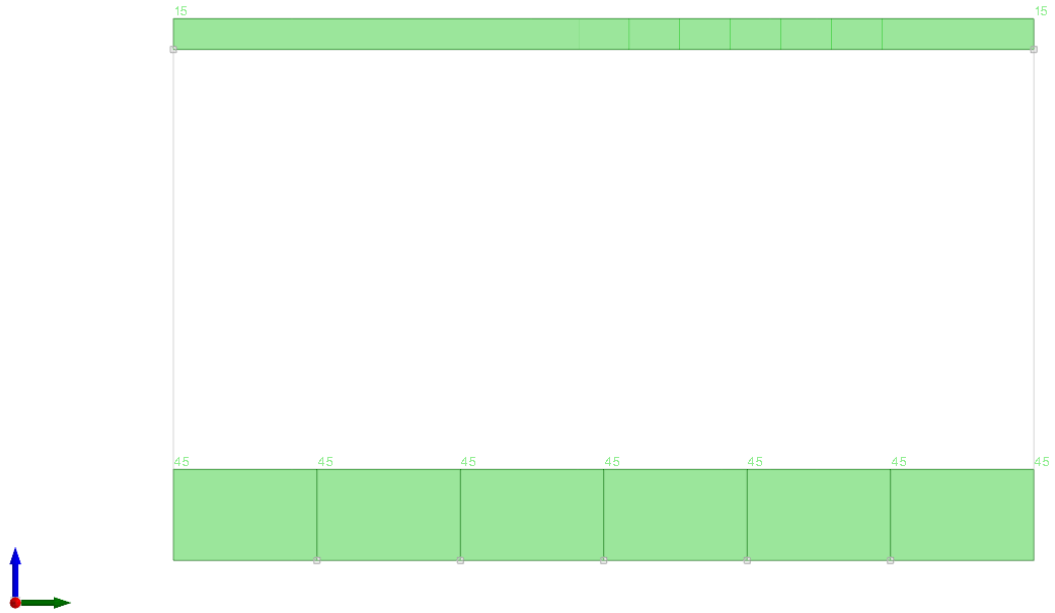


Figura 3 - Condizione permanenti strutturali

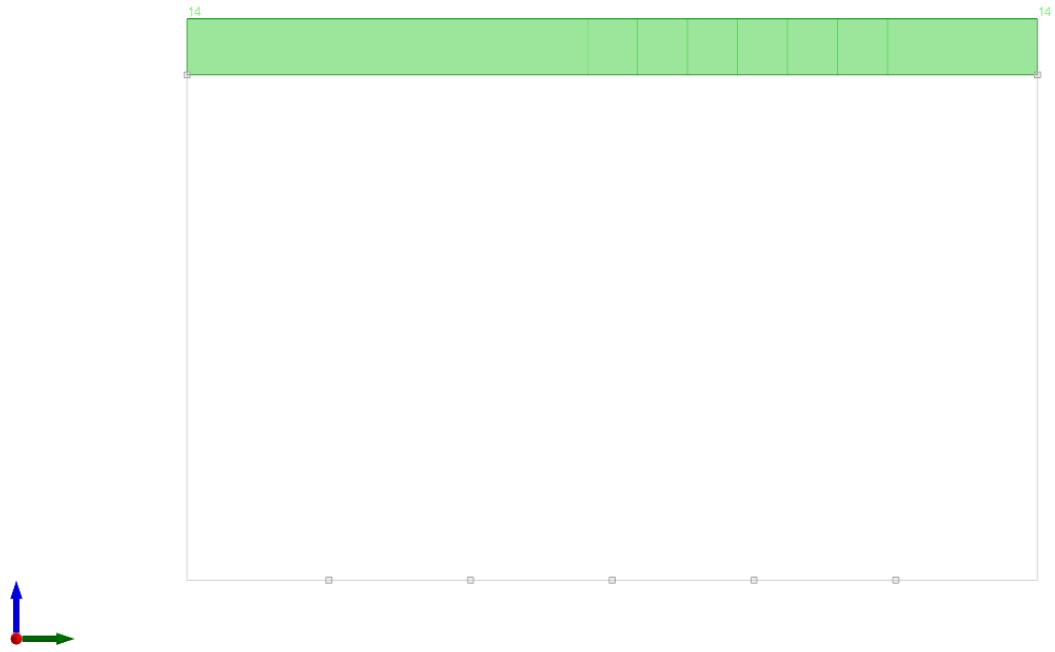


Figura 4 - Condizione permanenti NON strutturali

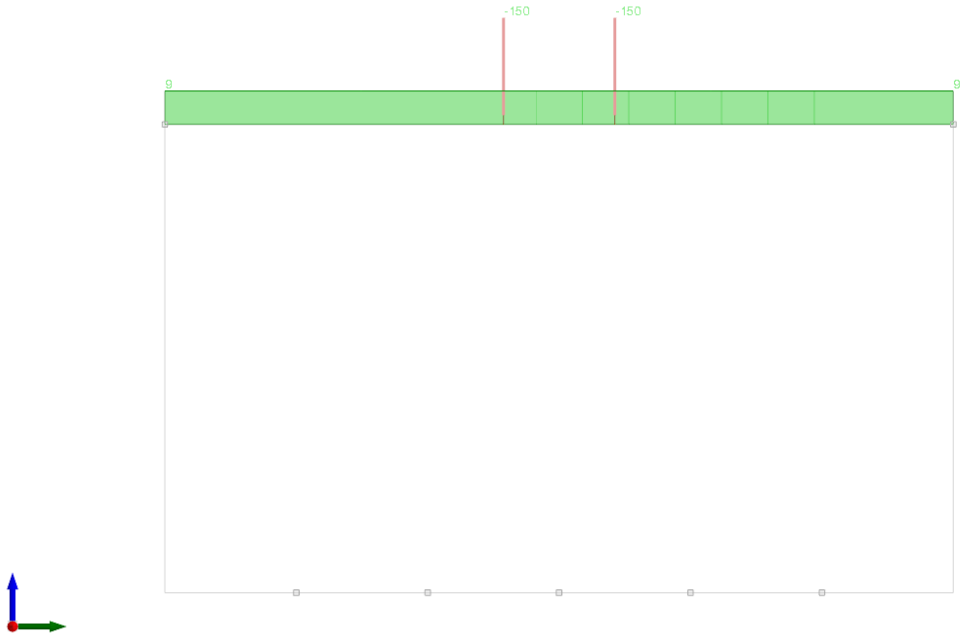


Figura 5 - Condizione sovraccarico variabile traffico

Figura 6 - Condizione spinta terreno A1-M1

Figura 7 - Condizione spinta terreno A2-M2

Figura 8 - Condizione sovraccarico accidentale A1-M1

Figura 9 - Condizione sovraccarico accidentale A2-M2

Figura 10 - Condizione sisma terreno +

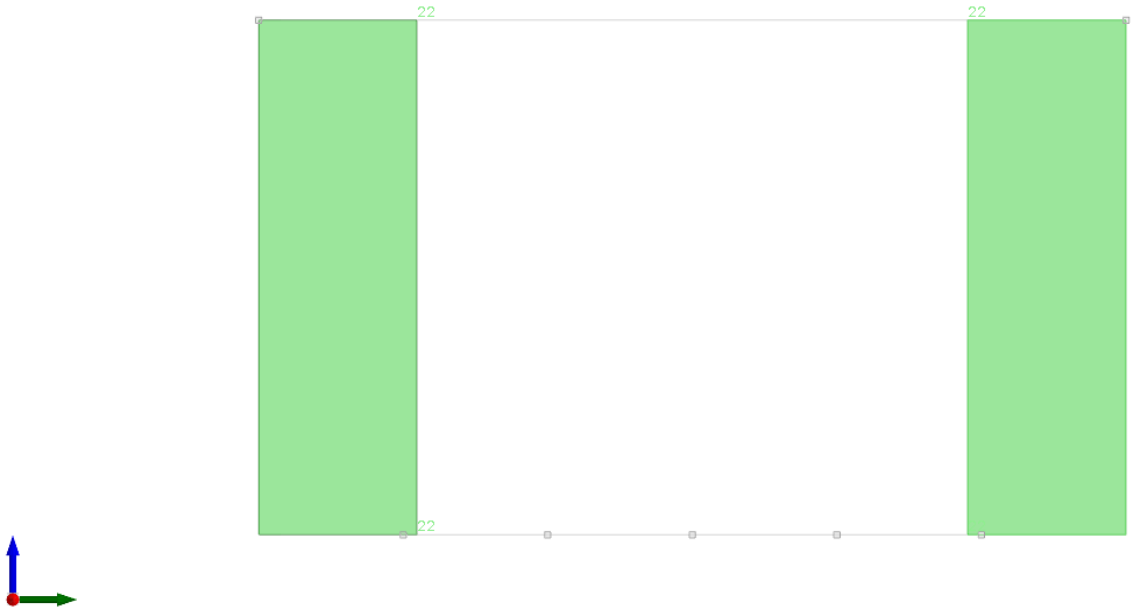


Figura 11 - Condizione sisma terreno –

Figura 12 - Condizione frenatura

8.2 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.

8.2.1 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;

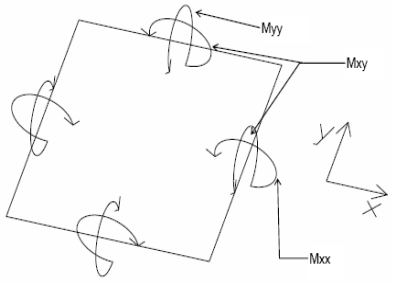
- F3: viene rappresentato nel piano individuato dagli assi 1 e 3. Nel caso di F3 positivo viene disegnato lungo l'asta dalla parte del semiasse 3 positivo;

- 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.



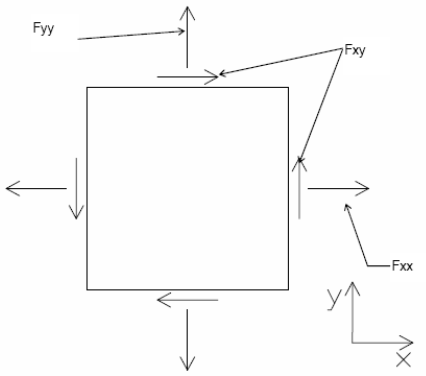
si definiscono:

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:

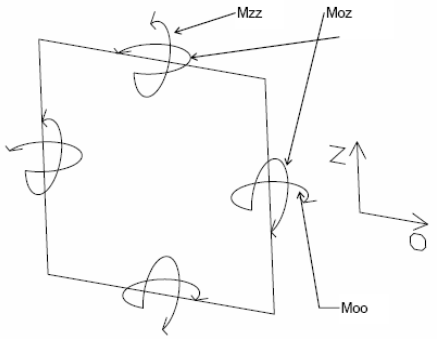
Vx: taglio fuori piano [Forza/Lunghezza] applicato al bordo di normale parallela all'asse x (per il segno si veda l'immagine relativa ai tagli fuori piano nel sistema locale 1, 2, 3 riportata più avanti);

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.

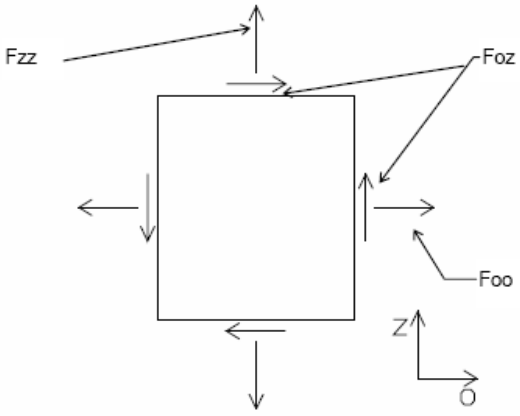
In figura è mostrato un elemento infinitesimo di shell orizzontale con indicato il sistema di riferimento e i parametri di sollecitazione Moo, Mzz, Moz.



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).

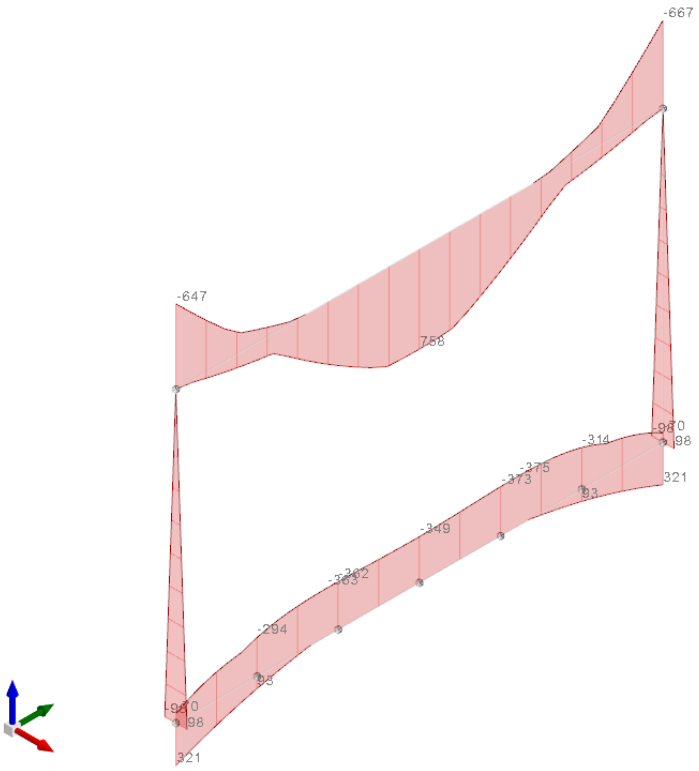


Figura 13 - Inviluppo momento flettente M3

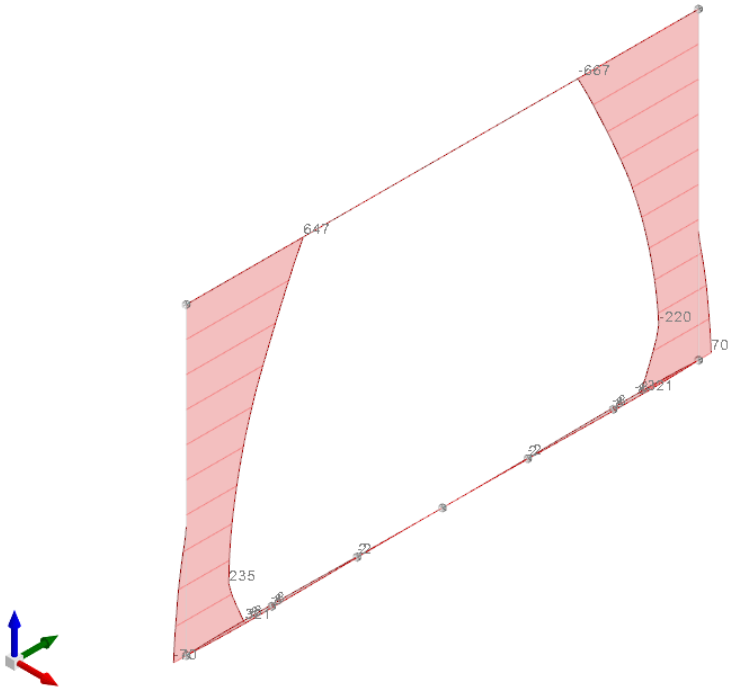


Figura 14 - Inviluppo momento flettente M2

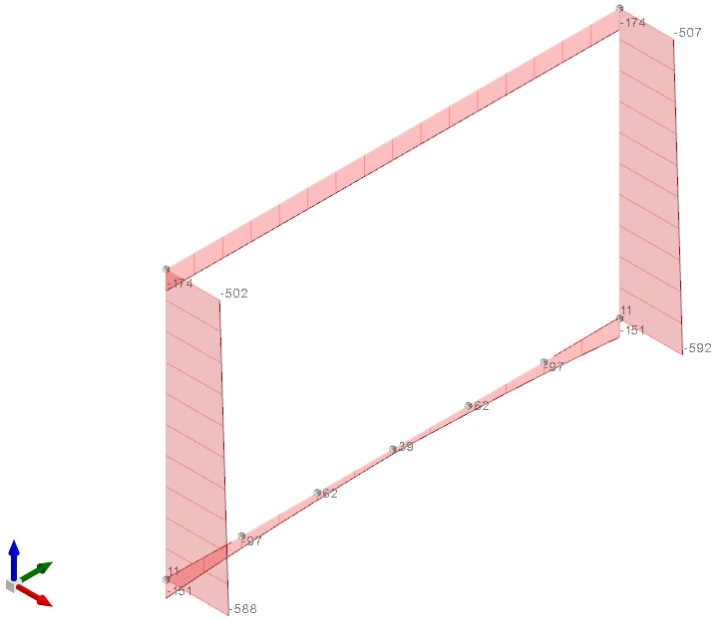


Figura 15 - Inviluppo sforzo assiale N

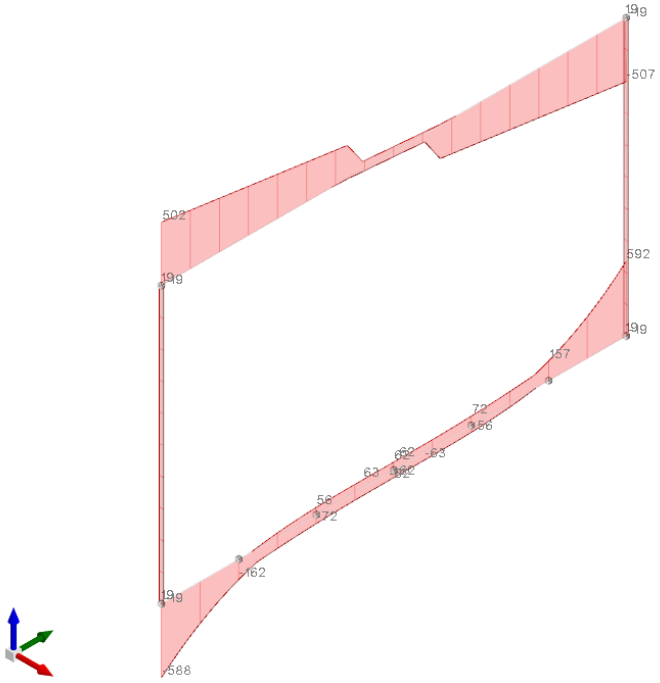


Figura 16 - Inviluppo sforzo di taglio F2

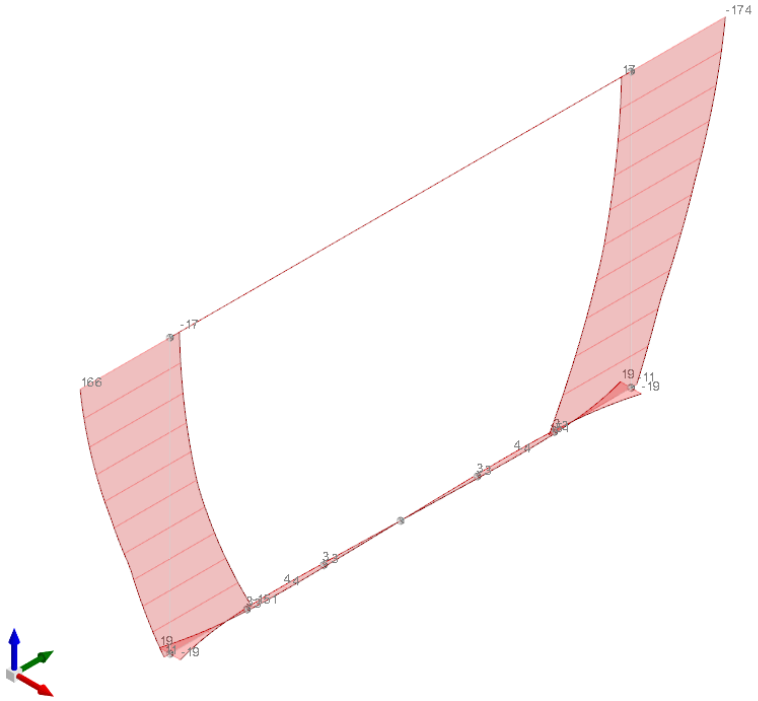


Figura 17 - Inviluppo sforzo di taglio F3

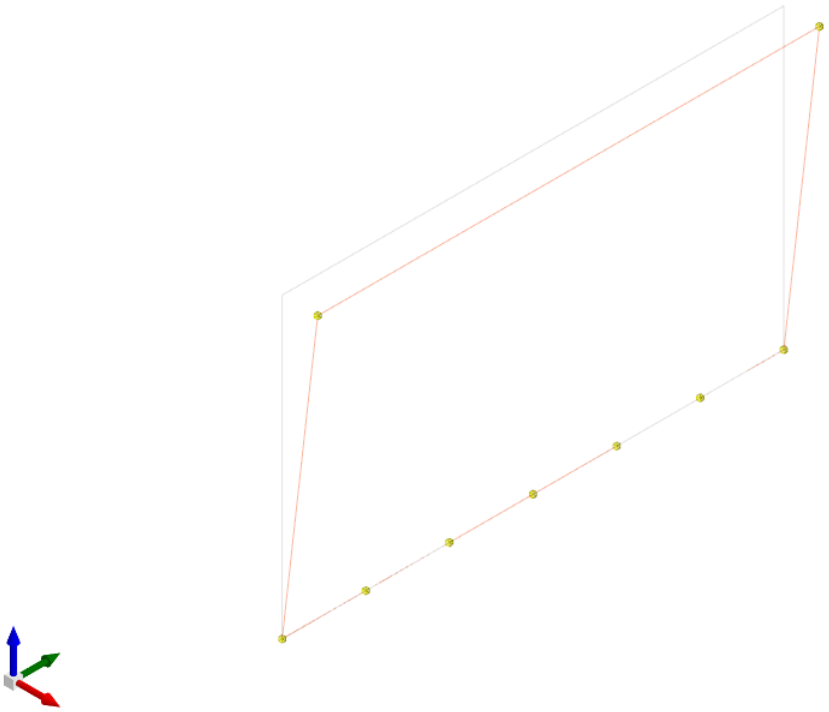


Figura 18 – Spostamenti condizione sisma X SLV

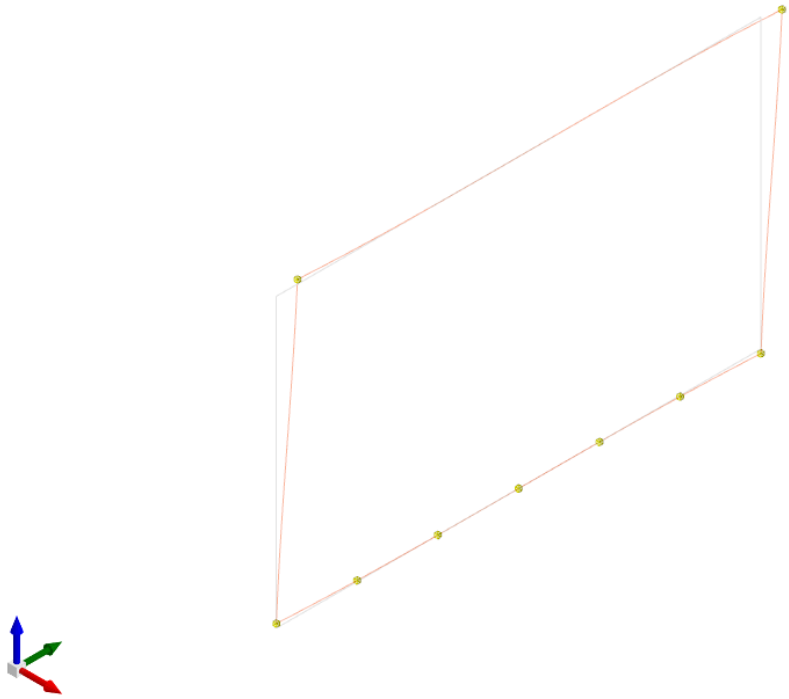


Figura 19 – Spostamenti condizione sisma Y SLV

8.3 VERIFICHE STRUTTURALI

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

8.3.1 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	0.00764	3.1	0	1,2,3,4	-14.5838	-243.554	-577.58	-54.4282	-908.9688	SLU 4	3.732	Si
0.3	0.00764	3.1	0	1,2,3,4	-14.4581	-236.5823	-572.6	-56.0159	-916.6053	SLU 4	3.874	Si
0.6	0.00764	3	0	1,3,4	14.3303	-236.6417	-567.54	55.2975	-913.1502	SLU 20	3.859	Si
0.9	0.00764	1.5	0	3,4	14.2024	-242.396	-562.47	52.7837	-900.8693	SLU 20	3.717	Si
1.2	0.00764	1.5	0	3,4	14.0746	-252.4426	-557.41	49.192	-882.3088	SLU 20	3.495	Si
1.5	0.00764	1.5	0	3,4	13.9468	-266.4971	-552.35	44.9372	-858.6666	SLU 20	3.222	Si
1.8	0.00764	1.5	0	3,4	13.819	-284.385	-547.29	40.5147	-833.7647	SLU 20	2.932	Si
2.1	0.00764	1.5	0	3,4	13.6911	-305.7366	-542.22	36.2567	-809.6485	SLU 20	2.648	Si
2.4	0.00764	1.5	0	3,4	13.5633	-330.2129	-537.16	32.2737	-785.7364	SLU 20	2.379	Si
2.7	0.00764	1.5	0	3,4	13.5566	-360.4035	-536.89	28.6796	-762.4511	SLU 18	2.116	Si
2.8	0.00764	1.5	0	3,4	13.516	-370.3457	-535.29	27.5585	-755.1165	SLU 18	2.039	Si
3	0.00764	1.5	0	3,4	13.4287	-393.8999	-531.83	25.2219	-739.8233	SLU 17	1.878	Si
3.3	0.00764	1.5	0	3,4	13.3009	-432.7095	-526.77	22.116	-719.484	SLU 17	1.663	Si
3.6	0.00764	1.5	0	3,4	13.1731	-473.535	-521.71	19.5467	-702.6494	SLU 17	1.484	Si
3.9	0.00764	1.5	0	3,4	13.0453	-516.0913	-516.64	17.4062	-688.6169	SLU 17	1.334	Si
4.2	0.00764	1.5	0	3,4	12.9174	-560.0353	-511.58	15.6041	-676.514	SLU 17	1.208	Si
4.5	0.00764	1.5	0	3,4	12.7917	-605.0175	-506.6	14.0829	-666.0872	SLU 1	1.101	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.	Nmin	Nlim	Comb.Nmin	Ver.
0	0.00764	3.1	0	1,2,3,4	-27.5754	-277.4355	-196.28	-2.02	2.21	-59.633	-599.9675	SLV 7	2.163				Si
0.3	0.00764	3.1	0	1,2,3,4	-25.8553	-239.6858	-192.59	-2.02	2.21	-65.8322	-610.2831	SLV 7	2.546				Si
0.6	0.00764	3	0	1,3,4	-24.1002	-208.6277	-188.84	-2.02	2.21	-71.8008	-621.5566	SLV 39	2.979				Si
0.9	0.00764	1.5	0	3,4	-22.3517	-181.0631	-185.09	-2.02	2.21	-78.3889	-635.0013	SLV 39	3.507				Si
1.2	0.00764	1.5	0	3,4	-20.6033	-156.4836	-181.34	-2.02	2.21	-85.7409	-651.2096	SLV 39	4.162				Si
1.5	0.00764	1.5	0	3,4	-18.8551	-134.6782	-177.59	-2.02	2.21	-93.9561	-671.1112	SLV 39	4.983				Si
1.8	0.00764	1.5	0	3,4	-17.1072	-115.5116	-173.84	-2.02	2.21	-102.9834	-695.3669	SLV 39	6.02				Si
2.1	0.00764	1.5	0	3,4	-15.3601	-98.7135	-170.09	-2.02	2.21	-112.8636	-725.3314	SLV 39	7.348				Si
2.4	0.00764	1.5	0	3,4	45.4491	-87.4917	-218.65	-2.02	2.21	363.573	-699.8949	SLV 45	8				Si
2.7	0.00764	1.5	0	3,4	11.9259	-119.5814	-243.08	-2.02	2.21	77.7744	-779.8469	SLV 41	6.521				Si
2.8	0.00764	1.5	0	3,4	11.3757	-129.4776	-241.89	-2.02	2.21	66.3874	-755.6184	SLV 41	5.836				Si
3	0.00764	1.5	0	3,4	10.1923	-151.5036	-239.33	-2.02	2.21	48.0893	-714.8238	SLV 41	4.718				Si
3.3	0.00764	1.5	0	3,4	8.4603	-184.9134	-235.58	-2.02	2.21	30.846	-674.1928	SLV 41	3.646				Si
3.6	0.00764	1.5	0	3,4	6.729	-219.6185	-231.83	-2.02	2.21	19.8218	-646.9394	SLV 41	2.946				Si
3.9	0.00764	1.5	0	3,4	-4.8595	-255.4223	-228.09	-2.02	2.21	-11.9404	-627.6033	SLV 37	2.457				Si
4.2	0.00764	1.5	0	3,4	-3.1111	-292.0459	-224.34	-2.02	2.21	-6.5333	-613.2922	SLV 37	2.1				Si
4.5	0.00764	1.5	0	3,4	-1.3901	-329.8542	-220.65	-2.02	2.21	-2.5382	-602.2795	SLV 5	1.826				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 ø10/18.7	61.09	-390.97	SLU 16	238.75	126.28	1887.02	1	3.91	0.04	-577.58	SLU 3	247.09	274.98	2093.7	1	6799.37	Si
0.3	2X/2Y ø10/18.7	44.14	-387.28	SLU 16	238.28	126.28	1886.31	1	5.4	0.04	-572.6	SLU 3	246.39	274.98	2092.65	1	6799.37	Si
0.6	2X/2Y ø10/18.7	-33.83	-572.33	SLU 17	262.04	126.28	1921.96	1	7.75	0.04	-567.54	SLU 3	245.68	274.98	2091.59	1	6799.37	Si
0.9	2X/2Y ø10/18.7	-48.74	-567.27	SLU 17	261.39	126.28	1920.98	1	5.36	0.04	-562.47	SLU 3	244.97	274.98	2090.53	1	6799.37	Si
1.2	2X/2Y ø10/18.7	-62.68	-562.21	SLU 17	260.74	126.28	1920	1	4.16	0.04	-557.41	SLU 3	244.27	274.98	2089.47	1	6799.37	Si
1.5	2X/2Y ø10/18.7	-75.66	-557.14	SLU 17	260.09	126.28	1919.03	1	3.44	0.04	-552.35	SLU 3	243.56	274.98	2088.41	1	6799.37	Si
1.8	2X/2Y ø10/18.7	-87.64	-552.08	SLU 17	259.44	126.28	1918.05	1	2.96	0.04	-547.29	SLU 3	242.85	274.98	2087.34	1	6799.37	Si
2.1	2X/2Y ø10/18.7	-98.64	-547.02	SLU 17	258.79	126.28	1917.08	1	2.62	0.04	-542.22	SLU 3	242.14	274.98	2086.28	1	6799.37	Si
2.4	2X/2Y ø10/18.7	-108.68	-541.96	SLU 17	258.14	126.28	1916.1	1	2.38	0.04	-537.16	SLU 3	241.44	274.98	2085.22	1	6799.37	Si
2.7	2X/2Y ø10/18.7	-119.19	-536.89	SLU 1	257.49	126.28	1915.13	1	2.16	0.04	-532.1	SLU 3	240.73	274.98	2084.16	1	6799.37	Si
2.8	2X/2Y ø10/18.7	-122.39	-535.29	SLU 1	257.28	126.28	1914.82	1	2.1	0.04	-530.49	SLU 3	240.5	274.98	2083.82	1	6799.37	Si
3	2X/2Y ø10/18.7	-128.83	-531.83	SLU 1	256.84	126.28	1914.15	1	1.99	0.04	-527.04	SLU 3	240.02	274.98	2083.1	1	6799.37	Si
3.3	2X/2Y ø10/18.7	-137.5	-526.77	SLU 1	256.19	126.28	1913.18	1	1.86	0.04	-521.97	SLU 3	239.31	274.98	2082.04	1	6799.37	Si
3.6	2X/2Y ø10/18.7	-145.19	-521.71	SLU 1	255.54	126.28	1912.2	1	1.76	0.04	-516.91	SLU 3	238.6	274.98	2080.97	1	6799.37	Si
3.9	2X/2Y ø10/18.7	-151.88	-516.64	SLU 1	254.89	126.28	1911.23	1	1.68	0.04	-511.85	SLU 3	237.9	274.98	2079.91	1	6799.37	Si
4.2	2X/2Y ø10/18.7	-157.61	-511.58	SLU 1	254.24	126.28	1910.25	1	1.61	0.04	-506.79	SLU 3	237.19	274.98	2078.85	1	6799.37	Si
4.5	2X/2Y ø10/18.7	-162.3	-506.6	SLU 1	253.6	126.28	1909.3	1	1.56	0.04	-501.81	SLU 3	236.49	274.98	2077.81	1	6799.37	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 ø10/18.7	135.47	-196.27	SLV 11	213.75	126.28	1849.53	1	1.58	19.35	-248.61	SLV 1	201.1	274.98	2024.71	1	14.21	Si
0.3	2X/2Y ø10/18.7	121.27	-192.58	SLV 11	213.28	126.28	1848.82	1	1.76	19.35	-244.92	SLV 1	200.58	274.98	2023.94	1	14.21	Si

		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.	
0.6	2X/2Y ø10/18.7	107.68	-188.83	SLV 11	212.8	126.28	1848.09	1	1.98	19.35	-241.17	SLV 1	200.06	274.98	2023.15	1	14.21	Si
0.9	2X/2Y ø10/18.7	94.95	-185.08	SLV 11	212.32	126.28	1847.37	1	2.24	19.35	-237.42	SLV 1	199.53	274.98	2022.37	1	14.21	Si
1.2	2X/2Y ø10/18.7	83.07	-181.33	SLV 11	211.84	126.28	1846.65	1	2.55	19.35	-233.67	SLV 1	199.01	274.98	2021.58	1	14.21	Si
1.5	2X/2Y ø10/18.7	72.05	-177.58	SLV 11	211.35	126.28	1845.93	1	2.93	19.35	-229.92	SLV 1	198.48	274.98	2020.79	1	14.21	Si
1.8	2X/2Y ø10/18.7	-83.4	-254.34	SLV 37	221.21	126.28	1860.71	1	2.65	19.35	-226.17	SLV 1	197.96	274.98	2020.01	1	14.21	Si
2.1	2X/2Y ø10/18.7	-91.12	-250.59	SLV 21	220.73	126.28	1859.99	1	2.42	19.35	-222.42	SLV 1	197.43	274.98	2019.22	1	14.21	Si
2.4	2X/2Y ø10/18.7	-99.09	-246.84	SLV 21	220.25	126.28	1859.27	1	2.22	19.35	-218.67	SLV 1	196.91	274.98	2018.43	1	14.21	Si
2.7	2X/2Y ø10/18.7	-106.61	-243.09	SLV 5	219.77	126.28	1858.54	1	2.06	19.35	-214.92	SLV 1	196.39	274.98	2017.65	1	14.21	Si
2.8	2X/2Y ø10/18.7	-108.86	-241.9	SLV 5	219.61	126.28	1858.31	1	2.02	19.35	-213.73	SLV 1	196.22	274.98	2017.4	1	14.21	Si
3	2X/2Y ø10/18.7	-113.3	-239.34	SLV 5	219.28	126.28	1857.82	1	1.94	19.35	-211.17	SLV 1	195.86	274.98	2016.86	1	14.21	Si
3.3	2X/2Y ø10/18.7	-119.13	-235.59	SLV 5	218.8	126.28	1857.1	1	1.84	19.35	-207.42	SLV 1	195.34	274.98	2016.07	1	14.21	Si
3.6	2X/2Y ø10/18.7	-124.08	-231.84	SLV 5	218.32	126.28	1856.38	1	1.76	19.35	-203.67	SLV 1	194.81	274.98	2015.29	1	14.21	Si
3.9	2X/2Y ø10/18.7	-128.16	-228.09	SLV 5	217.84	126.28	1855.65	1	1.7	19.35	-199.92	SLV 1	194.29	274.98	2014.5	1	14.21	Si
4.2	2X/2Y ø10/18.7	-131.37	-224.34	SLV 5	217.36	126.28	1854.93	1	1.65	19.35	-196.17	SLV 1	193.76	274.98	2013.72	1	14.21	Si
4.5	2X/2Y ø10/18.7	-133.69	-220.65	SLV 5	216.88	126.28	1854.22	1	1.62	19.35	-192.48	SLV 1	193.25	274.98	2012.94	1	14.21	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	-0.02	-171.7542	-490.66	SLE RA 4	-4912	-0.02	-171.7542	-490.66	SLE RA 4	67409	Si
0.3	-0.0094	-166.918	-486.98	SLE RA 4	-4778	-0.0094	-166.918	-486.98	SLE RA 4	64402	Si
0.6	0.0156	-172.2617	-483.23	SLE RA 7	-4923	0.0156	-172.2617	-483.23	SLE RA 7	68585	Si
0.9	0.025	-182.7813	-479.48	SLE RA 7	-5209	0.025	-182.7813	-479.48	SLE RA 7	76475	Si
1.2	0.0344	-196.8283	-475.73	SLE RA 7	-5590	0.0344	-196.8283	-475.73	SLE RA 7	86955	Si
1.5	0.0438	-214.1919	-471.98	SLE RA 7	-6060	0.0438	-214.1919	-471.98	SLE RA 7	99905	Si
1.8	0.0532	-234.754	-468.23	SLE RA 7	-6614	0.0532	-234.754	-468.23	SLE RA 7	115260	Si
2.1	0.0626	-258.2349	-464.48	SLE RA 7	-7245	0.0626	-258.2349	-464.48	SLE RA 7	132823	Si
2.4	0.072	-284.3781	-460.73	SLE RA 7	-7946	0.072	-284.3781	-460.73	SLE RA 7	152407	Si
2.7	0.0814	-312.9728	-456.98	SLE RA 7	-8710	0.0814	-312.9728	-456.98	SLE RA 7	173851	Si
2.8	0.0844	-322.4469	-455.79	SLE RA 7	-8963	0.0844	-322.4469	-455.79	SLE RA 7	180961	Si
3	0.0908	-343.8083	-453.23	SLE RA 7	-9533	0.0908	-343.8083	-453.23	SLE RA 7	196995	Si
3.3	0.1002	-376.6737	-449.48	SLE RA 7	-10408	0.1002	-376.6737	-449.48	SLE RA 7	221677	Si
3.6	0.1096	-411.3864	-445.73	SLE RA 7	-11332	0.1096	-411.3864	-445.73	SLE RA 7	247756	Si
3.9	0.119	-447.7391	-441.98	SLE RA 7	-12298	0.119	-447.7391	-441.98	SLE RA 7	275075	Si
4.2	0.1284	-485.4675	-438.23	SLE RA 7	-13299	0.1284	-485.4675	-438.23	SLE RA 7	303433	Si
4.5	0.1412	-525.5985	-434.54	SLE RA 4	-14364	0.1412	-525.5985	-434.54	SLE RA 4	333580	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	-0.0125	-108.4706	-236.52	SLE QP 5	-3067	Si
0.3	0.0161	-91.9461	-232.84	SLE QP 2	-2031	Si
0.6	0.0244	-96.7578	-229.09	SLE QP 1	-2112	Si
0.9	0.0258	-102.4404	-225.34	SLE QP 1	-2898	Si
1.2	0.0272	-108.1231	-221.59	SLE QP 1	-3050	Si
1.5	0.0286	-113.8057	-217.84	SLE QP 1	-3201	Si

Quota	Mx	My	N	Comb.	σc,max	Verifica
1.8	0.03	-119.4883	-214.09	SLE QP 1	-3352	Si
2.1	0.0314	-125.1709	-210.34	SLE QP 1	-3502	Si
2.4	0.0328	-130.8536	-206.59	SLE QP 1	-3652	Si
2.7	0.0342	-136.5362	-202.84	SLE QP 1	-3802	Si
2.8	0.0346	-138.3388	-201.65	SLE QP 1	-3850	Si
3	0.0356	-142.2188	-199.09	SLE QP 1	-3952	Si
3.3	0.037	-147.9015	-195.34	SLE QP 1	-4101	Si
3.6	0.0384	-153.5841	-191.59	SLE QP 1	-4250	Si
3.9	0.0398	-159.2667	-187.84	SLE QP 1	-4399	Si
4.2	0.0412	-164.9494	-184.09	SLE QP 1	-4548	Si
4.5	0.0508	-177.0646	-180.4	SLE QP 5	-4868	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
1.8	0.0538	-214.3277	-355.28	SLE FR 12	0.0507	-201.9516	-20195.16	113888	0.10374	0.0349	0.318	0.000105	Si	Si
2.1	0.0579	-230.9127	-351.53	SLE FR 12	0.0499	-199.0955	-19909.55	126507	0.10493	0.0383	0.3078	0.000113	Si	Si
2.4	0.062	-247.4977	-347.78	SLE FR 12	0.0493	-196.6866	-19668.66	139153	0.10594	0.038	0.3088	0.000125	Si	Si
2.7	0.0661	-264.0827	-344.03	SLE FR 12	0.0487	-194.6276	-19462.76	151821	0.10681	0.0376	0.3096	0.000137	Si	Si
2.8	0.0674	-269.3435	-342.84	SLE FR 12	0.0485	-194.0355	-19403.55	155844	0.10706	0.0376	0.3099	0.000141	Si	Si
3	0.0701	-280.6677	-340.28	SLE FR 12	0.0482	-192.8473	-19284.73	164507	0.10757	0.0374	0.3104	0.000149	Si	Si
3.3	0.0742	-297.2527	-336.53	SLE FR 12	0.0478	-191.2928	-19129.28	177207	0.10823	0.0372	0.311	0.000161	Si	Si
3.6	0.0783	-313.8377	-332.78	SLE FR 12	0.0474	-189.9237	-18992.37	189918	0.10882	0.037	0.3116	0.000172	Si	Si
3.9	0.0824	-330.4227	-329.03	SLE FR 12	0.0471	-188.7086	-18870.86	202639	0.10934	0.0368	0.3121	0.000188	Si	Si
4.2	0.0865	-347.0077	-325.28	SLE FR 12	0.0468	-187.623	-18762.3	215368	0.10981	0.0366	0.3126	0.000207	Si	Si
4.5	0.0919	-363.8569	-321.59	SLE FR 13	0.0471	-186.6383	-18663.83	228291	0.11024	0.0365	0.313	0.000227	Si	Si

8.3.2 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	0.004524	0.072	0.001524	0.072						-646.7925	SLU 1	-584.2987	-678.5705	0.229	Si
0.25	0.004524	0.072	0.002262	0.072						-523.7156	SLU 1	-523.7156	-678.899	0.217	Si
2.83	0.002262	0.072	0.005429	0.072	528.5185	SLU 20	664.2653	803.4127	0.248						Si
3.97	0.002262	0.072	0.005429	0.072	756.3618	SLU 20	757.8364	803.4127	0.248						Si
5.67	0.002262	0.072	0.005429	0.072	521.6522	SLU 18	659.722	803.4127	0.248						Si
8.25	0.004524	0.072	0.002262	0.072						-542.8607	SLU 3	-542.8607	-678.899	0.217	Si
8.5	0.004524	0.072	0.001524	0.072						-667.1325	SLU 3	-604.0412	-678.5705	0.229	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	0.004524	0.072	0.001524	0.072						-364.1131	SLV 5	-337.1038	-652.5679	0.34	Si
0.25	0.004524	0.072	0.002262	0.072	14.2416	SLV 43	70.5831	338.8448	0.232	-311.2239	SLV 5	-311.2239	-653.4675	0.333	Si

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
2.83	0.002262	0.072	0.005429	0.072	202.1421	SLV 43	206.0218	774.2846	0.364						Si
5.67	0.002262	0.072	0.005429	0.072	202.1421	SLV 37	206.0218	774.2846	0.364						Si
8.25	0.004524	0.072	0.002262	0.072	14.2416	SLV 37	70.583	338.8448	0.232	-311.2239	SLV 11	-311.2239	-653.4675	0.333	Si
8.5	0.004524	0.072	0.001524	0.072						-364.1132	SLV 11	-337.1038	-652.5679	0.34	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	0.004524	0	502.3	SLU 17	502.3	283.09	1249.46	0	283.09	2.5	Si
0.25	0.0000188	0.004524	0	484.66	SLU 17	484.66	283.09	1249.46	710.3	710.3	2.5	Si
2.83	0.0000153	0.005429	0	302.44	SLU 17	302.44	300.83	1249.46	575.06	575.06	2.5	Si
5.67	0.0000153	0.005429	0	-307.22	SLU 4	-307.22	-300.83	-1249.46	-575.06	-575.06	2.5	Si
8.25	0.0000188	0.004524	0	-489.44	SLU 4	-489.44	-283.09	-1249.46	-710.3	-710.3	2.5	Si
8.5	0	0.004524	0	-507.08	SLU 4	-507.08	-283.09	-1249.46	0	-283.09	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	0.004524	0	217.46	SLV 37	217.46	283.09	1249.46	0	283.09	2.5	Si
0.25	0.0000188	0.004524	0	207.04	SLV 37	207.04	283.09	1249.46	710.3	710.3	2.5	Si
2.83	0.0000153	0.005429	0	99.32	SLV 37	99.32	300.83	1249.46	575.06	575.06	2.5	Si
5.67	0.0000153	0.005429	0	-99.32	SLV 11	-99.32	-300.83	-1249.46	-575.06	-575.06	2.5	Si
8.25	0.0000188	0.004524	0	-207.04	SLV 11	-207.04	-283.09	-1249.46	-710.3	-710.3	2.5	Si
8.5	0	0.004524	0	-217.46	SLV 11	-217.46	-283.09	-1249.46	0	-283.09	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	-564.573	4	-510.8781	13881	19920	0.3066	3600	-193.0502	5	-1710724,69487269	46,4815105511392	149,4
0.25	-458.6419	4	-458.6419	11962	19920	0.275	3600	-150.2242	5	-1502242,30591404	39,180890333612	149,4
2.83	448.4696	7	577.1617	14227	19920	0.2909	3600	159.3376	1	1827803,60269805	45,0544798807017	149,4
5.67	448.4312	7	577.1155	14226	19920	0.2909	3600	159.3376	1	1827803,56712686	45,0544790038889	149,4
8.25	-458.6387	4	-458.6387	11962	19920	0.2749	3600	-150.2243	5	-1502242,68091404	39,1809001142138	149,4
8.5	-564.5658	4	-510.8729	13881	19920	0.3065	3600	-193.0502	5	-1710725,08208014	46,4815210718191	149,4

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	0.302	0.00114	0.000343	4	0.302	0.00076	0.000229	13	0.302	0.0003	0.00009	5	Si
0.25	superiore	0.304	0.00098	0.000297	4	0.304	0.00064	0.000195	13	0.304	0.00026	0.00008	5	Si
2.83	inferiore	0.284	0.0011	0.000312	7	0.284	0.0008	0.000227	12	0.284	0.00027	0.000076	1	Si
3.97	inferiore	0.284	0.00132	0.000375	7	0.284	0.00094	0.000268	12	0.284	0.0003	0.000084	1	Si
5.67	inferiore	0.284	0.0011	0.000312	7	0.284	0.0008	0.000227	12	0.284	0.00027	0.000076	1	Si
8.25	superiore	0.304	0.00098	0.000297	4	0.304	0.00064	0.000195	13	0.304	0.00026	0.00008	5	Si
8.5	superiore	0.302	0.00114	0.000343	4	0.302	0.00076	0.000229	13	0.302	0.0003	0.00009	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	0.00064	0.00051	0.00136	0.00099	0.00049	0.0002	0.00091	0.00017	0.00025	0.0002	0.0006	1	0.00041	1	9999	Si
2.83	0.00873	0.00704	0.01873	0.01374	0.00644	0.00265	0.01164	0.00228	0.00305	0.00265	0.00739	1	0.00563	1	1150	Si
4.25	0.01059	0.00854	0.02307	0.01698	0.00775	0.00316	0.0143	0.00272	0.00361	0.00316	0.00891	1	0.00676	1	954	Si
5.67	0.00873	0.00704	0.01873	0.01374	0.00644	0.00265	0.01164	0.00228	0.00305	0.00265	0.0074	1	0.00563	1	1149	Si
8.25	0.00064	0.00051	0.00136	0.00099	0.00049	0.0002	0.00091	0.00017	0.00025	0.0002	0.0006	1	0.00041	1	9999	Si

8.3.3 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	0.003142	0.07	0.001571	0.07	256.4969	SLU 4	183.9441	324.7778	0.116						Si
0.25	0.003142	0.07	0.001571	0.07	133.7938	SLU 12	133.7938	324.7778	0.116	46.6613	SLU 21	-177.1153	-610.7705	0.143	Si
2.83	0.003142	0.07	0.001571	0.07						-362.2594	SLU 17	-362.5382	-610.7705	0.143	Si
5.38	0.003142	0.07	0.001571	0.07						-367.8124	SLU 19	-375.1954	-610.7705	0.143	Si
5.67	0.003142	0.07	0.001571	0.07						-372.7903	SLU 19	-375.1954	-610.7705	0.143	Si
8.25	0.003142	0.07	0.001571	0.07	110.1358	SLU 10	110.1358	324.7778	0.116	24.0806	SLU 19	-200.1977	-610.7705	0.143	Si
8.5	0.003142	0.07	0.001571	0.07	233.6939	SLU 2	160.5053	324.7778	0.116						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	0.003142	0.07	0.001571	0.07	320.9875	SLV 11	295.9654	299.8874	0.181	-70.3027	SLV 37	-70.3027	-582.9519	0.257	Si
0.25	0.003142	0.07	0.001571	0.07	272.603	SLV 11	272.603	299.8874	0.181	-132.3714	SLV 37	-225.0316	-582.9519	0.257	Si
2.83	0.003142	0.07	0.001571	0.07	-39.2141	SLV 11	8.3275	299.8874	0.181	-219.942	SLV 37	-248.692	-582.9519	0.257	Si
5.67	0.003142	0.07	0.001571	0.07	-39.2143	SLV 5	8.3273	299.8874	0.181	-219.9422	SLV 43	-248.6922	-582.9519	0.257	Si
8.25	0.003142	0.07	0.001571	0.07	272.6094	SLV 5	272.6094	299.8874	0.181	-132.4138	SLV 43	-225.0741	-582.9519	0.257	Si
8.5	0.003142	0.07	0.001571	0.07	320.9876	SLV 5	295.9718	299.8874	0.181	-70.3027	SLV 43	-70.3027	-582.9519	0.257	Si

Verifiche a taglio in famiglia SLU

x	A st	A sl	A sag	Vela	Comb.	Vdes	Vrd	Vrcd	Vrsd	Vult	cotgθ	Verifica
0	0.000015	0.001571	0	-587.52	SLU 17	-587.52	-220.01	-1547.23	-700.46	-700.46	2.5	Si
0.25	0.000015	0.001571	0	-487.94	SLU 2	-487.94	-220.01	-1547.23	-700.46	-700.46	2.5	Si
2.83	0.000015	0.003142	0	6.55	SLU 17	6.55	277.19	1547.23	700.46	700.46	2.5	Si
2.83	0.000015	0.003142	0	-17.13	SLU 12	-17.13	-277.19	-1547.23	-700.46	-700.46	2.5	Si
5.67	0.000015	0.003142	0	9.58	SLU 10	9.58	277.19	1547.23	700.46	700.46	2.5	Si
5.67	0.000015	0.003142	0	-14.07	SLU 19	-14.07	-277.19	-1547.23	-700.46	-700.46	2.5	Si
8.25	0.000015	0.001571	0	489.82	SLU 4	489.82	220.01	1547.23	700.46	700.46	2.5	Si
8.5	0.000015	0.001571	0	592.3	SLU 4	592.3	220.01	1547.23	700.46	700.46	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	0.000015	0.003142	0	-280.59	SLV 37	-280.59	-277.19	-1547.23	-700.46	-700.46	2.5	Si
0.25	0.000015	0.003142	0	-218.67	SLV 9	-218.67	-277.19	-1547.23	-700.46	-700.46	2.5	Si
2.83	0.000015	0.003142	0	56.43	SLV 37	56.43	277.19	1547.23	700.46	700.46	2.5	Si
2.83	0.000015	0.003142	0	-72.08	SLV 11	-72.08	-277.19	-1547.23	-700.46	-700.46	2.5	Si
5.67	0.000015	0.003142	0	72.08	SLV 5	72.08	277.19	1547.23	700.46	700.46	2.5	Si
5.67	0.000015	0.003142	0	-56.43	SLV 43	-56.43	-277.19	-1547.23	-700.46	-700.46	2.5	Si
8.25	0.000015	0.003142	0	218.67	SLV 7	218.67	277.19	1547.23	700.46	700.46	2.5	Si
8.5	0.000015	0.003142	0	280.59	SLV 11	280.59	277.19	1547.23	700.46	700.46	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	182.3095	4	120.7614	3128	19920	0.1593	3600	130.1667	5	1002295,71749887	25,9581077375867	149,4
0.25	75.5595	16	75.5595	1957	19920	0.0997	3600	74.882	5	748819,625957643	19,3934187159189	149,4
2.83	-300.709	7	-300.709	6430	19920	0.2031	3600	-146.147	1	-1461470,12500019	31,2527288099466	149,4
5.67	-300.7039	7	-300.7039	6430	19920	0.2031	3600	-146.1472	1	-1461472,25000019	31,2527742518942	149,4
8.25	75.5187	16	75.5187	1956	19920	0.0996	3600	74.8645	5	748645,148311519	19,3888999801238	149,4
8.5	182.3023	4	120.7105	3126	19920	0.1593	3600	130.1668	5	1002121,69652905	25,9536008290923	149,4

Verifica di apertura delle fessure

x	Bordo	Rara				Frequente				Quasi permanente				Verifica
		Dmax	Esm	Wd	Comb	Dmax	Esm	Wd	Comb	Dmax	Esm	Wd	Comb	

x	Bordo	Rara				Frequente				Quasi permanente				Verifica
		Dmax	Esm	Wd	Comb	Dmax	Esm	Wd	Comb	Dmax	Esm	Wd	Comb	
1.98	superiore	0.359	0.00059	0.000212	7	0.359	0.00048	0.000172	12	0.359	0.00029	0.000103	1	Si
2.83	superiore	0.359	0.00059	0.000212	7	0.359	0.00048	0.000172	12	0.359	0.00029	0.000103	1	Si
5.67	superiore	0.359	0.00059	0.000212	7	0.359	0.00048	0.000172	12	0.359	0.00029	0.000103	1	Si

8.3.4 Verifica muro d'ala

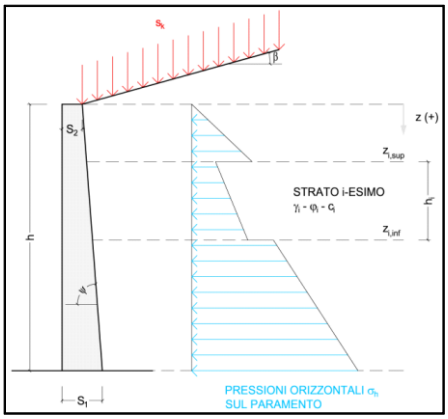
VERIFICHE SLU

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/m^3	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_{q1k}	s_{q2k}	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)

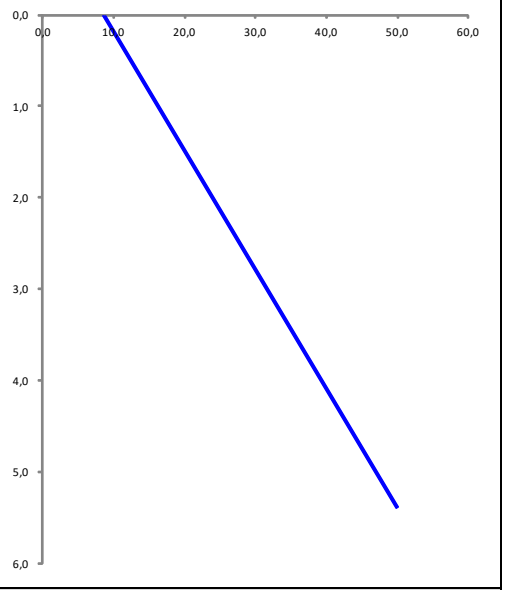
CARATTERISTICHE STRATI TERRENO

				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)

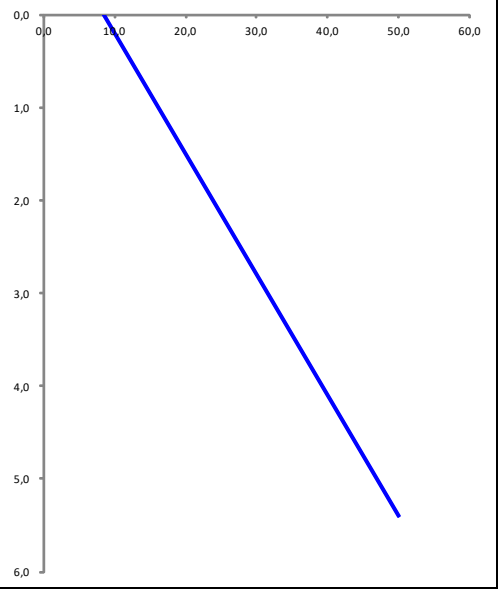
PRESSIONI DI PROGETTO CONDIZIONI STATICHE **SLE**

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**



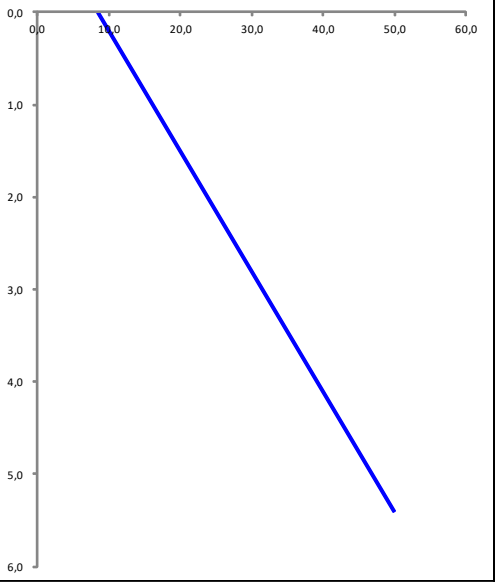
PRESSIONI DI PROGETTO CONDIZIONI STATICHE **SLU APPROCCIO 1 - COMBINAZIONE 1 E APPROCCIO 2**

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**



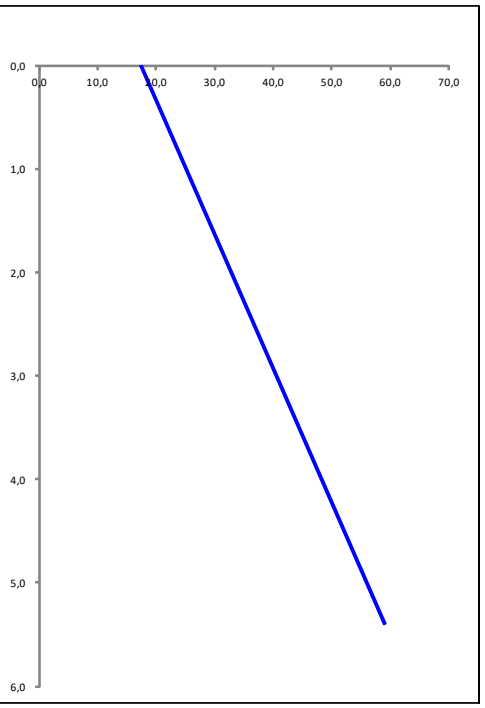
PRESSIONI DI PROGETTO CONDIZIONI STATICHE **SLU APPROCCIO 1 - COMBINAZIONE 2**

STRATO	z_{sup} / z_{inf} [m]	k_{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**
	5,40		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_{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	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

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

	ϕ1	ϕ2	ϕ3	ϕ4		
$N_{\phi'}$=	**5**	**0**	**0**	**0**		Numero barre compresse
ϕ'_i=	**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

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

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

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.

9. 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 101.50 m (lunghezza del tombino), il cui piano di posa è disposto ad una profondità di 5.60 m circa.

9.1 VALUTAZIONE 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 93000 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 2318 = 92720 kN/m^3. Pertanto in sede di modellazione è stato assunto un valore della costante di sottofondo pari a 93000 kN/m^3.

9.2 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=	101,50	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_p=	25,00	kN/m³	Peso per unità di volume fondazione
P_p=	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'=	101,50	m	Lunghezza ridotta
A'=	913,50		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)

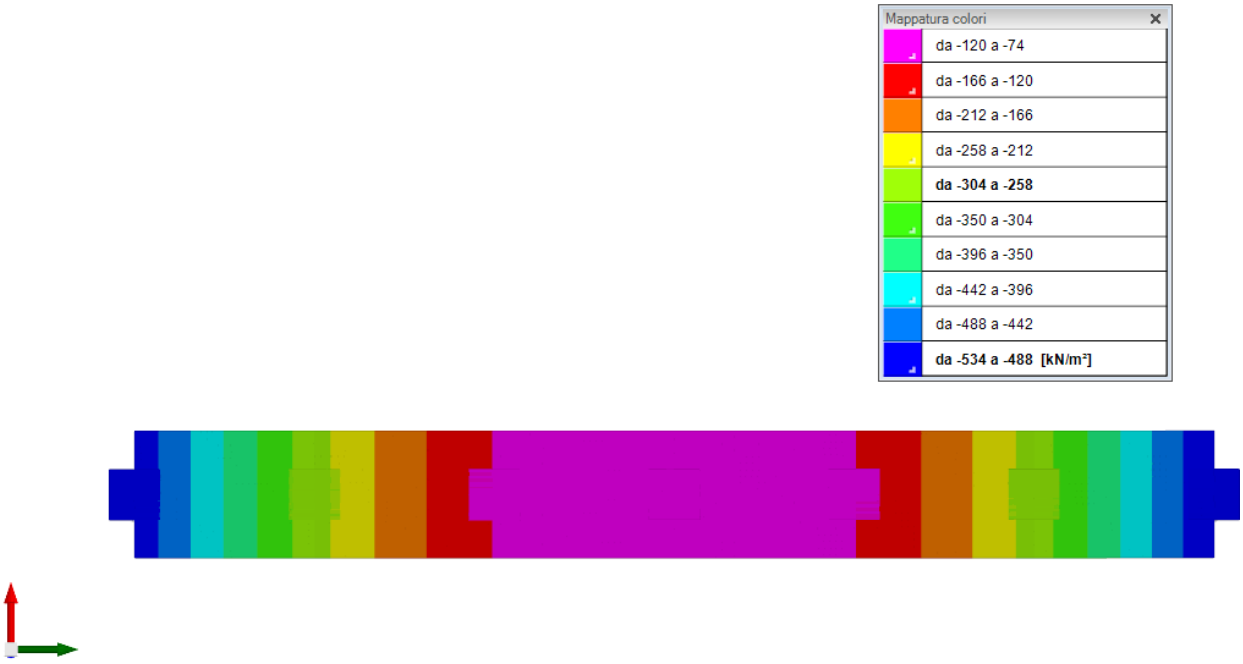
k=	0,62	Fattore di profondità
m_B=	1,92	Parametro di forma per carico agente in direzione della base
m_L=	1,08	Parametro di forma per carico agente in direzione della lunghezza
m=	1,92	Parametro di forma complessivo
N_c=	20,72	
N_q=	10,66	Fattori di capacità portante
N_γ=	9,01	
s_c=	1,04	
s_q=	1,04	Fattori 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}=	2318,323	kN/m^2	Pressione limite
$q_{R,D}$=	**1007,97**	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.

10. OPERE PROVVISIONALI

10.1 GEOMETRIA DELLE OPERE

Nei successivi paragrafi sono riportate le analisi e le verifiche statiche delle opere provvisionali da realizzare per lo scavo del tombino TM01, 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 11.00 m.

Ai fini dei calcoli si analizza la sezione con altezza di scavo maggiore, pari a circa 4.60 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.

10.2 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 -2.95	UG0 – Riporti, coperture antropiche, colmate
Da -2.95 a -5.70	UG2 – Argille e limi molto poco consistenti
Da -5.70 a -7.00	UG3 – Sabbie limose mediamente addensate
Da -7.00 a -12.50	UG2 – Argille e limi molto poco consistenti
Da -12.50 a -14.90	UG3 – Sabbie limose mediamente addensate
Da -14.90 a -20.80	UG2 – Argille e limi molto poco consistenti

Strato di Terreno	Terreno	γ dry kN/m3	γ sat kN/m3	ø' °	c' kPa	Modulo Elastico	Kvc kN/m3	Kur kN/m3
1	UG0	18.5	18.5	35	0	Winkler	3143.04	9429.13

Strato di Terreno	Terreno	γ dry kN/m3	γ sat kN/m3	ø' °	c' kPa	Modulo Elastico	Kvc kN/m3	Kur kN/m3
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

10.3 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;-0.78)
(-24.36;-0.77)
(-23.29;-0.65)
(-21.17;-0.44)
(-16.91;-0.52)
(-11.6;-0.63)
(-8.39;-2.6)
(-7.33;-2.05)
(-6;-0.52)
(-5.2;-0.12)
(-2.01;0)
(0;0)
(1.18;0.03)
(3.31;-0.05)
(6.55;0.04)
(9.67;-0.09)
(25;-0.82)
(27;-0.82)
(30;-30)
(-30;-30)

OCR : 1

Tipo : POLYLINE
Punti
(-25;-2.95)
(-20;-2.95)
(0;-2.95)
(25;-2.95)
(27;-2.95)
(30;-30)
(-30;-30)
OCR : 1

Tipo : POLYLINE
Punti
(-25;-5.7)
(-20;-5.7)
(0;-5.7)
(20;-5.7)
(25;-5.7)
(27;-5.7)
(30;-30)
(-30;-30)
OCR : 1

Tipo : POLYLINE
Punti
(-25;-7)
(-20;-7)
(0;-7)
(20;-7)
(25;-7)
(27;-7)
(27;-30)
(-25;-30)
OCR : 1

Tipo : POLYLINE
Punti
(-25;-12.5)
(-20;-12.5)
(0;-12.5)
(20;-12.5)
(25;-12.5)
(27;-12.5)

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

Tipo : POLYLINE
Punti
(-25;-14.9)
(0;-14.9)
(25;-14.9)
(27;-14.9)
(27;-30)
(-25;-30)
OCR : 1

3. Descrizione Pareti
X : 0 m
Quota in alto : 0.3 m
Quota di fondo : -10.7 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;-0.78)
(-24.36;-0.77)
(-23.29;-0.65)
(-21.17;-0.44)
(-16.91;-0.52)
(-11.6;-0.63)
(-8.39;-2.6)
(-7.33;-2.05)
(-6;-0.52)
(-5.2;-0.12)
(-2;0)
(0;0)
Linea di scavo di destra (Irregolare)
(0;0)
(1.18;0.03)
(3.31;-0.05)
(6.55;0.04)
(9.67;-0.09)
(25;-0.82)
Carichi
Carico lineare in superficie : SurfaceSurcharge

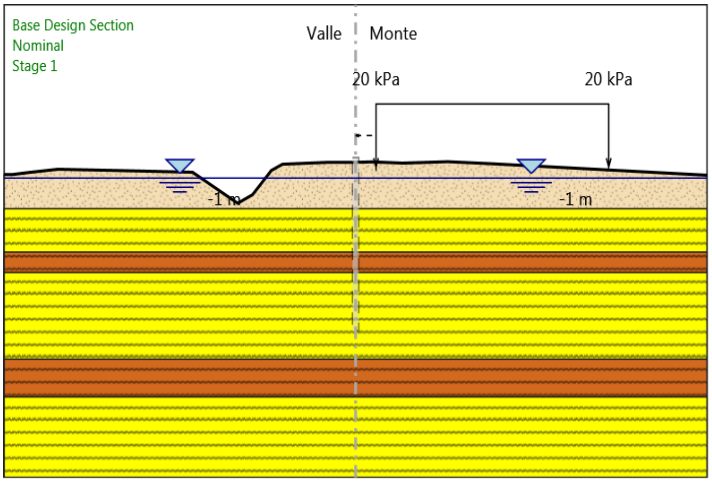
X iniziale : 1.45 m
X finale : 18 m
Pressione iniziale : 20 kPa
Pressione finale : 20 kPa

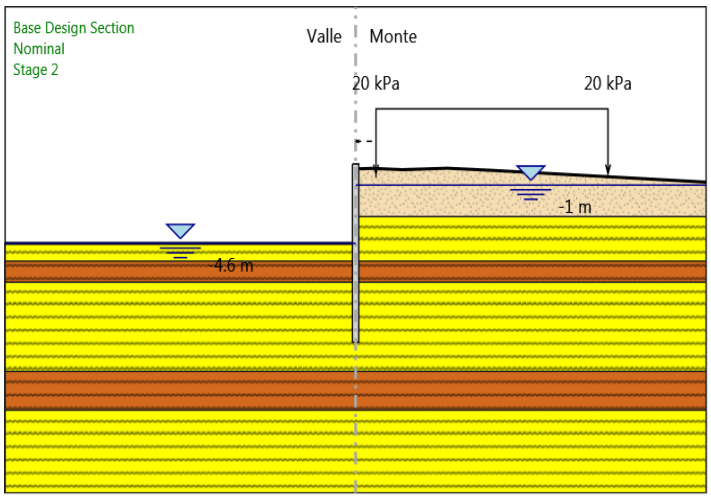
Stage 2
Scavo
Muro di sinistra
Lato monte : 0 m
Lato valle : -4.6 m

Linea di scavo di sinistra (Irregolare)
(-25;-4.6)
(-6;-4.6)
(-3.16;-4.6)
(0;-4.6)
Linea di scavo di destra (Irregolare)
(0;0)
(1.18;0.03)
(3.31;-0.05)
(6.55;0.04)
(9.67;-0.09)
(25;-0.82)

Carichi
Carico lineare in superficie : SurfaceSurcharge
X iniziale : 1.45 m
X finale : 18 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 : -10.7 m
Sezione : pal





10.4 ANALISI DEI CARICHI

10.4.1 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_{Qi}	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.

10.5 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.

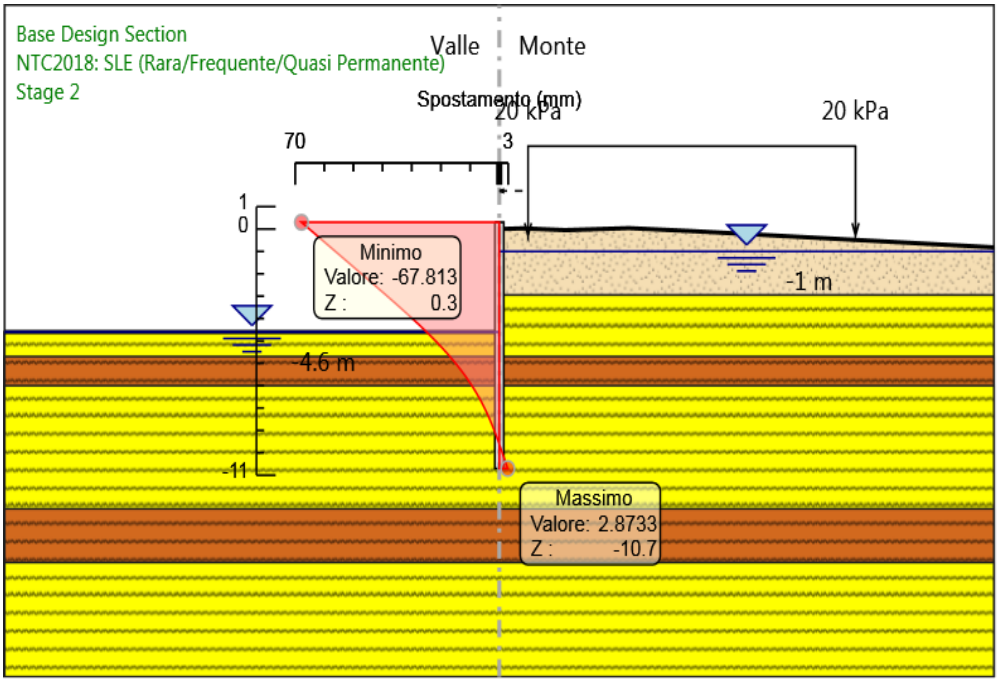
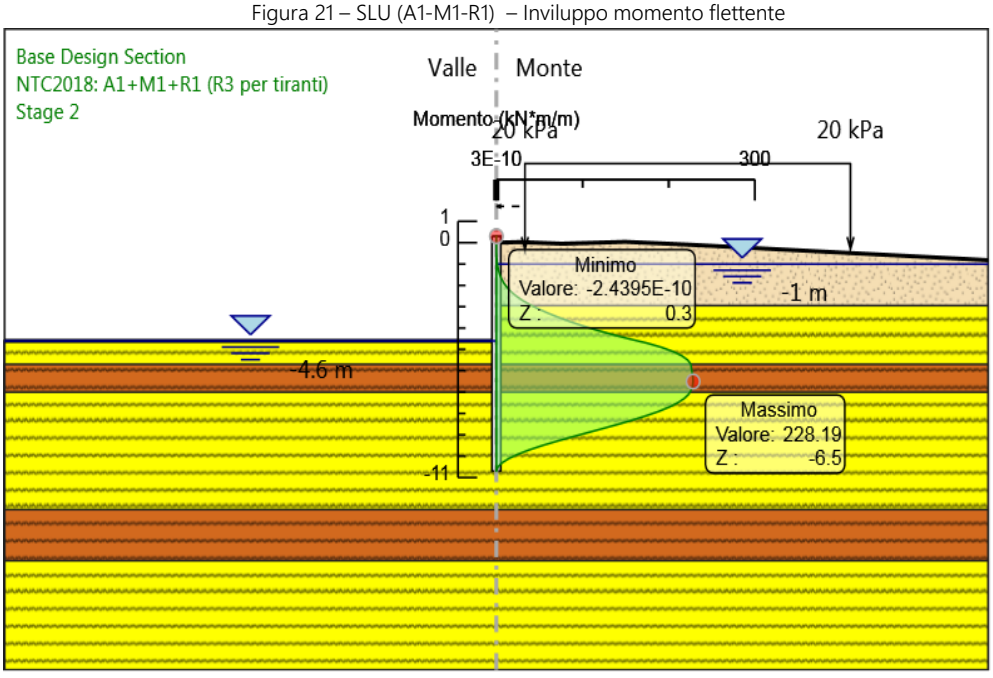


Figura 20 – SLE – Inviluppo spostamenti

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



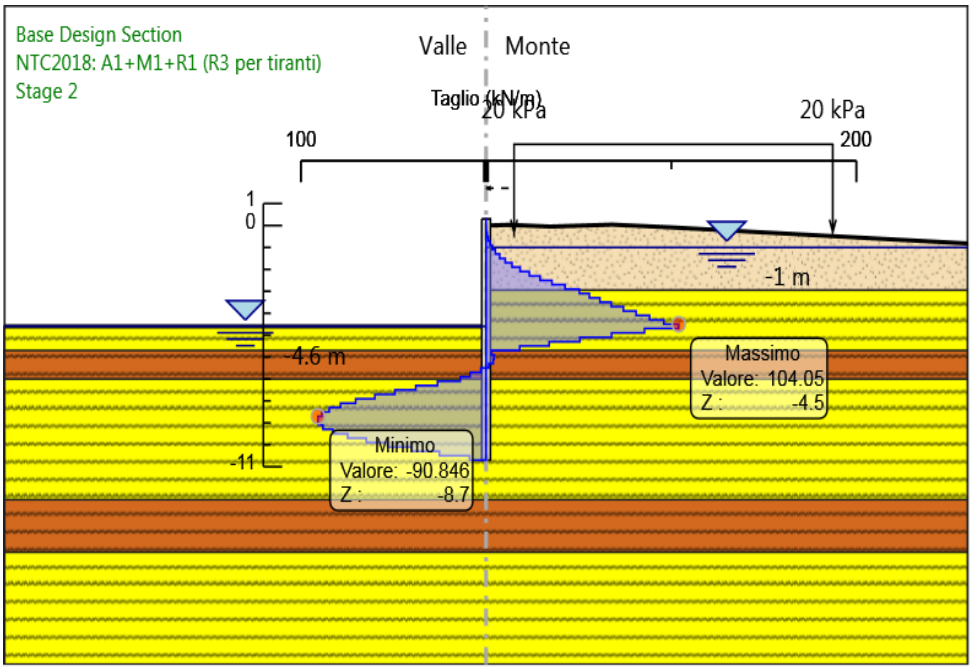


Figura 22 – SLU (A1-M1-R1) – Inviluppo taglio

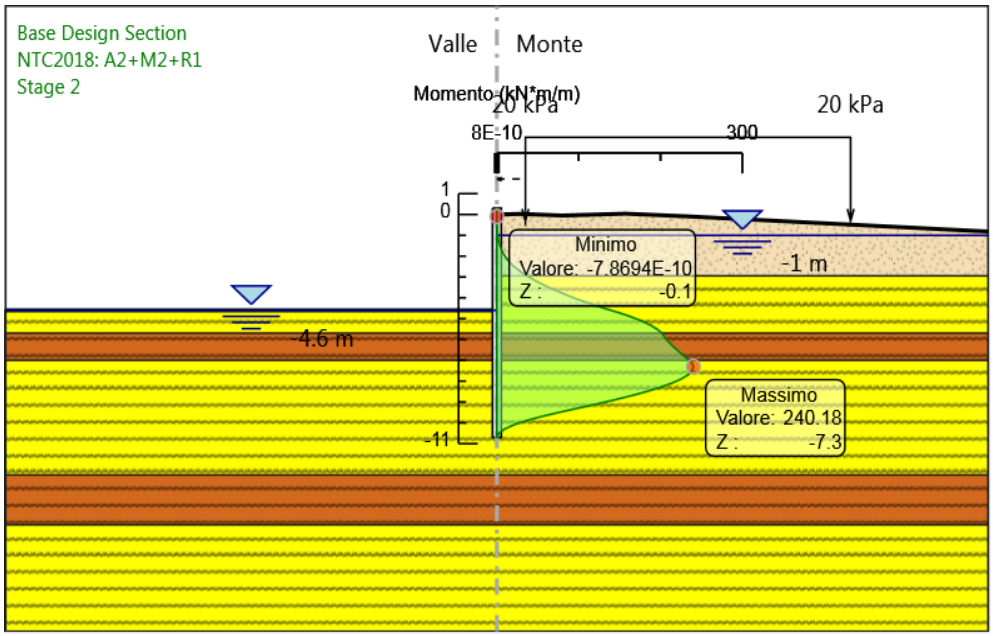


Figura 23 – SLU (A2-M2-R2) – Inviluppo momento flettente

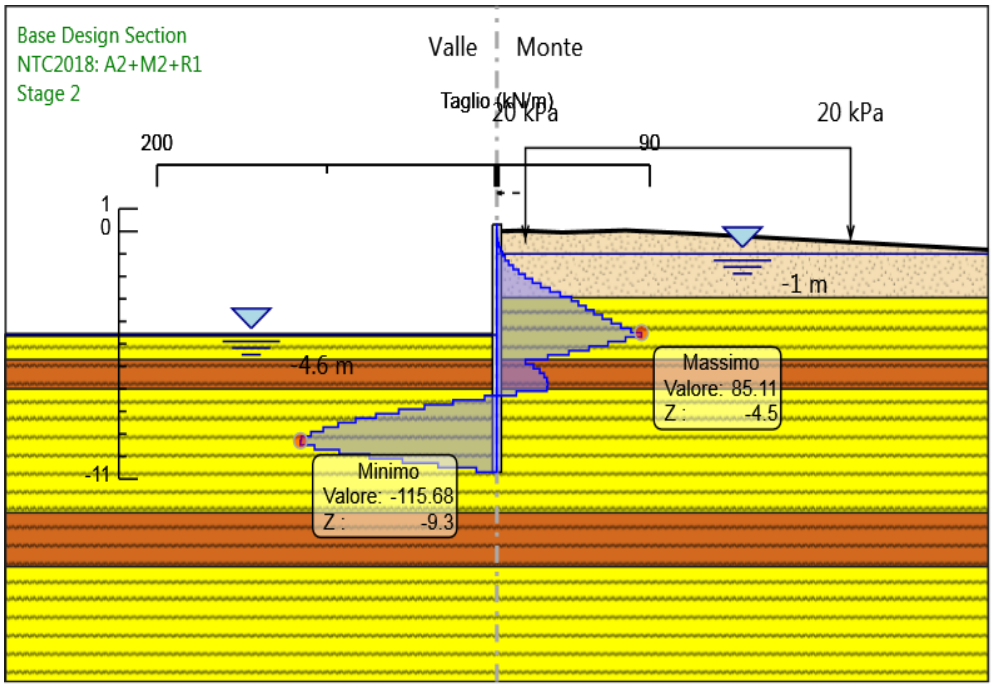


Figura 24 – SLU (A2-M2-R2) – Inviluppo taglio

10.6 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): 0.54

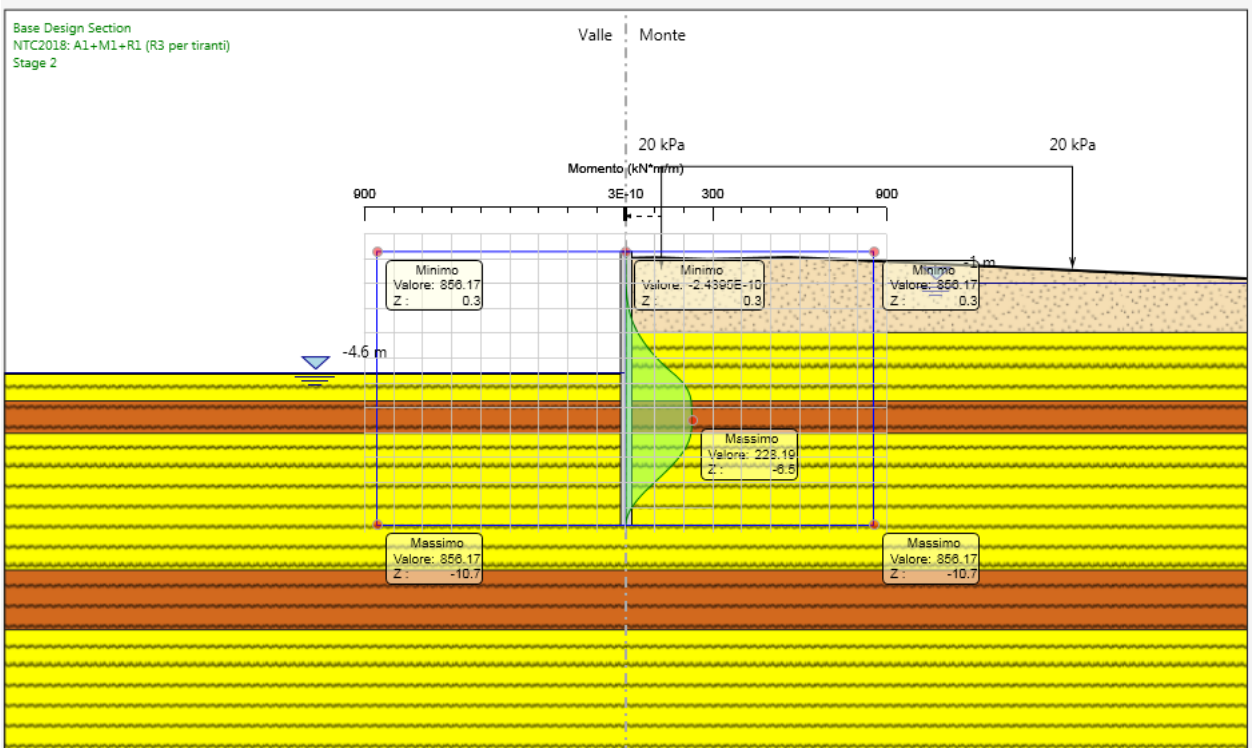
Combinazione GEO (A2-M2-R1)

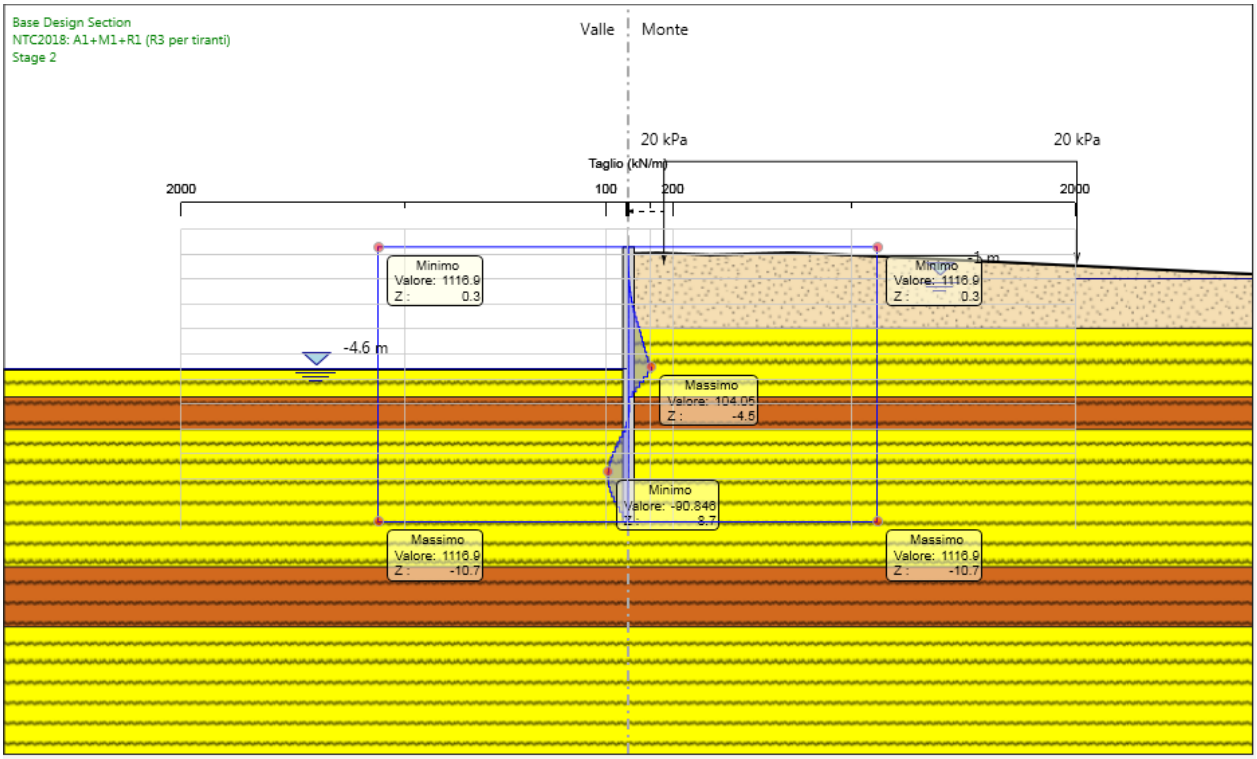
10.7 VERIFICHE STRUTTURALI

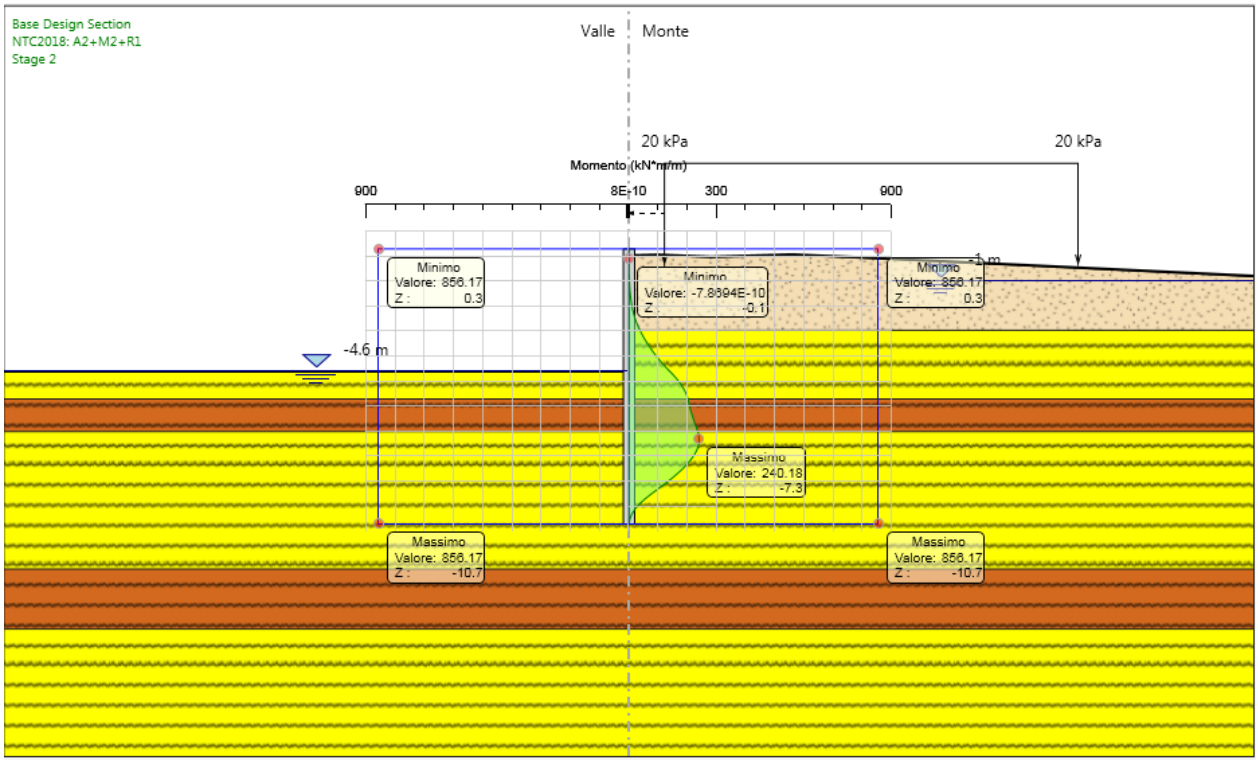
Il palancolato è previsto con profili PU28 in acciaio S275.

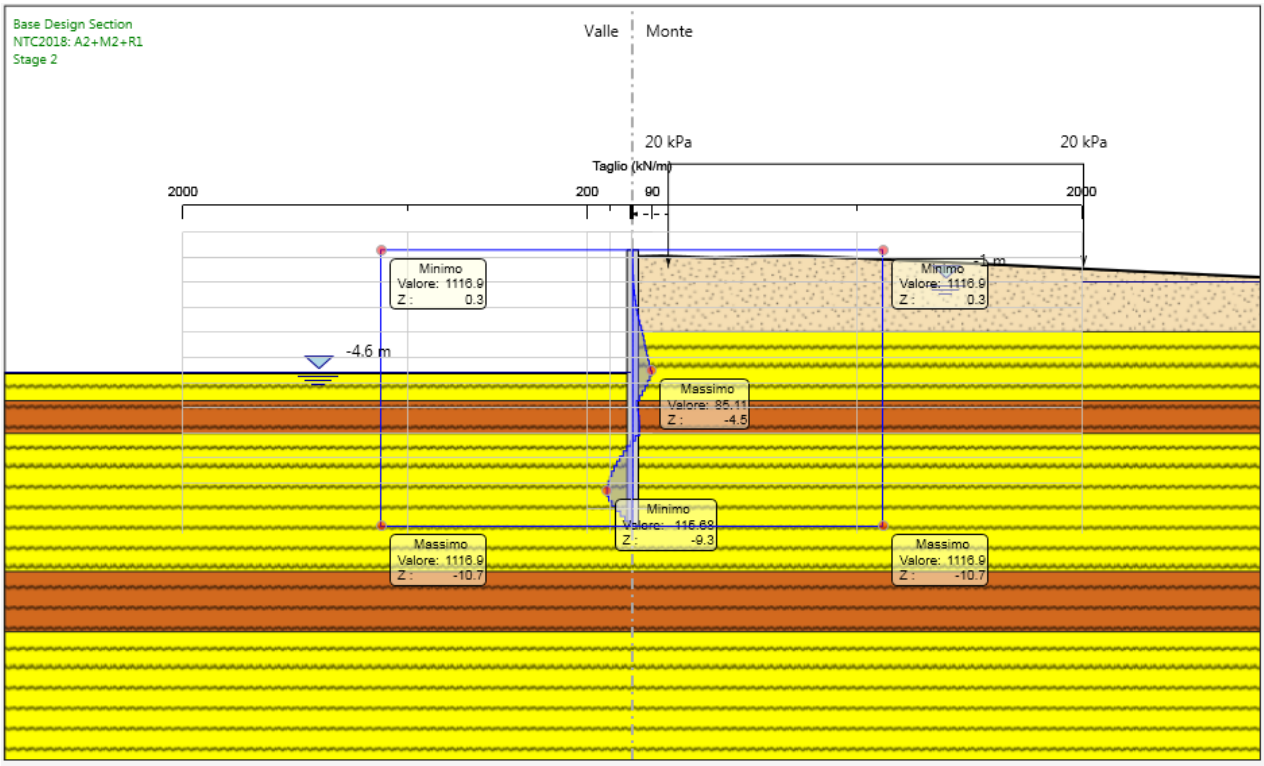
Si riporta di seguito il confronto tra le sollecitazioni massime agenti, di momento flettente e taglio, e le capacità resistenti nell'inviluppo allo SLU per entrambe le combinazioni considerate, per ciascuna paratia analizzata.

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
300
900
Minimo
Valore: 856.17
Z: 0.3
Minimo
Valore: -2.4390E-10
Z: 0.3
Minimo
Valore: 856.17
Z: 0.3
-4.6 m
Massimo
Valore: 228.19
Z: -6.5
Massimo
Valore: 856.17
Z: -10.7
Massimo
Valore: 856.17
Z: -10.7


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 2
Valle
Monte
20 kPa
20 kPa
Taglio (kN/m)
2000
100
200
2000
Minimo
Valore: 1116.9
Z: 0.3
Minimo
Valore: 1116.9
Z: 0.3
-4.6 m
Massimo
Valore: 104.05
Z: -4.5
Minimo
Valore: -90.846
Z: -8.7
Massimo
Valore: 1116.9
Z: -10.7
Massimo
Valore: 1116.9
Z: -10.7


Base Design Section
NTC2018: A2+M2+R1
Stage 2
Valle
Monte
20 kPa
20 kPa
Momento (kN*m/m)
900
8E-10
300
900
Minimo
Valore: 856.17
Z : 0.3
Minimo
Valore: -7.8894E-10
Z : -0.1
Minimo
Valore: 856.17
Z : 0.3
-1 m
-4.6 m
Massimo
Valore: 240.18
Z : -7.3
Massimo
Valore: 856.17
Z : -10.7
Massimo
Valore: 856.17
Z : -10.7


Base Design Section
NTC2018: A2+M2+R1
Stage 2
Valle
Monte
20 kPa
20 kPa
Taglio (kN/m)
2000
200
90
2000
Minimo
Valore: 1116.9
Z : 0.3
Minimo
Valore: 1116.9
Z : 0.3
-1 m
-4.6 m
Massimo
Valore: 85.11
Z : -4.5
Minimo
Valore: -116.88
Z : -9.3
Massimo
Valore: 1116.9
Z : -10.7
Massimo
Valore: 1116.9
Z : -10.7

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
Stage 1	-8.9	0
Stage 1	-9.1	0
Stage 1	-9.3	0
Stage 1	-9.5	0
Stage 1	-9.7	0
Stage 1	-9.9	0
Stage 1	-10.1	0
Stage 1	-10.3	0
Stage 1	-10.5	0
Stage 1	-10.7	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

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

Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
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
Stage 1	-8.9	0	0
Stage 1	-9.1	0	0
Stage 1	-9.3	0	0
Stage 1	-9.5	0	0
Stage 1	-9.7	0	0
Stage 1	-9.9	0	0
Stage 1	-10.1	0	0
Stage 1	-10.3	0	0
Stage 1	-10.5	0	0
Stage 1	-10.7	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	-67.81
Stage 2	0.1	-66.03
Stage 2	-0.1	-64.24
Stage 2	-0.3	-62.45
Stage 2	-0.5	-60.66
Stage 2	-0.7	-58.88
Stage 2	-0.9	-57.09
Stage 2	-1.1	-55.3
Stage 2	-1.3	-53.51
Stage 2	-1.5	-51.73
Stage 2	-1.7	-49.94
Stage 2	-1.9	-48.16
Stage 2	-2.1	-46.38
Stage 2	-2.3	-44.6
Stage 2	-2.5	-42.82
Stage 2	-2.7	-41.05
Stage 2	-2.9	-39.29
Stage 2	-3.1	-37.53
Stage 2	-3.3	-35.79
Stage 2	-3.5	-34.06
Stage 2	-3.7	-32.35
Stage 2	-3.9	-30.66
Stage 2	-4.1	-28.99
Stage 2	-4.3	-27.34
Stage 2	-4.5	-25.73
Stage 2	-4.7	-24.15
Stage 2	-4.9	-22.61
Stage 2	-5.1	-21.12
Stage 2	-5.3	-19.67
Stage 2	-5.5	-18.27
Stage 2	-5.7	-16.92
Stage 2	-5.9	-15.62
Stage 2	-6.1	-14.37
Stage 2	-6.3	-13.17
Stage 2	-6.5	-12.03
Stage 2	-6.7	-10.94
Stage 2	-6.9	-9.9
Stage 2	-7.1	-8.91
Stage 2	-7.3	-7.97
Stage 2	-7.5	-7.08
Stage 2	-7.7	-6.24
Stage 2	-7.9	-5.45
Stage 2	-8.1	-4.69
Stage 2	-8.3	-3.98
Stage 2	-8.5	-3.3

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 2	-8.7	-2.66
Stage 2	-8.9	-2.04
Stage 2	-9.1	-1.45
Stage 2	-9.3	-0.87
Stage 2	-9.5	-0.32
Stage 2	-9.7	0.23
Stage 2	-9.9	0.77
Stage 2	-10.1	1.3
Stage 2	-10.3	1.82
Stage 2	-10.5	2.35
Stage 2	-10.7	2.87

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	0.1
Stage 2	-0.5	0.1	0.41
Stage 2	-0.7	0.28	0.91
Stage 2	-0.9	0.61	1.63
Stage 2	-1.1	1.12	2.55
Stage 2	-1.3	1.89	3.84
Stage 2	-1.5	3.02	5.64
Stage 2	-1.7	4.61	7.96
Stage 2	-1.9	6.77	10.79
Stage 2	-2.1	9.6	14.14
Stage 2	-2.3	13.2	18.02
Stage 2	-2.5	17.69	22.43
Stage 2	-2.7	23.16	27.36
Stage 2	-2.9	29.72	32.81
Stage 2	-3.1	37.47	38.78
Stage 2	-3.3	46.05	42.9
Stage 2	-3.5	55.52	47.32
Stage 2	-3.7	65.92	52.03
Stage 2	-3.9	77.33	57.04
Stage 2	-4.1	89.8	62.34
Stage 2	-4.3	103.39	67.95
Stage 2	-4.5	118.16	73.84
Stage 2	-4.7	134.17	80.04
Stage 2	-4.9	147.34	65.85
Stage 2	-5.1	157.76	52.14
Stage 2	-5.3	165.55	38.94
Stage 2	-5.5	170.8	26.23
Stage 2	-5.7	173.6	13.99
Stage 2	-5.9	174.04	2.2
Stage 2	-6.1	174.7	3.33
Stage 2	-6.3	175.3	2.98
Stage 2	-6.5	175.53	1.14
Stage 2	-6.7	175.09	-2.18
Stage 2	-6.9	173.76	-6.68
Stage 2	-7.1	171.61	-10.75
Stage 2	-7.3	167.57	-20.19
Stage 2	-7.5	161.72	-29.23
Stage 2	-7.7	154.14	-37.89
Stage 2	-7.9	144.9	-46.21
Stage 2	-8.1	134.06	-54.2
Stage 2	-8.3	121.96	-60.5
Stage 2	-8.5	108.93	-65.16
Stage 2	-8.7	95.28	-68.26
Stage 2	-8.9	81.3	-69.88
Stage 2	-9.1	67.33	-69.88
Stage 2	-9.3	53.77	-67.78
Stage 2	-9.5	41.04	-63.65
Stage 2	-9.7	29.53	-57.55
Stage 2	-9.9	19.57	-49.82
Stage 2	-10.1	11.39	-40.87
Stage 2	-10.3	5.25	-30.73
Stage 2	-10.5	1.37	-19.39
Stage 2	-10.7	0	-6.86

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

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	-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
Stage 1	-8.9	0	0
Stage 1	-9.1	0	0
Stage 1	-9.3	0	0
Stage 1	-9.5	0	0
Stage 1	-9.7	0	0
Stage 1	-9.9	0	0
Stage 1	-10.1	0	0
Stage 1	-10.3	0	0
Stage 1	-10.5	0	0
Stage 1	-10.7	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	0.13
Stage 2	-0.5	0.13	0.53
Stage 2	-0.7	0.37	1.19
Stage 2	-0.9	0.79	2.12
Stage 2	-1.1	1.46	3.32
Stage 2	-1.3	2.45	4.99
Stage 2	-1.5	3.92	7.34
Stage 2	-1.7	5.99	10.35
Stage 2	-1.9	8.8	14.03
Stage 2	-2.1	12.47	18.38
Stage 2	-2.3	17.16	23.43
Stage 2	-2.5	22.99	29.16
Stage 2	-2.7	30.1	35.57
Stage 2	-2.9	38.63	42.65
Stage 2	-3.1	48.72	50.41
Stage 2	-3.3	59.87	55.77
Stage 2	-3.5	72.17	61.51
Stage 2	-3.7	85.7	67.64
Stage 2	-3.9	100.53	74.15
Stage 2	-4.1	116.74	81.05
Stage 2	-4.3	134.41	88.33
Stage 2	-4.5	153.61	96
Stage 2	-4.7	174.42	104.05
Stage 2	-4.9	191.54	85.6
Stage 2	-5.1	205.09	67.79
Stage 2	-5.3	215.22	50.63
Stage 2	-5.5	222.04	34.1
Stage 2	-5.7	225.68	18.19
Stage 2	-5.9	226.25	2.86
Stage 2	-6.1	227.12	4.33

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	-6.3	227.89	3.87
Stage 2	-6.5	228.19	1.48
Stage 2	-6.7	227.62	-2.83
Stage 2	-6.9	225.88	-8.68
Stage 2	-7.1	223.09	-13.98
Stage 2	-7.3	217.84	-26.25
Stage 2	-7.5	210.24	-38
Stage 2	-7.7	200.39	-49.26
Stage 2	-7.9	188.37	-60.08
Stage 2	-8.1	174.28	-70.46
Stage 2	-8.3	158.55	-78.65
Stage 2	-8.5	141.61	-84.7
Stage 2	-8.7	123.86	-88.73
Stage 2	-8.9	105.69	-90.85
Stage 2	-9.1	87.52	-90.84
Stage 2	-9.3	69.9	-88.11
Stage 2	-9.5	53.35	-82.74
Stage 2	-9.7	38.39	-74.81
Stage 2	-9.9	25.44	-64.76
Stage 2	-10.1	14.81	-53.13
Stage 2	-10.3	6.82	-39.94
Stage 2	-10.5	1.78	-25.2
Stage 2	-10.7	0	-8.92

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
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
Stage 1	-8.9	0	0
Stage 1	-9.1	0	0
Stage 1	-9.3	0	0
Stage 1	-9.5	0	0
Stage 1	-9.7	0	0
Stage 1	-9.9	0	0
Stage 1	-10.1	0	0
Stage 1	-10.3	0	0
Stage 1	-10.5	0	0
Stage 1	-10.7	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	-0.3	0.03	0.13
Stage 2	-0.5	0.13	0.52
Stage 2	-0.7	0.36	1.16
Stage 2	-0.9	0.77	2.07
Stage 2	-1.1	1.42	3.24
Stage 2	-1.3	2.39	4.83
Stage 2	-1.5	3.78	6.95
Stage 2	-1.7	5.7	9.62
Stage 2	-1.9	8.27	12.84
Stage 2	-2.1	11.59	16.61
Stage 2	-2.3	15.78	20.94
Stage 2	-2.5	20.95	25.84
Stage 2	-2.7	27.21	31.29
Stage 2	-2.9	34.67	37.3
Stage 2	-3.1	43.44	43.85
Stage 2	-3.3	53.03	47.97
Stage 2	-3.5	63.51	52.39
Stage 2	-3.7	74.93	57.1
Stage 2	-3.9	87.35	62.11
Stage 2	-4.1	100.84	67.42
Stage 2	-4.3	115.44	73.02
Stage 2	-4.5	131.22	78.92
Stage 2	-4.7	148.25	85.11
Stage 2	-4.9	163.39	75.71
Stage 2	-5.1	176.47	65.41
Stage 2	-5.3	187.32	54.26
Stage 2	-5.5	195.81	42.44
Stage 2	-5.7	201.8	29.96
Stage 2	-5.9	205.16	16.81
Stage 2	-6.1	209.47	21.55
Stage 2	-6.3	214.52	25.24
Stage 2	-6.5	220.1	27.88
Stage 2	-6.7	225.99	29.46
Stage 2	-6.9	231.99	30
Stage 2	-7.1	237.89	29.5
Stage 2	-7.3	240.18	11.48
Stage 2	-7.5	238.74	-7.22
Stage 2	-7.7	233.58	-25.78
Stage 2	-7.9	225.06	-42.61
Stage 2	-8.1	213.51	-57.74
Stage 2	-8.3	199.27	-71.22
Stage 2	-8.5	182.65	-83.09
Stage 2	-8.7	163.97	-93.4
Stage 2	-8.9	143.54	-102.17
Stage 2	-9.1	121.65	-109.42
Stage 2	-9.3	98.61	-115.2
Stage 2	-9.5	75.48	-115.68
Stage 2	-9.7	54.02	-107.31
Stage 2	-9.9	35.46	-92.79
Stage 2	-10.1	20.46	-74.99
Stage 2	-10.3	9.34	-55.6
Stage 2	-10.5	2.41	-34.63
Stage 2	-10.7	0	-12.07

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

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|                                     NewProject.BaseDesignSection_28.Nominal_64                                          |
|                                  Exe Time : 2 April 2019     10:37:06                                                   |
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                  ***********************************************************
                  *                                                         *
                  *  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)               *
                  *                                                         *
                  ***********************************************************
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                    *                                                      *
                    *  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     0.00 [sec]


+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                     |
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|                                      NewProject.BaseDesignSection_28.Nominal_64                                               |
|                                   Exe Time : 2 April 2019     10:37:06                                                        |
+-------------------------------------------------------------------------------------------------------------------------------+


INPUT FILE HAS BEEN GENERATED BY WALGEN PROGRAM


New Project


NO. OF NODAL POINTS (NUMNP) ...................    56
NO. OF COORDINATES  (NCOORD)...................     2
NO. OF NODE DOFS    (NDOF).....................     2
NO. OF EQUATIONS    (NEQ)......................   112
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 .....................    99
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*                     |
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|                                    NewProject.BaseDesignSection_28.Nominal_64                                    |
|                                  Exe Time : 2 April 2019     10:37:06                                            |
+------------------------------------------------------------------------------------------------------------------+
                    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     99

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   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 -10.7 0.3 -1
   7 : SOIL 0_L LeftWall_32 -10.7 0.3 2 0
   8 : SOIL 0_R LeftWall_32 -10.7 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 -2.95 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 -5.7 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 -7 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 -10.7 0.3 S275_115 0.19777 00 00 0
  39 : STRIP LeftWall_32 1 2 1.45 16.55 -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=0.274 LeftWall_32
  44 : CHANGE UG0_2_10_L_0 U-KP=5.848 LeftWall_32
  45 : CHANGE UG0_2_10_L_0 D-KA=0.271 LeftWall_32
  46 : CHANGE UG0_2_10_L_0 D-KP=5.705 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=0.405 LeftWall_32
  50 : CHANGE UG2_4_11_L_0 U-KP=3.216 LeftWall_32
  51 : CHANGE UG2_4_11_L_0 D-KA=0.404 LeftWall_32
  52 : CHANGE UG2_4_11_L_0 D-KP=2.834 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=0.307 LeftWall_32
  56 : CHANGE UG3_4271_12_L_0 U-KP=4.787 LeftWall_32
  57 : CHANGE UG3_4271_12_L_0 D-KA=0.306 LeftWall_32
  58 : CHANGE UG3_4271_12_L_0 D-KP=3.554 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=0.406 LeftWall_32
  62 : CHANGE UG2_4_26346_L_0 U-KP=3.155 LeftWall_32
  63 : CHANGE UG2_4_26346_L_0 D-KA=0.396 LeftWall_32
  64 : CHANGE UG2_4_26346_L_0 D-KP=2.687 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 -1 0 -10.7 0 0
   85 : ENDSTEP
   86 : STEP Stage2_28513
   87 : CHANGE UG0_2_10_L_0 D-KP=5.879 LeftWall_32
   88 : CHANGE UG2_4_11_L_0 D-KA=0.406 LeftWall_32
   89 : CHANGE UG2_4_11_L_0 D-KP=3.222 LeftWall_32
   90 : CHANGE UG3_4271_12_L_0 D-KA=0.307 LeftWall_32
   91 : CHANGE UG3_4271_12_L_0 D-KP=4.845 LeftWall_32
   92 : CHANGE UG2_4_26346_L_0 D-KA=0.406 LeftWall_32
   93 : CHANGE UG2_4_26346_L_0 D-KP=3.222 LeftWall_32
   94 : SETWALL LeftWall_32
   95 : GEOM 0 -4.6
   96 : SURCHARGE 0 0 0 0
   97 : WATER -1 3.6 -10.7 0 0
   98 : ADD WallElement_New_28707
   99 : ENDSTEP


+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                     NewProject.BaseDesignSection_28.Nominal_64                                        |
|                                  Exe Time : 2 April 2019     10:37:06                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
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     /   47  0.0000     -8.9000     /   48  0.0000     -9.1000     /
  49  0.0000     -9.3000     /   50  0.0000     -9.5000     /   51  0.0000     -9.7000     /   52  0.0000     -9.9000     /
  53  0.0000     -10.100     /   54  0.0000     -10.300     /   55  0.0000     -10.500     /   56  0.0000     -10.700     /


+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                     NewProject.BaseDesignSection_28.Nominal_64                                        |
|                                  Exe Time : 2 April 2019     10:37:06                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  1

0_L                                                    :
   5  56   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    2   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    2   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    3   0.2000     0.000     0.000     0.000     2.000
   35   35    3   0.2000     0.000     0.000     0.000     2.000
   36   36    3   0.2000     0.000     0.000     0.000     2.000
   37   37    3   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   0.2000     0.000     0.000     0.000     2.000
   47   47    4   0.2000     0.000     0.000     0.000     2.000
   48   48    4   0.2000     0.000     0.000     0.000     2.000
   49   49    4   0.2000     0.000     0.000     0.000     2.000
   50   50    4   0.2000     0.000     0.000     0.000     2.000
   51   51    4   0.2000     0.000     0.000     0.000     2.000
   52   52    4   0.2000     0.000     0.000     0.000     2.000
   53   53    4   0.2000     0.000     0.000     0.000     2.000
   54   54    4   0.2000     0.000     0.000     0.000     2.000
   55   55    4   0.2000     0.000     0.000     0.000     2.000
   56   56    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 : 2 April 2019     10:37:06                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  2

0_R                                                          :
   5  56   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	2	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	2	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	3	0.2000	0.000	0.000	0.000	1.000
35	35	3	0.2000	0.000	0.000	0.000	1.000
36	36	3	0.2000	0.000	0.000	0.000	1.000
37	37	3	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	0.2000	0.000	0.000	0.000	1.000
47	47	4	0.2000	0.000	0.000	0.000	1.000
48	48	4	0.2000	0.000	0.000	0.000	1.000
49	49	4	0.2000	0.000	0.000	0.000	1.000
50	50	4	0.2000	0.000	0.000	0.000	1.000
51	51	4	0.2000	0.000	0.000	0.000	1.000
52	52	4	0.2000	0.000	0.000	0.000	1.000
53	53	4	0.2000	0.000	0.000	0.000	1.000
54	54	4	0.2000	0.000	0.000	0.000	1.000
55	55	4	0.2000	0.000	0.000	0.000	1.000
56	56	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 : 2 April 2019     10:37:06                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  3

WallElement_New_28707                                          :
   2  55   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
```

```
   46   46   47    1    0.000     0.000    0.1978     0.000     0.000
   47   47   48    1    0.000     0.000    0.1978     0.000     0.000
   48   48   49    1    0.000     0.000    0.1978     0.000     0.000
   49   49   50    1    0.000     0.000    0.1978     0.000     0.000
   50   50   51    1    0.000     0.000    0.1978     0.000     0.000
   51   51   52    1    0.000     0.000    0.1978     0.000     0.000
   52   52   53    1    0.000     0.000    0.1978     0.000     0.000
   53   53   54    1    0.000     0.000    0.1978     0.000     0.000
   54   54   55    1    0.000     0.000    0.1978     0.000     0.000
   55   55   56    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.Nominal_64                                         |
|                                   Exe Time : 2 April 2019     10:37:06                                                  |
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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 : 2 April 2019     10:37:06                                                  |
+-------------------------------------------------------------------------------------------------------------------------+
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
```

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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 : 2 April 2019     10:37:06                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
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 : 2 April 2019     10:37:06                                                   |
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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.Nominal_64                                         |
|                                  Exe Time : 2 April 2019     10:37:06                                                   |
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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;=  35.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.27400     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  5.8480     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;=  5.7050     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;= -2.9500     (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;= 0.40500     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.2160     WALL NO.        1
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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;= 0.40400     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  2.8340     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;= -5.7000     (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;= 0.30700     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  4.7870     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;= 0.30600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.5540     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;= -7.0000     (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;= 0.40600     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.1550     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;= 0.39600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  2.6870     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;= 0.27400     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  5.8480     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)
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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;= -2.9500     (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;= 0.40500     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.2160     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;= -5.7000     (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;= 0.30700     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  4.7870     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;= -7.0000     (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;= 0.40600     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.1550     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)
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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



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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 : 2 April 2019     10:37:06                                                  |
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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                          -1.000       -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      -10.70        -10.70
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                           -4.600         0.000
Z-WATER_TABLE                          -1.000       -0.9990E+30
Q_AT_THE_FREE_FIELD_LEVEL               0.000         0.000
ZQ                                      0.000         0.000
DZW_OF_THE_WATER_TABLE                  3.600         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      -10.70        -10.70
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          -10.70000
 UPPER  LEVEL            0.30000

 RIGHT-HAND WALL

 LOWER  LEVEL          -10.70000
 UPPER  LEVEL            0.30000



+----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                      |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                      |
|                                  Exe Time : 2 April 2019     10:37:06                                                |
+----------------------------------------------------------------------------------------------------------------------+
 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)            16.5500000000000
 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        2783

 NO. OF D.P.W  FOR THIS AREA       6611
 MAX NO. OF D.P.W. AVAILABLE      81920
 ** MAX NO OF ITERATIONS SET TO          40

ITER     0 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.3608E+05 RIMNOR= 0.000
           RENORM=0.4181E-28 REMNOR= 0.000     RATIO =0.3404E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 31.21     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.3608E+05 RDR   = 0.000
           RATIOT=0.3404E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    95 NODE     48 DOF   1  Y-DISPL.F
           MIN UN=-.3553E-14 IEQ=   101 NODE     51 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     1 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.3608E+05 RIMNOR= 0.000
           RENORM=0.4181E-28 REMNOR= 0.000     RATIO =0.3404E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 31.21     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.3608E+05 RDR   = 0.000
           RATIOT=0.3404E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    95 NODE     48 DOF   1  Y-DISPL.F
           MIN UN=-.3553E-14 IEQ=   101 NODE     51 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.3608E+05 RIMNOR= 0.000
           RENORM=0.4181E-28 REMNOR= 0.000     RATIO =0.3404E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 31.21     RMMAX = 0.000
```

```
 RTSMAL=0.1000E-03 RMSMAL= 0.000
 RDT   =0.3608E+05 RDR   = 0.000
 RATIOT=0.3404E-16 RATIOR= 0.000
 MAX UN=0.3553E-14 IEQ=     95 NODE     48 DOF   1  Y-DISPL.F
 MIN UN=-.3553E-14 IEQ=    101 NODE     51 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.Nominal_64                                       |
|                                  Exe Time : 2 April 2019     10:37:06                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
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.Nominal_64                                       |
|                                  Exe Time : 2 April 2019     10:37:06                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
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   56
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   1.244       0.000       9.250       6.218       9.250       6.218           V-C   3143.      -0.5000       0.000
1.000       1.000       6.218       0.000       0.000     UG0_2_10_L_0
   6 D   1.908       0.000       12.95       9.538       12.95       9.538           V-C   3143.      -0.7000       0.000
1.000       1.000       9.538       0.000       0.000     UG0_2_10_L_0
   7 D   2.530       0.000       16.65       12.65       16.65       12.65           V-C   3143.      -0.9000       0.000
1.000       1.000       12.65       0.000       0.000     UG0_2_10_L_0
   8 D   3.202       0.000       19.35       15.01       19.35       15.01           V-C   3143.       -1.100       1.000
1.000       1.000       16.01       0.000       0.000     UG0_2_10_L_0
   9 D   3.928       0.000       21.05       16.64       21.05       16.64           V-C   3143.       -1.300       3.000
1.000       1.000       19.64       0.000       0.000     UG0_2_10_L_0
  10 D   4.611       0.000       22.75       18.06       22.75       18.06           V-C   3143.       -1.500       5.000
1.000       1.000       23.06       0.000       0.000     UG0_2_10_L_0
  11 D   5.262    -1.4129E-18      24.45       19.31       24.45       19.31           V-C   3143.       -1.700       7.000
1.000       1.000       26.31       0.000       0.000     UG0_2_10_L_0
  12 D   5.886       0.000       26.15       20.43       26.15       20.43           V-C   3143.       -1.900       9.000
1.000       1.000       29.43       0.000       0.000     UG0_2_10_L_0
  13 D   6.491       0.000       27.85       21.45       27.85       21.45           V-C   3143.       -2.100       11.00
1.000       1.000       32.45       0.000       0.000     UG0_2_10_L_0
  14 D   7.081       0.000       29.55       22.40       29.55       22.40           V-C   3143.       -2.300       13.00
1.000       1.000       35.40       0.000       0.000     UG0_2_10_L_0
  15 D   7.660       0.000       31.25       23.30       31.25       23.30           V-C   3143.       -2.500       15.00
1.000       1.000       38.30       0.000       0.000     UG0_2_10_L_0
  16 D   8.231       0.000       32.95       24.15       32.95       24.15           V-C   3143.       -2.700       17.00
1.000       1.000       41.15       0.000       0.000     UG0_2_10_L_0
```

17 D	8.796	0.000	34.65	24.98	34.65	24.98	V-C	3143.	-2.900	19.00
1.000	1.000	43.98	0.000	0.000	UG0_2_10_L_0					
18 D	9.598	0.000	36.50	26.99	36.50	26.99	V-C	3143.	-3.100	21.00
1.000	1.000	47.99	0.000	0.000	UG2_4_11_L_0					
19 D	10.19	2.8259E-18	38.40	27.93	38.40	27.93	V-C	3143.	-3.300	23.00
1.000	1.000	50.93	0.000	0.000	UG2_4_11_L_0					
20 D	10.77	0.000	40.30	28.87	40.30	28.87	V-C	3143.	-3.500	25.00
1.000	1.000	53.87	0.000	0.000	UG2_4_11_L_0					
21 D	11.36	0.000	42.20	29.79	42.20	29.79	V-C	3143.	-3.700	27.00
1.000	1.000	56.79	0.000	0.000	UG2_4_11_L_0					
22 D	11.94	0.000	44.10	30.70	44.10	30.70	V-C	3143.	-3.900	29.00
1.000	1.000	59.70	0.000	0.000	UG2_4_11_L_0					
23 D	12.52	0.000	46.00	31.61	46.00	31.61	V-C	3143.	-4.100	31.00
1.000	1.000	62.61	0.000	0.000	UG2_4_11_L_0					
24 D	13.10	0.000	47.90	32.52	47.90	32.52	V-C	3143.	-4.300	33.00
1.000	1.000	65.52	0.000	0.000	UG2_4_11_L_0					
25 D	13.68	0.000	49.80	33.42	49.80	33.42	V-C	3143.	-4.500	35.00
1.000	1.000	68.42	0.000	0.000	UG2_4_11_L_0					
26 D	14.26	0.000	51.70	34.32	51.70	34.32	V-C	3143.	-4.700	37.00
1.000	1.000	71.32	0.000	0.000	UG2_4_11_L_0					
27 D	14.84	0.000	53.60	35.22	53.60	35.22	V-C	3143.	-4.900	39.00
1.000	1.000	74.22	0.000	0.000	UG2_4_11_L_0					
28 D	15.42	0.000	55.50	36.12	55.50	36.12	V-C	3143.	-5.100	41.00
1.000	1.000	77.12	0.000	0.000	UG2_4_11_L_0					
29 D	16.00	0.000	57.40	37.02	57.40	37.02	V-C	3143.	-5.300	43.00
1.000	1.000	80.02	0.000	0.000	UG2_4_11_L_0					
30 D	16.58	0.000	59.30	37.92	59.30	37.92	V-C	3143.	-5.500	45.00
1.000	1.000	82.92	0.000	0.000	UG2_4_11_L_0					
31 D	17.16	0.000	61.20	38.81	61.20	38.81	V-C	3143.	-5.700	47.00
1.000	1.000	85.81	0.000	0.000	UG2_4_11_L_0					
32 D	17.75	0.000	63.20	39.77	63.20	39.77	V-C	3143.	-5.900	49.00
1.000	1.000	88.77	0.000	0.000	UG3_4271_12_L_0					
33 D	18.34	0.000	65.20	40.72	65.20	40.72	V-C	3143.	-6.100	51.00
1.000	1.000	91.72	0.000	0.000	UG3_4271_12_L_0					
34 D	18.93	0.000	67.20	41.67	67.20	41.67	V-C	3143.	-6.300	53.00
1.000	1.000	94.67	0.000	0.000	UG3_4271_12_L_0					
35 D	19.52	0.000	69.20	42.62	69.20	42.62	V-C	3143.	-6.500	55.00
1.000	1.000	97.62	0.000	0.000	UG3_4271_12_L_0					
36 D	20.12	0.000	71.20	43.58	71.20	43.58	V-C	3143.	-6.700	57.00
1.000	1.000	100.6	0.000	0.000	UG3_4271_12_L_0					
37 D	20.71	0.000	73.20	44.53	73.20	44.53	V-C	3143.	-6.900	59.00
1.000	1.000	103.5	0.000	0.000	UG3_4271_12_L_0					
38 D	21.29	-5.6518E-18	75.15	45.46	75.15	45.46	V-C	3143.	-7.100	61.00
1.000	1.000	106.5	0.000	0.000	UG2_4_26346_L_0					
39 D	21.87	0.000	77.05	46.37	77.05	46.37	V-C	3143.	-7.300	63.00
1.000	1.000	109.4	0.000	0.000	UG2_4_26346_L_0					
40 D	22.45	0.000	78.95	47.27	78.95	47.27	V-C	3143.	-7.500	65.00
1.000	1.000	112.3	0.000	0.000	UG2_4_26346_L_0					
41 D	23.04	0.000	80.85	48.18	80.85	48.18	V-C	3143.	-7.700	67.00
1.000	1.000	115.2	0.000	0.000	UG2_4_26346_L_0					
42 D	23.62	0.000	82.75	49.09	82.75	49.09	V-C	3143.	-7.900	69.00
1.000	1.000	118.1	0.000	0.000	UG2_4_26346_L_0					
43 D	24.20	0.000	84.65	50.00	84.65	50.00	V-C	3143.	-8.100	71.00
1.000	1.000	121.0	0.000	0.000	UG2_4_26346_L_0					
44 D	24.78	0.000	86.55	50.91	86.55	50.91	V-C	3143.	-8.300	73.00
1.000	1.000	123.9	0.000	0.000	UG2_4_26346_L_0					
45 D	25.36	0.000	88.45	51.82	88.45	51.82	V-C	3143.	-8.500	75.00
1.000	1.000	126.8	0.000	0.000	UG2_4_26346_L_0					
46 D	25.95	0.000	90.35	52.74	90.35	52.74	V-C	3143.	-8.700	77.00
1.000	1.000	129.7	0.000	0.000	UG2_4_26346_L_0					
47 D	26.53	0.000	92.25	53.65	92.25	53.65	V-C	3143.	-8.900	79.00
1.000	1.000	132.7	0.000	0.000	UG2_4_26346_L_0					
48 D	27.11	-5.6518E-18	94.15	54.57	94.15	54.57	V-C	3143.	-9.100	81.00
1.000	1.000	135.6	0.000	0.000	UG2_4_26346_L_0					
49 D	27.70	0.000	96.05	55.49	96.05	55.49	V-C	3143.	-9.300	83.00
1.000	1.000	138.5	0.000	0.000	UG2_4_26346_L_0					
50 D	28.28	0.000	97.95	56.41	97.95	56.41	V-C	3143.	-9.500	85.00
1.000	1.000	141.4	0.000	0.000	UG2_4_26346_L_0					
51 D	28.87	5.6518E-18	99.85	57.33	99.85	57.33	V-C	3143.	-9.700	87.00
1.000	1.000	144.3	0.000	0.000	UG2_4_26346_L_0					
52 D	29.45	0.000	101.7	58.25	101.7	58.25	V-C	3143.	-9.900	89.00
1.000	1.000	147.3	0.000	0.000	UG2_4_26346_L_0					
53 D	30.04	0.000	103.6	59.18	103.6	59.18	V-C	3143.	-10.10	91.00
1.000	1.000	150.2	0.000	0.000	UG2_4_26346_L_0					
54 D	30.62	0.000	105.5	60.10	105.5	60.10	V-C	3143.	-10.30	93.00
1.000	1.000	153.1	0.000	0.000	UG2_4_26346_L_0					
55 D	31.21	0.000	107.4	61.03	107.4	61.03	V-C	3143.	-10.50	95.00
1.000	1.000	156.0	0.000	0.000	UG2_4_26346_L_0					
56 D	15.90	0.000	109.3	61.96	109.3	61.96	V-C	3143.	-10.70	97.00
1.000	1.000	159.0	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 : 2 April 2019      10:37:06
```

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 56
C U R R E N T T I M E I S 1.0000

HARDENING 2D SOIL ELEMENT

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

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	1.244	0.000	9.261	6.218	9.261	6.218	V-C	3143.	-0.5000	0.000	
1.000	1.000	6.218	0.000	0.000	UG0_2_10_L_0						
6 D	1.908	0.000	13.03	9.538	13.03	9.538	V-C	3143.	-0.7000	0.000	
1.000	1.000	9.538	0.000	0.000	UG0_2_10_L_0						
7 D	2.530	0.000	16.90	12.65	16.90	12.65	V-C	3143.	-0.9000	0.000	
1.000	1.000	12.65	0.000	0.000	UG0_2_10_L_0						
8 D	3.202	0.000	19.87	15.01	19.87	15.01	V-C	3143.	-1.100	1.000	
1.000	1.000	16.01	0.000	0.000	UG0_2_10_L_0						
9 D	3.928	0.000	21.92	16.64	21.92	16.64	V-C	3143.	-1.300	3.000	
1.000	1.000	19.64	0.000	0.000	UG0_2_10_L_0						
10 D	4.611	0.000	24.02	18.06	24.02	18.06	V-C	3143.	-1.500	5.000	
1.000	1.000	23.06	0.000	0.000	UG0_2_10_L_0						
11 D	5.262	1.4129E-18	26.16	19.31	26.16	19.31	V-C	3143.	-1.700	7.000	
1.000	1.000	26.31	0.000	0.000	UG0_2_10_L_0						
12 D	5.886	0.000	28.29	20.43	28.29	20.43	V-C	3143.	-1.900	9.000	
1.000	1.000	29.43	0.000	0.000	UG0_2_10_L_0						
13 D	6.491	0.000	30.63	21.45	30.63	21.45	V-C	3143.	-2.100	11.00	
1.000	1.000	32.45	0.000	0.000	UG0_2_10_L_0						
14 D	7.081	0.000	32.98	22.40	32.98	22.40	V-C	3143.	-2.300	13.00	
1.000	1.000	35.40	0.000	0.000	UG0_2_10_L_0						
15 D	7.660	0.000	35.25	23.30	35.25	23.30	V-C	3143.	-2.500	15.00	
1.000	1.000	38.30	0.000	0.000	UG0_2_10_L_0						
16 D	8.231	0.000	37.45	24.15	37.45	24.15	V-C	3143.	-2.700	17.00	
1.000	1.000	41.15	0.000	0.000	UG0_2_10_L_0						
17 D	8.796	0.000	39.59	24.98	39.59	24.98	V-C	3143.	-2.900	19.00	
1.000	1.000	43.98	0.000	0.000	UG0_2_10_L_0						
18 D	9.598	0.000	42.41	26.99	42.41	26.99	V-C	3143.	-3.100	21.00	
1.000	1.000	47.99	0.000	0.000	UG2_4_11_L_0						
19 D	10.19	-2.8259E-18	44.62	27.93	44.62	27.93	V-C	3143.	-3.300	23.00	
1.000	1.000	50.93	0.000	0.000	UG2_4_11_L_0						
20 D	10.77	0.000	46.81	28.87	46.81	28.87	V-C	3143.	-3.500	25.00	
1.000	1.000	53.87	0.000	0.000	UG2_4_11_L_0						
21 D	11.36	0.000	48.97	29.79	48.97	29.79	V-C	3143.	-3.700	27.00	
1.000	1.000	56.79	0.000	0.000	UG2_4_11_L_0						
22 D	11.94	0.000	51.10	30.70	51.10	30.70	V-C	3143.	-3.900	29.00	
1.000	1.000	59.70	0.000	0.000	UG2_4_11_L_0						
23 D	12.52	0.000	53.64	31.61	53.64	31.61	V-C	3143.	-4.100	31.00	
1.000	1.000	62.61	0.000	0.000	UG2_4_11_L_0						
24 D	13.10	0.000	55.72	32.52	55.72	32.52	V-C	3143.	-4.300	33.00	
1.000	1.000	65.52	0.000	0.000	UG2_4_11_L_0						
25 D	13.68	0.000	57.79	33.42	57.79	33.42	V-C	3143.	-4.500	35.00	
1.000	1.000	68.42	0.000	0.000	UG2_4_11_L_0						
26 D	14.26	0.000	59.84	34.32	59.84	34.32	V-C	3143.	-4.700	37.00	
1.000	1.000	71.32	0.000	0.000	UG2_4_11_L_0						
27 D	14.84	0.000	62.23	35.22	62.23	35.22	V-C	3143.	-4.900	39.00	
1.000	1.000	74.22	0.000	0.000	UG2_4_11_L_0						
28 D	15.42	0.000	64.25	36.12	64.25	36.12	V-C	3143.	-5.100	41.00	
1.000	1.000	77.12	0.000	0.000	UG2_4_11_L_0						
29 D	16.00	0.000	66.26	37.02	66.26	37.02	V-C	3143.	-5.300	43.00	
1.000	1.000	80.02	0.000	0.000	UG2_4_11_L_0						
30 D	16.58	0.000	68.26	37.92	68.26	37.92	V-C	3143.	-5.500	45.00	
1.000	1.000	82.92	0.000	0.000	UG2_4_11_L_0						
31 D	17.16	0.000	70.26	38.81	70.26	38.81	V-C	3143.	-5.700	47.00	
1.000	1.000	85.81	0.000	0.000	UG2_4_11_L_0						
32 D	17.75	0.000	72.64	39.77	72.64	39.77	V-C	3143.	-5.900	49.00	
1.000	1.000	88.77	0.000	0.000	UG3_4271_12_L_0						
33 D	18.34	0.000	74.72	40.72	74.72	40.72	V-C	3143.	-6.100	51.00	
1.000	1.000	91.72	0.000	0.000	UG3_4271_12_L_0						
34 D	18.93	0.000	76.79	41.67	76.79	41.67	V-C	3143.	-6.300	53.00	
1.000	1.000	94.67	0.000	0.000	UG3_4271_12_L_0						
35 D	19.52	0.000	78.86	42.62	78.86	42.62	V-C	3143.	-6.500	55.00	
1.000	1.000	97.62	0.000	0.000	UG3_4271_12_L_0						

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  36 D   20.12       0.000       80.92       43.58       80.92       43.58            V-C   3143.      -6.700       57.00
1.000       1.000       100.6       0.000       0.000     UG3_4271_12_L_0
  37 D   20.71       0.000       83.23       44.53       83.23       44.53            V-C   3143.      -6.900       59.00
1.000       1.000       103.5       0.000       0.000     UG3_4271_12_L_0
  38 D   21.29     5.6518E-18    85.23       45.46       85.23       45.46            V-C   3143.      -7.100       61.00
1.000       1.000       106.5       0.000       0.000     UG2_4_26346_L_0
  39 D   21.87       0.000       87.18       46.37       87.18       46.37            V-C   3143.      -7.300       63.00
1.000       1.000       109.4       0.000       0.000     UG2_4_26346_L_0
  40 D   22.45       0.000       89.13       47.27       89.13       47.27            V-C   3143.      -7.500       65.00
1.000       1.000       112.3       0.000       0.000     UG2_4_26346_L_0
  41 D   23.04       0.000       91.07       48.18       91.07       48.18            V-C   3143.      -7.700       67.00
1.000       1.000       115.2       0.000       0.000     UG2_4_26346_L_0
  42 D   23.62       0.000       93.23       49.09       93.23       49.09            V-C   3143.      -7.900       69.00
1.000       1.000       118.1       0.000       0.000     UG2_4_26346_L_0
  43 D   24.20       0.000       95.16       50.00       95.16       50.00            V-C   3143.      -8.100       71.00
1.000       1.000       121.0       0.000       0.000     UG2_4_26346_L_0
  44 D   24.78       0.000       97.10       50.91       97.10       50.91            V-C   3143.      -8.300       73.00
1.000       1.000       123.9       0.000       0.000     UG2_4_26346_L_0
  45 D   25.36       0.000       99.03       51.82       99.03       51.82            V-C   3143.      -8.500       75.00
1.000       1.000       126.8       0.000       0.000     UG2_4_26346_L_0
  46 D   25.95       0.000       101.0       52.74       101.0       52.74            V-C   3143.      -8.700       77.00
1.000       1.000       129.7       0.000       0.000     UG2_4_26346_L_0
  47 D   26.53       0.000       103.1       53.65       103.1       53.65            V-C   3143.      -8.900       79.00
1.000       1.000       132.7       0.000       0.000     UG2_4_26346_L_0
  48 D   27.11     5.6518E-18    105.0       54.57       105.0       54.57            V-C   3143.      -9.100       81.00
1.000       1.000       135.6       0.000       0.000     UG2_4_26346_L_0
  49 D   27.70       0.000       106.9       55.49       106.9       55.49            V-C   3143.      -9.300       83.00
1.000       1.000       138.5       0.000       0.000     UG2_4_26346_L_0
  50 D   28.28       0.000       108.9       56.41       108.9       56.41            V-C   3143.      -9.500       85.00
1.000       1.000       141.4       0.000       0.000     UG2_4_26346_L_0
  51 D   28.87    -5.6518E-18    110.9       57.33       110.9       57.33            V-C   3143.      -9.700       87.00
1.000       1.000       144.3       0.000       0.000     UG2_4_26346_L_0
  52 D   29.45       0.000       112.9       58.25       112.9       58.25            V-C   3143.      -9.900       89.00
1.000       1.000       147.3       0.000       0.000     UG2_4_26346_L_0
  53 D   30.04       0.000       114.8       59.18       114.8       59.18            V-C   3143.      -10.10       91.00
1.000       1.000       150.2       0.000       0.000     UG2_4_26346_L_0
  54 D   30.62       0.000       116.7       60.10       116.7       60.10            V-C   3143.      -10.30       93.00
1.000       1.000       153.1       0.000       0.000     UG2_4_26346_L_0
  55 D   31.21       0.000       118.6       61.03       118.6       61.03            V-C   3143.      -10.50       95.00
1.000       1.000       156.0       0.000       0.000     UG2_4_26346_L_0
  56 D   15.90       0.000       120.7       61.96       120.7       61.96            V-C   3143.      -10.70       97.00
1.000       1.000       159.0       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 : 2 April 2019     10:37:06                                                        |
+-------------------------------------------------------------------------------------------------------------------------------+
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   55
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=0.2253E+05 RIMNOR= 0.000
           RENORM= 3829.     REMNOR= 0.000     RATIO =0.4123     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 29.37     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.2253E+05 RDR   = 0.000
           RATIOT=0.4123     RATIOR= 0.000
           MAX UN= 0.000     IEQ=   112 NODE     56 DOF   2   X-ROT. F
           MIN UN=-13.31     IEQ=    49 NODE     25 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.2253E+05 RIMNOR= 0.000
           RENORM= 221.4     REMNOR=0.7963E-20 RATIO =0.9914E-01 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 29.37     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.2253E+05 RDR   = 0.000
           RATIOT=0.9914E-01 RATIOR= 0.000
           MAX UN=0.1219E-09 IEQ=    91 NODE     46 DOF   1  Y-DISPL.F
           MIN UN=-3.735     IEQ=    33 NODE     17 DOF   1  Y-DISPL.F
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           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     3 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.2253E+05 RIMNOR= 0.000
           RENORM= 789.1     REMNOR=0.2125E-18 RATIO =0.1872     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 29.37     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.2253E+05 RDR   = 0.000
           RATIOT=0.1872     RATIOR= 0.000
           MAX UN=0.1619E-08 IEQ=     5 NODE      3 DOF   1  Y-DISPL.F
           MIN UN=-14.97     IEQ=    47 NODE     24 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     4 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.2253E+05 RIMNOR= 0.000
           RENORM= 65.77     REMNOR=0.3128E-18 RATIO =0.5403E-01 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 29.37     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.2253E+05 RDR   = 0.000
           RATIOT=0.5403E-01 RATIOR= 0.000
           MAX UN= 2.266     IEQ=   109 NODE     55 DOF   1  Y-DISPL.F
           MIN UN=-4.887     IEQ=    75 NODE     38 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     5 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.2253E+05 RIMNOR= 0.000
           RENORM=0.2615E-02 REMNOR=0.1111E-18 RATIO =0.3407E-03 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 29.37     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.2253E+05 RDR   = 0.000
           RATIOT=0.3407E-03 RATIOR= 0.000
           MAX UN=0.3443E-08 IEQ=     5 NODE      3 DOF   1  Y-DISPL.F
           MIN UN=-.5113E-01 IEQ=    83 NODE     42 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     6 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.2253E+05 RIMNOR= 0.000
           RENORM=0.1088E-05 REMNOR=0.1367E-18 RATIO =0.6949E-05 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 29.37     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.2253E+05 RDR   = 0.000
           RATIOT=0.6949E-05 RATIOR= 0.000
           MAX UN=0.7414E-03 IEQ=   101 NODE     51 DOF   1  Y-DISPL.F
           MIN UN=-.3027E-08 IEQ=     3 NODE      2 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 : 2 April 2019     10:37:06                                                  |
+-----------------------------------------------------------------------------------------------------------------------+
New Project
SOLUTION REACHED USING     6 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  -6.7812851E-02   8.9378657E-03
    2  -6.6025278E-02   8.9378657E-03
    3  -6.4237705E-02   8.9378657E-03
    4  -6.2450133E-02   8.9378508E-03
    5  -6.0662569E-02   8.9377609E-03
    6  -5.8875041E-02   8.9374762E-03
    7  -5.7087604E-02   8.9368162E-03
    8  -5.5300356E-02   8.9355387E-03
    9  -5.3513452E-02   8.9333162E-03
   10  -5.1727123E-02   8.9296925E-03
   11  -4.9941709E-02   8.9240592E-03
   12  -4.8157684E-02   8.9156555E-03
   13  -4.6375692E-02   8.9035680E-03
   14  -4.4596574E-02   8.8867286E-03
   15  -4.2821399E-02   8.8639133E-03
   16  -4.1051499E-02   8.8337426E-03
   17  -3.9288494E-02   8.7946822E-03
   18  -3.7534331E-02   8.7450449E-03
   19  -3.5791281E-02   8.6833399E-03
   20  -3.4061883E-02   8.6083058E-03
```

21	-3.2348929E-02	8.5185931E-03
22	-3.0655512E-02	8.4127664E-03
23	-2.8985006E-02	8.2893021E-03
24	-2.7341083E-02	8.1465874E-03
25	-2.5727768E-02	7.9829243E-03
26	-2.4149429E-02	7.7965262E-03
27	-2.2610594E-02	7.5885746E-03
28	-2.1115168E-02	7.3631917E-03
29	-1.9666222E-02	7.1243500E-03
30	-1.8266070E-02	6.8758789E-03
31	-1.6916267E-02	6.6214645E-03
32	-1.5617644E-02	6.3646579E-03
33	-1.4370465E-02	6.1070359E-03
34	-1.3174898E-02	5.8484809E-03
35	-1.2031113E-02	5.5893171E-03
36	-1.0939161E-02	5.3303062E-03
37	-9.8989031E-03	5.0726034E-03
38	-8.9099481E-03	4.8174761E-03
39	-7.9716124E-03	4.5669222E-03
40	-7.0826973E-03	4.3236683E-03
41	-6.2414840E-03	4.0903308E-03
42	-5.4457366E-03	3.8694190E-03
43	-4.6927273E-03	3.6633428E-03
44	-3.9792731E-03	3.4742144E-03
45	-3.3018075E-03	3.3036505E-03
46	-2.6564989E-03	3.1527977E-03
47	-2.0393278E-03	3.0223541E-03
48	-1.4461806E-03	2.9125593E-03
49	-8.7295109E-04	2.8231026E-03
50	-3.1564805E-04	2.7530622E-03
51	2.2946753E-04	2.7009277E-03
52	7.6578057E-04	2.6646561E-03
53	1.2962100E-03	2.6417839E-03
54	1.8231860E-03	2.6294892E-03
55	2.3484993E-03	2.6245983E-03
56	2.8733101E-03	2.6235850E-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 : 2 April 2019     10:37:06                                                          |
+-------------------------------------------------------------------------------------------------------------------------------+
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   56
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 D	20.68	2.4149E-02	0.6901	102.1	51.70	102.1	V-C	3143.	-4.700	1.260	
1.000	1.000	103.4	0.000	0.000	UG2_4_11_L_0						
27 D	20.49	2.2611E-02	2.070	98.67	53.60	98.67	V-C	3143.	-4.900	3.780	
1.000	1.000	102.4	0.000	0.000	UG2_4_11_L_0						
28 D	20.28	2.1115E-02	3.451	95.11	55.50	95.11	V-C	3143.	-5.100	6.299	
1.000	1.000	101.4	0.000	0.000	UG2_4_11_L_0						
29 D	20.09	1.9666E-02	4.831	91.62	57.40	91.62	V-C	3143.	-5.300	8.819	
1.000	1.000	100.4	0.000	0.000	UG2_4_11_L_0						
30 D	19.91	1.8266E-02	6.211	88.23	59.30	88.23	V-C	3143.	-5.500	11.34	
1.000	1.000	99.57	0.000	0.000	UG2_4_11_L_0						
31 D	19.76	1.6916E-02	7.591	84.96	61.20	84.96	V-C	3143.	-5.700	13.86	
1.000	1.000	98.82	0.000	0.000	UG2_4_11_L_0						
32 D	12.07	1.5618E-02	9.071	43.95	63.20	43.95	PASSIVE	0.000	-5.900	16.38	
1.000	1.000	60.33	0.000	0.000	UG3_4271_12_L_0						
33 D	14.00	1.4370E-02	10.55	51.12	65.20	51.12	PASSIVE	0.000	-6.100	18.90	
1.000	1.000	70.02	0.000	0.000	UG3_4271_12_L_0						
34 D	15.94	1.3175E-02	12.03	58.29	67.20	58.29	PASSIVE	0.000	-6.300	21.42	
1.000	1.000	79.71	0.000	0.000	UG3_4271_12_L_0						
35 D	17.88	1.2031E-02	13.51	65.47	69.20	65.47	PASSIVE	0.000	-6.500	23.94	
1.000	1.000	89.40	0.000	0.000	UG3_4271_12_L_0						
36 D	19.52	1.0939E-02	14.99	71.14	71.20	71.14	V-C	3143.	-6.700	26.46	
1.000	1.000	97.60	0.000	0.000	UG3_4271_12_L_0						
37 D	19.56	9.8989E-03	16.47	68.83	73.20	68.83	V-C	3143.	-6.900	28.98	
1.000	1.000	97.81	0.000	0.000	UG3_4271_12_L_0						
38 D	19.63	8.9099E-03	17.90	66.66	75.15	66.66	V-C	3143.	-7.100	31.50	
1.000	1.000	98.15	0.000	0.000	UG2_4_26346_L_0						
39 D	19.72	7.9716E-03	19.28	64.61	77.05	64.61	V-C	3143.	-7.300	34.02	
1.000	1.000	98.62	0.000	0.000	UG2_4_26346_L_0						
40 D	19.85	7.0827E-03	20.66	62.71	78.95	62.71	V-C	3143.	-7.500	36.54	
1.000	1.000	99.24	0.000	0.000	UG2_4_26346_L_0						
41 D	20.00	6.2415E-03	22.04	60.96	80.85	60.96	V-C	3143.	-7.700	39.06	
1.000	1.000	100.0	0.000	0.000	UG2_4_26346_L_0						
42 D	20.19	5.4457E-03	23.42	59.35	82.75	59.35	V-C	3143.	-7.900	41.58	
1.000	1.000	100.9	0.000	0.000	UG2_4_26346_L_0						
43 D	20.39	4.6927E-03	24.80	57.87	84.65	57.87	V-C	3143.	-8.100	44.10	
1.000	1.000	102.0	0.000	0.000	UG2_4_26346_L_0						
44 D	20.63	3.9793E-03	26.18	56.52	86.55	56.52	V-C	3143.	-8.300	46.62	
1.000	1.000	103.1	0.000	0.000	UG2_4_26346_L_0						
45 D	20.88	3.3018E-03	27.56	55.28	88.45	55.28	V-C	3143.	-8.500	49.14	
1.000	1.000	104.4	0.000	0.000	UG2_4_26346_L_0						
46 D	21.16	2.6565E-03	28.94	54.14	90.35	54.14	V-C	3143.	-8.700	51.66	
1.000	1.000	105.8	0.000	0.000	UG2_4_26346_L_0						
47 D	21.23	2.0393E-03	30.32	51.98	92.25	53.65	UL-RL	9429.	-8.900	54.18	
1.000	1.000	106.2	0.000	0.000	UG2_4_26346_L_0						
48 D	20.78	1.4462E-03	31.70	47.22	94.15	54.57	UL-RL	9429.	-9.100	56.70	
1.000	1.000	103.9	0.000	0.000	UG2_4_26346_L_0						
49 D	20.37	8.7295E-04	33.09	42.65	96.05	55.49	UL-RL	9429.	-9.300	59.21	
1.000	1.000	101.9	0.000	0.000	UG2_4_26346_L_0						
50 D	19.99	3.1565E-04	34.47	38.22	97.95	56.41	UL-RL	9429.	-9.500	61.73	
1.000	1.000	99.96	0.000	0.000	UG2_4_26346_L_0						
51 D	19.63	-2.2947E-04	35.85	33.91	99.85	57.33	UL-RL	9429.	-9.700	64.25	
1.000	1.000	98.17	0.000	0.000	UG2_4_26346_L_0						
52 D	19.29	-7.6578E-04	37.23	29.68	101.7	58.25	UL-RL	9429.	-9.900	66.77	
1.000	1.000	96.46	0.000	0.000	UG2_4_26346_L_0						
53 D	18.96	-1.2962E-03	38.61	25.51	103.6	59.18	UL-RL	9429.	-10.10	69.29	
1.000	1.000	94.80	0.000	0.000	UG2_4_26346_L_0						
54 D	18.64	-1.8232E-03	39.99	21.36	105.5	60.10	UL-RL	9429.	-10.30	71.81	
1.000	1.000	93.18	0.000	0.000	UG2_4_26346_L_0						
55 D	18.31	-2.3485E-03	41.37	17.23	107.4	61.03	UL-RL	9429.	-10.50	74.33	
1.000	1.000	91.57	0.000	0.000	UG2_4_26346_L_0						
56 D	8.996	-2.8733E-03	42.75	13.11	109.3	61.96	UL-RL	9429.	-10.70	76.85	
1.000	1.000	89.96	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 : 2 April 2019      10:37:06                               |
+----------------------------------------------------------------------------------------------------+
New Project
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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 56
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	EFACTOR	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	0.1014	-6.4238E-02	1.850	0.5069	1.850	0.9250	ACTIVE	0.000	-0.1000	0.000	1.000	1.000	0.5069	0.000	0.000	UG0_2_10_L_0
4 D	0.3041	-6.2450E-02	5.550	1.521	5.550	2.775	ACTIVE	0.000	-0.3000	0.000	1.000	1.000	1.521	0.000	0.000	UG0_2_10_L_0
5 D	0.5075	-6.0663E-02	9.261	2.537	9.261	6.218	ACTIVE	0.000	-0.5000	0.000	1.000	1.000	2.537	0.000	0.000	UG0_2_10_L_0
6 D	0.7141	-5.8875E-02	13.03	3.571	13.03	9.538	ACTIVE	0.000	-0.7000	0.000	1.000	1.000	3.571	0.000	0.000	UG0_2_10_L_0
7 D	0.9260	-5.7088E-02	16.90	4.630	16.90	12.65	ACTIVE	0.000	-0.9000	0.000	1.000	1.000	4.630	0.000	0.000	UG0_2_10_L_0
8 D	1.289	-5.5300E-02	19.87	5.443	19.87	15.01	ACTIVE	0.000	-1.100	0.9997	1.000	1.000	6.443	0.000	0.000	UG0_2_10_L_0
9 D	1.801	-5.3513E-02	21.92	6.006	21.92	16.64	ACTIVE	0.000	-1.300	2.999	1.000	1.000	9.005	0.000	0.000	UG0_2_10_L_0
10 D	2.316	-5.1727E-02	24.02	6.583	24.02	18.06	ACTIVE	0.000	-1.500	4.999	1.000	1.000	11.58	0.000	0.000	UG0_2_10_L_0
11 D	2.833	-4.9942E-02	26.16	7.167	26.16	19.31	ACTIVE	0.000	-1.700	6.998	1.000	1.000	14.17	0.000	0.000	UG0_2_10_L_0
12 D	3.350	-4.8158E-02	28.29	7.753	28.29	20.43	ACTIVE	0.000	-1.900	8.998	1.000	1.000	16.75	0.000	0.000	UG0_2_10_L_0
13 D	3.878	-4.6376E-02	30.63	8.393	30.63	21.45	ACTIVE	0.000	-2.100	11.00	1.000	1.000	19.39	0.000	0.000	UG0_2_10_L_0
14 D	4.407	-4.4597E-02	32.99	9.039	32.99	22.41	ACTIVE	0.000	-2.300	13.00	1.000	1.000	22.04	0.000	0.000	UG0_2_10_L_0
15 D	4.931	-4.2821E-02	35.26	9.661	35.26	23.30	ACTIVE	0.000	-2.500	15.00	1.000	1.000	24.66	0.000	0.000	UG0_2_10_L_0
16 D	5.452	-4.1051E-02	37.46	10.26	37.46	24.16	ACTIVE	0.000	-2.700	17.00	1.000	1.000	27.26	0.000	0.000	UG0_2_10_L_0
17 D	5.969	-3.9288E-02	39.60	10.85	39.60	24.98	ACTIVE	0.000	-2.900	19.00	1.000	1.000	29.84	0.000	0.000	UG0_2_10_L_0
18 D	4.121	-3.7534E-02	42.80	0.000	42.80	27.20	ACTIVE	0.000	-3.100	20.61	1.000	1.000	20.61	0.000	0.000	UG2_4_11_L_0
19 D	4.417	-3.5791E-02	45.54	0.000	45.54	28.42	ACTIVE	0.000	-3.300	22.09	1.000	1.000	22.09	0.000	0.000	UG2_4_11_L_0
20 D	4.713	-3.4062E-02	48.24	0.000	48.24	29.63	ACTIVE	0.000	-3.500	23.57	1.000	1.000	23.57	0.000	0.000	UG2_4_11_L_0
21 D	5.009	-3.2349E-02	50.92	0.000	50.92	30.83	ACTIVE	0.000	-3.700	25.05	1.000	1.000	25.05	0.000	0.000	UG2_4_11_L_0
22 D	5.305	-3.0656E-02	53.58	0.000	53.58	32.02	ACTIVE	0.000	-3.900	26.53	1.000	1.000	26.53	0.000	0.000	UG2_4_11_L_0
23 D	5.601	-2.8985E-02	56.64	0.000	56.64	33.20	ACTIVE	0.000	-4.100	28.01	1.000	1.000	28.01	0.000	0.000	UG2_4_11_L_0
24 D	5.897	-2.7341E-02	59.24	0.000	59.24	34.39	ACTIVE	0.000	-4.300	29.49	1.000	1.000	29.49	0.000	0.000	UG2_4_11_L_0
25 D	6.193	-2.5728E-02	61.82	0.000	61.82	35.56	ACTIVE	0.000	-4.500	30.97	1.000	1.000	30.97	0.000	0.000	UG2_4_11_L_0
26 D	6.489	-2.4149E-02	64.39	0.000	64.39	36.74	ACTIVE	0.000	-4.700	32.45	1.000	1.000	32.45	0.000	0.000	UG2_4_11_L_0
27 D	6.785	-2.2611E-02	67.30	0.000	67.30	37.92	ACTIVE	0.000	-4.900	33.93	1.000	1.000	33.93	0.000	0.000	UG2_4_11_L_0
28 D	7.081	-2.1115E-02	69.84	0.000	69.84	39.09	ACTIVE	0.000	-5.100	35.41	1.000	1.000	35.41	0.000	0.000	UG2_4_11_L_0
29 D	7.377	-1.9666E-02	72.37	0.000	72.37	40.26	ACTIVE	0.000	-5.300	36.89	1.000	1.000	36.89	0.000	0.000	UG2_4_11_L_0
30 D	7.674	-1.8266E-02	74.89	0.000	74.89	41.44	ACTIVE	0.000	-5.500	38.37	1.000	1.000	38.37	0.000	0.000	UG2_4_11_L_0
31 D	7.970	-1.6916E-02	77.41	0.000	77.41	42.61	ACTIVE	0.000	-5.700	39.85	1.000	1.000	39.85	0.000	0.000	UG2_4_11_L_0
32 D	13.20	-1.5618E-02	80.31	24.66	80.31	43.84	ACTIVE	0.000	-5.900	41.33	1.000	1.000	65.98	0.000	0.000	UG3_4271_12_L_0

33 D	13.65	-1.4370E-02	82.91	25.45	82.91	45.07	ACTIVE	0.000	-6.100	42.81
1.000	1.000	68.26	0.000	0.000	UG3_4271_12_L_0					
34 D	14.11	-1.3175E-02	85.50	26.25	85.50	46.29	ACTIVE	0.000	-6.300	44.29
1.000	1.000	70.54	0.000	0.000	UG3_4271_12_L_0					
35 D	14.56	-1.2031E-02	88.09	27.04	88.09	47.52	ACTIVE	0.000	-6.500	45.77
1.000	1.000	72.81	0.000	0.000	UG3_4271_12_L_0					
36 D	15.02	-1.0939E-02	90.67	27.84	90.67	48.75	ACTIVE	0.000	-6.700	47.25
1.000	1.000	75.09	0.000	0.000	UG3_4271_12_L_0					
37 D	15.49	-9.8989E-03	93.50	28.70	93.50	49.99	ACTIVE	0.000	-6.900	48.73
1.000	1.000	77.43	0.000	0.000	UG3_4271_12_L_0					
38 D	10.19	-8.9099E-03	96.02	0.7538	96.02	51.19	ACTIVE	0.000	-7.100	50.21
1.000	1.000	50.96	0.000	0.000	UG2_4_26346_L_0					
39 D	10.69	-7.9716E-03	98.49	1.756	98.49	52.37	ACTIVE	0.000	-7.300	51.69
1.000	1.000	53.45	0.000	0.000	UG2_4_26346_L_0					
40 D	11.19	-7.0827E-03	101.0	2.757	101.0	53.55	ACTIVE	0.000	-7.500	53.17
1.000	1.000	55.93	0.000	0.000	UG2_4_26346_L_0					
41 D	11.68	-6.2415E-03	103.4	3.758	103.4	54.74	ACTIVE	0.000	-7.700	54.65
1.000	1.000	58.41	0.000	0.000	UG2_4_26346_L_0					
42 D	12.20	-5.4457E-03	106.1	4.845	106.1	55.92	ACTIVE	0.000	-7.900	56.13
1.000	1.000	60.98	0.000	0.000	UG2_4_26346_L_0					
43 D	14.09	-4.6927E-03	108.6	12.86	108.6	57.11	UL-RL	9429.	-8.100	57.61
1.000	1.000	70.47	0.000	0.000	UG2_4_26346_L_0					
44 D	15.97	-3.9793E-03	111.0	20.77	111.0	58.29	UL-RL	9429.	-8.300	59.09
1.000	1.000	79.86	0.000	0.000	UG2_4_26346_L_0					
45 D	17.78	-3.3018E-03	113.5	28.35	113.5	59.48	UL-RL	9429.	-8.500	60.57
1.000	1.000	88.92	0.000	0.000	UG2_4_26346_L_0					
46 D	19.54	-2.6565E-03	115.9	35.62	115.9	60.67	UL-RL	9429.	-8.700	62.05
1.000	1.000	97.68	0.000	0.000	UG2_4_26346_L_0					
47 D	21.23	-2.0393E-03	118.5	42.64	118.5	61.87	UL-RL	9429.	-8.900	63.53
1.000	1.000	106.2	0.000	0.000	UG2_4_26346_L_0					
48 D	22.89	-1.4462E-03	121.0	49.42	121.0	63.06	UL-RL	9429.	-9.100	65.01
1.000	1.000	114.4	0.000	0.000	UG2_4_26346_L_0					
49 D	24.50	-8.7295E-04	123.4	56.02	123.4	64.25	UL-RL	9429.	-9.300	66.49
1.000	1.000	122.5	0.000	0.000	UG2_4_26346_L_0					
50 D	26.09	-3.1565E-04	125.9	62.47	125.9	65.45	UL-RL	9429.	-9.500	67.97
1.000	1.000	130.4	0.000	0.000	UG2_4_26346_L_0					
51 D	27.36	2.2947E-04	128.5	67.36	128.5	67.37	UL-RL	9429.	-9.700	69.45
1.000	1.000	136.8	0.000	0.000	UG2_4_26346_L_0					
52 D	28.24	7.6578E-04	130.9	70.25	130.9	70.25	UL-RL	9429.	-9.900	70.93
1.000	1.000	141.2	0.000	0.000	UG2_4_26346_L_0					
53 D	29.11	1.2962E-03	133.4	73.12	133.4	73.12	UL-RL	9429.	-10.10	72.41
1.000	1.000	145.5	0.000	0.000	UG2_4_26346_L_0					
54 D	29.97	1.8232E-03	135.8	75.98	135.8	75.98	UL-RL	9429.	-10.30	73.89
1.000	1.000	149.9	0.000	0.000	UG2_4_26346_L_0					
55 D	30.84	2.3485E-03	138.2	78.83	138.2	78.83	UL-RL	9429.	-10.50	75.37
1.000	1.000	154.2	0.000	0.000	UG2_4_26346_L_0					
56 D	15.85	2.8733E-03	140.8	81.69	140.8	81.69	V-C	3143.	-10.70	76.85
1.000	1.000	158.5	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 : 2 April 2019     10:37:06                                                  |
+-------------------------------------------------------------------------------------------------------------------------+
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   55
C U R R E N T   T I M E   I S     2.0000

 WALL2D ELEMENT

   EL      TA          TB          MA          MB
-------------------------------------------------------
    1-1.87994E-09 1.87994E-09-1.87652E-10-3.41453E-10
    2 1.14705E-09-1.14705E-09 2.67728E-10-7.75822E-10
    3-0.10138     0.10138     8.53860E-10-2.02760E-02
    4-0.40552     0.40552     2.02760E-02-0.10138
    5-0.91302     0.91302     0.10138    -0.28398
    6 -1.6271      1.6271     0.28398    -0.60941
    7 -2.5532      2.5532     0.60941     -1.1200
    8 -3.8418      3.8418      1.1200     -1.8884
    9 -5.6428      5.6428      1.8884     -3.0170
   10 -7.9591      7.9591      3.0170     -4.6088
   11 -10.792      10.792      4.6088     -6.7672
   12 -14.142      14.142      6.7672     -9.5956
   13 -18.020      18.020      9.5956     -13.200
   14 -22.427      22.427      13.200     -17.685
   15 -27.359      27.359      17.685     -23.157
   16 -32.810      32.810      23.157     -29.719
   17 -38.779      38.779      29.719     -37.475
   18 -42.900      42.900      37.475     -46.055
```

```
   19 -47.317      47.317      46.055     -55.518
   20 -52.030      52.030      55.518     -65.924
   21 -57.040      57.040      65.924     -77.332
   22 -62.345      62.345      77.332     -89.801
   23 -67.946      67.946      89.801     -103.39
   24 -73.843      73.843      103.39     -118.16
   25 -80.037      80.037      118.16     -134.17
   26 -65.848      65.848      134.17     -147.34
   27 -52.144      52.144      147.34     -157.76
   28 -38.943      38.943      157.76     -165.55
   29 -26.233      26.233      165.55     -170.80
   30 -13.993      13.993      170.80     -173.60
   31 -2.1984      2.1984      173.60     -174.04
   32 -3.3293      3.3293      174.04     -174.70
   33 -2.9774      2.9774      174.70     -175.30
   34 -1.1423      1.1423      175.30     -175.53
   35  2.1761     -2.1761      175.53     -175.09
   36  6.6784     -6.6784      175.09     -173.76
   37  10.754     -10.754      173.76     -171.61
   38  20.192     -20.192      171.61     -167.57
   39  29.227     -29.227      167.57     -161.72
   40  37.891     -37.891      161.72     -154.14
   41  46.212     -46.212      154.14     -144.90
   42  54.202     -54.202      144.90     -134.06
   43  60.502     -60.502      134.06     -121.96
   44  65.157     -65.157      121.96     -108.93
   45  68.257     -68.257      108.93     -95.278
   46  69.881     -69.881      95.278     -81.302
   47  69.879     -69.879      81.302     -67.326
   48  67.776     -67.776      67.326     -53.771
   49  63.646     -63.646      53.771     -41.042
   50  57.549     -57.549      41.042     -29.532
   51  49.818     -49.818      29.532     -19.568
   52  40.872     -40.872      19.568     -11.394
   53  30.726     -30.726      11.394     -5.2490
   54  19.387     -19.387      5.2490     -1.3717
   55  6.8582     -6.8582      1.3717     3.53939E-13


+-------------------------------------------------------------------------------------------------------------------------+
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                     NewProject.BaseDesignSection_28.Nominal_64                                          |
|                                  Exe Time : 2 April 2019     10:37:06                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


    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                      6


 END OF PROCESS FOR PROBLEM
New Project
NONLINEAR SOLUTION CPU TIME ....    0.04 [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 : 2 April 2019     10:37:07                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


                 ***********************************************************
                 *                                                         *
                 *  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 : 2 April 2019     10:37:07                                                    |
+-------------------------------------------------------------------------------------------------------------------------+


INPUT FILE HAS BEEN GENERATED BY WALGEN PROGRAM


New Project


NO. OF NODAL POINTS (NUMNP) ...................    56
NO. OF COORDINATES  (NCOORD)...................     2
NO. OF NODE DOFS    (NDOF).....................     2
NO. OF EQUATIONS    (NEQ)......................   112
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 .....................    99
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 : 2 April 2019     10:37:07                                                   |
+------------------------------------------------------------------------------------------------------------------------+
                   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     99

    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 -10.7 0.3 -1
    7 : SOIL 0_L LeftWall_32 -10.7 0.3 2 0
    8 : SOIL 0_R LeftWall_32 -10.7 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 -2.95 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 -5.7 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 -7 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 -10.7 0.3 S275_115 0.19777 00 00 0
   39 : STRIP LeftWall_32 1 2 1.45 16.55 -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=0.274 LeftWall_32
   44 : CHANGE UG0_2_10_L_0 U-KP=5.848 LeftWall_32
   45 : CHANGE UG0_2_10_L_0 D-KA=0.271 LeftWall_32
   46 : CHANGE UG0_2_10_L_0 D-KP=5.705 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=0.405 LeftWall_32
   50 : CHANGE UG2_4_11_L_0 U-KP=3.216 LeftWall_32
   51 : CHANGE UG2_4_11_L_0 D-KA=0.404 LeftWall_32
   52 : CHANGE UG2_4_11_L_0 D-KP=2.834 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=0.307 LeftWall_32
   56 : CHANGE UG3_4271_12_L_0 U-KP=4.787 LeftWall_32
   57 : CHANGE UG3_4271_12_L_0 D-KA=0.306 LeftWall_32
   58 : CHANGE UG3_4271_12_L_0 D-KP=3.554 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=0.406 LeftWall_32
   62 : CHANGE UG2_4_26346_L_0 U-KP=3.155 LeftWall_32
   63 : CHANGE UG2_4_26346_L_0 D-KA=0.396 LeftWall_32
   64 : CHANGE UG2_4_26346_L_0 D-KP=2.687 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 -1 0 -10.7 0 0
   85 : ENDSTEP
   86 : STEP Stage2_28513
   87 : CHANGE UG0_2_10_L_0 D-KP=5.879 LeftWall_32
   88 : CHANGE UG2_4_11_L_0 D-KA=0.406 LeftWall_32
   89 : CHANGE UG2_4_11_L_0 D-KP=3.222 LeftWall_32
   90 : CHANGE UG3_4271_12_L_0 D-KA=0.307 LeftWall_32
   91 : CHANGE UG3_4271_12_L_0 D-KP=4.845 LeftWall_32
   92 : CHANGE UG2_4_26346_L_0 D-KA=0.406 LeftWall_32
   93 : CHANGE UG2_4_26346_L_0 D-KP=3.222 LeftWall_32
   94 : SETWALL LeftWall_32
   95 : GEOM 0 -4.6
   96 : SURCHARGE 0 0 0 0
   97 : WATER -1 3.6 -10.7 0 0
   98 : ADD WallElement_New_28707
   99 : ENDSTEP


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                        |
|                                  Exe Time : 2 April 2019     10:37:07                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
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     /   47  0.0000     -8.9000     /   48  0.0000     -9.1000     /
  49  0.0000     -9.3000     /   50  0.0000     -9.5000     /   51  0.0000     -9.7000     /   52  0.0000     -9.9000     /
  53  0.0000     -10.100     /   54  0.0000     -10.300     /   55  0.0000     -10.500     /   56  0.0000     -10.700     /


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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 : 2 April 2019     10:37:07                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  1

0_L                                                    :
   5  56   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    2   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    2   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    3   0.2000     0.000     0.000     0.000     2.000
   35    35    3   0.2000     0.000     0.000     0.000     2.000
   36    36    3   0.2000     0.000     0.000     0.000     2.000
   37    37    3   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   0.2000     0.000     0.000     0.000     2.000
   47    47    4   0.2000     0.000     0.000     0.000     2.000
   48    48    4   0.2000     0.000     0.000     0.000     2.000
   49    49    4   0.2000     0.000     0.000     0.000     2.000
   50    50    4   0.2000     0.000     0.000     0.000     2.000
   51    51    4   0.2000     0.000     0.000     0.000     2.000
   52    52    4   0.2000     0.000     0.000     0.000     2.000
   53    53    4   0.2000     0.000     0.000     0.000     2.000
   54    54    4   0.2000     0.000     0.000     0.000     2.000
   55    55    4   0.2000     0.000     0.000     0.000     2.000
   56    56    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 : 2 April 2019     10:37:07                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  2

0_R                                                    :
   5  56   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	2	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	2	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	3	0.2000	0.000	0.000	0.000	1.000
35	35	3	0.2000	0.000	0.000	0.000	1.000
36	36	3	0.2000	0.000	0.000	0.000	1.000
37	37	3	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	0.2000	0.000	0.000	0.000	1.000
47	47	4	0.2000	0.000	0.000	0.000	1.000
48	48	4	0.2000	0.000	0.000	0.000	1.000
49	49	4	0.2000	0.000	0.000	0.000	1.000
50	50	4	0.2000	0.000	0.000	0.000	1.000
51	51	4	0.2000	0.000	0.000	0.000	1.000
52	52	4	0.2000	0.000	0.000	0.000	1.000
53	53	4	0.2000	0.000	0.000	0.000	1.000
54	54	4	0.2000	0.000	0.000	0.000	1.000
55	55	4	0.2000	0.000	0.000	0.000	1.000
56	56	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 : 2 April 2019     10:37:07                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  3

WallElement_New_28707                                          :
   2  55   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
   46   46   47    1    0.000     0.000    0.1978     0.000     0.000
```

```
   47   47   48    1    0.000     0.000     0.1978     0.000     0.000
   48   48   49    1    0.000     0.000     0.1978     0.000     0.000
   49   49   50    1    0.000     0.000     0.1978     0.000     0.000
   50   50   51    1    0.000     0.000     0.1978     0.000     0.000
   51   51   52    1    0.000     0.000     0.1978     0.000     0.000
   52   52   53    1    0.000     0.000     0.1978     0.000     0.000
   53   53   54    1    0.000     0.000     0.1978     0.000     0.000
   54   54   55    1    0.000     0.000     0.1978     0.000     0.000
   55   55   56    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 : 2 April 2019     10:37:07                                               |
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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 : 2 April 2019     10:37:07                                               |
+-----------------------------------------------------------------------------------------------------------------------+
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 : 2 April 2019     10:37:07                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
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 : 2 April 2019     10:37:07                                                   |
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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.NTC2018SLERaraFrequenteQuasiPermanente_1116                        |
|                                  Exe Time : 2 April 2019     10:37:07                                                   |
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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;=  35.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.27400     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  5.8480     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;=  5.7050     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;= -2.9500     (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;= 0.40500     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.2160     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
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```
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;= 0.40400     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  2.8340     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;= -5.7000     (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;= 0.30700     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  4.7870     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;= 0.30600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.5540     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;= -7.0000     (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;= 0.40600     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.1550     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;= 0.39600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  2.6870     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;= 0.27400     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  5.8480     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)
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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;= -2.9500     (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;= 0.40500     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.2160     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;= -5.7000     (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;= 0.30700     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  4.7870     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;= -7.0000     (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;= 0.40600     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.1550     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
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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 : 2 April 2019     10:37:07                                                   |
+-------------------------------------------------------------------------------------------------------------------------+

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                        -1.000       -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     -10.70        -10.70
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                         -4.600         0.000
Z-WATER_TABLE                        -1.000       -0.9990E+30
Q_AT_THE_FREE_FIELD_LEVEL             0.000         0.000
ZQ                                    0.000         0.000
DZW_OF_THE_WATER_TABLE                3.600         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     -10.70        -10.70
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
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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         -10.70000
 UPPER  LEVEL           0.30000

 RIGHT-HAND WALL

 LOWER  LEVEL         -10.70000
 UPPER  LEVEL           0.30000



+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                     NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                         |
|                                  Exe Time : 2 April 2019     10:37:07                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
 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)            16.5500000000000
 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        2783

 NO. OF D.P.W  FOR THIS AREA       6611
 MAX NO. OF D.P.W. AVAILABLE      81920
 ** MAX NO OF ITERATIONS SET TO          40

ITER     0 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.3608E+05 RIMNOR= 0.000
           RENORM=0.4181E-28 REMNOR= 0.000     RATIO =0.3404E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 31.21     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.3608E+05 RDR   = 0.000
           RATIOT=0.3404E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    95 NODE     48 DOF   1  Y-DISPL.F
           MIN UN=-.3553E-14 IEQ=   101 NODE     51 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     1 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.3608E+05 RIMNOR= 0.000
           RENORM=0.4181E-28 REMNOR= 0.000     RATIO =0.3404E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 31.21     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.3608E+05 RDR   = 0.000
           RATIOT=0.3404E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    95 NODE     48 DOF   1  Y-DISPL.F
           MIN UN=-.3553E-14 IEQ=   101 NODE     51 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.3608E+05 RIMNOR= 0.000
           RENORM=0.4181E-28 REMNOR= 0.000     RATIO =0.3404E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 31.21     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
```

```
 RDT   =0.3608E+05 RDR   = 0.000
 RATIOT=0.3404E-16 RATIOR= 0.000
 MAX UN=0.3553E-14 IEQ=     95 NODE     48 DOF   1  Y-DISPL.F
 MIN UN=-.3553E-14 IEQ=    101 NODE     51 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.NTC2018SLERaraFrequenteQuasiPermanente_1116                      |
|                                  Exe Time : 2 April 2019     10:37:07                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
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 : 2 April 2019     10:37:07                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
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   56
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   1.244       0.000       9.250       6.218       9.250       6.218            V-C   3143.      -0.5000       0.000
1.000       1.000       6.218       0.000       0.000     UG0_2_10_L_0
   6 D   1.908       0.000       12.95       9.538       12.95       9.538            V-C   3143.      -0.7000       0.000
1.000       1.000       9.538       0.000       0.000     UG0_2_10_L_0
   7 D   2.530       0.000       16.65       12.65       16.65       12.65            V-C   3143.      -0.9000       0.000
1.000       1.000       12.65       0.000       0.000     UG0_2_10_L_0
   8 D   3.202       0.000       19.35       15.01       19.35       15.01            V-C   3143.       -1.100       1.000
1.000       1.000       16.01       0.000       0.000     UG0_2_10_L_0
   9 D   3.928       0.000       21.05       16.64       21.05       16.64            V-C   3143.       -1.300       3.000
1.000       1.000       19.64       0.000       0.000     UG0_2_10_L_0
  10 D   4.611       0.000       22.75       18.06       22.75       18.06            V-C   3143.       -1.500       5.000
1.000       1.000       23.06       0.000       0.000     UG0_2_10_L_0
  11 D   5.262    -1.4129E-18      24.45       19.31       24.45       19.31            V-C   3143.       -1.700       7.000
1.000       1.000       26.31       0.000       0.000     UG0_2_10_L_0
  12 D   5.886       0.000       26.15       20.43       26.15       20.43            V-C   3143.       -1.900       9.000
1.000       1.000       29.43       0.000       0.000     UG0_2_10_L_0
  13 D   6.491       0.000       27.85       21.45       27.85       21.45            V-C   3143.       -2.100       11.00
1.000       1.000       32.45       0.000       0.000     UG0_2_10_L_0
  14 D   7.081       0.000       29.55       22.40       29.55       22.40            V-C   3143.       -2.300       13.00
1.000       1.000       35.40       0.000       0.000     UG0_2_10_L_0
  15 D   7.660       0.000       31.25       23.30       31.25       23.30            V-C   3143.       -2.500       15.00
1.000       1.000       38.30       0.000       0.000     UG0_2_10_L_0
  16 D   8.231       0.000       32.95       24.15       32.95       24.15            V-C   3143.       -2.700       17.00
1.000       1.000       41.15       0.000       0.000     UG0_2_10_L_0
  17 D   8.796       0.000       34.65       24.98       34.65       24.98            V-C   3143.       -2.900       19.00
```

1.000	1.000	43.98	0.000	0.000	UG0_2_10_L_0					
18 D	9.598	0.000	36.50	26.99	36.50	26.99	V-C	3143.	-3.100	21.00
1.000	1.000	47.99	0.000	0.000	UG2_4_11_L_0					
19 D	10.19	2.8259E-18	38.40	27.93	38.40	27.93	V-C	3143.	-3.300	23.00
1.000	1.000	50.93	0.000	0.000	UG2_4_11_L_0					
20 D	10.77	0.000	40.30	28.87	40.30	28.87	V-C	3143.	-3.500	25.00
1.000	1.000	53.87	0.000	0.000	UG2_4_11_L_0					
21 D	11.36	0.000	42.20	29.79	42.20	29.79	V-C	3143.	-3.700	27.00
1.000	1.000	56.79	0.000	0.000	UG2_4_11_L_0					
22 D	11.94	0.000	44.10	30.70	44.10	30.70	V-C	3143.	-3.900	29.00
1.000	1.000	59.70	0.000	0.000	UG2_4_11_L_0					
23 D	12.52	0.000	46.00	31.61	46.00	31.61	V-C	3143.	-4.100	31.00
1.000	1.000	62.61	0.000	0.000	UG2_4_11_L_0					
24 D	13.10	0.000	47.90	32.52	47.90	32.52	V-C	3143.	-4.300	33.00
1.000	1.000	65.52	0.000	0.000	UG2_4_11_L_0					
25 D	13.68	0.000	49.80	33.42	49.80	33.42	V-C	3143.	-4.500	35.00
1.000	1.000	68.42	0.000	0.000	UG2_4_11_L_0					
26 D	14.26	0.000	51.70	34.32	51.70	34.32	V-C	3143.	-4.700	37.00
1.000	1.000	71.32	0.000	0.000	UG2_4_11_L_0					
27 D	14.84	0.000	53.60	35.22	53.60	35.22	V-C	3143.	-4.900	39.00
1.000	1.000	74.22	0.000	0.000	UG2_4_11_L_0					
28 D	15.42	0.000	55.50	36.12	55.50	36.12	V-C	3143.	-5.100	41.00
1.000	1.000	77.12	0.000	0.000	UG2_4_11_L_0					
29 D	16.00	0.000	57.40	37.02	57.40	37.02	V-C	3143.	-5.300	43.00
1.000	1.000	80.02	0.000	0.000	UG2_4_11_L_0					
30 D	16.58	0.000	59.30	37.92	59.30	37.92	V-C	3143.	-5.500	45.00
1.000	1.000	82.92	0.000	0.000	UG2_4_11_L_0					
31 D	17.16	0.000	61.20	38.81	61.20	38.81	V-C	3143.	-5.700	47.00
1.000	1.000	85.81	0.000	0.000	UG2_4_11_L_0					
32 D	17.75	0.000	63.20	39.77	63.20	39.77	V-C	3143.	-5.900	49.00
1.000	1.000	88.77	0.000	0.000	UG3_4271_12_L_0					
33 D	18.34	0.000	65.20	40.72	65.20	40.72	V-C	3143.	-6.100	51.00
1.000	1.000	91.72	0.000	0.000	UG3_4271_12_L_0					
34 D	18.93	0.000	67.20	41.67	67.20	41.67	V-C	3143.	-6.300	53.00
1.000	1.000	94.67	0.000	0.000	UG3_4271_12_L_0					
35 D	19.52	0.000	69.20	42.62	69.20	42.62	V-C	3143.	-6.500	55.00
1.000	1.000	97.62	0.000	0.000	UG3_4271_12_L_0					
36 D	20.12	0.000	71.20	43.58	71.20	43.58	V-C	3143.	-6.700	57.00
1.000	1.000	100.6	0.000	0.000	UG3_4271_12_L_0					
37 D	20.71	0.000	73.20	44.53	73.20	44.53	V-C	3143.	-6.900	59.00
1.000	1.000	103.5	0.000	0.000	UG3_4271_12_L_0					
38 D	21.29	-5.6518E-18	75.15	45.46	75.15	45.46	V-C	3143.	-7.100	61.00
1.000	1.000	106.5	0.000	0.000	UG2_4_26346_L_0					
39 D	21.87	0.000	77.05	46.37	77.05	46.37	V-C	3143.	-7.300	63.00
1.000	1.000	109.4	0.000	0.000	UG2_4_26346_L_0					
40 D	22.45	0.000	78.95	47.27	78.95	47.27	V-C	3143.	-7.500	65.00
1.000	1.000	112.3	0.000	0.000	UG2_4_26346_L_0					
41 D	23.04	0.000	80.85	48.18	80.85	48.18	V-C	3143.	-7.700	67.00
1.000	1.000	115.2	0.000	0.000	UG2_4_26346_L_0					
42 D	23.62	0.000	82.75	49.09	82.75	49.09	V-C	3143.	-7.900	69.00
1.000	1.000	118.1	0.000	0.000	UG2_4_26346_L_0					
43 D	24.20	0.000	84.65	50.00	84.65	50.00	V-C	3143.	-8.100	71.00
1.000	1.000	121.0	0.000	0.000	UG2_4_26346_L_0					
44 D	24.78	0.000	86.55	50.91	86.55	50.91	V-C	3143.	-8.300	73.00
1.000	1.000	123.9	0.000	0.000	UG2_4_26346_L_0					
45 D	25.36	0.000	88.45	51.82	88.45	51.82	V-C	3143.	-8.500	75.00
1.000	1.000	126.8	0.000	0.000	UG2_4_26346_L_0					
46 D	25.95	0.000	90.35	52.74	90.35	52.74	V-C	3143.	-8.700	77.00
1.000	1.000	129.7	0.000	0.000	UG2_4_26346_L_0					
47 D	26.53	0.000	92.25	53.65	92.25	53.65	V-C	3143.	-8.900	79.00
1.000	1.000	132.7	0.000	0.000	UG2_4_26346_L_0					
48 D	27.11	-5.6518E-18	94.15	54.57	94.15	54.57	V-C	3143.	-9.100	81.00
1.000	1.000	135.6	0.000	0.000	UG2_4_26346_L_0					
49 D	27.70	0.000	96.05	55.49	96.05	55.49	V-C	3143.	-9.300	83.00
1.000	1.000	138.5	0.000	0.000	UG2_4_26346_L_0					
50 D	28.28	0.000	97.95	56.41	97.95	56.41	V-C	3143.	-9.500	85.00
1.000	1.000	141.4	0.000	0.000	UG2_4_26346_L_0					
51 D	28.87	5.6518E-18	99.85	57.33	99.85	57.33	V-C	3143.	-9.700	87.00
1.000	1.000	144.3	0.000	0.000	UG2_4_26346_L_0					
52 D	29.45	0.000	101.7	58.25	101.7	58.25	V-C	3143.	-9.900	89.00
1.000	1.000	147.3	0.000	0.000	UG2_4_26346_L_0					
53 D	30.04	0.000	103.6	59.18	103.6	59.18	V-C	3143.	-10.10	91.00
1.000	1.000	150.2	0.000	0.000	UG2_4_26346_L_0					
54 D	30.62	0.000	105.5	60.10	105.5	60.10	V-C	3143.	-10.30	93.00
1.000	1.000	153.1	0.000	0.000	UG2_4_26346_L_0					
55 D	31.21	0.000	107.4	61.03	107.4	61.03	V-C	3143.	-10.50	95.00
1.000	1.000	156.0	0.000	0.000	UG2_4_26346_L_0					
56 D	15.90	0.000	109.3	61.96	109.3	61.96	V-C	3143.	-10.70	97.00
1.000	1.000	159.0	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 : 2 April 2019     10:37:07                                                  |
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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 56
C U R R E N T T I M E I S 1.0000

HARDENING 2D SOIL ELEMENT

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

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	1.244	0.000	9.261	6.218	9.261	6.218	V-C	3143.	-0.5000	0.000	
1.000	1.000	6.218	0.000	0.000	UG0_2_10_L_0						
6 D	1.908	0.000	13.03	9.538	13.03	9.538	V-C	3143.	-0.7000	0.000	
1.000	1.000	9.538	0.000	0.000	UG0_2_10_L_0						
7 D	2.530	0.000	16.90	12.65	16.90	12.65	V-C	3143.	-0.9000	0.000	
1.000	1.000	12.65	0.000	0.000	UG0_2_10_L_0						
8 D	3.202	0.000	19.87	15.01	19.87	15.01	V-C	3143.	-1.100	1.000	
1.000	1.000	16.01	0.000	0.000	UG0_2_10_L_0						
9 D	3.928	0.000	21.92	16.64	21.92	16.64	V-C	3143.	-1.300	3.000	
1.000	1.000	19.64	0.000	0.000	UG0_2_10_L_0						
10 D	4.611	0.000	24.02	18.06	24.02	18.06	V-C	3143.	-1.500	5.000	
1.000	1.000	23.06	0.000	0.000	UG0_2_10_L_0						
11 D	5.262	1.4129E-18	26.16	19.31	26.16	19.31	V-C	3143.	-1.700	7.000	
1.000	1.000	26.31	0.000	0.000	UG0_2_10_L_0						
12 D	5.886	0.000	28.29	20.43	28.29	20.43	V-C	3143.	-1.900	9.000	
1.000	1.000	29.43	0.000	0.000	UG0_2_10_L_0						
13 D	6.491	0.000	30.63	21.45	30.63	21.45	V-C	3143.	-2.100	11.00	
1.000	1.000	32.45	0.000	0.000	UG0_2_10_L_0						
14 D	7.081	0.000	32.98	22.40	32.98	22.40	V-C	3143.	-2.300	13.00	
1.000	1.000	35.40	0.000	0.000	UG0_2_10_L_0						
15 D	7.660	0.000	35.25	23.30	35.25	23.30	V-C	3143.	-2.500	15.00	
1.000	1.000	38.30	0.000	0.000	UG0_2_10_L_0						
16 D	8.231	0.000	37.45	24.15	37.45	24.15	V-C	3143.	-2.700	17.00	
1.000	1.000	41.15	0.000	0.000	UG0_2_10_L_0						
17 D	8.796	0.000	39.59	24.98	39.59	24.98	V-C	3143.	-2.900	19.00	
1.000	1.000	43.98	0.000	0.000	UG0_2_10_L_0						
18 D	9.598	0.000	42.41	26.99	42.41	26.99	V-C	3143.	-3.100	21.00	
1.000	1.000	47.99	0.000	0.000	UG2_4_11_L_0						
19 D	10.19	-2.8259E-18	44.62	27.93	44.62	27.93	V-C	3143.	-3.300	23.00	
1.000	1.000	50.93	0.000	0.000	UG2_4_11_L_0						
20 D	10.77	0.000	46.81	28.87	46.81	28.87	V-C	3143.	-3.500	25.00	
1.000	1.000	53.87	0.000	0.000	UG2_4_11_L_0						
21 D	11.36	0.000	48.97	29.79	48.97	29.79	V-C	3143.	-3.700	27.00	
1.000	1.000	56.79	0.000	0.000	UG2_4_11_L_0						
22 D	11.94	0.000	51.10	30.70	51.10	30.70	V-C	3143.	-3.900	29.00	
1.000	1.000	59.70	0.000	0.000	UG2_4_11_L_0						
23 D	12.52	0.000	53.64	31.61	53.64	31.61	V-C	3143.	-4.100	31.00	
1.000	1.000	62.61	0.000	0.000	UG2_4_11_L_0						
24 D	13.10	0.000	55.72	32.52	55.72	32.52	V-C	3143.	-4.300	33.00	
1.000	1.000	65.52	0.000	0.000	UG2_4_11_L_0						
25 D	13.68	0.000	57.79	33.42	57.79	33.42	V-C	3143.	-4.500	35.00	
1.000	1.000	68.42	0.000	0.000	UG2_4_11_L_0						
26 D	14.26	0.000	59.84	34.32	59.84	34.32	V-C	3143.	-4.700	37.00	
1.000	1.000	71.32	0.000	0.000	UG2_4_11_L_0						
27 D	14.84	0.000	62.23	35.22	62.23	35.22	V-C	3143.	-4.900	39.00	
1.000	1.000	74.22	0.000	0.000	UG2_4_11_L_0						
28 D	15.42	0.000	64.25	36.12	64.25	36.12	V-C	3143.	-5.100	41.00	
1.000	1.000	77.12	0.000	0.000	UG2_4_11_L_0						
29 D	16.00	0.000	66.26	37.02	66.26	37.02	V-C	3143.	-5.300	43.00	
1.000	1.000	80.02	0.000	0.000	UG2_4_11_L_0						
30 D	16.58	0.000	68.26	37.92	68.26	37.92	V-C	3143.	-5.500	45.00	
1.000	1.000	82.92	0.000	0.000	UG2_4_11_L_0						
31 D	17.16	0.000	70.26	38.81	70.26	38.81	V-C	3143.	-5.700	47.00	
1.000	1.000	85.81	0.000	0.000	UG2_4_11_L_0						
32 D	17.75	0.000	72.64	39.77	72.64	39.77	V-C	3143.	-5.900	49.00	
1.000	1.000	88.77	0.000	0.000	UG3_4271_12_L_0						
33 D	18.34	0.000	74.72	40.72	74.72	40.72	V-C	3143.	-6.100	51.00	
1.000	1.000	91.72	0.000	0.000	UG3_4271_12_L_0						
34 D	18.93	0.000	76.79	41.67	76.79	41.67	V-C	3143.	-6.300	53.00	
1.000	1.000	94.67	0.000	0.000	UG3_4271_12_L_0						
35 D	19.52	0.000	78.86	42.62	78.86	42.62	V-C	3143.	-6.500	55.00	
1.000	1.000	97.62	0.000	0.000	UG3_4271_12_L_0						
36 D	20.12	0.000	80.92	43.58	80.92	43.58	V-C	3143.	-6.700	57.00	

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1.000       1.000       100.6       0.000       0.000     UG3_4271_12_L_0
  37 D   20.71       0.000       83.23       44.53       83.23       44.53             V-C   3143.      -6.900       59.00
1.000       1.000       103.5       0.000       0.000     UG3_4271_12_L_0
  38 D   21.29      5.6518E-18   85.23       45.46       85.23       45.46             V-C   3143.      -7.100       61.00
1.000       1.000       106.5       0.000       0.000     UG2_4_26346_L_0
  39 D   21.87       0.000       87.18       46.37       87.18       46.37             V-C   3143.      -7.300       63.00
1.000       1.000       109.4       0.000       0.000     UG2_4_26346_L_0
  40 D   22.45       0.000       89.13       47.27       89.13       47.27             V-C   3143.      -7.500       65.00
1.000       1.000       112.3       0.000       0.000     UG2_4_26346_L_0
  41 D   23.04       0.000       91.07       48.18       91.07       48.18             V-C   3143.      -7.700       67.00
1.000       1.000       115.2       0.000       0.000     UG2_4_26346_L_0
  42 D   23.62       0.000       93.23       49.09       93.23       49.09             V-C   3143.      -7.900       69.00
1.000       1.000       118.1       0.000       0.000     UG2_4_26346_L_0
  43 D   24.20       0.000       95.16       50.00       95.16       50.00             V-C   3143.      -8.100       71.00
1.000       1.000       121.0       0.000       0.000     UG2_4_26346_L_0
  44 D   24.78       0.000       97.10       50.91       97.10       50.91             V-C   3143.      -8.300       73.00
1.000       1.000       123.9       0.000       0.000     UG2_4_26346_L_0
  45 D   25.36       0.000       99.03       51.82       99.03       51.82             V-C   3143.      -8.500       75.00
1.000       1.000       126.8       0.000       0.000     UG2_4_26346_L_0
  46 D   25.95       0.000       101.0       52.74       101.0       52.74             V-C   3143.      -8.700       77.00
1.000       1.000       129.7       0.000       0.000     UG2_4_26346_L_0
  47 D   26.53       0.000       103.1       53.65       103.1       53.65             V-C   3143.      -8.900       79.00
1.000       1.000       132.7       0.000       0.000     UG2_4_26346_L_0
  48 D   27.11      5.6518E-18   105.0       54.57       105.0       54.57             V-C   3143.      -9.100       81.00
1.000       1.000       135.6       0.000       0.000     UG2_4_26346_L_0
  49 D   27.70       0.000       106.9       55.49       106.9       55.49             V-C   3143.      -9.300       83.00
1.000       1.000       138.5       0.000       0.000     UG2_4_26346_L_0
  50 D   28.28       0.000       108.9       56.41       108.9       56.41             V-C   3143.      -9.500       85.00
1.000       1.000       141.4       0.000       0.000     UG2_4_26346_L_0
  51 D   28.87     -5.6518E-18   110.9       57.33       110.9       57.33             V-C   3143.      -9.700       87.00
1.000       1.000       144.3       0.000       0.000     UG2_4_26346_L_0
  52 D   29.45       0.000       112.9       58.25       112.9       58.25             V-C   3143.      -9.900       89.00
1.000       1.000       147.3       0.000       0.000     UG2_4_26346_L_0
  53 D   30.04       0.000       114.8       59.18       114.8       59.18             V-C   3143.      -10.10       91.00
1.000       1.000       150.2       0.000       0.000     UG2_4_26346_L_0
  54 D   30.62       0.000       116.7       60.10       116.7       60.10             V-C   3143.      -10.30       93.00
1.000       1.000       153.1       0.000       0.000     UG2_4_26346_L_0
  55 D   31.21       0.000       118.6       61.03       118.6       61.03             V-C   3143.      -10.50       95.00
1.000       1.000       156.0       0.000       0.000     UG2_4_26346_L_0
  56 D   15.90       0.000       120.7       61.96       120.7       61.96             V-C   3143.      -10.70       97.00
1.000       1.000       159.0       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 : 2 April 2019     10:37:07                                                 |
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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   55
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=0.2253E+05 RIMNOR= 0.000
           RENORM= 3829.     REMNOR= 0.000     RATIO =0.4123     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 29.37     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.2253E+05 RDR   = 0.000
           RATIOT=0.4123     RATIOR= 0.000
           MAX UN= 0.000     IEQ=   112 NODE     56 DOF   2   X-ROT. F
           MIN UN=-13.31     IEQ=    49 NODE     25 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.2253E+05 RIMNOR= 0.000
           RENORM= 221.4     REMNOR=0.7963E-20 RATIO =0.9914E-01 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 29.37     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.2253E+05 RDR   = 0.000
           RATIOT=0.9914E-01 RATIOR= 0.000
           MAX UN=0.1219E-09 IEQ=    91 NODE     46 DOF   1  Y-DISPL.F
           MIN UN=-3.735     IEQ=    33 NODE     17 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0
```

```
ITER      3 RNORM = 0.000      RMNORM= 0.000
            RINORM=0.2253E+05 RIMNOR= 0.000
            RENORM= 789.1      REMNOR=0.2125E-18 RATIO =0.1872     TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 29.37      RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   =0.2253E+05 RDR   = 0.000
            RATIOT=0.1872      RATIOR= 0.000
            MAX UN=0.1619E-08 IEQ=      5 NODE       3 DOF   1  Y-DISPL.F
            MIN UN=-14.97      IEQ=     47 NODE      24 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS      0


ITER      4 RNORM = 0.000      RMNORM= 0.000
            RINORM=0.2253E+05 RIMNOR= 0.000
            RENORM= 65.77      REMNOR=0.3128E-18 RATIO =0.5403E-01 TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 29.37      RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   =0.2253E+05 RDR   = 0.000
            RATIOT=0.5403E-01 RATIOR= 0.000
            MAX UN= 2.266      IEQ=   109 NODE      55 DOF   1  Y-DISPL.F
            MIN UN=-4.887      IEQ=    75 NODE      38 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS      0


ITER      5 RNORM = 0.000      RMNORM= 0.000
            RINORM=0.2253E+05 RIMNOR= 0.000
            RENORM=0.2615E-02 REMNOR=0.1111E-18 RATIO =0.3407E-03 TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 29.37      RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   =0.2253E+05 RDR   = 0.000
            RATIOT=0.3407E-03 RATIOR= 0.000
            MAX UN=0.3443E-08 IEQ=      5 NODE       3 DOF   1  Y-DISPL.F
            MIN UN=-.5113E-01 IEQ=     83 NODE      42 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS      0


ITER      6 RNORM = 0.000      RMNORM= 0.000
            RINORM=0.2253E+05 RIMNOR= 0.000
            RENORM=0.1088E-05 REMNOR=0.1367E-18 RATIO =0.6949E-05 TOLER =0.1000E-03      CONVERGED !
            RFMAX = 29.37      RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   =0.2253E+05 RDR   = 0.000
            RATIOT=0.6949E-05 RATIOR= 0.000
            MAX UN=0.7414E-03 IEQ=   101 NODE      51 DOF   1  Y-DISPL.F
            MIN UN=-.3027E-08 IEQ=     3 NODE       2 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.NTC2018SLERaraFrequenteQuasiPermanente_1116                      |
|                                  Exe Time : 2 April 2019     10:37:07                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
New Project
SOLUTION REACHED USING     6 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  -6.7812851E-02   8.9378657E-03
    2  -6.6025278E-02   8.9378657E-03
    3  -6.4237705E-02   8.9378657E-03
    4  -6.2450133E-02   8.9378508E-03
    5  -6.0662569E-02   8.9377609E-03
    6  -5.8875041E-02   8.9374762E-03
    7  -5.7087604E-02   8.9368162E-03
    8  -5.5300356E-02   8.9355387E-03
    9  -5.3513452E-02   8.9333162E-03
   10  -5.1727123E-02   8.9296925E-03
   11  -4.9941709E-02   8.9240592E-03
   12  -4.8157684E-02   8.9156555E-03
   13  -4.6375692E-02   8.9035680E-03
   14  -4.4596574E-02   8.8867286E-03
   15  -4.2821399E-02   8.8639133E-03
   16  -4.1051499E-02   8.8337426E-03
   17  -3.9288494E-02   8.7946822E-03
   18  -3.7534331E-02   8.7450449E-03
   19  -3.5791281E-02   8.6833399E-03
   20  -3.4061883E-02   8.6083058E-03
   21  -3.2348929E-02   8.5185931E-03
```

22	-3.0655512E-02	8.4127664E-03
23	-2.8985006E-02	8.2893021E-03
24	-2.7341083E-02	8.1465874E-03
25	-2.5727768E-02	7.9829243E-03
26	-2.4149429E-02	7.7965262E-03
27	-2.2610594E-02	7.5885746E-03
28	-2.1115168E-02	7.3631917E-03
29	-1.9666222E-02	7.1243500E-03
30	-1.8266070E-02	6.8758789E-03
31	-1.6916267E-02	6.6214645E-03
32	-1.5617644E-02	6.3646579E-03
33	-1.4370465E-02	6.1070359E-03
34	-1.3174898E-02	5.8484809E-03
35	-1.2031113E-02	5.5893171E-03
36	-1.0939161E-02	5.3303062E-03
37	-9.8989031E-03	5.0726034E-03
38	-8.9099481E-03	4.8174761E-03
39	-7.9716124E-03	4.5669222E-03
40	-7.0826973E-03	4.3236683E-03
41	-6.2414840E-03	4.0903308E-03
42	-5.4457366E-03	3.8694190E-03
43	-4.6927273E-03	3.6633428E-03
44	-3.9792731E-03	3.4742144E-03
45	-3.3018075E-03	3.3036505E-03
46	-2.6564989E-03	3.1527977E-03
47	-2.0393278E-03	3.0223541E-03
48	-1.4461806E-03	2.9125593E-03
49	-8.7295109E-04	2.8231026E-03
50	-3.1564805E-04	2.7530622E-03
51	2.2946753E-04	2.7009277E-03
52	7.6578057E-04	2.6646561E-03
53	1.2962100E-03	2.6417839E-03
54	1.8231860E-03	2.6294892E-03
55	2.3484993E-03	2.6245983E-03
56	2.8733101E-03	2.6235850E-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 : 2 April 2019     10:37:07                                                  |
+-----------------------------------------------------------------------------------------------------------------------+
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   56
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 D	20.68	2.4149E-02	0.6901	102.1	51.70	102.1	V-C	3143.	-4.700	1.260	
1.000	1.000	103.4	0.000	0.000	UG2_4_11_L_0						
27 D	20.49	2.2611E-02	2.070	98.67	53.60	98.67	V-C	3143.	-4.900	3.780	
1.000	1.000	102.4	0.000	0.000	UG2_4_11_L_0						
28 D	20.28	2.1115E-02	3.451	95.11	55.50	95.11	V-C	3143.	-5.100	6.299	
1.000	1.000	101.4	0.000	0.000	UG2_4_11_L_0						
29 D	20.09	1.9666E-02	4.831	91.62	57.40	91.62	V-C	3143.	-5.300	8.819	
1.000	1.000	100.4	0.000	0.000	UG2_4_11_L_0						
30 D	19.91	1.8266E-02	6.211	88.23	59.30	88.23	V-C	3143.	-5.500	11.34	
1.000	1.000	99.57	0.000	0.000	UG2_4_11_L_0						
31 D	19.76	1.6916E-02	7.591	84.96	61.20	84.96	V-C	3143.	-5.700	13.86	
1.000	1.000	98.82	0.000	0.000	UG2_4_11_L_0						
32 D	12.07	1.5618E-02	9.071	43.95	63.20	43.95	PASSIVE	0.000	-5.900	16.38	
1.000	1.000	60.33	0.000	0.000	UG3_4271_12_L_0						
33 D	14.00	1.4370E-02	10.55	51.12	65.20	51.12	PASSIVE	0.000	-6.100	18.90	
1.000	1.000	70.02	0.000	0.000	UG3_4271_12_L_0						
34 D	15.94	1.3175E-02	12.03	58.29	67.20	58.29	PASSIVE	0.000	-6.300	21.42	
1.000	1.000	79.71	0.000	0.000	UG3_4271_12_L_0						
35 D	17.88	1.2031E-02	13.51	65.47	69.20	65.47	PASSIVE	0.000	-6.500	23.94	
1.000	1.000	89.40	0.000	0.000	UG3_4271_12_L_0						
36 D	19.52	1.0939E-02	14.99	71.14	71.20	71.14	V-C	3143.	-6.700	26.46	
1.000	1.000	97.60	0.000	0.000	UG3_4271_12_L_0						
37 D	19.56	9.8989E-03	16.47	68.83	73.20	68.83	V-C	3143.	-6.900	28.98	
1.000	1.000	97.81	0.000	0.000	UG3_4271_12_L_0						
38 D	19.63	8.9099E-03	17.90	66.66	75.15	66.66	V-C	3143.	-7.100	31.50	
1.000	1.000	98.15	0.000	0.000	UG2_4_26346_L_0						
39 D	19.72	7.9716E-03	19.28	64.61	77.05	64.61	V-C	3143.	-7.300	34.02	
1.000	1.000	98.62	0.000	0.000	UG2_4_26346_L_0						
40 D	19.85	7.0827E-03	20.66	62.71	78.95	62.71	V-C	3143.	-7.500	36.54	
1.000	1.000	99.24	0.000	0.000	UG2_4_26346_L_0						
41 D	20.00	6.2415E-03	22.04	60.96	80.85	60.96	V-C	3143.	-7.700	39.06	
1.000	1.000	100.0	0.000	0.000	UG2_4_26346_L_0						
42 D	20.19	5.4457E-03	23.42	59.35	82.75	59.35	V-C	3143.	-7.900	41.58	
1.000	1.000	100.9	0.000	0.000	UG2_4_26346_L_0						
43 D	20.39	4.6927E-03	24.80	57.87	84.65	57.87	V-C	3143.	-8.100	44.10	
1.000	1.000	102.0	0.000	0.000	UG2_4_26346_L_0						
44 D	20.63	3.9793E-03	26.18	56.52	86.55	56.52	V-C	3143.	-8.300	46.62	
1.000	1.000	103.1	0.000	0.000	UG2_4_26346_L_0						
45 D	20.88	3.3018E-03	27.56	55.28	88.45	55.28	V-C	3143.	-8.500	49.14	
1.000	1.000	104.4	0.000	0.000	UG2_4_26346_L_0						
46 D	21.16	2.6565E-03	28.94	54.14	90.35	54.14	V-C	3143.	-8.700	51.66	
1.000	1.000	105.8	0.000	0.000	UG2_4_26346_L_0						
47 D	21.23	2.0393E-03	30.32	51.98	92.25	53.65	UL-RL	9429.	-8.900	54.18	
1.000	1.000	106.2	0.000	0.000	UG2_4_26346_L_0						
48 D	20.78	1.4462E-03	31.70	47.22	94.15	54.57	UL-RL	9429.	-9.100	56.70	
1.000	1.000	103.9	0.000	0.000	UG2_4_26346_L_0						
49 D	20.37	8.7295E-04	33.09	42.65	96.05	55.49	UL-RL	9429.	-9.300	59.21	
1.000	1.000	101.9	0.000	0.000	UG2_4_26346_L_0						
50 D	19.99	3.1565E-04	34.47	38.22	97.95	56.41	UL-RL	9429.	-9.500	61.73	
1.000	1.000	99.96	0.000	0.000	UG2_4_26346_L_0						
51 D	19.63	-2.2947E-04	35.85	33.91	99.85	57.33	UL-RL	9429.	-9.700	64.25	
1.000	1.000	98.17	0.000	0.000	UG2_4_26346_L_0						
52 D	19.29	-7.6578E-04	37.23	29.68	101.7	58.25	UL-RL	9429.	-9.900	66.77	
1.000	1.000	96.46	0.000	0.000	UG2_4_26346_L_0						
53 D	18.96	-1.2962E-03	38.61	25.51	103.6	59.18	UL-RL	9429.	-10.10	69.29	
1.000	1.000	94.80	0.000	0.000	UG2_4_26346_L_0						
54 D	18.64	-1.8232E-03	39.99	21.36	105.5	60.10	UL-RL	9429.	-10.30	71.81	
1.000	1.000	93.18	0.000	0.000	UG2_4_26346_L_0						
55 D	18.31	-2.3485E-03	41.37	17.23	107.4	61.03	UL-RL	9429.	-10.50	74.33	
1.000	1.000	91.57	0.000	0.000	UG2_4_26346_L_0						
56 D	8.996	-2.8733E-03	42.75	13.11	109.3	61.96	UL-RL	9429.	-10.70	76.85	
1.000	1.000	89.96	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 : 2 April 2019     10:37:07                                      |
+-----------------------------------------------------------------------------------------------------------+
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    56
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  0.1014     -6.4238E-02  1.850       0.5069      1.850       0.9250         ACTIVE   0.000      -0.1000      0.000
1.000       1.000      0.5069       0.000       0.000     UG0_2_10_L_0
   4 D  0.3041     -6.2450E-02  5.550       1.521       5.550       2.775          ACTIVE   0.000      -0.3000      0.000
1.000       1.000      1.521        0.000       0.000     UG0_2_10_L_0
   5 D  0.5075     -6.0663E-02  9.261       2.537       9.261       6.218          ACTIVE   0.000      -0.5000      0.000
1.000       1.000      2.537        0.000       0.000     UG0_2_10_L_0
   6 D  0.7141     -5.8875E-02  13.03       3.571       13.03       9.538          ACTIVE   0.000      -0.7000      0.000
1.000       1.000      3.571        0.000       0.000     UG0_2_10_L_0
   7 D  0.9260     -5.7088E-02  16.90       4.630       16.90       12.65          ACTIVE   0.000      -0.9000      0.000
1.000       1.000      4.630        0.000       0.000     UG0_2_10_L_0
   8 D   1.289     -5.5300E-02  19.87       5.443       19.87       15.01          ACTIVE   0.000      -1.100      0.9997
1.000       1.000      6.443        0.000       0.000     UG0_2_10_L_0
   9 D   1.801     -5.3513E-02  21.92       6.006       21.92       16.64          ACTIVE   0.000      -1.300      2.999
1.000       1.000      9.005        0.000       0.000     UG0_2_10_L_0
  10 D   2.316     -5.1727E-02  24.02       6.583       24.02       18.06          ACTIVE   0.000      -1.500      4.999
1.000       1.000      11.58        0.000       0.000     UG0_2_10_L_0
  11 D   2.833     -4.9942E-02  26.16       7.167       26.16       19.31          ACTIVE   0.000      -1.700      6.998
1.000       1.000      14.17        0.000       0.000     UG0_2_10_L_0
  12 D   3.350     -4.8158E-02  28.29       7.753       28.29       20.43          ACTIVE   0.000      -1.900      8.998
1.000       1.000      16.75        0.000       0.000     UG0_2_10_L_0
  13 D   3.878     -4.6376E-02  30.63       8.393       30.63       21.45          ACTIVE   0.000      -2.100      11.00
1.000       1.000      19.39        0.000       0.000     UG0_2_10_L_0
  14 D   4.407     -4.4597E-02  32.99       9.039       32.99       22.41          ACTIVE   0.000      -2.300      13.00
1.000       1.000      22.04        0.000       0.000     UG0_2_10_L_0
  15 D   4.931     -4.2821E-02  35.26       9.661       35.26       23.30          ACTIVE   0.000      -2.500      15.00
1.000       1.000      24.66        0.000       0.000     UG0_2_10_L_0
  16 D   5.452     -4.1051E-02  37.46       10.26       37.46       24.16          ACTIVE   0.000      -2.700      17.00
1.000       1.000      27.26        0.000       0.000     UG0_2_10_L_0
  17 D   5.969     -3.9288E-02  39.60       10.85       39.60       24.98          ACTIVE   0.000      -2.900      19.00
1.000       1.000      29.84        0.000       0.000     UG0_2_10_L_0
  18 D   4.121     -3.7534E-02  42.80       0.000       42.80       27.20          ACTIVE   0.000      -3.100      20.61
1.000       1.000      20.61        0.000       0.000     UG2_4_11_L_0
  19 D   4.417     -3.5791E-02  45.54       0.000       45.54       28.42          ACTIVE   0.000      -3.300      22.09
1.000       1.000      22.09        0.000       0.000     UG2_4_11_L_0
  20 D   4.713     -3.4062E-02  48.24       0.000       48.24       29.63          ACTIVE   0.000      -3.500      23.57
1.000       1.000      23.57        0.000       0.000     UG2_4_11_L_0
  21 D   5.009     -3.2349E-02  50.92       0.000       50.92       30.83          ACTIVE   0.000      -3.700      25.05
1.000       1.000      25.05        0.000       0.000     UG2_4_11_L_0
  22 D   5.305     -3.0656E-02  53.58       0.000       53.58       32.02          ACTIVE   0.000      -3.900      26.53
1.000       1.000      26.53        0.000       0.000     UG2_4_11_L_0
  23 D   5.601     -2.8985E-02  56.64       0.000       56.64       33.20          ACTIVE   0.000      -4.100      28.01
1.000       1.000      28.01        0.000       0.000     UG2_4_11_L_0
  24 D   5.897     -2.7341E-02  59.24       0.000       59.24       34.39          ACTIVE   0.000      -4.300      29.49
1.000       1.000      29.49        0.000       0.000     UG2_4_11_L_0
  25 D   6.193     -2.5728E-02  61.82       0.000       61.82       35.56          ACTIVE   0.000      -4.500      30.97
1.000       1.000      30.97        0.000       0.000     UG2_4_11_L_0
  26 D   6.489     -2.4149E-02  64.39       0.000       64.39       36.74          ACTIVE   0.000      -4.700      32.45
1.000       1.000      32.45        0.000       0.000     UG2_4_11_L_0
  27 D   6.785     -2.2611E-02  67.30       0.000       67.30       37.92          ACTIVE   0.000      -4.900      33.93
1.000       1.000      33.93        0.000       0.000     UG2_4_11_L_0
  28 D   7.081     -2.1115E-02  69.84       0.000       69.84       39.09          ACTIVE   0.000      -5.100      35.41
1.000       1.000      35.41        0.000       0.000     UG2_4_11_L_0
  29 D   7.377     -1.9666E-02  72.37       0.000       72.37       40.26          ACTIVE   0.000      -5.300      36.89
1.000       1.000      36.89        0.000       0.000     UG2_4_11_L_0
  30 D   7.674     -1.8266E-02  74.89       0.000       74.89       41.44          ACTIVE   0.000      -5.500      38.37
1.000       1.000      38.37        0.000       0.000     UG2_4_11_L_0
  31 D   7.970     -1.6916E-02  77.41       0.000       77.41       42.61          ACTIVE   0.000      -5.700      39.85
1.000       1.000      39.85        0.000       0.000     UG2_4_11_L_0
  32 D   13.20     -1.5618E-02  80.31       24.66       80.31       43.84          ACTIVE   0.000      -5.900      41.33
1.000       1.000      65.98        0.000       0.000     UG3_4271_12_L_0
  33 D   13.65     -1.4370E-02  82.91       25.45       82.91       45.07          ACTIVE   0.000      -6.100      42.81
```

```
1.000       1.000       68.26       0.000       0.000     UG3_4271_12_L_0
  34 D   14.11     -1.3175E-02   85.50       26.25       85.50       46.29          ACTIVE   0.000      -6.300       44.29
1.000       1.000       70.54       0.000       0.000     UG3_4271_12_L_0
  35 D   14.56     -1.2031E-02   88.09       27.04       88.09       47.52          ACTIVE   0.000      -6.500       45.77
1.000       1.000       72.81       0.000       0.000     UG3_4271_12_L_0
  36 D   15.02     -1.0939E-02   90.67       27.84       90.67       48.75          ACTIVE   0.000      -6.700       47.25
1.000       1.000       75.09       0.000       0.000     UG3_4271_12_L_0
  37 D   15.49     -9.8989E-03   93.50       28.70       93.50       49.99          ACTIVE   0.000      -6.900       48.73
1.000       1.000       77.43       0.000       0.000     UG3_4271_12_L_0
  38 D   10.19     -8.9099E-03   96.02      0.7538       96.02       51.19          ACTIVE   0.000      -7.100       50.21
1.000       1.000       50.96       0.000       0.000     UG2_4_26346_L_0
  39 D   10.69     -7.9716E-03   98.49       1.756       98.49       52.37          ACTIVE   0.000      -7.300       51.69
1.000       1.000       53.45       0.000       0.000     UG2_4_26346_L_0
  40 D   11.19     -7.0827E-03   101.0       2.757       101.0       53.55          ACTIVE   0.000      -7.500       53.17
1.000       1.000       55.93       0.000       0.000     UG2_4_26346_L_0
  41 D   11.68     -6.2415E-03   103.4       3.758       103.4       54.74          ACTIVE   0.000      -7.700       54.65
1.000       1.000       58.41       0.000       0.000     UG2_4_26346_L_0
  42 D   12.20     -5.4457E-03   106.1       4.845       106.1       55.92          ACTIVE   0.000      -7.900       56.13
1.000       1.000       60.98       0.000       0.000     UG2_4_26346_L_0
  43 D   14.09     -4.6927E-03   108.6       12.86       108.6       57.11           UL-RL   9429.      -8.100       57.61
1.000       1.000       70.47       0.000       0.000     UG2_4_26346_L_0
  44 D   15.97     -3.9793E-03   111.0       20.77       111.0       58.29           UL-RL   9429.      -8.300       59.09
1.000       1.000       79.86       0.000       0.000     UG2_4_26346_L_0
  45 D   17.78     -3.3018E-03   113.5       28.35       113.5       59.48           UL-RL   9429.      -8.500       60.57
1.000       1.000       88.92       0.000       0.000     UG2_4_26346_L_0
  46 D   19.54     -2.6565E-03   115.9       35.62       115.9       60.67           UL-RL   9429.      -8.700       62.05
1.000       1.000       97.68       0.000       0.000     UG2_4_26346_L_0
  47 D   21.23     -2.0393E-03   118.5       42.64       118.5       61.87           UL-RL   9429.      -8.900       63.53
1.000       1.000       106.2       0.000       0.000     UG2_4_26346_L_0
  48 D   22.89     -1.4462E-03   121.0       49.42       121.0       63.06           UL-RL   9429.      -9.100       65.01
1.000       1.000       114.4       0.000       0.000     UG2_4_26346_L_0
  49 D   24.50     -8.7295E-04   123.4       56.02       123.4       64.25           UL-RL   9429.      -9.300       66.49
1.000       1.000       122.5       0.000       0.000     UG2_4_26346_L_0
  50 D   26.09     -3.1565E-04   125.9       62.47       125.9       65.45           UL-RL   9429.      -9.500       67.97
1.000       1.000       130.4       0.000       0.000     UG2_4_26346_L_0
  51 D   27.36      2.2947E-04   128.5       67.36       128.5       67.37           UL-RL   9429.      -9.700       69.45
1.000       1.000       136.8       0.000       0.000     UG2_4_26346_L_0
  52 D   28.24      7.6578E-04   130.9       70.25       130.9       70.25           UL-RL   9429.      -9.900       70.93
1.000       1.000       141.2       0.000       0.000     UG2_4_26346_L_0
  53 D   29.11      1.2962E-03   133.4       73.12       133.4       73.12           UL-RL   9429.      -10.10       72.41
1.000       1.000       145.5       0.000       0.000     UG2_4_26346_L_0
  54 D   29.97      1.8232E-03   135.8       75.98       135.8       75.98           UL-RL   9429.      -10.30       73.89
1.000       1.000       149.9       0.000       0.000     UG2_4_26346_L_0
  55 D   30.84      2.3485E-03   138.2       78.83       138.2       78.83           UL-RL   9429.      -10.50       75.37
1.000       1.000       154.2       0.000       0.000     UG2_4_26346_L_0
  56 D   15.85      2.8733E-03   140.8       81.69       140.8       81.69            V-C    3143.      -10.70       76.85
1.000       1.000       158.5       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 : 2 April 2019     10:37:07                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
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   55
C U R R E N T   T I M E   I S     2.0000

 WALL2D ELEMENT

   EL      TA          TB          MA          MB
-------------------------------------------------------
    1-1.87994E-09 1.87994E-09-1.87652E-10-3.41453E-10
    2 1.14705E-09-1.14705E-09 2.67728E-10-7.75822E-10
    3-0.10138     0.10138     8.53860E-10-2.02760E-02
    4-0.40552     0.40552     2.02760E-02-0.10138
    5-0.91302     0.91302     0.10138    -0.28398
    6 -1.6271      1.6271     0.28398    -0.60941
    7 -2.5532      2.5532     0.60941     -1.1200
    8 -3.8418      3.8418      1.1200     -1.8884
    9 -5.6428      5.6428      1.8884     -3.0170
   10 -7.9591      7.9591      3.0170     -4.6088
   11 -10.792      10.792      4.6088     -6.7672
   12 -14.142      14.142      6.7672     -9.5956
   13 -18.020      18.020      9.5956     -13.200
   14 -22.427      22.427      13.200     -17.685
   15 -27.359      27.359      17.685     -23.157
   16 -32.810      32.810      23.157     -29.719
   17 -38.779      38.779      29.719     -37.475
   18 -42.900      42.900      37.475     -46.055
   19 -47.317      47.317      46.055     -55.518
```

```
   20 -52.030      52.030      55.518     -65.924
   21 -57.040      57.040      65.924     -77.332
   22 -62.345      62.345      77.332     -89.801
   23 -67.946      67.946      89.801     -103.39
   24 -73.843      73.843      103.39     -118.16
   25 -80.037      80.037      118.16     -134.17
   26 -65.848      65.848      134.17     -147.34
   27 -52.144      52.144      147.34     -157.76
   28 -38.943      38.943      157.76     -165.55
   29 -26.233      26.233      165.55     -170.80
   30 -13.993      13.993      170.80     -173.60
   31 -2.1984      2.1984      173.60     -174.04
   32 -3.3293      3.3293      174.04     -174.70
   33 -2.9774      2.9774      174.70     -175.30
   34 -1.1423      1.1423      175.30     -175.53
   35  2.1761     -2.1761      175.53     -175.09
   36  6.6784     -6.6784      175.09     -173.76
   37  10.754     -10.754      173.76     -171.61
   38  20.192     -20.192      171.61     -167.57
   39  29.227     -29.227      167.57     -161.72
   40  37.891     -37.891      161.72     -154.14
   41  46.212     -46.212      154.14     -144.90
   42  54.202     -54.202      144.90     -134.06
   43  60.502     -60.502      134.06     -121.96
   44  65.157     -65.157      121.96     -108.93
   45  68.257     -68.257      108.93     -95.278
   46  69.881     -69.881      95.278     -81.302
   47  69.879     -69.879      81.302     -67.326
   48  67.776     -67.776      67.326     -53.771
   49  63.646     -63.646      53.771     -41.042
   50  57.549     -57.549      41.042     -29.532
   51  49.818     -49.818      29.532     -19.568
   52  40.872     -40.872      19.568     -11.394
   53  30.726     -30.726      11.394     -5.2490
   54  19.387     -19.387      5.2490     -1.3717
   55  6.8582     -6.8582      1.3717     3.53939E-13


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                        |
|                                  Exe Time : 2 April 2019     10:37:07                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


     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                      6


  END OF PROCESS FOR PROBLEM
 New Project
 NONLINEAR SOLUTION CPU TIME ....     0.03 [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 : 2 April 2019     10:37:07                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


                  ***********************************************************
                  *                                                         *
                  *  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 : 2 April 2019     10:37:07                                                  |
+-------------------------------------------------------------------------------------------------------------------------+


INPUT FILE HAS BEEN GENERATED BY WALGEN PROGRAM


New Project


NO. OF NODAL POINTS (NUMNP) ...................    56
NO. OF COORDINATES  (NCOORD)...................     2
NO. OF NODE DOFS    (NDOF).....................     2
NO. OF EQUATIONS    (NEQ)......................   112
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 .....................    99
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 : 2 April 2019     10:37:07                                                  |
```

```
                    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     99

   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 -10.7 0.3 -1
   7 : SOIL 0_L LeftWall_32 -10.7 0.3 2 0
   8 : SOIL 0_R LeftWall_32 -10.7 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 -2.95 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 -5.7 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 -7 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 -10.7 0.3 S275_115 0.19777 00 00 0
  39 : STRIP LeftWall_32 1 2 1.45 16.55 -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=0.274 LeftWall_32
  44 : CHANGE UG0_2_10_L_0 U-KP=5.848 LeftWall_32
  45 : CHANGE UG0_2_10_L_0 D-KA=0.271 LeftWall_32
  46 : CHANGE UG0_2_10_L_0 D-KP=5.705 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=0.405 LeftWall_32
  50 : CHANGE UG2_4_11_L_0 U-KP=3.216 LeftWall_32
  51 : CHANGE UG2_4_11_L_0 D-KA=0.404 LeftWall_32
  52 : CHANGE UG2_4_11_L_0 D-KP=2.834 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=0.307 LeftWall_32
  56 : CHANGE UG3_4271_12_L_0 U-KP=4.787 LeftWall_32
  57 : CHANGE UG3_4271_12_L_0 D-KA=0.306 LeftWall_32
  58 : CHANGE UG3_4271_12_L_0 D-KP=3.554 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=0.406 LeftWall_32
  62 : CHANGE UG2_4_26346_L_0 U-KP=3.155 LeftWall_32
  63 : CHANGE UG2_4_26346_L_0 D-KA=0.396 LeftWall_32
  64 : CHANGE UG2_4_26346_L_0 D-KP=2.687 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 -1 0 -10.7 0 0
   85 : ENDSTEP
   86 : STEP Stage2_28513
   87 : CHANGE UG0_2_10_L_0 D-KP=5.879 LeftWall_32
   88 : CHANGE UG2_4_11_L_0 D-KA=0.406 LeftWall_32
   89 : CHANGE UG2_4_11_L_0 D-KP=3.222 LeftWall_32
   90 : CHANGE UG3_4271_12_L_0 D-KA=0.307 LeftWall_32
   91 : CHANGE UG3_4271_12_L_0 D-KP=4.845 LeftWall_32
   92 : CHANGE UG2_4_26346_L_0 D-KA=0.406 LeftWall_32
   93 : CHANGE UG2_4_26346_L_0 D-KP=3.222 LeftWall_32
   94 : SETWALL LeftWall_32
   95 : GEOM 0 -4.6
   96 : SURCHARGE 0 0 0 0
   97 : WATER -1 3.6 -10.7 0 0
   98 : ADD WallElement_New_28707
   99 : ENDSTEP


+---------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*            |
|                                                                                                                     |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                         |
|                                    Exe Time : 2 April 2019     10:37:07                                             |
+---------------------------------------------------------------------------------------------------------------------+
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     /   47  0.0000     -8.9000     /   48  0.0000     -9.1000     /
  49  0.0000     -9.3000     /   50  0.0000     -9.5000     /   51  0.0000     -9.7000     /   52  0.0000     -9.9000     /
  53  0.0000     -10.100     /   54  0.0000     -10.300     /   55  0.0000     -10.500     /   56  0.0000     -10.700     /


+---------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*            |
|                                                                                                                     |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                         |
|                                    Exe Time : 2 April 2019     10:37:07                                             |
+---------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  1

0_L                                                    :
   5  56   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    2   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    2   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    3   0.2000     0.000     0.000     0.000     2.000
   35   35    3   0.2000     0.000     0.000     0.000     2.000
   36   36    3   0.2000     0.000     0.000     0.000     2.000
   37   37    3   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   0.2000     0.000     0.000     0.000     2.000
   47   47    4   0.2000     0.000     0.000     0.000     2.000
   48   48    4   0.2000     0.000     0.000     0.000     2.000
   49   49    4   0.2000     0.000     0.000     0.000     2.000
   50   50    4   0.2000     0.000     0.000     0.000     2.000
   51   51    4   0.2000     0.000     0.000     0.000     2.000
   52   52    4   0.2000     0.000     0.000     0.000     2.000
   53   53    4   0.2000     0.000     0.000     0.000     2.000
   54   54    4   0.2000     0.000     0.000     0.000     2.000
   55   55    4   0.2000     0.000     0.000     0.000     2.000
   56   56    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 : 2 April 2019     10:37:07                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  2

0_R                                                    :
    5  56   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              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	2	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	2	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	3	0.2000	0.000	0.000	0.000	1.000
35	35	3	0.2000	0.000	0.000	0.000	1.000
36	36	3	0.2000	0.000	0.000	0.000	1.000
37	37	3	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	0.2000	0.000	0.000	0.000	1.000
47	47	4	0.2000	0.000	0.000	0.000	1.000
48	48	4	0.2000	0.000	0.000	0.000	1.000
49	49	4	0.2000	0.000	0.000	0.000	1.000
50	50	4	0.2000	0.000	0.000	0.000	1.000
51	51	4	0.2000	0.000	0.000	0.000	1.000
52	52	4	0.2000	0.000	0.000	0.000	1.000
53	53	4	0.2000	0.000	0.000	0.000	1.000
54	54	4	0.2000	0.000	0.000	0.000	1.000
55	55	4	0.2000	0.000	0.000	0.000	1.000
56	56	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 : 2 April 2019     10:37:07                                                       |
+-------------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  3

WallElement_New_28707                                          :
   2  55   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
   46   46   47    1     0.000     0.000    0.1978     0.000     0.000
   47   47   48    1     0.000     0.000    0.1978     0.000     0.000
```

```
   48   48   49    1    0.000     0.000    0.1978     0.000     0.000
   49   49   50    1    0.000     0.000    0.1978     0.000     0.000
   50   50   51    1    0.000     0.000    0.1978     0.000     0.000
   51   51   52    1    0.000     0.000    0.1978     0.000     0.000
   52   52   53    1    0.000     0.000    0.1978     0.000     0.000
   53   53   54    1    0.000     0.000    0.1978     0.000     0.000
   54   54   55    1    0.000     0.000    0.1978     0.000     0.000
   55   55   56    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 : 2 April 2019     10:37:07                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


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 : 2 April 2019     10:37:07                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
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
```

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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 : 2 April 2019     10:37:07                                                 |
+-------------------------------------------------------------------------------------------------------------------------+
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 : 2 April 2019     10:37:07                                                 |
+-------------------------------------------------------------------------------------------------------------------------+


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 : 2 April 2019     10:37:07                                                 |
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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;=  35.000      (BOTH WALLS)
ITEM NO.  10&lt;U-KA     &gt;= 0.27400      WALL NO.        1
ITEM NO.  11&lt;U-KP     &gt;=  5.8480      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;=  5.7050      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;= -2.9500      (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;= 0.40500      WALL NO.        1
ITEM NO.  11&lt;U-KP     &gt;=  3.2160      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.  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;= 0.40400     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  2.8340     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;= -5.7000     (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;= 0.30700     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  4.7870     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;= 0.30600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.5540     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;= -7.0000     (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;= 0.40600     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.1550     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;= 0.39600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  2.6870     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;= 0.27400     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  5.8480     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)
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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;= -2.9500     (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;= 0.40500     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.2160     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;= -5.7000     (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;= 0.30700     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  4.7870     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;= -7.0000     (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;= 0.40600     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.1550     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
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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 : 2 April 2019     10:37:07                                                 |
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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                         -1.000       -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      -10.70        -10.70
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                          -4.600         0.000
Z-WATER_TABLE                         -1.000       -0.9990E+30
Q_AT_THE_FREE_FIELD_LEVEL              0.000         0.000
ZQ                                     0.000         0.000
DZW_OF_THE_WATER_TABLE                 3.600         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      -10.70        -10.70
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         -10.70000
 UPPER  LEVEL           0.30000

 RIGHT-HAND WALL

 LOWER  LEVEL         -10.70000
 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 : 2 April 2019     10:37:07                                              |
+-------------------------------------------------------------------------------------------------------------------+
 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)            16.5500000000000
 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        2783

 NO. OF D.P.W  FOR THIS AREA       6611
 MAX NO. OF D.P.W. AVAILABLE      81920
 ** MAX NO OF ITERATIONS SET TO          40

ITER     0 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.3608E+05 RIMNOR= 0.000
           RENORM=0.4181E-28 REMNOR= 0.000     RATIO =0.3404E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 31.21     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.3608E+05 RDR   = 0.000
           RATIOT=0.3404E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    95 NODE     48 DOF   1  Y-DISPL.F
           MIN UN=-.3553E-14 IEQ=   101 NODE     51 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     1 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.3608E+05 RIMNOR= 0.000
           RENORM=0.4181E-28 REMNOR= 0.000     RATIO =0.3404E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 31.21     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.3608E+05 RDR   = 0.000
           RATIOT=0.3404E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    95 NODE     48 DOF   1  Y-DISPL.F
           MIN UN=-.3553E-14 IEQ=   101 NODE     51 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.3608E+05 RIMNOR= 0.000
           RENORM=0.4181E-28 REMNOR= 0.000     RATIO =0.3404E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 31.21     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.3608E+05 RDR   = 0.000
```

```
RATIOT=0.3404E-16 RATIOR= 0.000
MAX UN=0.3553E-14 IEQ=    95 NODE     48 DOF    1  Y-DISPL.F
MIN UN=-.3553E-14 IEQ=   101 NODE     51 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 : 2 April 2019      10:37:07                                   |
+------------------------------------------------------------------------------------------------------+
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 : 2 April 2019      10:37:07                                   |
+------------------------------------------------------------------------------------------------------+
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   56
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  1.244      0.000      9.250      6.218      9.250       6.218             V-C    3143.    -0.5000      0.000
1.000      1.000      6.218      0.000      0.000     UG0_2_10_L_0
  6 D  1.908      0.000      12.95      9.538      12.95       9.538             V-C    3143.    -0.7000      0.000
1.000      1.000      9.538      0.000      0.000     UG0_2_10_L_0
  7 D  2.530      0.000      16.65      12.65      16.65       12.65             V-C    3143.    -0.9000      0.000
1.000      1.000      12.65      0.000      0.000     UG0_2_10_L_0
  8 D  3.202      0.000      19.35      15.01      19.35       15.01             V-C    3143.     -1.100      1.000
1.000      1.000      16.01      0.000      0.000     UG0_2_10_L_0
  9 D  3.928      0.000      21.05      16.64      21.05       16.64             V-C    3143.     -1.300      3.000
1.000      1.000      19.64      0.000      0.000     UG0_2_10_L_0
 10 D  4.611      0.000      22.75      18.06      22.75       18.06             V-C    3143.     -1.500      5.000
1.000      1.000      23.06      0.000      0.000     UG0_2_10_L_0
 11 D  5.262    -1.4129E-18  24.45      19.31      24.45       19.31             V-C    3143.     -1.700      7.000
1.000      1.000      26.31      0.000      0.000     UG0_2_10_L_0
 12 D  5.886      0.000      26.15      20.43      26.15       20.43             V-C    3143.     -1.900      9.000
1.000      1.000      29.43      0.000      0.000     UG0_2_10_L_0
 13 D  6.491      0.000      27.85      21.45      27.85       21.45             V-C    3143.     -2.100      11.00
1.000      1.000      32.45      0.000      0.000     UG0_2_10_L_0
 14 D  7.081      0.000      29.55      22.40      29.55       22.40             V-C    3143.     -2.300      13.00
1.000      1.000      35.40      0.000      0.000     UG0_2_10_L_0
 15 D  7.660      0.000      31.25      23.30      31.25       23.30             V-C    3143.     -2.500      15.00
1.000      1.000      38.30      0.000      0.000     UG0_2_10_L_0
 16 D  8.231      0.000      32.95      24.15      32.95       24.15             V-C    3143.     -2.700      17.00
1.000      1.000      41.15      0.000      0.000     UG0_2_10_L_0
 17 D  8.796      0.000      34.65      24.98      34.65       24.98             V-C    3143.     -2.900      19.00
1.000      1.000      43.98      0.000      0.000     UG0_2_10_L_0
```

18 D	9.598	0.000	36.50	26.99	36.50	26.99	V-C	3143.	-3.100	21.00
1.000	1.000	47.99	0.000	0.000	UG2_4_11_L_0					
19 D	10.19	2.8259E-18	38.40	27.93	38.40	27.93	V-C	3143.	-3.300	23.00
1.000	1.000	50.93	0.000	0.000	UG2_4_11_L_0					
20 D	10.77	0.000	40.30	28.87	40.30	28.87	V-C	3143.	-3.500	25.00
1.000	1.000	53.87	0.000	0.000	UG2_4_11_L_0					
21 D	11.36	0.000	42.20	29.79	42.20	29.79	V-C	3143.	-3.700	27.00
1.000	1.000	56.79	0.000	0.000	UG2_4_11_L_0					
22 D	11.94	0.000	44.10	30.70	44.10	30.70	V-C	3143.	-3.900	29.00
1.000	1.000	59.70	0.000	0.000	UG2_4_11_L_0					
23 D	12.52	0.000	46.00	31.61	46.00	31.61	V-C	3143.	-4.100	31.00
1.000	1.000	62.61	0.000	0.000	UG2_4_11_L_0					
24 D	13.10	0.000	47.90	32.52	47.90	32.52	V-C	3143.	-4.300	33.00
1.000	1.000	65.52	0.000	0.000	UG2_4_11_L_0					
25 D	13.68	0.000	49.80	33.42	49.80	33.42	V-C	3143.	-4.500	35.00
1.000	1.000	68.42	0.000	0.000	UG2_4_11_L_0					
26 D	14.26	0.000	51.70	34.32	51.70	34.32	V-C	3143.	-4.700	37.00
1.000	1.000	71.32	0.000	0.000	UG2_4_11_L_0					
27 D	14.84	0.000	53.60	35.22	53.60	35.22	V-C	3143.	-4.900	39.00
1.000	1.000	74.22	0.000	0.000	UG2_4_11_L_0					
28 D	15.42	0.000	55.50	36.12	55.50	36.12	V-C	3143.	-5.100	41.00
1.000	1.000	77.12	0.000	0.000	UG2_4_11_L_0					
29 D	16.00	0.000	57.40	37.02	57.40	37.02	V-C	3143.	-5.300	43.00
1.000	1.000	80.02	0.000	0.000	UG2_4_11_L_0					
30 D	16.58	0.000	59.30	37.92	59.30	37.92	V-C	3143.	-5.500	45.00
1.000	1.000	82.92	0.000	0.000	UG2_4_11_L_0					
31 D	17.16	0.000	61.20	38.81	61.20	38.81	V-C	3143.	-5.700	47.00
1.000	1.000	85.81	0.000	0.000	UG2_4_11_L_0					
32 D	17.75	0.000	63.20	39.77	63.20	39.77	V-C	3143.	-5.900	49.00
1.000	1.000	88.77	0.000	0.000	UG3_4271_12_L_0					
33 D	18.34	0.000	65.20	40.72	65.20	40.72	V-C	3143.	-6.100	51.00
1.000	1.000	91.72	0.000	0.000	UG3_4271_12_L_0					
34 D	18.93	0.000	67.20	41.67	67.20	41.67	V-C	3143.	-6.300	53.00
1.000	1.000	94.67	0.000	0.000	UG3_4271_12_L_0					
35 D	19.52	0.000	69.20	42.62	69.20	42.62	V-C	3143.	-6.500	55.00
1.000	1.000	97.62	0.000	0.000	UG3_4271_12_L_0					
36 D	20.12	0.000	71.20	43.58	71.20	43.58	V-C	3143.	-6.700	57.00
1.000	1.000	100.6	0.000	0.000	UG3_4271_12_L_0					
37 D	20.71	0.000	73.20	44.53	73.20	44.53	V-C	3143.	-6.900	59.00
1.000	1.000	103.5	0.000	0.000	UG3_4271_12_L_0					
38 D	21.29	-5.6518E-18	75.15	45.46	75.15	45.46	V-C	3143.	-7.100	61.00
1.000	1.000	106.5	0.000	0.000	UG2_4_26346_L_0					
39 D	21.87	0.000	77.05	46.37	77.05	46.37	V-C	3143.	-7.300	63.00
1.000	1.000	109.4	0.000	0.000	UG2_4_26346_L_0					
40 D	22.45	0.000	78.95	47.27	78.95	47.27	V-C	3143.	-7.500	65.00
1.000	1.000	112.3	0.000	0.000	UG2_4_26346_L_0					
41 D	23.04	0.000	80.85	48.18	80.85	48.18	V-C	3143.	-7.700	67.00
1.000	1.000	115.2	0.000	0.000	UG2_4_26346_L_0					
42 D	23.62	0.000	82.75	49.09	82.75	49.09	V-C	3143.	-7.900	69.00
1.000	1.000	118.1	0.000	0.000	UG2_4_26346_L_0					
43 D	24.20	0.000	84.65	50.00	84.65	50.00	V-C	3143.	-8.100	71.00
1.000	1.000	121.0	0.000	0.000	UG2_4_26346_L_0					
44 D	24.78	0.000	86.55	50.91	86.55	50.91	V-C	3143.	-8.300	73.00
1.000	1.000	123.9	0.000	0.000	UG2_4_26346_L_0					
45 D	25.36	0.000	88.45	51.82	88.45	51.82	V-C	3143.	-8.500	75.00
1.000	1.000	126.8	0.000	0.000	UG2_4_26346_L_0					
46 D	25.95	0.000	90.35	52.74	90.35	52.74	V-C	3143.	-8.700	77.00
1.000	1.000	129.7	0.000	0.000	UG2_4_26346_L_0					
47 D	26.53	0.000	92.25	53.65	92.25	53.65	V-C	3143.	-8.900	79.00
1.000	1.000	132.7	0.000	0.000	UG2_4_26346_L_0					
48 D	27.11	-5.6518E-18	94.15	54.57	94.15	54.57	V-C	3143.	-9.100	81.00
1.000	1.000	135.6	0.000	0.000	UG2_4_26346_L_0					
49 D	27.70	0.000	96.05	55.49	96.05	55.49	V-C	3143.	-9.300	83.00
1.000	1.000	138.5	0.000	0.000	UG2_4_26346_L_0					
50 D	28.28	0.000	97.95	56.41	97.95	56.41	V-C	3143.	-9.500	85.00
1.000	1.000	141.4	0.000	0.000	UG2_4_26346_L_0					
51 D	28.87	5.6518E-18	99.85	57.33	99.85	57.33	V-C	3143.	-9.700	87.00
1.000	1.000	144.3	0.000	0.000	UG2_4_26346_L_0					
52 D	29.45	0.000	101.7	58.25	101.7	58.25	V-C	3143.	-9.900	89.00
1.000	1.000	147.3	0.000	0.000	UG2_4_26346_L_0					
53 D	30.04	0.000	103.6	59.18	103.6	59.18	V-C	3143.	-10.10	91.00
1.000	1.000	150.2	0.000	0.000	UG2_4_26346_L_0					
54 D	30.62	0.000	105.5	60.10	105.5	60.10	V-C	3143.	-10.30	93.00
1.000	1.000	153.1	0.000	0.000	UG2_4_26346_L_0					
55 D	31.21	0.000	107.4	61.03	107.4	61.03	V-C	3143.	-10.50	95.00
1.000	1.000	156.0	0.000	0.000	UG2_4_26346_L_0					
56 D	15.90	0.000	109.3	61.96	109.3	61.96	V-C	3143.	-10.70	97.00
1.000	1.000	159.0	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 : 2 April 2019     10:37:07                                               |
+-----------------------------------------------------------------------------------------------------------------------+
New Project
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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 56
C U R R E N T T I M E I S 1.0000

HARDENING 2D SOIL ELEMENT

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

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	1.244	0.000	9.261	6.218	9.261	6.218	V-C	3143.	-0.5000	0.000	
1.000	1.000	6.218	0.000	0.000	UG0_2_10_L_0						
6 D	1.908	0.000	13.03	9.538	13.03	9.538	V-C	3143.	-0.7000	0.000	
1.000	1.000	9.538	0.000	0.000	UG0_2_10_L_0						
7 D	2.530	0.000	16.90	12.65	16.90	12.65	V-C	3143.	-0.9000	0.000	
1.000	1.000	12.65	0.000	0.000	UG0_2_10_L_0						
8 D	3.202	0.000	19.87	15.01	19.87	15.01	V-C	3143.	-1.100	1.000	
1.000	1.000	16.01	0.000	0.000	UG0_2_10_L_0						
9 D	3.928	0.000	21.92	16.64	21.92	16.64	V-C	3143.	-1.300	3.000	
1.000	1.000	19.64	0.000	0.000	UG0_2_10_L_0						
10 D	4.611	0.000	24.02	18.06	24.02	18.06	V-C	3143.	-1.500	5.000	
1.000	1.000	23.06	0.000	0.000	UG0_2_10_L_0						
11 D	5.262	1.4129E-18	26.16	19.31	26.16	19.31	V-C	3143.	-1.700	7.000	
1.000	1.000	26.31	0.000	0.000	UG0_2_10_L_0						
12 D	5.886	0.000	28.29	20.43	28.29	20.43	V-C	3143.	-1.900	9.000	
1.000	1.000	29.43	0.000	0.000	UG0_2_10_L_0						
13 D	6.491	0.000	30.63	21.45	30.63	21.45	V-C	3143.	-2.100	11.00	
1.000	1.000	32.45	0.000	0.000	UG0_2_10_L_0						
14 D	7.081	0.000	32.98	22.40	32.98	22.40	V-C	3143.	-2.300	13.00	
1.000	1.000	35.40	0.000	0.000	UG0_2_10_L_0						
15 D	7.660	0.000	35.25	23.30	35.25	23.30	V-C	3143.	-2.500	15.00	
1.000	1.000	38.30	0.000	0.000	UG0_2_10_L_0						
16 D	8.231	0.000	37.45	24.15	37.45	24.15	V-C	3143.	-2.700	17.00	
1.000	1.000	41.15	0.000	0.000	UG0_2_10_L_0						
17 D	8.796	0.000	39.59	24.98	39.59	24.98	V-C	3143.	-2.900	19.00	
1.000	1.000	43.98	0.000	0.000	UG0_2_10_L_0						
18 D	9.598	0.000	42.41	26.99	42.41	26.99	V-C	3143.	-3.100	21.00	
1.000	1.000	47.99	0.000	0.000	UG2_4_11_L_0						
19 D	10.19	-2.8259E-18	44.62	27.93	44.62	27.93	V-C	3143.	-3.300	23.00	
1.000	1.000	50.93	0.000	0.000	UG2_4_11_L_0						
20 D	10.77	0.000	46.81	28.87	46.81	28.87	V-C	3143.	-3.500	25.00	
1.000	1.000	53.87	0.000	0.000	UG2_4_11_L_0						
21 D	11.36	0.000	48.97	29.79	48.97	29.79	V-C	3143.	-3.700	27.00	
1.000	1.000	56.79	0.000	0.000	UG2_4_11_L_0						
22 D	11.94	0.000	51.10	30.70	51.10	30.70	V-C	3143.	-3.900	29.00	
1.000	1.000	59.70	0.000	0.000	UG2_4_11_L_0						
23 D	12.52	0.000	53.64	31.61	53.64	31.61	V-C	3143.	-4.100	31.00	
1.000	1.000	62.61	0.000	0.000	UG2_4_11_L_0						
24 D	13.10	0.000	55.72	32.52	55.72	32.52	V-C	3143.	-4.300	33.00	
1.000	1.000	65.52	0.000	0.000	UG2_4_11_L_0						
25 D	13.68	0.000	57.79	33.42	57.79	33.42	V-C	3143.	-4.500	35.00	
1.000	1.000	68.42	0.000	0.000	UG2_4_11_L_0						
26 D	14.26	0.000	59.84	34.32	59.84	34.32	V-C	3143.	-4.700	37.00	
1.000	1.000	71.32	0.000	0.000	UG2_4_11_L_0						
27 D	14.84	0.000	62.23	35.22	62.23	35.22	V-C	3143.	-4.900	39.00	
1.000	1.000	74.22	0.000	0.000	UG2_4_11_L_0						
28 D	15.42	0.000	64.25	36.12	64.25	36.12	V-C	3143.	-5.100	41.00	
1.000	1.000	77.12	0.000	0.000	UG2_4_11_L_0						
29 D	16.00	0.000	66.26	37.02	66.26	37.02	V-C	3143.	-5.300	43.00	
1.000	1.000	80.02	0.000	0.000	UG2_4_11_L_0						
30 D	16.58	0.000	68.26	37.92	68.26	37.92	V-C	3143.	-5.500	45.00	
1.000	1.000	82.92	0.000	0.000	UG2_4_11_L_0						
31 D	17.16	0.000	70.26	38.81	70.26	38.81	V-C	3143.	-5.700	47.00	
1.000	1.000	85.81	0.000	0.000	UG2_4_11_L_0						
32 D	17.75	0.000	72.64	39.77	72.64	39.77	V-C	3143.	-5.900	49.00	
1.000	1.000	88.77	0.000	0.000	UG3_4271_12_L_0						
33 D	18.34	0.000	74.72	40.72	74.72	40.72	V-C	3143.	-6.100	51.00	
1.000	1.000	91.72	0.000	0.000	UG3_4271_12_L_0						
34 D	18.93	0.000	76.79	41.67	76.79	41.67	V-C	3143.	-6.300	53.00	
1.000	1.000	94.67	0.000	0.000	UG3_4271_12_L_0						
35 D	19.52	0.000	78.86	42.62	78.86	42.62	V-C	3143.	-6.500	55.00	
1.000	1.000	97.62	0.000	0.000	UG3_4271_12_L_0						
36 D	20.12	0.000	80.92	43.58	80.92	43.58	V-C	3143.	-6.700	57.00	
1.000	1.000	100.6	0.000	0.000	UG3_4271_12_L_0						

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  37 D   20.71       0.000       83.23       44.53       83.23       44.53           V-C   3143.      -6.900       59.00
1.000       1.000       103.5       0.000       0.000     UG3_4271_12_L_0
  38 D   21.29      5.6518E-18   85.23       45.46       85.23       45.46           V-C   3143.      -7.100       61.00
1.000       1.000       106.5       0.000       0.000     UG2_4_26346_L_0
  39 D   21.87       0.000       87.18       46.37       87.18       46.37           V-C   3143.      -7.300       63.00
1.000       1.000       109.4       0.000       0.000     UG2_4_26346_L_0
  40 D   22.45       0.000       89.13       47.27       89.13       47.27           V-C   3143.      -7.500       65.00
1.000       1.000       112.3       0.000       0.000     UG2_4_26346_L_0
  41 D   23.04       0.000       91.07       48.18       91.07       48.18           V-C   3143.      -7.700       67.00
1.000       1.000       115.2       0.000       0.000     UG2_4_26346_L_0
  42 D   23.62       0.000       93.23       49.09       93.23       49.09           V-C   3143.      -7.900       69.00
1.000       1.000       118.1       0.000       0.000     UG2_4_26346_L_0
  43 D   24.20       0.000       95.16       50.00       95.16       50.00           V-C   3143.      -8.100       71.00
1.000       1.000       121.0       0.000       0.000     UG2_4_26346_L_0
  44 D   24.78       0.000       97.10       50.91       97.10       50.91           V-C   3143.      -8.300       73.00
1.000       1.000       123.9       0.000       0.000     UG2_4_26346_L_0
  45 D   25.36       0.000       99.03       51.82       99.03       51.82           V-C   3143.      -8.500       75.00
1.000       1.000       126.8       0.000       0.000     UG2_4_26346_L_0
  46 D   25.95       0.000       101.0       52.74       101.0       52.74           V-C   3143.      -8.700       77.00
1.000       1.000       129.7       0.000       0.000     UG2_4_26346_L_0
  47 D   26.53       0.000       103.1       53.65       103.1       53.65           V-C   3143.      -8.900       79.00
1.000       1.000       132.7       0.000       0.000     UG2_4_26346_L_0
  48 D   27.11      5.6518E-18   105.0       54.57       105.0       54.57           V-C   3143.      -9.100       81.00
1.000       1.000       135.6       0.000       0.000     UG2_4_26346_L_0
  49 D   27.70       0.000       106.9       55.49       106.9       55.49           V-C   3143.      -9.300       83.00
1.000       1.000       138.5       0.000       0.000     UG2_4_26346_L_0
  50 D   28.28       0.000       108.9       56.41       108.9       56.41           V-C   3143.      -9.500       85.00
1.000       1.000       141.4       0.000       0.000     UG2_4_26346_L_0
  51 D   28.87     -5.6518E-18   110.9       57.33       110.9       57.33           V-C   3143.      -9.700       87.00
1.000       1.000       144.3       0.000       0.000     UG2_4_26346_L_0
  52 D   29.45       0.000       112.9       58.25       112.9       58.25           V-C   3143.      -9.900       89.00
1.000       1.000       147.3       0.000       0.000     UG2_4_26346_L_0
  53 D   30.04       0.000       114.8       59.18       114.8       59.18           V-C   3143.      -10.10       91.00
1.000       1.000       150.2       0.000       0.000     UG2_4_26346_L_0
  54 D   30.62       0.000       116.7       60.10       116.7       60.10           V-C   3143.      -10.30       93.00
1.000       1.000       153.1       0.000       0.000     UG2_4_26346_L_0
  55 D   31.21       0.000       118.6       61.03       118.6       61.03           V-C   3143.      -10.50       95.00
1.000       1.000       156.0       0.000       0.000     UG2_4_26346_L_0
  56 D   15.90       0.000       120.7       61.96       120.7       61.96           V-C   3143.      -10.70       97.00
1.000       1.000       159.0       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 : 2 April 2019     10:37:07                                                 |
+-------------------------------------------------------------------------------------------------------------------------+
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   55
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=0.2253E+05 RIMNOR= 0.000
           RENORM= 3829.     REMNOR= 0.000     RATIO =0.4123     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 29.37     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.2253E+05 RDR   = 0.000
           RATIOT=0.4123     RATIOR= 0.000
           MAX UN= 0.000     IEQ=   112 NODE     56 DOF   2   X-ROT. F
           MIN UN=-13.31     IEQ=    49 NODE     25 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.2253E+05 RIMNOR= 0.000
           RENORM= 221.4     REMNOR=0.7963E-20 RATIO =0.9914E-01 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 29.37     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.2253E+05 RDR   = 0.000
           RATIOT=0.9914E-01 RATIOR= 0.000
           MAX UN=0.1219E-09 IEQ=    91 NODE     46 DOF   1  Y-DISPL.F
           MIN UN=-3.735     IEQ=    33 NODE     17 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0
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ITER      3 RNORM = 0.000     RMNORM= 0.000
            RINORM=0.2253E+05 RIMNOR= 0.000
            RENORM= 789.1     REMNOR=0.2125E-18 RATIO =0.1872     TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 29.37     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   =0.2253E+05 RDR   = 0.000
            RATIOT=0.1872     RATIOR= 0.000
            MAX UN=0.1619E-08 IEQ=      5 NODE       3 DOF   1  Y-DISPL.F
            MIN UN=-14.97     IEQ=     47 NODE      24 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER      4 RNORM = 0.000     RMNORM= 0.000
            RINORM=0.2253E+05 RIMNOR= 0.000
            RENORM= 65.77     REMNOR=0.3128E-18 RATIO =0.5403E-01 TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 29.37     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   =0.2253E+05 RDR   = 0.000
            RATIOT=0.5403E-01 RATIOR= 0.000
            MAX UN= 2.266     IEQ=   109 NODE      55 DOF   1  Y-DISPL.F
            MIN UN=-4.887     IEQ=    75 NODE      38 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER      5 RNORM = 0.000     RMNORM= 0.000
            RINORM=0.2253E+05 RIMNOR= 0.000
            RENORM=0.2615E-02 REMNOR=0.1111E-18 RATIO =0.3407E-03 TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 29.37     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   =0.2253E+05 RDR   = 0.000
            RATIOT=0.3407E-03 RATIOR= 0.000
            MAX UN=0.3443E-08 IEQ=      5 NODE       3 DOF   1  Y-DISPL.F
            MIN UN=-.5113E-01 IEQ=     83 NODE      42 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER      6 RNORM = 0.000     RMNORM= 0.000
            RINORM=0.2253E+05 RIMNOR= 0.000
            RENORM=0.1088E-05 REMNOR=0.1367E-18 RATIO =0.6949E-05 TOLER =0.1000E-03      CONVERGED !
            RFMAX = 29.37     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   =0.2253E+05 RDR   = 0.000
            RATIOT=0.6949E-05 RATIOR= 0.000
            MAX UN=0.7414E-03 IEQ=   101 NODE      51 DOF   1  Y-DISPL.F
            MIN UN=-.3027E-08 IEQ=     3 NODE       2 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 : 2 April 2019     10:37:07                                                |
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New Project
SOLUTION REACHED USING     6 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  -6.7812851E-02   8.9378657E-03
    2  -6.6025278E-02   8.9378657E-03
    3  -6.4237705E-02   8.9378657E-03
    4  -6.2450133E-02   8.9378508E-03
    5  -6.0662569E-02   8.9377609E-03
    6  -5.8875041E-02   8.9374762E-03
    7  -5.7087604E-02   8.9368162E-03
    8  -5.5300356E-02   8.9355387E-03
    9  -5.3513452E-02   8.9333162E-03
   10  -5.1727123E-02   8.9296925E-03
   11  -4.9941709E-02   8.9240592E-03
   12  -4.8157684E-02   8.9156555E-03
   13  -4.6375692E-02   8.9035680E-03
   14  -4.4596574E-02   8.8867286E-03
   15  -4.2821399E-02   8.8639133E-03
   16  -4.1051499E-02   8.8337426E-03
   17  -3.9288494E-02   8.7946822E-03
   18  -3.7534331E-02   8.7450449E-03
   19  -3.5791281E-02   8.6833399E-03
   20  -3.4061883E-02   8.6083058E-03
   21  -3.2348929E-02   8.5185931E-03
   22  -3.0655512E-02   8.4127664E-03
```

23	-2.8985006E-02	8.2893021E-03
24	-2.7341083E-02	8.1465874E-03
25	-2.5727768E-02	7.9829243E-03
26	-2.4149429E-02	7.7965262E-03
27	-2.2610594E-02	7.5885746E-03
28	-2.1115168E-02	7.3631917E-03
29	-1.9666222E-02	7.1243500E-03
30	-1.8266070E-02	6.8758789E-03
31	-1.6916267E-02	6.6214645E-03
32	-1.5617644E-02	6.3646579E-03
33	-1.4370465E-02	6.1070359E-03
34	-1.3174898E-02	5.8484809E-03
35	-1.2031113E-02	5.5893171E-03
36	-1.0939161E-02	5.3303062E-03
37	-9.8989031E-03	5.0726034E-03
38	-8.9099481E-03	4.8174761E-03
39	-7.9716124E-03	4.5669222E-03
40	-7.0826973E-03	4.3236683E-03
41	-6.2414840E-03	4.0903308E-03
42	-5.4457366E-03	3.8694190E-03
43	-4.6927273E-03	3.6633428E-03
44	-3.9792731E-03	3.4742144E-03
45	-3.3018075E-03	3.3036505E-03
46	-2.6564989E-03	3.1527977E-03
47	-2.0393278E-03	3.0223541E-03
48	-1.4461806E-03	2.9125593E-03
49	-8.7295109E-04	2.8231026E-03
50	-3.1564805E-04	2.7530622E-03
51	2.2946753E-04	2.7009277E-03
52	7.6578057E-04	2.6646561E-03
53	1.2962100E-03	2.6417839E-03
54	1.8231860E-03	2.6294892E-03
55	2.3484993E-03	2.6245983E-03
56	2.8733101E-03	2.6235850E-03

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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 : 2 April 2019     10:37:07                                                       |
+-------------------------------------------------------------------------------------------------------------------------------+
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   56
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 D	20.68	2.4149E-02	0.6901	102.1	51.70	102.1	V-C	3143.	-4.700	1.260	
1.000	1.000	103.4	0.000	0.000	UG2_4_11_L_0						
27 D	20.49	2.2611E-02	2.070	98.67	53.60	98.67	V-C	3143.	-4.900	3.780	
1.000	1.000	102.4	0.000	0.000	UG2_4_11_L_0						
28 D	20.28	2.1115E-02	3.451	95.11	55.50	95.11	V-C	3143.	-5.100	6.299	
1.000	1.000	101.4	0.000	0.000	UG2_4_11_L_0						
29 D	20.09	1.9666E-02	4.831	91.62	57.40	91.62	V-C	3143.	-5.300	8.819	
1.000	1.000	100.4	0.000	0.000	UG2_4_11_L_0						
30 D	19.91	1.8266E-02	6.211	88.23	59.30	88.23	V-C	3143.	-5.500	11.34	
1.000	1.000	99.57	0.000	0.000	UG2_4_11_L_0						
31 D	19.76	1.6916E-02	7.591	84.96	61.20	84.96	V-C	3143.	-5.700	13.86	
1.000	1.000	98.82	0.000	0.000	UG2_4_11_L_0						
32 D	12.07	1.5618E-02	9.071	43.95	63.20	43.95	PASSIVE	0.000	-5.900	16.38	
1.000	1.000	60.33	0.000	0.000	UG3_4271_12_L_0						
33 D	14.00	1.4370E-02	10.55	51.12	65.20	51.12	PASSIVE	0.000	-6.100	18.90	
1.000	1.000	70.02	0.000	0.000	UG3_4271_12_L_0						
34 D	15.94	1.3175E-02	12.03	58.29	67.20	58.29	PASSIVE	0.000	-6.300	21.42	
1.000	1.000	79.71	0.000	0.000	UG3_4271_12_L_0						
35 D	17.88	1.2031E-02	13.51	65.47	69.20	65.47	PASSIVE	0.000	-6.500	23.94	
1.000	1.000	89.40	0.000	0.000	UG3_4271_12_L_0						
36 D	19.52	1.0939E-02	14.99	71.14	71.20	71.14	V-C	3143.	-6.700	26.46	
1.000	1.000	97.60	0.000	0.000	UG3_4271_12_L_0						
37 D	19.56	9.8989E-03	16.47	68.83	73.20	68.83	V-C	3143.	-6.900	28.98	
1.000	1.000	97.81	0.000	0.000	UG3_4271_12_L_0						
38 D	19.63	8.9099E-03	17.90	66.66	75.15	66.66	V-C	3143.	-7.100	31.50	
1.000	1.000	98.15	0.000	0.000	UG2_4_26346_L_0						
39 D	19.72	7.9716E-03	19.28	64.61	77.05	64.61	V-C	3143.	-7.300	34.02	
1.000	1.000	98.62	0.000	0.000	UG2_4_26346_L_0						
40 D	19.85	7.0827E-03	20.66	62.71	78.95	62.71	V-C	3143.	-7.500	36.54	
1.000	1.000	99.24	0.000	0.000	UG2_4_26346_L_0						
41 D	20.00	6.2415E-03	22.04	60.96	80.85	60.96	V-C	3143.	-7.700	39.06	
1.000	1.000	100.0	0.000	0.000	UG2_4_26346_L_0						
42 D	20.19	5.4457E-03	23.42	59.35	82.75	59.35	V-C	3143.	-7.900	41.58	
1.000	1.000	100.9	0.000	0.000	UG2_4_26346_L_0						
43 D	20.39	4.6927E-03	24.80	57.87	84.65	57.87	V-C	3143.	-8.100	44.10	
1.000	1.000	102.0	0.000	0.000	UG2_4_26346_L_0						
44 D	20.63	3.9793E-03	26.18	56.52	86.55	56.52	V-C	3143.	-8.300	46.62	
1.000	1.000	103.1	0.000	0.000	UG2_4_26346_L_0						
45 D	20.88	3.3018E-03	27.56	55.28	88.45	55.28	V-C	3143.	-8.500	49.14	
1.000	1.000	104.4	0.000	0.000	UG2_4_26346_L_0						
46 D	21.16	2.6565E-03	28.94	54.14	90.35	54.14	V-C	3143.	-8.700	51.66	
1.000	1.000	105.8	0.000	0.000	UG2_4_26346_L_0						
47 D	21.23	2.0393E-03	30.32	51.98	92.25	53.65	UL-RL	9429.	-8.900	54.18	
1.000	1.000	106.2	0.000	0.000	UG2_4_26346_L_0						
48 D	20.78	1.4462E-03	31.70	47.22	94.15	54.57	UL-RL	9429.	-9.100	56.70	
1.000	1.000	103.9	0.000	0.000	UG2_4_26346_L_0						
49 D	20.37	8.7295E-04	33.09	42.65	96.05	55.49	UL-RL	9429.	-9.300	59.21	
1.000	1.000	101.9	0.000	0.000	UG2_4_26346_L_0						
50 D	19.99	3.1565E-04	34.47	38.22	97.95	56.41	UL-RL	9429.	-9.500	61.73	
1.000	1.000	99.96	0.000	0.000	UG2_4_26346_L_0						
51 D	19.63	-2.2947E-04	35.85	33.91	99.85	57.33	UL-RL	9429.	-9.700	64.25	
1.000	1.000	98.17	0.000	0.000	UG2_4_26346_L_0						
52 D	19.29	-7.6578E-04	37.23	29.68	101.7	58.25	UL-RL	9429.	-9.900	66.77	
1.000	1.000	96.46	0.000	0.000	UG2_4_26346_L_0						
53 D	18.96	-1.2962E-03	38.61	25.51	103.6	59.18	UL-RL	9429.	-10.10	69.29	
1.000	1.000	94.80	0.000	0.000	UG2_4_26346_L_0						
54 D	18.64	-1.8232E-03	39.99	21.36	105.5	60.10	UL-RL	9429.	-10.30	71.81	
1.000	1.000	93.18	0.000	0.000	UG2_4_26346_L_0						
55 D	18.31	-2.3485E-03	41.37	17.23	107.4	61.03	UL-RL	9429.	-10.50	74.33	
1.000	1.000	91.57	0.000	0.000	UG2_4_26346_L_0						
56 D	8.996	-2.8733E-03	42.75	13.11	109.3	61.96	UL-RL	9429.	-10.70	76.85	
1.000	1.000	89.96	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 : 2 April 2019      10:37:07                                           |
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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   56
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 *	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	0.1014	-6.4238E-02	1.850	0.5069	1.850	0.9250	ACTIVE	0.000	-0.1000	0.000	
1.000	1.000	0.5069	0.000	0.000	UG0_2_10_L_0						
4 D	0.3041	-6.2450E-02	5.550	1.521	5.550	2.775	ACTIVE	0.000	-0.3000	0.000	
1.000	1.000	1.521	0.000	0.000	UG0_2_10_L_0						
5 D	0.5075	-6.0663E-02	9.261	2.537	9.261	6.218	ACTIVE	0.000	-0.5000	0.000	
1.000	1.000	2.537	0.000	0.000	UG0_2_10_L_0						
6 D	0.7141	-5.8875E-02	13.03	3.571	13.03	9.538	ACTIVE	0.000	-0.7000	0.000	
1.000	1.000	3.571	0.000	0.000	UG0_2_10_L_0						
7 D	0.9260	-5.7088E-02	16.90	4.630	16.90	12.65	ACTIVE	0.000	-0.9000	0.000	
1.000	1.000	4.630	0.000	0.000	UG0_2_10_L_0						
8 D	1.289	-5.5300E-02	19.87	5.443	19.87	15.01	ACTIVE	0.000	-1.100	0.9997	
1.000	1.000	6.443	0.000	0.000	UG0_2_10_L_0						
9 D	1.801	-5.3513E-02	21.92	6.006	21.92	16.64	ACTIVE	0.000	-1.300	2.999	
1.000	1.000	9.005	0.000	0.000	UG0_2_10_L_0						
10 D	2.316	-5.1727E-02	24.02	6.583	24.02	18.06	ACTIVE	0.000	-1.500	4.999	
1.000	1.000	11.58	0.000	0.000	UG0_2_10_L_0						
11 D	2.833	-4.9942E-02	26.16	7.167	26.16	19.31	ACTIVE	0.000	-1.700	6.998	
1.000	1.000	14.17	0.000	0.000	UG0_2_10_L_0						
12 D	3.350	-4.8158E-02	28.29	7.753	28.29	20.43	ACTIVE	0.000	-1.900	8.998	
1.000	1.000	16.75	0.000	0.000	UG0_2_10_L_0						
13 D	3.878	-4.6376E-02	30.63	8.393	30.63	21.45	ACTIVE	0.000	-2.100	11.00	
1.000	1.000	19.39	0.000	0.000	UG0_2_10_L_0						
14 D	4.407	-4.4597E-02	32.99	9.039	32.99	22.41	ACTIVE	0.000	-2.300	13.00	
1.000	1.000	22.04	0.000	0.000	UG0_2_10_L_0						
15 D	4.931	-4.2821E-02	35.26	9.661	35.26	23.30	ACTIVE	0.000	-2.500	15.00	
1.000	1.000	24.66	0.000	0.000	UG0_2_10_L_0						
16 D	5.452	-4.1051E-02	37.46	10.26	37.46	24.16	ACTIVE	0.000	-2.700	17.00	
1.000	1.000	27.26	0.000	0.000	UG0_2_10_L_0						
17 D	5.969	-3.9288E-02	39.60	10.85	39.60	24.98	ACTIVE	0.000	-2.900	19.00	
1.000	1.000	29.84	0.000	0.000	UG0_2_10_L_0						
18 D	4.121	-3.7534E-02	42.80	0.000	42.80	27.20	ACTIVE	0.000	-3.100	20.61	
1.000	1.000	20.61	0.000	0.000	UG2_4_11_L_0						
19 D	4.417	-3.5791E-02	45.54	0.000	45.54	28.42	ACTIVE	0.000	-3.300	22.09	
1.000	1.000	22.09	0.000	0.000	UG2_4_11_L_0						
20 D	4.713	-3.4062E-02	48.24	0.000	48.24	29.63	ACTIVE	0.000	-3.500	23.57	
1.000	1.000	23.57	0.000	0.000	UG2_4_11_L_0						
21 D	5.009	-3.2349E-02	50.92	0.000	50.92	30.83	ACTIVE	0.000	-3.700	25.05	
1.000	1.000	25.05	0.000	0.000	UG2_4_11_L_0						
22 D	5.305	-3.0656E-02	53.58	0.000	53.58	32.02	ACTIVE	0.000	-3.900	26.53	
1.000	1.000	26.53	0.000	0.000	UG2_4_11_L_0						
23 D	5.601	-2.8985E-02	56.64	0.000	56.64	33.20	ACTIVE	0.000	-4.100	28.01	
1.000	1.000	28.01	0.000	0.000	UG2_4_11_L_0						
24 D	5.897	-2.7341E-02	59.24	0.000	59.24	34.39	ACTIVE	0.000	-4.300	29.49	
1.000	1.000	29.49	0.000	0.000	UG2_4_11_L_0						
25 D	6.193	-2.5728E-02	61.82	0.000	61.82	35.56	ACTIVE	0.000	-4.500	30.97	
1.000	1.000	30.97	0.000	0.000	UG2_4_11_L_0						
26 D	6.489	-2.4149E-02	64.39	0.000	64.39	36.74	ACTIVE	0.000	-4.700	32.45	
1.000	1.000	32.45	0.000	0.000	UG2_4_11_L_0						
27 D	6.785	-2.2611E-02	67.30	0.000	67.30	37.92	ACTIVE	0.000	-4.900	33.93	
1.000	1.000	33.93	0.000	0.000	UG2_4_11_L_0						
28 D	7.081	-2.1115E-02	69.84	0.000	69.84	39.09	ACTIVE	0.000	-5.100	35.41	
1.000	1.000	35.41	0.000	0.000	UG2_4_11_L_0						
29 D	7.377	-1.9666E-02	72.37	0.000	72.37	40.26	ACTIVE	0.000	-5.300	36.89	
1.000	1.000	36.89	0.000	0.000	UG2_4_11_L_0						
30 D	7.674	-1.8266E-02	74.89	0.000	74.89	41.44	ACTIVE	0.000	-5.500	38.37	
1.000	1.000	38.37	0.000	0.000	UG2_4_11_L_0						
31 D	7.970	-1.6916E-02	77.41	0.000	77.41	42.61	ACTIVE	0.000	-5.700	39.85	
1.000	1.000	39.85	0.000	0.000	UG2_4_11_L_0						
32 D	13.20	-1.5618E-02	80.31	24.66	80.31	43.84	ACTIVE	0.000	-5.900	41.33	
1.000	1.000	65.98	0.000	0.000	UG3_4271_12_L_0						
33 D	13.65	-1.4370E-02	82.91	25.45	82.91	45.07	ACTIVE	0.000	-6.100	42.81	
1.000	1.000	68.26	0.000	0.000	UG3_4271_12_L_0						

34 D	14.11	-1.3175E-02	85.50	26.25	85.50	46.29	ACTIVE	0.000	-6.300	44.29	
1.000	1.000	70.54	0.000	0.000	UG3_4271_12_L_0						
35 D	14.56	-1.2031E-02	88.09	27.04	88.09	47.52	ACTIVE	0.000	-6.500	45.77	
1.000	1.000	72.81	0.000	0.000	UG3_4271_12_L_0						
36 D	15.02	-1.0939E-02	90.67	27.84	90.67	48.75	ACTIVE	0.000	-6.700	47.25	
1.000	1.000	75.09	0.000	0.000	UG3_4271_12_L_0						
37 D	15.49	-9.8989E-03	93.50	28.70	93.50	49.99	ACTIVE	0.000	-6.900	48.73	
1.000	1.000	77.43	0.000	0.000	UG3_4271_12_L_0						
38 D	10.19	-8.9099E-03	96.02	0.7538	96.02	51.19	ACTIVE	0.000	-7.100	50.21	
1.000	1.000	50.96	0.000	0.000	UG2_4_26346_L_0						
39 D	10.69	-7.9716E-03	98.49	1.756	98.49	52.37	ACTIVE	0.000	-7.300	51.69	
1.000	1.000	53.45	0.000	0.000	UG2_4_26346_L_0						
40 D	11.19	-7.0827E-03	101.0	2.757	101.0	53.55	ACTIVE	0.000	-7.500	53.17	
1.000	1.000	55.93	0.000	0.000	UG2_4_26346_L_0						
41 D	11.68	-6.2415E-03	103.4	3.758	103.4	54.74	ACTIVE	0.000	-7.700	54.65	
1.000	1.000	58.41	0.000	0.000	UG2_4_26346_L_0						
42 D	12.20	-5.4457E-03	106.1	4.845	106.1	55.92	ACTIVE	0.000	-7.900	56.13	
1.000	1.000	60.98	0.000	0.000	UG2_4_26346_L_0						
43 D	14.09	-4.6927E-03	108.6	12.86	108.6	57.11	UL-RL	9429.	-8.100	57.61	
1.000	1.000	70.47	0.000	0.000	UG2_4_26346_L_0						
44 D	15.97	-3.9793E-03	111.0	20.77	111.0	58.29	UL-RL	9429.	-8.300	59.09	
1.000	1.000	79.86	0.000	0.000	UG2_4_26346_L_0						
45 D	17.78	-3.3018E-03	113.5	28.35	113.5	59.48	UL-RL	9429.	-8.500	60.57	
1.000	1.000	88.92	0.000	0.000	UG2_4_26346_L_0						
46 D	19.54	-2.6565E-03	115.9	35.62	115.9	60.67	UL-RL	9429.	-8.700	62.05	
1.000	1.000	97.68	0.000	0.000	UG2_4_26346_L_0						
47 D	21.23	-2.0393E-03	118.5	42.64	118.5	61.87	UL-RL	9429.	-8.900	63.53	
1.000	1.000	106.2	0.000	0.000	UG2_4_26346_L_0						
48 D	22.89	-1.4462E-03	121.0	49.42	121.0	63.06	UL-RL	9429.	-9.100	65.01	
1.000	1.000	114.4	0.000	0.000	UG2_4_26346_L_0						
49 D	24.50	-8.7295E-04	123.4	56.02	123.4	64.25	UL-RL	9429.	-9.300	66.49	
1.000	1.000	122.5	0.000	0.000	UG2_4_26346_L_0						
50 D	26.09	-3.1565E-04	125.9	62.47	125.9	65.45	UL-RL	9429.	-9.500	67.97	
1.000	1.000	130.4	0.000	0.000	UG2_4_26346_L_0						
51 D	27.36	2.2947E-04	128.5	67.36	128.5	67.37	UL-RL	9429.	-9.700	69.45	
1.000	1.000	136.8	0.000	0.000	UG2_4_26346_L_0						
52 D	28.24	7.6578E-04	130.9	70.25	130.9	70.25	UL-RL	9429.	-9.900	70.93	
1.000	1.000	141.2	0.000	0.000	UG2_4_26346_L_0						
53 D	29.11	1.2962E-03	133.4	73.12	133.4	73.12	UL-RL	9429.	-10.10	72.41	
1.000	1.000	145.5	0.000	0.000	UG2_4_26346_L_0						
54 D	29.97	1.8232E-03	135.8	75.98	135.8	75.98	UL-RL	9429.	-10.30	73.89	
1.000	1.000	149.9	0.000	0.000	UG2_4_26346_L_0						
55 D	30.84	2.3485E-03	138.2	78.83	138.2	78.83	UL-RL	9429.	-10.50	75.37	
1.000	1.000	154.2	0.000	0.000	UG2_4_26346_L_0						
56 D	15.85	2.8733E-03	140.8	81.69	140.8	81.69	V-C	3143.	-10.70	76.85	
1.000	1.000	158.5	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 : 2 April 2019     10:37:07                                                 |
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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   55
C U R R E N T   T I M E   I S      2.0000

 WALL2D ELEMENT

   EL      TA          TB          MA          MB
-------------------------------------------------------
    1-1.87994E-09 1.87994E-09-1.87652E-10-3.41453E-10
    2 1.14705E-09-1.14705E-09 2.67728E-10-7.75822E-10
    3-0.10138     0.10138     8.53860E-10-2.02760E-02
    4-0.40552     0.40552     2.02760E-02-0.10138
    5-0.91302     0.91302     0.10138    -0.28398
    6 -1.6271      1.6271     0.28398    -0.60941
    7 -2.5532      2.5532     0.60941     -1.1200
    8 -3.8418      3.8418      1.1200     -1.8884
    9 -5.6428      5.6428      1.8884     -3.0170
   10 -7.9591      7.9591      3.0170     -4.6088
   11 -10.792      10.792      4.6088     -6.7672
   12 -14.142      14.142      6.7672     -9.5956
   13 -18.020      18.020      9.5956     -13.200
   14 -22.427      22.427      13.200     -17.685
   15 -27.359      27.359      17.685     -23.157
   16 -32.810      32.810      23.157     -29.719
   17 -38.779      38.779      29.719     -37.475
   18 -42.900      42.900      37.475     -46.055
   19 -47.317      47.317      46.055     -55.518
   20 -52.030      52.030      55.518     -65.924
```

```
   21 -57.040      57.040      65.924     -77.332
   22 -62.345      62.345      77.332     -89.801
   23 -67.946      67.946      89.801     -103.39
   24 -73.843      73.843      103.39     -118.16
   25 -80.037      80.037      118.16     -134.17
   26 -65.848      65.848      134.17     -147.34
   27 -52.144      52.144      147.34     -157.76
   28 -38.943      38.943      157.76     -165.55
   29 -26.233      26.233      165.55     -170.80
   30 -13.993      13.993      170.80     -173.60
   31 -2.1984      2.1984      173.60     -174.04
   32 -3.3293      3.3293      174.04     -174.70
   33 -2.9774      2.9774      174.70     -175.30
   34 -1.1423      1.1423      175.30     -175.53
   35  2.1761     -2.1761      175.53     -175.09
   36  6.6784     -6.6784      175.09     -173.76
   37  10.754     -10.754      173.76     -171.61
   38  20.192     -20.192      171.61     -167.57
   39  29.227     -29.227      167.57     -161.72
   40  37.891     -37.891      161.72     -154.14
   41  46.212     -46.212      154.14     -144.90
   42  54.202     -54.202      144.90     -134.06
   43  60.502     -60.502      134.06     -121.96
   44  65.157     -65.157      121.96     -108.93
   45  68.257     -68.257      108.93     -95.278
   46  69.881     -69.881      95.278     -81.302
   47  69.879     -69.879      81.302     -67.326
   48  67.776     -67.776      67.326     -53.771
   49  63.646     -63.646      53.771     -41.042
   50  57.549     -57.549      41.042     -29.532
   51  49.818     -49.818      29.532     -19.568
   52  40.872     -40.872      19.568     -11.394
   53  30.726     -30.726      11.394     -5.2490
   54  19.387     -19.387      5.2490     -1.3717
   55  6.8582     -6.8582      1.3717     3.53939E-13


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                             |
|                                   Exe Time : 2 April 2019     10:37:07                                                  |
+-------------------------------------------------------------------------------------------------------------------------+


     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                      6


 END OF PROCESS FOR PROBLEM
New Project
NONLINEAR SOLUTION CPU TIME ....     0.03 [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 : 2 April 2019     10:37:07                                                  |
+-------------------------------------------------------------------------------------------------------------------------+


                  ***********************************************************
                  *                                                         *
                  *  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 : 2 April 2019     10:37:07                                                  |
+-------------------------------------------------------------------------------------------------------------------------+


INPUT FILE HAS BEEN GENERATED BY WALGEN PROGRAM


New Project


NO. OF NODAL POINTS (NUMNP) ...................    56
NO. OF COORDINATES  (NCOORD)...................     2
NO. OF NODE DOFS    (NDOF).....................     2
NO. OF EQUATIONS    (NEQ)......................   112
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 .....................    99
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 : 2 April 2019     10:37:07                                                  |
+-------------------------------------------------------------------------------------------------------------------------+
```

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 99

```
 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 -10.7 0.3 -1
 7 : SOIL 0_L LeftWall_32 -10.7 0.3 2 0
 8 : SOIL 0_R LeftWall_32 -10.7 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 -2.95 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 -5.7 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 -7 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 -10.7 0.3 S275_115 0.19777 00 00 0
39 : STRIP LeftWall_32 1 2 1.45 16.55 -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=0.348 LeftWall_32
44 : CHANGE UG0_2_10_L_0 U-KP=4.083 LeftWall_32
45 : CHANGE UG0_2_10_L_0 D-KA=0.343 LeftWall_32
46 : CHANGE UG0_2_10_L_0 D-KP=3.994 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=0.481 LeftWall_32
50 : CHANGE UG2_4_11_L_0 U-KP=2.532 LeftWall_32
51 : CHANGE UG2_4_11_L_0 D-KA=0.48 LeftWall_32
52 : CHANGE UG2_4_11_L_0 D-KP=2.249 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=0.381 LeftWall_32
56 : CHANGE UG3_4271_12_L_0 U-KP=3.474 LeftWall_32
57 : CHANGE UG3_4271_12_L_0 D-KA=0.38 LeftWall_32
58 : CHANGE UG3_4271_12_L_0 D-KP=2.636 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=0.482 LeftWall_32
62 : CHANGE UG2_4_26346_L_0 U-KP=2.487 LeftWall_32
63 : CHANGE UG2_4_26346_L_0 D-KA=0.47 LeftWall_32
64 : CHANGE UG2_4_26346_L_0 D-KP=2.136 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 -1 0 -10.7 0 0
```

```
   85 : ENDSTEP
   86 : STEP Stage2_28513
   87 : CHANGE UG0_2_10_L_0 D-KP=4.102 LeftWall_32
   88 : CHANGE UG2_4_11_L_0 D-KA=0.482 LeftWall_32
   89 : CHANGE UG2_4_11_L_0 D-KP=2.535 LeftWall_32
   90 : CHANGE UG3_4271_12_L_0 D-KA=0.382 LeftWall_32
   91 : CHANGE UG3_4271_12_L_0 D-KP=3.512 LeftWall_32
   92 : CHANGE UG2_4_26346_L_0 D-KA=0.482 LeftWall_32
   93 : CHANGE UG2_4_26346_L_0 D-KP=2.535 LeftWall_32
   94 : SETWALL LeftWall_32
   95 : GEOM 0 -4.6
   96 : SURCHARGE 0 0 0 0
   97 : WATER -1 3.6 -10.7 0 0
   98 : ADD WallElement_New_28707
   99 : ENDSTEP


+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                   NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                  |
|                                   Exe Time : 2 April 2019     10:37:07                                                  |
+-----------------------------------------------------------------------------------------------------------------------+
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     /   47  0.0000     -8.9000     /   48  0.0000     -9.1000     /
  49  0.0000     -9.3000     /   50  0.0000     -9.5000     /   51  0.0000     -9.7000     /   52  0.0000     -9.9000     /
  53  0.0000     -10.100     /   54  0.0000     -10.300     /   55  0.0000     -10.500     /   56  0.0000     -10.700     /


+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                   NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                  |
|                                   Exe Time : 2 April 2019     10:37:07                                                  |
+-----------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  1

0_L                                                    :
   5  56   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    2   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    2   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    3   0.2000     0.000     0.000     0.000     2.000
   35   35    3   0.2000     0.000     0.000     0.000     2.000
   36   36    3   0.2000     0.000     0.000     0.000     2.000
   37   37    3   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   0.2000     0.000     0.000     0.000     2.000
   47   47    4   0.2000     0.000     0.000     0.000     2.000
   48   48    4   0.2000     0.000     0.000     0.000     2.000
   49   49    4   0.2000     0.000     0.000     0.000     2.000
   50   50    4   0.2000     0.000     0.000     0.000     2.000
   51   51    4   0.2000     0.000     0.000     0.000     2.000
   52   52    4   0.2000     0.000     0.000     0.000     2.000
   53   53    4   0.2000     0.000     0.000     0.000     2.000
   54   54    4   0.2000     0.000     0.000     0.000     2.000
   55   55    4   0.2000     0.000     0.000     0.000     2.000
   56   56    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 : 2 April 2019     10:37:07                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  2

0_R                                                    :
   5  56   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	2	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	2	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	3	0.2000	0.000	0.000	0.000	1.000
35	35	3	0.2000	0.000	0.000	0.000	1.000
36	36	3	0.2000	0.000	0.000	0.000	1.000
37	37	3	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	0.2000	0.000	0.000	0.000	1.000
47	47	4	0.2000	0.000	0.000	0.000	1.000
48	48	4	0.2000	0.000	0.000	0.000	1.000
49	49	4	0.2000	0.000	0.000	0.000	1.000
50	50	4	0.2000	0.000	0.000	0.000	1.000
51	51	4	0.2000	0.000	0.000	0.000	1.000
52	52	4	0.2000	0.000	0.000	0.000	1.000
53	53	4	0.2000	0.000	0.000	0.000	1.000
54	54	4	0.2000	0.000	0.000	0.000	1.000
55	55	4	0.2000	0.000	0.000	0.000	1.000
56	56	4	0.1000	0.000	0.000	0.000	1.000

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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 : 2 April 2019     10:37:07                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  3

WallElement_New_28707                                          :
   2  55   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
   46   46   47    1    0.000     0.000    0.1978     0.000     0.000
   47   47   48    1    0.000     0.000    0.1978     0.000     0.000
   48   48   49    1    0.000     0.000    0.1978     0.000     0.000
```

```
   49   49   50    1    0.000     0.000    0.1978     0.000     0.000
   50   50   51    1    0.000     0.000    0.1978     0.000     0.000
   51   51   52    1    0.000     0.000    0.1978     0.000     0.000
   52   52   53    1    0.000     0.000    0.1978     0.000     0.000
   53   53   54    1    0.000     0.000    0.1978     0.000     0.000
   54   54   55    1    0.000     0.000    0.1978     0.000     0.000
   55   55   56    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 : 2 April 2019     10:37:07                                               |
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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.NTC2018A2M2R1_1178                                 |
|                                    Exe Time : 2 April 2019     10:37:07                                               |
+-----------------------------------------------------------------------------------------------------------------------+
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
```

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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 : 2 April 2019     10:37:07                                                  |
+-------------------------------------------------------------------------------------------------------------------------+
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.NTC2018A2M2R1_1178                                    |
|                                   Exe Time : 2 April 2019     10:37:07                                                  |
+-------------------------------------------------------------------------------------------------------------------------+


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 : 2 April 2019     10:37:07                                                  |
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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;= 0.34800     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  4.0830     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;=  3.9940     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;= -2.9500     (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;= 0.48100     WALL NO.        1
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ITEM NO.  11&lt;U-KP    &gt;=  2.5320     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;= 0.48000     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  2.2490     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;= -5.7000     (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;= 0.38100     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.4740     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;= 0.38000     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  2.6360     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;= -7.0000     (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;= 0.48200     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  2.4870     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;= 0.47000     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  2.1360     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;= 0.34800     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  4.0830     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

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;= -2.9500     (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;= 0.48100     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  2.5320     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;= -5.7000     (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;= 0.38100     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.4740     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;= -7.0000     (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;= 0.48200     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  2.4870     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)


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 : 2 April 2019     10:37:07                                                 |
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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                          -1.000       -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       -10.70        -10.70
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                           -4.600         0.000
Z-WATER_TABLE                          -1.000       -0.9990E+30
Q_AT_THE_FREE_FIELD_LEVEL               0.000         0.000
ZQ                                      0.000         0.000
```

```
DZW_OF_THE_WATER_TABLE                 3.600         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     -10.70        -10.70
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         -10.70000
 UPPER  LEVEL           0.30000

 RIGHT-HAND WALL

 LOWER  LEVEL         -10.70000
 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 : 2 April 2019     10:37:07                                                  |
+-----------------------------------------------------------------------------------------------------------------------+
 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)            16.5500000000000
 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        2783

 NO. OF D.P.W  FOR THIS AREA       6611
 MAX NO. OF D.P.W. AVAILABLE      81920
 ** MAX NO OF ITERATIONS SET TO          40

ITER     0 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.3608E+05 RIMNOR= 0.000
           RENORM=0.4181E-28 REMNOR= 0.000     RATIO =0.3404E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 31.21     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.3608E+05 RDR   = 0.000
           RATIOT=0.3404E-16 RATIOR= 0.000
```

```
          MAX UN=0.3553E-14 IEQ=    95 NODE     48 DOF    1  Y-DISPL.F
          MIN UN=-.3553E-14 IEQ=   101 NODE     51 DOF    1  Y-DISPL.F
          NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER      1 RNORM = 0.000      RMNORM= 0.000
          RINORM=0.3608E+05 RIMNOR= 0.000
          RENORM=0.4181E-28 REMNOR= 0.000      RATIO =0.3404E-16 TOLER =0.1000E-03      CONVERGED !
          RFMAX = 31.21      RMMAX = 0.000
          RTSMAL=0.1000E-03 RMSMAL= 0.000
          RDT   =0.3608E+05 RDR   = 0.000
          RATIOT=0.3404E-16 RATIOR= 0.000
          MAX UN=0.3553E-14 IEQ=    95 NODE     48 DOF    1  Y-DISPL.F
          MIN UN=-.3553E-14 IEQ=   101 NODE     51 DOF    1  Y-DISPL.F
          NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER      2 RNORM = 0.000      RMNORM= 0.000
          RINORM=0.3608E+05 RIMNOR= 0.000
          RENORM=0.4181E-28 REMNOR= 0.000      RATIO =0.3404E-16 TOLER =0.1000E-03      CONVERGED !
          RFMAX = 31.21      RMMAX = 0.000
          RTSMAL=0.1000E-03 RMSMAL= 0.000
          RDT   =0.3608E+05 RDR   = 0.000
          RATIOT=0.3404E-16 RATIOR= 0.000
          MAX UN=0.3553E-14 IEQ=    95 NODE     48 DOF    1  Y-DISPL.F
          MIN UN=-.3553E-14 IEQ=   101 NODE     51 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 : 2 April 2019     10:37:07                                                |
+-----------------------------------------------------------------------------------------------------------------------+
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 : 2 April 2019     10:37:07                                                |
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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   56
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  1.244      0.000      9.250      6.218       9.250      6.218              V-C   3143.     -0.5000      0.000
1.000      1.000      6.218       0.000       0.000     UG0_2_10_L_0
   6 D  1.908      0.000      12.95      9.538       12.95      9.538              V-C   3143.     -0.7000      0.000
```

1.000	1.000	9.538	0.000	0.000	UG0_2_10_L_0					
7 D	2.530	0.000	16.65	12.65	16.65	12.65	V-C	3143.	-0.9000	0.000
1.000	1.000	12.65	0.000	0.000	UG0_2_10_L_0					
8 D	3.202	0.000	19.35	15.01	19.35	15.01	V-C	3143.	-1.100	1.000
1.000	1.000	16.01	0.000	0.000	UG0_2_10_L_0					
9 D	3.928	0.000	21.05	16.64	21.05	16.64	V-C	3143.	-1.300	3.000
1.000	1.000	19.64	0.000	0.000	UG0_2_10_L_0					
10 D	4.611	0.000	22.75	18.06	22.75	18.06	V-C	3143.	-1.500	5.000
1.000	1.000	23.06	0.000	0.000	UG0_2_10_L_0					
11 D	5.262	-1.4129E-18	24.45	19.31	24.45	19.31	V-C	3143.	-1.700	7.000
1.000	1.000	26.31	0.000	0.000	UG0_2_10_L_0					
12 D	5.886	0.000	26.15	20.43	26.15	20.43	V-C	3143.	-1.900	9.000
1.000	1.000	29.43	0.000	0.000	UG0_2_10_L_0					
13 D	6.491	0.000	27.85	21.45	27.85	21.45	V-C	3143.	-2.100	11.00
1.000	1.000	32.45	0.000	0.000	UG0_2_10_L_0					
14 D	7.081	0.000	29.55	22.40	29.55	22.40	V-C	3143.	-2.300	13.00
1.000	1.000	35.40	0.000	0.000	UG0_2_10_L_0					
15 D	7.660	0.000	31.25	23.30	31.25	23.30	V-C	3143.	-2.500	15.00
1.000	1.000	38.30	0.000	0.000	UG0_2_10_L_0					
16 D	8.231	0.000	32.95	24.15	32.95	24.15	V-C	3143.	-2.700	17.00
1.000	1.000	41.15	0.000	0.000	UG0_2_10_L_0					
17 D	8.796	0.000	34.65	24.98	34.65	24.98	V-C	3143.	-2.900	19.00
1.000	1.000	43.98	0.000	0.000	UG0_2_10_L_0					
18 D	9.598	0.000	36.50	26.99	36.50	26.99	V-C	3143.	-3.100	21.00
1.000	1.000	47.99	0.000	0.000	UG2_4_11_L_0					
19 D	10.19	2.8259E-18	38.40	27.93	38.40	27.93	V-C	3143.	-3.300	23.00
1.000	1.000	50.93	0.000	0.000	UG2_4_11_L_0					
20 D	10.77	0.000	40.30	28.87	40.30	28.87	V-C	3143.	-3.500	25.00
1.000	1.000	53.87	0.000	0.000	UG2_4_11_L_0					
21 D	11.36	0.000	42.20	29.79	42.20	29.79	V-C	3143.	-3.700	27.00
1.000	1.000	56.79	0.000	0.000	UG2_4_11_L_0					
22 D	11.94	0.000	44.10	30.70	44.10	30.70	V-C	3143.	-3.900	29.00
1.000	1.000	59.70	0.000	0.000	UG2_4_11_L_0					
23 D	12.52	0.000	46.00	31.61	46.00	31.61	V-C	3143.	-4.100	31.00
1.000	1.000	62.61	0.000	0.000	UG2_4_11_L_0					
24 D	13.10	0.000	47.90	32.52	47.90	32.52	V-C	3143.	-4.300	33.00
1.000	1.000	65.52	0.000	0.000	UG2_4_11_L_0					
25 D	13.68	0.000	49.80	33.42	49.80	33.42	V-C	3143.	-4.500	35.00
1.000	1.000	68.42	0.000	0.000	UG2_4_11_L_0					
26 D	14.26	0.000	51.70	34.32	51.70	34.32	V-C	3143.	-4.700	37.00
1.000	1.000	71.32	0.000	0.000	UG2_4_11_L_0					
27 D	14.84	0.000	53.60	35.22	53.60	35.22	V-C	3143.	-4.900	39.00
1.000	1.000	74.22	0.000	0.000	UG2_4_11_L_0					
28 D	15.42	0.000	55.50	36.12	55.50	36.12	V-C	3143.	-5.100	41.00
1.000	1.000	77.12	0.000	0.000	UG2_4_11_L_0					
29 D	16.00	0.000	57.40	37.02	57.40	37.02	V-C	3143.	-5.300	43.00
1.000	1.000	80.02	0.000	0.000	UG2_4_11_L_0					
30 D	16.58	0.000	59.30	37.92	59.30	37.92	V-C	3143.	-5.500	45.00
1.000	1.000	82.92	0.000	0.000	UG2_4_11_L_0					
31 D	17.16	0.000	61.20	38.81	61.20	38.81	V-C	3143.	-5.700	47.00
1.000	1.000	85.81	0.000	0.000	UG2_4_11_L_0					
32 D	17.75	0.000	63.20	39.77	63.20	39.77	V-C	3143.	-5.900	49.00
1.000	1.000	88.77	0.000	0.000	UG3_4271_12_L_0					
33 D	18.34	0.000	65.20	40.72	65.20	40.72	V-C	3143.	-6.100	51.00
1.000	1.000	91.72	0.000	0.000	UG3_4271_12_L_0					
34 D	18.93	0.000	67.20	41.67	67.20	41.67	V-C	3143.	-6.300	53.00
1.000	1.000	94.67	0.000	0.000	UG3_4271_12_L_0					
35 D	19.52	0.000	69.20	42.62	69.20	42.62	V-C	3143.	-6.500	55.00
1.000	1.000	97.62	0.000	0.000	UG3_4271_12_L_0					
36 D	20.12	0.000	71.20	43.58	71.20	43.58	V-C	3143.	-6.700	57.00
1.000	1.000	100.6	0.000	0.000	UG3_4271_12_L_0					
37 D	20.71	0.000	73.20	44.53	73.20	44.53	V-C	3143.	-6.900	59.00
1.000	1.000	103.5	0.000	0.000	UG3_4271_12_L_0					
38 D	21.29	-5.6518E-18	75.15	45.46	75.15	45.46	V-C	3143.	-7.100	61.00
1.000	1.000	106.5	0.000	0.000	UG2_4_26346_L_0					
39 D	21.87	0.000	77.05	46.37	77.05	46.37	V-C	3143.	-7.300	63.00
1.000	1.000	109.4	0.000	0.000	UG2_4_26346_L_0					
40 D	22.45	0.000	78.95	47.27	78.95	47.27	V-C	3143.	-7.500	65.00
1.000	1.000	112.3	0.000	0.000	UG2_4_26346_L_0					
41 D	23.04	0.000	80.85	48.18	80.85	48.18	V-C	3143.	-7.700	67.00
1.000	1.000	115.2	0.000	0.000	UG2_4_26346_L_0					
42 D	23.62	0.000	82.75	49.09	82.75	49.09	V-C	3143.	-7.900	69.00
1.000	1.000	118.1	0.000	0.000	UG2_4_26346_L_0					
43 D	24.20	0.000	84.65	50.00	84.65	50.00	V-C	3143.	-8.100	71.00
1.000	1.000	121.0	0.000	0.000	UG2_4_26346_L_0					
44 D	24.78	0.000	86.55	50.91	86.55	50.91	V-C	3143.	-8.300	73.00
1.000	1.000	123.9	0.000	0.000	UG2_4_26346_L_0					
45 D	25.36	0.000	88.45	51.82	88.45	51.82	V-C	3143.	-8.500	75.00
1.000	1.000	126.8	0.000	0.000	UG2_4_26346_L_0					
46 D	25.95	0.000	90.35	52.74	90.35	52.74	V-C	3143.	-8.700	77.00
1.000	1.000	129.7	0.000	0.000	UG2_4_26346_L_0					
47 D	26.53	0.000	92.25	53.65	92.25	53.65	V-C	3143.	-8.900	79.00
1.000	1.000	132.7	0.000	0.000	UG2_4_26346_L_0					
48 D	27.11	-5.6518E-18	94.15	54.57	94.15	54.57	V-C	3143.	-9.100	81.00
1.000	1.000	135.6	0.000	0.000	UG2_4_26346_L_0					
49 D	27.70	0.000	96.05	55.49	96.05	55.49	V-C	3143.	-9.300	83.00
1.000	1.000	138.5	0.000	0.000	UG2_4_26346_L_0					
50 D	28.28	0.000	97.95	56.41	97.95	56.41	V-C	3143.	-9.500	85.00

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1.000       1.000       141.4       0.000       0.000     UG2_4_26346_L_0
  51 D   28.87      5.6518E-18   99.85       57.33       99.85       57.33          V-C   3143.      -9.700       87.00
1.000       1.000       144.3       0.000       0.000     UG2_4_26346_L_0
  52 D   29.45       0.000       101.7       58.25       101.7       58.25          V-C   3143.      -9.900       89.00
1.000       1.000       147.3       0.000       0.000     UG2_4_26346_L_0
  53 D   30.04       0.000       103.6       59.18       103.6       59.18          V-C   3143.      -10.10       91.00
1.000       1.000       150.2       0.000       0.000     UG2_4_26346_L_0
  54 D   30.62       0.000       105.5       60.10       105.5       60.10          V-C   3143.      -10.30       93.00
1.000       1.000       153.1       0.000       0.000     UG2_4_26346_L_0
  55 D   31.21       0.000       107.4       61.03       107.4       61.03          V-C   3143.      -10.50       95.00
1.000       1.000       156.0       0.000       0.000     UG2_4_26346_L_0
  56 D   15.90       0.000       109.3       61.96       109.3       61.96          V-C   3143.      -10.70       97.00
1.000       1.000       159.0       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 : 2 April 2019     10:37:07                                                 |
 +-------------------------------------------------------------------------------------------------------------------------+
 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   56
 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   1.244       0.000       9.261       6.218       9.261       6.218          V-C   3143.      -0.5000       0.000
1.000       1.000       6.218       0.000       0.000     UG0_2_10_L_0
    6 D   1.908       0.000       13.03       9.538       13.03       9.538          V-C   3143.      -0.7000       0.000
1.000       1.000       9.538       0.000       0.000     UG0_2_10_L_0
    7 D   2.530       0.000       16.90       12.65       16.90       12.65          V-C   3143.      -0.9000       0.000
1.000       1.000       12.65       0.000       0.000     UG0_2_10_L_0
    8 D   3.202       0.000       19.87       15.01       19.87       15.01          V-C   3143.      -1.100       1.000
1.000       1.000       16.01       0.000       0.000     UG0_2_10_L_0
    9 D   3.928       0.000       21.92       16.64       21.92       16.64          V-C   3143.      -1.300       3.000
1.000       1.000       19.64       0.000       0.000     UG0_2_10_L_0
   10 D   4.611       0.000       24.02       18.06       24.02       18.06          V-C   3143.      -1.500       5.000
1.000       1.000       23.06       0.000       0.000     UG0_2_10_L_0
   11 D   5.262      1.4129E-18   26.16       19.31       26.16       19.31          V-C   3143.      -1.700       7.000
1.000       1.000       26.31       0.000       0.000     UG0_2_10_L_0
   12 D   5.886       0.000       28.29       20.43       28.29       20.43          V-C   3143.      -1.900       9.000
1.000       1.000       29.43       0.000       0.000     UG0_2_10_L_0
   13 D   6.491       0.000       30.63       21.45       30.63       21.45          V-C   3143.      -2.100       11.00
1.000       1.000       32.45       0.000       0.000     UG0_2_10_L_0
   14 D   7.081       0.000       32.98       22.40       32.98       22.40          V-C   3143.      -2.300       13.00
1.000       1.000       35.40       0.000       0.000     UG0_2_10_L_0
   15 D   7.660       0.000       35.25       23.30       35.25       23.30          V-C   3143.      -2.500       15.00
1.000       1.000       38.30       0.000       0.000     UG0_2_10_L_0
   16 D   8.231       0.000       37.45       24.15       37.45       24.15          V-C   3143.      -2.700       17.00
1.000       1.000       41.15       0.000       0.000     UG0_2_10_L_0
   17 D   8.796       0.000       39.59       24.98       39.59       24.98          V-C   3143.      -2.900       19.00
1.000       1.000       43.98       0.000       0.000     UG0_2_10_L_0
   18 D   9.598       0.000       42.41       26.99       42.41       26.99          V-C   3143.      -3.100       21.00
1.000       1.000       47.99       0.000       0.000     UG2_4_11_L_0
   19 D   10.19     -2.8259E-18   44.62       27.93       44.62       27.93          V-C   3143.      -3.300       23.00
1.000       1.000       50.93       0.000       0.000     UG2_4_11_L_0
   20 D   10.77       0.000       46.81       28.87       46.81       28.87          V-C   3143.      -3.500       25.00
1.000       1.000       53.87       0.000       0.000     UG2_4_11_L_0
   21 D   11.36       0.000       48.97       29.79       48.97       29.79          V-C   3143.      -3.700       27.00
1.000       1.000       56.79       0.000       0.000     UG2_4_11_L_0
   22 D   11.94       0.000       51.10       30.70       51.10       30.70          V-C   3143.      -3.900       29.00
1.000       1.000       59.70       0.000       0.000     UG2_4_11_L_0
   23 D   12.52       0.000       53.64       31.61       53.64       31.61          V-C   3143.      -4.100       31.00
1.000       1.000       62.61       0.000       0.000     UG2_4_11_L_0
   24 D   13.10       0.000       55.72       32.52       55.72       32.52          V-C   3143.      -4.300       33.00
1.000       1.000       65.52       0.000       0.000     UG2_4_11_L_0
   25 D   13.68       0.000       57.79       33.42       57.79       33.42          V-C   3143.      -4.500       35.00
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1.000	1.000	68.42	0.000	0.000	UG2_4_11_L_0						
26 D	14.26	0.000	59.84	34.32	59.84	34.32	V-C	3143.	-4.700	37.00	
1.000	1.000	71.32	0.000	0.000	UG2_4_11_L_0						
27 D	14.84	0.000	62.23	35.22	62.23	35.22	V-C	3143.	-4.900	39.00	
1.000	1.000	74.22	0.000	0.000	UG2_4_11_L_0						
28 D	15.42	0.000	64.25	36.12	64.25	36.12	V-C	3143.	-5.100	41.00	
1.000	1.000	77.12	0.000	0.000	UG2_4_11_L_0						
29 D	16.00	0.000	66.26	37.02	66.26	37.02	V-C	3143.	-5.300	43.00	
1.000	1.000	80.02	0.000	0.000	UG2_4_11_L_0						
30 D	16.58	0.000	68.26	37.92	68.26	37.92	V-C	3143.	-5.500	45.00	
1.000	1.000	82.92	0.000	0.000	UG2_4_11_L_0						
31 D	17.16	0.000	70.26	38.81	70.26	38.81	V-C	3143.	-5.700	47.00	
1.000	1.000	85.81	0.000	0.000	UG2_4_11_L_0						
32 D	17.75	0.000	72.64	39.77	72.64	39.77	V-C	3143.	-5.900	49.00	
1.000	1.000	88.77	0.000	0.000	UG3_4271_12_L_0						
33 D	18.34	0.000	74.72	40.72	74.72	40.72	V-C	3143.	-6.100	51.00	
1.000	1.000	91.72	0.000	0.000	UG3_4271_12_L_0						
34 D	18.93	0.000	76.79	41.67	76.79	41.67	V-C	3143.	-6.300	53.00	
1.000	1.000	94.67	0.000	0.000	UG3_4271_12_L_0						
35 D	19.52	0.000	78.86	42.62	78.86	42.62	V-C	3143.	-6.500	55.00	
1.000	1.000	97.62	0.000	0.000	UG3_4271_12_L_0						
36 D	20.12	0.000	80.92	43.58	80.92	43.58	V-C	3143.	-6.700	57.00	
1.000	1.000	100.6	0.000	0.000	UG3_4271_12_L_0						
37 D	20.71	0.000	83.23	44.53	83.23	44.53	V-C	3143.	-6.900	59.00	
1.000	1.000	103.5	0.000	0.000	UG3_4271_12_L_0						
38 D	21.29	5.6518E-18	85.23	45.46	85.23	45.46	V-C	3143.	-7.100	61.00	
1.000	1.000	106.5	0.000	0.000	UG2_4_26346_L_0						
39 D	21.87	0.000	87.18	46.37	87.18	46.37	V-C	3143.	-7.300	63.00	
1.000	1.000	109.4	0.000	0.000	UG2_4_26346_L_0						
40 D	22.45	0.000	89.13	47.27	89.13	47.27	V-C	3143.	-7.500	65.00	
1.000	1.000	112.3	0.000	0.000	UG2_4_26346_L_0						
41 D	23.04	0.000	91.07	48.18	91.07	48.18	V-C	3143.	-7.700	67.00	
1.000	1.000	115.2	0.000	0.000	UG2_4_26346_L_0						
42 D	23.62	0.000	93.23	49.09	93.23	49.09	V-C	3143.	-7.900	69.00	
1.000	1.000	118.1	0.000	0.000	UG2_4_26346_L_0						
43 D	24.20	0.000	95.16	50.00	95.16	50.00	V-C	3143.	-8.100	71.00	
1.000	1.000	121.0	0.000	0.000	UG2_4_26346_L_0						
44 D	24.78	0.000	97.10	50.91	97.10	50.91	V-C	3143.	-8.300	73.00	
1.000	1.000	123.9	0.000	0.000	UG2_4_26346_L_0						
45 D	25.36	0.000	99.03	51.82	99.03	51.82	V-C	3143.	-8.500	75.00	
1.000	1.000	126.8	0.000	0.000	UG2_4_26346_L_0						
46 D	25.95	0.000	101.0	52.74	101.0	52.74	V-C	3143.	-8.700	77.00	
1.000	1.000	129.7	0.000	0.000	UG2_4_26346_L_0						
47 D	26.53	0.000	103.1	53.65	103.1	53.65	V-C	3143.	-8.900	79.00	
1.000	1.000	132.7	0.000	0.000	UG2_4_26346_L_0						
48 D	27.11	5.6518E-18	105.0	54.57	105.0	54.57	V-C	3143.	-9.100	81.00	
1.000	1.000	135.6	0.000	0.000	UG2_4_26346_L_0						
49 D	27.70	0.000	106.9	55.49	106.9	55.49	V-C	3143.	-9.300	83.00	
1.000	1.000	138.5	0.000	0.000	UG2_4_26346_L_0						
50 D	28.28	0.000	108.9	56.41	108.9	56.41	V-C	3143.	-9.500	85.00	
1.000	1.000	141.4	0.000	0.000	UG2_4_26346_L_0						
51 D	28.87	-5.6518E-18	110.9	57.33	110.9	57.33	V-C	3143.	-9.700	87.00	
1.000	1.000	144.3	0.000	0.000	UG2_4_26346_L_0						
52 D	29.45	0.000	112.9	58.25	112.9	58.25	V-C	3143.	-9.900	89.00	
1.000	1.000	147.3	0.000	0.000	UG2_4_26346_L_0						
53 D	30.04	0.000	114.8	59.18	114.8	59.18	V-C	3143.	-10.10	91.00	
1.000	1.000	150.2	0.000	0.000	UG2_4_26346_L_0						
54 D	30.62	0.000	116.7	60.10	116.7	60.10	V-C	3143.	-10.30	93.00	
1.000	1.000	153.1	0.000	0.000	UG2_4_26346_L_0						
55 D	31.21	0.000	118.6	61.03	118.6	61.03	V-C	3143.	-10.50	95.00	
1.000	1.000	156.0	0.000	0.000	UG2_4_26346_L_0						
56 D	15.90	0.000	120.7	61.96	120.7	61.96	V-C	3143.	-10.70	97.00	
1.000	1.000	159.0	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 : 2 April 2019     10:37:07                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
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   55
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 *****
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ITER      0 RNORM = 0.000     RMNORM= 0.000
            RINORM=0.2253E+05 RIMNOR= 0.000
            RENORM= 3829.     REMNOR= 0.000     RATIO =0.4123     TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 29.37     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   =0.2253E+05 RDR   = 0.000
            RATIOT=0.4123     RATIOR= 0.000
            MAX UN= 0.000     IEQ=   112 NODE     56 DOF   2   X-ROT. F
            MIN UN=-13.31     IEQ=    49 NODE     25 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0

ITER      2 RNORM = 0.000     RMNORM= 0.000
            RINORM=0.2253E+05 RIMNOR= 0.000
            RENORM= 346.3     REMNOR=0.7963E-20 RATIO =0.1240     TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 29.37     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   =0.2253E+05 RDR   = 0.000
            RATIOT=0.1240     RATIOR= 0.000
            MAX UN=0.1219E-09 IEQ=    91 NODE     46 DOF   1  Y-DISPL.F
            MIN UN=-6.677     IEQ=    63 NODE     32 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0

ITER      3 RNORM = 0.000     RMNORM= 0.000
            RINORM=0.2253E+05 RIMNOR= 0.000
            RENORM= 1107.     REMNOR=0.1835E-18 RATIO =0.2216     TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 29.37     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   =0.2253E+05 RDR   = 0.000
            RATIOT=0.2216     RATIOR= 0.000
            MAX UN=0.1279E-08 IEQ=    23 NODE     12 DOF   1  Y-DISPL.F
            MIN UN=-17.13     IEQ=    47 NODE     24 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0

ITER      4 RNORM = 0.000     RMNORM= 0.000
            RINORM=0.2253E+05 RIMNOR= 0.000
            RENORM= 415.9     REMNOR=0.4944E-18 RATIO =0.1359     TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 29.37     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   =0.2253E+05 RDR   = 0.000
            RATIOT=0.1359     RATIOR= 0.000
            MAX UN= 3.208     IEQ=   109 NODE     55 DOF   1  Y-DISPL.F
            MIN UN=-10.62     IEQ=    75 NODE     38 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0

ITER      5 RNORM = 0.000     RMNORM= 0.000
            RINORM=0.2253E+05 RIMNOR= 0.000
            RENORM= 311.8     REMNOR=0.1073E-17 RATIO =0.1176     TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 29.37     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   =0.2253E+05 RDR   = 0.000
            RATIOT=0.1176     RATIOR= 0.000
            MAX UN= 5.711     IEQ=   109 NODE     55 DOF   1  Y-DISPL.F
            MIN UN=-11.41     IEQ=    61 NODE     31 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0

ITER      6 RNORM = 0.000     RMNORM= 0.000
            RINORM=0.2253E+05 RIMNOR= 0.000
            RENORM= 13.33     REMNOR=0.1197E-17 RATIO =0.2432E-01 TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 29.37     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   =0.2253E+05 RDR   = 0.000
            RATIOT=0.2432E-01 RATIOR= 0.000
            MAX UN= 1.947     IEQ=   103 NODE     52 DOF   1  Y-DISPL.F
            MIN UN=-2.920     IEQ=    75 NODE     38 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0

ITER      7 RNORM = 0.000     RMNORM= 0.000
            RINORM=0.2253E+05 RIMNOR= 0.000
            RENORM=0.4717E-15 REMNOR=0.1612E-17 RATIO =0.1447E-09 TOLER =0.1000E-03      CONVERGED !
            RFMAX = 29.37     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   =0.2253E+05 RDR   = 0.000
            RATIOT=0.1447E-09 RATIOR= 0.000
            MAX UN=0.8189E-08 IEQ=     5 NODE      3 DOF   1  Y-DISPL.F
            MIN UN=-.8353E-08 IEQ=     3 NODE      2 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*            |
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|                                                                                                     |
|                                    NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178               |
|                                    Exe Time : 2 April 2019     10:37:07                             |
+-----------------------------------------------------------------------------------------------------+
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  -0.1779410       2.0707901E-02
    2  -0.1737994       2.0707901E-02
    3  -0.1696578       2.0707901E-02
    4  -0.1655163       2.0707882E-02
    5  -0.1613747       2.0707768E-02
    6  -0.1572332       2.0707406E-02
    7  -0.1530918       2.0706568E-02
    8  -0.1489506       2.0704945E-02
    9  -0.1448099       2.0702131E-02
   10  -0.1406699       2.0697576E-02
   11  -0.1365310       2.0690573E-02
   12  -0.1323938       2.0680251E-02
   13  -0.1282592       2.0665577E-02
   14  -0.1241280       2.0645354E-02
   15  -0.1200015       2.0618220E-02
   16  -0.1158813       2.0582646E-02
   17  -0.1117691       2.0536938E-02
   18  -0.1076673       2.0479240E-02
   19  -0.1035783       2.0407976E-02
   20  -9.9505085E-02   2.0321883E-02
   21  -9.5450634E-02   2.0219613E-02
   22  -9.1418394E-02   2.0099730E-02
   23  -8.7412038E-02   1.9960710E-02
   24  -8.3435513E-02   1.9800941E-02
   25  -7.9493158E-02   1.9618724E-02
   26  -7.5589639E-02   1.9412273E-02
   27  -7.1729833E-02   1.9182062E-02
   28  -6.7918223E-02   1.8931002E-02
   29  -6.4158630E-02   1.8662262E-02
   30  -6.0454271E-02   1.8379235E-02
   31  -5.6807649E-02   1.8085512E-02
   32  -5.3220527E-02   1.7784880E-02
   33  -4.9694092E-02   1.7478581E-02
   34  -4.6229573E-02   1.7165368E-02
   35  -4.2828468E-02   1.6844308E-02
   36  -3.9492414E-02   1.6514777E-02
   37  -3.6223143E-02   1.6176460E-02
   38  -3.3022416E-02   1.5829352E-02
   39  -2.9891821E-02   1.5476191E-02
   40  -2.6831998E-02   1.5122398E-02
   41  -2.3842537E-02   1.4773482E-02
   42  -2.0921931E-02   1.4434671E-02
   43  -1.8067680E-02   1.4110687E-02
   44  -1.5276400E-02   1.3805756E-02
   45  -1.2543872E-02   1.3523623E-02
   46  -9.8652129E-03   1.3267565E-02
   47  -7.2349194E-03   1.3040402E-02
   48  -4.6469679E-03   1.2844501E-02
   49  -2.0949190E-03   1.2681788E-02
   50   4.2800830E-04   1.2553183E-02
   51   2.9285504E-03   1.2457523E-02
   52   5.4129884E-03   1.2391428E-02
   53   7.8867122E-03   1.2350122E-02
   54   1.0354262E-02   1.2328110E-02
   55   1.2818845E-02   1.2319427E-02
   56   1.5282616E-02   1.2317644E-02


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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 : 2 April 2019     10:37:07                             |
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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   56
C U R R E N T   T I M E   I S      2.0000

 HARDENING 2D SOIL ELEMENT
```

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

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	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 D	15.89	7.5590E-02	0.6901	78.17	51.70	78.17	PASSIVE	0.000	-4.700	1.260	
1.000	1.000	79.43	0.000	0.000	UG2_4_11_L_0						
27 D	17.09	7.1730E-02	2.070	81.67	53.60	81.67	PASSIVE	0.000	-4.900	3.780	
1.000	1.000	85.45	0.000	0.000	UG2_4_11_L_0						
28 D	18.29	6.7918E-02	3.451	85.17	55.50	85.17	PASSIVE	0.000	-5.100	6.299	
1.000	1.000	91.47	0.000	0.000	UG2_4_11_L_0						
29 D	19.50	6.4159E-02	4.831	88.67	57.40	88.67	PASSIVE	0.000	-5.300	8.819	
1.000	1.000	97.49	0.000	0.000	UG2_4_11_L_0						
30 D	20.70	6.0454E-02	6.211	92.17	59.30	92.17	PASSIVE	0.000	-5.500	11.34	
1.000	1.000	103.5	0.000	0.000	UG2_4_11_L_0						
31 D	21.91	5.6808E-02	7.591	95.67	61.20	95.67	PASSIVE	0.000	-5.700	13.86	
1.000	1.000	109.5	0.000	0.000	UG2_4_11_L_0						
32 D	9.647	5.3221E-02	9.071	31.86	63.20	39.77	PASSIVE	0.000	-5.900	16.38	
1.000	1.000	48.24	0.000	0.000	UG3_4271_12_L_0						
33 D	11.19	4.9694E-02	10.55	37.06	65.20	40.72	PASSIVE	0.000	-6.100	18.90	
1.000	1.000	55.96	0.000	0.000	UG3_4271_12_L_0						
34 D	12.73	4.6230E-02	12.03	42.26	67.20	42.26	PASSIVE	0.000	-6.300	21.42	
1.000	1.000	63.67	0.000	0.000	UG3_4271_12_L_0						
35 D	14.28	4.2828E-02	13.51	47.45	69.20	47.45	PASSIVE	0.000	-6.500	23.94	
1.000	1.000	71.39	0.000	0.000	UG3_4271_12_L_0						
36 D	15.82	3.9492E-02	14.99	52.65	71.20	52.65	PASSIVE	0.000	-6.700	26.46	
1.000	1.000	79.11	0.000	0.000	UG3_4271_12_L_0						
37 D	17.37	3.6223E-02	16.47	57.85	73.20	57.85	PASSIVE	0.000	-6.900	28.98	
1.000	1.000	86.83	0.000	0.000	UG3_4271_12_L_0						
38 D	30.66	3.3022E-02	17.90	121.8	75.15	121.8	PASSIVE	0.000	-7.100	31.50	
1.000	1.000	153.3	0.000	0.000	UG2_4_26346_L_0						
39 D	31.86	2.9892E-02	19.28	125.3	77.05	125.3	PASSIVE	0.000	-7.300	34.02	
1.000	1.000	159.3	0.000	0.000	UG2_4_26346_L_0						
40 D	32.26	2.6832E-02	20.66	124.8	78.95	124.8	V-C	3143.	-7.500	36.54	
1.000	1.000	161.3	0.000	0.000	UG2_4_26346_L_0						
41 D	31.07	2.3843E-02	22.04	116.3	80.85	116.3	V-C	3143.	-7.700	39.06	

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1.000      1.000       155.3       0.000       0.000      UG2_4_26346_L_0
  42 D    29.91       2.0922E-02   23.42      108.0       82.75      108.0              V-C     3143.      -7.900        41.58
1.000      1.000       149.6       0.000       0.000      UG2_4_26346_L_0
  43 D    28.80       1.8068E-02   24.80       99.91      84.65       99.91             V-C     3143.      -8.100        44.10
1.000      1.000       144.0       0.000       0.000      UG2_4_26346_L_0
  44 D    27.73       1.5276E-02   26.18       92.03      86.55       92.03             V-C     3143.      -8.300        46.62
1.000      1.000       138.6       0.000       0.000      UG2_4_26346_L_0
  45 D    26.69       1.2544E-02   27.56       84.33      88.45       84.33             V-C     3143.      -8.500        49.14
1.000      1.000       133.5       0.000       0.000      UG2_4_26346_L_0
  46 D    25.69       9.8652E-03   28.94       76.80      90.35       76.80             V-C     3143.      -8.700        51.66
1.000      1.000       128.5       0.000       0.000      UG2_4_26346_L_0
  47 D    24.72       7.2349E-03   30.32       69.42      92.25       69.42             V-C     3143.      -8.900        54.18
1.000      1.000       123.6       0.000       0.000      UG2_4_26346_L_0
  48 D    23.77       4.6470E-03   31.70       62.18      94.15       62.18             V-C     3143.      -9.100        56.70
1.000      1.000       118.9       0.000       0.000      UG2_4_26346_L_0
  49 D    22.68       2.0949E-03   33.09       54.17      96.05       55.49             UL-RL   9429.      -9.300        59.21
1.000      1.000       113.4       0.000       0.000      UG2_4_26346_L_0
  50 D    18.59      -4.2801E-04   34.47       31.21      97.95       56.41             UL-RL   9429.      -9.500        61.73
1.000      1.000       92.95       0.000       0.000      UG2_4_26346_L_0
  51 D    14.54      -2.9286E-03   35.85       8.463      99.85       57.33             UL-RL   9429.      -9.700        64.25
1.000      1.000       72.72       0.000       0.000      UG2_4_26346_L_0
  52 D    13.35      -5.4130E-03   37.23       0.000      101.7       58.25             ACTIVE  0.000      -9.900        66.77
1.000      1.000       66.77       0.000       0.000      UG2_4_26346_L_0
  53 D    13.86      -7.8867E-03   38.61       0.000      103.6       59.18             ACTIVE  0.000      -10.10        69.29
1.000      1.000       69.29       0.000       0.000      UG2_4_26346_L_0
  54 D    14.36      -1.0354E-02   39.99       0.000      105.5       60.10             ACTIVE  0.000      -10.30        71.81
1.000      1.000       71.81       0.000       0.000      UG2_4_26346_L_0
  55 D    14.87      -1.2819E-02   41.37       0.000      107.4       61.03             ACTIVE  0.000      -10.50        74.33
1.000      1.000       74.33       0.000       0.000      UG2_4_26346_L_0
  56 D    7.685      -1.5283E-02   42.75       0.000      109.3       61.96             ACTIVE  0.000      -10.70        76.85
1.000      1.000       76.85       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 : 2 April 2019      10:37:07                                            |
 +--------------------------------------------------------------------------------------------------------------------+
 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    56
 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  0.1288     -0.1697       1.850      0.6438      1.850       0.9250          ACTIVE   0.000      -0.1000        0.000
1.000      1.000      0.6438       0.000       0.000      UG0_2_10_L_0
   4 D  0.3863     -0.1655       5.550       1.931      5.550       2.775          ACTIVE   0.000      -0.3000        0.000
1.000      1.000       1.931       0.000       0.000      UG0_2_10_L_0
   5 D  0.6446     -0.1614       9.261       3.223      9.261       6.218          ACTIVE   0.000      -0.5000        0.000
1.000      1.000       3.223       0.000       0.000      UG0_2_10_L_0
   6 D  0.9070     -0.1572       13.03       4.535      13.03       9.538          ACTIVE   0.000      -0.7000        0.000
1.000      1.000       4.535       0.000       0.000      UG0_2_10_L_0
   7 D  1.176      -0.1531       16.90       5.881      16.90       12.65          ACTIVE   0.000      -0.9000        0.000
1.000      1.000       5.881       0.000       0.000      UG0_2_10_L_0
   8 D  1.583      -0.1490       19.87       6.914      19.87       15.01          ACTIVE   0.000      -1.100        0.9997
1.000      1.000       7.913       0.000       0.000      UG0_2_10_L_0
   9 D  2.125      -0.1448       21.92       7.628      21.92       16.64          ACTIVE   0.000      -1.300        2.999
1.000      1.000       10.63       0.000       0.000      UG0_2_10_L_0
  10 D  2.672      -0.1407       24.02       8.360      24.02       18.06          ACTIVE   0.000      -1.500        4.999
1.000      1.000       13.36       0.000       0.000      UG0_2_10_L_0
  11 D  3.220      -0.1365       26.16       9.103      26.16       19.31          ACTIVE   0.000      -1.700        6.998
1.000      1.000       16.10       0.000       0.000      UG0_2_10_L_0
  12 D  3.769      -0.1324       28.29       9.846      28.29       20.43          ACTIVE   0.000      -1.900        8.998
1.000      1.000       18.84       0.000       0.000      UG0_2_10_L_0
  13 D  4.331      -0.1283       30.63       10.66      30.63       21.45          ACTIVE   0.000      -2.100        11.00
1.000      1.000       21.66       0.000       0.000      UG0_2_10_L_0
  14 D  4.895      -0.1241       32.99       11.48      32.99       22.41          ACTIVE   0.000      -2.300        13.00
1.000      1.000       24.48       0.000       0.000      UG0_2_10_L_0
  15 D  5.453      -0.1200       35.26       12.27      35.26       23.30          ACTIVE   0.000      -2.500        15.00
1.000      1.000       27.27       0.000       0.000      UG0_2_10_L_0
  16 D  6.006      -0.1159       37.46       13.03      37.46       24.16          ACTIVE   0.000      -2.700        17.00
```

1.000	1.000	30.03	0.000	0.000	UG0_2_10_L_0					
17 D	6.555	-0.1118	39.60	13.78	39.60	24.98	ACTIVE	0.000	-2.900	19.00
1.000	1.000	32.77	0.000	0.000	UG0_2_10_L_0					
18 D	4.121	-0.1077	42.80	0.000	42.80	27.20	ACTIVE	0.000	-3.100	20.61
1.000	1.000	20.61	0.000	0.000	UG2_4_11_L_0					
19 D	4.417	-0.1036	45.54	0.000	45.54	28.42	ACTIVE	0.000	-3.300	22.09
1.000	1.000	22.09	0.000	0.000	UG2_4_11_L_0					
20 D	4.713	-9.9505E-02	48.24	0.000	48.24	29.63	ACTIVE	0.000	-3.500	23.57
1.000	1.000	23.57	0.000	0.000	UG2_4_11_L_0					
21 D	5.009	-9.5451E-02	50.92	0.000	50.92	30.83	ACTIVE	0.000	-3.700	25.05
1.000	1.000	25.05	0.000	0.000	UG2_4_11_L_0					
22 D	5.305	-9.1418E-02	53.58	0.000	53.58	32.02	ACTIVE	0.000	-3.900	26.53
1.000	1.000	26.53	0.000	0.000	UG2_4_11_L_0					
23 D	5.601	-8.7412E-02	56.64	0.000	56.64	33.20	ACTIVE	0.000	-4.100	28.01
1.000	1.000	28.01	0.000	0.000	UG2_4_11_L_0					
24 D	5.897	-8.3436E-02	59.24	0.000	59.24	34.39	ACTIVE	0.000	-4.300	29.49
1.000	1.000	29.49	0.000	0.000	UG2_4_11_L_0					
25 D	6.193	-7.9493E-02	61.82	0.000	61.82	35.56	ACTIVE	0.000	-4.500	30.97
1.000	1.000	30.97	0.000	0.000	UG2_4_11_L_0					
26 D	6.489	-7.5590E-02	64.39	0.000	64.39	36.74	ACTIVE	0.000	-4.700	32.45
1.000	1.000	32.45	0.000	0.000	UG2_4_11_L_0					
27 D	6.785	-7.1730E-02	67.30	0.000	67.30	37.92	ACTIVE	0.000	-4.900	33.93
1.000	1.000	33.93	0.000	0.000	UG2_4_11_L_0					
28 D	7.142	-6.7918E-02	69.84	0.3041	69.84	39.09	ACTIVE	0.000	-5.100	35.41
1.000	1.000	35.71	0.000	0.000	UG2_4_11_L_0					
29 D	7.682	-6.4159E-02	72.37	1.521	72.37	40.26	ACTIVE	0.000	-5.300	36.89
1.000	1.000	38.41	0.000	0.000	UG2_4_11_L_0					
30 D	8.220	-6.0454E-02	74.89	2.734	74.89	41.44	ACTIVE	0.000	-5.500	38.37
1.000	1.000	41.10	0.000	0.000	UG2_4_11_L_0					
31 D	8.758	-5.6808E-02	77.41	3.945	77.41	42.61	ACTIVE	0.000	-5.700	39.85
1.000	1.000	43.79	0.000	0.000	UG2_4_11_L_0					
32 D	14.39	-5.3221E-02	80.31	30.60	80.31	43.84	ACTIVE	0.000	-5.900	41.33
1.000	1.000	71.93	0.000	0.000	UG3_4271_12_L_0					
33 D	14.88	-4.9694E-02	82.91	31.59	82.91	45.07	ACTIVE	0.000	-6.100	42.81
1.000	1.000	74.40	0.000	0.000	UG3_4271_12_L_0					
34 D	15.37	-4.6230E-02	85.50	32.58	85.50	46.29	ACTIVE	0.000	-6.300	44.29
1.000	1.000	76.86	0.000	0.000	UG3_4271_12_L_0					
35 D	15.87	-4.2828E-02	88.09	33.56	88.09	47.52	ACTIVE	0.000	-6.500	45.77
1.000	1.000	79.33	0.000	0.000	UG3_4271_12_L_0					
36 D	16.36	-3.9492E-02	90.67	34.55	90.67	48.75	ACTIVE	0.000	-6.700	47.25
1.000	1.000	81.79	0.000	0.000	UG3_4271_12_L_0					
37 D	16.87	-3.6223E-02	93.50	35.62	93.50	49.99	ACTIVE	0.000	-6.900	48.73
1.000	1.000	84.35	0.000	0.000	UG3_4271_12_L_0					
38 D	12.63	-3.3022E-02	96.02	12.96	96.02	51.19	ACTIVE	0.000	-7.100	50.21
1.000	1.000	63.17	0.000	0.000	UG2_4_26346_L_0					
39 D	13.17	-2.9892E-02	98.49	14.15	98.49	52.37	ACTIVE	0.000	-7.300	51.69
1.000	1.000	65.84	0.000	0.000	UG2_4_26346_L_0					
40 D	13.70	-2.6832E-02	101.0	15.34	101.0	53.55	ACTIVE	0.000	-7.500	53.17
1.000	1.000	68.51	0.000	0.000	UG2_4_26346_L_0					
41 D	14.23	-2.3843E-02	103.4	16.52	103.4	54.74	ACTIVE	0.000	-7.700	54.65
1.000	1.000	71.17	0.000	0.000	UG2_4_26346_L_0					
42 D	14.79	-2.0922E-02	106.1	17.81	106.1	55.92	ACTIVE	0.000	-7.900	56.13
1.000	1.000	73.94	0.000	0.000	UG2_4_26346_L_0					
43 D	15.32	-1.8068E-02	108.6	19.00	108.6	57.11	ACTIVE	0.000	-8.100	57.61
1.000	1.000	76.61	0.000	0.000	UG2_4_26346_L_0					
44 D	15.85	-1.5276E-02	111.0	20.18	111.0	58.29	ACTIVE	0.000	-8.300	59.09
1.000	1.000	79.27	0.000	0.000	UG2_4_26346_L_0					
45 D	16.39	-1.2544E-02	113.5	21.36	113.5	59.48	ACTIVE	0.000	-8.500	60.57
1.000	1.000	81.93	0.000	0.000	UG2_4_26346_L_0					
46 D	16.92	-9.8652E-03	115.9	22.54	115.9	60.67	ACTIVE	0.000	-8.700	62.05
1.000	1.000	84.59	0.000	0.000	UG2_4_26346_L_0					
47 D	17.47	-7.2349E-03	118.5	23.82	118.5	61.87	ACTIVE	0.000	-8.900	63.53
1.000	1.000	87.35	0.000	0.000	UG2_4_26346_L_0					
48 D	18.00	-4.6470E-03	121.0	24.99	121.0	63.06	ACTIVE	0.000	-9.100	65.01
1.000	1.000	90.01	0.000	0.000	UG2_4_26346_L_0					
49 D	22.20	-2.0949E-03	123.4	44.50	123.4	64.25	UL-RL	9429.	-9.300	66.49
1.000	1.000	111.0	0.000	0.000	UG2_4_26346_L_0					
50 D	26.95	4.2801E-04	125.9	66.79	125.9	66.79	V-C	3143.	-9.500	67.97
1.000	1.000	134.8	0.000	0.000	UG2_4_26346_L_0					
51 D	29.06	2.9286E-03	128.5	75.85	128.5	75.85	V-C	3143.	-9.700	69.45
1.000	1.000	145.3	0.000	0.000	UG2_4_26346_L_0					
52 D	31.16	5.4130E-03	130.9	84.86	130.9	84.86	V-C	3143.	-9.900	70.93
1.000	1.000	155.8	0.000	0.000	UG2_4_26346_L_0					
53 D	33.25	7.8867E-03	133.4	93.83	133.4	93.83	V-C	3143.	-10.10	72.41
1.000	1.000	166.2	0.000	0.000	UG2_4_26346_L_0					
54 D	35.34	1.0354E-02	135.8	102.8	135.8	102.8	V-C	3143.	-10.30	73.89
1.000	1.000	176.7	0.000	0.000	UG2_4_26346_L_0					
55 D	37.42	1.2819E-02	138.2	111.7	138.2	111.7	V-C	3143.	-10.50	75.37
1.000	1.000	187.1	0.000	0.000	UG2_4_26346_L_0					
56 D	19.75	1.5283E-02	140.8	120.7	140.8	120.7	V-C	3143.	-10.70	76.85
1.000	1.000	197.5	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.NTC2018A2M2R1_1178

```
|                                 Exe Time : 2 April 2019     10:37:07                                                      |
+---------------------------------------------------------------------------------------------------------------------------+
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   55
C U R R E N T    T I M E    I S      2.0000

 WALL2D ELEMENT

   EL       TA           TB           MA           MB
-----------------------------------------------------
    1-3.65071E-09 3.65071E-09-3.65617E-10-5.20231E-10
    2 4.70209E-09-4.70209E-09 6.44491E-10 7.86940E-10
    3-0.12876     0.12876    -7.29415E-10-2.57520E-02
    4-0.51504     0.51504     2.57520E-02-0.12876
    5 -1.1596      1.1596     0.12876     -0.36068
    6 -2.0666      2.0666     0.36068     -0.77400
    7 -3.2427      3.2427     0.77400      -1.4225
    8 -4.8254      4.8254      1.4225      -2.3876
    9 -6.9508      6.9508      2.3876      -3.7778
   10 -9.6226      9.6226      3.7778      -5.7023
   11 -12.843      12.843      5.7023      -8.2708
   12 -16.612      16.612      8.2708      -11.593
   13 -20.943      20.943      11.593      -15.782
   14 -25.838      25.838      15.782      -20.949
   15 -31.291      31.291      20.949      -27.208
   16 -37.297      37.297      27.208      -34.667
   17 -43.852      43.852      34.667      -43.438
   18 -47.973      47.973      43.438      -53.032
   19 -52.390      52.390      53.032      -63.510
   20 -57.104      57.104      63.510      -74.931
   21 -62.113      62.113      74.931      -87.354
   22 -67.418      67.418      87.354      -100.84
   23 -73.019      73.019      100.84      -115.44
   24 -78.916      78.916      115.44      -131.22
   25 -85.110      85.110      131.22      -148.25
   26 -75.712      75.712      148.25      -163.39
   27 -65.407      65.407      163.39      -176.47
   28 -54.256      54.256      176.47      -187.32
   29 -42.439      42.439      187.32      -195.81
   30 -29.958      29.958      195.81      -201.80
   31 -16.811      16.811      201.80      -205.16
   32 -21.549      21.549      205.16      -209.47
   33 -25.237      25.237      209.47      -214.52
   34 -27.876      27.876      214.52      -220.10
   35 -29.463      29.463      220.10      -225.99
   36 -30.000      30.000      225.99      -231.99
   37 -29.505      29.505      231.99      -237.89
   38 -11.477      11.477      237.89      -240.18
   39  7.2199     -7.2199      240.18      -238.74
   40  25.782     -25.782      238.74      -233.58
   41  42.614     -42.614      233.58      -225.06
   42  57.739     -57.739      225.06      -213.51
   43  71.218     -71.218      213.51      -199.27
   44  83.093     -83.093      199.27      -182.65
   45  93.400     -93.400      182.65      -163.97
   46  102.17     -102.17      163.97      -143.54
   47  109.42     -109.42      143.54      -121.65
   48  115.20     -115.20      121.65      -98.613
   49  115.68     -115.68      98.613      -75.478
   50  107.31     -107.31      75.478      -54.016
   51  92.794     -92.794      54.016      -35.457
   52  74.991     -74.991      35.457      -20.459
   53  55.600     -55.600      20.459      -9.3391
   54  34.626     -34.626      9.3391      -2.4140
   55  12.069     -12.069      2.4140      1.38698E-11


+---------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                 |
|                                                                                                                           |
|                                 NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                        |
|                                 Exe Time : 2 April 2019     10:37:07                                                      |
+---------------------------------------------------------------------------------------------------------------------------+


     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]

7.5. Design Assumption : Nominal - File di SteelWorld - Report esteso (.ext)


-------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.     1
                                                      2 April 2019     10:37:09
                          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

-------------------------------------------------------------------------------



-------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.     2
                                                      2 April 2019     10:37:09
                          DEFAULT TITLE FOR STEEL-WORLD
-------------------------------------------------------------------------------
                     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

STEEL-WORLD 4.4 Ce.A.S. s.r.l. PAG. 3
2 April 2019 10:37:09
DEFAULT TITLE FOR STEEL-WORLD

CHECK OF DIRECTLY INPUT MEMBER LW0_S0

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
47	9.200	0.000	0.000	0.000	0.000	0.000	0.000
48	9.400	0.000	0.000	0.000	0.000	0.000	0.000
49	9.600	0.000	0.000	0.000	0.000	0.000	0.000
50	9.800	0.000	0.000	0.000	0.000	0.000	0.000
51	10.000	0.000	0.000	0.000	0.000	0.000	0.000
52	10.200	0.000	0.000	0.000	0.000	0.000	0.000
53	10.400	0.000	0.000	0.000	0.000	0.000	0.000
54	10.600	0.000	0.000	0.000	0.000	0.000	0.000
55	10.800	0.000	0.000	0.000	0.000	0.000	0.000
56	11.000	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
```

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          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

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.     5
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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

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.     6
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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       =    0.000
          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
             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.     7
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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.     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
                  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.     8
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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       =    0.000
          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
                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.     9
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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.    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

               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.    10
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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.    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

               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.    11
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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.    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]
          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.    12
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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       =    0.000
          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



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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    13
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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.    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


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                       PAG.    14
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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.    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


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    15
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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.    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


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    16
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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.    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



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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    17
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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.    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


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    18
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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.    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]


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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.    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



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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                      PAG.    20
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          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

          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


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                       PAG.    21
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          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

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


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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

               betab     1.000
```

```
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           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


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          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

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


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    24
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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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.    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


           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


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    25
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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.    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


           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]


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    26
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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.    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=  8999.996     [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



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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    27
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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          Section no.    46 at x=  8999.996     [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.    47 at x=  9199.996     [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.    47 at x=  9199.996     [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.    48 at x=  9399.996     [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


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    28
                                                      2 April 2019     10:37:09
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--------------------------------------------------------------------------------


          Section no.    48 at x=  9399.996     [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.    49 at x=  9599.995     [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.    49 at x=  9599.995     [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.    50 at x=  9799.995     [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.    29
                                                      2 April 2019     10:37:09
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    50 at x=  9799.995     [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.    51 at x=  9999.995     [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.    51 at x=  9999.995     [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.    52 at x=  10200.00     [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.    30
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    52 at x=  10200.00     [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.    53 at x=  10399.99     [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.    53 at x=  10399.99     [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.    54 at x=  10599.99     [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.    31
                                                      2 April 2019     10:37:09
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    54 at x=  10599.99     [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.    55 at x=  10799.99     [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.    55 at x=  10799.99     [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.    56 at x=  11000.00     [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.    32
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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.    56 at x=  11000.00     [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.  56
          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) =      11000.
               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



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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=    11000.00     [mm]
           buckl. length about x-x      =  10700.00     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      300.00     XMAX =      11000.
               BXMIN=      0.0000     BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      11000.
               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 ******



--------------------------------------------------------------------------------
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          No axial compression: skipping buckling


LCASE          1  SUBCASE    1
FOUND AT ACTION FILE LINE N.       74
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
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

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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
47	9.200	0.000	0.000	0.000	0.000	0.000	0.000
48	9.400	0.000	0.000	0.000	0.000	0.000	0.000
49	9.600	0.000	0.000	0.000	0.000	0.000	0.000
50	9.800	0.000	0.000	0.000	0.000	0.000	0.000
51	10.000	0.000	0.000	0.000	0.000	0.000	0.000
52	10.200	0.000	0.000	0.000	0.000	0.000	0.000
53	10.400	0.000	0.000	0.000	0.000	0.000	0.000
54	10.600	0.000	0.000	0.000	0.000	0.000	0.000
55	10.800	0.000	0.000	0.000	0.000	0.000	0.000
56	11.000	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

5.2.2(2):     McRd= 0.8562E+09



-------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    37
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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.     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

5.2.2(2):     McRd= 0.8562E+09


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    38
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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       =    0.000
          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
             gammaM0      1.050



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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    39
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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.     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
                  fy      275.0
             gammaM0      1.050



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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    40
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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.     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
                Wply    0.3269E+07
                  fy     275.0


--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    41
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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.    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
```

```
                betab     1.000
                 Wply    0.3269E+07


--------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    42
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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.    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

               betab     1.000



--------------------------------------------------------------------------------
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                                                      2 April 2019     10:37:09
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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.    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]
          selected class for current cross section =  2



--------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                      PAG.    44
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--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           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

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    45
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--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------


                betab     1.000
                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           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

          Section no.    21 at x=  4000.001     [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.    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



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          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
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000
```

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          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
          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.    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
          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.    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]
          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.    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

          Section no.    32 at x=  6199.999     [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.    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

          Section no.    34 at x=  6599.998     [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.    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


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09



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          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


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09


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          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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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


           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.    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


           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.    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=  8999.996     [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.    46 at x=  8999.996     [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.    47 at x=  9199.996     [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.    47 at x=  9199.996     [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.    48 at x=  9399.996     [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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                         DEFAULT TITLE FOR STEEL-WORLD
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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.    48 at x=  9399.996     [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.    49 at x=  9599.995     [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.    49 at x=  9599.995     [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.    50 at x=  9799.995     [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.     61
                                                      2 April 2019     10:37:09
                          DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     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.    50 at x=  9799.995     [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.    51 at x=  9999.995     [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.    51 at x=  9999.995     [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.    52 at x=  10200.00     [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.    62
                                                    2 April 2019     10:37:09
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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.    52 at x=  10200.00     [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.    53 at x=  10399.99     [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.    53 at x=  10399.99     [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.    54 at x=  10599.99     [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.    63
                                                    2 April 2019     10:37:09
                         DEFAULT TITLE FOR STEEL-WORLD
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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.    54 at x=  10599.99     [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.    55 at x=  10799.99     [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.    55 at x=  10799.99     [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.    56 at x=  11000.00     [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.    64
                                                      2 April 2019     10:37:09
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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.    56 at x=  11000.00     [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.  56
          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) =      11000.
               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



--------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    65
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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          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=    11000.00     [mm]
           buckl. length about x-x      =  10700.00     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      300.00     XMAX =      11000.
               BXMIN=      0.0000     BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      11000.
               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



--------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    66
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--------------------------------------------------------------------------------


************  STABILITY CHECK  ********
```

******* EUROCODE 3 PART 5 - 2007 ******

No axial compression: skipping buckling

LCASE 2 SUBCASE 1
FOUND AT ACTION FILE LINE N. 210
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
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
47	9.200	0.000	0.000	0.000	0.000	0.000	0.000
48	9.400	0.000	0.000	0.000	0.000	0.000	0.000
49	9.600	0.000	0.000	0.000	0.000	0.000	0.000
50	9.800	0.000	0.000	0.000	0.000	0.000	0.000
51	10.000	0.000	0.000	0.000	0.000	0.000	0.000
52	10.200	0.000	0.000	0.000	0.000	0.000	0.000
53	10.400	0.000	0.000	0.000	0.000	0.000	0.000
54	10.600	0.000	0.000	0.000	0.000	0.000	0.000
55	10.800	0.000	0.000	0.000	0.000	0.000	0.000
56	11.000	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



-------------------------------------------------------------------------------
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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.     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



-------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    69
                                                    2 April 2019     10:37:09
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------

                  fy     275.0
             gammaM0     1.050
```

```
5.2.2(2):     McRd= 0.8562E+09


           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


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    70
                                                      2 April 2019     10:37:09
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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.     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



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                                                    2 April 2019     10:37:09
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          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



-------------------------------------------------------------------------------
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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.     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]


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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.    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



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          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

          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



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          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


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


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          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


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


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          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


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


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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.    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


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    79
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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.    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]


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    80
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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.    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



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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    81
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          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


           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.    82
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          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
```

```
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.    83
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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

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.    84
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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
             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.    85
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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
                  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.    86
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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.    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



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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.    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



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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                      PAG.    88
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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.    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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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    89
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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



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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    90
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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.    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=  8999.996     [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.    46 at x=  8999.996     [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.    47 at x=  9199.996     [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.    47 at x=  9199.996     [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.    48 at x=  9399.996     [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.    48 at x=  9399.996     [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.    49 at x=  9599.995     [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.    49 at x=  9599.995     [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.    50 at x=  9799.995     [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.    50 at x=  9799.995     [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.    51 at x=  9999.995     [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.    51 at x=  9999.995     [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.    52 at x=  10200.00     [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.    52 at x=  10200.00     [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.    53 at x=  10399.99     [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.    53 at x=  10399.99     [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.    54 at x=  10599.99     [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.    54 at x=  10599.99     [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.    55 at x=  10799.99     [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.    55 at x=  10799.99     [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.    56 at x=  11000.00     [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.    56 at x=  11000.00     [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.  56
          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) =      11000.
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : PSI         0.0000
  "     "    Cm          0.0000



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  "     "    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=    11000.00     [mm]
           buckl. length about x-x      =  10700.00     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      300.00     XMAX =      11000.
               BXMIN=      0.0000     BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      11000.
               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
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    98
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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


LCASE          3  SUBCASE    1
FOUND AT ACTION FILE LINE N.      346
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
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


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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    99
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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
47     9.200  0.000      0.000      0.000      0.000      0.000      0.000
48     9.400  0.000      0.000      0.000      0.000      0.000      0.000
49     9.600  0.000      0.000      0.000      0.000      0.000      0.000
50     9.800  0.000      0.000      0.000      0.000      0.000      0.000
51    10.000  0.000      0.000      0.000      0.000      0.000      0.000
52    10.200  0.000      0.000      0.000      0.000      0.000      0.000
53    10.400  0.000      0.000      0.000      0.000      0.000      0.000
54    10.600  0.000      0.000      0.000      0.000      0.000      0.000
55    10.800  0.000      0.000      0.000      0.000      0.000      0.000
56    11.000  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]


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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.     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
```

```
--------------------------------------------------------------------------------
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

          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
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000


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          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
          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.     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
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000


--------------------------------------------------------------------------------
```

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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.     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]
          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.    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

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2


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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.    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

          Section no.    14 at x=  2600.000     [mm]


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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.    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


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09



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--------------------------------------------------------------------------------

          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

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.   109
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-------------------------------------------------------------------------------


          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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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.   110
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------

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


           Moment resistance: no need to consider shear reduction



-------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                      PAG.   111
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------


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


           Moment resistance: no need to consider shear reduction


-------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.   112
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------


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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                     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.    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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           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

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.    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

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       =    0.000
          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



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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.    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


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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.    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


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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.    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


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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.    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


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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.    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



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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       =    0.000
          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=  8999.996     [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.    46 at x=  8999.996     [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.    47 at x=  9199.996     [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.    47 at x=  9199.996     [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.    48 at x=  9399.996     [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.    48 at x=  9399.996     [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.    49 at x=  9599.995     [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.    49 at x=  9599.995     [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.    50 at x=  9799.995     [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.    50 at x=  9799.995     [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.    51 at x=  9999.995     [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.    51 at x=  9999.995     [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.    52 at x=  10200.00     [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.    52 at x=  10200.00     [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.    53 at x=  10399.99     [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.    53 at x=  10399.99     [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.    54 at x=  10599.99     [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.    54 at x=  10599.99     [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.    55 at x=  10799.99     [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.    55 at x=  10799.99     [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.    56 at x=  11000.00     [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.    56 at x=  11000.00     [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.  56
          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



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               X(1) =      0.0000     X(N) =      11000.
               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=    11000.00     [mm]
           buckl. length about x-x      =  10700.00     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      300.00     XMAX =      11000.
               BXMIN=      0.0000     BXMAX=      0.0000
```

```
              X(1) =      0.0000     X(N) =      11000.
              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


-------------------------------------------------------------------------------
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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          4  SUBCASE    1
FOUND AT ACTION FILE LINE N.      482
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

-------------------------------------------------------------------------------



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-------------------------------------------------------------------------------

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       0.1014      0.000       0.000       0.000
 4     0.600   0.000      0.000       0.4055      0.000       0.2028E-01  0.000
 5     0.800   0.000      0.000       0.9130      0.000       0.1014      0.000
 6     1.000   0.000      0.000       1.627       0.000       0.2840      0.000
 7     1.200   0.000      0.000       2.553       0.000       0.6094      0.000
 8     1.400   0.000      0.000       3.842       0.000       1.120       0.000
 9     1.600   0.000      0.000       5.643       0.000       1.888       0.000
10     1.800   0.000      0.000       7.959       0.000       3.017       0.000
11     2.000   0.000      0.000       10.79       0.000       4.609       0.000
12     2.200   0.000      0.000       14.14       0.000       6.767       0.000
13     2.400   0.000      0.000       18.02       0.000       9.596       0.000
14     2.600   0.000      0.000       22.43       0.000       13.20       0.000
15     2.800   0.000      0.000       27.36       0.000       17.69       0.000
16     3.000   0.000      0.000       32.81       0.000       23.16       0.000
```

17	3.200	0.000	0.000	38.78	0.000	29.72	0.000
18	3.400	0.000	0.000	42.90	0.000	37.47	0.000
19	3.600	0.000	0.000	47.32	0.000	46.05	0.000
20	3.800	0.000	0.000	52.03	0.000	55.52	0.000
21	4.000	0.000	0.000	57.04	0.000	65.92	0.000
22	4.200	0.000	0.000	62.34	0.000	77.33	0.000
23	4.400	0.000	0.000	67.95	0.000	89.80	0.000
24	4.600	0.000	0.000	73.84	0.000	103.4	0.000
25	4.800	0.000	0.000	80.04	0.000	118.2	0.000
26	5.000	0.000	0.000	65.85	0.000	134.2	0.000
27	5.200	0.000	0.000	52.14	0.000	147.3	0.000
28	5.400	0.000	0.000	38.94	0.000	157.8	0.000
29	5.600	0.000	0.000	26.23	0.000	165.6	0.000
30	5.800	0.000	0.000	13.99	0.000	170.8	0.000
31	6.000	0.000	0.000	2.198	0.000	173.6	0.000
32	6.200	0.000	0.000	3.329	0.000	174.0	0.000
33	6.400	0.000	0.000	2.977	0.000	174.7	0.000
34	6.600	0.000	0.000	1.142	0.000	175.3	0.000
35	6.800	0.000	0.000	-2.176	0.000	175.5	0.000
36	7.000	0.000	0.000	-6.678	0.000	175.1	0.000
37	7.200	0.000	0.000	-10.75	0.000	173.8	0.000
38	7.400	0.000	0.000	-20.19	0.000	171.6	0.000
39	7.600	0.000	0.000	-29.23	0.000	167.6	0.000

40	7.800	0.000	0.000	-37.89	0.000	161.7	0.000
41	8.000	0.000	0.000	-46.21	0.000	154.1	0.000
42	8.200	0.000	0.000	-54.20	0.000	144.9	0.000
43	8.400	0.000	0.000	-60.50	0.000	134.1	0.000
44	8.600	0.000	0.000	-65.16	0.000	122.0	0.000
45	8.800	0.000	0.000	-68.26	0.000	108.9	0.000
46	9.000	0.000	0.000	-69.88	0.000	95.28	0.000
47	9.200	0.000	0.000	-69.88	0.000	81.30	0.000
48	9.400	0.000	0.000	-67.78	0.000	67.33	0.000
49	9.600	0.000	0.000	-63.65	0.000	53.77	0.000
50	9.800	0.000	0.000	-57.55	0.000	41.04	0.000
51	10.000	0.000	0.000	-49.82	0.000	29.53	0.000
52	10.200	0.000	0.000	-40.87	0.000	19.57	0.000
53	10.400	0.000	0.000	-30.73	0.000	11.39	0.000
54	10.600	0.000	0.000	-19.39	0.000	5.249	0.000
55	10.800	0.000	0.000	-6.858	0.000	1.372	0.000
56	11.000	0.000	0.000	-6.858	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
```

```
--------------------------------------------------------------------------------
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          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 = 0.1014     kN , VplRd =  1117.     kN, ratio = 0.9077E-04

               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.     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 = 0.4055     kN , VplRd =  1117.     kN, ratio = 0.3631E-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 = 0.9130     kN , VplRd =  1117.     kN, ratio = 0.8174E-03


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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.     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 =  1.627     kN , VplRd =  1117.     kN, ratio = 0.1457E-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       =    0.001


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          max. resist. ratio (max. among above)=    0.001
          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 =  2.553     kN , VplRd =  1117.     kN, ratio = 0.2286E-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       =    0.002
          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 =  3.842     kN , VplRd =  1117.     kN, ratio = 0.3440E-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.     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 =  5.643     kN , VplRd =  1117.     kN, ratio = 0.5052E-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 =  7.959     kN , VplRd =  1117.     kN, ratio = 0.7126E-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.    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       =    0.007
          max. resist. ratio (max. among above)=    0.007
          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 =  10.79     kN , VplRd =  1117.     kN, ratio = 0.9662E-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       =    0.010
          max. resist. ratio (max. among above)=    0.010



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```
          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 =  14.14     kN , VplRd =  1117.     kN, ratio = 0.1266E-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       =    0.008
          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 =  18.02     kN , VplRd =  1117.     kN, ratio = 0.1613E-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.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.011
          resist. ratio according to 5.4       =    0.016
          max. resist. ratio (max. among above)=    0.016
          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 =  22.43     kN , VplRd =  1117.     kN, ratio = 0.2008E-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       =    0.015
          resist. ratio according to 5.4       =    0.020
          max. resist. ratio (max. among above)=    0.020
          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 =  27.36     kN , VplRd =  1117.     kN, ratio = 0.2449E-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.    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       =    0.024
          max. resist. ratio (max. among above)=    0.024
          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 =  32.81     kN , VplRd =  1117.     kN, ratio = 0.2938E-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       =    0.029
          max. resist. ratio (max. among above)=    0.029
          web buckling ratio (5.7)             =    0.000



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          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 =  38.78     kN , VplRd =  1117.     kN, ratio = 0.3472E-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       =    0.035
          resist. ratio according to 5.4       =    0.035
          max. resist. ratio (max. among above)=    0.035
          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 =  42.90     kN , VplRd =  1117.     kN, ratio = 0.3841E-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.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.044
          resist. ratio according to 5.4       =    0.038
          max. resist. ratio (max. among above)=    0.044
          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 =  47.32     kN , VplRd =  1117.     kN, ratio = 0.4236E-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       =    0.054
          resist. ratio according to 5.4       =    0.042
          max. resist. ratio (max. among above)=    0.054
          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 =  52.03     kN , VplRd =  1117.     kN, ratio = 0.4658E-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.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.065
          resist. ratio according to 5.4       =    0.047
          max. resist. ratio (max. among above)=    0.065
          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 =  57.04     kN , VplRd =  1117.     kN, ratio = 0.5107E-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       =    0.077
          resist. ratio according to 5.4       =    0.051
          max. resist. ratio (max. among above)=    0.077
          web buckling ratio (5.7)             =    0.000



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          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 =  62.34     kN , VplRd =  1117.     kN, ratio = 0.5582E-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       =    0.090
          resist. ratio according to 5.4       =    0.056
          max. resist. ratio (max. among above)=    0.090
          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 =  67.95     kN , VplRd =  1117.     kN, ratio = 0.6083E-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.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.105
          resist. ratio according to 5.4       =    0.061
          max. resist. ratio (max. among above)=    0.105
          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 =  73.84     kN , VplRd =  1117.     kN, ratio = 0.6611E-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       =    0.121
          resist. ratio according to 5.4       =    0.066
```

```
          max. resist. ratio (max. among above)=    0.121
          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 =  80.04     kN , VplRd =  1117.     kN, ratio = 0.7166E-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.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.138
          resist. ratio according to 5.4       =    0.072
          max. resist. ratio (max. among above)=    0.138
          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 =  65.85     kN , VplRd =  1117.     kN, ratio = 0.5895E-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       =    0.157
          resist. ratio according to 5.4       =    0.059
          max. resist. ratio (max. among above)=    0.157
          web buckling ratio (5.7)             =    0.000

          Section no.    27 at x=  5200.000     [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 =  52.14     kN , VplRd =  1117.     kN, ratio = 0.4669E-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       =    0.172
          resist. ratio according to 5.4       =    0.047
          max. resist. ratio (max. among above)=    0.172
          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 =  38.94     kN , VplRd =  1117.     kN, ratio = 0.3487E-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.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.184
          resist. ratio according to 5.4       =    0.035
          max. resist. ratio (max. among above)=    0.184
          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 =  26.23     kN , VplRd =  1117.     kN, ratio = 0.2349E-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.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.193
          resist. ratio according to 5.4       =    0.023
          max. resist. ratio (max. among above)=    0.193
          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 =  13.99     kN , VplRd =  1117.     kN, ratio = 0.1253E-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.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.199
          resist. ratio according to 5.4       =    0.013
          max. resist. ratio (max. among above)=    0.199
          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 =  2.198     kN , VplRd =  1117.     kN, ratio = 0.1968E-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       =    0.203
          resist. ratio according to 5.4       =    0.002
          max. resist. ratio (max. among above)=    0.203
          web buckling ratio (5.7)             =    0.000

          Section no.    32 at x=  6199.999     [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 =  3.329     kN , VplRd =  1117.     kN, ratio = 0.2981E-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.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.203
          resist. ratio according to 5.4       =    0.003
          max. resist. ratio (max. among above)=    0.203
          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 =  2.977     kN , VplRd =  1117.     kN, ratio = 0.2666E-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.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.204
          resist. ratio according to 5.4       =    0.003
          max. resist. ratio (max. among above)=    0.204
          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 =  1.142     kN , VplRd =  1117.     kN, ratio = 0.1023E-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.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.205
          resist. ratio according to 5.4       =    0.001
          max. resist. ratio (max. among above)=    0.205
          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 = -2.176     kN , VplRd =  1117.     kN, ratio = 0.1948E-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.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.205
          resist. ratio according to 5.4       =    0.002
          max. resist. ratio (max. among above)=    0.205
          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 = -6.678     kN , VplRd =  1117.     kN, ratio = 0.5979E-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.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.205
          resist. ratio according to 5.4       =    0.006
          max. resist. ratio (max. among above)=    0.205
          web buckling ratio (5.7)             =    0.000

          Section no.    37 at x=  7199.998     [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 = -10.75     kN , VplRd =  1117.     kN, ratio = 0.9628E-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.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.203
          resist. ratio according to 5.4       =    0.010
          max. resist. ratio (max. among above)=    0.203
          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 = -20.19     kN , VplRd =  1117.     kN, ratio = 0.1808E-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]


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          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.200
          resist. ratio according to 5.4       =    0.018
          max. resist. ratio (max. among above)=    0.200
          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 = -29.23     kN , VplRd =  1117.     kN, ratio = 0.2617E-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       =    0.196
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.196
          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 = -37.89     kN , VplRd =  1117.     kN, ratio = 0.3392E-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.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.189
          resist. ratio according to 5.4       =    0.034
          max. resist. ratio (max. among above)=    0.189
          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 = -46.21     kN , VplRd =  1117.     kN, ratio = 0.4137E-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       =    0.180
          resist. ratio according to 5.4       =    0.041
          max. resist. ratio (max. among above)=    0.180
          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


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          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -54.20     kN , VplRd =  1117.     kN, ratio = 0.4853E-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       =    0.169
          resist. ratio according to 5.4       =    0.049
          max. resist. ratio (max. among above)=    0.169
          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 = -60.50     kN , VplRd =  1117.     kN, ratio = 0.5417E-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


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          resist. ratio according to 5.1       =    0.157
          resist. ratio according to 5.4       =    0.054
          max. resist. ratio (max. among above)=    0.157
          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 = -65.16     kN , VplRd =  1117.     kN, ratio = 0.5834E-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       =    0.142
          resist. ratio according to 5.4       =    0.058
          max. resist. ratio (max. among above)=    0.142
          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 = -68.26     kN , VplRd =  1117.     kN, ratio = 0.6111E-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.    45 at x=  8799.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.127
          resist. ratio according to 5.4       =    0.061
          max. resist. ratio (max. among above)=    0.127
          web buckling ratio (5.7)             =    0.000

          Section no.    46 at x=  8999.996     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -69.88     kN , VplRd =  1117.     kN, ratio = 0.6257E-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.    46 at x=  8999.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.111
          resist. ratio according to 5.4       =    0.063
          max. resist. ratio (max. among above)=    0.111
          web buckling ratio (5.7)             =    0.000

          Section no.    47 at x=  9199.996     [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 = -69.88     kN , VplRd =  1117.     kN, ratio = 0.6256E-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.    47 at x=  9199.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.095
          resist. ratio according to 5.4       =    0.063
          max. resist. ratio (max. among above)=    0.095
          web buckling ratio (5.7)             =    0.000

          Section no.    48 at x=  9399.996     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -67.78     kN , VplRd =  1117.     kN, ratio = 0.6068E-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.    48 at x=  9399.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.079


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          resist. ratio according to 5.4       =    0.061
          max. resist. ratio (max. among above)=    0.079
          web buckling ratio (5.7)             =    0.000

          Section no.    49 at x=  9599.995     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -63.65     kN , VplRd =  1117.     kN, ratio = 0.5698E-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.    49 at x=  9599.995     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.063
          resist. ratio according to 5.4       =    0.057
          max. resist. ratio (max. among above)=    0.063
          web buckling ratio (5.7)             =    0.000

          Section no.    50 at x=  9799.995     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -57.55     kN , VplRd =  1117.     kN, ratio = 0.5152E-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.    50 at x=  9799.995     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.048
          resist. ratio according to 5.4       =    0.052
          max. resist. ratio (max. among above)=    0.052
          web buckling ratio (5.7)             =    0.000

          Section no.    51 at x=  9999.995     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -49.82     kN , VplRd =  1117.     kN, ratio = 0.4460E-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.    51 at x=  9999.995     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.034
          resist. ratio according to 5.4       =    0.045
          max. resist. ratio (max. among above)=    0.045
          web buckling ratio (5.7)             =    0.000

          Section no.    52 at x=  10200.00     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -40.87     kN , VplRd =  1117.     kN, ratio = 0.3659E-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.    52 at x=  10200.00     [mm]
```

```
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.023
          resist. ratio according to 5.4       =    0.037
          max. resist. ratio (max. among above)=    0.037
          web buckling ratio (5.7)             =    0.000

          Section no.    53 at x=  10399.99     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -30.73     kN , VplRd =  1117.     kN, ratio = 0.2751E-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.    53 at x=  10399.99     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.013
          resist. ratio according to 5.4       =    0.028



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          max. resist. ratio (max. among above)=    0.028
          web buckling ratio (5.7)             =    0.000

          Section no.    54 at x=  10599.99     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -19.39     kN , VplRd =  1117.     kN, ratio = 0.1736E-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.    54 at x=  10599.99     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.006
          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.    55 at x=  10799.99     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -6.858     kN , VplRd =  1117.     kN, ratio = 0.6140E-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.    55 at x=  10799.99     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.002
          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.    56 at x=  11000.00     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -6.858     kN , VplRd =  1117.     kN, ratio = 0.6140E-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.    56 at x=  11000.00     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.006
          max. resist. ratio (max. among above)=    0.006
          web buckling ratio (5.7)             =    0.000

          Summary of resistance checks over all the sections
          max selected class: 2, at station no.  56
          maximum resistance   ratio               =    0.205
          maximum web buckling ratio               =    0.000

EC3 PILING: START BUCKLING CHECKS



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CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  1
           zstart      =  0.000000     [mm]  zend=    4900.000     [mm]
           buckl. length about x-x      =  4900.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      0.0000     XMAX =      4900.0
               BXMIN=      0.0000     BXMAX=     0.12616E+09
               X(1) =      0.0000     X(N) =      11000.
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.47560E+17
  "    "   : ERR Q M - PARABOLA CENTR.  0.51171E+17
```

```
Table B.3  : PSI         0.0000
  "     "    ALPHA      0.83199E-01
  "     "    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]=  126.16


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      =  4900.000     [mm]  zend=    11000.00     [mm]
           buckl. length about x-x      =  6100.000     [mm]



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CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      4900.0     XMAX =      11000.
               BXMIN=     0.12616E+09 BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      11000.
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.38325E+17
  "    "   : ERR Q M - PARABOLA CENTR.  0.99662E+17
Table B.3  : PSI         0.0000
  "     "    ALPHA      0.80853
  "     "    Cm unif.   0.99043
  "     "    Cm conc.   0.98085
  "     "    Cm avrg.   0.98351
  "     "    Cm     .   0.98085
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      = 0.98085
          Max. bending moment (abs value) [kNm]=  175.53


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.      142
EC3_EN_1993-5:20   RESISTANCE RATIO            0.205
                   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

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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	0.1014	0.000	0.000	0.000
4	0.600	0.000	0.000	0.4055	0.000	0.2028E-01	0.000
5	0.800	0.000	0.000	0.9130	0.000	0.1014	0.000
6	1.000	0.000	0.000	1.627	0.000	0.2840	0.000
7	1.200	0.000	0.000	2.553	0.000	0.6094	0.000
8	1.400	0.000	0.000	3.842	0.000	1.120	0.000
9	1.600	0.000	0.000	5.643	0.000	1.888	0.000
10	1.800	0.000	0.000	7.959	0.000	3.017	0.000
11	2.000	0.000	0.000	10.79	0.000	4.609	0.000
12	2.200	0.000	0.000	14.14	0.000	6.767	0.000
13	2.400	0.000	0.000	18.02	0.000	9.596	0.000
14	2.600	0.000	0.000	22.43	0.000	13.20	0.000
15	2.800	0.000	0.000	27.36	0.000	17.69	0.000
16	3.000	0.000	0.000	32.81	0.000	23.16	0.000
17	3.200	0.000	0.000	38.78	0.000	29.72	0.000
18	3.400	0.000	0.000	42.90	0.000	37.47	0.000
19	3.600	0.000	0.000	47.32	0.000	46.05	0.000
20	3.800	0.000	0.000	52.03	0.000	55.52	0.000
21	4.000	0.000	0.000	57.04	0.000	65.92	0.000
22	4.200	0.000	0.000	62.34	0.000	77.33	0.000
23	4.400	0.000	0.000	67.95	0.000	89.80	0.000
24	4.600	0.000	0.000	73.84	0.000	103.4	0.000
25	4.800	0.000	0.000	80.04	0.000	118.2	0.000
26	5.000	0.000	0.000	65.85	0.000	134.2	0.000
27	5.200	0.000	0.000	52.14	0.000	147.3	0.000
28	5.400	0.000	0.000	38.94	0.000	157.8	0.000
29	5.600	0.000	0.000	26.23	0.000	165.6	0.000
30	5.800	0.000	0.000	13.99	0.000	170.8	0.000
31	6.000	0.000	0.000	2.198	0.000	173.6	0.000
32	6.200	0.000	0.000	3.329	0.000	174.0	0.000
33	6.400	0.000	0.000	2.977	0.000	174.7	0.000
34	6.600	0.000	0.000	1.142	0.000	175.3	0.000
35	6.800	0.000	0.000	-2.176	0.000	175.5	0.000
36	7.000	0.000	0.000	-6.678	0.000	175.1	0.000
37	7.200	0.000	0.000	-10.75	0.000	173.8	0.000
38	7.400	0.000	0.000	-20.19	0.000	171.6	0.000
39	7.600	0.000	0.000	-29.23	0.000	167.6	0.000
40	7.800	0.000	0.000	-37.89	0.000	161.7	0.000
41	8.000	0.000	0.000	-46.21	0.000	154.1	0.000
42	8.200	0.000	0.000	-54.20	0.000	144.9	0.000
43	8.400	0.000	0.000	-60.50	0.000	134.1	0.000
44	8.600	0.000	0.000	-65.16	0.000	122.0	0.000
45	8.800	0.000	0.000	-68.26	0.000	108.9	0.000
46	9.000	0.000	0.000	-69.88	0.000	95.28	0.000
47	9.200	0.000	0.000	-69.88	0.000	81.30	0.000

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48	9.400	0.000	0.000	-67.78	0.000	67.33	0.000
49	9.600	0.000	0.000	-63.65	0.000	53.77	0.000
50	9.800	0.000	0.000	-57.55	0.000	41.04	0.000
51	10.000	0.000	0.000	-49.82	0.000	29.53	0.000
52	10.200	0.000	0.000	-40.87	0.000	19.57	0.000
53	10.400	0.000	0.000	-30.73	0.000	11.39	0.000
54	10.600	0.000	0.000	-19.39	0.000	5.249	0.000
55	10.800	0.000	0.000	-6.858	0.000	1.372	0.000
56	11.000	0.000	0.000	-6.858	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



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          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 = 0.1014     kN , VplRd =  1117.     kN, ratio = 0.9077E-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
```

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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.     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 = 0.4055     kN , VplRd =  1117.     kN, ratio = 0.3631E-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 = 0.9130     kN , VplRd =  1117.     kN, ratio = 0.8174E-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.     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 =  1.627     kN , VplRd =  1117.     kN, ratio = 0.1457E-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       =    0.001
          max. resist. ratio (max. among above)=    0.001
          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


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          Vsd =  2.553     kN , VplRd =  1117.     kN, ratio = 0.2286E-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       =    0.002
          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 =  3.842     kN , VplRd =  1117.     kN, ratio = 0.3440E-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
```

```
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          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 =  5.643     kN , VplRd =  1117.     kN, ratio = 0.5052E-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 =  7.959     kN , VplRd =  1117.     kN, ratio = 0.7126E-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.    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       =    0.007
          max. resist. ratio (max. among above)=    0.007
          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 =  10.79     kN , VplRd =  1117.     kN, ratio = 0.9662E-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       =    0.010
          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 =  14.14     kN , VplRd =  1117.     kN, ratio = 0.1266E-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.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.008
          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 =  18.02     kN , VplRd =  1117.     kN, ratio = 0.1613E-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       =    0.011
          resist. ratio according to 5.4       =    0.016



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          max. resist. ratio (max. among above)=    0.016
          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 =  22.43     kN , VplRd =  1117.     kN, ratio = 0.2008E-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       =    0.015
          resist. ratio according to 5.4       =    0.020
          max. resist. ratio (max. among above)=    0.020
          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 =  27.36     kN , VplRd =  1117.     kN, ratio = 0.2449E-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.    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       =    0.024
          max. resist. ratio (max. among above)=    0.024
          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 =  32.81     kN , VplRd =  1117.     kN, ratio = 0.2938E-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       =    0.029
          max. resist. ratio (max. among above)=    0.029
          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 =  38.78     kN , VplRd =  1117.     kN, ratio = 0.3472E-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.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.035
          resist. ratio according to 5.4       =    0.035
          max. resist. ratio (max. among above)=    0.035
          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 =  42.90     kN , VplRd =  1117.     kN, ratio = 0.3841E-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       =    0.044
          resist. ratio according to 5.4       =    0.038
          max. resist. ratio (max. among above)=    0.044


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          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 =  47.32     kN , VplRd =  1117.     kN, ratio = 0.4236E-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       =    0.054
          resist. ratio according to 5.4       =    0.042
          max. resist. ratio (max. among above)=    0.054
          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 =  52.03     kN , VplRd =  1117.     kN, ratio = 0.4658E-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       =    0.065
          resist. ratio according to 5.4       =    0.047
          max. resist. ratio (max. among above)=    0.065
          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 =  57.04     kN , VplRd =  1117.     kN, ratio = 0.5107E-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       =    0.077
          resist. ratio according to 5.4       =    0.051
          max. resist. ratio (max. among above)=    0.077
          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 =  62.34     kN , VplRd =  1117.     kN, ratio = 0.5582E-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.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.090
          resist. ratio according to 5.4       =    0.056
          max. resist. ratio (max. among above)=    0.090
          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 =  67.95     kN , VplRd =  1117.     kN, ratio = 0.6083E-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       =    0.105
          resist. ratio according to 5.4       =    0.061
          max. resist. ratio (max. among above)=    0.105
          web buckling ratio (5.7)             =    0.000



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          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 =  73.84     kN , VplRd =  1117.     kN, ratio = 0.6611E-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       =    0.121
          resist. ratio according to 5.4       =    0.066
          max. resist. ratio (max. among above)=    0.121
          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 =  80.04     kN , VplRd =  1117.     kN, ratio = 0.7166E-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.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.138
          resist. ratio according to 5.4       =    0.072
          max. resist. ratio (max. among above)=    0.138
          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 =  65.85     kN , VplRd =  1117.     kN, ratio = 0.5895E-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       =    0.157
          resist. ratio according to 5.4       =    0.059
          max. resist. ratio (max. among above)=    0.157
          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 =  52.14     kN , VplRd =  1117.     kN, ratio = 0.4669E-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.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.172
          resist. ratio according to 5.4       =    0.047
          max. resist. ratio (max. among above)=    0.172
          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 =  38.94     kN , VplRd =  1117.     kN, ratio = 0.3487E-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       =    0.184
          resist. ratio according to 5.4       =    0.035
          max. resist. ratio (max. among above)=    0.184
          web buckling ratio (5.7)             =    0.000



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          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 =  26.23     kN , VplRd =  1117.     kN, ratio = 0.2349E-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.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.193
          resist. ratio according to 5.4       =    0.023
          max. resist. ratio (max. among above)=    0.193
          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 =  13.99     kN , VplRd =  1117.     kN, ratio = 0.1253E-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.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.199
          resist. ratio according to 5.4       =    0.013
          max. resist. ratio (max. among above)=    0.199
          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 =  2.198     kN , VplRd =  1117.     kN, ratio = 0.1968E-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       =    0.203
          resist. ratio according to 5.4       =    0.002
          max. resist. ratio (max. among above)=    0.203
          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 =  3.329     kN , VplRd =  1117.     kN, ratio = 0.2981E-02

               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.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.203
          resist. ratio according to 5.4       =    0.003
          max. resist. ratio (max. among above)=    0.203
          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 =  2.977     kN , VplRd =  1117.     kN, ratio = 0.2666E-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       =    0.204
          resist. ratio according to 5.4       =    0.003
          max. resist. ratio (max. among above)=    0.204
          web buckling ratio (5.7)             =    0.000

          Section no.    34 at x=  6599.998     [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 =  1.142     kN , VplRd =  1117.     kN, ratio = 0.1023E-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.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.205
          resist. ratio according to 5.4       =    0.001
          max. resist. ratio (max. among above)=    0.205
          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 = -2.176     kN , VplRd =  1117.     kN, ratio = 0.1948E-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.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.205
          resist. ratio according to 5.4       =    0.002
          max. resist. ratio (max. among above)=    0.205
          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 = -6.678     kN , VplRd =  1117.     kN, ratio = 0.5979E-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.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2
```

```
          resist. ratio according to 5.1       =    0.205
          resist. ratio according to 5.4       =    0.006
          max. resist. ratio (max. among above)=    0.205
          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 = -10.75     kN , VplRd =  1117.     kN, ratio = 0.9628E-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.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.203
          resist. ratio according to 5.4       =    0.010
          max. resist. ratio (max. among above)=    0.203
          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 = -20.19     kN , VplRd =  1117.     kN, ratio = 0.1808E-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       =    0.200
          resist. ratio according to 5.4       =    0.018
          max. resist. ratio (max. among above)=    0.200
          web buckling ratio (5.7)             =    0.000

          Section no.    39 at x=  7599.997     [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 = -29.23     kN , VplRd =  1117.     kN, ratio = 0.2617E-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       =    0.196
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.196
          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 = -37.89     kN , VplRd =  1117.     kN, ratio = 0.3392E-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.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.189
          resist. ratio according to 5.4       =    0.034
          max. resist. ratio (max. among above)=    0.189
          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 = -46.21     kN , VplRd =  1117.     kN, ratio = 0.4137E-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       =    0.180
          resist. ratio according to 5.4       =    0.041
          max. resist. ratio (max. among above)=    0.180
```

```
          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 = -54.20     kN , VplRd =  1117.     kN, ratio = 0.4853E-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.    42 at x=  8199.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.169
          resist. ratio according to 5.4       =    0.049
          max. resist. ratio (max. among above)=    0.169
          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 = -60.50     kN , VplRd =  1117.     kN, ratio = 0.5417E-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       =    0.157
          resist. ratio according to 5.4       =    0.054
          max. resist. ratio (max. among above)=    0.157
          web buckling ratio (5.7)             =    0.000

          Section no.    44 at x=  8599.996     [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 = -65.16     kN , VplRd =  1117.     kN, ratio = 0.5834E-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       =    0.142
          resist. ratio according to 5.4       =    0.058
          max. resist. ratio (max. among above)=    0.142
          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 = -68.26     kN , VplRd =  1117.     kN, ratio = 0.6111E-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.    45 at x=  8799.996     [mm]


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          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.127
          resist. ratio according to 5.4       =    0.061
          max. resist. ratio (max. among above)=    0.127
          web buckling ratio (5.7)             =    0.000

          Section no.    46 at x=  8999.996     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -69.88     kN , VplRd =  1117.     kN, ratio = 0.6257E-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.    46 at x=  8999.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.111
          resist. ratio according to 5.4       =    0.063
          max. resist. ratio (max. among above)=    0.111
          web buckling ratio (5.7)             =    0.000

          Section no.    47 at x=  9199.996     [mm]
```

```
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -69.88     kN , VplRd =  1117.     kN, ratio = 0.6256E-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.    47 at x=  9199.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.095
          resist. ratio according to 5.4       =    0.063
          max. resist. ratio (max. among above)=    0.095
          web buckling ratio (5.7)             =    0.000

          Section no.    48 at x=  9399.996     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -67.78     kN , VplRd =  1117.     kN, ratio = 0.6068E-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.    48 at x=  9399.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.079
          resist. ratio according to 5.4       =    0.061
          max. resist. ratio (max. among above)=    0.079
          web buckling ratio (5.7)             =    0.000

          Section no.    49 at x=  9599.995     [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 = -63.65     kN , VplRd =  1117.     kN, ratio = 0.5698E-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.    49 at x=  9599.995     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.063
          resist. ratio according to 5.4       =    0.057
          max. resist. ratio (max. among above)=    0.063
          web buckling ratio (5.7)             =    0.000

          Section no.    50 at x=  9799.995     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -57.55     kN , VplRd =  1117.     kN, ratio = 0.5152E-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.    50 at x=  9799.995     [mm]
          selected class for current cross section =  2


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          resist. ratio according to 5.1       =    0.048
          resist. ratio according to 5.4       =    0.052
          max. resist. ratio (max. among above)=    0.052
          web buckling ratio (5.7)             =    0.000

          Section no.    51 at x=  9999.995     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -49.82     kN , VplRd =  1117.     kN, ratio = 0.4460E-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.    51 at x=  9999.995     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.034
          resist. ratio according to 5.4       =    0.045
          max. resist. ratio (max. among above)=    0.045
          web buckling ratio (5.7)             =    0.000

          Section no.    52 at x=  10200.00     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
```

```
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -40.87     kN , VplRd =  1117.     kN, ratio = 0.3659E-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.    52 at x=  10200.00     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.023
          resist. ratio according to 5.4       =    0.037
          max. resist. ratio (max. among above)=    0.037
          web buckling ratio (5.7)             =    0.000

          Section no.    53 at x=  10399.99     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -30.73     kN , VplRd =  1117.     kN, ratio = 0.2751E-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.    53 at x=  10399.99     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.013
          resist. ratio according to 5.4       =    0.028
          max. resist. ratio (max. among above)=    0.028
          web buckling ratio (5.7)             =    0.000

          Section no.    54 at x=  10599.99     [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 = -19.39     kN , VplRd =  1117.     kN, ratio = 0.1736E-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.    54 at x=  10599.99     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.006
          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.    55 at x=  10799.99     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -6.858     kN , VplRd =  1117.     kN, ratio = 0.6140E-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.    55 at x=  10799.99     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.002


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          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.    56 at x=  11000.00     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -6.858     kN , VplRd =  1117.     kN, ratio = 0.6140E-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.    56 at x=  11000.00     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.006
          max. resist. ratio (max. among above)=    0.006
          web buckling ratio (5.7)             =    0.000

          Summary of resistance checks over all the sections
          max selected class: 2, at station no.  56
          maximum resistance   ratio              =    0.205
          maximum web buckling ratio              =    0.000

EC3 PILING: START BUCKLING CHECKS
```

```
CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  1
          zstart      =  0.000000     [mm]  zend=    4900.000     [mm]
          buckl. length about x-x      =  4900.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION



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Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      0.0000     XMAX =      4900.0
               BXMIN=      0.0000     BXMAX=     0.12616E+09
               X(1) =      0.0000     X(N) =      11000.
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.47560E+17
  "    "   : ERR Q M - PARABOLA CENTR.  0.51171E+17
Table B.3  : PSI          0.0000
  "     "    ALPHA      0.83199E-01
  "     "    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]=  126.16


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      =  4900.000     [mm]  zend=    11000.00     [mm]
          buckl. length about x-x      =  6100.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      4900.0     XMAX =      11000.
               BXMIN=     0.12616E+09 BXMAX=      0.0000



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               X(1) =      0.0000     X(N) =      11000.
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.38325E+17
  "    "   : ERR Q M - PARABOLA CENTR.  0.99662E+17
Table B.3  : PSI          0.0000
  "     "    ALPHA      0.80853
  "     "    Cm unif.   0.99043
  "     "    Cm conc.   0.98085
  "     "    Cm avrg.   0.98351
  "     "    Cm     .   0.98085
```

```
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      = 0.98085
          Max. bending moment (abs value) [kNm]=  175.53


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.      278
EC3_EN_1993-5:20   RESISTANCE RATIO            0.205
                   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     0.1318      0.000      0.000      0.000
 4     0.600  0.000      0.000     0.5272      0.000     0.2636E-01  0.000
 5     0.800  0.000      0.000      1.187      0.000      0.1318     0.000
 6     1.000  0.000      0.000      2.115      0.000      0.3692     0.000
 7     1.200  0.000      0.000      3.319      0.000      0.7922     0.000
 8     1.400  0.000      0.000      4.994      0.000       1.456     0.000


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 9     1.600  0.000      0.000      7.336      0.000      2.455      0.000
10     1.800  0.000      0.000      10.35      0.000      3.922      0.000
11     2.000  0.000      0.000      14.03      0.000      5.991      0.000
12     2.200  0.000      0.000      18.38      0.000      8.797      0.000
13     2.400  0.000      0.000      23.43      0.000      12.47      0.000
14     2.600  0.000      0.000      29.16      0.000      17.16      0.000
15     2.800  0.000      0.000      35.57      0.000      22.99      0.000
16     3.000  0.000      0.000      42.65      0.000      30.10      0.000
17     3.200  0.000      0.000      50.41      0.000      38.63      0.000
18     3.400  0.000      0.000      55.77      0.000      48.72      0.000
19     3.600  0.000      0.000      61.51      0.000      59.87      0.000
20     3.800  0.000      0.000      67.64      0.000      72.17      0.000
21     4.000  0.000      0.000      74.15      0.000      85.70      0.000
22     4.200  0.000      0.000      81.05      0.000      100.5      0.000
23     4.400  0.000      0.000      88.33      0.000      116.7      0.000
24     4.600  0.000      0.000      96.00      0.000      134.4      0.000
25     4.800  0.000      0.000      104.0      0.000      153.6      0.000
26     5.000  0.000      0.000      85.60      0.000      174.4      0.000
27     5.200  0.000      0.000      67.79      0.000      191.5      0.000
28     5.400  0.000      0.000      50.63      0.000      205.1      0.000
29     5.600  0.000      0.000      34.10      0.000      215.2      0.000
30     5.800  0.000      0.000      18.19      0.000      222.0      0.000
31     6.000  0.000      0.000      2.858      0.000      225.7      0.000
32     6.200  0.000      0.000      4.328      0.000      226.2      0.000
33     6.400  0.000      0.000      3.871      0.000      227.1      0.000
34     6.600  0.000      0.000      1.485      0.000      227.9      0.000
35     6.800  0.000      0.000     -2.829      0.000      228.2      0.000
36     7.000  0.000      0.000     -8.682      0.000      227.6      0.000
37     7.200  0.000      0.000     -13.98      0.000      225.9      0.000
38     7.400  0.000      0.000     -26.25      0.000      223.1      0.000
39     7.600  0.000      0.000     -38.00      0.000      217.8      0.000
40     7.800  0.000      0.000     -49.26      0.000      210.2      0.000
41     8.000  0.000      0.000     -60.08      0.000      200.4      0.000
42     8.200  0.000      0.000     -70.46      0.000      188.4      0.000
43     8.400  0.000      0.000     -78.65      0.000      174.3      0.000
44     8.600  0.000      0.000     -84.70      0.000      158.5      0.000
45     8.800  0.000      0.000     -88.73      0.000      141.6      0.000
46     9.000  0.000      0.000     -90.85      0.000      123.9      0.000
```

```
47     9.200  0.000      0.000     -90.84      0.000      105.7      0.000
48     9.400  0.000      0.000     -88.11      0.000      87.52      0.000
49     9.600  0.000      0.000     -82.74      0.000      69.90      0.000
50     9.800  0.000      0.000     -74.81      0.000      53.35      0.000
51    10.000  0.000      0.000     -64.76      0.000      38.39      0.000
52    10.200  0.000      0.000     -53.13      0.000      25.44      0.000
53    10.400  0.000      0.000     -39.94      0.000      14.81      0.000
54    10.600  0.000      0.000     -25.20      0.000      6.824      0.000
55    10.800  0.000      0.000     -8.916      0.000      1.783      0.000


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56    11.000  0.000      0.000     -8.916      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



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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.     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 = 0.1318     kN , VplRd =  1117.     kN, ratio = 0.1180E-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

          Section no.     4 at x=  600.0000     [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 = 0.5272     kN , VplRd =  1117.     kN, ratio = 0.4720E-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 =  1.187     kN , VplRd =  1117.     kN, ratio = 0.1063E-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]


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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       =    0.001
          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 =  2.115     kN , VplRd =  1117.     kN, ratio = 0.1894E-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 =  3.319     kN , VplRd =  1117.     kN, ratio = 0.2972E-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.     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 =  4.994     kN , VplRd =  1117.     kN, ratio = 0.4472E-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

          Section no.     9 at x=  1600.000     [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 =  7.336     kN , VplRd =  1117.     kN, ratio = 0.6568E-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        =    0.007
          max. resist. ratio (max. among above)=    0.007
          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 =  10.35     kN , VplRd =  1117.     kN, ratio = 0.9264E-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


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          resist. ratio according to 5.1       =    0.005
          resist. ratio according to 5.4       =    0.009
          max. resist. ratio (max. among above)=    0.009
          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 =  14.03     kN , VplRd =  1117.     kN, ratio = 0.1256E-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       =    0.013
          max. resist. ratio (max. among above)=    0.013
          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 =  18.38     kN , VplRd =  1117.     kN, ratio = 0.1646E-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.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.010
          resist. ratio according to 5.4       =    0.016
          max. resist. ratio (max. among above)=    0.016
          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 =  23.43     kN , VplRd =  1117.     kN, ratio = 0.2097E-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       =    0.015
          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.    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


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          Vsd =  29.16     kN , VplRd =  1117.     kN, ratio = 0.2610E-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       =    0.020
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.026
          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 =  35.57     kN , VplRd =  1117.     kN, ratio = 0.3184E-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       =    0.027


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          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.    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 =  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.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.035
          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.    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 =  50.41     kN , VplRd =  1117.     kN, ratio = 0.4514E-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.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.045
          resist. ratio according to 5.4       =    0.045
          max. resist. ratio (max. among above)=    0.045
          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 =  55.77     kN , VplRd =  1117.     kN, ratio = 0.4993E-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       =    0.057
          resist. ratio according to 5.4       =    0.050
          max. resist. ratio (max. among above)=    0.057
          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 =  61.51     kN , VplRd =  1117.     kN, ratio = 0.5507E-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.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.070
          resist. ratio according to 5.4       =    0.055
          max. resist. ratio (max. among above)=    0.070
          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 =  67.64     kN , VplRd =  1117.     kN, ratio = 0.6056E-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       =    0.084
```

```
          resist. ratio according to 5.4       =    0.061


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          max. resist. ratio (max. among above)=    0.084
          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 =  74.15     kN , VplRd =  1117.     kN, ratio = 0.6639E-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       =    0.100
          resist. ratio according to 5.4       =    0.066
          max. resist. ratio (max. among above)=    0.100
          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 =  81.05     kN , VplRd =  1117.     kN, ratio = 0.7256E-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.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.117
          resist. ratio according to 5.4       =    0.073
          max. resist. ratio (max. among above)=    0.117
          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 =  88.33     kN , VplRd =  1117.     kN, ratio = 0.7908E-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       =    0.136
          resist. ratio according to 5.4       =    0.079
          max. resist. ratio (max. among above)=    0.136
          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 =  96.00     kN , VplRd =  1117.     kN, ratio = 0.8595E-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.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.157
          resist. ratio according to 5.4       =    0.086
          max. resist. ratio (max. among above)=    0.157
          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 =  104.0     kN , VplRd =  1117.     kN, ratio = 0.9316E-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       =    0.179
          resist. ratio according to 5.4       =    0.093
          max. resist. ratio (max. among above)=    0.179
```

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          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 =  85.60     kN , VplRd =  1117.     kN, ratio = 0.7664E-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       =    0.204
          resist. ratio according to 5.4       =    0.077
          max. resist. ratio (max. among above)=    0.204
          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 =  67.79     kN , VplRd =  1117.     kN, ratio = 0.6069E-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.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.224
          resist. ratio according to 5.4       =    0.061
          max. resist. ratio (max. among above)=    0.224
          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 =  50.63     kN , VplRd =  1117.     kN, ratio = 0.4533E-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       =    0.240
          resist. ratio according to 5.4       =    0.045
          max. resist. ratio (max. among above)=    0.240
          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 =  34.10     kN , VplRd =  1117.     kN, ratio = 0.3053E-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.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.251
          resist. ratio according to 5.4       =    0.031
          max. resist. ratio (max. among above)=    0.251
          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 =  18.19     kN , VplRd =  1117.     kN, ratio = 0.1629E-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       =    0.259
          resist. ratio according to 5.4       =    0.016
          max. resist. ratio (max. among above)=    0.259
          web buckling ratio (5.7)             =    0.000
```

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          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 =  2.858     kN , VplRd =  1117.     kN, ratio = 0.2559E-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       =    0.264
          resist. ratio according to 5.4       =    0.003
          max. resist. ratio (max. among above)=    0.264
          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 =  4.328     kN , VplRd =  1117.     kN, ratio = 0.3875E-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.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.264
          resist. ratio according to 5.4       =    0.004
          max. resist. ratio (max. among above)=    0.264
          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 =  3.871     kN , VplRd =  1117.     kN, ratio = 0.3465E-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       =    0.265
          resist. ratio according to 5.4       =    0.003
          max. resist. ratio (max. among above)=    0.265
          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 =  1.485     kN , VplRd =  1117.     kN, ratio = 0.1330E-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.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.266
          resist. ratio according to 5.4       =    0.001
          max. resist. ratio (max. among above)=    0.266
          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 = -2.829     kN , VplRd =  1117.     kN, ratio = 0.2533E-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.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.267
          resist. ratio according to 5.4       =    0.003
          max. resist. ratio (max. among above)=    0.267
          web buckling ratio (5.7)             =    0.000



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          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 = -8.682     kN , VplRd =  1117.     kN, ratio = 0.7773E-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.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.266
          resist. ratio according to 5.4       =    0.008
          max. resist. ratio (max. among above)=    0.266
          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 = -13.98     kN , VplRd =  1117.     kN, ratio = 0.1252E-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.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.264
          resist. ratio according to 5.4       =    0.013
          max. resist. ratio (max. among above)=    0.264
          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 = -26.25     kN , VplRd =  1117.     kN, ratio = 0.2350E-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       =    0.261
          resist. ratio according to 5.4       =    0.024
          max. resist. ratio (max. among above)=    0.261
          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 = -38.00     kN , VplRd =  1117.     kN, ratio = 0.3402E-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.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.254
          resist. ratio according to 5.4       =    0.034
          max. resist. ratio (max. among above)=    0.254
          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 = -49.26     kN , VplRd =  1117.     kN, ratio = 0.4410E-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       =    0.246
          resist. ratio according to 5.4       =    0.044
          max. resist. ratio (max. among above)=    0.246
          web buckling ratio (5.7)             =    0.000

          Section no.    41 at x=  7999.997     [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 = -60.08     kN , VplRd =  1117.     kN, ratio = 0.5379E-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       =    0.234
          resist. ratio according to 5.4       =    0.054
          max. resist. ratio (max. among above)=    0.234
          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 = -70.46     kN , VplRd =  1117.     kN, ratio = 0.6309E-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.    42 at x=  8199.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.220
          resist. ratio according to 5.4       =    0.063
          max. resist. ratio (max. among above)=    0.220
          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 = -78.65     kN , VplRd =  1117.     kN, ratio = 0.7042E-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       =    0.204
          resist. ratio according to 5.4       =    0.070
          max. resist. ratio (max. among above)=    0.204
          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 = -84.70     kN , VplRd =  1117.     kN, ratio = 0.7584E-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.    44 at x=  8599.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.185
          resist. ratio according to 5.4       =    0.076
          max. resist. ratio (max. among above)=    0.185
          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 = -88.73     kN , VplRd =  1117.     kN, ratio = 0.7945E-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.    45 at x=  8799.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.165
          resist. ratio according to 5.4       =    0.079
          max. resist. ratio (max. among above)=    0.165
          web buckling ratio (5.7)             =    0.000

          Section no.    46 at x=  8999.996     [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 = -90.85     kN , VplRd =  1117.     kN, ratio = 0.8134E-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.    46 at x=  8999.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.145
          resist. ratio according to 5.4       =    0.081
          max. resist. ratio (max. among above)=    0.145
          web buckling ratio (5.7)             =    0.000

          Section no.    47 at x=  9199.996     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -90.84     kN , VplRd =  1117.     kN, ratio = 0.8133E-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.    47 at x=  9199.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.123
          resist. ratio according to 5.4       =    0.081
          max. resist. ratio (max. among above)=    0.123
          web buckling ratio (5.7)             =    0.000

          Section no.    48 at x=  9399.996     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -88.11     kN , VplRd =  1117.     kN, ratio = 0.7889E-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.    48 at x=  9399.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.102
          resist. ratio according to 5.4       =    0.079
          max. resist. ratio (max. among above)=    0.102
          web buckling ratio (5.7)             =    0.000

          Section no.    49 at x=  9599.995     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -82.74     kN , VplRd =  1117.     kN, ratio = 0.7408E-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.    49 at x=  9599.995     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.082
          resist. ratio according to 5.4       =    0.074
          max. resist. ratio (max. among above)=    0.082
          web buckling ratio (5.7)             =    0.000

          Section no.    50 at x=  9799.995     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -74.81     kN , VplRd =  1117.     kN, ratio = 0.6698E-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.    50 at x=  9799.995     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.062
          resist. ratio according to 5.4       =    0.067
          max. resist. ratio (max. among above)=    0.067
          web buckling ratio (5.7)             =    0.000

          Section no.    51 at x=  9999.995     [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 = -64.76     kN , VplRd =  1117.     kN, ratio = 0.5798E-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.    51 at x=  9999.995     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.045
          resist. ratio according to 5.4       =    0.058
          max. resist. ratio (max. among above)=    0.058
          web buckling ratio (5.7)             =    0.000

          Section no.    52 at x=  10200.00     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -53.13     kN , VplRd =  1117.     kN, ratio = 0.4757E-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.    52 at x=  10200.00     [mm]


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          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.030
          resist. ratio according to 5.4       =    0.048
          max. resist. ratio (max. among above)=    0.048
          web buckling ratio (5.7)             =    0.000

          Section no.    53 at x=  10399.99     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -39.94     kN , VplRd =  1117.     kN, ratio = 0.3576E-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.    53 at x=  10399.99     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.017
```

```
          resist. ratio according to 5.4       =    0.036
          max. resist. ratio (max. among above)=    0.036
          web buckling ratio (5.7)             =    0.000

          Section no.    54 at x=  10599.99     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -25.20     kN , VplRd =  1117.     kN, ratio = 0.2256E-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.    54 at x=  10599.99     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.008
          resist. ratio according to 5.4       =    0.023
          max. resist. ratio (max. among above)=    0.023
          web buckling ratio (5.7)             =    0.000

          Section no.    55 at x=  10799.99     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -8.916     kN , VplRd =  1117.     kN, ratio = 0.7982E-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.    55 at x=  10799.99     [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
          web buckling ratio (5.7)             =    0.000

          Section no.    56 at x=  11000.00     [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 = -8.916     kN , VplRd =  1117.     kN, ratio = 0.7982E-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.    56 at x=  11000.00     [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.  56
          maximum resistance   ratio               =    0.267
          maximum web buckling ratio               =    0.000

EC3 PILING: START BUCKLING CHECKS


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  1
           zstart      =  0.000000     [mm]  zend=    4900.000     [mm]
           buckl. length about x-x      =  4900.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      0.0000     XMAX =      4900.0
               BXMIN=      0.0000     BXMAX=     0.16401E+09
               X(1) =      0.0000     X(N) =      11000.
               M(1) =      0.0000     M(N) =      0.0000



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Table B.3  : ERR Q M - BILINEAR         0.80376E+17
  "    "   : ERR Q M - PARABOLA CENTR.  0.86480E+17
Table B.3  : PSI          0.0000
  "     "    ALPHA      0.83199E-01
  "     "    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]=  164.01


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      =  4900.000     [mm]  zend=    11000.00     [mm]
           buckl. length about x-x      =  6100.000     [mm]
```

```
CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      4900.0     XMAX =      11000.
               BXMIN=     0.16401E+09 BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      11000.
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.64768E+17
  "    "   : ERR Q M - PARABOLA CENTR.  0.16843E+18
Table B.3  : PSI         0.0000
  "     "    ALPHA      0.80853
  "     "    Cm unif.   0.99043


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  "     "    Cm conc.   0.98085
  "     "    Cm avrg.   0.98351
  "     "    Cm     .   0.98085
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      = 0.98085
          Max. bending moment (abs value) [kNm]=  228.19


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.      414
EC3_EN_1993-5:20   RESISTANCE RATIO            0.267
                   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     0.1288      0.000      0.000      0.000
 4     0.600  0.000      0.000     0.5150      0.000     0.2575E-01  0.000
 5     0.800  0.000      0.000      1.160      0.000      0.1288     0.000
 6     1.000  0.000      0.000      2.067      0.000      0.3607     0.000
 7     1.200  0.000      0.000      3.243      0.000      0.7740     0.000
 8     1.400  0.000      0.000      4.825      0.000       1.423     0.000
 9     1.600  0.000      0.000      6.951      0.000       2.388     0.000
10     1.800  0.000      0.000      9.623      0.000       3.778     0.000
11     2.000  0.000      0.000      12.84      0.000       5.702     0.000
12     2.200  0.000      0.000      16.61      0.000       8.271     0.000
13     2.400  0.000      0.000      20.94      0.000       11.59     0.000
14     2.600  0.000      0.000      25.84      0.000       15.78     0.000
15     2.800  0.000      0.000      31.29      0.000       20.95     0.000
16     3.000  0.000      0.000      37.30      0.000       27.21     0.000


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17     3.200  0.000      0.000      43.85      0.000      34.67      0.000
```

18	3.400	0.000	0.000	47.97	0.000	43.44	0.000
19	3.600	0.000	0.000	52.39	0.000	53.03	0.000
20	3.800	0.000	0.000	57.10	0.000	63.51	0.000
21	4.000	0.000	0.000	62.11	0.000	74.93	0.000
22	4.200	0.000	0.000	67.42	0.000	87.35	0.000
23	4.400	0.000	0.000	73.02	0.000	100.8	0.000
24	4.600	0.000	0.000	78.92	0.000	115.4	0.000
25	4.800	0.000	0.000	85.11	0.000	131.2	0.000
26	5.000	0.000	0.000	75.71	0.000	148.2	0.000
27	5.200	0.000	0.000	65.41	0.000	163.4	0.000
28	5.400	0.000	0.000	54.26	0.000	176.5	0.000
29	5.600	0.000	0.000	42.44	0.000	187.3	0.000
30	5.800	0.000	0.000	29.96	0.000	195.8	0.000
31	6.000	0.000	0.000	16.81	0.000	201.8	0.000
32	6.200	0.000	0.000	21.55	0.000	205.2	0.000
33	6.400	0.000	0.000	25.24	0.000	209.5	0.000
34	6.600	0.000	0.000	27.88	0.000	214.5	0.000
35	6.800	0.000	0.000	29.46	0.000	220.1	0.000
36	7.000	0.000	0.000	30.00	0.000	226.0	0.000
37	7.200	0.000	0.000	29.50	0.000	232.0	0.000
38	7.400	0.000	0.000	11.48	0.000	237.9	0.000
39	7.600	0.000	0.000	-7.220	0.000	240.2	0.000
40	7.800	0.000	0.000	-25.78	0.000	238.7	0.000
41	8.000	0.000	0.000	-42.61	0.000	233.6	0.000
42	8.200	0.000	0.000	-57.74	0.000	225.1	0.000
43	8.400	0.000	0.000	-71.22	0.000	213.5	0.000
44	8.600	0.000	0.000	-83.09	0.000	199.3	0.000
45	8.800	0.000	0.000	-93.40	0.000	182.7	0.000
46	9.000	0.000	0.000	-102.2	0.000	164.0	0.000
47	9.200	0.000	0.000	-109.4	0.000	143.5	0.000
48	9.400	0.000	0.000	-115.2	0.000	121.7	0.000
49	9.600	0.000	0.000	-115.7	0.000	98.61	0.000
50	9.800	0.000	0.000	-107.3	0.000	75.48	0.000
51	10.000	0.000	0.000	-92.79	0.000	54.02	0.000
52	10.200	0.000	0.000	-74.99	0.000	35.46	0.000
53	10.400	0.000	0.000	-55.60	0.000	20.46	0.000
54	10.600	0.000	0.000	-34.63	0.000	9.339	0.000
55	10.800	0.000	0.000	-12.07	0.000	2.414	0.000
56	11.000	0.000	0.000	-12.07	0.000	0.000	0.000

```
EC3:      CSTVEREC3P MODULE: START
          **********************

          Partial safety factors as used in this code
          Gamma M0  =    1.050


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          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


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          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 = 0.1288     kN , VplRd =  1117.     kN, ratio = 0.1153E-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

          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 = 0.5150     kN , VplRd =  1117.     kN, ratio = 0.4611E-03

               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.     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 =  1.160     kN , VplRd =  1117.     kN, ratio = 0.1038E-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


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5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  2.067     kN , VplRd =  1117.     kN, ratio = 0.1850E-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 =  3.243     kN , VplRd =  1117.     kN, ratio = 0.2903E-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.     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 =  4.825     kN , VplRd =  1117.     kN, ratio = 0.4320E-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

          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 =  6.951     kN , VplRd =  1117.     kN, ratio = 0.6223E-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.     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 =  9.623     kN , VplRd =  1117.     kN, ratio = 0.8615E-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       =    0.004
          resist. ratio according to 5.4       =    0.009
          max. resist. ratio (max. among above)=    0.009
          web buckling ratio (5.7)             =    0.000

          Section no.    11 at x=  2000.000     [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 =  12.84     kN , VplRd =  1117.     kN, ratio = 0.1150E-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       =    0.011
          max. resist. ratio (max. among above)=    0.011
          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 =  16.61     kN , VplRd =  1117.     kN, ratio = 0.1487E-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]


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          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.010
          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.    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 =  20.94     kN , VplRd =  1117.     kN, ratio = 0.1875E-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       =    0.014
          resist. ratio according to 5.4       =    0.019
          max. resist. ratio (max. among above)=    0.019
          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 =  25.84     kN , VplRd =  1117.     kN, ratio = 0.2313E-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       =    0.018
          resist. ratio according to 5.4       =    0.023
          max. resist. ratio (max. among above)=    0.023
          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 =  31.29     kN , VplRd =  1117.     kN, ratio = 0.2802E-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       =    0.024
          resist. ratio according to 5.4       =    0.028
          max. resist. ratio (max. among above)=    0.028
          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


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          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  37.30     kN , VplRd =  1117.     kN, ratio = 0.3339E-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       =    0.032
          resist. ratio according to 5.4       =    0.033
          max. resist. ratio (max. among above)=    0.033
          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 =  43.85     kN , VplRd =  1117.     kN, ratio = 0.3926E-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


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          resist. ratio according to 5.1       =    0.040
          resist. ratio according to 5.4       =    0.039
          max. resist. ratio (max. among above)=    0.040
          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 =  47.97     kN , VplRd =  1117.     kN, ratio = 0.4295E-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       =    0.051
          resist. ratio according to 5.4       =    0.043
          max. resist. ratio (max. among above)=    0.051
          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 =  52.39     kN , VplRd =  1117.     kN, ratio = 0.4691E-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       =    0.062
          resist. ratio according to 5.4       =    0.047
          max. resist. ratio (max. among above)=    0.062
          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 =  57.10     kN , VplRd =  1117.     kN, ratio = 0.5113E-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       =    0.074
          resist. ratio according to 5.4       =    0.051
          max. resist. ratio (max. among above)=    0.074
          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


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          Vsd =  62.11     kN , VplRd =  1117.     kN, ratio = 0.5561E-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       =    0.088
          resist. ratio according to 5.4       =    0.056
          max. resist. ratio (max. among above)=    0.088
          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 =  67.42     kN , VplRd =  1117.     kN, ratio = 0.6036E-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       =    0.102


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          resist. ratio according to 5.4       =    0.060
          max. resist. ratio (max. among above)=    0.102
          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 =  73.02     kN , VplRd =  1117.     kN, ratio = 0.6538E-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       =    0.118
          resist. ratio according to 5.4       =    0.065
          max. resist. ratio (max. among above)=    0.118
          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 =  78.92     kN , VplRd =  1117.     kN, ratio = 0.7066E-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.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.135
          resist. ratio according to 5.4       =    0.071
          max. resist. ratio (max. among above)=    0.135
```

```
          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 =  85.11     kN , VplRd =  1117.     kN, ratio = 0.7620E-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       =    0.153
          resist. ratio according to 5.4       =    0.076
          max. resist. ratio (max. among above)=    0.153
          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 =  75.71     kN , VplRd =  1117.     kN, ratio = 0.6779E-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.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.173
          resist. ratio according to 5.4       =    0.068
          max. resist. ratio (max. among above)=    0.173
          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 =  65.41     kN , VplRd =  1117.     kN, ratio = 0.5856E-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       =    0.191
          resist. ratio according to 5.4       =    0.059


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          max. resist. ratio (max. among above)=    0.191
          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 =  54.26     kN , VplRd =  1117.     kN, ratio = 0.4858E-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       =    0.206
          resist. ratio according to 5.4       =    0.049
          max. resist. ratio (max. among above)=    0.206
          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 =  42.44     kN , VplRd =  1117.     kN, ratio = 0.3800E-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.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.219
          resist. ratio according to 5.4       =    0.038
          max. resist. ratio (max. among above)=    0.219
          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 =  29.96     kN , VplRd =  1117.     kN, ratio = 0.2682E-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       =    0.229
          resist. ratio according to 5.4       =    0.027
          max. resist. ratio (max. among above)=    0.229
          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 =  16.81     kN , VplRd =  1117.     kN, ratio = 0.1505E-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.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.236
          resist. ratio according to 5.4       =    0.015
          max. resist. ratio (max. among above)=    0.236
          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 =  21.55     kN , VplRd =  1117.     kN, ratio = 0.1929E-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       =    0.240
          resist. ratio according to 5.4       =    0.019
          max. resist. ratio (max. among above)=    0.240


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          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 =  25.24     kN , VplRd =  1117.     kN, ratio = 0.2260E-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       =    0.245
          resist. ratio according to 5.4       =    0.023
          max. resist. ratio (max. among above)=    0.245
          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 =  27.88     kN , VplRd =  1117.     kN, ratio = 0.2496E-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.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.251
          resist. ratio according to 5.4       =    0.025
          max. resist. ratio (max. among above)=    0.251
          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 =  29.46     kN , VplRd =  1117.     kN, ratio = 0.2638E-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       =    0.257
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.257
          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 =  30.00     kN , VplRd =  1117.     kN, ratio = 0.2686E-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.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.264
          resist. ratio according to 5.4       =    0.027
          max. resist. ratio (max. among above)=    0.264
          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 =  29.50     kN , VplRd =  1117.     kN, ratio = 0.2642E-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       =    0.271
          resist. ratio according to 5.4       =    0.026
```

```
          max. resist. ratio (max. among above)=    0.271
          web buckling ratio (5.7)             =    0.000


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          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 =  11.48     kN , VplRd =  1117.     kN, ratio = 0.1028E-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       =    0.278
          resist. ratio according to 5.4       =    0.010
          max. resist. ratio (max. among above)=    0.278
          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 = -7.220     kN , VplRd =  1117.     kN, ratio = 0.6464E-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.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.281
          resist. ratio according to 5.4       =    0.006
          max. resist. ratio (max. among above)=    0.281
          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 = -25.78     kN , VplRd =  1117.     kN, ratio = 0.2308E-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       =    0.279
          resist. ratio according to 5.4       =    0.023
          max. resist. ratio (max. among above)=    0.279
          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 = -42.61     kN , VplRd =  1117.     kN, ratio = 0.3815E-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.    41 at x=  7999.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.273
          resist. ratio according to 5.4       =    0.038
          max. resist. ratio (max. among above)=    0.273
          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 = -57.74     kN , VplRd =  1117.     kN, ratio = 0.5169E-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       =    0.263
          resist. ratio according to 5.4       =    0.052
          max. resist. ratio (max. among above)=    0.263
          web buckling ratio (5.7)             =    0.000
```

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          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 = -71.22     kN , VplRd =  1117.     kN, ratio = 0.6376E-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       =    0.249
          resist. ratio according to 5.4       =    0.064
          max. resist. ratio (max. among above)=    0.249
          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 = -83.09     kN , VplRd =  1117.     kN, ratio = 0.7440E-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.    44 at x=  8599.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.233
          resist. ratio according to 5.4       =    0.074
          max. resist. ratio (max. among above)=    0.233
          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 = -93.40     kN , VplRd =  1117.     kN, ratio = 0.8362E-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.    45 at x=  8799.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.213
          resist. ratio according to 5.4       =    0.084
          max. resist. ratio (max. among above)=    0.213
          web buckling ratio (5.7)             =    0.000

          Section no.    46 at x=  8999.996     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -102.2     kN , VplRd =  1117.     kN, ratio = 0.9148E-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.    46 at x=  8999.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.192
          resist. ratio according to 5.4       =    0.091
          max. resist. ratio (max. among above)=    0.192
          web buckling ratio (5.7)             =    0.000

          Section no.    47 at x=  9199.996     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -109.4     kN , VplRd =  1117.     kN, ratio = 0.9797E-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.    47 at x=  9199.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.168
          resist. ratio according to 5.4       =    0.098
          max. resist. ratio (max. among above)=    0.168
          web buckling ratio (5.7)             =    0.000

          Section no.    48 at x=  9399.996     [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 = -115.2     kN , VplRd =  1117.     kN, ratio = 0.1031

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    48 at x=  9399.996     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.142
          resist. ratio according to 5.4       =    0.103
          max. resist. ratio (max. among above)=    0.142
          web buckling ratio (5.7)             =    0.000

          Section no.    49 at x=  9599.995     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -115.7     kN , VplRd =  1117.     kN, ratio = 0.1036

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+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.    49 at x=  9599.995     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.115
          resist. ratio according to 5.4       =    0.104
          max. resist. ratio (max. among above)=    0.115
          web buckling ratio (5.7)             =    0.000

          Section no.    50 at x=  9799.995     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -107.3     kN , VplRd =  1117.     kN, ratio = 0.9608E-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.    50 at x=  9799.995     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.088
          resist. ratio according to 5.4       =    0.096
          max. resist. ratio (max. among above)=    0.096
          web buckling ratio (5.7)             =    0.000

          Section no.    51 at x=  9999.995     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -92.79     kN , VplRd =  1117.     kN, ratio = 0.8308E-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.    51 at x=  9999.995     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.063
          resist. ratio according to 5.4       =    0.083
          max. resist. ratio (max. among above)=    0.083
          web buckling ratio (5.7)             =    0.000

          Section no.    52 at x=  10200.00     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -74.99     kN , VplRd =  1117.     kN, ratio = 0.6714E-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.    52 at x=  10200.00     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.041
          resist. ratio according to 5.4       =    0.067
          max. resist. ratio (max. among above)=    0.067
          web buckling ratio (5.7)             =    0.000

          Section no.    53 at x=  10399.99     [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 = -55.60     kN , VplRd =  1117.     kN, ratio = 0.4978E-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.    53 at x=  10399.99     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.024
          resist. ratio according to 5.4       =    0.050
          max. resist. ratio (max. among above)=    0.050
          web buckling ratio (5.7)             =    0.000

          Section no.    54 at x=  10599.99     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -34.63     kN , VplRd =  1117.     kN, ratio = 0.3100E-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.    54 at x=  10599.99     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.011
          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.    55 at x=  10799.99     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -12.07     kN , VplRd =  1117.     kN, ratio = 0.1081E-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.    55 at x=  10799.99     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.003
          resist. ratio according to 5.4       =    0.011
          max. resist. ratio (max. among above)=    0.011
          web buckling ratio (5.7)             =    0.000

          Section no.    56 at x=  11000.00     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -12.07     kN , VplRd =  1117.     kN, ratio = 0.1081E-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.    56 at x=  11000.00     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.011
          max. resist. ratio (max. among above)=    0.011
          web buckling ratio (5.7)             =    0.000

          Summary of resistance checks over all the sections
          max selected class: 2, at station no.  56
          maximum resistance   ratio               =    0.281
          maximum web buckling ratio               =    0.000

EC3 PILING: START BUCKLING CHECKS


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  1
           zstart      =  0.000000     [mm]  zend=    4900.000     [mm]
           buckl. length about x-x      =  4900.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      0.0000     XMAX =      4900.0
               BXMIN=      0.0000     BXMAX=     0.13974E+09
               X(1) =      0.0000     X(N) =      11000.
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.57417E+17
  "    "   : ERR Q M - PARABOLA CENTR.  0.62199E+17
Table B.3  : PSI          0.0000
  "     "    ALPHA      0.90459E-01
  "     "    Cm unif.   0.40000
  "     "    Cm conc.   0.40000
  "     "    Cm avrg.   0.40000
  "     "    Cm     .   0.40000



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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]=  139.74


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      =  4900.000     [mm]  zend=    11000.00     [mm]
           buckl. length about x-x      =  6100.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      4900.0     XMAX =      11000.
               BXMIN=     0.13974E+09 BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      11000.
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.37024E+17
  "    "   : ERR Q M - PARABOLA CENTR.  0.15622E+18
Table B.3  : PSI         0.0000
  "     "    ALPHA      0.59494
  "     "    Cm unif.   0.97975
  "     "    Cm conc.   0.95949
  "     "    Cm avrg.   0.96337
  "     "    Cm     .   0.95949
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      = 0.95949



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          Max. bending moment (abs value) [kNm]=  240.18


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.      544
EC3_EN_1993-5:20   RESISTANCE RATIO            0.281
                   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            0.281 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
```