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 BASE GEODETICA
Relazione Tecnica e di calcolo

CODICE PROGETTO	NOME FILE	REVISIONE	SCALA:
PROGETTO: DPFI12 — LIV. PROG.: E — N. PROG.: 1801	T00-TM05-STR-RE01		
	CODICE ELAB.: T00TM05STRRE01	A	-

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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 "Base Geodetica" 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 47 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 2.50 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=1.60 m, p.p = 19 kN/m^3)..... 30.40 kN/m^2

Carico permanente strutturale totale G_{1k} 30.40 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:

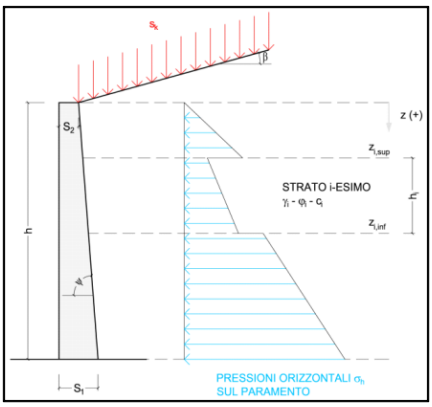
γ_k= 19,0	kN/m^3	peso di volume caratteristico;
φ'_k = 35	°	angolo di operativo attrito caratteristico.

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)

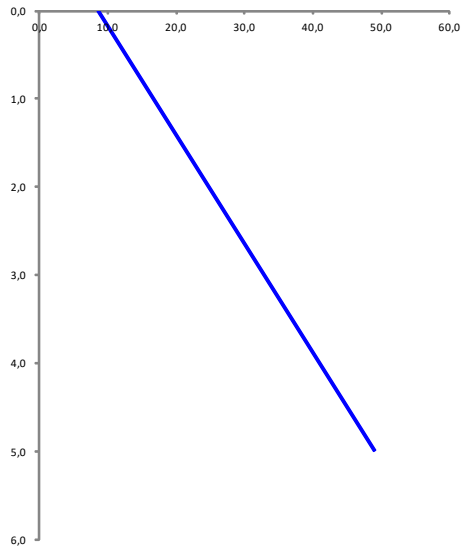
CARATTERISTICHE STRATI TERRENO

				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)

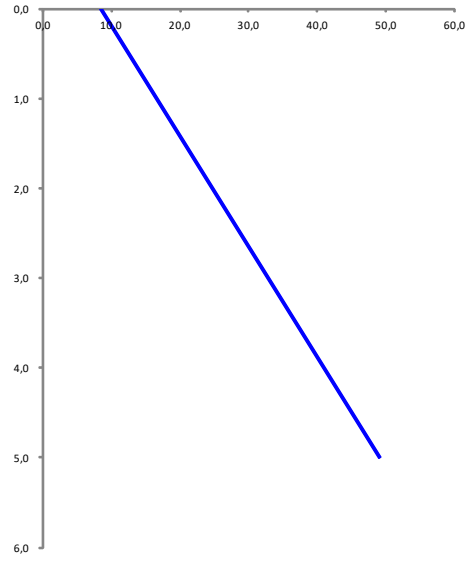
PRESSIONI DI PROGETTO CONDIZIONI STATICHE **SLE**

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 σ_{hdtot} [kN/m²]**
1	0,00	0,43	0,0	0,00	0,00	0,00	8,53	**8,53**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
2	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
3	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
4	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
5	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
6	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
7	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
8	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
9	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
10	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**



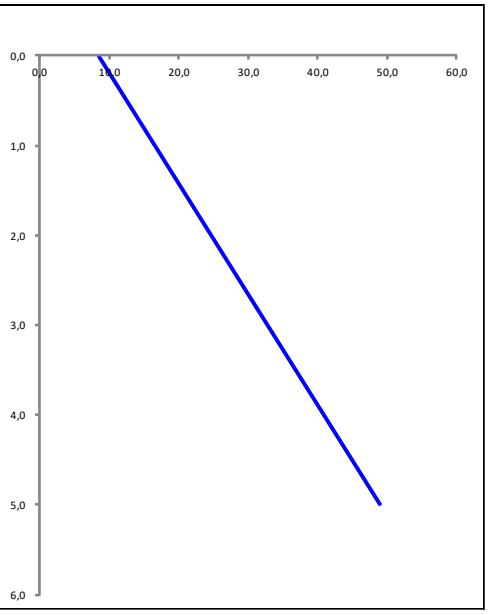
PRESSIONI DI PROGETTO CONDIZIONI STATICHE **SLU APPROCCIO 1 - COMBINAZIONE 1 E APPROCCIO 2**

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



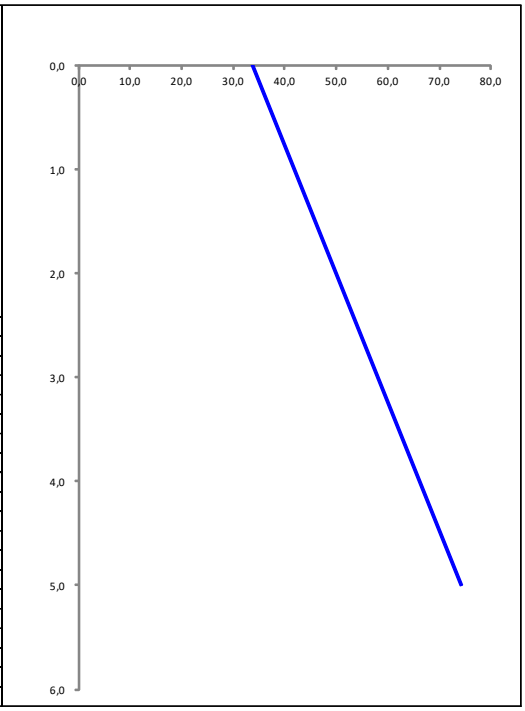
PRESSIONI DI PROGETTO CONDIZIONI STATICHE **SLU APPROCCIO 1 - COMBINAZIONE 2**

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



PRESSIONI DI PROGETTO CONDIZIONI SISMICHE **SLV**

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



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
1	SLE FR 1	1	1	0	0	0	0	0	0	0	0	0
2	SLE FR 2	1	1	0	0	0	0	0	0	0	0	0.5
3	SLE FR 3	1	1	0	0	0	0	0.3	0	0	0	0.5
4	SLE FR 4	1	1	0	0	0	0	0.5	0	0	0	0
5	SLE FR 5	1	1	0	0	0	0.3	0	0	0	0	0.5
6	SLE FR 6	1	1	0	0	0	0.5	0	0	0	0	0
7	SLE FR 7	1	1	0	0	1	0	0	0	0	0	0

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

Famiglia SLE quasi permanente

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

Famiglia SLV

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

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

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

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

8. RISULTATI DELL'ANALISI

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

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.)

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

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

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

2.4 Moltiplicatori inerziali

Tipologia: tipo di entità a cui si riferiscono i moltiplicatori inerziali.
J2: moltiplicatore inerziale di J2. Il valore è adimensionale.
J3: moltiplicatore inerziale di J3. Il valore è adimensionale.
Jt: moltiplicatore inerziale di Jt. Il valore è adimensionale.
A: moltiplicatore dell'area della sezione. Il valore è adimensionale.
A2: moltiplicatore dell'area a taglio in direzione 2. Il valore è adimensionale.
A3: moltiplicatore dell'area a taglio in direzione 3. Il valore è adimensionale.
Conci rigidi: fattore di riduzione dei tronchi rigidi. Il valore è adimensionale.

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

2.5 Preferenze di analisi non lineare FEM

Metodo iterativo	Secante
Tolleranza iterazione	0.00001
Numero massimo iterazioni	50

2.6 Preferenze di analisi carichi superficiali

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

3 Quote

3.1 Livelli

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

Descrizione breve	Descrizione	Quota	Spessore
L1	Fondazione	0	0.6
L2	Piano 1	5.00	0.5

3.2 Tronchi

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

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

1.5 Definizioni di carichi concentrati

Nome: nome identificativo della definizione di carico.
Valori: valori associati alle condizioni di carico.
Condizione: condizione di carico a cui sono associati i valori.

Descrizione: nome assegnato alla condizione elementare.
Fx: componente X del carico concentrato. [kN]
Fy: componente Y del carico concentrato. [kN]
Fz: componente Z del carico concentrato. [kN]
*Mx: componente di momento della coppia concentrata attorno all'asse X. [kN*m]*
*My: componente di momento della coppia concentrata attorno all'asse Y. [kN*m]*
*Mz: componente di momento della coppia concentrata attorno all'asse Z. [kN*m]*

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

1.5 Definizioni di carichi lineari

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

Nome	Valori											
	Condizione	Fx i.	Fx f.	Fy i.	Fy f.	Fz i.	Fz f.	Mx i.	Mx f.	My i.	My f.	Mz i.	Mz f.

	Descrizione												
SOLETTA SUPERIORE	Pesi strutturali	0	0	0	0	-39	-39	0	0	0	0	0	0
	Permanenti portati	0	0	0	0	-14	-14	0	0	0	0	0	0
	Variabile traffico	0	0	0	0	0	0	0	0	0	0	0	0
	Spinta terreno A1-M1	0	0	0	0	0	0	0	0	0	0	0	0
	Spinta terreno A2-M2	0	0	0	0	0	0	0	0	0	0	0	0
	Sovr accidentale A1-M1	0	0	0	0	0	0	0	0	0	0	0	0
	Sovr accidentale A2-M2	0	0	0	0	0	0	0	0	0	0	0	0
	Sisma terreno Y sx	0	0	0	0	0	0	0	0	0	0	0	0
	Sisma terreno Y dx	0	0	0	0	0	0	0	0	0	0	0	0
	Frenatura	0	0	0	0	0	0	0	0	0	0	0	0
CARICO STRADALE DISTRIBUITO	Pesi strutturali	0	0	0	0	0	0	0	0	0	0	0	0
	Permanenti portati	0	0	0	0	0	0	0	0	0	0	0	0
	Variabile traffico	0	0	0	0	-9	-9	0	0	0	0	0	0
	Spinta terreno A1-M1	0	0	0	0	0	0	0	0	0	0	0	0
	Spinta terreno A2-M2	0	0	0	0	0	0	0	0	0	0	0	0
	Sovr accidentale A1-M1	0	0	0	0	0	0	0	0	0	0	0	0
	Sovr accidentale A2-M2	0	0	0	0	0	0	0	0	0	0	0	0
	Sisma terreno Y sx	0	0	0	0	0	0	0	0	0	0	0	0
	Sisma terreno Y dx	0	0	0	0	0	0	0	0	0	0	0	0
	Frenatura	0	0	0	0	0	0	0	0	0	0	0	0
SPINTA TERRENO Y+	Pesi strutturali	0	0	0	0	0	0	0	0	0	0	0	0
	Permanenti portati	0	0	0	0	0	0	0	0	0	0	0	0
	Variabile traffico	0	0	0	0	0	0	0	0	0	0	0	0
	Spinta terreno A1-M1	0	0	40.5	0	0	0	0	0	0	0	0	0
	Spinta terreno A2-M2	0	0	48.6	0	0	0	0	0	0	0	0	0
	Sovr accidentale A1-M1	0	0	8.5	8.5	0	0	0	0	0	0	0	0
	Sovr accidentale A2-M2	0	0	13.3	13.3	0	0	0	0	0	0	0	0
	Sisma terreno Y sx	0	0	22.2	22.2	0	0	0	0	0	0	0	0
	Sisma terreno Y dx	0	0	-22.2	-22.2	0	0	0	0	0	0	0	0
	Frenatura	0	0	0	0	0	0	0	0	0	0	0	0
SPINTA TERRENO Y-	Pesi strutturali	0	0	0	0	0	0	0	0	0	0	0	0
	Permanenti portati	0	0	0	0	0	0	0	0	0	0	0	0
	Variabile traffico	0	0	0	0	0	0	0	0	0	0	0	0
	Spinta terreno A1-M1	0	0	-40.5	0	0	0	0	0	0	0	0	0
	Spinta terreno A2-M2	0	0	-48.6	0	0	0	0	0	0	0	0	0
	Sovr accidentale A1-M1	0	0	-8.5	-8.5	0	0	0	0	0	0	0	0
	Sovr accidentale A2-M2	0	0	-13.3	-13.3	0	0	0	0	0	0	0	0
	Sisma terreno Y sx	0	0	-22.2	-22.2	0	0	0	0	0	0	0	0
	Sisma terreno Y dx	0	0	22.2	22.2	0	0	0	0	0	0	0	0
	Frenatura	0	0	0	0	0	0	0	0	0	0	0	0
FONDAZIONE	Pesi strutturali	0	0	0	0	-45	-45	0	0	0	0	0	0
	Permanenti portati	0	0	0	0	0	0	0	0	0	0	0	0
	Variabile traffico	0	0	0	0	0	0	0	0	0	0	0	0
	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

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	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

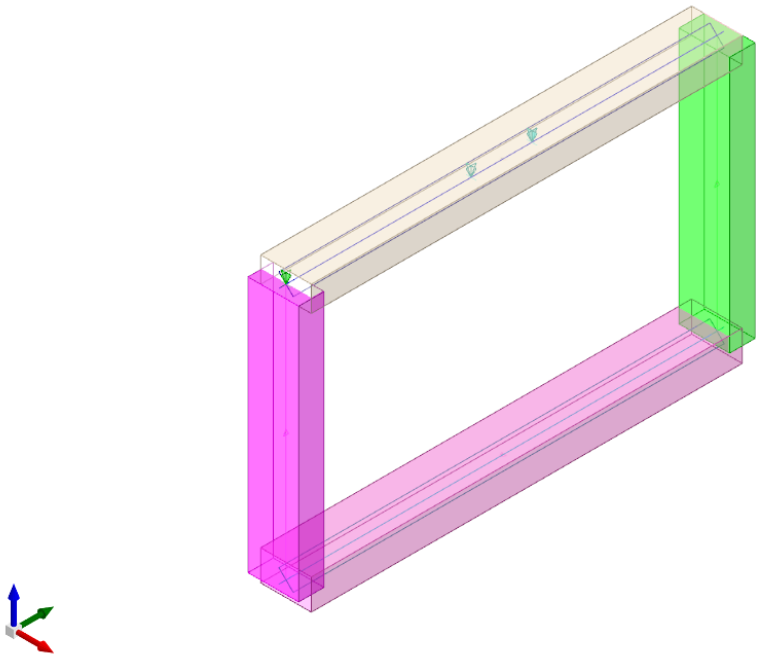


Figura 1 - Rappresentazione Grafica del Modello di Calcolo

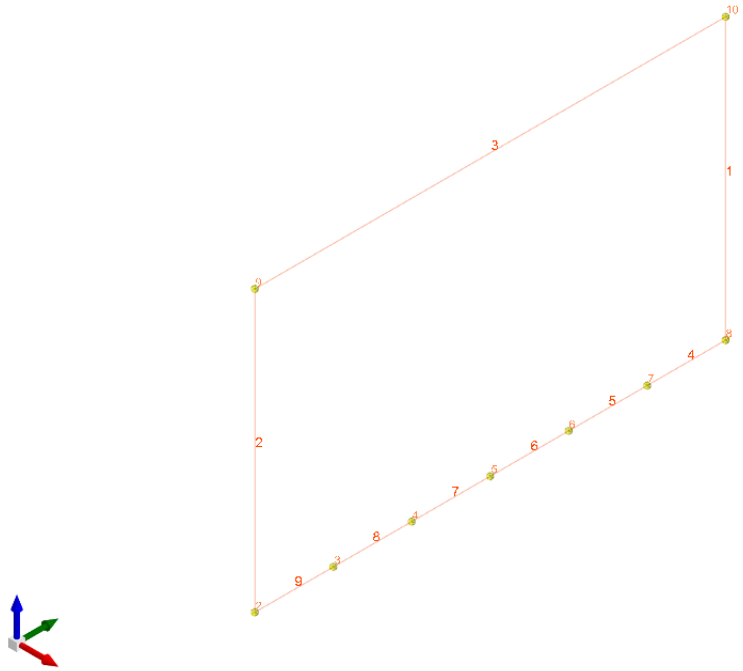


Figura 2 - Rappresentazione Grafica del Modello di Calcolo – Numerazione NODI e ASTE

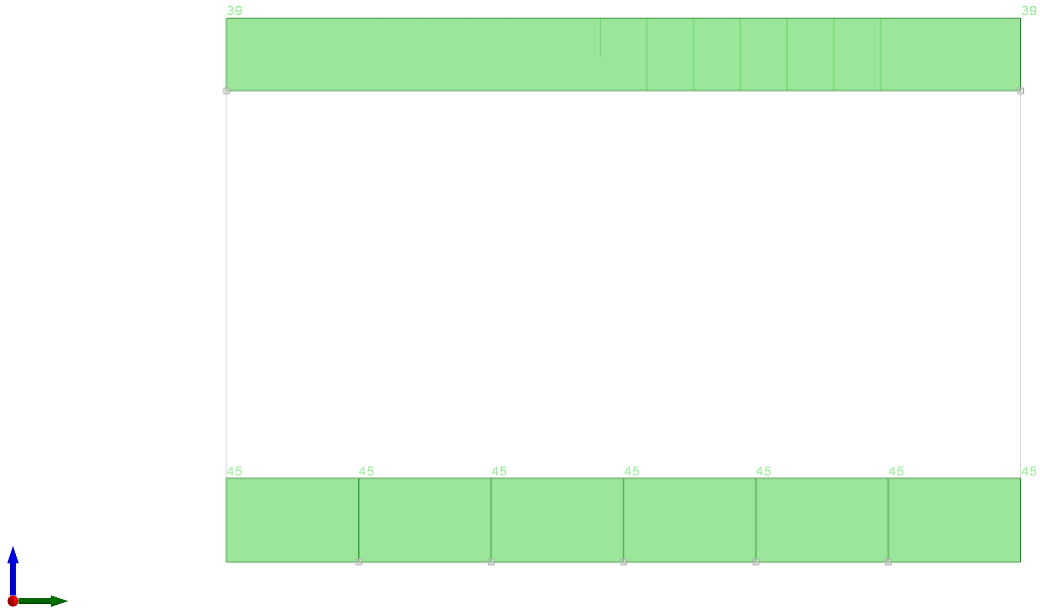


Figura 3 - Condizione permanenti strutturali

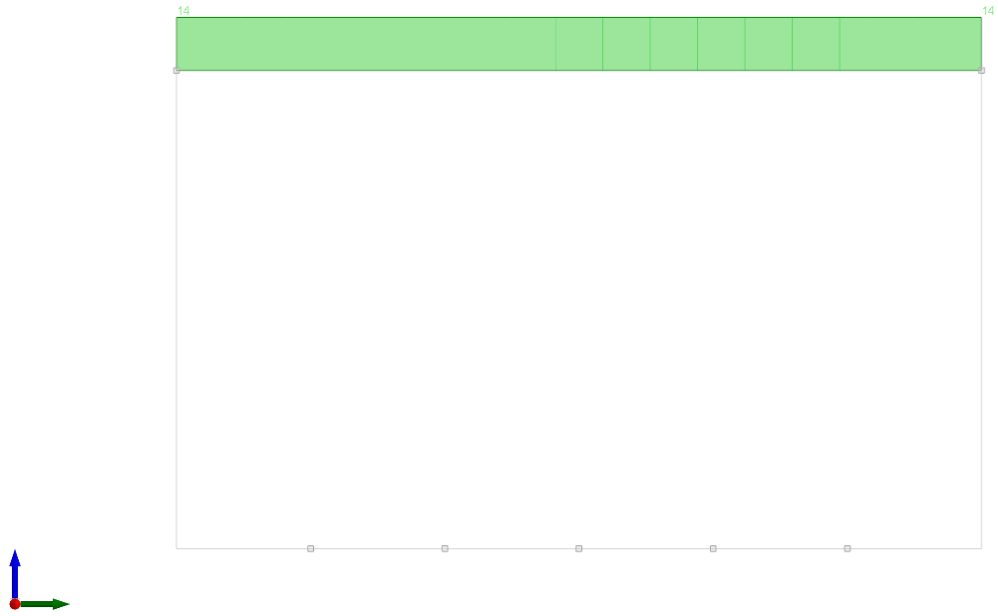


Figura 4 - Condizione permanenti NON strutturali

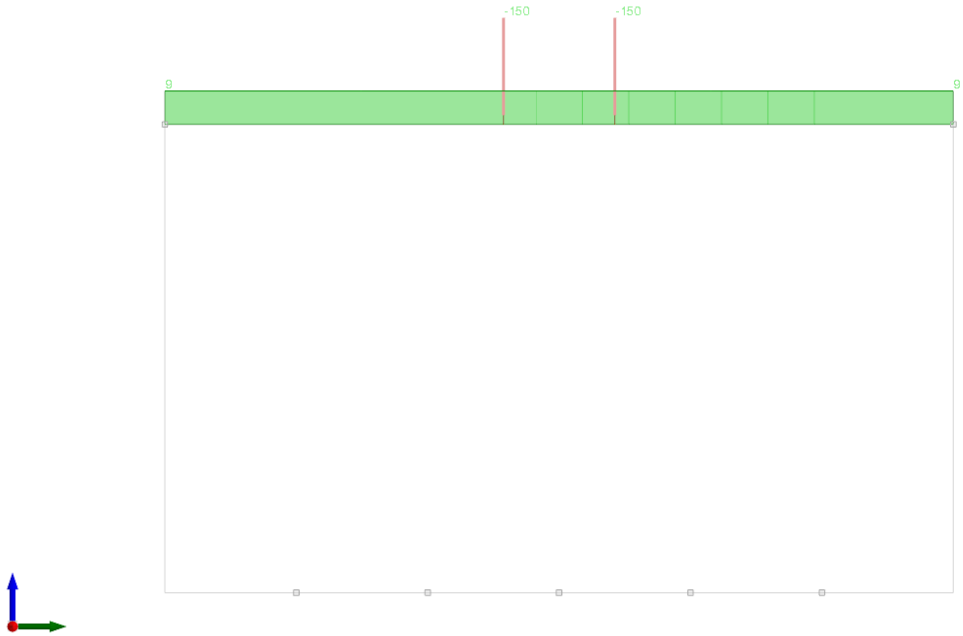


Figura 5 - Condizione sovraccarico variabile traffico

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 +

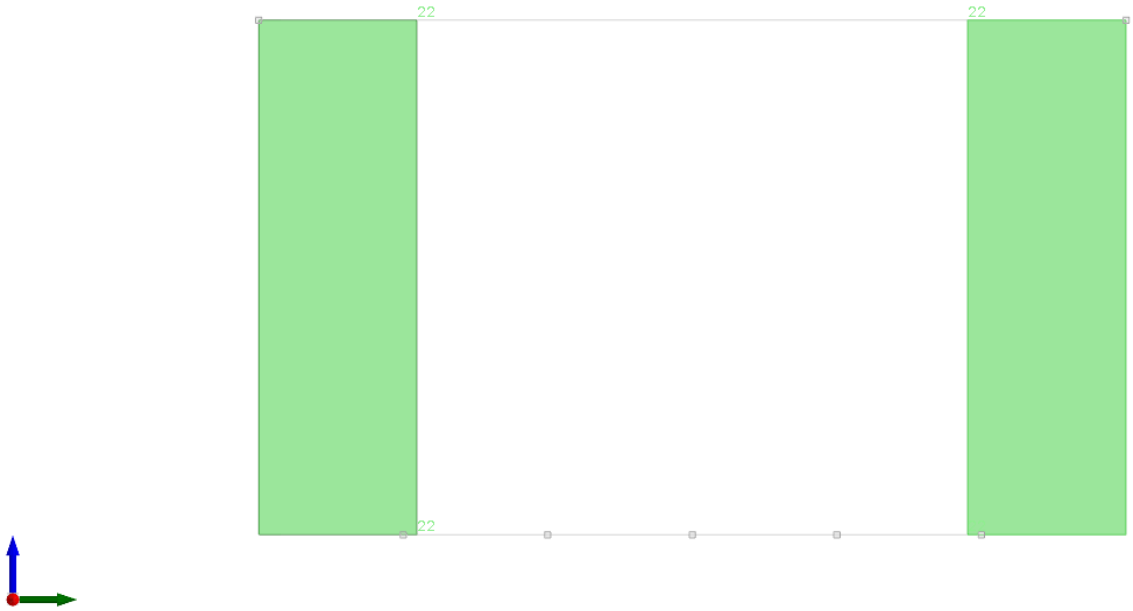


Figura 11 - Condizione sisma terreno –

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;

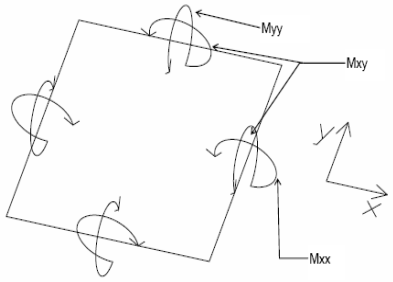
- F3: viene rappresentato nel piano individuato dagli assi 1 e 3. Nel caso di F3 positivo viene disegnato lungo l'asta dalla parte del semiasse 3 positivo;

- 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.



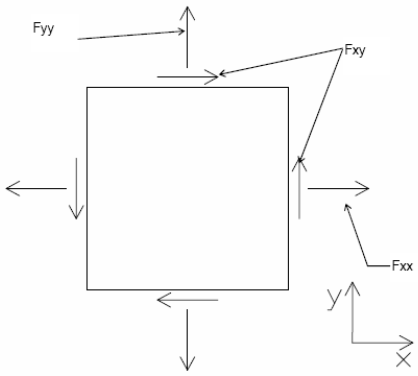
si definiscono:

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:

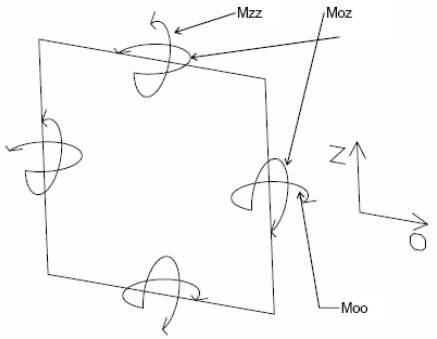
Vx: taglio fuori piano [Forza/Lunghezza] applicato al bordo di normale parallela all'asse x (per il segno si veda l'immagine relativa ai tagli fuori piano nel sistema locale 1, 2, 3 riportata più avanti);

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.

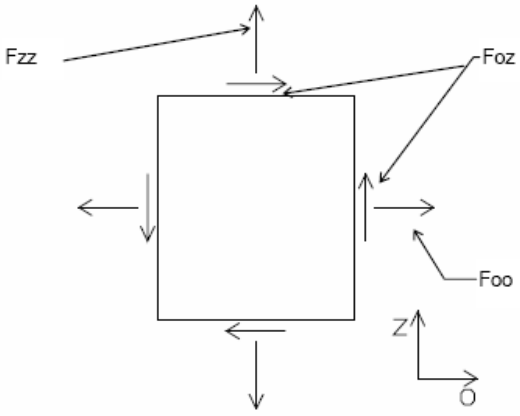
In figura è mostrato un elemento infinitesimo di shell orizzontale con indicato il sistema di riferimento e i parametri di sollecitazione Moo, Mzz, Moz.



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).

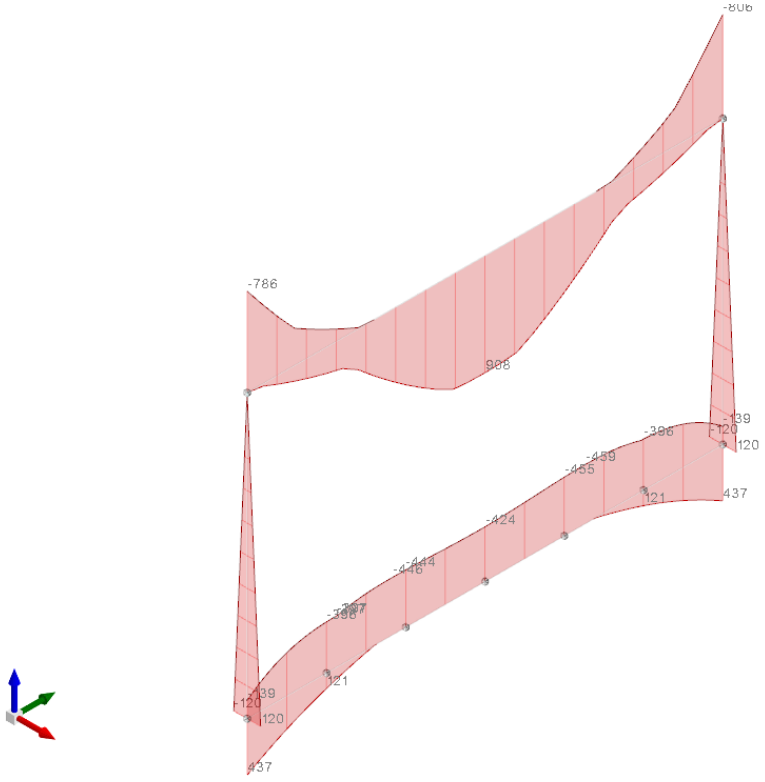


Figura 13 - Inviluppo momento flettente M3

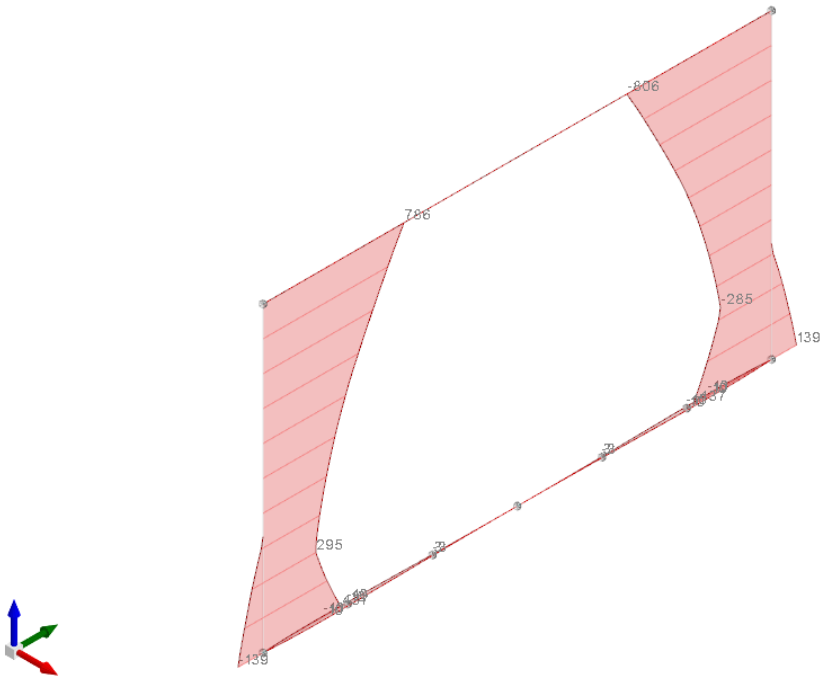


Figura 14 - Inviluppo momento flettente M2

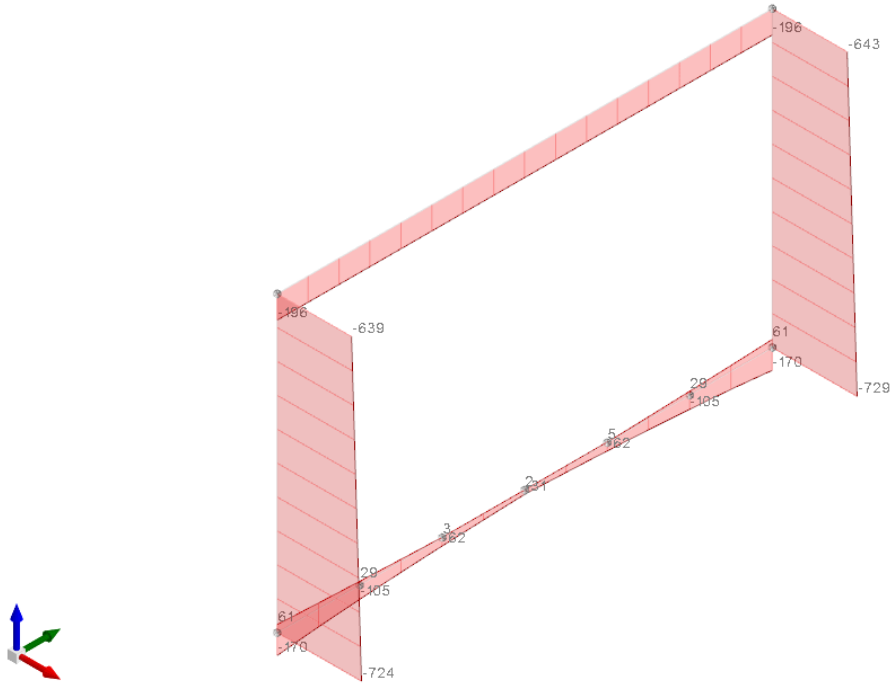


Figura 15 - Inviluppo sforzo assiale N

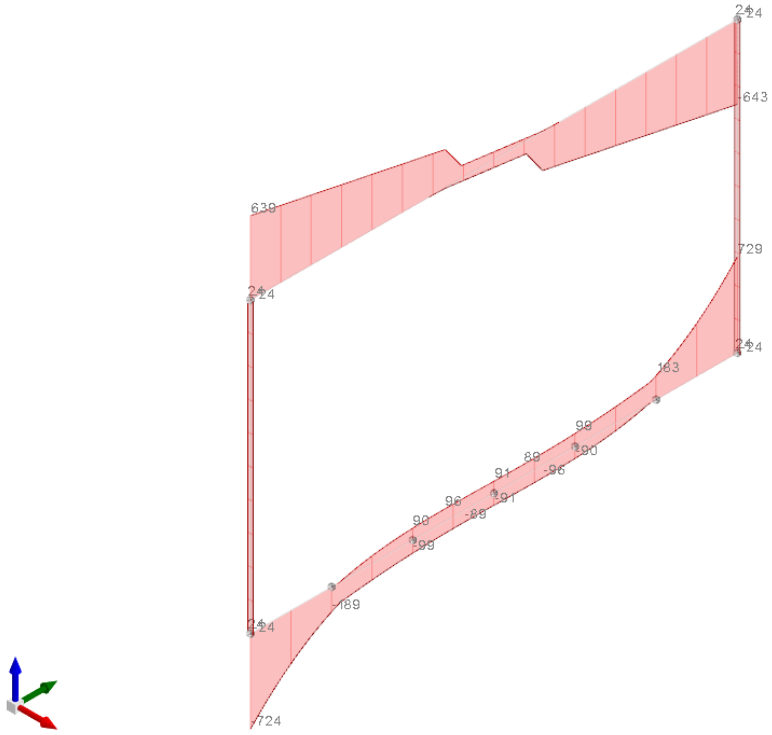


Figura 16 - Inviluppo sforzo di taglio F2

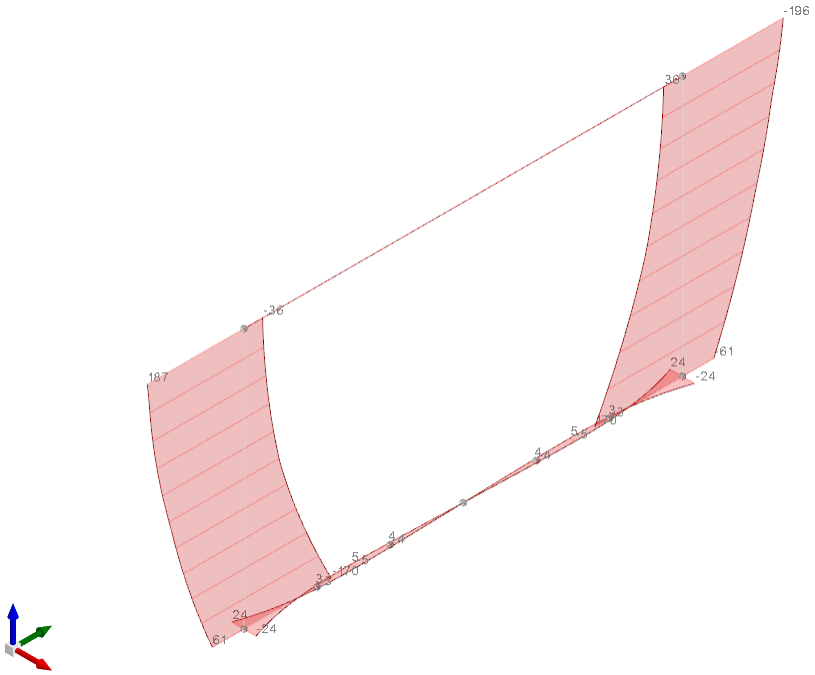


Figura 17 - Inviluppo sforzo di taglio F3

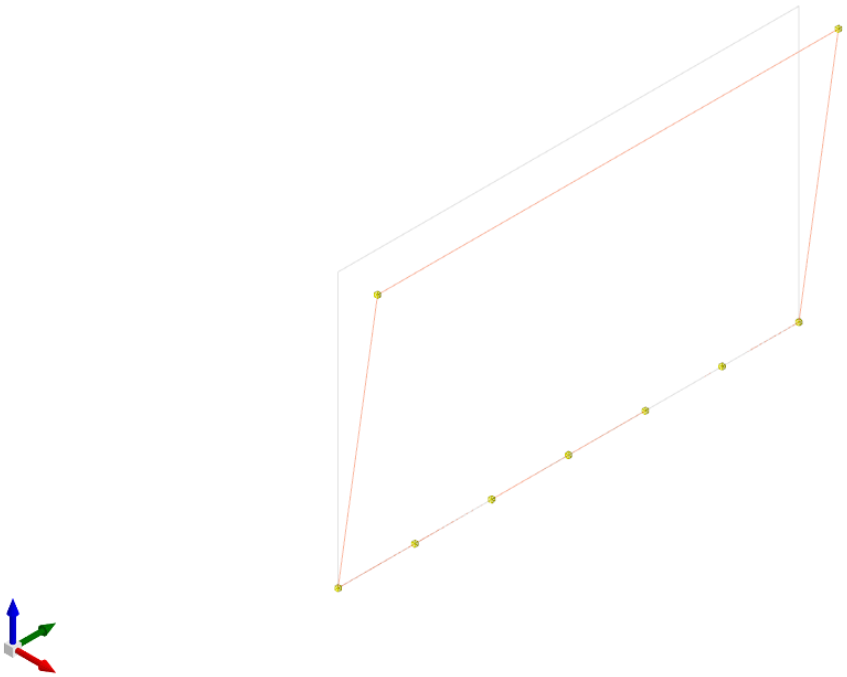


Figura 18 – Spostamenti condizione sisma X SLV

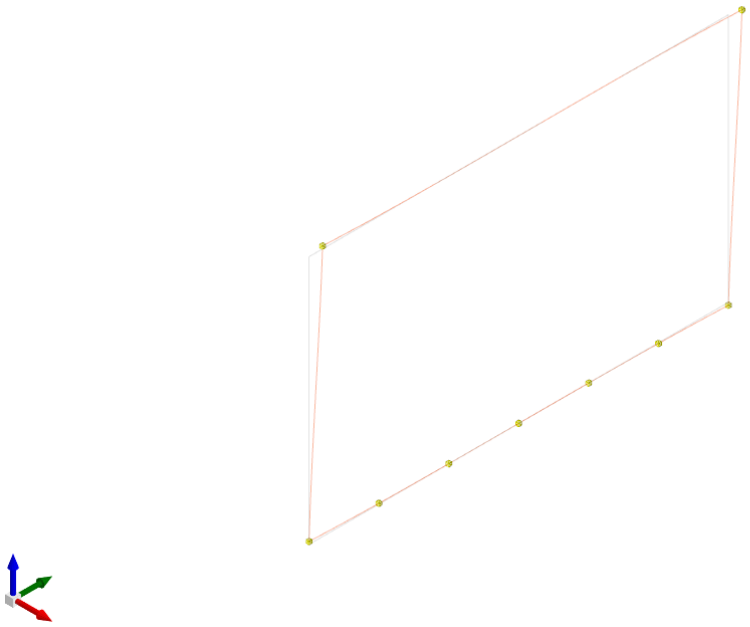


Figura 19 – Spostamenti condizione sisma Y SLV

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 [m^2]

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	3.2	0	1,2,3,4	-18.0243	-282.2826	-713.83	-59.6382	-934.0096	SLU 4	3.309	Si
0.3	0.008017	3.2	0	1,2,3,4	17.8986	-281.5464	-708.85	61.6383	-969.5785	SLU 4	3.444	Si
0.6	0.008393	3.2	0	1,3,4	17.7707	-287.9359	-703.79	61.3739	-994.4305	SLU 20	3.454	Si
0.9	0.008545	1.7	0	3,4	17.6429	-300.0324	-698.73	58.1965	-989.6804	SLU 20	3.299	Si
1.2	0.008545	1.7	0	3,4	17.5151	-316.4212	-693.67	53.5275	-967.0099	SLU 20	3.056	Si
1.33	0.008545	1.7	0	3,4	17.4601	-324.6509	-691.49	51.4511	-956.6759	SLU 20	2.947	Si
1.5	0.008545	1.7	0	3,4	17.3872	-336.8179	-688.6	48.5956	-941.3728	SLU 20	2.795	Si
1.8	0.008545	1.7	0	3,4	17.2594	-361.0479	-683.54	43.682	-913.7794	SLU 20	2.531	Si
2.1	0.008545	1.7	0	3,4	17.1316	-388.7417	-678.48	39.128	-887.8748	SLU 20	2.284	Si
2.4	0.008545	1.7	0	3,4	17.0038	-419.5601	-673.42	35.0399	-864.5934	SLU 20	2.061	Si
2.7	0.008545	1.7	0	3,4	16.997	-456.0897	-673.15	31.3885	-842.2652	SLU 18	1.847	Si
3	0.008545	1.7	0	3,4	16.8692	-495.9101	-668.09	27.8804	-819.6116	SLU 17	1.653	Si
3.3	0.008545	1.7	0	3,4	16.7414	-541.0668	-663.02	24.7183	-798.8761	SLU 17	1.476	Si
3.6	0.008545	1.7	0	3,4	16.6135	-588.2394	-657.96	22.0708	-781.4682	SLU 17	1.328	Si
3.9	0.008545	1.7	0	3,4	16.4857	-637.1427	-652.9	19.8404	-766.7954	SLU 17	1.203	Si
4.2	0.008545	1.7	0	3,4	16.3579	-687.4337	-647.84	17.9503	-754.3565	SLU 17	1.097	Si
4.5	0.008545	1.7	0	3,4	16.2322	-738.656	-642.86	16.3449	-743.7879	SLU 1	1.007	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	3.2	0	1,2,3,4	-33.6852	-388.3059	-277.76	-2.02	2.21	-52.1999	-601.7327	SLV 7	1.55				Si
0.3	0.008017	3.2	0	1,2,3,4	-31.5825	-344.9222	-274.07	-2.02	2.21	-58.5561	-639.5096	SLV 7	1.854				Si
0.6	0.008393	3.2	0	1,3,4	-29.4382	-308.1221	-270.32	-2.02	2.21	-64.8342	-678.6035	SLV 39	2.202				Si
0.9	0.008545	1.7	0	3,4	-27.3005	-274.8291	-266.57	-2.02	2.21	-69.7591	-702.2516	SLV 39	2.555				Si
1.2	0.008545	1.7	0	3,4	-25.163	-244.5211	-262.82	-2.02	2.21	-73.6799	-715.9846	SLV 39	2.928				Si
1.33	0.008545	1.7	0	3,4	-24.2436	-232.3037	-261.21	-2.02	2.21	-75.4111	-722.5923	SLV 39	3.111				Si
1.5	0.008545	1.7	0	3,4	-23.0257	-216.9874	-259.07	-2.02	2.21	-77.6821	-732.0548	SLV 39	3.374				Si
1.8	0.008545	1.7	0	3,4	-20.8888	-192.0924	-255.32	-2.02	2.21	-81.6609	-750.9486	SLV 39	3.909				Si
2.1	0.008545	1.7	0	3,4	18.7886	-169.5607	-251.56	-2.02	2.21	85.7131	-773.5328	SLV 43	4.562				Si
2.4	0.008545	1.7	0	3,4	55.5221	-151.8907	-289.59	-2.02	2.21	281.6067	-770.3857	SLV 47	5.072				Si
2.7	0.008545	1.7	0	3,4	14.5808	-202.2553	-363.46	-2.02	2.21	59.7102	-828.262	SLV 41	4.095				Si
3	0.008545	1.7	0	3,4	12.4649	-249.2336	-359.71	-2.02	2.21	38.7634	-775.0646	SLV 41	3.11				Si
3.3	0.008545	1.7	0	3,4	10.3511	-297.6994	-355.96	-2.02	2.21	25.7333	-740.0967	SLV 41	2.486				Si
3.6	0.008545	1.7	0	3,4	8.2381	-347.4606	-352.21	-2.02	2.21	16.9641	-715.5003	SLV 41	2.059				Si
3.9	0.008545	1.7	0	3,4	6.1255	-398.3035	-348.46	-2.02	2.21	10.7282	-697.589	SLV 41	1.751				Si
4.2	0.008545	1.7	0	3,4	-3.7786	-450.0096	-344.72	-2.02	2.21	-5.742	-683.8395	SLV 37	1.52				Si
4.5	0.008545	1.7	0	3,4	-1.6749	-502.6231	-341.03	-2.02	2.21	-2.2429	-673.0816	SLV 5	1.339				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	45.46	-491.9	SLU 16	251.71	126.28	1906.46	1	5.54	0.05	-713.83	SLU 3	266.13	274.98	2122.27	1	6022.19	Si
0.3	2X/2Y ø10/18.7	-39.1	-713.65	SLU 17	280.19	126.28	1949.17	1	7.17	0.05	-708.85	SLU 3	265.44	274.98	2121.22	1	6022.19	Si
0.6	2X/2Y ø10/18.7	-54.98	-708.59	SLU 17	279.54	126.28	1948.2	1	5.08	0.05	-703.79	SLU 3	264.73	274.98	2120.16	1	6022.19	Si
0.9	2X/2Y ø10/18.7	-69.89	-703.52	SLU 17	278.89	126.28	1947.22	1	3.99	0.05	-698.73	SLU 3	264.02	274.98	2119.1	1	6022.19	Si
1.2	2X/2Y ø10/18.7	-83.84	-698.46	SLU 17	278.24	126.28	1946.25	1	3.32	0.05	-693.67	SLU 3	263.31	274.98	2118.04	1	6022.19	Si
1.33	2X/2Y ø10/18.7	-89.56	-696.28	SLU 17	277.96	126.28	1945.83	1	3.1	0.05	-691.49	SLU 3	263.01	274.98	2117.58	1	6022.19	Si
1.5	2X/2Y ø10/18.7	-96.82	-693.4	SLU 17	277.59	126.28	1945.27	1	2.87	0.05	-688.6	SLU 3	262.61	274.98	2116.98	1	6022.19	Si
1.8	2X/2Y ø10/18.7	-108.8	-688.34	SLU 17	276.94	126.28	1944.3	1	2.55	0.05	-683.54	SLU 3	261.9	274.98	2115.92	1	6022.19	Si
2.1	2X/2Y ø10/18.7	-119.8	-683.27	SLU 17	276.29	126.28	1943.32	1	2.31	0.05	-678.48	SLU 3	261.19	274.98	2114.85	1	6022.19	Si
2.4	2X/2Y ø10/18.7	-129.83	-678.21	SLU 17	275.64	126.28	1942.35	1	2.12	0.05	-673.42	SLU 3	260.48	274.98	2113.79	1	6022.19	Si
2.7	2X/2Y ø10/18.7	-140.35	-673.15	SLU 1	274.99	126.28	1941.37	1	1.96	0.05	-668.35	SLU 3	259.78	274.98	2112.73	1	6022.19	Si
3	2X/2Y ø10/18.7	-149.98	-668.09	SLU 1	274.34	126.28	1940.4	1	1.83	0.05	-663.29	SLU 3	259.07	274.98	2111.67	1	6022.19	Si
3.3	2X/2Y ø10/18.7	-158.66	-663.02	SLU 1	273.69	126.28	1939.42	1	1.73	0.05	-658.23	SLU 3	258.36	274.98	2110.61	1	6022.19	Si
3.6	2X/2Y ø10/18.7	-166.34	-657.96	SLU 1	273.04	126.28	1938.45	1	1.64	0.05	-653.17	SLU 3	257.65	274.98	2109.55	1	6022.19	Si
3.9	2X/2Y ø10/18.7	-173.04	-652.9	SLU 1	272.39	126.28	1937.47	1	1.57	0.05	-648.1	SLU 3	256.94	274.98	2108.49	1	6022.19	Si
4.2	2X/2Y ø10/18.7	-178.76	-647.84	SLU 1	271.74	126.28	1936.5	1	1.52	0.05	-643.04	SLU 3	256.24	274.98	2107.42	1	6022.19	Si
4.5	2X/2Y ø10/18.7	-183.45	-642.86	SLU 1	271.1	126.28	1935.54	1	1.48	0.05	-638.06	SLU 3	255.54	274.98	2106.38	1	6022.19	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	154.57	-277.75	SLV 11	224.22	126.28	1865.22	1	1.45	23.64	-355.38	SLV 1	216.02	274.98	2047.1	1	11.63	Si
0.3	2X/2Y ø10/18.7	140.37	-274.06	SLV 11	223.74	126.28	1864.51	1	1.59	23.64	-351.69	SLV 1	215.51	274.98	2046.33	1	11.63	Si
0.6	2X/2Y ø10/18.7	126.78	-270.31	SLV 11	223.26	126.28	1863.79	1	1.76	23.64	-347.94	SLV 1	214.98	274.98	2045.54	1	11.63	Si
0.9	2X/2Y ø10/18.7	114.04	-266.56	SLV 11	222.78	126.28	1863.06	1	1.95	23.64	-344.19	SLV 1	214.46	274.98	2044.75	1	11.63	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.	
1.2	2X/2Y ø10/18.7	-116.41	-382.22	SLV 37	237.63	126.28	1885.34	1	2.04	23.64	-340.44	SLV 1	213.93	274.98	2043.97	1	11.63	Si
1.33	2X/2Y ø10/18.7	-120.37	-380.61	SLV 37	237.42	126.28	1885.03	1	1.97	23.64	-338.83	SLV 1	213.71	274.98	2043.63	1	11.63	Si
1.5	2X/2Y ø10/18.7	-125.37	-378.47	SLV 37	237.15	126.28	1884.62	1	1.89	23.64	-336.69	SLV 1	213.41	274.98	2043.18	1	11.63	Si
1.8	2X/2Y ø10/18.7	-133.59	-374.72	SLV 37	236.67	126.28	1883.89	1	1.77	23.64	-332.94	SLV 1	212.89	274.98	2042.4	1	11.63	Si
2.1	2X/2Y ø10/18.7	-141.31	-370.97	SLV 21	236.19	126.28	1883.17	1	1.67	23.64	-329.19	SLV 1	212.36	274.98	2041.61	1	11.63	Si
2.4	2X/2Y ø10/18.7	-149.28	-367.22	SLV 21	235.7	126.28	1882.45	1	1.58	23.64	-325.44	SLV 1	211.84	274.98	2040.82	1	11.63	Si
2.7	2X/2Y ø10/18.7	-156.8	-363.47	SLV 5	235.22	126.28	1881.73	1	1.5	23.64	-321.69	SLV 1	211.31	274.98	2040.04	1	11.63	Si
3	2X/2Y ø10/18.7	-163.49	-359.72	SLV 5	234.74	126.28	1881.01	1	1.44	23.64	-317.94	SLV 1	210.79	274.98	2039.25	1	11.63	Si
3.3	2X/2Y ø10/18.7	-169.32	-355.97	SLV 5	234.26	126.28	1880.28	1	1.38	23.64	-314.19	SLV 1	210.26	274.98	2038.46	1	11.63	Si
3.6	2X/2Y ø10/18.7	-174.27	-352.22	SLV 5	233.78	126.28	1879.56	1	1.34	23.64	-310.44	SLV 1	209.74	274.98	2037.68	1	11.63	Si
3.9	2X/2Y ø10/18.7	-178.34	-348.47	SLV 5	233.3	126.28	1878.84	1	1.31	23.64	-306.69	SLV 1	209.22	274.98	2036.89	1	11.63	Si
4.2	2X/2Y ø10/18.7	-181.56	-344.72	SLV 5	232.82	126.28	1878.12	1	1.28	23.64	-302.94	SLV 1	208.69	274.98	2036.1	1	11.63	Si
4.5	2X/2Y ø10/18.7	-183.88	-341.03	SLV 5	232.34	126.28	1877.41	1	1.26	23.64	-299.25	SLV 1	208.18	274.98	2035.33	1	11.63	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	-0.0128	-200.2935	-591.59	SLE RA 4	-5737	-0.0128	-200.2935	-591.59	SLE RA 4	76492	Si
0.3	-0.001	-200.0866	-587.91	SLE RA 4	-5610	-0.001	-200.0866	-587.91	SLE RA 4	73349	Si
0.6	0.0252	-210.1145	-584.16	SLE RA 7	-5756	0.0252	-210.1145	-584.16	SLE RA 7	77064	Si
0.9	0.0357	-225.344	-580.41	SLE RA 7	-6098	0.0357	-225.344	-580.41	SLE RA 7	85821	Si
1.2	0.0463	-244.1009	-576.66	SLE RA 7	-6574	0.0463	-244.1009	-576.66	SLE RA 7	98226	Si
1.33	0.0508	-253.1438	-575.04	SLE RA 7	-6804	0.0508	-253.1438	-575.04	SLE RA 7	104218	Si
1.5	0.0569	-266.1744	-572.91	SLE RA 7	-7134	0.0569	-266.1744	-572.91	SLE RA 7	112861	Si
1.8	0.0674	-291.4464	-569.16	SLE RA 7	-7772	0.0674	-291.4464	-569.16	SLE RA 7	129657	Si
2.1	0.078	-319.6372	-565.41	SLE RA 7	-8483	0.078	-319.6372	-565.41	SLE RA 7	148435	Si
2.4	0.0885	-350.4903	-561.66	SLE RA 7	-9258	0.0885	-350.4903	-561.66	SLE RA 7	169022	Si
2.7	0.0991	-383.7949	-557.91	SLE RA 7	-10094	0.0991	-383.7949	-557.91	SLE RA 7	191276	Si
3	0.1096	-419.3403	-554.16	SLE RA 7	-10984	0.1096	-419.3403	-554.16	SLE RA 7	215052	Si
3.3	0.1202	-456.9156	-550.41	SLE RA 7	-11924	0.1202	-456.9156	-550.41	SLE RA 7	240203	Si
3.6	0.1308	-496.3382	-546.66	SLE RA 7	-12908	0.1308	-496.3382	-546.66	SLE RA 7	266606	Si
3.9	0.1413	-537.4008	-542.91	SLE RA 7	-13933	0.1413	-537.4008	-542.91	SLE RA 7	294117	Si
4.2	0.1519	-579.8392	-539.16	SLE RA 7	-14991	0.1519	-579.8392	-539.16	SLE RA 7	322559	Si
4.5	0.1658	-624.5989	-535.47	SLE RA 4	-16107	0.1658	-624.5989	-535.47	SLE RA 4	352547	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	-0.0051	-137.6173	-337.45	SLE QP 5	-3910	Si
0.3	0.0247	-125.617	-333.77	SLE QP 2	-3505	Si
0.6	0.0342	-135.0884	-330.02	SLE QP 1	-3676	Si
0.9	0.0367	-145.4401	-326.27	SLE QP 1	-3907	Si
1.2	0.0392	-155.7919	-322.52	SLE QP 1	-4167	Si
1.33	0.0403	-160.2442	-320.9	SLE QP 1	-4279	Si
1.5	0.0418	-166.1436	-318.77	SLE QP 1	-4427	Si
1.8	0.0443	-176.4953	-315.02	SLE QP 1	-4686	Si
2.1	0.0469	-186.8471	-311.27	SLE QP 1	-4945	Si
2.4	0.0494	-197.1988	-307.52	SLE QP 1	-5203	Si

Quota	Mx	My	N	Comb.	σc,max	Verifica
2.7	0.052	-207.5505	-303.77	SLE QP 1	-5460	Si
3	0.0545	-217.9023	-300.02	SLE QP 1	-5717	Si
3.3	0.057	-228.254	-296.27	SLE QP 1	-5974	Si
3.6	0.0596	-238.6057	-292.52	SLE QP 1	-6231	Si
3.9	0.0621	-248.9575	-288.77	SLE QP 1	-6487	Si
4.2	0.0647	-259.3092	-285.02	SLE QP 1	-6743	Si
4.5	0.0754	-276.0086	-281.33	SLE QP 5	-7158	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
1.2	0.0576	-228.576	-463.71	SLE FR 12	0.0547	-217.1701	-21717.01	99868	0.09842	0.0414	0.3004	0.000087	Si	Si
1.33	0.0599	-237.7287	-462.09	SLE FR 12	0.0542	-215.1328	-21513.28	105988	0.09922	0.041	0.3012	0.000093	Si	Si
1.5	0.0628	-249.8559	-459.96	SLE FR 12	0.0535	-212.714	-21271.4	114115	0.10017	0.0406	0.3021	0.0001	Si	Si
1.8	0.0681	-271.1358	-456.21	SLE FR 12	0.0525	-209.0969	-20909.69	128417	0.10161	0.0401	0.3035	0.000114	Si	Si
2.1	0.0733	-292.4157	-452.46	SLE FR 12	0.0517	-206.1024	-20610.24	142761	0.10282	0.0396	0.3047	0.000127	Si	Si
2.4	0.0786	-313.6956	-448.71	SLE FR 12	0.051	-203.5824	-20358.24	157135	0.10385	0.0392	0.3057	0.00014	Si	Si
2.7	0.0838	-334.9755	-444.96	SLE FR 12	0.0504	-201.4324	-20143.24	171535	0.10474	0.0427	0.2974	0.000149	Si	Si
3	0.089	-356.2554	-441.21	SLE FR 12	0.0499	-199.5766	-19957.66	185954	0.1055	0.0424	0.298	0.000165	Si	Si
3.3	0.0943	-377.5353	-437.46	SLE FR 12	0.0494	-197.9583	-19795.83	200389	0.10618	0.0421	0.2986	0.000186	Si	Si
3.6	0.0995	-398.8152	-433.71	SLE FR 12	0.049	-196.5347	-19653.47	214836	0.10678	0.0419	0.2992	0.000207	Si	Si
3.9	0.1047	-420.0951	-429.96	SLE FR 12	0.0487	-195.2728	-19527.28	229295	0.10731	0.0417	0.2997	0.000228	Si	Si
4.2	0.11	-441.375	-426.21	SLE FR 12	0.0484	-194.1464	-19414.64	243762	0.10779	0.0415	0.3001	0.000249	Si	Si
4.5	0.1165	-462.8399	-422.52	SLE FR 13	0.0486	-193.13	-19313	258353	0.10822	0.0413	0.3005	0.000271	Si	Si

Verifica di apertura delle fessure nella famiglia di combinazioni quasi permanente

Valore limite di controllo 0,200 mm
Coefficiente di viscosità Fi = 1.7
Coefficiente di omogeneizzazione impiegato 15

Quota	Mx	My	N	Comb.	Mx,sr	My,sr	N,sr	σs	Ac,eff	ρ,eff	Sm	Wk	Fessurata	Verifica
2.7	0.052	-207.5505	-303.77	SLE QP 1	0.0511	-204.2915	-20429.15	103215	0.10356	0.0393	0.3054	0.000092	Si	Si
3	0.0545	-217.9023	-300.02	SLE QP 1	0.0506	-202.4487	-20244.87	110426	0.10432	0.039	0.3062	0.000098	Si	Si
3.3	0.057	-228.254	-296.27	SLE QP 1	0.0502	-200.8017	-20080.17	117646	0.105	0.0426	0.2976	0.000102	Si	Si
3.6	0.0596	-238.6057	-292.52	SLE QP 1	0.0498	-199.3208	-19932.08	124874	0.10561	0.0424	0.2981	0.000108	Si	Si
3.9	0.0621	-248.9575	-288.77	SLE QP 1	0.0494	-197.9822	-19798.22	132109	0.10617	0.0421	0.2986	0.000115	Si	Si
4.2	0.0647	-259.3092	-285.02	SLE QP 1	0.0491	-196.7662	-19676.62	139351	0.10668	0.0419	0.2991	0.000121	Si	Si
4.5	0.0754	-276.0086	-281.33	SLE QP 5	0.0533	-195.1878	-19518.78	150781	0.10734	0.0417	0.2997	0.000132	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 [m^2]
A sl: area di armatura longitudinale tesa per valutazione resistenza taglio in assenza di armature a taglio [m^2]
A sag: area equivalente di barre piegate per unità di lunghezza [m^2]
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/m^2]
σ f: tensione di trazione nell'acciaio [kN/m^2]
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	0.005404	0.071	0.003142	0.07						-785.8252	SLU 1	-706.433	-804.9054	0.228	Si
0.25	0.005404	0.071	0.003142	0.07						-629.8201	SLU 1	-629.8201	-804.9054	0.228	Si
2.83	0.003142	0.07	0.006308	0.071	646.8429	SLU 20	800.6148	929.2979	0.255						Si
3.97	0.003142	0.07	0.006308	0.071	905.5689	SLU 20	908.3306	929.2979	0.255						Si
5.67	0.003142	0.07	0.006308	0.071	639.9776	SLU 18	796.0722	929.2979	0.255						Si
8.25	0.005404	0.071	0.003142	0.07						-648.9621	SLU 3	-648.9621	-804.9054	0.228	Si
8.5	0.005404	0.071	0.003142	0.07						-806.162	SLU 3	-726.1724	-804.9054	0.228	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	0.005404	0.071	0.003142	0.07						-549.6802	SLV 5	-507.7221	-773.5682	0.353	Si
0.25	0.005404	0.071	0.003142	0.07	13.5189	SLV 43	103.6383	466.0374	0.262	-467.5369	SLV 5	-467.5369	-773.5682	0.353	Si
2.83	0.003142	0.07	0.006308	0.071	317.4143	SLV 43	325.1926	892.2821	0.381						Si
5.67	0.003142	0.07	0.006308	0.071	317.4142	SLV 37	325.1926	892.2821	0.381						Si
8.25	0.005404	0.071	0.003142	0.07	13.5189	SLV 37	103.6383	466.0374	0.262	-467.5369	SLV 11	-467.5369	-773.5682	0.353	Si
8.5	0.005404	0.071	0.003142	0.07						-549.6802	SLV 11	-507.7222	-773.5682	0.353	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	0.005404	0	638.56	SLU 17	638.56	300.74	1252.86	0	300.74	2.5	Si
0.25	0.0000188	0.005404	0	612.9	SLU 17	612.9	300.74	1252.86	712.23	712.23	2.5	Si
2.83	0.0000153	0.006308	0	347.86	SLU 17	347.86	316.61	1252.37	576.4	576.4	2.5	Si
5.67	0.0000153	0.005614	0	-352.64	SLU 4	-352.64	-304.54	-1252.37	-576.4	-576.4	2.5	Si
8.25	0.0000188	0.005404	0	-617.68	SLU 4	-617.68	-300.74	-1252.86	-712.23	-712.23	2.5	Si
8.5	0	0.005404	0	-643.33	SLU 4	-643.33	-300.74	-1252.86	0	-300.74	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	0.005404	0	337.84	SLV 37	337.84	300.74	1252.86	0	300.74	2.5	Si
0.25	0.0000188	0.005404	0	321.48	SLV 37	321.48	300.74	1252.86	712.23	712.23	2.5	Si
2.83	0.0000153	0.006308	0	152.42	SLV 37	152.42	316.61	1252.37	576.4	576.4	2.5	Si
5.67	0.0000153	0.005614	0	-152.42	SLV 11	-152.42	-304.54	-1252.37	-576.4	-576.4	2.5	Si
8.25	0.0000188	0.005404	0	-321.48	SLV 11	-321.48	-300.74	-1252.86	-712.23	-712.23	2.5	Si
8.5	0	0.005404	0	-337.84	SLV 11	-337.84	-300.74	-1252.86	0	-300.74	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	-667.5751	4	-601.363	14044	19920	0.3037	3600	-295.9582	5	-2614631,98132875	61,0596490543353	149,4
0.25	-537.2528	4	-537.2528	12546	19920	0.2713	3600	-228.741	5	-2287409,62617521	53,4180068228141	149,4
2.83	536.0925	7	678.1364	15133	19920	0.2958	3600	247.0471	1	2838416,015967	63,3406722968277	149,4
5.67	536.0542	7	678.0902	15132	19920	0.2958	3600	247.0471	1	2838416,015967	63,3406722968277	149,4
8.25	-537.2496	4	-537.2496	12546	19920	0.2713	3600	-228.741	5	-2287410,01587233	53,4180159234328	149,4
8.5	-667.5679	4	-601.3578	14044	19920	0.3037	3600	-295.9583	5	-2614632,39256981	61,0596586580711	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	0.277	0.00116	0.000321	4	0.277	0.00085	0.000234	13	0.277	0.00043	0.000119	5	Si
0.25	superiore	0.277	0.001	0.000277	4	0.277	0.00072	0.0002	13	0.277	0.00035	0.000097	5	Si
2.83	inferiore	0.265	0.00115	0.000306	7	0.265	0.0009	0.000238	12	0.265	0.00041	0.000109	1	Si
3.97	inferiore	0.265	0.00137	0.000362	7	0.265	0.00104	0.000277	12	0.265	0.00047	0.000125	1	Si
5.67	inferiore	0.265	0.00115	0.000306	7	0.265	0.0009	0.000238	12	0.265	0.00041	0.000109	1	Si
8.25	superiore	0.277	0.001	0.000277	4	0.277	0.00072	0.0002	13	0.277	0.00035	0.000097	5	Si
8.5	superiore	0.277	0.00116	0.000321	4	0.277	0.00085	0.000234	13	0.277	0.00043	0.000119	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.	l/f	
0.25	0.00077	0.00064	0.00154	0.0012	0.00063	0.00033	0.00114	0.00038	0.00038	0.00033	0.001	1	0.00085	1	8531	Si
2.83	0.01039	0.00871	0.02093	0.01646	0.00811	0.00431	0.01465	0.00493	0.00472	0.00431	0.01245	1	0.01122	1	683	Si
4.25	0.01256	0.01052	0.02561	0.02018	0.00973	0.00513	0.01786	0.00599	0.00559	0.00513	0.01491	1	0.0135	1	570	Si
5.67	0.01039	0.00871	0.02097	0.01648	0.00811	0.00431	0.01467	0.00493	0.00472	0.00431	0.01246	1	0.01123	1	682	Si

x	Rara				Frequente				Quasi permanente							Verifica
	Elastica+	Elastica-	Fess.+	Fess.-	Elastica+	Elastica-	Fess.+	Fess.-	Elastica+	Elastica-	Fess. viscosa+	Comb.	Fess. viscosa-	Comb.	l/f	
8.25	0.00077	0.00064	0.00154	0.0012	0.00063	0.00033	0.00114	0.00038	0.00038	0.00033	0.001	1	0.00085	1	8516	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	0.002513	0.07	288.7786	SLU 4	199.277	496.3197	0.129						Si
0.25	0.003142	0.07	0.002513	0.07	135.5684	SLU 12	135.5684	496.3197	0.129	47.6211	SLU 21	-226.39	-610.5584	0.141	Si
2.83	0.003142	0.07	0.001571	0.07						-446.9379	SLU 17	-448.1903	-610.7705	0.143	Si
5.38	0.003142	0.07	0.001571	0.07						-451.0358	SLU 19	-460.8163	-610.7705	0.143	Si
5.67	0.003142	0.07	0.001571	0.07						-457.4398	SLU 19	-460.8163	-610.7705	0.143	Si
8.25	0.003142	0.07	0.002513	0.07	111.894	SLU 10	111.894	496.3197	0.129	25.0376	SLU 23	-249.4778	-610.5584	0.141	Si
8.5	0.003142	0.07	0.002513	0.07	265.9723	SLU 2	175.8203	496.3197	0.129						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	0.002513	0.07	437.6828	SLV 11	402.4791	471.4206	0.223	-138.203	SLV 37	-138.203	-583.4674	0.251	Si
0.25	0.003142	0.07	0.002513	0.07	369.7812	SLV 11	369.7812	471.4206	0.223	-226.4188	SLV 37	-354.7258	-583.4674	0.251	Si
2.83	0.003142	0.07	0.001571	0.07	-60.1855	SLV 11	5.0875	299.8874	0.181	-325.8438	SLV 37	-373.0357	-582.9519	0.257	Si
5.67	0.003142	0.07	0.001571	0.07	-60.1857	SLV 5	5.0873	299.8874	0.181	-325.844	SLV 43	-373.036	-582.9519	0.257	Si
8.25	0.003142	0.07	0.002513	0.07	369.7885	SLV 5	369.7885	471.4206	0.223	-226.4839	SLV 43	-354.7912	-583.4674	0.251	Si
8.5	0.003142	0.07	0.002513	0.07	437.6829	SLV 5	402.4865	471.4206	0.223	-138.203	SLV 43	-138.203	-583.4674	0.251	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	0.002513	0	-723.77	SLU 17	-723.77	-257.32	-1547.23	-700.46	-700.46	2.5	Si
0.25	0.000015	0.002513	0	-598.72	SLU 2	-598.72	-257.32	-1547.23	-700.46	-700.46	2.5	Si
2.83	0.000015	0.003142	0	11.04	SLU 17	11.04	277.19	1547.23	700.46	700.46	2.5	Si
2.83	0.000015	0.003142	0	-12.91	SLU 12	-12.91	-277.19	-1547.23	-700.46	-700.46	2.5	Si
5.67	0.000015	0.003142	0	5.43	SLU 14	5.43	277.19	1547.23	700.46	700.46	2.5	Si
5.67	0.000015	0.003142	0	-18.55	SLU 19	-18.55	-277.19	-1547.23	-700.46	-700.46	2.5	Si
8.25	0.000015	0.002513	0	600.59	SLU 4	600.59	257.32	1547.23	700.46	700.46	2.5	Si
8.5	0.000015	0.002513	0	728.55	SLU 4	728.55	257.32	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	-400.97	SLV 37	-400.97	-277.19	-1547.23	-700.46	-700.46	2.5	Si
0.25	0.000015	0.003142	0	-308.42	SLV 9	-308.42	-277.19	-1547.23	-700.46	-700.46	2.5	Si
2.83	0.000015	0.003142	0	89.82	SLV 37	89.82	277.19	1547.23	700.46	700.46	2.5	Si
2.83	0.000015	0.003142	0	-99.62	SLV 11	-99.62	-277.19	-1547.23	-700.46	-700.46	2.5	Si
5.67	0.000015	0.003142	0	99.62	SLV 5	99.62	277.19	1547.23	700.46	700.46	2.5	Si
5.67	0.000015	0.003142	0	-89.82	SLV 43	-89.82	-277.19	-1547.23	-700.46	-700.46	2.5	Si
8.25	0.000015	0.003142	0	308.42	SLV 7	308.42	277.19	1547.23	700.46	700.46	2.5	Si
8.5	0.000015	0.003142	0	400.97	SLV 11	400.97	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	206.0624	4	131.9601	2825	19920	0.1104	3600	154.5721	5	1120796,4109932	23,9921268501884	149,4
0.25	76.6705	16	76.6705	1641	19920	0.0641	3600	76.4548	5	764548,095946163	16,3661613483893	149,4
2.83	-363.2732	7	-363.5371	7774	19920	0.2455	3600	-209.4896	1	-2098629,56249937	44,8780303253352	149,4
5.67	-363.2681	7	-363.5314	7774	19920	0.2455	3600	-209.4898	1	-2098631,93749938	44,8780811133943	149,4
8.25	76.6187	16	76.6187	1640	19920	0.0641	3600	76.4265	5	764264,739997403	16,3600957402203	149,4
8.5	206.0552	4	131.8981	2823	19920	0.1103	3600	154.5721	5	1120513,51172074	23,9860710177785	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	
1.98	superiore	0.359	0.00072	0.000257	7	0.359	0.00064	0.000231	12	0.359	0.00041	0.000148	1	Si
2.83	superiore	0.359	0.00072	0.000257	7	0.359	0.00064	0.000231	12	0.359	0.00041	0.000148	1	Si
5.67	superiore	0.359	0.00072	0.000257	7	0.359	0.00064	0.000231	12	0.359	0.00041	0.000148	1	Si

8.3.4 Verifica muro d'ala

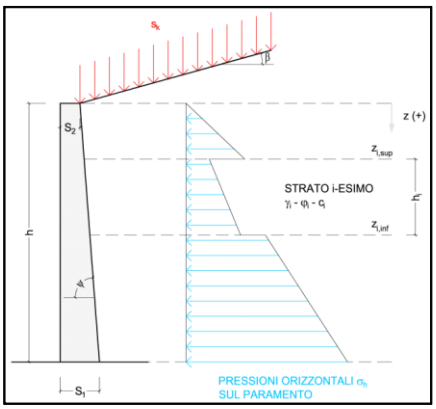
VERIFICHE SLU

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/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=	2,5	m	Altezza paramento
β=	0	°	Ang. terrapieno sull'orizzontale (>0 antiorario)
ψ=	90	°	Ang. par. interna sull'orizzontale (>0 orario)
H=	3,1	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)

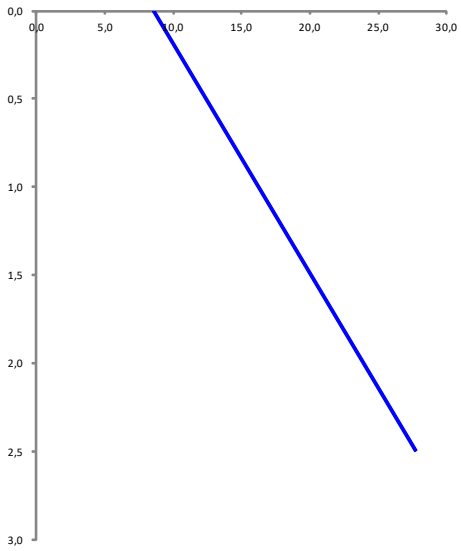
CARATTERISTICHE STRATI TERRENO

				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	2,50	2,50	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	2,50	2,50	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	2,50	2,50	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	2,50	2,50	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	2,50	2,50	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	2,50	2,50	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	2,50	2,50	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	2,50	2,50	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	2,50	2,50	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	2,50	2,50	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)

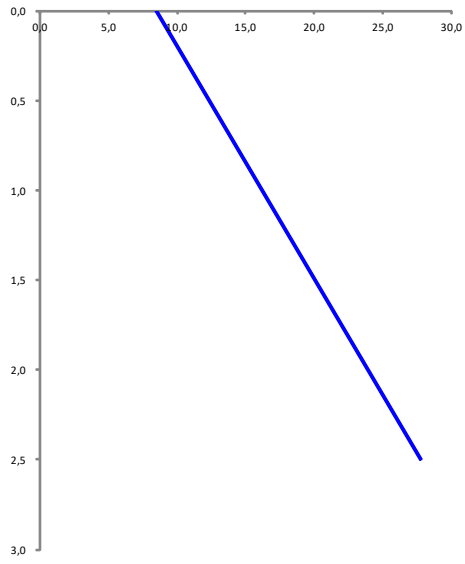
PRESSIONI DI PROGETTO CONDIZIONI STATICHE **SLE**

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 σ_{hdtot} [kN/m²]**
1	0,00	0,43	0,0	0,00	0,00	0,00	8,53	**8,53**
	2,50		45,0	19,19	0,00	0,00	8,53	**27,72**
2	2,50	0,43	45,0	19,19	0,00	0,00	8,53	**27,72**
	2,50		45,0	19,19	0,00	0,00	8,53	**27,72**
3	2,50	0,43	45,0	19,19	0,00	0,00	8,53	**27,72**
	2,50		45,0	19,19	0,00	0,00	8,53	**27,72**
4	2,50	0,43	45,0	19,19	0,00	0,00	8,53	**27,72**
	2,50		45,0	19,19	0,00	0,00	8,53	**27,72**
5	2,50	0,43	45,0	19,19	0,00	0,00	8,53	**27,72**
	2,50		45,0	19,19	0,00	0,00	8,53	**27,72**
6	2,50	0,43	45,0	19,19	0,00	0,00	8,53	**27,72**
	2,50		45,0	19,19	0,00	0,00	8,53	**27,72**
7	2,50	0,43	45,0	19,19	0,00	0,00	8,53	**27,72**
	2,50		45,0	19,19	0,00	0,00	8,53	**27,72**
8	2,50	0,43	45,0	19,19	0,00	0,00	8,53	**27,72**
	2,50		45,0	19,19	0,00	0,00	8,53	**27,72**
9	2,50	0,43	45,0	19,19	0,00	0,00	8,53	**27,72**
	2,50		45,0	19,19	0,00	0,00	8,53	**27,72**
10	2,50	0,43	45,0	19,19	0,00	0,00	8,53	**27,72**
	2,50		45,0	19,19	0,00	0,00	8,53	**27,72**



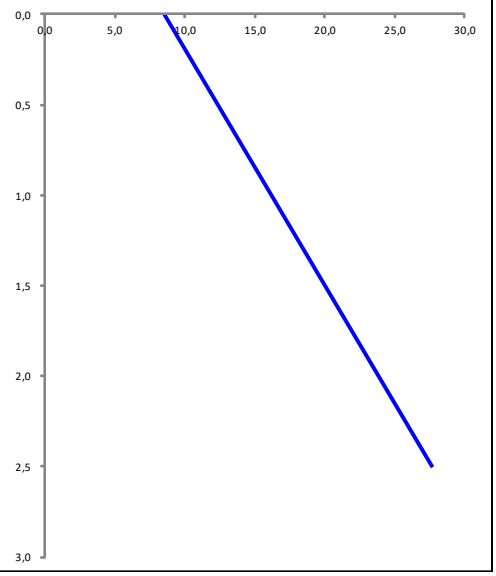
PRESSIONI DI PROGETTO CONDIZIONI STATICHE **SLU APPROCCIO 1 - COMBINAZIONE 1 E APPROCCIO 2**

STRATO	z_{sup} / z_{inf} [m]	k_{hd} [-]	Tensione verticale litostatica σ_{vd} [kN/m²]	σ_{hd} Terreno [kN/m²]	σ_{hd} Sovraccarichi permanenti strutturali [kN/m²]	σ_{hd} Sovraccarichi permanenti non strutturali [kN/m²]	σ_{hd} Sovraccarichi variabili [kN/m²]	**Pressione orizzontale totale di progetto σ_{hdtot} [kN/m²]**
1	0,00	0,43	0,0	0,00	0,00	0,00	12,79	**12,79**
	2,50		45,0	24,95	0,00	0,00	12,79	**37,74**
2	2,50	0,43	45,0	24,95	0,00	0,00	12,79	**37,74**
	2,50		45,0	24,95	0,00	0,00	12,79	**37,74**
3	2,50	0,43	45,0	24,95	0,00	0,00	12,79	**37,74**
	2,50		45,0	24,95	0,00	0,00	12,79	**37,74**
4	2,50	0,43	45,0	24,95	0,00	0,00	12,79	**37,74**
	2,50		45,0	24,95	0,00	0,00	12,79	**37,74**
5	2,50	0,43	45,0	24,95	0,00	0,00	12,79	**37,74**
	2,50		45,0	24,95	0,00	0,00	12,79	**37,74**
6	2,50	0,43	45,0	24,95	0,00	0,00	12,79	**37,74**
	2,50		45,0	24,95	0,00	0,00	12,79	**37,74**
7	2,50	0,43	45,0	24,95	0,00	0,00	12,79	**37,74**
	2,50		45,0	24,95	0,00	0,00	12,79	**37,74**
8	2,50	0,43	45,0	24,95	0,00	0,00	12,79	**37,74**
	2,50		45,0	24,95	0,00	0,00	12,79	**37,74**
9	2,50	0,43	45,0	24,95	0,00	0,00	12,79	**37,74**
	2,50		45,0	24,95	0,00	0,00	12,79	**37,74**
10	2,50	0,43	45,0	24,95	0,00	0,00	12,79	**37,74**
	2,50		45,0	24,95	0,00	0,00	12,79	**37,74**



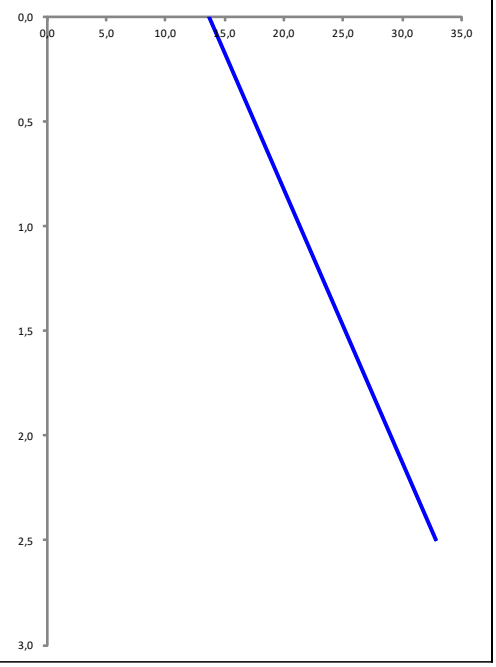
PRESSIONI DI PROGETTO CONDIZIONI STATICHE **SLU APPROCCIO 1 - COMBINAZIONE 2**

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 σ_{hdtot} [kN/m²]**
1	0,00	0,51	0,0	0,00	0,00	0,00	13,29	**13,29**
	2,50		45,0	23,01	0,00	0,00	13,29	**36,30**
2	2,50	0,51	45,0	23,01	0,00	0,00	13,29	**36,30**
	2,50		45,0	23,01	0,00	0,00	13,29	**36,30**
3	2,50	0,51	45,0	23,01	0,00	0,00	13,29	**36,30**
	2,50		45,0	23,01	0,00	0,00	13,29	**36,30**
4	2,50	0,51	45,0	23,01	0,00	0,00	13,29	**36,30**
	2,50		45,0	23,01	0,00	0,00	13,29	**36,30**
5	2,50	0,51	45,0	23,01	0,00	0,00	13,29	**36,30**
	2,50		45,0	23,01	0,00	0,00	13,29	**36,30**
6	2,50	0,51	45,0	23,01	0,00	0,00	13,29	**36,30**
	2,50		45,0	23,01	0,00	0,00	13,29	**36,30**
7	2,50	0,51	45,0	23,01	0,00	0,00	13,29	**36,30**
	2,50		45,0	23,01	0,00	0,00	13,29	**36,30**
8	2,50	0,51	45,0	23,01	0,00	0,00	13,29	**36,30**
	2,50		45,0	23,01	0,00	0,00	13,29	**36,30**
9	2,50	0,51	45,0	23,01	0,00	0,00	13,29	**36,30**
	2,50		45,0	23,01	0,00	0,00	13,29	**36,30**
10	2,50	0,51	45,0	23,01	0,00	0,00	13,29	**36,30**
	2,50		45,0	23,01	0,00	0,00	13,29	**36,30**



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 σ_{hdtot} [kN/m²]**
1	0,00	0,43	0,0	0,00	0,00	0,00	8,53	0,91	4,06	0,00	0,00	0,19	**13,68**
	2,50		45,0	19,19	0,00	0,00	8,53	0,91	4,06	0,00	0,00	0,19	**32,87**
2	2,50	0,43	45,0	19,19	0,00	0,00	8,53	0,91	4,06	0,00	0,00	0,19	**32,87**
	2,50		45,0	19,19	0,00	0,00	8,53	0,91	4,06	0,00	0,00	0,19	**32,87**
3	2,50	0,43	45,0	19,19	0,00	0,00	8,53	0,91	4,06	0,00	0,00	0,19	**32,87**
	2,50		45,0	19,19	0,00	0,00	8,53	0,91	4,06	0,00	0,00	0,19	**32,87**
4	2,50	0,43	45,0	19,19	0,00	0,00	8,53	0,91	4,06	0,00	0,00	0,19	**32,87**
	2,50		45,0	19,19	0,00	0,00	8,53	0,91	4,06	0,00	0,00	0,19	**32,87**
5	2,50	0,43	45,0	19,19	0,00	0,00	8,53	0,91	4,06	0,00	0,00	0,19	**32,87**
	2,50		45,0	19,19	0,00	0,00	8,53	0,91	4,06	0,00	0,00	0,19	**32,87**
6	2,50	0,43	45,0	19,19	0,00	0,00	8,53	0,91	4,06	0,00	0,00	0,19	**32,87**
	2,50		45,0	19,19	0,00	0,00	8,53	0,91	4,06	0,00	0,00	0,19	**32,87**
7	2,50	0,43	45,0	19,19	0,00	0,00	8,53	0,91	4,06	0,00	0,00	0,19	**32,87**
	2,50		45,0	19,19	0,00	0,00	8,53	0,91	4,06	0,00	0,00	0,19	**32,87**
8	2,50	0,43	45,0	19,19	0,00	0,00	8,53	0,91	4,06	0,00	0,00	0,19	**32,87**
	2,50		45,0	19,19	0,00	0,00	8,53	0,91	4,06	0,00	0,00	0,19	**32,87**
9	2,50	0,43	45,0	19,19	0,00	0,00	8,53	0,91	4,06	0,00	0,00	0,19	**32,87**
	2,50		45,0	19,19	0,00	0,00	8,53	0,91	4,06	0,00	0,00	0,19	**32,87**
10	2,50	0,43	45,0	19,19	0,00	0,00	8,53	0,91	4,06	0,00	0,00	0,19	**32,87**
	2,50		45,0	19,19	0,00	0,00	8,53	0,91	4,06	0,00	0,00	0,19	**32,87**



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:

$M_{sd} = P_{max}\, l^2/6 = 37.74 \times 2.5/6 = 39.3$ kNm

$V_{sd} = P_{max}\, l/2 = 37.74 \times 2.5/2 = 47.17$ kN

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

M_{Rd} = 268.5 kNm, momento resistente

V_{Rd} = 233.1 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

$M_{sd\ FR} = P\ l^2/6 = 25.6 \times 2.50^2/6 = 26.7$ kNm

Combinazione quasi permanente

$M_{sd\ QP} = P\ l^2/6 = 19.20 \times 2.50^2/6 = 20$ 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/mm²
			γ_s=	1,15	
			f_{yd}=	391,3	N/mm²
			E_s=	2,05E+05	N/mm²
Calcestruzzo R_{ck}=	40	N/mm²	f_{cm}=	41,2	N/mm²
			f_{ck}=	33,2	N/mm²
			f_{ctm}=	3,1	N/mm²
			f_{ctk}=	2,2	N/mm²
			γ_c=	1,5	N/mm²
			α_{cc}=	0,85	
			f_{cd}=	18,8	N/mm²
			f_{ctd}=	1,4	N/mm²
			E_{mc}=	33643	N/mm²

Dati sezione

Combinazione frequente

M_{sd}=	26,7	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=	113,5	mm	Posizione asse neutro
σ_s=	41,46	N/mm²	Tensione agente sull'armatura tesa

Combinazione quasi permanente

M_{sd}=	20	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=	113,5	mm	Posizione asse neutro
σ_s=	31,06	N/mm²	Tensione agente sull'armatura tes

	ϕ1	ϕ2	ϕ3	ϕ4		
N_ϕ=	5	0	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=	**1571**	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
$h_{c,eff}$=	125	mm	Altezza efficace
$A_{c,eff}$=	125000	mm^2	Area efficace
ρ_{eff}=	0,0126		Rapporto d'armatura efficace
α_e=	6,09		Rapporto moduli elastici
ε_{sm}=	-3,16E-04		Rapporto moduli elastici

ε_{sm}= -3,67E-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}=	441 mm

Combinazione frequente
w_d= 0,000 mm

Combinazione quasi permanente
w_d= 0,000 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	113,5	26,7	41,46	0,000	0,3
Quasi permanente	113,5	20	31,06	0,000	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

$M_{sd\ RARA} = P\ l^2/6 = 27.72 \times 2.50^2/6 = 28.9$ kNm

Combinazione quasi permanente

$M_{sd\ QP} = P\ l^2/6 = 19.20 \times 2.50^2/6 = 20$ kNm

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

$\sigma_{c,max} = 1.00$ N/mm^2 per combinazione caratteristica

$\sigma_{c,max} = 0.70$ N/mm^2 per combinazione quasi permanente

$\sigma_{s,max} = 44.9$ N/mm^2 per combinazione caratteristica

Pertanto per la verifica si ha:

$\sigma_{c,max} = 1.00 \leq 0{,}60\ f_{ck} = 19.2$ N/mm^2

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

$\sigma_{s,max} = 44.9 \leq 0{,}8\ f_{yk} = 360$ 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 47 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 95200 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 2358 = 94351 kN/m^3. Pertanto in sede di modellazione è stato assunto un valore della costante di sottofondo pari a 95200 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=	47,00	m	Lunghezza
H=	0,60	m	Altezza
D=	5,60	m	Profondità piano di posa
α=	0	°	Inclinazione del piano di posa

☐ Considera peso proprio fondazione

γ_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_{xfl}=	0,00	kN	Forza di taglio in direzione X
F_{yfl}=	0,00	kN	Forza di taglio in direzione Y
F_{zfl}=	0,00	kN	Forza in direzione verticale (>0 se di compressione)
M_{xfl}=	0,00	kNm	Momento in direzione X
M_{yfl}=	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'=	47,00	m	Lunghezza ridotta
A'=	423,00		Area ridotta

PARAMETRI DEL TERRENO

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

K_p=	2,464		Coefficiente di spinta passiva

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

PARAMETRI DI PORTANZA DELLA FONDAZIONE (BRINCH-HANSEN)

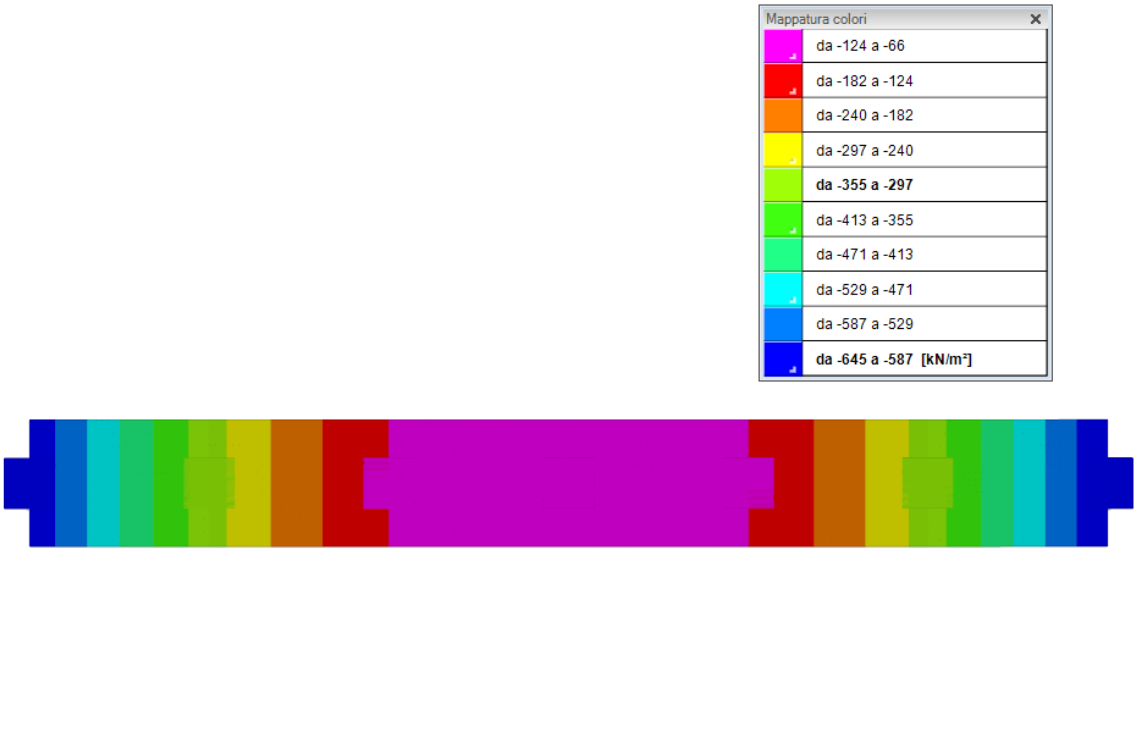
k=	0,62	Fattore di profondità
m_B=	1,84	Parametro di forma per carico agente in direzione della base
m_L=	1,16	Parametro di forma per carico agente in direzione della lunghezza
m=	1,84	Parametro di forma complessivo
N_c=	20,72	
N_q=	10,66	Fattori di capacità portante
N_γ=	9,01	
s_c=	1,09	
s_q=	1,08	Fattori di forma
s_γ=	0,94	
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}=	2358,796	kN/m^2	Pressione limite
$q_{R,D}$=	**1025,56**	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 TM05, 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 7.00 m.

Ai fini dei calcoli si analizza la sezione con altezza di scavo maggiore, pari a circa 3.75 m, che si può considerare rappresentativa di tutte le sezioni presenti, essendo in condizioni più gravose.

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

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

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 -1.70	UG0 – Riporti, coperture antropiche, colmate
Da -1.70 a -4.50	UG2 – Argille e limi molto poco consistenti
Da -4.50 a -5.70	UG3 – Sabbie limose mediamente addensate
Da -5.70 a -11.50	UG2 – Argille e limi molto poco consistenti
Da -11.50 a -19.00	UG3 – Sabbie limose mediamente addensate

Strato di Terreno	Terreno	γ dry kN/m^3	γ sat kN/m^3	ø' °	c' kPa	Modulo Elastico	K_{vc} kN/m3	K_{ur} kN/m3
1	UG0	18.5	18.5	35	0	Winkler	3143.04	9429.13
2	UG2	19.5	19.5	25	30	Winkler	3143.04	9429.13
3	UG3	20	20	32	0	Winkler	3143.04	9429.13

Strato di Terreno	Terreno	γ dry kN/m^3	γ sat kN/m^3	ø' °	c' kPa	Modulo Elastico	K_{vc} kN/m3	K_{ur} kN/m3
4	UG2	19.5	19.5	25	30	Winkler	3143.04	9429.13
5	UG3	20	20	32	0	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
(-20;-0.51)
(-13.2;-0.44)
(-11.51;-0.65)
(-10.48;-0.55)
(-8.42;-0.035)
(-2.24;0.13)
(0;0)
(2.91;0)
(4.97;-1.76)
(6;-2.27)
(10.13;-1.85)
(10.68;-1.52)
(11.8;-1.05)
(20;-0.6)
(30;-30)
(-30;-30)
OCR : 1

Tipo : POLYLINE
Punti
(-20;-1.7)
(0;-1.7)
(20;-1.7)
(30;-30)
(-30;-30)
OCR : 1

Tipo : POLYLINE
Punti
(-20;-4.5)
(0;-4.5)
(20;-4.5)
(27;-30)
(-25;-30)
OCR : 1

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

Tipo : POLYLINE
Punti
(-20;-11.5)
(20;-11.5)
(20;-20)
(-20;-20)
OCR : 1

3. Descrizione Pareti
X : 0 m
Quota in alto : 0.3 m
Quota di fondo : -6.7 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)
(-20;-0.51)
(-13.2;-0.44)
(-11.51;-0.66)
(-10.48;-0.55)
(-8.42;-0.03)
(-2.24;0.13)
(0;0)
Linea di scavo di destra (Irregolare)
(0;0)
(2.91;0)
(4.97;-1.76)

(6;-2.27)
(10.12;-1.85)
(10.68;-1.52)
(11.8;-1.05)
(20;-0.59)

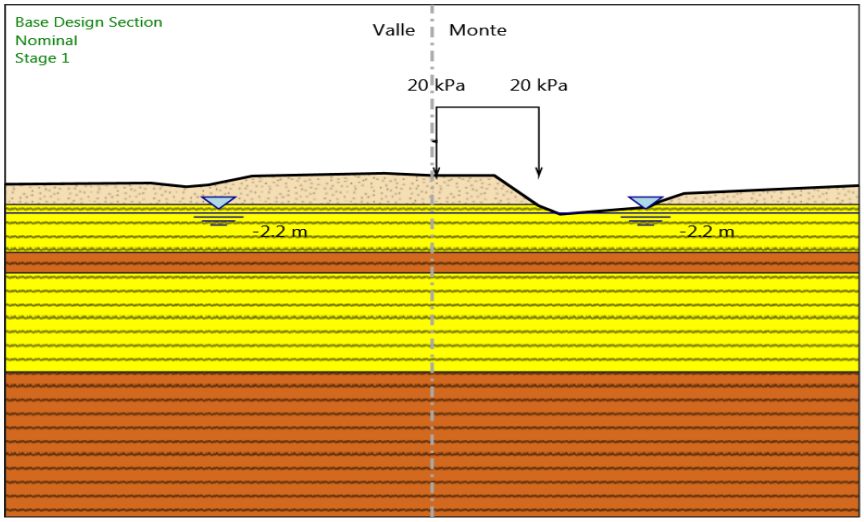
Carichi
Carico lineare in superficie : SurfaceSurcharge
X iniziale : 0.2 m
X finale : 5 m
Pressione iniziale : 20 kPa
Pressione finale : 20 kPa

Stage 2
Scavo
Muro di sinistra
Lato monte : 0 m
Lato valle : -3.75 m

Linea di scavo di sinistra (Orizzontale)
-3.75 m
Linea di scavo di destra (Irregolare)
(0;0)
(2.91;0)
(4.97;-1.76)
(6;-2.27)
(10.13;-1.85)
(10.69;-1.52)
(11.8;-1.05)
(20;-0.6)

Carichi
Carico lineare in superficie : SurfaceSurcharge
X iniziale : 0.2 m
X finale : 5 m
Pressione iniziale : 20 kPa
Pressione finale : 20 kPa

Elementi strutturali
Paratia : WallElement_New
X : 0 m
Quota in alto : 0.3 m
Quota di fondo : -6.7 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_{Q}	0,0 1,5	0,0 1,5	0,0 1,3

[1] Nel caso in cui i carichi permanenti non strutturali (ad es. carichi permanenti portati) siano compiutamente definiti si potranno adottare per essi gli stessi coefficienti validi per le azioni permanenti.

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

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

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

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

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

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

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

Coefficienti A

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

Coefficienti M

Nome	Parziale su tan(ø')	Parziale su c'	Parziale su Su	Parziale su qu	Parziale su peso specifico
Simbolo	γφ	γc	γcu	γqu	γγ
NTC2018: SLE	1	1	1	1	1

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: 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.

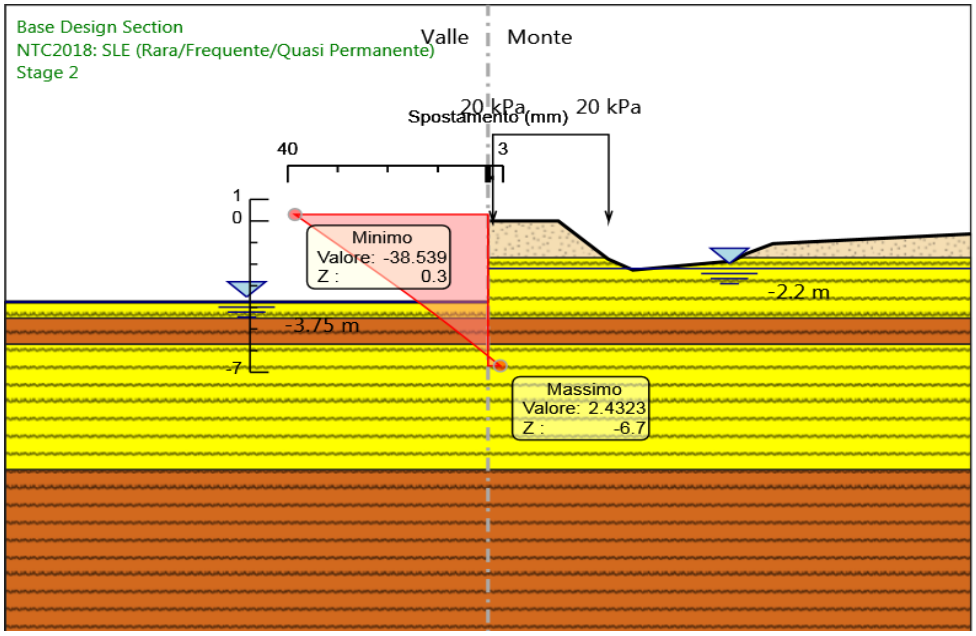


Figura 20 – SLE – Inviluppo spostamenti

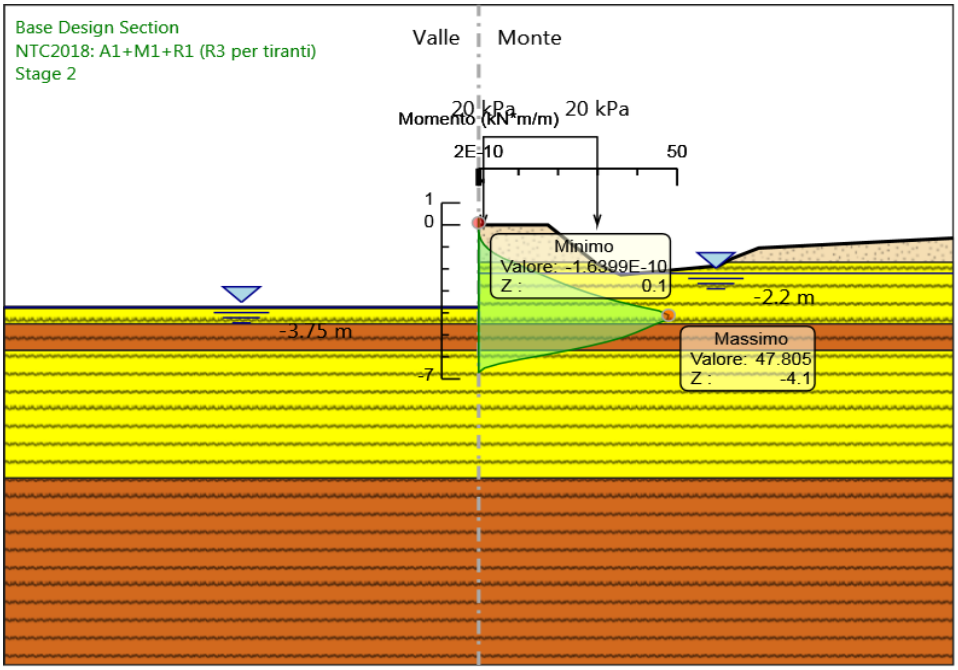


Figura 21 – SLU (A1-M1-R1) – Inviluppo momento flettente

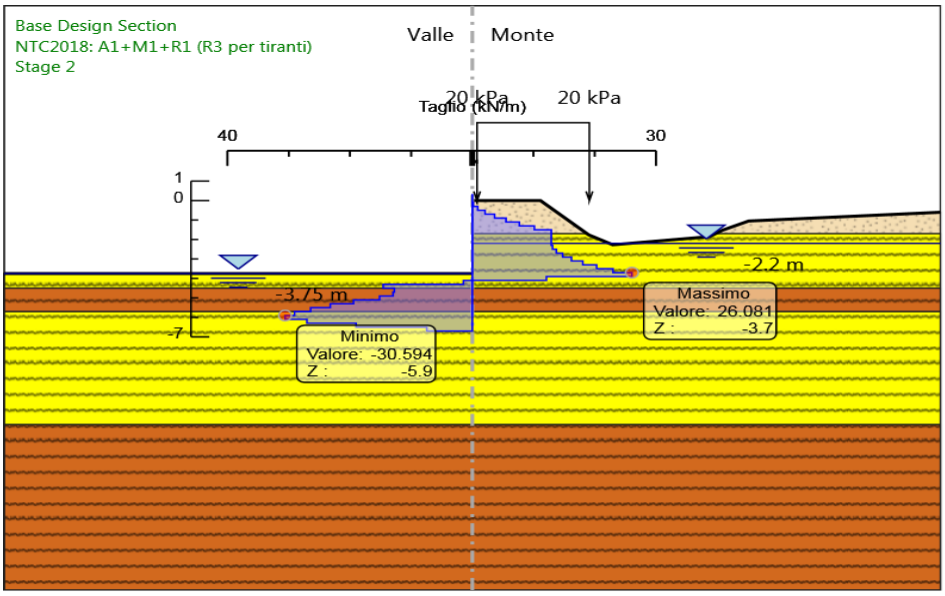


Figura 22 – SLU (A1-M1-R1) – Inviluppo taglio

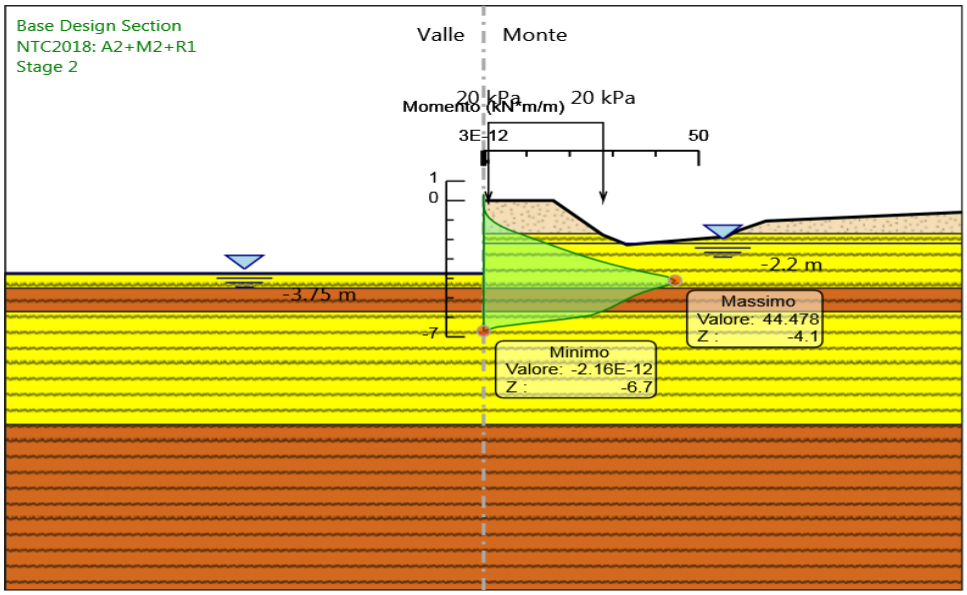


Figura 23 – SLU (A2-M2-R2) – Inviluppo momento flettente

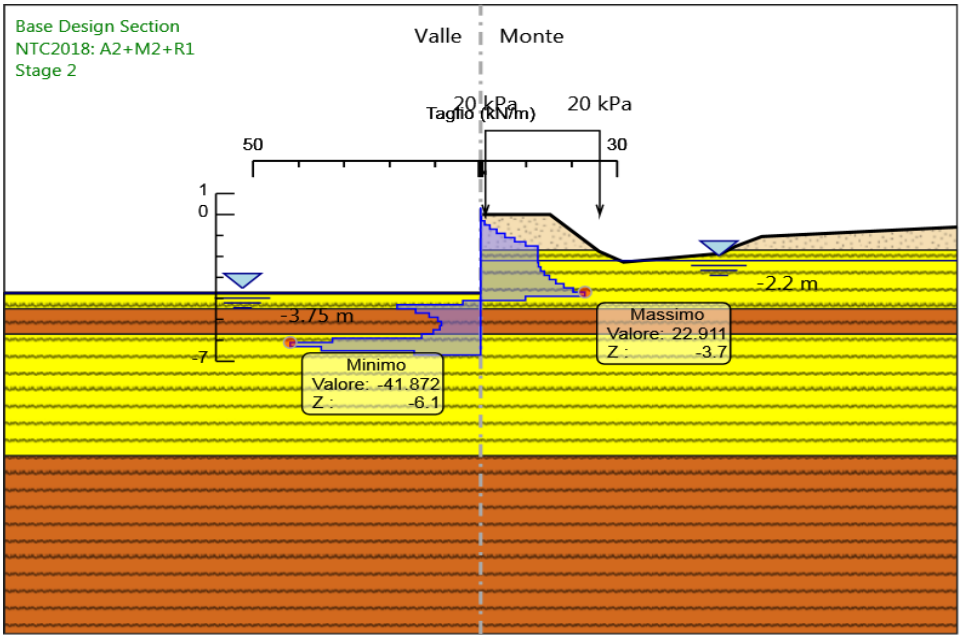


Figura 24 – SLU (A2-M2-R2) – Inviluppo taglio

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): 0.39

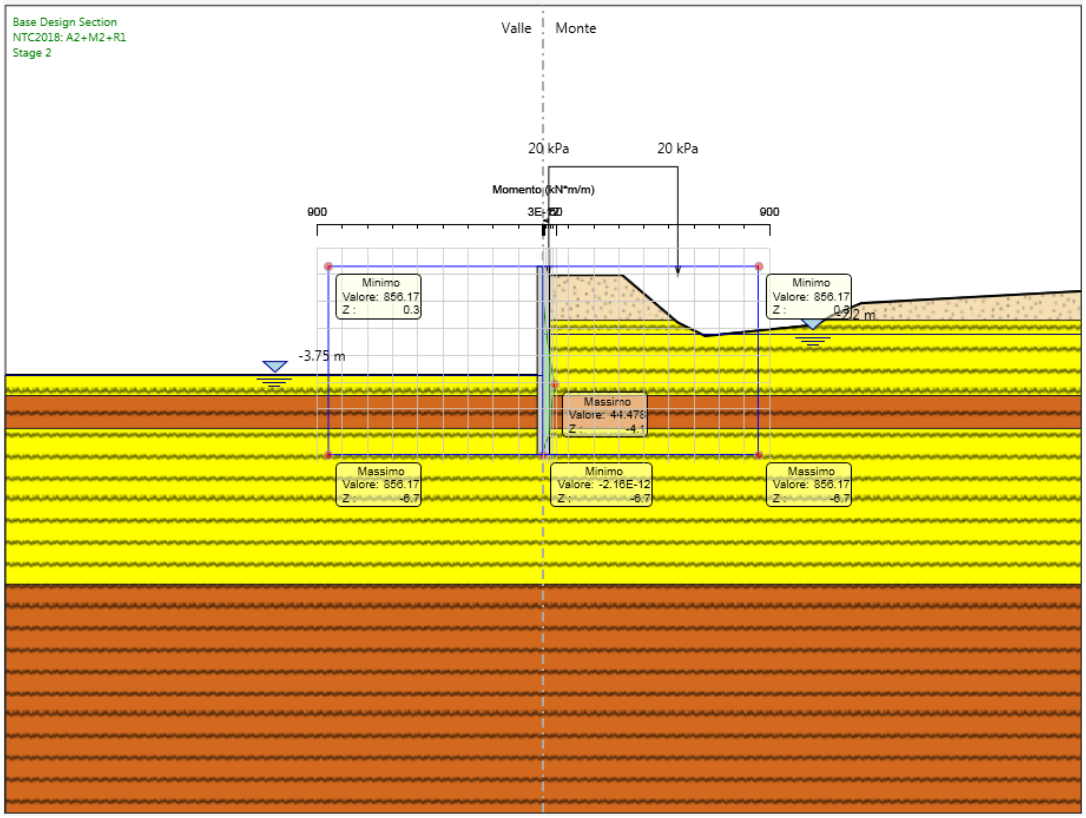
Combinazione GEO (A2-M2-R1)

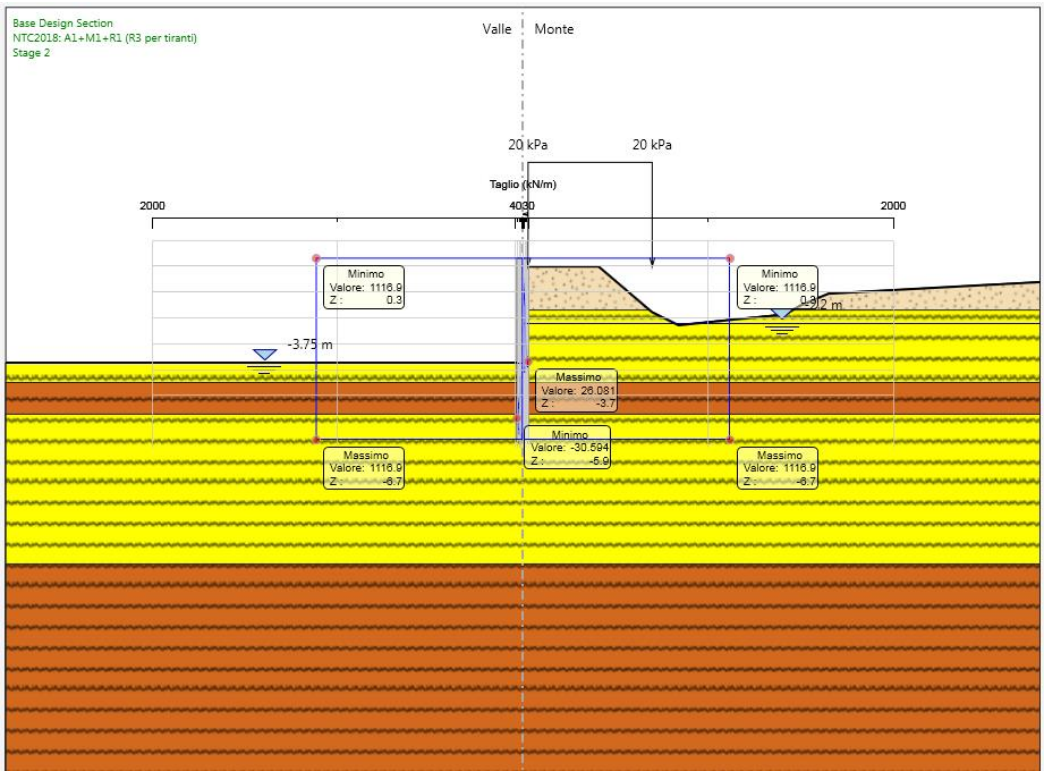
10.7 VERIFICHE STRUTTURALI

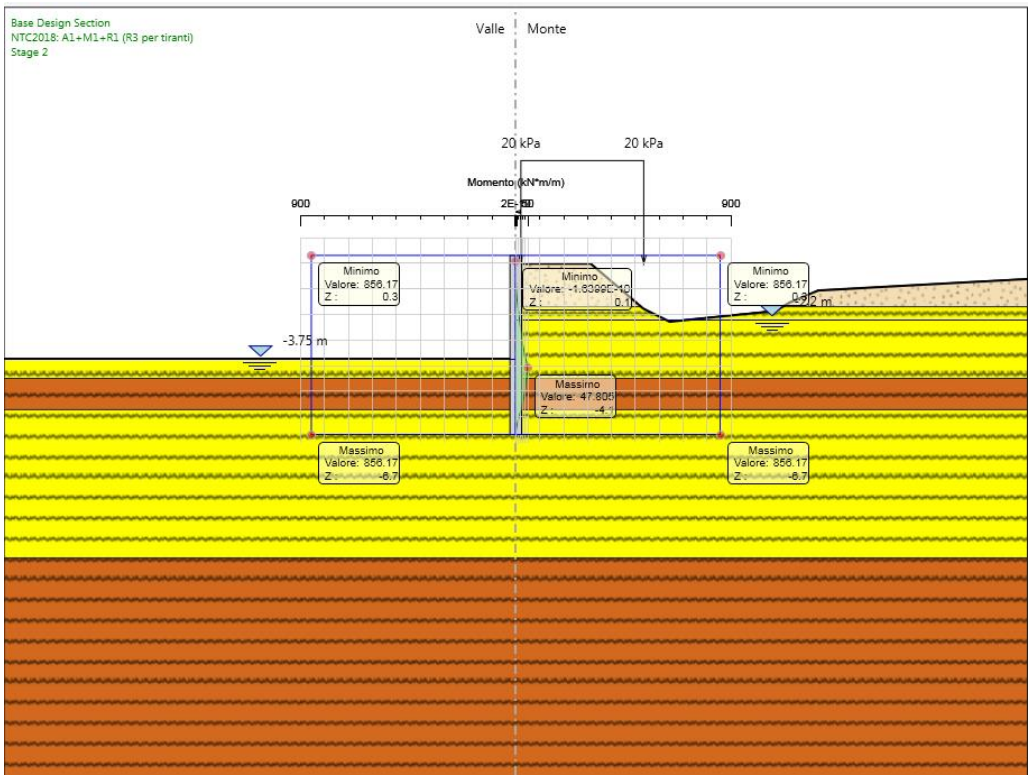
Il palancolato è previsto con profili PU28 in acciaio S275.

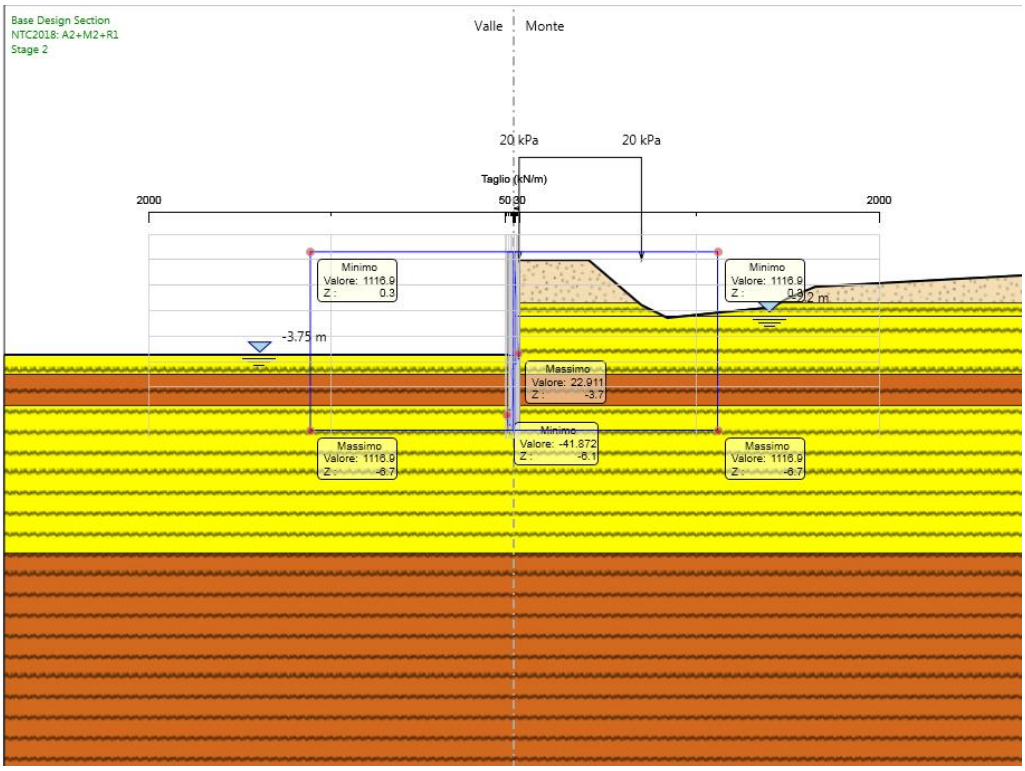
Si riporta di seguito il confronto tra le sollecitazioni massime agenti, di momento flettente e taglio, e le capacità resistenti nell'inviluppo allo SLU per entrambe le combinazioni considerate, per ciascuna paratia analizzata.

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
Taglio (kN/m)
2000
2000
Minimo
Valore: 1116.9
Z : 0.3
Minimo
Valore: 1116.9
Z : 0.3
-3.75 m
-3.72 m
Massimo
Valore: 26.081
Z : -3.7
Minimo
Valore: -30.594
Z : -5.9
Massimo
Valore: 1116.9
Z : -6.7
Massimo
Valore: 1116.9
Z : -6.7


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 2
Valle
Monte
20 kPa
20 kPa
Momento (kN*m/m)
900
900
Minimo
Valore: 856.17
Z : 0.3
Minimo
Valore: 856.17
Z : 0.3
-3.75 m
-3.72 m
Massimo
Valore: 856.17
Z : -6.7
Massimo
Valore: 856.17
Z : -6.7


Base Design Section
NTC2018: A2+M2+R1
Stage 2
Valle
Monte
20 kPa
20 kPa
Taglio (kN/m)
2000
50.00
2000
Minimo
Valore: 1116.9
Z: 0.3
Minimo
Valore: 1116.9
Z: 0.3
-3.75 m
Massimo
Valore: 22.911
Z: -3.7
Minimo
Valore: -41.872
Z: -6.1
Massimo
Valore: 1116.9
Z: -6.7
Massimo
Valore: 1116.9
Z: -6.7

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

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	-38.54
Stage 2	0.1	-37.31
Stage 2	-0.1	-36.08
Stage 2	-0.3	-34.85
Stage 2	-0.5	-33.62
Stage 2	-0.7	-32.39
Stage 2	-0.9	-31.16
Stage 2	-1.1	-29.93
Stage 2	-1.3	-28.71
Stage 2	-1.5	-27.48
Stage 2	-1.7	-26.25
Stage 2	-1.9	-25.03
Stage 2	-2.1	-23.81
Stage 2	-2.3	-22.59
Stage 2	-2.5	-21.37
Stage 2	-2.7	-20.16
Stage 2	-2.9	-18.96
Stage 2	-3.1	-17.76
Stage 2	-3.3	-16.56
Stage 2	-3.5	-15.38
Stage 2	-3.7	-14.2
Stage 2	-3.9	-13.03
Stage 2	-4.1	-11.87
Stage 2	-4.3	-10.72

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Tipo Risultato: Spostamento Muro: LEFT

Stage	Z (m)	Spostamento (mm)
Stage 2	-4.5	-9.58
Stage 2	-4.7	-8.46
Stage 2	-4.9	-7.34
Stage 2	-5.1	-6.23
Stage 2	-5.3	-5.13
Stage 2	-5.5	-4.04
Stage 2	-5.7	-2.95
Stage 2	-5.9	-1.87
Stage 2	-6.1	-0.79
Stage 2	-6.3	0.28
Stage 2	-6.5	1.36
Stage 2	-6.7	2.43

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	0.12
Stage 2	-0.5	0.16	0.69
Stage 2	-0.7	0.48	1.6
Stage 2	-0.9	1.04	2.79
Stage 2	-1.1	1.89	4.23
Stage 2	-1.3	3.07	5.9
Stage 2	-1.5	4.63	7.8
Stage 2	-1.7	6.61	9.93
Stage 2	-1.9	8.6	9.93
Stage 2	-2.1	10.58	9.93
Stage 2	-2.3	12.57	9.93
Stage 2	-2.5	14.58	10.08
Stage 2	-2.7	16.7	10.56
Stage 2	-2.9	18.97	11.35
Stage 2	-3.1	21.46	12.46
Stage 2	-3.3	24.23	13.89
Stage 2	-3.5	27.36	15.63
Stage 2	-3.7	30.9	17.69
Stage 2	-3.9	34.91	20.06
Stage 2	-4.1	36.77	9.32
Stage 2	-4.3	36.55	-1.11
Stage 2	-4.5	34.31	-11.21
Stage 2	-4.7	32.35	-9.81
Stage 2	-4.9	30.35	-9.96
Stage 2	-5.1	28.02	-11.66
Stage 2	-5.3	25.04	-14.93
Stage 2	-5.5	21.47	-17.85
Stage 2	-5.7	17.4	-20.32
Stage 2	-5.9	12.93	-22.35
Stage 2	-6.1	8.23	-23.53
Stage 2	-6.3	4.07	-20.79
Stage 2	-6.5	1.15	-14.61
Stage 2	-6.7	0	-5.73

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

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

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

Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	0.3	0	0
Stage 1	0.1	0	0
Stage 1	-0.1	0	0
Stage 1	-0.3	0	0
Stage 1	-0.5	0	0
Stage 1	-0.7	0	0
Stage 1	-0.9	0	0
Stage 1	-1.1	0	0
Stage 1	-1.3	0	0
Stage 1	-1.5	0	0
Stage 1	-1.7	0	0
Stage 1	-1.9	0	0
Stage 1	-2.1	0	0

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	-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

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	0.16
Stage 2	-0.5	0.21	0.89
Stage 2	-0.7	0.63	2.08
Stage 2	-0.9	1.35	3.63
Stage 2	-1.1	2.45	5.5
Stage 2	-1.3	3.99	7.67
Stage 2	-1.5	6.01	10.14
Stage 2	-1.7	8.59	12.9
Stage 2	-1.9	11.18	12.9
Stage 2	-2.1	13.76	12.9
Stage 2	-2.3	16.34	12.9
Stage 2	-2.5	18.96	13.11
Stage 2	-2.7	21.7	13.73
Stage 2	-2.9	24.65	14.76
Stage 2	-3.1	27.89	16.2
Stage 2	-3.3	31.5	18.05
Stage 2	-3.5	35.57	20.32
Stage 2	-3.7	40.17	22.99
Stage 2	-3.9	45.38	26.08
Stage 2	-4.1	47.81	12.12
Stage 2	-4.3	47.52	-1.45
Stage 2	-4.5	44.6	-14.57
Stage 2	-4.7	42.05	-12.75
Stage 2	-4.9	39.46	-12.95
Stage 2	-5.1	36.43	-15.16
Stage 2	-5.3	32.55	-19.41
Stage 2	-5.5	27.91	-23.2
Stage 2	-5.7	22.62	-26.42
Stage 2	-5.9	16.81	-29.05
Stage 2	-6.1	10.69	-30.59
Stage 2	-6.3	5.29	-27.02
Stage 2	-6.5	1.49	-19
Stage 2	-6.7	0	-7.45

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

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	-0.5	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

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	0.15
Stage 2	-0.5	0.2	0.87
Stage 2	-0.7	0.61	2.03
Stage 2	-0.9	1.32	3.53
Stage 2	-1.1	2.39	5.36
Stage 2	-1.3	3.88	7.47
Stage 2	-1.5	5.86	9.87
Stage 2	-1.7	8.37	12.56
Stage 2	-1.9	10.88	12.56
Stage 2	-2.1	13.39	12.56
Stage 2	-2.3	15.91	12.56
Stage 2	-2.5	18.45	12.72
Stage 2	-2.7	21.09	13.2
Stage 2	-2.9	23.89	13.99
Stage 2	-3.1	26.91	15.1
Stage 2	-3.3	30.21	16.52
Stage 2	-3.5	33.86	18.26
Stage 2	-3.7	37.93	20.32
Stage 2	-3.9	42.51	22.91
Stage 2	-4.1	44.48	9.84
Stage 2	-4.3	43.69	-3.92
Stage 2	-4.5	40.02	-18.38
Stage 2	-4.7	37.16	-14.29
Stage 2	-4.9	34.9	-11.31
Stage 2	-5.1	33.02	-9.41
Stage 2	-5.3	31.29	-8.63
Stage 2	-5.5	29.5	-8.96
Stage 2	-5.7	27.42	-10.42
Stage 2	-5.9	24.82	-12.99
Stage 2	-6.1	18.3	-32.57
Stage 2	-6.3	9.93	-41.87

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

Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	-6.5	2.92	-35.04
Stage 2	-6.7	0	-14.6

7. Allegati

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

```
+---------------------------------------------------------------------------------------------------------------------+
|                     PARATIEPLUS(TM)    NLS ENGINE RELEASE   2018.1     FULL VERSION   *Build date:Jun 29, 2018*    |
|                                                                                                                     |
|                                         NewProject.BaseDesignSection_28.Nominal_64                                  |
|                                    Exe Time :14 May 2019        17:21:13                                           |
+---------------------------------------------------------------------------------------------------------------------+

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


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


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

PRELIMINARY          OPERATIONS          CPU          TIME                                          0.01          [sec]
```

```
+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                     NewProject.BaseDesignSection_28.Nominal_64                                          |
|                                  Exe Time :14 May 2019       17:21:13                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


INPUT FILE HAS BEEN GENERATED BY WALGEN PROGRAM


New Project


NO. OF NODAL POINTS (NUMNP) ...................   36
NO. OF COORDINATES  (NCOORD)...................    2
NO. OF NODE DOFS    (NDOF).....................    2
NO. OF EQUATIONS    (NEQ)......................   72
NO. OF CONSTRAINTS CARDS (NVINC)...............    0
NO. OF ELEMENT GROUPS (NEG)....................    3
NO. OF SOLUTION STEPS (NSTE)...................    2
NO. OF ELEMENT SETS ATTACHED TO SLAVE NODES ...    0
NO. OF RECORD FROM WALGEN .....................  100
NO. OF LONG NAMES (LASTNAME) ..................   13
LENGTH UNIT CHOICE ............................    3 (M   )
FORCE  UNIT CHOICE ............................    3 (KN  )
MAX PORE PRESSURE TABLE LENGTH.................    1
NO. OF ELEMENT GROUPS REQUIRING ADD. SLIP DOF .    0


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

 RELEVANT ITEMS UNITS

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

```
+-------------------------------------------------------------------------------------------------------------------------+
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                     NewProject.BaseDesignSection_28.Nominal_64                                          |
|                                  Exe Time :14 May 2019       17:21:13                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
                  P R E P R O C E S S O R     D A T A

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

   1 : UNIT  m kN
   2 : TITLE New Project
   3 : DELTA 0.2
   4 : option param itemax 40
   5 : option control hinges 0 0.0001 0.001
   6 : WALL LeftWall_32 0 -6.7 0.3 -1
   7 : SOIL 0_L LeftWall_32 -6.7 0.3 2 0
   8 : SOIL 0_R LeftWall_32 -6.7 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_12_L_0 -1.7 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_26346_L_0 -4.5 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_27610_L_0 -5.7 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 -6.7 0.3 S275_115 0.19777 00 00 0
  39 : STRIP LeftWall_32 1 2 0.2 4.8 0 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=0.271 LeftWall_32
  44 : CHANGE UG0_2_10_L_0 U-KP=5.835 LeftWall_32
  45 : CHANGE UG0_2_10_L_0 D-KA=0.28 LeftWall_32
  46 : CHANGE UG0_2_10_L_0 D-KP=6.414 LeftWall_32
  47 : CHANGE UG2_4_12_L_0 U-FRICT=25 LeftWall_32
  48 : CHANGE UG2_4_12_L_0 D-FRICT=25 LeftWall_32
  49 : CHANGE UG2_4_12_L_0 U-KA=0.406 LeftWall_32
  50 : CHANGE UG2_4_12_L_0 U-KP=2.409 LeftWall_32
  51 : CHANGE UG2_4_12_L_0 D-KA=0.42 LeftWall_32
  52 : CHANGE UG2_4_12_L_0 D-KP=3.314 LeftWall_32
  53 : CHANGE UG3_4271_26346_L_0 U-FRICT=32 LeftWall_32
  54 : CHANGE UG3_4271_26346_L_0 D-FRICT=32 LeftWall_32
  55 : CHANGE UG3_4271_26346_L_0 U-KA=0.307 LeftWall_32
  56 : CHANGE UG3_4271_26346_L_0 U-KP=2.865 LeftWall_32
  57 : CHANGE UG3_4271_26346_L_0 D-KA=0.316 LeftWall_32
  58 : CHANGE UG3_4271_26346_L_0 D-KP=4.864 LeftWall_32
  59 : CHANGE UG2_4_27610_L_0 U-FRICT=25 LeftWall_32
  60 : CHANGE UG2_4_27610_L_0 D-FRICT=25 LeftWall_32
  61 : CHANGE UG2_4_27610_L_0 U-KA=0.392 LeftWall_32
  62 : CHANGE UG2_4_27610_L_0 U-KP=1.92 LeftWall_32
  63 : CHANGE UG2_4_27610_L_0 D-KA=0.416 LeftWall_32
  64 : CHANGE UG2_4_27610_L_0 D-KP=3.223 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_12_L_0 U-COHE=30 LeftWall_32
  70 : CHANGE UG2_4_12_L_0 U-ADHES=0 LeftWall_32
  71 : CHANGE UG2_4_12_L_0 D-COHE=30 LeftWall_32
  72 : CHANGE UG2_4_12_L_0 D-ADHES=0 LeftWall_32
  73 : CHANGE UG3_4271_26346_L_0 U-COHE=0 LeftWall_32
  74 : CHANGE UG3_4271_26346_L_0 U-ADHES=0 LeftWall_32
  75 : CHANGE UG3_4271_26346_L_0 D-COHE=0 LeftWall_32
  76 : CHANGE UG3_4271_26346_L_0 D-ADHES=0 LeftWall_32
```

```
 77 : CHANGE UG2_4_27610_L_0 U-COHE=30 LeftWall_32
 78 : CHANGE UG2_4_27610_L_0 U-ADHES=0 LeftWall_32
 79 : CHANGE UG2_4_27610_L_0 D-COHE=30 LeftWall_32
 80 : CHANGE UG2_4_27610_L_0 D-ADHES=0 LeftWall_32
 81 : SETWALL LeftWall_32
 82 : GEOM 0 0
 83 : SURCHARGE 0 0 0 0
 84 : WATER -2.2 0 -6.7 0 0
 85 : ENDSTEP
 86 : STEP Stage2_28513
 87 : CHANGE UG0_2_10_L_0 D-KA=0.271 LeftWall_32
 88 : CHANGE UG0_2_10_L_0 D-KP=5.879 LeftWall_32
 89 : CHANGE UG2_4_12_L_0 D-KA=0.406 LeftWall_32
 90 : CHANGE UG2_4_12_L_0 D-KP=3.222 LeftWall_32
 91 : CHANGE UG3_4271_26346_L_0 D-KA=0.307 LeftWall_32
 92 : CHANGE UG3_4271_26346_L_0 D-KP=4.845 LeftWall_32
 93 : CHANGE UG2_4_27610_L_0 D-KA=0.406 LeftWall_32
 94 : CHANGE UG2_4_27610_L_0 D-KP=3.222 LeftWall_32
 95 : SETWALL LeftWall_32
 96 : GEOM 0 -3.75
 97 : SURCHARGE 0 0 0 0
 98 : WATER -2.2 1.55 -6.7 0 0
 99 : ADD WallElement_New_28707
100 : ENDSTEP
```

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                    NewProject.BaseDesignSection_28.Nominal_64                                                 |
|                                  Exe Time :14 May 2019       17:21:13                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
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	/

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                               |
|                                   Exe Time :14 May 2019       17:21:13                                                        |
+-------------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  1

0_L                                                                 :
   5  36   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    2   0.2000     0.000     0.000     0.000     2.000
   12   12    2   0.2000     0.000     0.000     0.000     2.000
   13   13    2   0.2000     0.000     0.000     0.000     2.000
   14   14    2   0.2000     0.000     0.000     0.000     2.000
   15   15    2   0.2000     0.000     0.000     0.000     2.000
   16   16    2   0.2000     0.000     0.000     0.000     2.000
   17   17    2   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    3   0.2000     0.000     0.000     0.000     2.000
   26   26    3   0.2000     0.000     0.000     0.000     2.000
   27   27    3   0.2000     0.000     0.000     0.000     2.000
   28   28    3   0.2000     0.000     0.000     0.000     2.000
   29   29    3   0.2000     0.000     0.000     0.000     2.000
   30   30    3   0.2000     0.000     0.000     0.000     2.000
   31   31    3   0.2000     0.000     0.000     0.000     2.000
   32   32    4   0.2000     0.000     0.000     0.000     2.000
   33   33    4   0.2000     0.000     0.000     0.000     2.000
   34   34    4   0.2000     0.000     0.000     0.000     2.000
   35   35    4   0.2000     0.000     0.000     0.000     2.000
```

```
  36   36    4   0.1000     0.000     0.000     0.000     2.000
```

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)    NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                  |
|                                                                                                                               |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                               |
|                                   Exe Time :14 May 2019       17:21:13                                                        |
+-------------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  2

0_R                                                                 :
   5  36   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    2   0.2000     0.000     0.000     0.000     1.000
   12   12    2   0.2000     0.000     0.000     0.000     1.000
   13   13    2   0.2000     0.000     0.000     0.000     1.000
   14   14    2   0.2000     0.000     0.000     0.000     1.000
   15   15    2   0.2000     0.000     0.000     0.000     1.000
   16   16    2   0.2000     0.000     0.000     0.000     1.000
   17   17    2   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    3   0.2000     0.000     0.000     0.000     1.000
   26   26    3   0.2000     0.000     0.000     0.000     1.000
   27   27    3   0.2000     0.000     0.000     0.000     1.000
   28   28    3   0.2000     0.000     0.000     0.000     1.000
   29   29    3   0.2000     0.000     0.000     0.000     1.000
   30   30    3   0.2000     0.000     0.000     0.000     1.000
   31   31    3   0.2000     0.000     0.000     0.000     1.000
   32   32    4   0.2000     0.000     0.000     0.000     1.000
   33   33    4   0.2000     0.000     0.000     0.000     1.000
   34   34    4   0.2000     0.000     0.000     0.000     1.000
   35   35    4   0.2000     0.000     0.000     0.000     1.000
```

```
  36   36    4   0.1000     0.000     0.000     0.000     1.000
```

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                               |
|                                   Exe Time :14 May 2019       17:21:13                                                        |
+-------------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  3

WallElement_New_28707                                          :
   2  35   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
```

```
+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                     NewProject.BaseDesignSection_28.Nominal_64                                          |
|                                  Exe Time :14 May 2019       17:21:13                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


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

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                     NewProject.BaseDesignSection_28.Nominal_64                                                |
|                                  Exe Time :14 May 2019       17:21:13                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
L O A D     D A T A


    LOAD FUNCTION NUMBER   =    1
    NUMBER OF TIME POINTS  =    5

    TIME VALUE      FUNCTION

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


    LOAD FUNCTION NUMBER   =    2
    NUMBER OF TIME POINTS  =    5

    TIME VALUE      FUNCTION

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


    LOAD FUNCTION NUMBER   =    3
    NUMBER OF TIME POINTS  =    4

    TIME VALUE      FUNCTION

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


    LOAD FUNCTION NUMBER   =    4
    NUMBER OF TIME POINTS  =    4

    TIME VALUE      FUNCTION

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


NO. OF DISTRIBUTED LOAD CARDS     0
```

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                     NewProject.BaseDesignSection_28.Nominal_64                                                |
|                                  Exe Time :14 May 2019       17:21:13                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
L O A D     B A L A N C E

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

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


                      LOAD INPUT SECTION COMPLETED
```

```
+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                     NewProject.BaseDesignSection_28.Nominal_64                                          |
|                                  Exe Time :14 May 2019       17:21:13                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


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

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+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                               |
|                                  Exe Time :14 May 2019       17:21:13                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+

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;= 0.27100     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  5.8350     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;= 0.28000     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  6.4140     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;= -1.7000     (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;=  2.4090     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;= 0.42000     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.3140     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;= -4.5000     (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;=  2.8650     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)
```

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ITEM NO.  60&lt;D-KA    &gt;= 0.31600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  4.8640     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;= -5.7000     (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;= 0.39200     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  1.9200     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;= 0.41600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.2230     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;= 0.27100     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  5.8350     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-03 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;= 0.30000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.27100     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  5.8790     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-03 (BOTH WALLS)

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

ITEM NO.   1&lt;NAME    &gt;=  9.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -1.7000     (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;=  2.4090     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)
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 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;= -4.5000     (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;=  2.8650     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;= -5.7000     (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;= 0.39200     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  1.9200     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.40600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.2220     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)


DEFAULT WATER UNIT WEIGHT =  10.000
AVERAGED ON     8 VALUES
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+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                         |
|                                   Exe Time :14 May 2019       17:21:13                                                  |
+-------------------------------------------------------------------------------------------------------------------------+

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                         -2.200       -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      -6.700        -6.700
WATER_BEHAVIOUR_FLAG (LINING OPT)      0.000         0.000
PORE_UPDATE_FLAG                       0.000         0.000
PORE_TAB. _FLAG (gt.0= use tabs)       0.000         0.000
lateral thrusts reduction elevatio     0.000         0.000
Downhill reduction factor for effe     0.000         0.000
Downhill reduction factor for pore     0.000         0.000
Uphill reduction factor for effect     0.000         0.000
Uphill reduction factor for pore p     0.000         0.000
SEISMIC HORIZONTAL ACCEL. Kh [g]       0.000         0.000
UPHILL VERTICAL ACCEL.  Kv_uh [g]      0.000         0.000
DOWNHILL VERTICAL ACCEL.Kv_dh [g]      0.000         0.000
UPHILL BETA ANGLE (SLOPE) [deg]        0.000         0.000
UPHILL DELTA/PHI RATIO                 0.000         0.000
DOWNHILL BETA ANGLE (SLOPE) [deg]      0.000         0.000
DOWNHILL DELTA/PHI RATIO               0.000         0.000
DYN.WATER BEHAVIOUR                    0.000         0.000
Excess pore pressure RATIO Ru          0.000         0.000
SEISMIC PRESSURE LOWER VALUE           0.000         0.000
SEISMIC PRESSURE UPPER VALUE           0.000         0.000
SEISMIC PRESSURE LOWER LEVEL           0.000         0.000
SEISMIC PRESSURE UPPER LEVEL           0.000         0.000

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


STEP  NO.     2
                                      LEFT WALL    RIGHT WALL
Y                                      0.000       -0.9990E+30
Z-PC                                   0.000         0.000
Z-EXCAVATION                          -3.750         0.000
Z-WATER_TABLE                         -2.200       -0.9990E+30
Q_AT_THE_FREE_FIELD_LEVEL              0.000         0.000
ZQ                                     0.000         0.000
DZW_OF_THE_WATER_TABLE                 1.550         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      -6.700        -6.700
WATER_BEHAVIOUR_FLAG (LINING OPT)      0.000         0.000
PORE_UPDATE_FLAG                       0.000         0.000
PORE_TAB. _FLAG (gt.0= use tabs)       0.000         0.000
lateral thrusts reduction elevatio     0.000         0.000
Downhill reduction factor for effe     0.000         0.000
Downhill reduction factor for pore     0.000         0.000
Uphill reduction factor for effect     0.000         0.000
Uphill reduction factor for pore p     0.000         0.000
SEISMIC HORIZONTAL ACCEL. Kh [g]       0.000         0.000
UPHILL VERTICAL ACCEL.  Kv_uh [g]      0.000         0.000
DOWNHILL VERTICAL ACCEL.Kv_dh [g]      0.000         0.000
UPHILL BETA ANGLE (SLOPE) [deg]        0.000         0.000
UPHILL DELTA/PHI RATIO                 0.000         0.000
DOWNHILL BETA ANGLE (SLOPE) [deg]      0.000         0.000
DOWNHILL DELTA/PHI RATIO               0.000         0.000
DYN.WATER BEHAVIOUR                    0.000         0.000
Excess pore pressure RATIO Ru          0.000         0.000
SEISMIC PRESSURE LOWER VALUE           0.000         0.000
SEISMIC PRESSURE UPPER VALUE           0.000         0.000
SEISMIC PRESSURE LOWER LEVEL           0.000         0.000
SEISMIC PRESSURE UPPER LEVEL           0.000         0.000

=========================================================================================================end of step    2
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LEFT-HAND WALL

LOWER  LEVEL          -6.70000
UPPER  LEVEL           0.30000

RIGHT-HAND WALL

LOWER  LEVEL          -6.70000
UPPER  LEVEL           0.30000
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|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                    NewProject.BaseDesignSection_28.Nominal_64                                                 |
|                                 Exe Time :14 May 2019       17:21:13                                                          |
+-------------------------------------------------------------------------------------------------------------------------------+
 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)          0.200000000000000
 FOUNDATION WIDTH    (B)            4.80000000000000
 ZETA-F.....                       0.000000000000000E+000
 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        2523

 NO. OF D.P.W  FOR THIS AREA       4261
 MAX NO. OF D.P.W. AVAILABLE      81920
 ** MAX NO OF ITERATIONS SET TO          40

ITER     0 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6874.     RIMNOR= 0.000
           RENORM=0.1972E-28 REMNOR= 0.000     RATIO =0.5356E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 17.60     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6874.     RDR   = 0.000
           RATIOT=0.5356E-16 RATIOR= 0.000
           MAX UN=0.1776E-14 IEQ=    55 NODE     28 DOF   1  Y-DISPL.F
           MIN UN=-.3553E-14 IEQ=    65 NODE     33 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     1 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6874.     RIMNOR= 0.000
           RENORM=0.1972E-28 REMNOR= 0.000     RATIO =0.5356E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 17.60     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6874.     RDR   = 0.000
           RATIOT=0.5356E-16 RATIOR= 0.000
           MAX UN=0.1776E-14 IEQ=    55 NODE     28 DOF   1  Y-DISPL.F
           MIN UN=-.3553E-14 IEQ=    65 NODE     33 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6874.     RIMNOR= 0.000
           RENORM=0.1972E-28 REMNOR= 0.000     RATIO =0.5356E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 17.60     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6874.     RDR   = 0.000
           RATIOT=0.5356E-16 RATIOR= 0.000
           MAX UN=0.1776E-14 IEQ=    55 NODE     28 DOF   1  Y-DISPL.F
           MIN UN=-.3553E-14 IEQ=    65 NODE     33 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0
```

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+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                     NewProject.BaseDesignSection_28.Nominal_64                                                |
|                                  Exe Time :14 May 2019       17:21:13                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
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
```

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+------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                        |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                        |
|                                  Exe Time :14 May 2019       17:21:13                                                  |
+------------------------------------------------------------------------------------------------------------------------+
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 36
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	1.234	0.000	1.850	6.169	1.850	6.169	V-C	3143.	-0.1000	0.000	1.000	1.000	6.169	0.000	0.000	UG0_2_10_L_0
4 D	2.242	0.000	5.550	11.21	5.550	11.21	V-C	3143.	-0.3000	0.000	1.000	1.000	11.21	0.000	0.000	UG0_2_10_L_0
5 D	2.627	0.000	9.250	13.13	9.250	13.13	V-C	3143.	-0.5000	0.000	1.000	1.000	13.13	0.000	0.000	UG0_2_10_L_0
6 D	2.925	0.000	12.95	14.63	12.95	14.63	V-C	3143.	-0.7000	0.000	1.000	1.000	14.63	0.000	0.000	UG0_2_10_L_0
7 D	3.207	0.000	16.65	16.04	16.65	16.04	V-C	3143.	-0.9000	0.000	1.000	1.000	16.04	0.000	0.000	UG0_2_10_L_0
8 D	3.487	0.000	20.35	17.44	20.35	17.44	V-C	3143.	-1.100	0.000	1.000	1.000	17.44	0.000	0.000	UG0_2_10_L_0
9 D	3.768	0.000	24.05	18.84	24.05	18.84	V-C	3143.	-1.300	0.000	1.000	1.000	18.84	0.000	0.000	UG0_2_10_L_0
10 D	4.052	0.000	27.75	20.26	27.75	20.26	V-C	3143.	-1.500	0.000	1.000	1.000	20.26	0.000	0.000	UG0_2_10_L_0
11 D	4.533	0.000	31.45	22.67	31.45	22.67	V-C	3143.	-1.700	0.000	1.000	1.000	22.67	0.000	0.000	UG2_4_12_L_0
12 D	4.868	0.000	35.35	24.34	35.35	24.34	V-C	3143.	-1.900	0.000	1.000	1.000	24.34	0.000	0.000	UG2_4_12_L_0
13 D	5.207	0.000	39.25	26.03	39.25	26.03	V-C	3143.	-2.100	0.000	1.000	1.000	26.03	0.000	0.000	UG2_4_12_L_0
14 D	5.643	1.4129E-18	42.15	27.22	42.15	27.22	V-C	3143.	-2.300	1.000	1.000	1.000	28.22	0.000	0.000	UG2_4_12_L_0
15 D	6.178	0.000	44.05	27.89	44.05	27.89	V-C	3143.	-2.500	3.000	1.000	1.000	30.89	0.000	0.000	UG2_4_12_L_0
16 D	6.717	0.000	45.95	28.58	45.95	28.58	V-C	3143.	-2.700	5.000	1.000	1.000	33.58	0.000	0.000	UG2_4_12_L_0
17 D	7.260	0.000	47.85	29.30	47.85	29.30	V-C	3143.	-2.900	7.000	1.000	1.000	36.30	0.000	0.000	UG2_4_12_L_0
18 D	7.806	0.000	49.75	30.03	49.75	30.03	V-C	3143.	-3.100	9.000	1.000	1.000	39.03	0.000	0.000	UG2_4_12_L_0
19 D	8.357	0.000	51.65	30.78	51.65	30.78	V-C	3143.	-3.300	11.00	1.000	1.000	41.78	0.000	0.000	UG2_4_12_L_0
20 D	8.911	0.000	53.55	31.56	53.55	31.56	V-C	3143.	-3.500	13.00	1.000	1.000	44.56	0.000	0.000	UG2_4_12_L_0
21 D	9.469	0.000	55.45	32.34	55.45	32.34	V-C	3143.	-3.700	15.00	1.000	1.000	47.34	0.000	0.000	UG2_4_12_L_0
22 D	10.03	-2.8259E-18	57.35	33.15	57.35	33.15	V-C	3143.	-3.900	17.00	1.000	1.000	50.15	0.000	0.000	UG2_4_12_L_0
23 D	10.59	0.000	59.25	33.97	59.25	33.97	V-C	3143.	-4.100	19.00	1.000	1.000	52.97	0.000	0.000	UG2_4_12_L_0
24 D	11.16	0.000	61.15	34.80	61.15	34.80	V-C	3143.	-4.300	21.00	1.000	1.000	55.80	0.000	0.000	UG2_4_12_L_0
25 D	11.73	0.000	63.05	35.65	63.05	35.65	V-C	3143.	-4.500	23.00	1.000	1.000	58.65	0.000	0.000	UG3_4271_26346_L_0
26 D	12.31	0.000	65.05	36.56	65.05	36.56	V-C	3143.	-4.700	25.00	1.000	1.000	61.56	0.000	0.000	UG3_4271_26346_L_0
27 D	12.90	0.000	67.05	37.49	67.05	37.49	V-C	3143.	-4.900	27.00	1.000	1.000	64.49	0.000	0.000	UG3_4271_26346_L_0
28 D	13.48	-2.8259E-18	69.05	38.42	69.05	38.42	V-C	3143.	-5.100	29.00	1.000	1.000	67.42	0.000	0.000	UG3_4271_26346_L_0
29 D	14.07	0.000	71.05	39.36	71.05	39.36	V-C	3143.	-5.300	31.00	1.000	1.000	70.36	0.000	0.000	UG3_4271_26346_L_0
30 D	14.66	0.000	73.05	40.32	73.05	40.32	V-C	3143.	-5.500	33.00	1.000	1.000	73.32	0.000	0.000	UG3_4271_26346_L_0
31 D	15.26	0.000	75.05	41.28	75.05	41.28	V-C	3143.	-5.700	35.00	1.000	1.000	76.28	0.000	0.000	UG3_4271_26346_L_0
32 D	15.84	0.000	76.95	42.20	76.95	42.20	V-C	3143.	-5.900	37.00						

1.000	1.000	79.20	0.000	0.000	UG2_4_27610_L_0					
33 D	16.42	5.6518E-18	78.85	43.12	78.85	43.12	V-C	3143.	-6.100	39.00
1.000	1.000	82.12	0.000	0.000	UG2_4_27610_L_0					
34 D	17.01	0.000	80.75	44.05	80.75	44.05	V-C	3143.	-6.300	41.00
1.000	1.000	85.05	0.000	0.000	UG2_4_27610_L_0					
35 D	17.60	0.000	82.65	44.98	82.65	44.98	V-C	3143.	-6.500	43.00
1.000	1.000	87.98	0.000	0.000	UG2_4_27610_L_0					
36 D	9.093	0.000	84.55	45.93	84.55	45.93	V-C	3143.	-6.700	45.00
1.000	1.000	90.93	0.000	0.000	UG2_4_27610_L_0					

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+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                       NewProject.BaseDesignSection_28.Nominal_64                                      |
|                                   Exe Time :14 May 2019       17:21:13                                                |
+-----------------------------------------------------------------------------------------------------------------------+
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   36
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  1.234      0.000     2.255       6.169       2.255       6.169           V-C   3143.    -0.1000       0.000
1.000       1.000      6.169       0.000       0.000     UG0_2_10_L_0
   4 D  2.242      0.000     10.40       11.21       10.40       11.21           V-C   3143.    -0.3000       0.000
1.000       1.000      11.21       0.000       0.000     UG0_2_10_L_0
   5 D  2.627      0.000     16.87       13.13       16.87       13.13           V-C   3143.    -0.5000       0.000
1.000       1.000      13.13       0.000       0.000     UG0_2_10_L_0
   6 D  2.925      0.000     21.99       14.63       21.99       14.63           V-C   3143.    -0.7000       0.000
1.000       1.000      14.63       0.000       0.000     UG0_2_10_L_0
   7 D  3.207      0.000     26.55       16.04       26.55       16.04           V-C   3143.    -0.9000       0.000
1.000       1.000      16.04       0.000       0.000     UG0_2_10_L_0
   8 D  3.487      0.000     30.83       17.44       30.83       17.44           V-C   3143.     -1.100       0.000
1.000       1.000      17.44       0.000       0.000     UG0_2_10_L_0
   9 D  3.768      0.000     34.95       18.84       34.95       18.84           V-C   3143.     -1.300       0.000
1.000       1.000      18.84       0.000       0.000     UG0_2_10_L_0
  10 D  4.052      0.000     39.28       20.26       39.28       20.26           V-C   3143.     -1.500       0.000
1.000       1.000      20.26       0.000       0.000     UG0_2_10_L_0
  11 D  4.533      0.000     43.19       22.67       43.19       22.67           V-C   3143.     -1.700       0.000
1.000       1.000      22.67       0.000       0.000     UG2_4_12_L_0
  12 D  4.868      0.000     47.26       24.34       47.26       24.34           V-C   3143.     -1.900       0.000
1.000       1.000      24.34       0.000       0.000     UG2_4_12_L_0
  13 D  5.207      0.000     51.29       26.03       51.29       26.03           V-C   3143.     -2.100       0.000
1.000       1.000      26.03       0.000       0.000     UG2_4_12_L_0
  14 D  5.643   -1.4129E-18  54.31       27.22       54.31       27.22           V-C   3143.     -2.300       1.000
1.000       1.000      28.22       0.000       0.000     UG2_4_12_L_0
  15 D  6.178      0.000     56.31       27.89       56.31       27.89           V-C   3143.     -2.500       3.000
1.000       1.000      30.89       0.000       0.000     UG2_4_12_L_0
  16 D  6.717      0.000     58.47       28.58       58.47       28.58           V-C   3143.     -2.700       5.000
1.000       1.000      33.58       0.000       0.000     UG2_4_12_L_0
  17 D  7.260      0.000     60.43       29.30       60.43       29.30           V-C   3143.     -2.900       7.000
1.000       1.000      36.30       0.000       0.000     UG2_4_12_L_0
  18 D  7.806      0.000     62.38       30.03       62.38       30.03           V-C   3143.     -3.100       9.000
1.000       1.000      39.03       0.000       0.000     UG2_4_12_L_0
  19 D  8.357      0.000     64.33       30.78       64.33       30.78           V-C   3143.     -3.300       11.00
1.000       1.000      41.78       0.000       0.000     UG2_4_12_L_0
  20 D  8.911      0.000     66.27       31.56       66.27       31.56           V-C   3143.     -3.500       13.00
1.000       1.000      44.56       0.000       0.000     UG2_4_12_L_0
  21 D  9.469      0.000     68.21       32.34       68.21       32.34           V-C   3143.     -3.700       15.00
1.000       1.000      47.34       0.000       0.000     UG2_4_12_L_0
  22 D  10.03    2.8259E-18  70.27       33.15       70.27       33.15           V-C   3143.     -3.900       17.00
1.000       1.000      50.15       0.000       0.000     UG2_4_12_L_0
  23 D  10.59      0.000     72.19       33.97       72.19       33.97           V-C   3143.     -4.100       19.00
1.000       1.000      52.97       0.000       0.000     UG2_4_12_L_0
  24 D  11.16      0.000     74.12       34.80       74.12       34.80           V-C   3143.     -4.300       21.00
1.000       1.000      55.80       0.000       0.000     UG2_4_12_L_0
  25 D  11.73      0.000     76.04       35.65       76.04       35.65           V-C   3143.     -4.500       23.00
1.000       1.000      58.65       0.000       0.000     UG3_4271_26346_L_0
  26 D  12.31      0.000     78.06       36.56       78.06       36.56           V-C   3143.     -4.700       25.00
1.000       1.000      61.56       0.000       0.000     UG3_4271_26346_L_0
  27 D  12.90      0.000     80.08       37.49       80.08       37.49           V-C   3143.     -4.900       27.00
1.000       1.000      64.49       0.000       0.000     UG3_4271_26346_L_0
  28 D  13.48    2.8259E-18  81.90       38.42       81.90       38.42           V-C   3143.     -5.100       29.00
1.000       1.000      67.42       0.000       0.000     UG3_4271_26346_L_0
  29 D  14.07      0.000     83.56       39.36       83.56       39.36           V-C   3143.     -5.300       31.00
1.000       1.000      70.36       0.000       0.000     UG3_4271_26346_L_0
  30 D  14.66      0.000     85.23       40.32       85.23       40.32           V-C   3143.     -5.500       33.00
1.000       1.000      73.32       0.000       0.000     UG3_4271_26346_L_0
  31 D  15.26      0.000     86.92       41.28       86.92       41.28           V-C   3143.     -5.700       35.00
1.000       1.000      76.28       0.000       0.000     UG3_4271_26346_L_0
  32 D  15.84      0.000     88.52       42.20       88.52       42.20           V-C   3143.     -5.900       37.00
```

1.000	1.000	79.20	0.000	0.000	UG2_4_27610_L_0					
33 D	16.42	-5.6518E-18	90.15	43.12	90.15	43.12	V-C	3143.	-6.100	39.00
1.000	1.000	82.12	0.000	0.000	UG2_4_27610_L_0					
34 D	17.01	0.000	91.78	44.05	91.78	44.05	V-C	3143.	-6.300	41.00
1.000	1.000	85.05	0.000	0.000	UG2_4_27610_L_0					
35 D	17.60	0.000	93.42	44.98	93.42	44.98	V-C	3143.	-6.500	43.00
1.000	1.000	87.98	0.000	0.000	UG2_4_27610_L_0					
36 D	9.093	0.000	95.08	45.93	95.08	45.93	V-C	3143.	-6.700	45.00
1.000	1.000	90.93	0.000	0.000	UG2_4_27610_L_0					

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+-------------------------------------------------------------------------------------------------------------------------+
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                    NewProject.BaseDesignSection_28.Nominal_64                                           |
|                                 Exe Time :14 May 2019       17:21:13                                                    |
+-------------------------------------------------------------------------------------------------------------------------+
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   35
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= 3963.     RIMNOR= 0.000
           RENORM= 1199.     REMNOR= 0.000     RATIO =0.5499     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 16.76     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 3963.     RDR   = 0.000
           RATIOT=0.5499     RATIOR= 0.000
           MAX UN= 0.000     IEQ=    72 NODE     36 DOF   2   X-ROT. F
           MIN UN=-9.176     IEQ=    41 NODE     21 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM= 3963.     RIMNOR= 0.000
           RENORM= 62.17     REMNOR=0.4076E-20 RATIO =0.1252     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 16.76     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 3963.     RDR   = 0.000
           RATIOT=0.1252     RATIOR= 0.000
           MAX UN=0.2280E-09 IEQ=    33 NODE     17 DOF   1  Y-DISPL.F
           MIN UN=-2.909     IEQ=     5 NODE      3 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     3 RNORM = 0.000     RMNORM= 0.000
           RINORM= 3963.     RIMNOR= 0.000
           RENORM= 47.35     REMNOR=0.5188E-20 RATIO =0.1093     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 16.76     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 3963.     RDR   = 0.000
           RATIOT=0.1093     RATIOR= 0.000
           MAX UN=0.2712E-09 IEQ=    11 NODE      6 DOF   1  Y-DISPL.F
           MIN UN=-4.092     IEQ=    21 NODE     11 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     4 RNORM = 0.000     RMNORM= 0.000
           RINORM= 3963.     RIMNOR= 0.000
           RENORM= 55.12     REMNOR=0.1517E-19 RATIO =0.1179     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 16.76     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 3963.     RDR   = 0.000
           RATIOT=0.1179     RATIOR= 0.000
           MAX UN=0.9253E-01 IEQ=    71 NODE     36 DOF   1  Y-DISPL.F
           MIN UN=-4.950     IEQ=    37 NODE     19 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     5 RNORM = 0.000     RMNORM= 0.000
           RINORM= 3963.     RIMNOR= 0.000
           RENORM= 30.05     REMNOR=0.4740E-19 RATIO =0.8707E-01 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 16.76     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 3963.     RDR   = 0.000
           RATIOT=0.8707E-01 RATIOR= 0.000
           MAX UN= 1.679     IEQ=    69 NODE     35 DOF   1  Y-DISPL.F
           MIN UN=-4.123     IEQ=    59 NODE     30 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     6 RNORM = 0.000     RMNORM= 0.000
           RINORM= 3963.     RIMNOR= 0.000
           RENORM=0.3249E-01 REMNOR=0.3016E-19 RATIO =0.2863E-02 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 16.76     RMMAX = 0.000
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            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 3963.     RDR   = 0.000
            RATIOT=0.2863E-02 RATIOR= 0.000
            MAX UN=0.1509     IEQ=    67 NODE     34 DOF   1  Y-DISPL.F
            MIN UN=-.9853E-01 IEQ=    55 NODE     28 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     7 RNORM = 0.000     RMNORM= 0.000
            RINORM= 3963.     RIMNOR= 0.000
            RENORM=0.1165E-16 REMNOR=0.2499E-19 RATIO =0.5421E-10 TOLER =0.1000E-03      CONVERGED !
            RFMAX = 16.76     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 3963.     RDR   = 0.000
            RATIOT=0.5421E-10 RATIOR= 0.000
            MAX UN=0.1752E-08 IEQ=     7 NODE      4 DOF   1  Y-DISPL.F
            MIN UN=-.2045E-08 IEQ=     5 NODE      3 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0
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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                               |
|                                   Exe Time :14 May 2019       17:21:13                                                        |
+-------------------------------------------------------------------------------------------------------------------------------+
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  -3.8539415E-02   6.1476642E-03
    2  -3.7309882E-02   6.1476642E-03
    3  -3.6080349E-02   6.1476642E-03
    4  -3.4850817E-02   6.1476462E-03
    5  -3.3621299E-02   6.1475087E-03
    6  -3.2391836E-02   6.1470334E-03
    7  -3.1162528E-02   6.1459090E-03
    8  -2.9933542E-02   6.1437469E-03
    9  -2.8705130E-02   6.1400877E-03
   10  -2.7477642E-02   6.1344045E-03
   11  -2.6251542E-02   6.1261030E-03
   12  -2.5027396E-02   6.1148687E-03
   13  -2.3805790E-02   6.1007016E-03
   14  -2.2587311E-02   6.0836017E-03
   15  -2.1372547E-02   6.0635455E-03
   16  -2.0162096E-02   6.0404396E-03
   17  -1.8956587E-02   6.0140966E-03
   18  -1.7756692E-02   5.9842358E-03
   19  -1.6563152E-02   5.9504827E-03
   20  -1.5376790E-02   5.9123694E-03
   21  -1.4198526E-02   5.8693339E-03
   22  -1.3029422E-02   5.8207215E-03
   23  -1.1870533E-02   5.7677683E-03
   24  -1.0722401E-02   5.7136023E-03
   25  -9.5849706E-03   5.6612572E-03
   26  -8.4576915E-03   5.6120178E-03
   27  -7.3399688E-03   5.5656991E-03
   28  -6.2312044E-03   5.5225751E-03
   29  -5.1306824E-03   5.4833793E-03
   30  -4.0375298E-03   5.4490260E-03
   31  -2.9506961E-03   5.4203120E-03
   32  -1.8689847E-03   5.3979024E-03
   33  -7.9108860E-04   5.3822718E-03
   34   2.8435513E-04   5.3731893E-03
   35   1.3585358E-03   5.3693371E-03
   36   2.4323011E-03   5.3684906E-03
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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1     FULL VERSION  *Build date:Jun 29, 2018*                |
|                                                                                                                          |
|                                       NewProject.BaseDesignSection_28.Nominal_64                                         |
|                                   Exe Time :14 May 2019       17:21:13                                                   |
+--------------------------------------------------------------------------------------------------------------------------+
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   36
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 D  13.43    1.3029E-02  1.113      65.36      57.35      65.36           V-C     3143.      -3.900       1.812
1.000      1.000      67.17      0.000      0.000     UG2_4_12_L_0
  23 D  13.44    1.1871E-02  2.597      62.98      59.25      62.98           V-C     3143.      -4.100       4.228
1.000      1.000      67.21      0.000      0.000     UG2_4_12_L_0
  24 D  13.42    1.0722E-02  4.081      60.47      61.15      60.47           V-C     3143.      -4.300       6.644
1.000      1.000      67.12      0.000      0.000     UG2_4_12_L_0
  25 D  7.204    9.5850E-03  5.565      26.96      63.05      35.65       PASSIVE     0.000      -4.500       9.060
1.000      1.000      36.02      0.000      0.000     UG3_4271_26346_L_0
  26 D  9.222    8.4577E-03  7.148      34.63      65.05      36.56       PASSIVE     0.000      -4.700       11.48
1.000      1.000      46.11      0.000      0.000     UG3_4271_26346_L_0
  27 D  11.24    7.3400E-03  8.732      42.31      67.05      42.31       PASSIVE     0.000      -4.900       13.89
1.000      1.000      56.20      0.000      0.000     UG3_4271_26346_L_0
  28 D  13.26    6.2312E-03  10.32      49.98      69.05      49.98       PASSIVE     0.000      -5.100       16.31
1.000      1.000      66.29      0.000      0.000     UG3_4271_26346_L_0
  29 D  13.36    5.1307E-03  11.90      48.06      71.05      48.06           V-C     3143.      -5.300       18.72
1.000      1.000      66.79      0.000      0.000     UG3_4271_26346_L_0
  30 D  13.35    4.0375E-03  13.48      45.63      73.05      45.63           V-C     3143.      -5.500       21.14
1.000      1.000      66.77      0.000      0.000     UG3_4271_26346_L_0
  31 D  13.36    2.9507E-03  15.07      43.22      75.05      43.22           V-C     3143.      -5.700       23.56
1.000      1.000      66.78      0.000      0.000     UG3_4271_26346_L_0
  32 D  12.78    1.8690E-03  16.55      37.91      76.95      42.20         UL-RL     9429.      -5.900       25.97
```

1.000	1.000	63.88	0.000	0.000	UG2_4_27610_L_0				
33 D	11.42	7.9109E-04	18.04	28.73	78.85	43.12	UL-RL	9429.	-6.100	28.39
1.000	1.000	57.12	0.000	0.000	UG2_4_27610_L_0				
34 D	10.08	-2.8436E-04	19.52	19.57	80.75	44.05	UL-RL	9429.	-6.300	30.81
1.000	1.000	50.38	0.000	0.000	UG2_4_27610_L_0				
35 D	8.727	-1.3585E-03	21.00	10.41	82.65	44.98	UL-RL	9429.	-6.500	33.22
1.000	1.000	43.63	0.000	0.000	UG2_4_27610_L_0				
36 D	3.689	-2.4323E-03	22.49	1.249	84.55	45.93	UL-RL	9429.	-6.700	35.64
1.000	1.000	36.89	0.000	0.000	UG2_4_27610_L_0				

```
+----------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*  |
|                                                                                                          |
|                                       NewProject.BaseDesignSection_28.Nominal_64                         |
|                                   Exe Time :14 May 2019       17:21:13                                   |
+----------------------------------------------------------------------------------------------------------+
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 36
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	0.1222	-3.6080E-02	2.255	0.6111	2.255	6.169	ACTIVE	0.000	-0.1000	0.000		1.000	1.000	0.6111	0.000	0.000	UG0_2_10_L_0
4 D	0.5639	-3.4851E-02	10.40	2.819	10.40	11.21	ACTIVE	0.000	-0.3000	0.000		1.000	1.000	2.819	0.000	0.000	UG0_2_10_L_0
5 D	0.9145	-3.3621E-02	16.87	4.573	16.87	13.13	ACTIVE	0.000	-0.5000	0.000		1.000	1.000	4.573	0.000	0.000	UG0_2_10_L_0
6 D	1.192	-3.2392E-02	21.99	5.959	21.99	14.63	ACTIVE	0.000	-0.7000	0.000		1.000	1.000	5.959	0.000	0.000	UG0_2_10_L_0
7 D	1.439	-3.1163E-02	26.55	7.195	26.55	16.04	ACTIVE	0.000	-0.9000	0.000		1.000	1.000	7.195	0.000	0.000	UG0_2_10_L_0
8 D	1.671	-2.9934E-02	30.83	8.355	30.83	17.44	ACTIVE	0.000	-1.100	0.000		1.000	1.000	8.355	0.000	0.000	UG0_2_10_L_0
9 D	1.894	-2.8705E-02	34.95	9.471	34.95	18.84	ACTIVE	0.000	-1.300	0.000		1.000	1.000	9.471	0.000	0.000	UG0_2_10_L_0
10 D	2.129	-2.7478E-02	39.28	10.64	39.28	20.26	ACTIVE	0.000	-1.500	0.000		1.000	1.000	10.64	0.000	0.000	UG0_2_10_L_0
11 D	0.000	-2.6252E-02	43.19	0.000	43.19	22.67	ACTIVE	0.000	-1.700	0.000		1.000	1.000	0.000	0.000	0.000	UG2_4_12_L_0
12 D	0.000	-2.5027E-02	47.26	0.000	47.26	24.34	ACTIVE	0.000	-1.900	0.000		1.000	1.000	0.000	0.000	0.000	UG2_4_12_L_0
13 D	0.000	-2.3806E-02	51.29	0.000	51.29	26.03	ACTIVE	0.000	-2.100	0.000		1.000	1.000	0.000	0.000	0.000	UG2_4_12_L_0
14 D	0.1584	-2.2587E-02	54.52	0.000	54.52	27.33	ACTIVE	0.000	-2.300	0.7919		1.000	1.000	0.7919	0.000	0.000	UG2_4_12_L_0
15 D	0.4752	-2.1373E-02	56.93	0.000	56.93	28.22	ACTIVE	0.000	-2.500	2.376		1.000	1.000	2.376	0.000	0.000	UG2_4_12_L_0
16 D	0.7919	-2.0162E-02	59.51	0.000	59.51	29.14	ACTIVE	0.000	-2.700	3.960		1.000	1.000	3.960	0.000	0.000	UG2_4_12_L_0
17 D	1.109	-1.8957E-02	61.89	0.000	61.89	30.07	ACTIVE	0.000	-2.900	5.544		1.000	1.000	5.544	0.000	0.000	UG2_4_12_L_0
18 D	1.426	-1.7757E-02	64.26	0.000	64.26	31.03	ACTIVE	0.000	-3.100	7.128		1.000	1.000	7.128	0.000	0.000	UG2_4_12_L_0
19 D	1.742	-1.6563E-02	66.62	0.000	66.62	32.00	ACTIVE	0.000	-3.300	8.711		1.000	1.000	8.711	0.000	0.000	UG2_4_12_L_0
20 D	2.059	-1.5377E-02	68.98	0.000	68.98	32.99	ACTIVE	0.000	-3.500	10.30		1.000	1.000	10.30	0.000	0.000	UG2_4_12_L_0
21 D	2.376	-1.4199E-02	71.33	0.000	71.33	34.00	ACTIVE	0.000	-3.700	11.88		1.000	1.000	11.88	0.000	0.000	UG2_4_12_L_0
22 D	2.693	-1.3029E-02	73.81	0.000	73.81	35.03	ACTIVE	0.000	-3.900	13.46		1.000	1.000	13.46	0.000	0.000	UG2_4_12_L_0
23 D	3.009	-1.1871E-02	76.15	0.000	76.15	36.07	ACTIVE	0.000	-4.100	15.05		1.000	1.000	15.05	0.000	0.000	UG2_4_12_L_0
24 D	3.326	-1.0722E-02	78.49	0.000	78.49	37.12	ACTIVE	0.000	-4.300	16.63		1.000	1.000	16.63	0.000	0.000	UG2_4_12_L_0
25 D	8.606	-9.5850E-03	80.82	24.81	80.82	38.19	ACTIVE	0.000	-4.500	18.21		1.000	1.000	43.03	0.000	0.000	UG3_4271_26346_L_0
26 D	9.072	-8.4577E-03	83.26	25.56	83.26	39.32	ACTIVE	0.000	-4.700	19.80		1.000	1.000	45.36	0.000	0.000	UG3_4271_26346_L_0
27 D	9.538	-7.3400E-03	85.69	26.31	85.69	40.47	ACTIVE	0.000	-4.900	21.38		1.000	1.000	47.69	0.000	0.000	UG3_4271_26346_L_0
28 D	9.993	-6.2312E-03	87.94	27.00	87.94	41.62	ACTIVE	0.000	-5.100	22.97		1.000	1.000	49.96	0.000	0.000	UG3_4271_26346_L_0
29 D	10.44	-5.1307E-03	90.01	27.63	90.01	42.79	ACTIVE	0.000	-5.300	24.55		1.000	1.000	52.18	0.000	0.000	UG3_4271_26346_L_0
30 D	10.88	-4.0375E-03	92.10	28.27	92.10	43.96	ACTIVE	0.000	-5.500	26.13		1.000	1.000	54.41	0.000	0.000	UG3_4271_26346_L_0
31 D	11.33	-2.9507E-03	94.20	28.92	94.20	45.15	ACTIVE	0.000	-5.700	27.72		1.000	1.000	56.64	0.000	0.000	UG3_4271_26346_L_0
32 D	11.59	-1.8690E-03	96.22	28.66	96.22	46.28	UL-RL	9429.	-5.900	29.30							

1.000	1.000	57.96	0.000	0.000	UG2_4_27610_L_0					
33 D	14.17	-7.9109E-04	98.26	39.97	98.26	47.43	UL-RL	9429.	-6.100	30.89
1.000	1.000	70.85	0.000	0.000	UG2_4_27610_L_0					
34 D	16.25	2.8436E-04	100.3	48.77	100.3	49.82	UL-RL	9429.	-6.300	32.47
1.000	1.000	81.24	0.000	0.000	UG2_4_27610_L_0					
35 D	17.61	1.3585E-03	102.4	54.01	102.4	54.01	V-C	3143.	-6.500	34.05
1.000	1.000	88.06	0.000	0.000	UG2_4_27610_L_0					
36 D	9.418	2.4323E-03	104.4	58.54	104.4	58.54	V-C	3143.	-6.700	35.64
1.000	1.000	94.18	0.000	0.000	UG2_4_27610_L_0					

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                               |
|                                   Exe Time :14 May 2019       17:21:13                                                        |
+-------------------------------------------------------------------------------------------------------------------------------+
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   35
C U R R E N T   T I M E   I S      2.0000

 WALL2D ELEMENT

   EL      TA          TB          MA          MB
-------------------------------------------------------------
    1 1.01124E-10-1.01124E-10 9.56391E-12 4.25473E-11
    2-9.34222E-10 9.34222E-10-1.26146E-10-7.56231E-11
    3-0.12223     0.12223     9.14753E-11-2.44459E-02
    4-0.68609     0.68609     2.44459E-02-0.16166
    5 -1.6006      1.6006     0.16166    -0.48178
    6 -2.7924      2.7924     0.48178     -1.0403
    7 -4.2314      4.2314      1.0403     -1.8865
    8 -5.9023      5.9023      1.8865     -3.0670
    9 -7.7965      7.7965      3.0670     -4.6263
   10 -9.9253      9.9253      4.6263     -6.6113
   11 -9.9253      9.9253      6.6113     -8.5964
   12 -9.9253      9.9253      8.5964     -10.581
   13 -9.9253      9.9253      10.581     -12.567
   14 -10.084      10.084      12.567     -14.583
   15 -10.559      10.559      14.583     -16.695
   16 -11.351      11.351      16.695     -18.965
   17 -12.460      12.460      18.965     -21.457
   18 -13.885      13.885      21.457     -24.234
   19 -15.627      15.627      24.234     -27.360
   20 -17.686      17.686      27.360     -30.897
   21 -20.062      20.062      30.897     -34.909
   22 -9.3199      9.3199      34.909     -36.773
   23  1.1133     -1.1133      36.773     -36.551
   24  11.211     -11.211      36.551     -34.308
   25  9.8095     -9.8095      34.308     -32.347
   26  9.9598     -9.9598      32.347     -30.355
   27  11.662     -11.662      30.355     -28.022
   28  14.927     -14.927      28.022     -25.037
   29  17.848     -17.848      25.037     -21.467
   30  20.321     -20.321      21.467     -17.403
   31  22.350     -22.350      17.403     -12.933
   32  23.534     -23.534      12.933     -8.2262
   33  20.787     -20.787      8.2262     -4.0688
   34  14.614     -14.614      4.0688     -1.1459
   35  5.7293     -5.7293      1.1459    -5.36460E-12
```

```
+-------------------------------------------------------------------------------------------------------------------------+
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                     NewProject.BaseDesignSection_28.Nominal_64                                          |
|                                  Exe Time :14 May 2019       17:21:13                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


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

                    S U M M A R Y

     STEP                                  NO. OF ITERATIONS

        1           CONVERGENCE :YES                      2
        2           CONVERGENCE :YES                      7


 END OF PROCESS FOR PROBLEM
New Project
NONLINEAR SOLUTION CPU TIME ....    0.03 [sec]
DATABASE  CREATION CPU TIME.....    0.07 [sec]
```

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

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                     NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                               |
|                                  Exe Time :14 May 2019       17:21:13                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+

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



 JOB : NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116
 STARTING
ACCEPTED   &lt;FILE,GENW                                                                    &gt;
ACCEPTED   &lt;FILE,PLOTTER,BINARY                                                          &gt;
ACCEPTED   &lt;SOLVE TOTAL_STRESS                                                           &gt;
ACCEPTED   &lt;PARAM ITEMAX 40                                                              &gt;
ACCEPTED   &lt;CONTROL HINGES 0 0.0001 0.001                                                &gt;


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

PRELIMINARY OPERATIONS CPU TIME     0.00 [sec]
```

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                    PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                       NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                             |
|                                    Exe Time :14 May 2019       17:21:13                                                       |
+-------------------------------------------------------------------------------------------------------------------------------+


INPUT FILE HAS BEEN GENERATED BY WALGEN PROGRAM


New Project


NO. OF NODAL POINTS (NUMNP) ...................    36
NO. OF COORDINATES  (NCOORD)...................     2
NO. OF NODE DOFS    (NDOF).....................     2
NO. OF EQUATIONS    (NEQ)......................    72
NO. OF CONSTRAINTS CARDS (NVINC)...............     0
NO. OF ELEMENT GROUPS (NEG)....................     3
NO. OF SOLUTION STEPS (NSTE)...................     2
NO. OF ELEMENT SETS ATTACHED TO SLAVE NODES ...     0
NO. OF RECORD FROM WALGEN .....................   100
NO. OF LONG NAMES (LASTNAME) ..................    13
LENGTH UNIT CHOICE ............................     3 (M   )
FORCE  UNIT CHOICE ............................     3 (KN  )
MAX PORE PRESSURE TABLE LENGTH.................     1
NO. OF ELEMENT GROUPS REQUIRING ADD. SLIP DOF .     0


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

 RELEVANT ITEMS UNITS

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

```
+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                        |
|                                  Exe Time :14 May 2019       17:21:13                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
                   P R E P R O C E S S O R     D A T A

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

   1 : UNIT  m kN
   2 : TITLE New Project
   3 : DELTA 0.2
   4 : option param itemax 40
   5 : option control hinges 0 0.0001 0.001
   6 : WALL LeftWall_32 0 -6.7 0.3 -1
   7 : SOIL 0_L LeftWall_32 -6.7 0.3 2 0
   8 : SOIL 0_R LeftWall_32 -6.7 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_12_L_0 -1.7 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_26346_L_0 -4.5 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_27610_L_0 -5.7 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 -6.7 0.3 S275_115 0.19777 00 00 0
  39 : STRIP LeftWall_32 1 2 0.2 4.8 0 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=0.271 LeftWall_32
  44 : CHANGE UG0_2_10_L_0 U-KP=5.835 LeftWall_32
  45 : CHANGE UG0_2_10_L_0 D-KA=0.28 LeftWall_32
  46 : CHANGE UG0_2_10_L_0 D-KP=6.414 LeftWall_32
  47 : CHANGE UG2_4_12_L_0 U-FRICT=25 LeftWall_32
  48 : CHANGE UG2_4_12_L_0 D-FRICT=25 LeftWall_32
  49 : CHANGE UG2_4_12_L_0 U-KA=0.406 LeftWall_32
  50 : CHANGE UG2_4_12_L_0 U-KP=2.409 LeftWall_32
  51 : CHANGE UG2_4_12_L_0 D-KA=0.42 LeftWall_32
  52 : CHANGE UG2_4_12_L_0 D-KP=3.314 LeftWall_32
  53 : CHANGE UG3_4271_26346_L_0 U-FRICT=32 LeftWall_32
  54 : CHANGE UG3_4271_26346_L_0 D-FRICT=32 LeftWall_32
  55 : CHANGE UG3_4271_26346_L_0 U-KA=0.307 LeftWall_32
  56 : CHANGE UG3_4271_26346_L_0 U-KP=2.865 LeftWall_32
  57 : CHANGE UG3_4271_26346_L_0 D-KA=0.316 LeftWall_32
  58 : CHANGE UG3_4271_26346_L_0 D-KP=4.864 LeftWall_32
  59 : CHANGE UG2_4_27610_L_0 U-FRICT=25 LeftWall_32
  60 : CHANGE UG2_4_27610_L_0 D-FRICT=25 LeftWall_32
  61 : CHANGE UG2_4_27610_L_0 U-KA=0.392 LeftWall_32
  62 : CHANGE UG2_4_27610_L_0 U-KP=1.92 LeftWall_32
  63 : CHANGE UG2_4_27610_L_0 D-KA=0.416 LeftWall_32
  64 : CHANGE UG2_4_27610_L_0 D-KP=3.223 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_12_L_0 U-COHE=30 LeftWall_32
  70 : CHANGE UG2_4_12_L_0 U-ADHES=0 LeftWall_32
  71 : CHANGE UG2_4_12_L_0 D-COHE=30 LeftWall_32
  72 : CHANGE UG2_4_12_L_0 D-ADHES=0 LeftWall_32
  73 : CHANGE UG3_4271_26346_L_0 U-COHE=0 LeftWall_32
  74 : CHANGE UG3_4271_26346_L_0 U-ADHES=0 LeftWall_32
  75 : CHANGE UG3_4271_26346_L_0 D-COHE=0 LeftWall_32
  76 : CHANGE UG3_4271_26346_L_0 D-ADHES=0 LeftWall_32
```

```
 77 : CHANGE UG2_4_27610_L_0 U-COHE=30 LeftWall_32
 78 : CHANGE UG2_4_27610_L_0 U-ADHES=0 LeftWall_32
 79 : CHANGE UG2_4_27610_L_0 D-COHE=30 LeftWall_32
 80 : CHANGE UG2_4_27610_L_0 D-ADHES=0 LeftWall_32
 81 : SETWALL LeftWall_32
 82 : GEOM 0 0
 83 : SURCHARGE 0 0 0 0
 84 : WATER -2.2 0 -6.7 0 0
 85 : ENDSTEP
 86 : STEP Stage2_28513
 87 : CHANGE UG0_2_10_L_0 D-KA=0.271 LeftWall_32
 88 : CHANGE UG0_2_10_L_0 D-KP=5.879 LeftWall_32
 89 : CHANGE UG2_4_12_L_0 D-KA=0.406 LeftWall_32
 90 : CHANGE UG2_4_12_L_0 D-KP=3.222 LeftWall_32
 91 : CHANGE UG3_4271_26346_L_0 D-KA=0.307 LeftWall_32
 92 : CHANGE UG3_4271_26346_L_0 D-KP=4.845 LeftWall_32
 93 : CHANGE UG2_4_27610_L_0 D-KA=0.406 LeftWall_32
 94 : CHANGE UG2_4_27610_L_0 D-KP=3.222 LeftWall_32
 95 : SETWALL LeftWall_32
 96 : GEOM 0 -3.75
 97 : SURCHARGE 0 0 0 0
 98 : WATER -2.2 1.55 -6.7 0 0
 99 : ADD WallElement_New_28707
100 : ENDSTEP
```

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                              |
|                                  Exe Time :14 May 2019       17:21:13                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
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	/

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                              |
|                                  Exe Time :14 May 2019       17:21:13                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  1

0_L                                                                 :
   5  36   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    2   0.2000      0.000     0.000     0.000     2.000
   12   12    2   0.2000      0.000     0.000     0.000     2.000
   13   13    2   0.2000      0.000     0.000     0.000     2.000
   14   14    2   0.2000      0.000     0.000     0.000     2.000
   15   15    2   0.2000      0.000     0.000     0.000     2.000
   16   16    2   0.2000      0.000     0.000     0.000     2.000
   17   17    2   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    3   0.2000      0.000     0.000     0.000     2.000
   26   26    3   0.2000      0.000     0.000     0.000     2.000
   27   27    3   0.2000      0.000     0.000     0.000     2.000
   28   28    3   0.2000      0.000     0.000     0.000     2.000
   29   29    3   0.2000      0.000     0.000     0.000     2.000
   30   30    3   0.2000      0.000     0.000     0.000     2.000
   31   31    3   0.2000      0.000     0.000     0.000     2.000
   32   32    4   0.2000      0.000     0.000     0.000     2.000
   33   33    4   0.2000      0.000     0.000     0.000     2.000
   34   34    4   0.2000      0.000     0.000     0.000     2.000
   35   35    4   0.2000      0.000     0.000     0.000     2.000
```

```
  36   36    4   0.1000     0.000     0.000     0.000     2.000
```

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                              |
|                                  Exe Time :14 May 2019       17:21:13                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  2

0_R                                                                 :
   5  36   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    2   0.2000     0.000     0.000     0.000     1.000
   12   12    2   0.2000     0.000     0.000     0.000     1.000
   13   13    2   0.2000     0.000     0.000     0.000     1.000
   14   14    2   0.2000     0.000     0.000     0.000     1.000
   15   15    2   0.2000     0.000     0.000     0.000     1.000
   16   16    2   0.2000     0.000     0.000     0.000     1.000
   17   17    2   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    3   0.2000     0.000     0.000     0.000     1.000
   26   26    3   0.2000     0.000     0.000     0.000     1.000
   27   27    3   0.2000     0.000     0.000     0.000     1.000
   28   28    3   0.2000     0.000     0.000     0.000     1.000
   29   29    3   0.2000     0.000     0.000     0.000     1.000
   30   30    3   0.2000     0.000     0.000     0.000     1.000
   31   31    3   0.2000     0.000     0.000     0.000     1.000
   32   32    4   0.2000     0.000     0.000     0.000     1.000
   33   33    4   0.2000     0.000     0.000     0.000     1.000
   34   34    4   0.2000     0.000     0.000     0.000     1.000
   35   35    4   0.2000     0.000     0.000     0.000     1.000
```

```
 36   36    4   0.1000     0.000     0.000     0.000     1.000
```

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                              |
|                                 Exe Time :14 May 2019       17:21:13                                                          |
+-------------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  3

WallElement_New_28707                                          :
   2  35   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
```

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                  |
|                                                                                                                               |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                              |
|                                  Exe Time :14 May 2019       17:21:13                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+


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

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                              |
|                                  Exe Time :14 May 2019       17:21:13                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
L O A D     D A T A


    LOAD FUNCTION NUMBER   =    1
    NUMBER OF TIME POINTS  =    5

    TIME VALUE      FUNCTION

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


    LOAD FUNCTION NUMBER   =    2
    NUMBER OF TIME POINTS  =    5

    TIME VALUE      FUNCTION

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


    LOAD FUNCTION NUMBER   =    3
    NUMBER OF TIME POINTS  =    4

    TIME VALUE      FUNCTION

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


    LOAD FUNCTION NUMBER   =    4
    NUMBER OF TIME POINTS  =    4

    TIME VALUE      FUNCTION

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


NO. OF DISTRIBUTED LOAD CARDS     0
```

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                              |
|                                  Exe Time :14 May 2019       17:21:13                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
L O A D     B A L A N C E

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

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


                      LOAD INPUT SECTION COMPLETED
```

```
+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                        |
|                                  Exe Time :14 May 2019       17:21:13                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


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

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                    PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                       NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                             |
|                                    Exe Time :14 May 2019       17:21:13                                                       |
+-------------------------------------------------------------------------------------------------------------------------------+

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;= 0.27100     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  5.8350     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;= 0.28000     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  6.4140     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;= -1.7000     (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;=  2.4090     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;= 0.42000     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.3140     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;= -4.5000     (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;=  2.8650     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)
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ITEM NO.  60&lt;D-KA    &gt;= 0.31600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  4.8640     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;= -5.7000     (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;= 0.39200     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  1.9200     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;= 0.41600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.2230     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;= 0.27100     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  5.8350     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-03 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;= 0.30000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.27100     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  5.8790     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-03 (BOTH WALLS)

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

ITEM NO.   1&lt;NAME    &gt;=  9.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -1.7000     (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;=  2.4090     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)
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 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;= -4.5000     (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;=  2.8650     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;= -5.7000     (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;= 0.39200     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  1.9200     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.40600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.2220     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)


DEFAULT WATER UNIT WEIGHT =  10.000
AVERAGED ON     8 VALUES
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+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                              |
|                                  Exe Time :14 May 2019       17:21:13                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+

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                         -2.200       -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      -6.700        -6.700
WATER_BEHAVIOUR_FLAG (LINING OPT)      0.000         0.000
PORE_UPDATE_FLAG                       0.000         0.000
PORE_TAB. _FLAG (gt.0= use tabs)       0.000         0.000
lateral thrusts reduction elevatio     0.000         0.000
Downhill reduction factor for effe     0.000         0.000
Downhill reduction factor for pore     0.000         0.000
Uphill reduction factor for effect     0.000         0.000
Uphill reduction factor for pore p     0.000         0.000
SEISMIC HORIZONTAL ACCEL. Kh [g]       0.000         0.000
UPHILL VERTICAL ACCEL.  Kv_uh [g]      0.000         0.000
DOWNHILL VERTICAL ACCEL.Kv_dh [g]      0.000         0.000
UPHILL BETA ANGLE (SLOPE) [deg]        0.000         0.000
UPHILL DELTA/PHI RATIO                 0.000         0.000
DOWNHILL BETA ANGLE (SLOPE) [deg]      0.000         0.000
DOWNHILL DELTA/PHI RATIO               0.000         0.000
DYN.WATER BEHAVIOUR                    0.000         0.000
Excess pore pressure RATIO Ru          0.000         0.000
SEISMIC PRESSURE LOWER VALUE           0.000         0.000
SEISMIC PRESSURE UPPER VALUE           0.000         0.000
SEISMIC PRESSURE LOWER LEVEL           0.000         0.000
SEISMIC PRESSURE UPPER LEVEL           0.000         0.000

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


STEP  NO.     2
                                      LEFT WALL    RIGHT WALL
Y                                      0.000       -0.9990E+30
Z-PC                                   0.000         0.000
Z-EXCAVATION                          -3.750         0.000
Z-WATER_TABLE                         -2.200       -0.9990E+30
Q_AT_THE_FREE_FIELD_LEVEL              0.000         0.000
ZQ                                     0.000         0.000
DZW_OF_THE_WATER_TABLE                 1.550         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      -6.700        -6.700
WATER_BEHAVIOUR_FLAG (LINING OPT)      0.000         0.000
PORE_UPDATE_FLAG                       0.000         0.000
PORE_TAB. _FLAG (gt.0= use tabs)       0.000         0.000
lateral thrusts reduction elevatio     0.000         0.000
Downhill reduction factor for effe     0.000         0.000
Downhill reduction factor for pore     0.000         0.000
Uphill reduction factor for effect     0.000         0.000
Uphill reduction factor for pore p     0.000         0.000
SEISMIC HORIZONTAL ACCEL. Kh [g]       0.000         0.000
UPHILL VERTICAL ACCEL.  Kv_uh [g]      0.000         0.000
DOWNHILL VERTICAL ACCEL.Kv_dh [g]      0.000         0.000
UPHILL BETA ANGLE (SLOPE) [deg]        0.000         0.000
UPHILL DELTA/PHI RATIO                 0.000         0.000
DOWNHILL BETA ANGLE (SLOPE) [deg]      0.000         0.000
DOWNHILL DELTA/PHI RATIO               0.000         0.000
DYN.WATER BEHAVIOUR                    0.000         0.000
Excess pore pressure RATIO Ru          0.000         0.000
SEISMIC PRESSURE LOWER VALUE           0.000         0.000
SEISMIC PRESSURE UPPER VALUE           0.000         0.000
SEISMIC PRESSURE LOWER LEVEL           0.000         0.000
SEISMIC PRESSURE UPPER LEVEL           0.000         0.000

================================================================================================================end of step     2
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LEFT-HAND WALL

LOWER  LEVEL          -6.70000
UPPER  LEVEL           0.30000

RIGHT-HAND WALL

LOWER  LEVEL          -6.70000
UPPER  LEVEL           0.30000
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+-------------------------------------------------------------------------------------------------------------------------+
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                     NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                         |
|                                  Exe Time :14 May 2019       17:21:13                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
 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)          0.200000000000000
 FOUNDATION WIDTH    (B)            4.80000000000000
 ZETA-F.....                       0.000000000000000E+000
 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        2523

 NO. OF D.P.W  FOR THIS AREA       4261
 MAX NO. OF D.P.W. AVAILABLE      81920
 ** MAX NO OF ITERATIONS SET TO          40

ITER     0 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6874.     RIMNOR= 0.000
           RENORM=0.1972E-28 REMNOR= 0.000     RATIO =0.5356E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 17.60     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6874.     RDR   = 0.000
           RATIOT=0.5356E-16 RATIOR= 0.000
           MAX UN=0.1776E-14 IEQ=    55 NODE     28 DOF   1  Y-DISPL.F
           MIN UN=-.3553E-14 IEQ=    65 NODE     33 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     1 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6874.     RIMNOR= 0.000
           RENORM=0.1972E-28 REMNOR= 0.000     RATIO =0.5356E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 17.60     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6874.     RDR   = 0.000
           RATIOT=0.5356E-16 RATIOR= 0.000
           MAX UN=0.1776E-14 IEQ=    55 NODE     28 DOF   1  Y-DISPL.F
           MIN UN=-.3553E-14 IEQ=    65 NODE     33 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6874.     RIMNOR= 0.000
           RENORM=0.1972E-28 REMNOR= 0.000     RATIO =0.5356E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 17.60     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6874.     RDR   = 0.000
           RATIOT=0.5356E-16 RATIOR= 0.000
           MAX UN=0.1776E-14 IEQ=    55 NODE     28 DOF   1  Y-DISPL.F
           MIN UN=-.3553E-14 IEQ=    65 NODE     33 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0
```

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+-------------------------------------------------------------------------------------------------------------------------------+
|                    PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                |
|                                                                                                                               |
|                       NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                             |
|                                    Exe Time :14 May 2019       17:21:13                                                       |
+-------------------------------------------------------------------------------------------------------------------------------+
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
```

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+----------------------------------------------------------------------------------------------------------+
|                 PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*   |
|                                                                                                          |
|                    NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116           |
|                                 Exe Time :14 May 2019       17:21:13                                    |
+----------------------------------------------------------------------------------------------------------+
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   36
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	1.234	0.000	1.850	6.169	1.850	6.169	V-C	3143.	-0.1000	0.000		1.000	1.000	6.169	0.000	0.000	UG0_2_10_L_0
4 D	2.242	0.000	5.550	11.21	5.550	11.21	V-C	3143.	-0.3000	0.000		1.000	1.000	11.21	0.000	0.000	UG0_2_10_L_0
5 D	2.627	0.000	9.250	13.13	9.250	13.13	V-C	3143.	-0.5000	0.000		1.000	1.000	13.13	0.000	0.000	UG0_2_10_L_0
6 D	2.925	0.000	12.95	14.63	12.95	14.63	V-C	3143.	-0.7000	0.000		1.000	1.000	14.63	0.000	0.000	UG0_2_10_L_0
7 D	3.207	0.000	16.65	16.04	16.65	16.04	V-C	3143.	-0.9000	0.000		1.000	1.000	16.04	0.000	0.000	UG0_2_10_L_0
8 D	3.487	0.000	20.35	17.44	20.35	17.44	V-C	3143.	-1.100	0.000		1.000	1.000	17.44	0.000	0.000	UG0_2_10_L_0
9 D	3.768	0.000	24.05	18.84	24.05	18.84	V-C	3143.	-1.300	0.000		1.000	1.000	18.84	0.000	0.000	UG0_2_10_L_0
10 D	4.052	0.000	27.75	20.26	27.75	20.26	V-C	3143.	-1.500	0.000		1.000	1.000	20.26	0.000	0.000	UG0_2_10_L_0
11 D	4.533	0.000	31.45	22.67	31.45	22.67	V-C	3143.	-1.700	0.000		1.000	1.000	22.67	0.000	0.000	UG2_4_12_L_0
12 D	4.868	0.000	35.35	24.34	35.35	24.34	V-C	3143.	-1.900	0.000		1.000	1.000	24.34	0.000	0.000	UG2_4_12_L_0
13 D	5.207	0.000	39.25	26.03	39.25	26.03	V-C	3143.	-2.100	0.000		1.000	1.000	26.03	0.000	0.000	UG2_4_12_L_0
14 D	5.643	1.4129E-18	42.15	27.22	42.15	27.22	V-C	3143.	-2.300	1.000		1.000	1.000	28.22	0.000	0.000	UG2_4_12_L_0
15 D	6.178	0.000	44.05	27.89	44.05	27.89	V-C	3143.	-2.500	3.000		1.000	1.000	30.89	0.000	0.000	UG2_4_12_L_0
16 D	6.717	0.000	45.95	28.58	45.95	28.58	V-C	3143.	-2.700	5.000		1.000	1.000	33.58	0.000	0.000	UG2_4_12_L_0
17 D	7.260	0.000	47.85	29.30	47.85	29.30	V-C	3143.	-2.900	7.000		1.000	1.000	36.30	0.000	0.000	UG2_4_12_L_0
18 D	7.806	0.000	49.75	30.03	49.75	30.03	V-C	3143.	-3.100	9.000		1.000	1.000	39.03	0.000	0.000	UG2_4_12_L_0
19 D	8.357	0.000	51.65	30.78	51.65	30.78	V-C	3143.	-3.300	11.00		1.000	1.000	41.78	0.000	0.000	UG2_4_12_L_0
20 D	8.911	0.000	53.55	31.56	53.55	31.56	V-C	3143.	-3.500	13.00		1.000	1.000	44.56	0.000	0.000	UG2_4_12_L_0
21 D	9.469	0.000	55.45	32.34	55.45	32.34	V-C	3143.	-3.700	15.00		1.000	1.000	47.34	0.000	0.000	UG2_4_12_L_0
22 D	10.03	-2.8259E-18	57.35	33.15	57.35	33.15	V-C	3143.	-3.900	17.00		1.000	1.000	50.15	0.000	0.000	UG2_4_12_L_0
23 D	10.59	0.000	59.25	33.97	59.25	33.97	V-C	3143.	-4.100	19.00		1.000	1.000	52.97	0.000	0.000	UG2_4_12_L_0
24 D	11.16	0.000	61.15	34.80	61.15	34.80	V-C	3143.	-4.300	21.00		1.000	1.000	55.80	0.000	0.000	UG2_4_12_L_0
25 D	11.73	0.000	63.05	35.65	63.05	35.65	V-C	3143.	-4.500	23.00		1.000	1.000	58.65	0.000	0.000	UG3_4271_26346_L_0
26 D	12.31	0.000	65.05	36.56	65.05	36.56	V-C	3143.	-4.700	25.00		1.000	1.000	61.56	0.000	0.000	UG3_4271_26346_L_0
27 D	12.90	0.000	67.05	37.49	67.05	37.49	V-C	3143.	-4.900	27.00		1.000	1.000	64.49	0.000	0.000	UG3_4271_26346_L_0
28 D	13.48	-2.8259E-18	69.05	38.42	69.05	38.42	V-C	3143.	-5.100	29.00		1.000	1.000	67.42	0.000	0.000	UG3_4271_26346_L_0
29 D	14.07	0.000	71.05	39.36	71.05	39.36	V-C	3143.	-5.300	31.00		1.000	1.000	70.36	0.000	0.000	UG3_4271_26346_L_0
30 D	14.66	0.000	73.05	40.32	73.05	40.32	V-C	3143.	-5.500	33.00		1.000	1.000	73.32	0.000	0.000	UG3_4271_26346_L_0
31 D	15.26	0.000	75.05	41.28	75.05	41.28	V-C	3143.	-5.700	35.00		1.000	1.000	76.28	0.000	0.000	UG3_4271_26346_L_0
32 D	15.84	0.000	76.95	42.20	76.95	42.20	V-C	3143.	-5.900	37.00							

1.000	1.000	79.20	0.000	0.000	UG2_4_27610_L_0					
33 D	16.42	5.6518E-18	78.85	43.12	78.85	43.12	V-C	3143.	-6.100	39.00
1.000	1.000	82.12	0.000	0.000	UG2_4_27610_L_0					
34 D	17.01	0.000	80.75	44.05	80.75	44.05	V-C	3143.	-6.300	41.00
1.000	1.000	85.05	0.000	0.000	UG2_4_27610_L_0					
35 D	17.60	0.000	82.65	44.98	82.65	44.98	V-C	3143.	-6.500	43.00
1.000	1.000	87.98	0.000	0.000	UG2_4_27610_L_0					
36 D	9.093	0.000	84.55	45.93	84.55	45.93	V-C	3143.	-6.700	45.00
1.000	1.000	90.93	0.000	0.000	UG2_4_27610_L_0					

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+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                              |
|                                  Exe Time :14 May 2019       17:21:13                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
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   36
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  1.234       0.000      2.255      6.169      2.255       6.169           V-C   3143.      -0.1000       0.000
1.000       1.000       6.169      0.000      0.000     UG0_2_10_L_0
   4 D  2.242       0.000      10.40      11.21      10.40       11.21           V-C   3143.      -0.3000       0.000
1.000       1.000       11.21      0.000      0.000     UG0_2_10_L_0
   5 D  2.627       0.000      16.87      13.13      16.87       13.13           V-C   3143.      -0.5000       0.000
1.000       1.000       13.13      0.000      0.000     UG0_2_10_L_0
   6 D  2.925       0.000      21.99      14.63      21.99       14.63           V-C   3143.      -0.7000       0.000
1.000       1.000       14.63      0.000      0.000     UG0_2_10_L_0
   7 D  3.207       0.000      26.55      16.04      26.55       16.04           V-C   3143.      -0.9000       0.000
1.000       1.000       16.04      0.000      0.000     UG0_2_10_L_0
   8 D  3.487       0.000      30.83      17.44      30.83       17.44           V-C   3143.       -1.100       0.000
1.000       1.000       17.44      0.000      0.000     UG0_2_10_L_0
   9 D  3.768       0.000      34.95      18.84      34.95       18.84           V-C   3143.       -1.300       0.000
1.000       1.000       18.84      0.000      0.000     UG0_2_10_L_0
  10 D  4.052       0.000      39.28      20.26      39.28       20.26           V-C   3143.       -1.500       0.000
1.000       1.000       20.26      0.000      0.000     UG0_2_10_L_0
  11 D  4.533       0.000      43.19      22.67      43.19       22.67           V-C   3143.       -1.700       0.000
1.000       1.000       22.67      0.000      0.000     UG2_4_12_L_0
  12 D  4.868       0.000      47.26      24.34      47.26       24.34           V-C   3143.       -1.900       0.000
1.000       1.000       24.34      0.000      0.000     UG2_4_12_L_0
  13 D  5.207       0.000      51.29      26.03      51.29       26.03           V-C   3143.       -2.100       0.000
1.000       1.000       26.03      0.000      0.000     UG2_4_12_L_0
  14 D  5.643    -1.4129E-18     54.31      27.22      54.31       27.22           V-C   3143.       -2.300       1.000
1.000       1.000       28.22      0.000      0.000     UG2_4_12_L_0
  15 D  6.178       0.000      56.31      27.89      56.31       27.89           V-C   3143.       -2.500       3.000
1.000       1.000       30.89      0.000      0.000     UG2_4_12_L_0
  16 D  6.717       0.000      58.47      28.58      58.47       28.58           V-C   3143.       -2.700       5.000
1.000       1.000       33.58      0.000      0.000     UG2_4_12_L_0
  17 D  7.260       0.000      60.43      29.30      60.43       29.30           V-C   3143.       -2.900       7.000
1.000       1.000       36.30      0.000      0.000     UG2_4_12_L_0
  18 D  7.806       0.000      62.38      30.03      62.38       30.03           V-C   3143.       -3.100       9.000
1.000       1.000       39.03      0.000      0.000     UG2_4_12_L_0
  19 D  8.357       0.000      64.33      30.78      64.33       30.78           V-C   3143.       -3.300       11.00
1.000       1.000       41.78      0.000      0.000     UG2_4_12_L_0
  20 D  8.911       0.000      66.27      31.56      66.27       31.56           V-C   3143.       -3.500       13.00
1.000       1.000       44.56      0.000      0.000     UG2_4_12_L_0
  21 D  9.469       0.000      68.21      32.34      68.21       32.34           V-C   3143.       -3.700       15.00
1.000       1.000       47.34      0.000      0.000     UG2_4_12_L_0
  22 D  10.03    2.8259E-18     70.27      33.15      70.27       33.15           V-C   3143.       -3.900       17.00
1.000       1.000       50.15      0.000      0.000     UG2_4_12_L_0
  23 D  10.59       0.000      72.19      33.97      72.19       33.97           V-C   3143.       -4.100       19.00
1.000       1.000       52.97      0.000      0.000     UG2_4_12_L_0
  24 D  11.16       0.000      74.12      34.80      74.12       34.80           V-C   3143.       -4.300       21.00
1.000       1.000       55.80      0.000      0.000     UG2_4_12_L_0
  25 D  11.73       0.000      76.04      35.65      76.04       35.65           V-C   3143.       -4.500       23.00
1.000       1.000       58.65      0.000      0.000     UG3_4271_26346_L_0
  26 D  12.31       0.000      78.06      36.56      78.06       36.56           V-C   3143.       -4.700       25.00
1.000       1.000       61.56      0.000      0.000     UG3_4271_26346_L_0
  27 D  12.90       0.000      80.08      37.49      80.08       37.49           V-C   3143.       -4.900       27.00
1.000       1.000       64.49      0.000      0.000     UG3_4271_26346_L_0
  28 D  13.48    2.8259E-18     81.90      38.42      81.90       38.42           V-C   3143.       -5.100       29.00
1.000       1.000       67.42      0.000      0.000     UG3_4271_26346_L_0
  29 D  14.07       0.000      83.56      39.36      83.56       39.36           V-C   3143.       -5.300       31.00
1.000       1.000       70.36      0.000      0.000     UG3_4271_26346_L_0
  30 D  14.66       0.000      85.23      40.32      85.23       40.32           V-C   3143.       -5.500       33.00
1.000       1.000       73.32      0.000      0.000     UG3_4271_26346_L_0
  31 D  15.26       0.000      86.92      41.28      86.92       41.28           V-C   3143.       -5.700       35.00
1.000       1.000       76.28      0.000      0.000     UG3_4271_26346_L_0
  32 D  15.84       0.000      88.52      42.20      88.52       42.20           V-C   3143.       -5.900       37.00
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1.000	1.000	79.20	0.000	0.000	UG2_4_27610_L_0					
33 D	16.42	-5.6518E-18	90.15	43.12	90.15	43.12	V-C	3143.	-6.100	39.00
1.000	1.000	82.12	0.000	0.000	UG2_4_27610_L_0					
34 D	17.01	0.000	91.78	44.05	91.78	44.05	V-C	3143.	-6.300	41.00
1.000	1.000	85.05	0.000	0.000	UG2_4_27610_L_0					
35 D	17.60	0.000	93.42	44.98	93.42	44.98	V-C	3143.	-6.500	43.00
1.000	1.000	87.98	0.000	0.000	UG2_4_27610_L_0					
36 D	9.093	0.000	95.08	45.93	95.08	45.93	V-C	3143.	-6.700	45.00
1.000	1.000	90.93	0.000	0.000	UG2_4_27610_L_0					

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+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                              |
|                                  Exe Time :14 May 2019       17:21:13                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
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   35
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= 3963.     RIMNOR= 0.000
           RENORM= 1199.     REMNOR= 0.000     RATIO =0.5499     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 16.76     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 3963.     RDR   = 0.000
           RATIOT=0.5499     RATIOR= 0.000
           MAX UN= 0.000     IEQ=    72 NODE     36 DOF   2   X-ROT. F
           MIN UN=-9.176     IEQ=    41 NODE     21 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM= 3963.     RIMNOR= 0.000
           RENORM= 62.17     REMNOR=0.4076E-20 RATIO =0.1252     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 16.76     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 3963.     RDR   = 0.000
           RATIOT=0.1252     RATIOR= 0.000
           MAX UN=0.2280E-09 IEQ=    33 NODE     17 DOF   1  Y-DISPL.F
           MIN UN=-2.909     IEQ=     5 NODE      3 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     3 RNORM = 0.000     RMNORM= 0.000
           RINORM= 3963.     RIMNOR= 0.000
           RENORM= 47.35     REMNOR=0.5188E-20 RATIO =0.1093     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 16.76     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 3963.     RDR   = 0.000
           RATIOT=0.1093     RATIOR= 0.000
           MAX UN=0.2712E-09 IEQ=    11 NODE      6 DOF   1  Y-DISPL.F
           MIN UN=-4.092     IEQ=    21 NODE     11 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     4 RNORM = 0.000     RMNORM= 0.000
           RINORM= 3963.     RIMNOR= 0.000
           RENORM= 55.12     REMNOR=0.1517E-19 RATIO =0.1179     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 16.76     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 3963.     RDR   = 0.000
           RATIOT=0.1179     RATIOR= 0.000
           MAX UN=0.9253E-01 IEQ=    71 NODE     36 DOF   1  Y-DISPL.F
           MIN UN=-4.950     IEQ=    37 NODE     19 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     5 RNORM = 0.000     RMNORM= 0.000
           RINORM= 3963.     RIMNOR= 0.000
           RENORM= 30.05     REMNOR=0.4740E-19 RATIO =0.8707E-01 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 16.76     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 3963.     RDR   = 0.000
           RATIOT=0.8707E-01 RATIOR= 0.000
           MAX UN= 1.679     IEQ=    69 NODE     35 DOF   1  Y-DISPL.F
           MIN UN=-4.123     IEQ=    59 NODE     30 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     6 RNORM = 0.000     RMNORM= 0.000
           RINORM= 3963.     RIMNOR= 0.000
           RENORM=0.3249E-01 REMNOR=0.3016E-19 RATIO =0.2863E-02 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 16.76     RMMAX = 0.000
```

```
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 3963.     RDR   = 0.000
            RATIOT=0.2863E-02 RATIOR= 0.000
            MAX UN=0.1509     IEQ=    67 NODE     34 DOF   1  Y-DISPL.F
            MIN UN=-.9853E-01 IEQ=    55 NODE     28 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     7 RNORM = 0.000     RMNORM= 0.000
            RINORM= 3963.     RIMNOR= 0.000
            RENORM=0.1165E-16 REMNOR=0.2499E-19 RATIO =0.5421E-10 TOLER =0.1000E-03      CONVERGED !
            RFMAX = 16.76     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 3963.     RDR   = 0.000
            RATIOT=0.5421E-10 RATIOR= 0.000
            MAX UN=0.1752E-08 IEQ=     7 NODE      4 DOF   1  Y-DISPL.F
            MIN UN=-.2045E-08 IEQ=     5 NODE      3 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0
```

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+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                              |
|                                  Exe Time :14 May 2019       17:21:13                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
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  -3.8539415E-02   6.1476642E-03
    2  -3.7309882E-02   6.1476642E-03
    3  -3.6080349E-02   6.1476642E-03
    4  -3.4850817E-02   6.1476462E-03
    5  -3.3621299E-02   6.1475087E-03
    6  -3.2391836E-02   6.1470334E-03
    7  -3.1162528E-02   6.1459090E-03
    8  -2.9933542E-02   6.1437469E-03
    9  -2.8705130E-02   6.1400877E-03
   10  -2.7477642E-02   6.1344045E-03
   11  -2.6251542E-02   6.1261030E-03
   12  -2.5027396E-02   6.1148687E-03
   13  -2.3805790E-02   6.1007016E-03
   14  -2.2587311E-02   6.0836017E-03
   15  -2.1372547E-02   6.0635455E-03
   16  -2.0162096E-02   6.0404396E-03
   17  -1.8956587E-02   6.0140966E-03
   18  -1.7756692E-02   5.9842358E-03
   19  -1.6563152E-02   5.9504827E-03
   20  -1.5376790E-02   5.9123694E-03
   21  -1.4198526E-02   5.8693339E-03
   22  -1.3029422E-02   5.8207215E-03
   23  -1.1870533E-02   5.7677683E-03
   24  -1.0722401E-02   5.7136023E-03
   25  -9.5849706E-03   5.6612572E-03
   26  -8.4576915E-03   5.6120178E-03
   27  -7.3399688E-03   5.5656991E-03
   28  -6.2312044E-03   5.5225751E-03
   29  -5.1306824E-03   5.4833793E-03
   30  -4.0375298E-03   5.4490260E-03
   31  -2.9506961E-03   5.4203120E-03
   32  -1.8689847E-03   5.3979024E-03
   33  -7.9108860E-04   5.3822718E-03
   34   2.8435513E-04   5.3731893E-03
   35   1.3585358E-03   5.3693371E-03
   36   2.4323011E-03   5.3684906E-03
```

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+----------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1     FULL VERSION  *Build date:Jun 29, 2018* |
|                                                                                                          |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116         |
|                                   Exe Time :14 May 2019       17:21:13                                   |
+----------------------------------------------------------------------------------------------------------+
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   36
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 D   13.43     1.3029E-02  1.113       65.36       57.35       65.36          V-C     3143.     -3.900       1.812
1.000      1.000      67.17       0.000       0.000     UG2_4_12_L_0
 23 D   13.44     1.1871E-02  2.597       62.98       59.25       62.98          V-C     3143.     -4.100       4.228
1.000      1.000      67.21       0.000       0.000     UG2_4_12_L_0
 24 D   13.42     1.0722E-02  4.081       60.47       61.15       60.47          V-C     3143.     -4.300       6.644
1.000      1.000      67.12       0.000       0.000     UG2_4_12_L_0
 25 D   7.204     9.5850E-03  5.565       26.96       63.05       35.65      PASSIVE     0.000     -4.500       9.060
1.000      1.000      36.02       0.000       0.000     UG3_4271_26346_L_0
 26 D   9.222     8.4577E-03  7.148       34.63       65.05       36.56      PASSIVE     0.000     -4.700       11.48
1.000      1.000      46.11       0.000       0.000     UG3_4271_26346_L_0
 27 D   11.24     7.3400E-03  8.732       42.31       67.05       42.31      PASSIVE     0.000     -4.900       13.89
1.000      1.000      56.20       0.000       0.000     UG3_4271_26346_L_0
 28 D   13.26     6.2312E-03  10.32       49.98       69.05       49.98      PASSIVE     0.000     -5.100       16.31
1.000      1.000      66.29       0.000       0.000     UG3_4271_26346_L_0
 29 D   13.36     5.1307E-03  11.90       48.06       71.05       48.06          V-C     3143.     -5.300       18.72
1.000      1.000      66.79       0.000       0.000     UG3_4271_26346_L_0
 30 D   13.35     4.0375E-03  13.48       45.63       73.05       45.63          V-C     3143.     -5.500       21.14
1.000      1.000      66.77       0.000       0.000     UG3_4271_26346_L_0
 31 D   13.36     2.9507E-03  15.07       43.22       75.05       43.22          V-C     3143.     -5.700       23.56
1.000      1.000      66.78       0.000       0.000     UG3_4271_26346_L_0
 32 D   12.78     1.8690E-03  16.55       37.91       76.95       42.20        UL-RL     9429.     -5.900       25.97
```

1.000	1.000	63.88	0.000	0.000	UG2_4_27610_L_0					
33 D	11.42	7.9109E-04	18.04	28.73	78.85	43.12	UL-RL	9429.	-6.100	28.39
1.000	1.000	57.12	0.000	0.000	UG2_4_27610_L_0					
34 D	10.08	-2.8436E-04	19.52	19.57	80.75	44.05	UL-RL	9429.	-6.300	30.81
1.000	1.000	50.38	0.000	0.000	UG2_4_27610_L_0					
35 D	8.727	-1.3585E-03	21.00	10.41	82.65	44.98	UL-RL	9429.	-6.500	33.22
1.000	1.000	43.63	0.000	0.000	UG2_4_27610_L_0					
36 D	3.689	-2.4323E-03	22.49	1.249	84.55	45.93	UL-RL	9429.	-6.700	35.64
1.000	1.000	36.89	0.000	0.000	UG2_4_27610_L_0					

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+----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*             |
|                                                                                                                      |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                     |
|                                   Exe Time :14 May 2019       17:21:13                                               |
+----------------------------------------------------------------------------------------------------------------------+
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   36
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  0.1222    -3.6080E-02   2.255      0.6111     2.255       6.169          ACTIVE   0.000     -0.1000      0.000
1.000       1.000     0.6111      0.000       0.000     UG0_2_10_L_0
   4 D  0.5639    -3.4851E-02   10.40      2.819      10.40       11.21          ACTIVE   0.000     -0.3000      0.000
1.000       1.000     2.819       0.000       0.000     UG0_2_10_L_0
   5 D  0.9145    -3.3621E-02   16.87      4.573      16.87       13.13          ACTIVE   0.000     -0.5000      0.000
1.000       1.000     4.573       0.000       0.000     UG0_2_10_L_0
   6 D  1.192     -3.2392E-02   21.99      5.959      21.99       14.63          ACTIVE   0.000     -0.7000      0.000
1.000       1.000     5.959       0.000       0.000     UG0_2_10_L_0
   7 D  1.439     -3.1163E-02   26.55      7.195      26.55       16.04          ACTIVE   0.000     -0.9000      0.000
1.000       1.000     7.195       0.000       0.000     UG0_2_10_L_0
   8 D  1.671     -2.9934E-02   30.83      8.355      30.83       17.44          ACTIVE   0.000      -1.100      0.000
1.000       1.000     8.355       0.000       0.000     UG0_2_10_L_0
   9 D  1.894     -2.8705E-02   34.95      9.471      34.95       18.84          ACTIVE   0.000      -1.300      0.000
1.000       1.000     9.471       0.000       0.000     UG0_2_10_L_0
  10 D  2.129     -2.7478E-02   39.28      10.64      39.28       20.26          ACTIVE   0.000      -1.500      0.000
1.000       1.000     10.64       0.000       0.000     UG0_2_10_L_0
  11 D  0.000     -2.6252E-02   43.19      0.000      43.19       22.67          ACTIVE   0.000      -1.700      0.000
1.000       1.000     0.000       0.000       0.000     UG2_4_12_L_0
  12 D  0.000     -2.5027E-02   47.26      0.000      47.26       24.34          ACTIVE   0.000      -1.900      0.000
1.000       1.000     0.000       0.000       0.000     UG2_4_12_L_0
  13 D  0.000     -2.3806E-02   51.29      0.000      51.29       26.03          ACTIVE   0.000      -2.100      0.000
1.000       1.000     0.000       0.000       0.000     UG2_4_12_L_0
  14 D  0.1584    -2.2587E-02   54.52      0.000      54.52       27.33          ACTIVE   0.000      -2.300     0.7919
1.000       1.000     0.7919      0.000       0.000     UG2_4_12_L_0
  15 D  0.4752    -2.1373E-02   56.93      0.000      56.93       28.22          ACTIVE   0.000      -2.500      2.376
1.000       1.000     2.376       0.000       0.000     UG2_4_12_L_0
  16 D  0.7919    -2.0162E-02   59.51      0.000      59.51       29.14          ACTIVE   0.000      -2.700      3.960
1.000       1.000     3.960       0.000       0.000     UG2_4_12_L_0
  17 D  1.109     -1.8957E-02   61.89      0.000      61.89       30.07          ACTIVE   0.000      -2.900      5.544
1.000       1.000     5.544       0.000       0.000     UG2_4_12_L_0
  18 D  1.426     -1.7757E-02   64.26      0.000      64.26       31.03          ACTIVE   0.000      -3.100      7.128
1.000       1.000     7.128       0.000       0.000     UG2_4_12_L_0
  19 D  1.742     -1.6563E-02   66.62      0.000      66.62       32.00          ACTIVE   0.000      -3.300      8.711
1.000       1.000     8.711       0.000       0.000     UG2_4_12_L_0
  20 D  2.059     -1.5377E-02   68.98      0.000      68.98       32.99          ACTIVE   0.000      -3.500      10.30
1.000       1.000     10.30       0.000       0.000     UG2_4_12_L_0
  21 D  2.376     -1.4199E-02   71.33      0.000      71.33       34.00          ACTIVE   0.000      -3.700      11.88
1.000       1.000     11.88       0.000       0.000     UG2_4_12_L_0
  22 D  2.693     -1.3029E-02   73.81      0.000      73.81       35.03          ACTIVE   0.000      -3.900      13.46
1.000       1.000     13.46       0.000       0.000     UG2_4_12_L_0
  23 D  3.009     -1.1871E-02   76.15      0.000      76.15       36.07          ACTIVE   0.000      -4.100      15.05
1.000       1.000     15.05       0.000       0.000     UG2_4_12_L_0
  24 D  3.326     -1.0722E-02   78.49      0.000      78.49       37.12          ACTIVE   0.000      -4.300      16.63
1.000       1.000     16.63       0.000       0.000     UG2_4_12_L_0
  25 D  8.606     -9.5850E-03   80.82      24.81      80.82       38.19          ACTIVE   0.000      -4.500      18.21
1.000       1.000     43.03       0.000       0.000     UG3_4271_26346_L_0
  26 D  9.072     -8.4577E-03   83.26      25.56      83.26       39.32          ACTIVE   0.000      -4.700      19.80
1.000       1.000     45.36       0.000       0.000     UG3_4271_26346_L_0
  27 D  9.538     -7.3400E-03   85.69      26.31      85.69       40.47          ACTIVE   0.000      -4.900      21.38
1.000       1.000     47.69       0.000       0.000     UG3_4271_26346_L_0
  28 D  9.993     -6.2312E-03   87.94      27.00      87.94       41.62          ACTIVE   0.000      -5.100      22.97
1.000       1.000     49.96       0.000       0.000     UG3_4271_26346_L_0
  29 D  10.44     -5.1307E-03   90.01      27.63      90.01       42.79          ACTIVE   0.000      -5.300      24.55
1.000       1.000     52.18       0.000       0.000     UG3_4271_26346_L_0
  30 D  10.88     -4.0375E-03   92.10      28.27      92.10       43.96          ACTIVE   0.000      -5.500      26.13
1.000       1.000     54.41       0.000       0.000     UG3_4271_26346_L_0
  31 D  11.33     -2.9507E-03   94.20      28.92      94.20       45.15          ACTIVE   0.000      -5.700      27.72
1.000       1.000     56.64       0.000       0.000     UG3_4271_26346_L_0
  32 D  11.59     -1.8690E-03   96.22      28.66      96.22       46.28           UL-RL   9429.      -5.900      29.30
```

1.000	1.000	57.96	0.000	0.000	UG2_4_27610_L_0					
33 D	14.17	-7.9109E-04	98.26	39.97	98.26	47.43	UL-RL	9429.	-6.100	30.89
1.000	1.000	70.85	0.000	0.000	UG2_4_27610_L_0					
34 D	16.25	2.8436E-04	100.3	48.77	100.3	49.82	UL-RL	9429.	-6.300	32.47
1.000	1.000	81.24	0.000	0.000	UG2_4_27610_L_0					
35 D	17.61	1.3585E-03	102.4	54.01	102.4	54.01	V-C	3143.	-6.500	34.05
1.000	1.000	88.06	0.000	0.000	UG2_4_27610_L_0					
36 D	9.418	2.4323E-03	104.4	58.54	104.4	58.54	V-C	3143.	-6.700	35.64
1.000	1.000	94.18	0.000	0.000	UG2_4_27610_L_0					

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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                              |
|                                  Exe Time :14 May 2019       17:21:13                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
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   35
C U R R E N T   T I M E   I S      2.0000

 WALL2D ELEMENT

   EL      TA          TB          MA          MB
-------------------------------------------------------------
    1 1.01124E-10-1.01124E-10 9.56391E-12 4.25473E-11
    2-9.34222E-10 9.34222E-10-1.26146E-10-7.56231E-11
    3-0.12223     0.12223     9.14753E-11-2.44459E-02
    4-0.68609     0.68609     2.44459E-02-0.16166
    5 -1.6006      1.6006     0.16166    -0.48178
    6 -2.7924      2.7924     0.48178     -1.0403
    7 -4.2314      4.2314      1.0403     -1.8865
    8 -5.9023      5.9023      1.8865     -3.0670
    9 -7.7965      7.7965      3.0670     -4.6263
   10 -9.9253      9.9253      4.6263     -6.6113
   11 -9.9253      9.9253      6.6113     -8.5964
   12 -9.9253      9.9253      8.5964     -10.581
   13 -9.9253      9.9253      10.581     -12.567
   14 -10.084      10.084      12.567     -14.583
   15 -10.559      10.559      14.583     -16.695
   16 -11.351      11.351      16.695     -18.965
   17 -12.460      12.460      18.965     -21.457
   18 -13.885      13.885      21.457     -24.234
   19 -15.627      15.627      24.234     -27.360
   20 -17.686      17.686      27.360     -30.897
   21 -20.062      20.062      30.897     -34.909
   22 -9.3199      9.3199      34.909     -36.773
   23  1.1133     -1.1133      36.773     -36.551
   24  11.211     -11.211      36.551     -34.308
   25  9.8095     -9.8095      34.308     -32.347
   26  9.9598     -9.9598      32.347     -30.355
   27  11.662     -11.662      30.355     -28.022
   28  14.927     -14.927      28.022     -25.037
   29  17.848     -17.848      25.037     -21.467
   30  20.321     -20.321      21.467     -17.403
   31  22.350     -22.350      17.403     -12.933
   32  23.534     -23.534      12.933     -8.2262
   33  20.787     -20.787      8.2262     -4.0688
   34  14.614     -14.614      4.0688     -1.1459
   35  5.7293     -5.7293      1.1459    -5.36460E-12
```

```
+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                        |
|                                  Exe Time :14 May 2019       17:21:13                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


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

                    S U M M A R Y

     STEP                                  NO. OF ITERATIONS

        1           CONVERGENCE :YES                      2
        2           CONVERGENCE :YES                      7


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

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

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                     |
|                                                                                                                               |
|                           NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                                      |
|                                 Exe Time :14 May 2019       17:21:14                                                          |
+-------------------------------------------------------------------------------------------------------------------------------+

                    ************************************************************
                    *                                                          *
                    *  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     0.00 [sec]
```

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                                   |
|                                    Exe Time :14 May 2019       17:21:14                                                       |
+-------------------------------------------------------------------------------------------------------------------------------+


INPUT FILE HAS BEEN GENERATED BY WALGEN PROGRAM


New Project


NO. OF NODAL POINTS (NUMNP) ..................    36
NO. OF COORDINATES  (NCOORD)..................     2
NO. OF NODE DOFS    (NDOF)....................     2
NO. OF EQUATIONS    (NEQ).....................    72
NO. OF CONSTRAINTS CARDS (NVINC)..............     0
NO. OF ELEMENT GROUPS (NEG)...................     3
NO. OF SOLUTION STEPS (NSTE)..................     2
NO. OF ELEMENT SETS ATTACHED TO SLAVE NODES ...    0
NO. OF RECORD FROM WALGEN ....................   100
NO. OF LONG NAMES (LASTNAME) .................    13
LENGTH UNIT CHOICE ...........................     3 (M   )
FORCE  UNIT CHOICE ...........................     3 (KN  )
MAX PORE PRESSURE TABLE LENGTH................     1
NO. OF ELEMENT GROUPS REQUIRING ADD. SLIP DOF .    0


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

 RELEVANT ITEMS UNITS

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

```
+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                             |
|                                    Exe Time :14 May 2019      17:21:14                                                  |
+-------------------------------------------------------------------------------------------------------------------------+
                   P R E P R O C E S S O R     D A T A

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

    1 : UNIT  m kN
    2 : TITLE New Project
    3 : DELTA 0.2
    4 : option param itemax 40
    5 : option control hinges 0 0.0001 0.001
    6 : WALL LeftWall_32 0 -6.7 0.3 -1
    7 : SOIL 0_L LeftWall_32 -6.7 0.3 2 0
    8 : SOIL 0_R LeftWall_32 -6.7 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_12_L_0 -1.7 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_26346_L_0 -4.5 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_27610_L_0 -5.7 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 -6.7 0.3 S275_115 0.19777 00 00 0
   39 : STRIP LeftWall_32 1 2 0.2 4.8 0 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=0.271 LeftWall_32
   44 : CHANGE UG0_2_10_L_0 U-KP=5.835 LeftWall_32
   45 : CHANGE UG0_2_10_L_0 D-KA=0.28 LeftWall_32
   46 : CHANGE UG0_2_10_L_0 D-KP=6.414 LeftWall_32
   47 : CHANGE UG2_4_12_L_0 U-FRICT=25 LeftWall_32
   48 : CHANGE UG2_4_12_L_0 D-FRICT=25 LeftWall_32
   49 : CHANGE UG2_4_12_L_0 U-KA=0.406 LeftWall_32
   50 : CHANGE UG2_4_12_L_0 U-KP=2.409 LeftWall_32
   51 : CHANGE UG2_4_12_L_0 D-KA=0.42 LeftWall_32
   52 : CHANGE UG2_4_12_L_0 D-KP=3.314 LeftWall_32
   53 : CHANGE UG3_4271_26346_L_0 U-FRICT=32 LeftWall_32
   54 : CHANGE UG3_4271_26346_L_0 D-FRICT=32 LeftWall_32
   55 : CHANGE UG3_4271_26346_L_0 U-KA=0.307 LeftWall_32
   56 : CHANGE UG3_4271_26346_L_0 U-KP=2.865 LeftWall_32
   57 : CHANGE UG3_4271_26346_L_0 D-KA=0.316 LeftWall_32
   58 : CHANGE UG3_4271_26346_L_0 D-KP=4.864 LeftWall_32
   59 : CHANGE UG2_4_27610_L_0 U-FRICT=25 LeftWall_32
   60 : CHANGE UG2_4_27610_L_0 D-FRICT=25 LeftWall_32
   61 : CHANGE UG2_4_27610_L_0 U-KA=0.392 LeftWall_32
   62 : CHANGE UG2_4_27610_L_0 U-KP=1.92 LeftWall_32
   63 : CHANGE UG2_4_27610_L_0 D-KA=0.416 LeftWall_32
   64 : CHANGE UG2_4_27610_L_0 D-KP=3.223 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_12_L_0 U-COHE=30 LeftWall_32
   70 : CHANGE UG2_4_12_L_0 U-ADHES=0 LeftWall_32
   71 : CHANGE UG2_4_12_L_0 D-COHE=30 LeftWall_32
   72 : CHANGE UG2_4_12_L_0 D-ADHES=0 LeftWall_32
   73 : CHANGE UG3_4271_26346_L_0 U-COHE=0 LeftWall_32
   74 : CHANGE UG3_4271_26346_L_0 U-ADHES=0 LeftWall_32
   75 : CHANGE UG3_4271_26346_L_0 D-COHE=0 LeftWall_32
   76 : CHANGE UG3_4271_26346_L_0 D-ADHES=0 LeftWall_32
```

```
 77 : CHANGE UG2_4_27610_L_0 U-COHE=30 LeftWall_32
 78 : CHANGE UG2_4_27610_L_0 U-ADHES=0 LeftWall_32
 79 : CHANGE UG2_4_27610_L_0 D-COHE=30 LeftWall_32
 80 : CHANGE UG2_4_27610_L_0 D-ADHES=0 LeftWall_32
 81 : SETWALL LeftWall_32
 82 : GEOM 0 0
 83 : SURCHARGE 0 0 0 0
 84 : WATER -2.2 0 -6.7 0 0
 85 : ENDSTEP
 86 : STEP Stage2_28513
 87 : CHANGE UG0_2_10_L_0 D-KA=0.271 LeftWall_32
 88 : CHANGE UG0_2_10_L_0 D-KP=5.879 LeftWall_32
 89 : CHANGE UG2_4_12_L_0 D-KA=0.406 LeftWall_32
 90 : CHANGE UG2_4_12_L_0 D-KP=3.222 LeftWall_32
 91 : CHANGE UG3_4271_26346_L_0 D-KA=0.307 LeftWall_32
 92 : CHANGE UG3_4271_26346_L_0 D-KP=4.845 LeftWall_32
 93 : CHANGE UG2_4_27610_L_0 D-KA=0.406 LeftWall_32
 94 : CHANGE UG2_4_27610_L_0 D-KP=3.222 LeftWall_32
 95 : SETWALL LeftWall_32
 96 : GEOM 0 -3.75
 97 : SURCHARGE 0 0 0 0
 98 : WATER -2.2 1.55 -6.7 0 0
 99 : ADD WallElement_New_28707
100 : ENDSTEP
```

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                                   |
|                                    Exe Time :14 May 2019      17:21:14                                                        |
+-------------------------------------------------------------------------------------------------------------------------------+
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	/

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                                   |
|                                    Exe Time :14 May 2019       17:21:14                                                       |
+-------------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  1

0_L                                                                 :
   5  36   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    2   0.2000     0.000     0.000     0.000     2.000
   12   12    2   0.2000     0.000     0.000     0.000     2.000
   13   13    2   0.2000     0.000     0.000     0.000     2.000
   14   14    2   0.2000     0.000     0.000     0.000     2.000
   15   15    2   0.2000     0.000     0.000     0.000     2.000
   16   16    2   0.2000     0.000     0.000     0.000     2.000
   17   17    2   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    3   0.2000     0.000     0.000     0.000     2.000
   26   26    3   0.2000     0.000     0.000     0.000     2.000
   27   27    3   0.2000     0.000     0.000     0.000     2.000
   28   28    3   0.2000     0.000     0.000     0.000     2.000
   29   29    3   0.2000     0.000     0.000     0.000     2.000
   30   30    3   0.2000     0.000     0.000     0.000     2.000
   31   31    3   0.2000     0.000     0.000     0.000     2.000
   32   32    4   0.2000     0.000     0.000     0.000     2.000
   33   33    4   0.2000     0.000     0.000     0.000     2.000
   34   34    4   0.2000     0.000     0.000     0.000     2.000
   35   35    4   0.2000     0.000     0.000     0.000     2.000
```

```
36   36    4   0.1000     0.000     0.000     0.000     2.000
```

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                                   |
|                                    Exe Time :14 May 2019       17:21:14                                                       |
+-------------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  2

0_R                                                                 :
   5  36   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    2   0.2000     0.000     0.000     0.000     1.000
   12   12    2   0.2000     0.000     0.000     0.000     1.000
   13   13    2   0.2000     0.000     0.000     0.000     1.000
   14   14    2   0.2000     0.000     0.000     0.000     1.000
   15   15    2   0.2000     0.000     0.000     0.000     1.000
   16   16    2   0.2000     0.000     0.000     0.000     1.000
   17   17    2   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    3   0.2000     0.000     0.000     0.000     1.000
   26   26    3   0.2000     0.000     0.000     0.000     1.000
   27   27    3   0.2000     0.000     0.000     0.000     1.000
   28   28    3   0.2000     0.000     0.000     0.000     1.000
   29   29    3   0.2000     0.000     0.000     0.000     1.000
   30   30    3   0.2000     0.000     0.000     0.000     1.000
   31   31    3   0.2000     0.000     0.000     0.000     1.000
   32   32    4   0.2000     0.000     0.000     0.000     1.000
   33   33    4   0.2000     0.000     0.000     0.000     1.000
   34   34    4   0.2000     0.000     0.000     0.000     1.000
   35   35    4   0.2000     0.000     0.000     0.000     1.000
```

```
  36   36    4   0.1000     0.000     0.000     0.000     1.000
```

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                                   |
|                                    Exe Time :14 May 2019       17:21:14                                                       |
+-------------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  3

WallElement_New_28707                                          :
   2  35   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
```

```
+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                             NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                              |
|                                   Exe Time :14 May 2019       17:21:14                                                  |
+-------------------------------------------------------------------------------------------------------------------------+


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

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+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                            NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                               |
|                                  Exe Time :14 May 2019       17:21:14                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
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 :14 May 2019       17:21:14                                                  |
+-------------------------------------------------------------------------------------------------------------------------+
L O A D     B A L A N C E

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

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


                      LOAD INPUT SECTION COMPLETED
```

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+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                             |
|                                    Exe Time :14 May 2019       17:21:14                                                 |
+-------------------------------------------------------------------------------------------------------------------------+


NO. OF LAYERS ..............................    4
NO. OF DATA PER LAYER.......................  100
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+-------------------------------------------------------------------------------------------------------------------------------+
|                    PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                                 |
|                                      Exe Time :14 May 2019      17:21:14                                                      |
+-------------------------------------------------------------------------------------------------------------------------------+

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;= 0.27100     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  5.8350     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;= 0.28000     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  6.4140     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;= -1.7000     (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;=  2.4090     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;= 0.42000     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.3140     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;= -4.5000     (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;=  2.8650     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)
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ITEM NO.  60&lt;D-KA    &gt;= 0.31600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  4.8640     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;= -5.7000     (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;= 0.39200     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  1.9200     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;= 0.41600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.2230     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;= 0.27100     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  5.8350     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-03 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;= 0.30000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.27100     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  5.8790     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-03 (BOTH WALLS)

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

ITEM NO.   1&lt;NAME    &gt;=  9.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -1.7000     (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;=  2.4090     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)
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 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;= -4.5000     (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;=  2.8650     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;= -5.7000     (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;= 0.39200     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  1.9200     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.40600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.2220     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)


DEFAULT WATER UNIT WEIGHT =  10.000
AVERAGED ON     8 VALUES
```

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+-------------------------------------------------------------------------------------------------------------------------------+
|                    PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                 NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                                |
|                                       Exe Time :14 May 2019       17:21:14                                                    |
+-------------------------------------------------------------------------------------------------------------------------------+

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                         -2.200       -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      -6.700        -6.700
WATER_BEHAVIOUR_FLAG (LINING OPT)      0.000         0.000
PORE_UPDATE_FLAG                       0.000         0.000
PORE_TAB. _FLAG (gt.0= use tabs)       0.000         0.000
lateral thrusts reduction elevatio     0.000         0.000
Downhill reduction factor for effe     0.000         0.000
Downhill reduction factor for pore     0.000         0.000
Uphill reduction factor for effect     0.000         0.000
Uphill reduction factor for pore p     0.000         0.000
SEISMIC HORIZONTAL ACCEL. Kh [g]       0.000         0.000
UPHILL VERTICAL ACCEL.  Kv_uh [g]      0.000         0.000
DOWNHILL VERTICAL ACCEL.Kv_dh [g]      0.000         0.000
UPHILL BETA ANGLE (SLOPE) [deg]        0.000         0.000
UPHILL DELTA/PHI RATIO                 0.000         0.000
DOWNHILL BETA ANGLE (SLOPE) [deg]      0.000         0.000
DOWNHILL DELTA/PHI RATIO               0.000         0.000
DYN.WATER BEHAVIOUR                    0.000         0.000
Excess pore pressure RATIO Ru          0.000         0.000
SEISMIC PRESSURE LOWER VALUE           0.000         0.000
SEISMIC PRESSURE UPPER VALUE           0.000         0.000
SEISMIC PRESSURE LOWER LEVEL           0.000         0.000
SEISMIC PRESSURE UPPER LEVEL           0.000         0.000

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


STEP  NO.     2
                                      LEFT WALL    RIGHT WALL
Y                                      0.000       -0.9990E+30
Z-PC                                   0.000         0.000
Z-EXCAVATION                          -3.750         0.000
Z-WATER_TABLE                         -2.200       -0.9990E+30
Q_AT_THE_FREE_FIELD_LEVEL              0.000         0.000
ZQ                                     0.000         0.000
DZW_OF_THE_WATER_TABLE                 1.550         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      -6.700        -6.700
WATER_BEHAVIOUR_FLAG (LINING OPT)      0.000         0.000
PORE_UPDATE_FLAG                       0.000         0.000
PORE_TAB. _FLAG (gt.0= use tabs)       0.000         0.000
lateral thrusts reduction elevatio     0.000         0.000
Downhill reduction factor for effe     0.000         0.000
Downhill reduction factor for pore     0.000         0.000
Uphill reduction factor for effect     0.000         0.000
Uphill reduction factor for pore p     0.000         0.000
SEISMIC HORIZONTAL ACCEL. Kh [g]       0.000         0.000
UPHILL VERTICAL ACCEL.  Kv_uh [g]      0.000         0.000
DOWNHILL VERTICAL ACCEL.Kv_dh [g]      0.000         0.000
UPHILL BETA ANGLE (SLOPE) [deg]        0.000         0.000
UPHILL DELTA/PHI RATIO                 0.000         0.000
DOWNHILL BETA ANGLE (SLOPE) [deg]      0.000         0.000
DOWNHILL DELTA/PHI RATIO               0.000         0.000
DYN.WATER BEHAVIOUR                    0.000         0.000
Excess pore pressure RATIO Ru          0.000         0.000
SEISMIC PRESSURE LOWER VALUE           0.000         0.000
SEISMIC PRESSURE UPPER VALUE           0.000         0.000
SEISMIC PRESSURE LOWER LEVEL           0.000         0.000
SEISMIC PRESSURE UPPER LEVEL           0.000         0.000

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

```
LEFT-HAND WALL

LOWER  LEVEL          -6.70000
UPPER  LEVEL           0.30000

RIGHT-HAND WALL

LOWER  LEVEL          -6.70000
UPPER  LEVEL           0.30000
```

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+-------------------------------------------------------------------------------------------------------------------------+
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                            NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                               |
|                                  Exe Time :14 May 2019       17:21:14                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
 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)          0.200000000000000
 FOUNDATION WIDTH    (B)            4.80000000000000
 ZETA-F.....                       0.000000000000000E+000
 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        2523

 NO. OF D.P.W  FOR THIS AREA       4261
 MAX NO. OF D.P.W. AVAILABLE      81920
 ** MAX NO OF ITERATIONS SET TO          40

ITER     0 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6874.     RIMNOR= 0.000
           RENORM=0.1972E-28 REMNOR= 0.000     RATIO =0.5356E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 17.60     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6874.     RDR   = 0.000
           RATIOT=0.5356E-16 RATIOR= 0.000
           MAX UN=0.1776E-14 IEQ=    55 NODE     28 DOF   1  Y-DISPL.F
           MIN UN=-.3553E-14 IEQ=    65 NODE     33 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     1 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6874.     RIMNOR= 0.000
           RENORM=0.1972E-28 REMNOR= 0.000     RATIO =0.5356E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 17.60     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6874.     RDR   = 0.000
           RATIOT=0.5356E-16 RATIOR= 0.000
           MAX UN=0.1776E-14 IEQ=    55 NODE     28 DOF   1  Y-DISPL.F
           MIN UN=-.3553E-14 IEQ=    65 NODE     33 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6874.     RIMNOR= 0.000
           RENORM=0.1972E-28 REMNOR= 0.000     RATIO =0.5356E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 17.60     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6874.     RDR   = 0.000
           RATIOT=0.5356E-16 RATIOR= 0.000
           MAX UN=0.1776E-14 IEQ=    55 NODE     28 DOF   1  Y-DISPL.F
           MIN UN=-.3553E-14 IEQ=    65 NODE     33 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0
```

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+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                  |
|                                                                                                                               |
|                            NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                                     |
|                                  Exe Time :14 May 2019       17:21:14                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
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
```

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+----------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                   |
|                                                                                                                            |
|                             NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                                 |
|                                   Exe Time :14 May 2019        17:21:14                                                    |
+----------------------------------------------------------------------------------------------------------------------------+
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   36
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  1.234      0.000      1.850       6.169       1.850       6.169            V-C   3143.     -0.1000       0.000
1.000       1.000      6.169       0.000       0.000     UG0_2_10_L_0
   4 D  2.242      0.000      5.550       11.21       5.550       11.21            V-C   3143.     -0.3000       0.000
1.000       1.000      11.21       0.000       0.000     UG0_2_10_L_0
   5 D  2.627      0.000      9.250       13.13       9.250       13.13            V-C   3143.     -0.5000       0.000
1.000       1.000      13.13       0.000       0.000     UG0_2_10_L_0
   6 D  2.925      0.000      12.95       14.63       12.95       14.63            V-C   3143.     -0.7000       0.000
1.000       1.000      14.63       0.000       0.000     UG0_2_10_L_0
   7 D  3.207      0.000      16.65       16.04       16.65       16.04            V-C   3143.     -0.9000       0.000
1.000       1.000      16.04       0.000       0.000     UG0_2_10_L_0
   8 D  3.487      0.000      20.35       17.44       20.35       17.44            V-C   3143.      -1.100       0.000
1.000       1.000      17.44       0.000       0.000     UG0_2_10_L_0
   9 D  3.768      0.000      24.05       18.84       24.05       18.84            V-C   3143.      -1.300       0.000
1.000       1.000      18.84       0.000       0.000     UG0_2_10_L_0
  10 D  4.052      0.000      27.75       20.26       27.75       20.26            V-C   3143.      -1.500       0.000
1.000       1.000      20.26       0.000       0.000     UG0_2_10_L_0
  11 D  4.533      0.000      31.45       22.67       31.45       22.67            V-C   3143.      -1.700       0.000
1.000       1.000      22.67       0.000       0.000     UG2_4_12_L_0
  12 D  4.868      0.000      35.35       24.34       35.35       24.34            V-C   3143.      -1.900       0.000
1.000       1.000      24.34       0.000       0.000     UG2_4_12_L_0
  13 D  5.207      0.000      39.25       26.03       39.25       26.03            V-C   3143.      -2.100       0.000
1.000       1.000      26.03       0.000       0.000     UG2_4_12_L_0
  14 D  5.643    1.4129E-18   42.15       27.22       42.15       27.22            V-C   3143.      -2.300       1.000
1.000       1.000      28.22       0.000       0.000     UG2_4_12_L_0
  15 D  6.178      0.000      44.05       27.89       44.05       27.89            V-C   3143.      -2.500       3.000
1.000       1.000      30.89       0.000       0.000     UG2_4_12_L_0
  16 D  6.717      0.000      45.95       28.58       45.95       28.58            V-C   3143.      -2.700       5.000
1.000       1.000      33.58       0.000       0.000     UG2_4_12_L_0
  17 D  7.260      0.000      47.85       29.30       47.85       29.30            V-C   3143.      -2.900       7.000
1.000       1.000      36.30       0.000       0.000     UG2_4_12_L_0
  18 D  7.806      0.000      49.75       30.03       49.75       30.03            V-C   3143.      -3.100       9.000
1.000       1.000      39.03       0.000       0.000     UG2_4_12_L_0
  19 D  8.357      0.000      51.65       30.78       51.65       30.78            V-C   3143.      -3.300       11.00
1.000       1.000      41.78       0.000       0.000     UG2_4_12_L_0
  20 D  8.911      0.000      53.55       31.56       53.55       31.56            V-C   3143.      -3.500       13.00
1.000       1.000      44.56       0.000       0.000     UG2_4_12_L_0
  21 D  9.469      0.000      55.45       32.34       55.45       32.34            V-C   3143.      -3.700       15.00
1.000       1.000      47.34       0.000       0.000     UG2_4_12_L_0
  22 D  10.03   -2.8259E-18   57.35       33.15       57.35       33.15            V-C   3143.      -3.900       17.00
1.000       1.000      50.15       0.000       0.000     UG2_4_12_L_0
  23 D  10.59      0.000      59.25       33.97       59.25       33.97            V-C   3143.      -4.100       19.00
1.000       1.000      52.97       0.000       0.000     UG2_4_12_L_0
  24 D  11.16      0.000      61.15       34.80       61.15       34.80            V-C   3143.      -4.300       21.00
1.000       1.000      55.80       0.000       0.000     UG2_4_12_L_0
  25 D  11.73      0.000      63.05       35.65       63.05       35.65            V-C   3143.      -4.500       23.00
1.000       1.000      58.65       0.000       0.000     UG3_4271_26346_L_0
  26 D  12.31      0.000      65.05       36.56       65.05       36.56            V-C   3143.      -4.700       25.00
1.000       1.000      61.56       0.000       0.000     UG3_4271_26346_L_0
  27 D  12.90      0.000      67.05       37.49       67.05       37.49            V-C   3143.      -4.900       27.00
1.000       1.000      64.49       0.000       0.000     UG3_4271_26346_L_0
  28 D  13.48   -2.8259E-18   69.05       38.42       69.05       38.42            V-C   3143.      -5.100       29.00
1.000       1.000      67.42       0.000       0.000     UG3_4271_26346_L_0
  29 D  14.07      0.000      71.05       39.36       71.05       39.36            V-C   3143.      -5.300       31.00
1.000       1.000      70.36       0.000       0.000     UG3_4271_26346_L_0
  30 D  14.66      0.000      73.05       40.32       73.05       40.32            V-C   3143.      -5.500       33.00
1.000       1.000      73.32       0.000       0.000     UG3_4271_26346_L_0
  31 D  15.26      0.000      75.05       41.28       75.05       41.28            V-C   3143.      -5.700       35.00
1.000       1.000      76.28       0.000       0.000     UG3_4271_26346_L_0
  32 D  15.84      0.000      76.95       42.20       76.95       42.20            V-C   3143.      -5.900       37.00
```

1.000	1.000	79.20	0.000	0.000	UG2_4_27610_L_0					
33 D	16.42	5.6518E-18	78.85	43.12	78.85	43.12	V-C	3143.	-6.100	39.00
1.000	1.000	82.12	0.000	0.000	UG2_4_27610_L_0					
34 D	17.01	0.000	80.75	44.05	80.75	44.05	V-C	3143.	-6.300	41.00
1.000	1.000	85.05	0.000	0.000	UG2_4_27610_L_0					
35 D	17.60	0.000	82.65	44.98	82.65	44.98	V-C	3143.	-6.500	43.00
1.000	1.000	87.98	0.000	0.000	UG2_4_27610_L_0					
36 D	9.093	0.000	84.55	45.93	84.55	45.93	V-C	3143.	-6.700	45.00
1.000	1.000	90.93	0.000	0.000	UG2_4_27610_L_0					

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|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*      |
|                                                                                                                |
|                          NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                       |
|                                Exe Time :14 May 2019        17:21:14                                          |
+----------------------------------------------------------------------------------------------------------------+
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   36
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   1.234      0.000     2.255       6.169       2.255       6.169           V-C    3143.    -0.1000       0.000
1.000      1.000      6.169      0.000       0.000     UG0_2_10_L_0
   4 D   2.242      0.000     10.40       11.21       10.40       11.21           V-C    3143.    -0.3000       0.000
1.000      1.000      11.21      0.000       0.000     UG0_2_10_L_0
   5 D   2.627      0.000     16.87       13.13       16.87       13.13           V-C    3143.    -0.5000       0.000
1.000      1.000      13.13      0.000       0.000     UG0_2_10_L_0
   6 D   2.925      0.000     21.99       14.63       21.99       14.63           V-C    3143.    -0.7000       0.000
1.000      1.000      14.63      0.000       0.000     UG0_2_10_L_0
   7 D   3.207      0.000     26.55       16.04       26.55       16.04           V-C    3143.    -0.9000       0.000
1.000      1.000      16.04      0.000       0.000     UG0_2_10_L_0
   8 D   3.487      0.000     30.83       17.44       30.83       17.44           V-C    3143.     -1.100       0.000
1.000      1.000      17.44      0.000       0.000     UG0_2_10_L_0
   9 D   3.768      0.000     34.95       18.84       34.95       18.84           V-C    3143.     -1.300       0.000
1.000      1.000      18.84      0.000       0.000     UG0_2_10_L_0
  10 D   4.052      0.000     39.28       20.26       39.28       20.26           V-C    3143.     -1.500       0.000
1.000      1.000      20.26      0.000       0.000     UG0_2_10_L_0
  11 D   4.533      0.000     43.19       22.67       43.19       22.67           V-C    3143.     -1.700       0.000
1.000      1.000      22.67      0.000       0.000     UG2_4_12_L_0
  12 D   4.868      0.000     47.26       24.34       47.26       24.34           V-C    3143.     -1.900       0.000
1.000      1.000      24.34      0.000       0.000     UG2_4_12_L_0
  13 D   5.207      0.000     51.29       26.03       51.29       26.03           V-C    3143.     -2.100       0.000
1.000      1.000      26.03      0.000       0.000     UG2_4_12_L_0
  14 D   5.643   -1.4129E-18  54.31       27.22       54.31       27.22           V-C    3143.     -2.300       1.000
1.000      1.000      28.22      0.000       0.000     UG2_4_12_L_0
  15 D   6.178      0.000     56.31       27.89       56.31       27.89           V-C    3143.     -2.500       3.000
1.000      1.000      30.89      0.000       0.000     UG2_4_12_L_0
  16 D   6.717      0.000     58.47       28.58       58.47       28.58           V-C    3143.     -2.700       5.000
1.000      1.000      33.58      0.000       0.000     UG2_4_12_L_0
  17 D   7.260      0.000     60.43       29.30       60.43       29.30           V-C    3143.     -2.900       7.000
1.000      1.000      36.30      0.000       0.000     UG2_4_12_L_0
  18 D   7.806      0.000     62.38       30.03       62.38       30.03           V-C    3143.     -3.100       9.000
1.000      1.000      39.03      0.000       0.000     UG2_4_12_L_0
  19 D   8.357      0.000     64.33       30.78       64.33       30.78           V-C    3143.     -3.300       11.00
1.000      1.000      41.78      0.000       0.000     UG2_4_12_L_0
  20 D   8.911      0.000     66.27       31.56       66.27       31.56           V-C    3143.     -3.500       13.00
1.000      1.000      44.56      0.000       0.000     UG2_4_12_L_0
  21 D   9.469      0.000     68.21       32.34       68.21       32.34           V-C    3143.     -3.700       15.00
1.000      1.000      47.34      0.000       0.000     UG2_4_12_L_0
  22 D   10.03   2.8259E-18   70.27       33.15       70.27       33.15           V-C    3143.     -3.900       17.00
1.000      1.000      50.15      0.000       0.000     UG2_4_12_L_0
  23 D   10.59      0.000     72.19       33.97       72.19       33.97           V-C    3143.     -4.100       19.00
1.000      1.000      52.97      0.000       0.000     UG2_4_12_L_0
  24 D   11.16      0.000     74.12       34.80       74.12       34.80           V-C    3143.     -4.300       21.00
1.000      1.000      55.80      0.000       0.000     UG2_4_12_L_0
  25 D   11.73      0.000     76.04       35.65       76.04       35.65           V-C    3143.     -4.500       23.00
1.000      1.000      58.65      0.000       0.000     UG3_4271_26346_L_0
  26 D   12.31      0.000     78.06       36.56       78.06       36.56           V-C    3143.     -4.700       25.00
1.000      1.000      61.56      0.000       0.000     UG3_4271_26346_L_0
  27 D   12.90      0.000     80.08       37.49       80.08       37.49           V-C    3143.     -4.900       27.00
1.000      1.000      64.49      0.000       0.000     UG3_4271_26346_L_0
  28 D   13.48   2.8259E-18   81.90       38.42       81.90       38.42           V-C    3143.     -5.100       29.00
1.000      1.000      67.42      0.000       0.000     UG3_4271_26346_L_0
  29 D   14.07      0.000     83.56       39.36       83.56       39.36           V-C    3143.     -5.300       31.00
1.000      1.000      70.36      0.000       0.000     UG3_4271_26346_L_0
  30 D   14.66      0.000     85.23       40.32       85.23       40.32           V-C    3143.     -5.500       33.00
1.000      1.000      73.32      0.000       0.000     UG3_4271_26346_L_0
  31 D   15.26      0.000     86.92       41.28       86.92       41.28           V-C    3143.     -5.700       35.00
1.000      1.000      76.28      0.000       0.000     UG3_4271_26346_L_0
  32 D   15.84      0.000     88.52       42.20       88.52       42.20           V-C    3143.     -5.900       37.00
```

1.000	1.000	79.20	0.000	0.000	UG2_4_27610_L_0					
33 D	16.42	-5.6518E-18	90.15	43.12	90.15	43.12	V-C	3143.	-6.100	39.00
1.000	1.000	82.12	0.000	0.000	UG2_4_27610_L_0					
34 D	17.01	0.000	91.78	44.05	91.78	44.05	V-C	3143.	-6.300	41.00
1.000	1.000	85.05	0.000	0.000	UG2_4_27610_L_0					
35 D	17.60	0.000	93.42	44.98	93.42	44.98	V-C	3143.	-6.500	43.00
1.000	1.000	87.98	0.000	0.000	UG2_4_27610_L_0					
36 D	9.093	0.000	95.08	45.93	95.08	45.93	V-C	3143.	-6.700	45.00
1.000	1.000	90.93	0.000	0.000	UG2_4_27610_L_0					

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+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                             |
|                                    Exe Time :14 May 2019       17:21:14                                                 |
+-------------------------------------------------------------------------------------------------------------------------+
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   35
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= 3963.     RIMNOR= 0.000
           RENORM= 1199.     REMNOR= 0.000     RATIO =0.5499     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 16.76     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 3963.     RDR   = 0.000
           RATIOT=0.5499     RATIOR= 0.000
           MAX UN= 0.000     IEQ=    72 NODE     36 DOF   2   X-ROT. F
           MIN UN=-9.176     IEQ=    41 NODE     21 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM= 3963.     RIMNOR= 0.000
           RENORM= 62.17     REMNOR=0.4076E-20 RATIO =0.1252     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 16.76     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 3963.     RDR   = 0.000
           RATIOT=0.1252     RATIOR= 0.000
           MAX UN=0.2280E-09 IEQ=    33 NODE     17 DOF   1  Y-DISPL.F
           MIN UN=-2.909     IEQ=     5 NODE      3 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     3 RNORM = 0.000     RMNORM= 0.000
           RINORM= 3963.     RIMNOR= 0.000
           RENORM= 47.35     REMNOR=0.5188E-20 RATIO =0.1093     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 16.76     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 3963.     RDR   = 0.000
           RATIOT=0.1093     RATIOR= 0.000
           MAX UN=0.2712E-09 IEQ=    11 NODE      6 DOF   1  Y-DISPL.F
           MIN UN=-4.092     IEQ=    21 NODE     11 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     4 RNORM = 0.000     RMNORM= 0.000
           RINORM= 3963.     RIMNOR= 0.000
           RENORM= 55.12     REMNOR=0.1517E-19 RATIO =0.1179     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 16.76     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 3963.     RDR   = 0.000
           RATIOT=0.1179     RATIOR= 0.000
           MAX UN=0.9253E-01 IEQ=    71 NODE     36 DOF   1  Y-DISPL.F
           MIN UN=-4.950     IEQ=    37 NODE     19 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     5 RNORM = 0.000     RMNORM= 0.000
           RINORM= 3963.     RIMNOR= 0.000
           RENORM= 30.05     REMNOR=0.4740E-19 RATIO =0.8707E-01 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 16.76     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 3963.     RDR   = 0.000
           RATIOT=0.8707E-01 RATIOR= 0.000
           MAX UN= 1.679     IEQ=    69 NODE     35 DOF   1  Y-DISPL.F
           MIN UN=-4.123     IEQ=    59 NODE     30 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     6 RNORM = 0.000     RMNORM= 0.000
           RINORM= 3963.     RIMNOR= 0.000
           RENORM=0.3249E-01 REMNOR=0.3016E-19 RATIO =0.2863E-02 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 16.76     RMMAX = 0.000
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```
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 3963.     RDR   = 0.000
            RATIOT=0.2863E-02 RATIOR= 0.000
            MAX UN=0.1509     IEQ=    67 NODE     34 DOF   1  Y-DISPL.F
            MIN UN=-.9853E-01 IEQ=    55 NODE     28 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER      7 RNORM = 0.000     RMNORM= 0.000
            RINORM= 3963.     RIMNOR= 0.000
            RENORM=0.1165E-16 REMNOR=0.2499E-19 RATIO =0.5421E-10 TOLER =0.1000E-03      CONVERGED !
            RFMAX = 16.76     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 3963.     RDR   = 0.000
            RATIOT=0.5421E-10 RATIOR= 0.000
            MAX UN=0.1752E-08 IEQ=     7 NODE      4 DOF   1  Y-DISPL.F
            MIN UN=-.2045E-08 IEQ=     5 NODE      3 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0
```

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+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                                   |
|                                    Exe Time :14 May 2019       17:21:14                                                       |
+-------------------------------------------------------------------------------------------------------------------------------+
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  -3.8539415E-02   6.1476642E-03
    2  -3.7309882E-02   6.1476642E-03
    3  -3.6080349E-02   6.1476642E-03
    4  -3.4850817E-02   6.1476462E-03
    5  -3.3621299E-02   6.1475087E-03
    6  -3.2391836E-02   6.1470334E-03
    7  -3.1162528E-02   6.1459090E-03
    8  -2.9933542E-02   6.1437469E-03
    9  -2.8705130E-02   6.1400877E-03
   10  -2.7477642E-02   6.1344045E-03
   11  -2.6251542E-02   6.1261030E-03
   12  -2.5027396E-02   6.1148687E-03
   13  -2.3805790E-02   6.1007016E-03
   14  -2.2587311E-02   6.0836017E-03
   15  -2.1372547E-02   6.0635455E-03
   16  -2.0162096E-02   6.0404396E-03
   17  -1.8956587E-02   6.0140966E-03
   18  -1.7756692E-02   5.9842358E-03
   19  -1.6563152E-02   5.9504827E-03
   20  -1.5376790E-02   5.9123694E-03
   21  -1.4198526E-02   5.8693339E-03
   22  -1.3029422E-02   5.8207215E-03
   23  -1.1870533E-02   5.7677683E-03
   24  -1.0722401E-02   5.7136023E-03
   25  -9.5849706E-03   5.6612572E-03
   26  -8.4576915E-03   5.6120178E-03
   27  -7.3399688E-03   5.5656991E-03
   28  -6.2312044E-03   5.5225751E-03
   29  -5.1306824E-03   5.4833793E-03
   30  -4.0375298E-03   5.4490260E-03
   31  -2.9506961E-03   5.4203120E-03
   32  -1.8689847E-03   5.3979024E-03
   33  -7.9108860E-04   5.3822718E-03
   34   2.8435513E-04   5.3731893E-03
   35   1.3585358E-03   5.3693371E-03
   36   2.4323011E-03   5.3684906E-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 :14 May 2019       17:21:14                                    |
+-----------------------------------------------------------------------------------------------------------+
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   36
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 D  13.43    1.3029E-02  1.113      65.36      57.35      65.36          V-C   3143.     -3.900      1.812
1.000      1.000     67.17      0.000      0.000     UG2_4_12_L_0
 23 D  13.44    1.1871E-02  2.597      62.98      59.25      62.98          V-C   3143.     -4.100      4.228
1.000      1.000     67.21      0.000      0.000     UG2_4_12_L_0
 24 D  13.42    1.0722E-02  4.081      60.47      61.15      60.47          V-C   3143.     -4.300      6.644
1.000      1.000     67.12      0.000      0.000     UG2_4_12_L_0
 25 D  7.204    9.5850E-03  5.565      26.96      63.05      35.65      PASSIVE   0.000     -4.500      9.060
1.000      1.000     36.02      0.000      0.000     UG3_4271_26346_L_0
 26 D  9.222    8.4577E-03  7.148      34.63      65.05      36.56      PASSIVE   0.000     -4.700      11.48
1.000      1.000     46.11      0.000      0.000     UG3_4271_26346_L_0
 27 D  11.24    7.3400E-03  8.732      42.31      67.05      42.31      PASSIVE   0.000     -4.900      13.89
1.000      1.000     56.20      0.000      0.000     UG3_4271_26346_L_0
 28 D  13.26    6.2312E-03  10.32      49.98      69.05      49.98      PASSIVE   0.000     -5.100      16.31
1.000      1.000     66.29      0.000      0.000     UG3_4271_26346_L_0
 29 D  13.36    5.1307E-03  11.90      48.06      71.05      48.06          V-C   3143.     -5.300      18.72
1.000      1.000     66.79      0.000      0.000     UG3_4271_26346_L_0
 30 D  13.35    4.0375E-03  13.48      45.63      73.05      45.63          V-C   3143.     -5.500      21.14
1.000      1.000     66.77      0.000      0.000     UG3_4271_26346_L_0
 31 D  13.36    2.9507E-03  15.07      43.22      75.05      43.22          V-C   3143.     -5.700      23.56
1.000      1.000     66.78      0.000      0.000     UG3_4271_26346_L_0
 32 D  12.78    1.8690E-03  16.55      37.91      76.95      42.20        UL-RL   9429.     -5.900      25.97
```

1.000	1.000	63.88	0.000	0.000	UG2_4_27610_L_0					
33 D	11.42	7.9109E-04	18.04	28.73	78.85	43.12	UL-RL	9429.	-6.100	28.39
1.000	1.000	57.12	0.000	0.000	UG2_4_27610_L_0					
34 D	10.08	-2.8436E-04	19.52	19.57	80.75	44.05	UL-RL	9429.	-6.300	30.81
1.000	1.000	50.38	0.000	0.000	UG2_4_27610_L_0					
35 D	8.727	-1.3585E-03	21.00	10.41	82.65	44.98	UL-RL	9429.	-6.500	33.22
1.000	1.000	43.63	0.000	0.000	UG2_4_27610_L_0					
36 D	3.689	-2.4323E-03	22.49	1.249	84.55	45.93	UL-RL	9429.	-6.700	35.64
1.000	1.000	36.89	0.000	0.000	UG2_4_27610_L_0					

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+--------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                          |
|                             NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                               |
|                                   Exe Time :14 May 2019       17:21:14                                                  |
+--------------------------------------------------------------------------------------------------------------------------+
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   36
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  0.1222   -3.6080E-02   2.255     0.6111     2.255       6.169       ACTIVE   0.000    -0.1000      0.000
1.000      1.000    0.6111      0.000       0.000     UG0_2_10_L_0
   4 D  0.5639   -3.4851E-02   10.40      2.819     10.40       11.21       ACTIVE   0.000    -0.3000      0.000
1.000      1.000     2.819      0.000       0.000     UG0_2_10_L_0
   5 D  0.9145   -3.3621E-02   16.87      4.573     16.87       13.13       ACTIVE   0.000    -0.5000      0.000
1.000      1.000     4.573      0.000       0.000     UG0_2_10_L_0
   6 D  1.192    -3.2392E-02   21.99      5.959     21.99       14.63       ACTIVE   0.000    -0.7000      0.000
1.000      1.000     5.959      0.000       0.000     UG0_2_10_L_0
   7 D  1.439    -3.1163E-02   26.55      7.195     26.55       16.04       ACTIVE   0.000    -0.9000      0.000
1.000      1.000     7.195      0.000       0.000     UG0_2_10_L_0
   8 D  1.671    -2.9934E-02   30.83      8.355     30.83       17.44       ACTIVE   0.000     -1.100      0.000
1.000      1.000     8.355      0.000       0.000     UG0_2_10_L_0
   9 D  1.894    -2.8705E-02   34.95      9.471     34.95       18.84       ACTIVE   0.000     -1.300      0.000
1.000      1.000     9.471      0.000       0.000     UG0_2_10_L_0
  10 D  2.129    -2.7478E-02   39.28      10.64     39.28       20.26       ACTIVE   0.000     -1.500      0.000
1.000      1.000     10.64      0.000       0.000     UG0_2_10_L_0
  11 D  0.000    -2.6252E-02   43.19      0.000     43.19       22.67       ACTIVE   0.000     -1.700      0.000
1.000      1.000     0.000      0.000       0.000     UG2_4_12_L_0
  12 D  0.000    -2.5027E-02   47.26      0.000     47.26       24.34       ACTIVE   0.000     -1.900      0.000
1.000      1.000     0.000      0.000       0.000     UG2_4_12_L_0
  13 D  0.000    -2.3806E-02   51.29      0.000     51.29       26.03       ACTIVE   0.000     -2.100      0.000
1.000      1.000     0.000      0.000       0.000     UG2_4_12_L_0
  14 D  0.1584   -2.2587E-02   54.52      0.000     54.52       27.33       ACTIVE   0.000     -2.300     0.7919
1.000      1.000    0.7919      0.000       0.000     UG2_4_12_L_0
  15 D  0.4752   -2.1373E-02   56.93      0.000     56.93       28.22       ACTIVE   0.000     -2.500      2.376
1.000      1.000     2.376      0.000       0.000     UG2_4_12_L_0
  16 D  0.7919   -2.0162E-02   59.51      0.000     59.51       29.14       ACTIVE   0.000     -2.700      3.960
1.000      1.000     3.960      0.000       0.000     UG2_4_12_L_0
  17 D  1.109    -1.8957E-02   61.89      0.000     61.89       30.07       ACTIVE   0.000     -2.900      5.544
1.000      1.000     5.544      0.000       0.000     UG2_4_12_L_0
  18 D  1.426    -1.7757E-02   64.26      0.000     64.26       31.03       ACTIVE   0.000     -3.100      7.128
1.000      1.000     7.128      0.000       0.000     UG2_4_12_L_0
  19 D  1.742    -1.6563E-02   66.62      0.000     66.62       32.00       ACTIVE   0.000     -3.300      8.711
1.000      1.000     8.711      0.000       0.000     UG2_4_12_L_0
  20 D  2.059    -1.5377E-02   68.98      0.000     68.98       32.99       ACTIVE   0.000     -3.500      10.30
1.000      1.000     10.30      0.000       0.000     UG2_4_12_L_0
  21 D  2.376    -1.4199E-02   71.33      0.000     71.33       34.00       ACTIVE   0.000     -3.700      11.88
1.000      1.000     11.88      0.000       0.000     UG2_4_12_L_0
  22 D  2.693    -1.3029E-02   73.81      0.000     73.81       35.03       ACTIVE   0.000     -3.900      13.46
1.000      1.000     13.46      0.000       0.000     UG2_4_12_L_0
  23 D  3.009    -1.1871E-02   76.15      0.000     76.15       36.07       ACTIVE   0.000     -4.100      15.05
1.000      1.000     15.05      0.000       0.000     UG2_4_12_L_0
  24 D  3.326    -1.0722E-02   78.49      0.000     78.49       37.12       ACTIVE   0.000     -4.300      16.63
1.000      1.000     16.63      0.000       0.000     UG2_4_12_L_0
  25 D  8.606    -9.5850E-03   80.82      24.81     80.82       38.19       ACTIVE   0.000     -4.500      18.21
1.000      1.000     43.03      0.000       0.000     UG3_4271_26346_L_0
  26 D  9.072    -8.4577E-03   83.26      25.56     83.26       39.32       ACTIVE   0.000     -4.700      19.80
1.000      1.000     45.36      0.000       0.000     UG3_4271_26346_L_0
  27 D  9.538    -7.3400E-03   85.69      26.31     85.69       40.47       ACTIVE   0.000     -4.900      21.38
1.000      1.000     47.69      0.000       0.000     UG3_4271_26346_L_0
  28 D  9.993    -6.2312E-03   87.94      27.00     87.94       41.62       ACTIVE   0.000     -5.100      22.97
1.000      1.000     49.96      0.000       0.000     UG3_4271_26346_L_0
  29 D  10.44    -5.1307E-03   90.01      27.63     90.01       42.79       ACTIVE   0.000     -5.300      24.55
1.000      1.000     52.18      0.000       0.000     UG3_4271_26346_L_0
  30 D  10.88    -4.0375E-03   92.10      28.27     92.10       43.96       ACTIVE   0.000     -5.500      26.13
1.000      1.000     54.41      0.000       0.000     UG3_4271_26346_L_0
  31 D  11.33    -2.9507E-03   94.20      28.92     94.20       45.15       ACTIVE   0.000     -5.700      27.72
1.000      1.000     56.64      0.000       0.000     UG3_4271_26346_L_0
  32 D  11.59    -1.8690E-03   96.22      28.66     96.22       46.28        UL-RL   9429.     -5.900      29.30
```

1.000	1.000	57.96	0.000	0.000	UG2_4_27610_L_0					
33 D	14.17	-7.9109E-04	98.26	39.97	98.26	47.43	UL-RL	9429.	-6.100	30.89
1.000	1.000	70.85	0.000	0.000	UG2_4_27610_L_0					
34 D	16.25	2.8436E-04	100.3	48.77	100.3	49.82	UL-RL	9429.	-6.300	32.47
1.000	1.000	81.24	0.000	0.000	UG2_4_27610_L_0					
35 D	17.61	1.3585E-03	102.4	54.01	102.4	54.01	V-C	3143.	-6.500	34.05
1.000	1.000	88.06	0.000	0.000	UG2_4_27610_L_0					
36 D	9.418	2.4323E-03	104.4	58.54	104.4	58.54	V-C	3143.	-6.700	35.64
1.000	1.000	94.18	0.000	0.000	UG2_4_27610_L_0					

```
+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                             |
|                                    Exe Time :14 May 2019       17:21:14                                                 |
+-------------------------------------------------------------------------------------------------------------------------+
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   35
C U R R E N T   T I M E   I S      2.0000

 WALL2D ELEMENT

   EL      TA          TB          MA          MB
-------------------------------------------------------------
    1 1.01124E-10-1.01124E-10 9.56391E-12 4.25473E-11
    2-9.34222E-10 9.34222E-10-1.26146E-10-7.56231E-11
    3-0.12223     0.12223     9.14753E-11-2.44459E-02
    4-0.68609     0.68609     2.44459E-02-0.16166
    5 -1.6006      1.6006     0.16166    -0.48178
    6 -2.7924      2.7924     0.48178     -1.0403
    7 -4.2314      4.2314      1.0403     -1.8865
    8 -5.9023      5.9023      1.8865     -3.0670
    9 -7.7965      7.7965      3.0670     -4.6263
   10 -9.9253      9.9253      4.6263     -6.6113
   11 -9.9253      9.9253      6.6113     -8.5964
   12 -9.9253      9.9253      8.5964     -10.581
   13 -9.9253      9.9253      10.581     -12.567
   14 -10.084      10.084      12.567     -14.583
   15 -10.559      10.559      14.583     -16.695
   16 -11.351      11.351      16.695     -18.965
   17 -12.460      12.460      18.965     -21.457
   18 -13.885      13.885      21.457     -24.234
   19 -15.627      15.627      24.234     -27.360
   20 -17.686      17.686      27.360     -30.897
   21 -20.062      20.062      30.897     -34.909
   22 -9.3199      9.3199      34.909     -36.773
   23  1.1133     -1.1133      36.773     -36.551
   24  11.211     -11.211      36.551     -34.308
   25  9.8095     -9.8095      34.308     -32.347
   26  9.9598     -9.9598      32.347     -30.355
   27  11.662     -11.662      30.355     -28.022
   28  14.927     -14.927      28.022     -25.037
   29  17.848     -17.848      25.037     -21.467
   30  20.321     -20.321      21.467     -17.403
   31  22.350     -22.350      17.403     -12.933
   32  23.534     -23.534      12.933     -8.2262
   33  20.787     -20.787      8.2262     -4.0688
   34  14.614     -14.614      4.0688     -1.1459
   35  5.7293     -5.7293      1.1459    -5.36460E-12
```

```
+-------------------------------------------------------------------------------------------------------------------------+
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                            NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                               |
|                                  Exe Time :14 May 2019      17:21:14                                                    |
+-------------------------------------------------------------------------------------------------------------------------+


     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.....    0.07 [sec]
```

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

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                 NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                            |
|                                 Exe Time :14 May 2019       17:21:14                                                          |
+-------------------------------------------------------------------------------------------------------------------------------+

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



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


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

PRELIMINARY OPERATIONS CPU TIME     0.00 [sec]
```

```
+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                     |
|                                  Exe Time :14 May 2019       17:21:14                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


INPUT FILE HAS BEEN GENERATED BY WALGEN PROGRAM


New Project


NO. OF NODAL POINTS (NUMNP) ..................    36
NO. OF COORDINATES  (NCOORD)..................     2
NO. OF NODE DOFS    (NDOF)....................     2
NO. OF EQUATIONS    (NEQ).....................    72
NO. OF CONSTRAINTS CARDS (NVINC)..............     0
NO. OF ELEMENT GROUPS (NEG)...................     3
NO. OF SOLUTION STEPS (NSTE)..................     2
NO. OF ELEMENT SETS ATTACHED TO SLAVE NODES ...    0
NO. OF RECORD FROM WALGEN ....................   100
NO. OF LONG NAMES (LASTNAME) .................    13
LENGTH UNIT CHOICE ...........................     3 (M   )
FORCE  UNIT CHOICE ...........................     3 (KN  )
MAX PORE PRESSURE TABLE LENGTH................     1
NO. OF ELEMENT GROUPS REQUIRING ADD. SLIP DOF .    0


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

 RELEVANT ITEMS UNITS

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

```
+-------------------------------------------------------------------------------------------------------------------------+
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                 NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                      |
|                                 Exe Time :14 May 2019       17:21:14                                                    |
+-------------------------------------------------------------------------------------------------------------------------+
                  P R E P R O C E S S O R     D A T A

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

   1 : UNIT  m kN
   2 : TITLE New Project
   3 : DELTA 0.2
   4 : option param itemax 40
   5 : option control hinges 0 0.0001 0.001
   6 : WALL LeftWall_32 0 -6.7 0.3 -1
   7 : SOIL 0_L LeftWall_32 -6.7 0.3 2 0
   8 : SOIL 0_R LeftWall_32 -6.7 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_12_L_0 -1.7 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_26346_L_0 -4.5 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_27610_L_0 -5.7 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 -6.7 0.3 S275_115 0.19777 00 00 0
  39 : STRIP LeftWall_32 1 2 0.2 4.8 0 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=0.343 LeftWall_32
  44 : CHANGE UG0_2_10_L_0 U-KP=4.075 LeftWall_32
  45 : CHANGE UG0_2_10_L_0 D-KA=0.356 LeftWall_32
  46 : CHANGE UG0_2_10_L_0 D-KP=4.429 LeftWall_32
  47 : CHANGE UG2_4_12_L_0 U-FRICT=20.458 LeftWall_32
  48 : CHANGE UG2_4_12_L_0 D-FRICT=20.458 LeftWall_32
  49 : CHANGE UG2_4_12_L_0 U-KA=0.482 LeftWall_32
  50 : CHANGE UG2_4_12_L_0 U-KP=1.918 LeftWall_32
  51 : CHANGE UG2_4_12_L_0 D-KA=0.501 LeftWall_32
  52 : CHANGE UG2_4_12_L_0 D-KP=2.602 LeftWall_32
  53 : CHANGE UG3_4271_26346_L_0 U-FRICT=26.56 LeftWall_32
  54 : CHANGE UG3_4271_26346_L_0 D-FRICT=26.56 LeftWall_32
  55 : CHANGE UG3_4271_26346_L_0 U-KA=0.381 LeftWall_32
  56 : CHANGE UG3_4271_26346_L_0 U-KP=2.136 LeftWall_32
  57 : CHANGE UG3_4271_26346_L_0 D-KA=0.394 LeftWall_32
  58 : CHANGE UG3_4271_26346_L_0 D-KP=3.525 LeftWall_32
  59 : CHANGE UG2_4_27610_L_0 U-FRICT=20.458 LeftWall_32
  60 : CHANGE UG2_4_27610_L_0 D-FRICT=20.458 LeftWall_32
  61 : CHANGE UG2_4_27610_L_0 U-KA=0.464 LeftWall_32
  62 : CHANGE UG2_4_27610_L_0 U-KP=1.509 LeftWall_32
  63 : CHANGE UG2_4_27610_L_0 D-KA=0.495 LeftWall_32
  64 : CHANGE UG2_4_27610_L_0 D-KP=2.536 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_12_L_0 U-COHE=24 LeftWall_32
  70 : CHANGE UG2_4_12_L_0 U-ADHES=0 LeftWall_32
  71 : CHANGE UG2_4_12_L_0 D-COHE=24 LeftWall_32
  72 : CHANGE UG2_4_12_L_0 D-ADHES=0 LeftWall_32
  73 : CHANGE UG3_4271_26346_L_0 U-COHE=0 LeftWall_32
  74 : CHANGE UG3_4271_26346_L_0 U-ADHES=0 LeftWall_32
  75 : CHANGE UG3_4271_26346_L_0 D-COHE=0 LeftWall_32
  76 : CHANGE UG3_4271_26346_L_0 D-ADHES=0 LeftWall_32
```

```
 77 : CHANGE UG2_4_27610_L_0 U-COHE=24 LeftWall_32
 78 : CHANGE UG2_4_27610_L_0 U-ADHES=0 LeftWall_32
 79 : CHANGE UG2_4_27610_L_0 D-COHE=24 LeftWall_32
 80 : CHANGE UG2_4_27610_L_0 D-ADHES=0 LeftWall_32
 81 : SETWALL LeftWall_32
 82 : GEOM 0 0
 83 : SURCHARGE 0 0 0 0
 84 : WATER -2.2 0 -6.7 0 0
 85 : ENDSTEP
 86 : STEP Stage2_28513
 87 : CHANGE UG0_2_10_L_0 D-KA=0.343 LeftWall_32
 88 : CHANGE UG0_2_10_L_0 D-KP=4.102 LeftWall_32
 89 : CHANGE UG2_4_12_L_0 D-KA=0.482 LeftWall_32
 90 : CHANGE UG2_4_12_L_0 D-KP=2.535 LeftWall_32
 91 : CHANGE UG3_4271_26346_L_0 D-KA=0.382 LeftWall_32
 92 : CHANGE UG3_4271_26346_L_0 D-KP=3.512 LeftWall_32
 93 : CHANGE UG2_4_27610_L_0 D-KA=0.482 LeftWall_32
 94 : CHANGE UG2_4_27610_L_0 D-KP=2.535 LeftWall_32
 95 : SETWALL LeftWall_32
 96 : GEOM 0 -3.75
 97 : SURCHARGE 0 0 0 0
 98 : WATER -2.2 1.55 -6.7 0 0
 99 : ADD WallElement_New_28707
100 : ENDSTEP
```

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                           |
|                                  Exe Time :14 May 2019       17:21:14                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
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	/

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                           |
|                                  Exe Time :14 May 2019       17:21:14                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  1

0_L                                                                 :
   5  36   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    2   0.2000     0.000     0.000     0.000     2.000
   12   12    2   0.2000     0.000     0.000     0.000     2.000
   13   13    2   0.2000     0.000     0.000     0.000     2.000
   14   14    2   0.2000     0.000     0.000     0.000     2.000
   15   15    2   0.2000     0.000     0.000     0.000     2.000
   16   16    2   0.2000     0.000     0.000     0.000     2.000
   17   17    2   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    3   0.2000     0.000     0.000     0.000     2.000
   26   26    3   0.2000     0.000     0.000     0.000     2.000
   27   27    3   0.2000     0.000     0.000     0.000     2.000
   28   28    3   0.2000     0.000     0.000     0.000     2.000
   29   29    3   0.2000     0.000     0.000     0.000     2.000
   30   30    3   0.2000     0.000     0.000     0.000     2.000
   31   31    3   0.2000     0.000     0.000     0.000     2.000
   32   32    4   0.2000     0.000     0.000     0.000     2.000
   33   33    4   0.2000     0.000     0.000     0.000     2.000
   34   34    4   0.2000     0.000     0.000     0.000     2.000
   35   35    4   0.2000     0.000     0.000     0.000     2.000
```

```
  36   36    4   0.1000     0.000     0.000     0.000     2.000
```

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                           |
|                                  Exe Time :14 May 2019       17:21:14                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  2

0_R                                                                 :
   5  36   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    2   0.2000     0.000     0.000     0.000     1.000
   12   12    2   0.2000     0.000     0.000     0.000     1.000
   13   13    2   0.2000     0.000     0.000     0.000     1.000
   14   14    2   0.2000     0.000     0.000     0.000     1.000
   15   15    2   0.2000     0.000     0.000     0.000     1.000
   16   16    2   0.2000     0.000     0.000     0.000     1.000
   17   17    2   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    3   0.2000     0.000     0.000     0.000     1.000
   26   26    3   0.2000     0.000     0.000     0.000     1.000
   27   27    3   0.2000     0.000     0.000     0.000     1.000
   28   28    3   0.2000     0.000     0.000     0.000     1.000
   29   29    3   0.2000     0.000     0.000     0.000     1.000
   30   30    3   0.2000     0.000     0.000     0.000     1.000
   31   31    3   0.2000     0.000     0.000     0.000     1.000
   32   32    4   0.2000     0.000     0.000     0.000     1.000
   33   33    4   0.2000     0.000     0.000     0.000     1.000
   34   34    4   0.2000     0.000     0.000     0.000     1.000
   35   35    4   0.2000     0.000     0.000     0.000     1.000
```

```
  36   36    4   0.1000     0.000     0.000     0.000     1.000
```

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                           |
|                                  Exe Time :14 May 2019       17:21:14                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  3

WallElement_New_28707                                          :
   2  35   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
```

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+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                     |
|                                  Exe Time :14 May 2019       17:21:14                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


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

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+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                           |
|                                  Exe Time :14 May 2019       17:21:14                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
L O A D     D A T A


    LOAD FUNCTION NUMBER   =    1
    NUMBER OF TIME POINTS  =    5

    TIME VALUE      FUNCTION

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


    LOAD FUNCTION NUMBER   =    2
    NUMBER OF TIME POINTS  =    5

    TIME VALUE      FUNCTION

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


    LOAD FUNCTION NUMBER   =    3
    NUMBER OF TIME POINTS  =    4

    TIME VALUE      FUNCTION

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


    LOAD FUNCTION NUMBER   =    4
    NUMBER OF TIME POINTS  =    4

    TIME VALUE      FUNCTION

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


NO. OF DISTRIBUTED LOAD CARDS     0
```

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                           |
|                                  Exe Time :14 May 2019       17:21:14                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
L O A D     B A L A N C E

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

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


                      LOAD INPUT SECTION COMPLETED
```

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+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                     |
|                                  Exe Time :14 May 2019       17:21:14                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


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

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+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                           |
|                                  Exe Time :14 May 2019       17:21:14                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+

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;= 0.34300     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  4.0750     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;= 0.35600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  4.4290     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;= -1.7000     (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;=  1.9180     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;= 0.50100     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  2.6020     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;= -4.5000     (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;=  2.1360     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)
```

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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;= 0.39400     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.5250     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;= -5.7000     (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;= 0.46400     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  1.5090     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;= 0.49500     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  2.5360     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;= 0.34300     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  4.0750     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;= -1.7000     (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
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ITEM NO.  10&lt;U-KA    &gt;= 0.48200     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  1.9180     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;= -4.5000     (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;=  2.1360     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;= -5.7000     (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;= 0.46400     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  1.5090     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
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+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                           |
|                                  Exe Time :14 May 2019       17:21:14                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+

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                        -2.200       -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     -6.700        -6.700
WATER_BEHAVIOUR_FLAG (LINING OPT)     0.000         0.000
PORE_UPDATE_FLAG                      0.000         0.000
PORE_TAB. _FLAG (gt.0= use tabs)      0.000         0.000
lateral thrusts reduction elevatio    0.000         0.000
Downhill reduction factor for effe    0.000         0.000
Downhill reduction factor for pore    0.000         0.000
Uphill reduction factor for effect    0.000         0.000
Uphill reduction factor for pore p    0.000         0.000
SEISMIC HORIZONTAL ACCEL. Kh [g]      0.000         0.000
UPHILL VERTICAL ACCEL.  Kv_uh [g]     0.000         0.000
DOWNHILL VERTICAL ACCEL.Kv_dh [g]     0.000         0.000
UPHILL BETA ANGLE (SLOPE) [deg]       0.000         0.000
UPHILL DELTA/PHI RATIO                0.000         0.000
DOWNHILL BETA ANGLE (SLOPE) [deg]     0.000         0.000
DOWNHILL DELTA/PHI RATIO              0.000         0.000
DYN.WATER BEHAVIOUR                   0.000         0.000
Excess pore pressure RATIO Ru         0.000         0.000
SEISMIC PRESSURE LOWER VALUE          0.000         0.000
SEISMIC PRESSURE UPPER VALUE          0.000         0.000
SEISMIC PRESSURE LOWER LEVEL          0.000         0.000
SEISMIC PRESSURE UPPER LEVEL          0.000         0.000

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


STEP  NO.     2
                                     LEFT WALL    RIGHT WALL
Y                                     0.000       -0.9990E+30
Z-PC                                  0.000         0.000
Z-EXCAVATION                         -3.750         0.000
Z-WATER_TABLE                        -2.200       -0.9990E+30
Q_AT_THE_FREE_FIELD_LEVEL             0.000         0.000
ZQ                                    0.000         0.000
DZW_OF_THE_WATER_TABLE                1.550         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     -6.700        -6.700
WATER_BEHAVIOUR_FLAG (LINING OPT)     0.000         0.000
PORE_UPDATE_FLAG                      0.000         0.000
PORE_TAB. _FLAG (gt.0= use tabs)      0.000         0.000
lateral thrusts reduction elevatio    0.000         0.000
Downhill reduction factor for effe    0.000         0.000
Downhill reduction factor for pore    0.000         0.000
Uphill reduction factor for effect    0.000         0.000
Uphill reduction factor for pore p    0.000         0.000
SEISMIC HORIZONTAL ACCEL. Kh [g]      0.000         0.000
UPHILL VERTICAL ACCEL.  Kv_uh [g]     0.000         0.000
DOWNHILL VERTICAL ACCEL.Kv_dh [g]     0.000         0.000
UPHILL BETA ANGLE (SLOPE) [deg]       0.000         0.000
UPHILL DELTA/PHI RATIO                0.000         0.000
DOWNHILL BETA ANGLE (SLOPE) [deg]     0.000         0.000
DOWNHILL DELTA/PHI RATIO              0.000         0.000
DYN.WATER BEHAVIOUR                   0.000         0.000
Excess pore pressure RATIO Ru         0.000         0.000
SEISMIC PRESSURE LOWER VALUE          0.000         0.000
SEISMIC PRESSURE UPPER VALUE          0.000         0.000
SEISMIC PRESSURE LOWER LEVEL          0.000         0.000
SEISMIC PRESSURE UPPER LEVEL          0.000         0.000

================================================================================================================end of step    2
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```
LEFT-HAND WALL

LOWER  LEVEL          -6.70000
UPPER  LEVEL           0.30000

RIGHT-HAND WALL

LOWER  LEVEL          -6.70000
UPPER  LEVEL           0.30000
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+-------------------------------------------------------------------------------------------------------------------------+
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                 NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                      |
|                                 Exe Time :14 May 2019       17:21:14                                                    |
+-------------------------------------------------------------------------------------------------------------------------+
 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)          0.200000000000000
 FOUNDATION WIDTH    (B)            4.80000000000000
 ZETA-F.....                       0.000000000000000E+000
 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        2523

 NO. OF D.P.W  FOR THIS AREA       4261
 MAX NO. OF D.P.W. AVAILABLE      81920
 ** MAX NO OF ITERATIONS SET TO          40

ITER     0 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6874.     RIMNOR= 0.000
           RENORM=0.1972E-28 REMNOR= 0.000     RATIO =0.5356E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 17.60     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6874.     RDR   = 0.000
           RATIOT=0.5356E-16 RATIOR= 0.000
           MAX UN=0.1776E-14 IEQ=    55 NODE     28 DOF   1  Y-DISPL.F
           MIN UN=-.3553E-14 IEQ=    65 NODE     33 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     1 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6874.     RIMNOR= 0.000
           RENORM=0.1972E-28 REMNOR= 0.000     RATIO =0.5356E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 17.60     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6874.     RDR   = 0.000
           RATIOT=0.5356E-16 RATIOR= 0.000
           MAX UN=0.1776E-14 IEQ=    55 NODE     28 DOF   1  Y-DISPL.F
           MIN UN=-.3553E-14 IEQ=    65 NODE     33 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6874.     RIMNOR= 0.000
           RENORM=0.1972E-28 REMNOR= 0.000     RATIO =0.5356E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 17.60     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6874.     RDR   = 0.000
           RATIOT=0.5356E-16 RATIOR= 0.000
           MAX UN=0.1776E-14 IEQ=    55 NODE     28 DOF   1  Y-DISPL.F
           MIN UN=-.3553E-14 IEQ=    65 NODE     33 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0
```

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+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                           |
|                                  Exe Time :14 May 2019       17:21:14                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
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
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+----------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1     FULL VERSION  *Build date:Jun 29, 2018*                   |
|                                                                                                                            |
|                                   NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                       |
|                                   Exe Time :14 May 2019       17:21:14                                                     |
+----------------------------------------------------------------------------------------------------------------------------+
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   36
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  1.234      0.000      1.850       6.169       1.850       6.169          V-C    3143.     -0.1000       0.000
1.000       1.000      6.169       0.000       0.000     UG0_2_10_L_0
   4 D  2.242      0.000      5.550       11.21       5.550       11.21          V-C    3143.     -0.3000       0.000
1.000       1.000      11.21       0.000       0.000     UG0_2_10_L_0
   5 D  2.627      0.000      9.250       13.13       9.250       13.13          V-C    3143.     -0.5000       0.000
1.000       1.000      13.13       0.000       0.000     UG0_2_10_L_0
   6 D  2.925      0.000      12.95       14.63       12.95       14.63          V-C    3143.     -0.7000       0.000
1.000       1.000      14.63       0.000       0.000     UG0_2_10_L_0
   7 D  3.207      0.000      16.65       16.04       16.65       16.04          V-C    3143.     -0.9000       0.000
1.000       1.000      16.04       0.000       0.000     UG0_2_10_L_0
   8 D  3.487      0.000      20.35       17.44       20.35       17.44          V-C    3143.      -1.100       0.000
1.000       1.000      17.44       0.000       0.000     UG0_2_10_L_0
   9 D  3.768      0.000      24.05       18.84       24.05       18.84          V-C    3143.      -1.300       0.000
1.000       1.000      18.84       0.000       0.000     UG0_2_10_L_0
  10 D  4.052      0.000      27.75       20.26       27.75       20.26          V-C    3143.      -1.500       0.000
1.000       1.000      20.26       0.000       0.000     UG0_2_10_L_0
  11 D  4.533      0.000      31.45       22.67       31.45       22.67          V-C    3143.      -1.700       0.000
1.000       1.000      22.67       0.000       0.000     UG2_4_12_L_0
  12 D  4.868      0.000      35.35       24.34       35.35       24.34          V-C    3143.      -1.900       0.000
1.000       1.000      24.34       0.000       0.000     UG2_4_12_L_0
  13 D  5.207      0.000      39.25       26.03       39.25       26.03          V-C    3143.      -2.100       0.000
1.000       1.000      26.03       0.000       0.000     UG2_4_12_L_0
  14 D  5.643    1.4129E-18   42.15       27.22       42.15       27.22          V-C    3143.      -2.300       1.000
1.000       1.000      28.22       0.000       0.000     UG2_4_12_L_0
  15 D  6.178      0.000      44.05       27.89       44.05       27.89          V-C    3143.      -2.500       3.000
1.000       1.000      30.89       0.000       0.000     UG2_4_12_L_0
  16 D  6.717      0.000      45.95       28.58       45.95       28.58          V-C    3143.      -2.700       5.000
1.000       1.000      33.58       0.000       0.000     UG2_4_12_L_0
  17 D  7.260      0.000      47.85       29.30       47.85       29.30          V-C    3143.      -2.900       7.000
1.000       1.000      36.30       0.000       0.000     UG2_4_12_L_0
  18 D  7.806      0.000      49.75       30.03       49.75       30.03          V-C    3143.      -3.100       9.000
1.000       1.000      39.03       0.000       0.000     UG2_4_12_L_0
  19 D  8.357      0.000      51.65       30.78       51.65       30.78          V-C    3143.      -3.300       11.00
1.000       1.000      41.78       0.000       0.000     UG2_4_12_L_0
  20 D  8.911      0.000      53.55       31.56       53.55       31.56          V-C    3143.      -3.500       13.00
1.000       1.000      44.56       0.000       0.000     UG2_4_12_L_0
  21 D  9.469      0.000      55.45       32.34       55.45       32.34          V-C    3143.      -3.700       15.00
1.000       1.000      47.34       0.000       0.000     UG2_4_12_L_0
  22 D  10.03    -2.8259E-18  57.35       33.15       57.35       33.15          V-C    3143.      -3.900       17.00
1.000       1.000      50.15       0.000       0.000     UG2_4_12_L_0
  23 D  10.59      0.000      59.25       33.97       59.25       33.97          V-C    3143.      -4.100       19.00
1.000       1.000      52.97       0.000       0.000     UG2_4_12_L_0
  24 D  11.16      0.000      61.15       34.80       61.15       34.80          V-C    3143.      -4.300       21.00
1.000       1.000      55.80       0.000       0.000     UG2_4_12_L_0
  25 D  11.73      0.000      63.05       35.65       63.05       35.65          V-C    3143.      -4.500       23.00
1.000       1.000      58.65       0.000       0.000     UG3_4271_26346_L_0
  26 D  12.31      0.000      65.05       36.56       65.05       36.56          V-C    3143.      -4.700       25.00
1.000       1.000      61.56       0.000       0.000     UG3_4271_26346_L_0
  27 D  12.90      0.000      67.05       37.49       67.05       37.49          V-C    3143.      -4.900       27.00
1.000       1.000      64.49       0.000       0.000     UG3_4271_26346_L_0
  28 D  13.48    -2.8259E-18  69.05       38.42       69.05       38.42          V-C    3143.      -5.100       29.00
1.000       1.000      67.42       0.000       0.000     UG3_4271_26346_L_0
  29 D  14.07      0.000      71.05       39.36       71.05       39.36          V-C    3143.      -5.300       31.00
1.000       1.000      70.36       0.000       0.000     UG3_4271_26346_L_0
  30 D  14.66      0.000      73.05       40.32       73.05       40.32          V-C    3143.      -5.500       33.00
1.000       1.000      73.32       0.000       0.000     UG3_4271_26346_L_0
  31 D  15.26      0.000      75.05       41.28       75.05       41.28          V-C    3143.      -5.700       35.00
1.000       1.000      76.28       0.000       0.000     UG3_4271_26346_L_0
  32 D  15.84      0.000      76.95       42.20       76.95       42.20          V-C    3143.      -5.900       37.00
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1.000	1.000	79.20	0.000	0.000	UG2_4_27610_L_0					
33 D	16.42	5.6518E-18	78.85	43.12	78.85	43.12	V-C	3143.	-6.100	39.00
1.000	1.000	82.12	0.000	0.000	UG2_4_27610_L_0					
34 D	17.01	0.000	80.75	44.05	80.75	44.05	V-C	3143.	-6.300	41.00
1.000	1.000	85.05	0.000	0.000	UG2_4_27610_L_0					
35 D	17.60	0.000	82.65	44.98	82.65	44.98	V-C	3143.	-6.500	43.00
1.000	1.000	87.98	0.000	0.000	UG2_4_27610_L_0					
36 D	9.093	0.000	84.55	45.93	84.55	45.93	V-C	3143.	-6.700	45.00
1.000	1.000	90.93	0.000	0.000	UG2_4_27610_L_0					

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+--------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)    NLS ENGINE RELEASE  2018.1     FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                          |
|                                   NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                     |
|                                   Exe Time :14 May 2019        17:21:14                                                  |
+--------------------------------------------------------------------------------------------------------------------------+
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   36
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  1.234      0.000      2.255       6.169       2.255       6.169          V-C    3143.     -0.1000      0.000
1.000      1.000      6.169       0.000       0.000     UG0_2_10_L_0
   4 D  2.242      0.000      10.40       11.21       10.40       11.21          V-C    3143.     -0.3000      0.000
1.000      1.000      11.21       0.000       0.000     UG0_2_10_L_0
   5 D  2.627      0.000      16.87       13.13       16.87       13.13          V-C    3143.     -0.5000      0.000
1.000      1.000      13.13       0.000       0.000     UG0_2_10_L_0
   6 D  2.925      0.000      21.99       14.63       21.99       14.63          V-C    3143.     -0.7000      0.000
1.000      1.000      14.63       0.000       0.000     UG0_2_10_L_0
   7 D  3.207      0.000      26.55       16.04       26.55       16.04          V-C    3143.     -0.9000      0.000
1.000      1.000      16.04       0.000       0.000     UG0_2_10_L_0
   8 D  3.487      0.000      30.83       17.44       30.83       17.44          V-C    3143.      -1.100      0.000
1.000      1.000      17.44       0.000       0.000     UG0_2_10_L_0
   9 D  3.768      0.000      34.95       18.84       34.95       18.84          V-C    3143.      -1.300      0.000
1.000      1.000      18.84       0.000       0.000     UG0_2_10_L_0
  10 D  4.052      0.000      39.28       20.26       39.28       20.26          V-C    3143.      -1.500      0.000
1.000      1.000      20.26       0.000       0.000     UG0_2_10_L_0
  11 D  4.533      0.000      43.19       22.67       43.19       22.67          V-C    3143.      -1.700      0.000
1.000      1.000      22.67       0.000       0.000     UG2_4_12_L_0
  12 D  4.868      0.000      47.26       24.34       47.26       24.34          V-C    3143.      -1.900      0.000
1.000      1.000      24.34       0.000       0.000     UG2_4_12_L_0
  13 D  5.207      0.000      51.29       26.03       51.29       26.03          V-C    3143.      -2.100      0.000
1.000      1.000      26.03       0.000       0.000     UG2_4_12_L_0
  14 D  5.643   -1.4129E-18   54.31       27.22       54.31       27.22          V-C    3143.      -2.300      1.000
1.000      1.000      28.22       0.000       0.000     UG2_4_12_L_0
  15 D  6.178      0.000      56.31       27.89       56.31       27.89          V-C    3143.      -2.500      3.000
1.000      1.000      30.89       0.000       0.000     UG2_4_12_L_0
  16 D  6.717      0.000      58.47       28.58       58.47       28.58          V-C    3143.      -2.700      5.000
1.000      1.000      33.58       0.000       0.000     UG2_4_12_L_0
  17 D  7.260      0.000      60.43       29.30       60.43       29.30          V-C    3143.      -2.900      7.000
1.000      1.000      36.30       0.000       0.000     UG2_4_12_L_0
  18 D  7.806      0.000      62.38       30.03       62.38       30.03          V-C    3143.      -3.100      9.000
1.000      1.000      39.03       0.000       0.000     UG2_4_12_L_0
  19 D  8.357      0.000      64.33       30.78       64.33       30.78          V-C    3143.      -3.300      11.00
1.000      1.000      41.78       0.000       0.000     UG2_4_12_L_0
  20 D  8.911      0.000      66.27       31.56       66.27       31.56          V-C    3143.      -3.500      13.00
1.000      1.000      44.56       0.000       0.000     UG2_4_12_L_0
  21 D  9.469      0.000      68.21       32.34       68.21       32.34          V-C    3143.      -3.700      15.00
1.000      1.000      47.34       0.000       0.000     UG2_4_12_L_0
  22 D  10.03    2.8259E-18   70.27       33.15       70.27       33.15          V-C    3143.      -3.900      17.00
1.000      1.000      50.15       0.000       0.000     UG2_4_12_L_0
  23 D  10.59      0.000      72.19       33.97       72.19       33.97          V-C    3143.      -4.100      19.00
1.000      1.000      52.97       0.000       0.000     UG2_4_12_L_0
  24 D  11.16      0.000      74.12       34.80       74.12       34.80          V-C    3143.      -4.300      21.00
1.000      1.000      55.80       0.000       0.000     UG2_4_12_L_0
  25 D  11.73      0.000      76.04       35.65       76.04       35.65          V-C    3143.      -4.500      23.00
1.000      1.000      58.65       0.000       0.000     UG3_4271_26346_L_0
  26 D  12.31      0.000      78.06       36.56       78.06       36.56          V-C    3143.      -4.700      25.00
1.000      1.000      61.56       0.000       0.000     UG3_4271_26346_L_0
  27 D  12.90      0.000      80.08       37.49       80.08       37.49          V-C    3143.      -4.900      27.00
1.000      1.000      64.49       0.000       0.000     UG3_4271_26346_L_0
  28 D  13.48    2.8259E-18   81.90       38.42       81.90       38.42          V-C    3143.      -5.100      29.00
1.000      1.000      67.42       0.000       0.000     UG3_4271_26346_L_0
  29 D  14.07      0.000      83.56       39.36       83.56       39.36          V-C    3143.      -5.300      31.00
1.000      1.000      70.36       0.000       0.000     UG3_4271_26346_L_0
  30 D  14.66      0.000      85.23       40.32       85.23       40.32          V-C    3143.      -5.500      33.00
1.000      1.000      73.32       0.000       0.000     UG3_4271_26346_L_0
  31 D  15.26      0.000      86.92       41.28       86.92       41.28          V-C    3143.      -5.700      35.00
1.000      1.000      76.28       0.000       0.000     UG3_4271_26346_L_0
  32 D  15.84      0.000      88.52       42.20       88.52       42.20          V-C    3143.      -5.900      37.00
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1.000	1.000	79.20	0.000	0.000	UG2_4_27610_L_0					
33 D	16.42	-5.6518E-18	90.15	43.12	90.15	43.12	V-C	3143.	-6.100	39.00
1.000	1.000	82.12	0.000	0.000	UG2_4_27610_L_0					
34 D	17.01	0.000	91.78	44.05	91.78	44.05	V-C	3143.	-6.300	41.00
1.000	1.000	85.05	0.000	0.000	UG2_4_27610_L_0					
35 D	17.60	0.000	93.42	44.98	93.42	44.98	V-C	3143.	-6.500	43.00
1.000	1.000	87.98	0.000	0.000	UG2_4_27610_L_0					
36 D	9.093	0.000	95.08	45.93	95.08	45.93	V-C	3143.	-6.700	45.00
1.000	1.000	90.93	0.000	0.000	UG2_4_27610_L_0					

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|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                 NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                      |
|                                 Exe Time :14 May 2019       17:21:14                                                    |
+-------------------------------------------------------------------------------------------------------------------------+
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   35
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= 3963.     RIMNOR= 0.000
           RENORM= 1199.     REMNOR= 0.000     RATIO =0.5499     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 16.76     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 3963.     RDR   = 0.000
           RATIOT=0.5499     RATIOR= 0.000
           MAX UN= 0.000     IEQ=    72 NODE     36 DOF   2   X-ROT. F
           MIN UN=-9.176     IEQ=    41 NODE     21 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM= 3963.     RIMNOR= 0.000
           RENORM= 134.2     REMNOR=0.4076E-20 RATIO =0.1840     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 16.76     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 3963.     RDR   = 0.000
           RATIOT=0.1840     RATIOR= 0.000
           MAX UN=0.2280E-09 IEQ=    33 NODE     17 DOF   1  Y-DISPL.F
           MIN UN=-5.230     IEQ=    49 NODE     25 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     3 RNORM = 0.000     RMNORM= 0.000
           RINORM= 3963.     RIMNOR= 0.000
           RENORM= 69.69     REMNOR=0.2986E-20 RATIO =0.1326     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 16.76     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 3963.     RDR   = 0.000
           RATIOT=0.1326     RATIOR= 0.000
           MAX UN=0.2947E-09 IEQ=     9 NODE      5 DOF   1  Y-DISPL.F
           MIN UN=-4.675     IEQ=    21 NODE     11 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     4 RNORM = 0.000     RMNORM= 0.000
           RINORM= 3963.     RIMNOR= 0.000
           RENORM= 174.2     REMNOR=0.3224E-19 RATIO =0.2097     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 16.76     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 3963.     RDR   = 0.000
           RATIOT=0.2097     RATIOR= 0.000
           MAX UN=0.2656     IEQ=    71 NODE     36 DOF   1  Y-DISPL.F
           MIN UN=-7.758     IEQ=    39 NODE     20 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     5 RNORM = 0.000     RMNORM= 0.000
           RINORM= 3963.     RIMNOR= 0.000
           RENORM= 40.45     REMNOR=0.2649E-18 RATIO =0.1010     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 16.76     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 3963.     RDR   = 0.000
           RATIOT=0.1010     RATIOR= 0.000
           MAX UN= 2.686     IEQ=    69 NODE     35 DOF   1  Y-DISPL.F
           MIN UN=-3.375     IEQ=    57 NODE     29 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     6 RNORM = 0.000     RMNORM= 0.000
           RINORM= 3963.     RIMNOR= 0.000
           RENORM= 31.45     REMNOR=0.4793E-18 RATIO =0.8908E-01 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 16.76     RMMAX = 0.000
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            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 3963.     RDR   = 0.000
            RATIOT=0.8908E-01 RATIOR= 0.000
            MAX UN= 1.988     IEQ=    69 NODE     35 DOF   1  Y-DISPL.F
            MIN UN=-4.807     IEQ=    47 NODE     24 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0

 ITER     7 RNORM = 0.000     RMNORM= 0.000
            RINORM= 3963.     RIMNOR= 0.000
            RENORM= 162.3     REMNOR=0.1683E-16 RATIO =0.2024     TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 16.76     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 3963.     RDR   = 0.000
            RATIOT=0.2024     RATIOR= 0.000
            MAX UN= 3.358     IEQ=    67 NODE     34 DOF   1  Y-DISPL.F
            MIN UN=-12.29     IEQ=    65 NODE     33 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0

 ITER     8 RNORM = 0.000     RMNORM= 0.000
            RINORM= 3963.     RIMNOR= 0.000
            RENORM= 74.78     REMNOR=0.5128E-17 RATIO =0.1374     TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 16.76     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 3963.     RDR   = 0.000
            RATIOT=0.1374     RATIOR= 0.000
            MAX UN= 8.452     IEQ=    67 NODE     34 DOF   1  Y-DISPL.F
            MIN UN=-.1806E-07 IEQ=    21 NODE     11 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0

 ITER     9 RNORM = 0.000     RMNORM= 0.000
            RINORM= 3963.     RIMNOR= 0.000
            RENORM= 1089.     REMNOR=0.2055E-17 RATIO =0.5241     TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 16.76     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 3963.     RDR   = 0.000
            RATIOT=0.5241     RATIOR= 0.000
            MAX UN= 1.410     IEQ=    69 NODE     35 DOF   1  Y-DISPL.F
            MIN UN=-10.49     IEQ=    43 NODE     22 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0

 ITER    10 RNORM = 0.000     RMNORM= 0.000
            RINORM= 3963.     RIMNOR= 0.000
            RENORM= 137.4     REMNOR=0.3186E-17 RATIO =0.1862     TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 16.76     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 3963.     RDR   = 0.000
            RATIOT=0.1862     RATIOR= 0.000
            MAX UN= 4.057     IEQ=    49 NODE     25 DOF   1  Y-DISPL.F
            MIN UN=-4.170     IEQ=    43 NODE     22 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0

 ITER    11 RNORM = 0.000     RMNORM= 0.000
            RINORM= 3963.     RIMNOR= 0.000
            RENORM=0.7944     REMNOR=0.2501E-17 RATIO =0.1416E-01 TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 16.76     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 3963.     RDR   = 0.000
            RATIOT=0.1416E-01 RATIOR= 0.000
            MAX UN=0.6785     IEQ=    69 NODE     35 DOF   1  Y-DISPL.F
            MIN UN=-.5780     IEQ=    59 NODE     30 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0

 ITER    12 RNORM = 0.000     RMNORM= 0.000
            RINORM= 3963.     RIMNOR= 0.000
            RENORM=0.2753     REMNOR=0.5059E-17 RATIO =0.8334E-02 TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 16.76     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 3963.     RDR   = 0.000
            RATIOT=0.8334E-02 RATIOR= 0.000
            MAX UN=0.1186E-07 IEQ=    13 NODE      7 DOF   1  Y-DISPL.F
            MIN UN=-.5247     IEQ=    61 NODE     31 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0

 ITER    13 RNORM = 0.000     RMNORM= 0.000
            RINORM= 3963.     RIMNOR= 0.000
            RENORM=0.1415E-14 REMNOR=0.2925E-17 RATIO =0.5976E-09 TOLER =0.1000E-03      CONVERGED !
            RFMAX = 16.76     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 3963.     RDR   = 0.000
            RATIOT=0.5976E-09 RATIOR= 0.000
            MAX UN=0.1353E-07 IEQ=    23 NODE     12 DOF   1  Y-DISPL.F
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MIN UN=-.1195E-07 IEQ=    17 NODE      9 DOF   1  Y-DISPL.F
NO. OF CONTACT CONSTRAINT VIOLATIONS     0
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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                     |
|                                  Exe Time :14 May 2019       17:21:14                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
New Project
SOLUTION REACHED USING    13 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  -0.4583341       7.0166611E-02
    2  -0.4443008       7.0166611E-02
    3  -0.4302675       7.0166611E-02
    4  -0.4162341       7.0166588E-02
    5  -0.4022008       7.0166414E-02
    6  -0.3881676       7.0165813E-02
    7  -0.3741346       7.0164390E-02
    8  -0.3601019       7.0161653E-02
    9  -0.3460700       7.0157022E-02
   10  -0.3320393       7.0149828E-02
   11  -0.3180103       7.0139321E-02
   12  -0.3039838       7.0125102E-02
   13  -0.2899605       7.0107171E-02
   14  -0.2759412       7.0085528E-02
   15  -0.2619266       7.0060150E-02
   16  -0.2479174       7.0030942E-02
   17  -0.2339144       6.9997719E-02
   18  -0.2199186       6.9960198E-02
   19  -0.2059307       6.9918006E-02
   20  -0.1919517       6.9870674E-02
   21  -0.1779827       6.9817641E-02
   22  -0.1640250       6.9758220E-02
   23  -0.1500798       6.9693961E-02
   24  -0.1361476       6.9628827E-02
   25  -0.1222281       6.9566986E-02
   26  -0.1083204       6.9509973E-02
   27  -9.4423830E-02   6.9456741E-02
   28  -8.0537615E-02   6.9406571E-02
   29  -6.6661094E-02   6.9359066E-02
   30  -5.2793815E-02   6.9314158E-02
   31  -3.8935239E-02   6.9272114E-02
   32  -2.5084739E-02   6.9233528E-02
   33  -1.1241449E-02   6.9201673E-02
   34   2.5965940E-03   6.9180816E-02
   35   1.6431635E-02   6.9171324E-02
   36   3.0265751E-02   6.9169166E-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 :14 May 2019       17:21:14                                                          |
+-------------------------------------------------------------------------------------------------------------------------------+
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   36
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 D   16.21       0.1640       1.113       79.25       57.35       79.25       PASSIVE   0.000       -3.900       1.812
1.000       1.000       81.06       0.000       0.000     UG2_4_12_L_0
  23 D   17.45       0.1501       2.597       83.01       59.25       83.01       PASSIVE   0.000       -4.100       4.228
1.000       1.000       87.24       0.000       0.000     UG2_4_12_L_0
  24 D   18.68       0.1361       4.081       86.77       61.15       86.77       PASSIVE   0.000       -4.300       6.644
1.000       1.000       93.41       0.000       0.000     UG2_4_12_L_0
  25 D   5.721       0.1222       5.565       19.54       63.05       35.65       PASSIVE   0.000       -4.500       9.060
1.000       1.000       28.60       0.000       0.000     UG3_4271_26346_L_0
  26 D   7.316       0.1083       7.148       25.11       65.05       36.56       PASSIVE   0.000       -4.700       11.48
1.000       1.000       36.58       0.000       0.000     UG3_4271_26346_L_0
  27 D   8.912       9.4424E-02   8.732       30.67       67.05       37.49       PASSIVE   0.000       -4.900       13.89
1.000       1.000       44.56       0.000       0.000     UG3_4271_26346_L_0
  28 D   10.51       8.0538E-02   10.32       36.23       69.05       38.42       PASSIVE   0.000       -5.100       16.31
1.000       1.000       52.54       0.000       0.000     UG3_4271_26346_L_0
  29 D   12.10       6.6661E-02   11.90       41.79       71.05       41.79       PASSIVE   0.000       -5.300       18.72
1.000       1.000       60.52       0.000       0.000     UG3_4271_26346_L_0
  30 D   13.70       5.2794E-02   13.48       47.36       73.05       47.36       PASSIVE   0.000       -5.500       21.14
1.000       1.000       68.50       0.000       0.000     UG3_4271_26346_L_0
  31 D   15.30       3.8935E-02   15.07       52.92       75.05       52.92       PASSIVE   0.000       -5.700       23.56
1.000       1.000       76.48       0.000       0.000     UG3_4271_26346_L_0
  32 D   27.90       2.5085E-02   16.55       113.5       76.95       113.8         UL-RL   9429.       -5.900       25.97
```

1.000	1.000	139.5	0.000	0.000	UG2_4_27610_L_0					
33 D	19.17	1.1241E-02	18.04	67.46	78.85	73.02	UL-RL	9429.	-6.100	28.39
1.000	1.000	95.85	0.000	0.000	UG2_4_27610_L_0					
34 D	9.073	-2.5966E-03	19.52	14.56	80.75	44.05	UL-RL	9429.	-6.300	30.81
1.000	1.000	45.36	0.000	0.000	UG2_4_27610_L_0					
35 D	6.644	-1.6432E-02	21.00	0.000	82.65	44.98	ACTIVE	0.000	-6.500	33.22
1.000	1.000	33.22	0.000	0.000	UG2_4_27610_L_0					
36 D	3.564	-3.0266E-02	22.49	0.000	84.55	45.93	ACTIVE	0.000	-6.700	35.64
1.000	1.000	35.64	0.000	0.000	UG2_4_27610_L_0					

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|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                           |
|                                  Exe Time :14 May 2019       17:21:14                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
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   36
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  0.1547     -0.4303       2.255      0.7735       2.255       9.190        ACTIVE    0.000      -0.1000       0.000
1.000       1.000      0.7735       0.000       0.000     UG0_2_10_L_0
   4 D  0.7137     -0.4162       10.40       3.568       10.40       25.03        ACTIVE    0.000      -0.3000       0.000
1.000       1.000       3.568       0.000       0.000     UG0_2_10_L_0
   5 D   1.157     -0.4022       16.87       5.787       16.87       26.63        ACTIVE    0.000      -0.5000       0.000
1.000       1.000       5.787       0.000       0.000     UG0_2_10_L_0
   6 D   1.508     -0.3882       21.99       7.542       21.99       27.78        ACTIVE    0.000      -0.7000       0.000
1.000       1.000       7.542       0.000       0.000     UG0_2_10_L_0
   7 D   1.821     -0.3741       26.55       9.107       26.55       28.82        ACTIVE    0.000      -0.9000       0.000
1.000       1.000       9.107       0.000       0.000     UG0_2_10_L_0
   8 D   2.115     -0.3601       30.83       10.57       30.83       29.82        ACTIVE    0.000       -1.100       0.000
1.000       1.000       10.57       0.000       0.000     UG0_2_10_L_0
   9 D   2.397     -0.3461       34.95       11.99       34.95       30.80        ACTIVE    0.000       -1.300       0.000
1.000       1.000       11.99       0.000       0.000     UG0_2_10_L_0
  10 D   2.694     -0.3320       39.28       13.47       39.28       31.82        ACTIVE    0.000       -1.500       0.000
1.000       1.000       13.47       0.000       0.000     UG0_2_10_L_0
  11 D   0.000     -0.3180       43.19       0.000       43.19       28.51        ACTIVE    0.000       -1.700       0.000
1.000       1.000       0.000       0.000       0.000     UG2_4_12_L_0
  12 D   0.000     -0.3040       47.26       0.000       47.26       29.21        ACTIVE    0.000       -1.900       0.000
1.000       1.000       0.000       0.000       0.000     UG2_4_12_L_0
  13 D   0.000     -0.2900       51.29       0.000       51.29       29.91        ACTIVE    0.000       -2.100       0.000
1.000       1.000       0.000       0.000       0.000     UG2_4_12_L_0
  14 D  0.1584     -0.2759       54.52       0.000       54.52       30.35        ACTIVE    0.000       -2.300      0.7919
1.000       1.000      0.7919       0.000       0.000     UG2_4_12_L_0
  15 D  0.4752     -0.2619       56.93       0.000       56.93       30.52        ACTIVE    0.000       -2.500       2.376
1.000       1.000       2.376       0.000       0.000     UG2_4_12_L_0
  16 D  0.7919     -0.2479       59.51       0.000       59.51       30.71        ACTIVE    0.000       -2.700       3.960
1.000       1.000       3.960       0.000       0.000     UG2_4_12_L_0
  17 D   1.109     -0.2339       61.89       0.000       61.89       30.91        ACTIVE    0.000       -2.900       5.544
1.000       1.000       5.544       0.000       0.000     UG2_4_12_L_0
  18 D   1.426     -0.2199       64.26       0.000       64.26       31.12        ACTIVE    0.000       -3.100       7.128
1.000       1.000       7.128       0.000       0.000     UG2_4_12_L_0
  19 D   1.742     -0.2059       66.62       0.000       66.62       32.00        ACTIVE    0.000       -3.300       8.711
1.000       1.000       8.711       0.000       0.000     UG2_4_12_L_0
  20 D   2.059     -0.1920       68.98       0.000       68.98       32.99        ACTIVE    0.000       -3.500       10.30
1.000       1.000       10.30       0.000       0.000     UG2_4_12_L_0
  21 D   2.587     -0.1780       71.33       1.058       71.33       34.00        ACTIVE    0.000       -3.700       11.88
1.000       1.000       12.94       0.000       0.000     UG2_4_12_L_0
  22 D   3.143     -0.1640       73.81       2.250       73.81       35.03        ACTIVE    0.000       -3.900       13.46
1.000       1.000       15.71       0.000       0.000     UG2_4_12_L_0
  23 D   3.685     -0.1501       76.15       3.379       76.15       36.07        ACTIVE    0.000       -4.100       15.05
1.000       1.000       18.43       0.000       0.000     UG2_4_12_L_0
  24 D   4.227     -0.1361       78.49       4.506       78.49       37.12        ACTIVE    0.000       -4.300       16.63
1.000       1.000       21.14       0.000       0.000     UG2_4_12_L_0
  25 D   9.802     -0.1222       80.82       30.79       80.82       43.20        ACTIVE    0.000       -4.500       18.21
1.000       1.000       49.01       0.000       0.000     UG3_4271_26346_L_0
  26 D   10.30     -0.1083       83.26       31.72       83.26       43.84        ACTIVE    0.000       -4.700       19.80
1.000       1.000       51.52       0.000       0.000     UG3_4271_26346_L_0
  27 D   10.81     -9.4424E-02   85.69       32.65       85.69       44.49        ACTIVE    0.000       -4.900       21.38
1.000       1.000       54.03       0.000       0.000     UG3_4271_26346_L_0
  28 D   11.29     -8.0538E-02   87.94       33.50       87.94       45.12        ACTIVE    0.000       -5.100       22.97
1.000       1.000       56.47       0.000       0.000     UG3_4271_26346_L_0
  29 D   11.77     -6.6661E-02   90.01       34.29       90.01       45.74        ACTIVE    0.000       -5.300       24.55
1.000       1.000       58.84       0.000       0.000     UG3_4271_26346_L_0
  30 D   12.24     -5.2794E-02   92.10       35.09       92.10       46.36        ACTIVE    0.000       -5.500       26.13
1.000       1.000       61.22       0.000       0.000     UG3_4271_26346_L_0
  31 D   12.72     -3.8935E-02   94.20       35.89       94.20       46.99        ACTIVE    0.000       -5.700       27.72
1.000       1.000       63.61       0.000       0.000     UG3_4271_26346_L_0
  32 D   8.316     -2.5085E-02   96.22       12.28       96.22       46.28         UL-RL    9429.       -5.900       29.30
```

1.000	1.000	41.58	0.000	0.000	UG2_4_27610_L_0					
33 D	9.869	-1.1241E-02	98.26	18.46	98.26	47.43	UL-RL	9429.	-6.100	30.89
1.000	1.000	49.34	0.000	0.000	UG2_4_27610_L_0					
34 D	15.90	2.5966E-03	100.3	47.03	100.3	61.59	UL-RL	9429.	-6.300	32.47
1.000	1.000	79.50	0.000	0.000	UG2_4_27610_L_0					
35 D	27.09	1.6432E-02	102.4	101.4	102.4	101.4	V-C	3143.	-6.500	34.05
1.000	1.000	135.4	0.000	0.000	UG2_4_27610_L_0					
36 D	18.17	3.0266E-02	104.4	146.0	104.4	146.0	V-C	3143.	-6.700	35.64
1.000	1.000	181.7	0.000	0.000	UG2_4_27610_L_0					

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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                           |
|                                  Exe Time :14 May 2019       17:21:14                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
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   35
C U R R E N T   T I M E   I S     2.0000

 WALL2D ELEMENT

   EL      TA          TB          MA          MB
-------------------------------------------------------------
    1 4.84624E-09-4.84624E-09 4.69470E-10-4.50768E-10
    2-5.84760E-09 5.84760E-09 3.29322E-10-1.26221E-09
    3-0.15470     0.15470     9.62643E-10-3.09408E-02
    4-0.86837     0.86837     3.09408E-02-0.20461
    5 -2.0258      2.0258     0.20461    -0.60978
    6 -3.5342      3.5342     0.60978     -1.3166
    7 -5.3556      5.3556      1.3166     -2.3877
    8 -7.4705      7.4705      2.3877     -3.8818
    9 -9.8679      9.8679      3.8818     -5.8554
   10 -12.562      12.562      5.8554     -8.3679
   11 -12.562      12.562      8.3679     -10.880
   12 -12.562      12.562      10.880     -13.393
   13 -12.562      12.562      13.393     -15.905
   14 -12.721      12.721      15.905     -18.449
   15 -13.196      13.196      18.449     -21.089
   16 -13.988      13.988      21.089     -23.886
   17 -15.097      15.097      23.886     -26.905
   18 -16.522      16.522      26.905     -30.210
   19 -18.264      18.264      30.210     -33.863
   20 -20.323      20.323      33.863     -37.927
   21 -22.911      22.911      37.927     -42.510
   22 -9.8420      9.8420      42.510     -44.478
   23  3.9199     -3.9199      44.478     -43.694
   24  18.375     -18.375      43.694     -40.019
   25  14.294     -14.294      40.019     -37.160
   26  11.306     -11.306      37.160     -34.899
   27  9.4121     -9.4121      34.899     -33.016
   28  8.6259     -8.6259      33.016     -31.291
   29  8.9609     -8.9609      31.291     -29.499
   30  10.416     -10.416      29.499     -27.416
   31  12.989     -12.989      27.416     -24.818
   32  32.571     -32.571      24.818     -18.304
   33  41.872     -41.872      18.304     -9.9294
   34  35.045     -35.045      9.9294     -2.9205
   35  14.602     -14.602      2.9205     2.16005E-12
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|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                           |
|                                  Exe Time :14 May 2019       17:21:14                                                         |
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     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                     13


  END OF PROCESS FOR PROBLEM
 New Project
 NONLINEAR SOLUTION CPU TIME ....    0.04 [sec]
 DATABASE  CREATION CPU TIME.....    0.06 [sec]

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

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 STEEL-WORLD  4.4              Ce.A.S. s.r.l.                       PAG.     1
                                                      14 May 2019       17:21:15
                          DEFAULT TITLE FOR STEEL-WORLD
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                        ************************************
                        *                                  *
                        *              *   *               *
                        *           *         *            *
                        *         *             *          *
                        *        *    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

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STEEL-WORLD 4.4 Ce.A.S. s.r.l. PAG. 2
14 May 2019 17:21:15
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

EC3: CSTVEREC3P MODULE: START

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.     3
                                                    14 May 2019       17:21:15
                         DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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          **********************

          Partial safety factors as used in this code
          Gamma M0  =    1.050
          Gamma M1  =    1.050
          Gamma M2  =    1.250


EC3 PILING: START RESISTANCE CHECKS


          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

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

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                      PAG.     4
                                                    14 May 2019       17:21:15
                         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.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

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

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.     5
                                                      14 May 2019       17:21:15
                        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.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

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

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.     6
                                                      14 May 2019       17:21:15
                        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.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

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

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.     7
                                                      14 May 2019       17:21:15
                        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.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050
```

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.     8
                                                    14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     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.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

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

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050
```

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.     9
                                                    14 May 2019       17:21:15
                        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.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
```

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                       PAG.    10
                                                      14 May 2019       17:21:15
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                      CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                       PAG.    11
                                                    14 May 2019       17:21:15
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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.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    12
                                                      14 May 2019       17:21:15
                          DEFAULT TITLE FOR STEEL-WORLD
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

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

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    13
                                                    14 May 2019       17:21:15
                          DEFAULT TITLE FOR STEEL-WORLD
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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.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
```

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    14
                                                      14 May 2019       17:21:15
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                      CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
            gammaM0      1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    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]
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    15
                                                      14 May 2019       17:21:15
                         DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    16
                                                    14 May 2019       17:21:15
                         DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    17
                                                      14 May 2019       17:21:15
                         DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------


          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                       PAG.    18
                                                    14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

          web buckling ratio (5.7)             =    0.000

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    19
                                                      14 May 2019       17:21:15
                         DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

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

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    20
                                                      14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

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

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                      PAG.    21
                                                    14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

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

          Section no.    36 at x=  7000.000     [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.    36 at x=  7000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Summary of resistance checks over all the sections
          max selected class: 2, at station no.  36
          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
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                      PAG.    22
                                                      14 May 2019       17:21:15
                          DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                      CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

TABLE  B.3   : XMIN =      0.0000     XMAX =      300.00
               BXMIN=      0.0000     BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      7000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : PSI          0.0000
  "     "    Cm           0.0000
  "     "    MQ           0.0000
  "     "    Mmax         0.0000
  "     "    MQ/Mmax&lt;1/50 -&gt; LINEAR
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      =  0.0000
          Max. bending moment (abs value) [kNm]=  0.0000


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

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


          No axial compression: skipping buckling


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  2
           zstart      =  300.0000     [mm]  zend=    7000.000     [mm]
           buckl. length about x-x      =  6700.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      300.00     XMAX =      7000.0
               BXMIN=      0.0000     BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      7000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : PSI          0.0000
  "     "    Cm           0.0000
  "     "    MQ           0.0000
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    23
                                                      14 May 2019       17:21:15
                          DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                      CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

  "     "    Mmax        0.0000
  "     "    MQ/Mmax&lt;1/50 -&gt; LINEAR
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      =  0.0000
          Max. bending moment (abs value) [kNm]=  0.0000


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

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


          No axial compression: skipping buckling


LCASE          1  SUBCASE    1
FOUND AT ACTION FILE LINE N.       54
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
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    24
                                                    14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

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


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
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    25
                                                    14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------


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


           Moment resistance: no need to consider shear reduction
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    26
                                                      14 May 2019       17:21:15
                          DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                      CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------


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
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                      PAG.    27
                                                    14 May 2019       17:21:15
                         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.     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
```

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    28
                                                      14 May 2019       17:21:15
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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.     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.    29
                                                      14 May 2019       17:21:15
                        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.     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.    30
                                                      14 May 2019       17:21:15
                        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.    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
```

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    31
                                                    14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
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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.    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
```

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    32
                                                    14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
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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.    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
```

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                       PAG.    33
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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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.    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
```

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                       PAG.    34
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                      CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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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.    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
```

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    35
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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.    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
```

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    36
                                                    14 May 2019       17:21:15
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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.    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
```

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    37
                                                    14 May 2019       17:21:15
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
            gammaM0      1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    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]
```

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    38
                                                      14 May 2019       17:21:15
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    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
```

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    39
                                                      14 May 2019       17:21:15
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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          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
          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.    40
                                                      14 May 2019       17:21:15
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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          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
          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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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    41
                                                    14 May 2019       17:21:15
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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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

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           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
```

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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    42
                                                    14 May 2019       17:21:15
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    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=  7000.000     [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.    36 at x=  7000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    43
                                                      14 May 2019       17:21:15
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--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

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

          Summary of resistance checks over all the sections
          max selected class: 2, at station no.  36
          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) =      7000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : PSI         0.0000
  "     "    Cm          0.0000
  "     "    MQ          0.0000
  "     "    Mmax        0.0000
  "     "    MQ/Mmax&lt;1/50 -&gt; LINEAR
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      =  0.0000
          Max. bending moment (abs value) [kNm]=  0.0000


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

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

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


          No axial compression: skipping buckling


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  2
           zstart      =  300.0000     [mm]  zend=    7000.000     [mm]
           buckl. length about x-x      =  6700.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3    : XMIN =      300.00     XMAX =      7000.0
                BXMIN=      0.0000     BXMAX=      0.0000
                X(1) =      0.0000     X(N) =      7000.0
                M(1) =      0.0000     M(N) =      0.0000

Table B.3  : PSI          0.0000
  "     "    Cm           0.0000
  "     "    MQ           0.0000
  "     "    Mmax         0.0000
  "     "    MQ/Mmax&lt;1/50 -&gt; LINEAR
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      =  0.0000
          Max. bending moment (abs value) [kNm]=  0.0000


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

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


          No axial compression: skipping buckling


LCASE          2  SUBCASE    1
FOUND AT ACTION FILE LINE N.      150
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
```

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CHECK OF DIRECTLY INPUT MEMBER LW0_S0

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

EC3: CSTVEREC3P MODULE: START
****

Partial safety factors as used in this code

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    46
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

          Gamma M0  =    1.050
          Gamma M1  =    1.050
          Gamma M2  =    1.250


EC3 PILING: START RESISTANCE CHECKS


          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    47
                                                      14 May 2019       17:21:15
                          DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                      CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

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

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    48
                                                      14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------


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

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    49
                                                      14 May 2019       17:21:15
                         DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------


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

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

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

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                      PAG.    50
                                                    14 May 2019       17:21:15
                         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.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

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

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    51
                                                      14 May 2019       17:21:15
                        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.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

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

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

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

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    52
                                                      14 May 2019       17:21:15
                        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.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

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

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    53
                                                      14 May 2019       17:21:15
                        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.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    54
                                                    14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     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.    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
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    55
                                                    14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     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.    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
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                       PAG.    56
                                                    14 May 2019       17:21:15
                         DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                      PAG.    57
                                                    14 May 2019       17:21:15
                          DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                      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.    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
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    58
                                                      14 May 2019       17:21:15
                          DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     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.    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
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    59
                                                    14 May 2019       17:21:15
                         DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     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.    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
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    60
                                                      14 May 2019       17:21:15
                          DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                      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.    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]
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    61
                                                      14 May 2019       17:21:15
                         DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           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
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    62
                                                    14 May 2019       17:21:15
                          DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                      CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    63
                                                    14 May 2019       17:21:15
                         DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------


          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    64
                                                    14 May 2019       17:21:15
                         DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

          web buckling ratio (5.7)             =    0.000

          Section no.    36 at x=  7000.000     [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.    36 at x=  7000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Summary of resistance checks over all the sections
          max selected class: 2, at station no.  36
          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) =      7000.0
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    65
                                                      14 May 2019       17:21:15
                          DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

               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=    7000.000     [mm]
           buckl. length about x-x      =  6700.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      300.00     XMAX =      7000.0
               BXMIN=      0.0000     BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      7000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : PSI          0.0000
  "     "    Cm           0.0000
  "     "    MQ           0.0000
  "     "    Mmax         0.0000
  "     "    MQ/Mmax&lt;1/50 -&gt; LINEAR
Annex B:    TABLE   B.3
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    66
                                                      14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------


          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          3  SUBCASE    1
FOUND AT ACTION FILE LINE N.      246
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
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    67
                                                      14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

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


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
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    68
                                                      14 May 2019       17:21:15
                         DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

          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


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.    69
                                                      14 May 2019       17:21:15
                         DEFAULT TITLE FOR STEEL-WORLD
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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          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.    70
                                                      14 May 2019       17:21:15
                          DEFAULT TITLE FOR STEEL-WORLD
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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.     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.    71
                                                    14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
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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


           Moment resistance: no need to consider shear reduction
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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    72
                                                      14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
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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.     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.    73
                                                    14 May 2019       17:21:15
                         DEFAULT TITLE FOR STEEL-WORLD
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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.    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.    74
                                                      14 May 2019       17:21:15
                        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.    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.    75
                                                      14 May 2019       17:21:15
                        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.    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

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

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    76
                                                      14 May 2019       17:21:15
                        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.    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.    77
                                                    14 May 2019       17:21:15
                         DEFAULT TITLE FOR STEEL-WORLD
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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.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050
```

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    78
                                                      14 May 2019       17:21:15
                         DEFAULT TITLE FOR STEEL-WORLD
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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.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
```

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    79
                                                      14 May 2019       17:21:15
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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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.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
```

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                      PAG.    80
                                                    14 May 2019       17:21:15
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                      CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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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.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
```

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    81
                                                      14 May 2019       17:21:15
                          DEFAULT TITLE FOR STEEL-WORLD
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                      CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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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.    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.    82
                                                    14 May 2019       17:21:15
                         DEFAULT TITLE FOR STEEL-WORLD
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    83
                                                    14 May 2019       17:21:15
                         DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     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.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0      1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    33 at x=  6399.998     [mm]
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    84
                                                      14 May 2019       17:21:15
                         DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           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
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    85
                                                      14 May 2019       17:21:15
                          DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                      CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

          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=  7000.000     [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.    36 at x=  7000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    86
                                                      14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------


          Summary of resistance checks over all the sections
          max selected class: 2, at station no.  36
          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) =      7000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : PSI         0.0000
  "     "    Cm          0.0000
  "     "    MQ          0.0000
  "     "    Mmax        0.0000
  "     "    MQ/Mmax&lt;1/50 -&gt; LINEAR
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      =  0.0000
          Max. bending moment (abs value) [kNm]=  0.0000


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

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


          No axial compression: skipping buckling
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    87
                                                      14 May 2019       17:21:15
                          DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  2
           zstart      =  300.0000     [mm]  zend=    7000.000     [mm]
           buckl. length about x-x      =  6700.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      300.00     XMAX =      7000.0
               BXMIN=      0.0000     BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      7000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : PSI          0.0000
  "     "    Cm           0.0000
  "     "    MQ           0.0000
  "     "    Mmax         0.0000
  "     "    MQ/Mmax&lt;1/50 -&gt; LINEAR
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      =  0.0000
          Max. bending moment (abs value) [kNm]=  0.0000


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

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


          No axial compression: skipping buckling


LCASE          4  SUBCASE    1
FOUND AT ACTION FILE LINE N.      342
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
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    88
                                                    14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT 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

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

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

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DEFAULT TITLE FOR STEEL-WORLD

CHECK OF DIRECTLY INPUT MEMBER LW0_S1

ELEMENT LW0_S1 SHAPE SEC_0 TYPE U
MATERIAL MAT_0 SHAPE NATURE =ROLLED

PRESCRIBED ACTIONS FOR CASE 1 SUBCASE 1

PT	X	N	T2	T3	MT	M2	M3
	m	kN	kN	kN	kN*m	kN*m	kN*m
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.200	0.000	0.000	0.000	0.000	0.000	0.000
3	0.400	0.000	0.000	0.1222	0.000	0.000	0.000
4	0.600	0.000	0.000	0.6861	0.000	0.2445E-01	0.000
5	0.800	0.000	0.000	1.601	0.000	0.1617	0.000
6	1.000	0.000	0.000	2.792	0.000	0.4818	0.000
7	1.200	0.000	0.000	4.231	0.000	1.040	0.000
8	1.400	0.000	0.000	5.902	0.000	1.887	0.000
9	1.600	0.000	0.000	7.796	0.000	3.067	0.000
10	1.800	0.000	0.000	9.925	0.000	4.626	0.000
11	2.000	0.000	0.000	9.925	0.000	6.611	0.000
12	2.200	0.000	0.000	9.925	0.000	8.596	0.000
13	2.400	0.000	0.000	9.925	0.000	10.58	0.000
14	2.600	0.000	0.000	10.08	0.000	12.57	0.000
15	2.800	0.000	0.000	10.56	0.000	14.58	0.000
16	3.000	0.000	0.000	11.35	0.000	16.70	0.000
17	3.200	0.000	0.000	12.46	0.000	18.97	0.000
18	3.400	0.000	0.000	13.89	0.000	21.46	0.000
19	3.600	0.000	0.000	15.63	0.000	24.23	0.000
20	3.800	0.000	0.000	17.69	0.000	27.36	0.000
21	4.000	0.000	0.000	20.06	0.000	30.90	0.000
22	4.200	0.000	0.000	9.320	0.000	34.91	0.000
23	4.400	0.000	0.000	-1.113	0.000	36.77	0.000
24	4.600	0.000	0.000	-11.21	0.000	36.55	0.000
25	4.800	0.000	0.000	-9.809	0.000	34.31	0.000
26	5.000	0.000	0.000	-9.960	0.000	32.35	0.000
27	5.200	0.000	0.000	-11.66	0.000	30.35	0.000
28	5.400	0.000	0.000	-14.93	0.000	28.02	0.000
29	5.600	0.000	0.000	-17.85	0.000	25.04	0.000
30	5.800	0.000	0.000	-20.32	0.000	21.47	0.000
31	6.000	0.000	0.000	-22.35	0.000	17.40	0.000
32	6.200	0.000	0.000	-23.53	0.000	12.93	0.000
33	6.400	0.000	0.000	-20.79	0.000	8.226	0.000
34	6.600	0.000	0.000	-14.61	0.000	4.069	0.000
35	6.800	0.000	0.000	-5.729	0.000	1.146	0.000
36	7.000	0.000	0.000	-5.729	0.000	0.000	0.000

EC3: CSTVEREC3P MODULE: START

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                       PAG.    90
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--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

          **********************

          Partial safety factors as used in this code
          Gamma M0  =    1.050
          Gamma M1  =    1.050
          Gamma M2  =    1.250


EC3 PILING: START RESISTANCE CHECKS


          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

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

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                      PAG.    91
                                                    14 May 2019       17:21:15
                         DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

           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 = 0.1222     kN , VplRd =  1117.     kN, ratio = 0.1094E-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 = 0.6861     kN , VplRd =  1117.     kN, ratio = 0.6143E-03
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                       PAG.    92
                                                      14 May 2019       17:21:15
                          DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                      CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           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       =    0.001
          max. resist. ratio (max. among above)=    0.001
          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 =  1.601     kN , VplRd =  1117.     kN, ratio = 0.1433E-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
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    93
                                                      14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

          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 =  2.792     kN , VplRd =  1117.     kN, ratio = 0.2500E-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       =    0.001
          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.     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 =  4.231     kN , VplRd =  1117.     kN, ratio = 0.3788E-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
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                      PAG.    94
                                                    14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------


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       =    0.004
          max. resist. ratio (max. among above)=    0.004
          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 =  5.902     kN , VplRd =  1117.     kN, ratio = 0.5285E-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       =    0.005
          max. resist. ratio (max. among above)=    0.005
          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 =  7.796     kN , VplRd =  1117.     kN, ratio = 0.6980E-02

               betab     1.000
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                       PAG.    95
                                                      14 May 2019       17:21:15
                          DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           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       =    0.004
          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.    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 =  9.925     kN , VplRd =  1117.     kN, ratio = 0.8886E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.005
          resist. ratio according to 5.4       =    0.009
          max. resist. ratio (max. among above)=    0.009
          web buckling ratio (5.7)             =    0.000
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    96
                                                      14 May 2019       17:21:15
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------


          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 =  9.925     kN , VplRd =  1117.     kN, ratio = 0.8886E-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       =    0.008
          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.    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 =  9.925     kN , VplRd =  1117.     kN, ratio = 0.8886E-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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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    97
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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       =    0.009
          max. resist. ratio (max. among above)=    0.010
          web buckling ratio (5.7)             =    0.000

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  9.925     kN , VplRd =  1117.     kN, ratio = 0.8886E-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.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.012
          resist. ratio according to 5.4       =    0.009
          max. resist. ratio (max. among above)=    0.012
          web buckling ratio (5.7)             =    0.000

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  10.08     kN , VplRd =  1117.     kN, ratio = 0.9028E-02

               betab     1.000
                Wply    0.3269E+07
```

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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                      PAG.    98
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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.    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       =    0.009
          max. resist. ratio (max. among above)=    0.015
          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 =  10.56     kN , VplRd =  1117.     kN, ratio = 0.9454E-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.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.017
          resist. ratio according to 5.4       =    0.009
          max. resist. ratio (max. among above)=    0.017
          web buckling ratio (5.7)             =    0.000
```

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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    99
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          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 =  11.35     kN , VplRd =  1117.     kN, ratio = 0.1016E-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       =    0.019
          resist. ratio according to 5.4       =    0.010
          max. resist. ratio (max. among above)=    0.019
          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 =  12.46     kN , VplRd =  1117.     kN, ratio = 0.1116E-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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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   100
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
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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       =    0.022
          resist. ratio according to 5.4       =    0.011
          max. resist. ratio (max. among above)=    0.022
          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 =  13.89     kN , VplRd =  1117.     kN, ratio = 0.1243E-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       =    0.025
          resist. ratio according to 5.4       =    0.012
          max. resist. ratio (max. among above)=    0.025
          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 =  15.63     kN , VplRd =  1117.     kN, ratio = 0.1399E-01

               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.   101
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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.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.028
          resist. ratio according to 5.4       =    0.014
          max. resist. ratio (max. among above)=    0.028
          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 =  17.69     kN , VplRd =  1117.     kN, ratio = 0.1584E-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       =    0.032
          resist. ratio according to 5.4       =    0.016
          max. resist. ratio (max. among above)=    0.032
          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

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  20.06     kN , VplRd =  1117.     kN, ratio = 0.1796E-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       =    0.036
          resist. ratio according to 5.4       =    0.018
          max. resist. ratio (max. among above)=    0.036
          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 =  9.320     kN , VplRd =  1117.     kN, ratio = 0.8344E-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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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                       PAG.   103
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          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.041
          resist. ratio according to 5.4       =    0.008
          max. resist. ratio (max. among above)=    0.041
          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 = -1.113     kN , VplRd =  1117.     kN, ratio = 0.9968E-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.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.043
          resist. ratio according to 5.4       =    0.001
          max. resist. ratio (max. among above)=    0.043
          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 = -11.21     kN , VplRd =  1117.     kN, ratio = 0.1004E-01

               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.   104
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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.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.043
          resist. ratio according to 5.4       =    0.010
          max. resist. ratio (max. among above)=    0.043
          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 = -9.809     kN , VplRd =  1117.     kN, ratio = 0.8783E-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.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.040
          resist. ratio according to 5.4       =    0.009
          max. resist. ratio (max. among above)=    0.040
          web buckling ratio (5.7)             =    0.000

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2
```

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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                       PAG.   105
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5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -9.960     kN , VplRd =  1117.     kN, ratio = 0.8917E-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.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.038
          resist. ratio according to 5.4       =    0.009
          max. resist. ratio (max. among above)=    0.038
          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 = -11.66     kN , VplRd =  1117.     kN, ratio = 0.1044E-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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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   106
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          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.035
          resist. ratio according to 5.4       =    0.010
          max. resist. ratio (max. among above)=    0.035
          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 = -14.93     kN , VplRd =  1117.     kN, ratio = 0.1336E-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       =    0.033
          resist. ratio according to 5.4       =    0.013
          max. resist. ratio (max. among above)=    0.033
          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 = -17.85     kN , VplRd =  1117.     kN, ratio = 0.1598E-01

               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.   107
                                                    14 May 2019       17:21:15
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.029
          resist. ratio according to 5.4       =    0.016
          max. resist. ratio (max. among above)=    0.029
          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 = -20.32     kN , VplRd =  1117.     kN, ratio = 0.1819E-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       =    0.025
          resist. ratio according to 5.4       =    0.018
          max. resist. ratio (max. among above)=    0.025
          web buckling ratio (5.7)             =    0.000

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2
```

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   108
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -22.35     kN , VplRd =  1117.     kN, ratio = 0.2001E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.020
          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.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -23.53     kN , VplRd =  1117.     kN, ratio = 0.2107E-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]
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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                       PAG.   109
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          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.    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 = -20.79     kN , VplRd =  1117.     kN, ratio = 0.1861E-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       =    0.010
          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.    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 = -14.61     kN , VplRd =  1117.     kN, ratio = 0.1308E-01

               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.   110
                                                      14 May 2019       17:21:15
                         DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------



           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       =    0.005
          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.    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 = -5.729     kN , VplRd =  1117.     kN, ratio = 0.5130E-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       =    0.001
          resist. ratio according to 5.4       =    0.005
          max. resist. ratio (max. among above)=    0.005
          web buckling ratio (5.7)             =    0.000

          Section no.    36 at x=  7000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   111
                                                    14 May 2019       17:21:15
                         DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -5.729     kN , VplRd =  1117.     kN, ratio = 0.5130E-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=  7000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.005
          max. resist. ratio (max. among above)=    0.005
          web buckling ratio (5.7)             =    0.000

          Summary of resistance checks over all the sections
          max selected class: 2, at station no.  36
          maximum resistance   ratio               =    0.043
          maximum web buckling ratio               =    0.000

EC3 PILING: START BUCKLING CHECKS


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  1
           zstart      =  0.000000     [mm]  zend=    4050.000     [mm]
           buckl. length about x-x      =  4050.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      0.0000     XMAX =      4050.0
               BXMIN=      0.0000     BXMAX=     0.31900E+08
               X(1) =      0.0000     X(N) =      7000.0
               M(1) =      0.0000     M(N) =      0.0000
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   112
                                                      14 May 2019       17:21:15
                          DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                      CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

Table B.3  : ERR Q M - BILINEAR         0.23495E+16
  "    "   : ERR Q M - PARABOLA CENTR.  0.28453E+16
Table B.3  : PSI          0.0000
  "     "    ALPHA       0.21503
  "     "    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]=  31.900


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      =  4050.000     [mm]  zend=    7000.000     [mm]
           buckl. length about x-x      =  2950.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      4050.0     XMAX =      7000.0
               BXMIN=     0.31900E+08 BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      7000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.10837E+16
  "    "   : ERR Q M - PARABOLA CENTR.  0.22376E+16
Table B.3  : PSI          0.0000
  "     "    ALPHA       0.81995
  "     "    Cm unif.    0.85596
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   113
                                                      14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

  "     "    Cm conc.   0.85596
  "     "    Cm avrg.   0.85596
  "     "    Cm     .   0.85596
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      = 0.85596
          Max. bending moment (abs value) [kNm]=  36.773


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.      102
EC3_EN_1993-5:20   RESISTANCE RATIO            0.043
                   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     0.1222      0.000      0.000      0.000
 4     0.600  0.000      0.000     0.6861      0.000     0.2445E-01  0.000
 5     0.800  0.000      0.000      1.601      0.000      0.1617     0.000
 6     1.000  0.000      0.000      2.792      0.000      0.4818     0.000
 7     1.200  0.000      0.000      4.231      0.000       1.040     0.000
 8     1.400  0.000      0.000      5.902      0.000       1.887     0.000
 9     1.600  0.000      0.000      7.796      0.000       3.067     0.000
10     1.800  0.000      0.000      9.925      0.000       4.626     0.000
11     2.000  0.000      0.000      9.925      0.000       6.611     0.000
12     2.200  0.000      0.000      9.925      0.000       8.596     0.000
13     2.400  0.000      0.000      9.925      0.000       10.58     0.000
14     2.600  0.000      0.000      10.08      0.000       12.57     0.000
15     2.800  0.000      0.000      10.56      0.000       14.58     0.000
16     3.000  0.000      0.000      11.35      0.000       16.70     0.000
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   114
                                                      14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

17     3.200  0.000      0.000      12.46      0.000      18.97      0.000
18     3.400  0.000      0.000      13.89      0.000      21.46      0.000
19     3.600  0.000      0.000      15.63      0.000      24.23      0.000
20     3.800  0.000      0.000      17.69      0.000      27.36      0.000
21     4.000  0.000      0.000      20.06      0.000      30.90      0.000
22     4.200  0.000      0.000      9.320      0.000      34.91      0.000
23     4.400  0.000      0.000     -1.113      0.000      36.77      0.000
24     4.600  0.000      0.000     -11.21      0.000      36.55      0.000
25     4.800  0.000      0.000     -9.809      0.000      34.31      0.000
26     5.000  0.000      0.000     -9.960      0.000      32.35      0.000
27     5.200  0.000      0.000     -11.66      0.000      30.35      0.000
28     5.400  0.000      0.000     -14.93      0.000      28.02      0.000
29     5.600  0.000      0.000     -17.85      0.000      25.04      0.000
30     5.800  0.000      0.000     -20.32      0.000      21.47      0.000
31     6.000  0.000      0.000     -22.35      0.000      17.40      0.000
32     6.200  0.000      0.000     -23.53      0.000      12.93      0.000
33     6.400  0.000      0.000     -20.79      0.000      8.226      0.000
34     6.600  0.000      0.000     -14.61      0.000      4.069      0.000
35     6.800  0.000      0.000     -5.729      0.000      1.146      0.000
36     7.000  0.000      0.000     -5.729      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
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   115
                                                      14 May 2019       17:21:15
                          DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                      CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------


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

          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = 0.1222     kN , VplRd =  1117.     kN, ratio = 0.1094E-03

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   116
                                                    14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.     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 = 0.6861     kN , VplRd =  1117.     kN, ratio = 0.6143E-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       =    0.001
          max. resist. ratio (max. among above)=    0.001
          web buckling ratio (5.7)             =    0.000

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   117
                                                      14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  1.601     kN , VplRd =  1117.     kN, ratio = 0.1433E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.001
          max. resist. ratio (max. among above)=    0.001
          web buckling ratio (5.7)             =    0.000

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  2.792     kN , VplRd =  1117.     kN, ratio = 0.2500E-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]
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                       PAG.   118
                                                    14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

          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.     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 =  4.231     kN , VplRd =  1117.     kN, ratio = 0.3788E-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       =    0.004
          max. resist. ratio (max. among above)=    0.004
          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 =  5.902     kN , VplRd =  1117.     kN, ratio = 0.5285E-02

               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.   119
                                                      14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------



           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       =    0.005
          max. resist. ratio (max. among above)=    0.005
          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 =  7.796     kN , VplRd =  1117.     kN, ratio = 0.6980E-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       =    0.004
          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.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   120
                                                      14 May 2019       17:21:15
                        DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  9.925     kN , VplRd =  1117.     kN, ratio = 0.8886E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.005
          resist. ratio according to 5.4       =    0.009
          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 =  9.925     kN , VplRd =  1117.     kN, ratio = 0.8886E-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
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   121
                                                      14 May 2019       17:21:15
                         DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

          resist. ratio according to 5.1       =    0.008
          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.    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 =  9.925     kN , VplRd =  1117.     kN, ratio = 0.8886E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.010
          resist. ratio according to 5.4       =    0.009
          max. resist. ratio (max. among above)=    0.010
          web buckling ratio (5.7)             =    0.000

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  9.925     kN , VplRd =  1117.     kN, ratio = 0.8886E-02

               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.   122
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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       =    0.012
          resist. ratio according to 5.4       =    0.009
          max. resist. ratio (max. among above)=    0.012
          web buckling ratio (5.7)             =    0.000

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  10.08     kN , VplRd =  1117.     kN, ratio = 0.9028E-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.    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       =    0.009
          max. resist. ratio (max. among above)=    0.015
          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
```

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          Vsd =  10.56     kN , VplRd =  1117.     kN, ratio = 0.9454E-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.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.017
          resist. ratio according to 5.4       =    0.009
          max. resist. ratio (max. among above)=    0.017
          web buckling ratio (5.7)             =    0.000

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  11.35     kN , VplRd =  1117.     kN, ratio = 0.1016E-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       =    0.019
```

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          resist. ratio according to 5.4       =    0.010
          max. resist. ratio (max. among above)=    0.019
          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 =  12.46     kN , VplRd =  1117.     kN, ratio = 0.1116E-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       =    0.022
          resist. ratio according to 5.4       =    0.011
          max. resist. ratio (max. among above)=    0.022
          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 =  13.89     kN , VplRd =  1117.     kN, ratio = 0.1243E-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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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                       PAG.   125
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           Moment resistance: no need to consider shear reduction


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

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.025
          resist. ratio according to 5.4       =    0.012
          max. resist. ratio (max. among above)=    0.025
          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 =  15.63     kN , VplRd =  1117.     kN, ratio = 0.1399E-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       =    0.028
          resist. ratio according to 5.4       =    0.014
          max. resist. ratio (max. among above)=    0.028
          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 =  17.69     kN , VplRd =  1117.     kN, ratio = 0.1584E-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.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.032
          resist. ratio according to 5.4       =    0.016
          max. resist. ratio (max. among above)=    0.032
          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 =  20.06     kN , VplRd =  1117.     kN, ratio = 0.1796E-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       =    0.036
          resist. ratio according to 5.4       =    0.018
```

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          max. resist. ratio (max. among above)=    0.036
          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 =  9.320     kN , VplRd =  1117.     kN, ratio = 0.8344E-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.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.041
          resist. ratio according to 5.4       =    0.008
          max. resist. ratio (max. among above)=    0.041
          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 = -1.113     kN , VplRd =  1117.     kN, ratio = 0.9968E-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.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.043
          resist. ratio according to 5.4       =    0.001
          max. resist. ratio (max. among above)=    0.043
          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 = -11.21     kN , VplRd =  1117.     kN, ratio = 0.1004E-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       =    0.043
          resist. ratio according to 5.4       =    0.010
          max. resist. ratio (max. among above)=    0.043
          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 = -9.809     kN , VplRd =  1117.     kN, ratio = 0.8783E-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.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.040
          resist. ratio according to 5.4       =    0.009
          max. resist. ratio (max. among above)=    0.040
          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 = -9.960     kN , VplRd =  1117.     kN, ratio = 0.8917E-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.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.038
          resist. ratio according to 5.4       =    0.009
          max. resist. ratio (max. among above)=    0.038
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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

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -11.66     kN , VplRd =  1117.     kN, ratio = 0.1044E-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       =    0.035
          resist. ratio according to 5.4       =    0.010
          max. resist. ratio (max. among above)=    0.035
          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 = -14.93     kN , VplRd =  1117.     kN, ratio = 0.1336E-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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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                      PAG.   131
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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       =    0.033
          resist. ratio according to 5.4       =    0.013
          max. resist. ratio (max. among above)=    0.033
          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 = -17.85     kN , VplRd =  1117.     kN, ratio = 0.1598E-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       =    0.029
          resist. ratio according to 5.4       =    0.016
          max. resist. ratio (max. among above)=    0.029
          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 = -20.32     kN , VplRd =  1117.     kN, ratio = 0.1819E-01

               betab     1.000
```

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--------------------------------------------------------------------------------
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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.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.025
          resist. ratio according to 5.4       =    0.018
          max. resist. ratio (max. among above)=    0.025
          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 = -22.35     kN , VplRd =  1117.     kN, ratio = 0.2001E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.020
          resist. ratio according to 5.4       =    0.020
          max. resist. ratio (max. among above)=    0.020
          web buckling ratio (5.7)             =    0.000
```

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          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -23.53     kN , VplRd =  1117.     kN, ratio = 0.2107E-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       =    0.015
          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.    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 = -20.79     kN , VplRd =  1117.     kN, ratio = 0.1861E-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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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   134
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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       =    0.010
          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.    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 = -14.61     kN , VplRd =  1117.     kN, ratio = 0.1308E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.005
          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.    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 = -5.729     kN , VplRd =  1117.     kN, ratio = 0.5130E-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.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.001
          resist. ratio according to 5.4       =    0.005
          max. resist. ratio (max. among above)=    0.005
          web buckling ratio (5.7)             =    0.000

          Section no.    36 at x=  7000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -5.729     kN , VplRd =  1117.     kN, ratio = 0.5130E-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=  7000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.005
          max. resist. ratio (max. among above)=    0.005
          web buckling ratio (5.7)             =    0.000
```

```
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          Summary of resistance checks over all the sections
          max selected class: 2, at station no.  36
          maximum resistance   ratio               =    0.043
          maximum web buckling ratio               =    0.000

EC3 PILING: START BUCKLING CHECKS


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  1
           zstart      =  0.000000     [mm]  zend=    4050.000     [mm]
           buckl. length about x-x      =  4050.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      0.0000     XMAX =      4050.0
               BXMIN=      0.0000     BXMAX=     0.31900E+08
               X(1) =      0.0000     X(N) =      7000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.23495E+16
  "    "   : ERR Q M - PARABOLA CENTR.  0.28453E+16
Table B.3  : PSI          0.0000
  "      "   ALPHA       0.21503
  "      "   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]=  31.900


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

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

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

          No axial compression: skipping buckling


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  2
           zstart      =  4050.000     [mm]  zend=    7000.000     [mm]
           buckl. length about x-x      =  2950.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      4050.0     XMAX =      7000.0
               BXMIN=     0.31900E+08 BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      7000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.10837E+16
  "    "   : ERR Q M - PARABOLA CENTR.  0.22376E+16
Table B.3  : PSI          0.0000
  "     "    ALPHA      0.81995
  "     "    Cm unif.   0.85596
  "     "    Cm conc.   0.85596
  "     "    Cm avrg.   0.85596
  "     "    Cm     .   0.85596
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      = 0.85596
          Max. bending moment (abs value) [kNm]=  36.773


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

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


          No axial compression: skipping buckling
```

```
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LCASE          2  SUBCASE    1
FOUND AT ACTION FILE LINE N.      198
EC3_EN_1993-5:20   RESISTANCE RATIO            0.043
                   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      0.1589       0.000       0.000       0.000
 4     0.600  0.000       0.000      0.8919       0.000     0.3178E-01    0.000
 5     0.800  0.000       0.000       2.081       0.000      0.2102       0.000
 6     1.000  0.000       0.000       3.630       0.000      0.6263       0.000
 7     1.200  0.000       0.000       5.501       0.000       1.352       0.000
 8     1.400  0.000       0.000       7.673       0.000       2.452       0.000
 9     1.600  0.000       0.000       10.14       0.000       3.987       0.000
10     1.800  0.000       0.000       12.90       0.000       6.014       0.000
11     2.000  0.000       0.000       12.90       0.000       8.595       0.000
12     2.200  0.000       0.000       12.90       0.000       11.18       0.000
13     2.400  0.000       0.000       12.90       0.000       13.76       0.000
14     2.600  0.000       0.000       13.11       0.000       16.34       0.000
15     2.800  0.000       0.000       13.73       0.000       18.96       0.000
16     3.000  0.000       0.000       14.76       0.000       21.70       0.000
17     3.200  0.000       0.000       16.20       0.000       24.65       0.000
18     3.400  0.000       0.000       18.05       0.000       27.89       0.000
19     3.600  0.000       0.000       20.32       0.000       31.50       0.000
20     3.800  0.000       0.000       22.99       0.000       35.57       0.000
21     4.000  0.000       0.000       26.08       0.000       40.17       0.000
22     4.200  0.000       0.000       12.12       0.000       45.38       0.000
23     4.400  0.000       0.000      -1.447       0.000       47.81       0.000
24     4.600  0.000       0.000      -14.57       0.000       47.52       0.000
25     4.800  0.000       0.000      -12.75       0.000       44.60       0.000
26     5.000  0.000       0.000      -12.95       0.000       42.05       0.000
27     5.200  0.000       0.000      -15.16       0.000       39.46       0.000
28     5.400  0.000       0.000      -19.41       0.000       36.43       0.000
29     5.600  0.000       0.000      -23.20       0.000       32.55       0.000
30     5.800  0.000       0.000      -26.42       0.000       27.91       0.000
31     6.000  0.000       0.000      -29.05       0.000       22.62       0.000
32     6.200  0.000       0.000      -30.59       0.000       16.81       0.000
33     6.400  0.000       0.000      -27.02       0.000       10.69       0.000
34     6.600  0.000       0.000      -19.00       0.000       5.289       0.000
35     6.800  0.000       0.000      -7.448       0.000       1.490       0.000
36     7.000  0.000       0.000      -7.448       0.000       0.000       0.000


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

```
--------------------------------------------------------------------------------
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          Partial safety factors as used in this code
          Gamma M0  =    1.050
          Gamma M1  =    1.050
          Gamma M2  =    1.250


EC3 PILING: START RESISTANCE CHECKS


          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction
```

```
--------------------------------------------------------------------------------
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--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------


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

          Section no.     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 = 0.1589     kN , VplRd =  1117.     kN, ratio = 0.1423E-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 = 0.8919     kN , VplRd =  1117.     kN, ratio = 0.7986E-03

               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.     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       =    0.001
          max. resist. ratio (max. among above)=    0.001
          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 =  2.081     kN , VplRd =  1117.     kN, ratio = 0.1863E-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       =    0.002
          max. resist. ratio (max. among above)=    0.002
          web buckling ratio (5.7)             =    0.000
```

```
--------------------------------------------------------------------------------
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

          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 =  3.630     kN , VplRd =  1117.     kN, ratio = 0.3250E-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       =    0.001
          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.     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 =  5.501     kN , VplRd =  1117.     kN, ratio = 0.4925E-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
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   143
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--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

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

          Section no.     7 at x=  1200.000     [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.     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 =  7.673     kN , VplRd =  1117.     kN, ratio = 0.6870E-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       =    0.003
          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.     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 =  10.14     kN , VplRd =  1117.     kN, ratio = 0.9074E-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.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2
          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.    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 =  12.90     kN , VplRd =  1117.     kN, ratio = 0.1155E-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.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.007
          resist. ratio according to 5.4       =    0.012
          max. resist. ratio (max. among above)=    0.012
          web buckling ratio (5.7)             =    0.000

          Section no.    11 at x=  2000.000     [mm]
```

```
--------------------------------------------------------------------------------
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  12.90     kN , VplRd =  1117.     kN, ratio = 0.1155E-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       =    0.010
          resist. ratio according to 5.4       =    0.012
          max. resist. ratio (max. among above)=    0.012
          web buckling ratio (5.7)             =    0.000

          Section no.    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 =  12.90     kN , VplRd =  1117.     kN, ratio = 0.1155E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                       PAG.   146
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------


          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.013
          resist. ratio according to 5.4       =    0.012
          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 =  12.90     kN , VplRd =  1117.     kN, ratio = 0.1155E-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       =    0.016
          resist. ratio according to 5.4       =    0.012
          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 =  13.11     kN , VplRd =  1117.     kN, ratio = 0.1174E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   147
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------


5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.019
          resist. ratio according to 5.4       =    0.012
          max. resist. ratio (max. among above)=    0.019
          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 =  13.73     kN , VplRd =  1117.     kN, ratio = 0.1229E-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       =    0.022
          resist. ratio according to 5.4       =    0.012
          max. resist. ratio (max. among above)=    0.022
          web buckling ratio (5.7)             =    0.000

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2
```

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5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  14.76     kN , VplRd =  1117.     kN, ratio = 0.1321E-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       =    0.025
          resist. ratio according to 5.4       =    0.013
          max. resist. ratio (max. among above)=    0.025
          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 =  16.20     kN , VplRd =  1117.     kN, ratio = 0.1450E-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.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.029
          resist. ratio according to 5.4       =    0.015
          max. resist. ratio (max. among above)=    0.029
          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 =  18.05     kN , VplRd =  1117.     kN, ratio = 0.1616E-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       =    0.033
          resist. ratio according to 5.4       =    0.016
          max. resist. ratio (max. among above)=    0.033
          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 =  20.32     kN , VplRd =  1117.     kN, ratio = 0.1819E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050
```

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--------------------------------------------------------------------------------
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                      CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.037
          resist. ratio according to 5.4       =    0.018
          max. resist. ratio (max. among above)=    0.037
          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 =  22.99     kN , VplRd =  1117.     kN, ratio = 0.2059E-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       =    0.042
          resist. ratio according to 5.4       =    0.021
          max. resist. ratio (max. among above)=    0.042
          web buckling ratio (5.7)             =    0.000

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2
```

```
--------------------------------------------------------------------------------
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  26.08     kN , VplRd =  1117.     kN, ratio = 0.2335E-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       =    0.047
          resist. ratio according to 5.4       =    0.023
          max. resist. ratio (max. among above)=    0.047
          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 =  12.12     kN , VplRd =  1117.     kN, ratio = 0.1085E-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]
```

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

          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.053
          resist. ratio according to 5.4       =    0.011
          max. resist. ratio (max. among above)=    0.053
          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 = -1.447     kN , VplRd =  1117.     kN, ratio = 0.1296E-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.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.056
          resist. ratio according to 5.4       =    0.001
          max. resist. ratio (max. among above)=    0.056
          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 = -14.57     kN , VplRd =  1117.     kN, ratio = 0.1305E-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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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   153
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------



           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       =    0.055
          resist. ratio according to 5.4       =    0.013
          max. resist. ratio (max. among above)=    0.055
          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 = -12.75     kN , VplRd =  1117.     kN, ratio = 0.1142E-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       =    0.052
          resist. ratio according to 5.4       =    0.011
          max. resist. ratio (max. among above)=    0.052
          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
```

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--------------------------------------------------------------------------------
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -12.95     kN , VplRd =  1117.     kN, ratio = 0.1159E-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       =    0.049
          resist. ratio according to 5.4       =    0.012
          max. resist. ratio (max. among above)=    0.049
          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 = -15.16     kN , VplRd =  1117.     kN, ratio = 0.1357E-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
```

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   155
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                      CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

          resist. ratio according to 5.1       =    0.046
          resist. ratio according to 5.4       =    0.014
          max. resist. ratio (max. among above)=    0.046
          web buckling ratio (5.7)             =    0.000

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -19.41     kN , VplRd =  1117.     kN, ratio = 0.1737E-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       =    0.043
          resist. ratio according to 5.4       =    0.017
          max. resist. ratio (max. among above)=    0.043
          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 = -23.20     kN , VplRd =  1117.     kN, ratio = 0.2077E-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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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   156
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--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------


           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       =    0.038
          resist. ratio according to 5.4       =    0.021
          max. resist. ratio (max. among above)=    0.038
          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 = -26.42     kN , VplRd =  1117.     kN, ratio = 0.2365E-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       =    0.033
          resist. ratio according to 5.4       =    0.024
          max. resist. ratio (max. among above)=    0.033
          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
```

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--------------------------------------------------------------------------------
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

          Vsd = -29.05     kN , VplRd =  1117.     kN, ratio = 0.2601E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.026
          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.    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 = -30.59     kN , VplRd =  1117.     kN, ratio = 0.2739E-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       =    0.020
```

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   158
                                                      14 May 2019       17:21:15
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

          resist. ratio according to 5.4       =    0.027
          max. resist. ratio (max. among above)=    0.027
          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 = -27.02     kN , VplRd =  1117.     kN, ratio = 0.2419E-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       =    0.012
          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.    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 = -19.00     kN , VplRd =  1117.     kN, ratio = 0.1701E-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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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                      PAG.   159
                                                    14 May 2019       17:21:15
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--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------


           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       =    0.006
          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.    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 = -7.448     kN , VplRd =  1117.     kN, ratio = 0.6668E-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       =    0.002
          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.    36 at x=  7000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -7.448     kN , VplRd =  1117.     kN, ratio = 0.6668E-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.    36 at x=  7000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.007
          max. resist. ratio (max. among above)=    0.007
          web buckling ratio (5.7)             =    0.000

          Summary of resistance checks over all the sections
          max selected class: 2, at station no.  36
          maximum resistance   ratio               =    0.056
          maximum web buckling ratio               =    0.000

EC3 PILING: START BUCKLING CHECKS


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  1
           zstart      =  0.000000     [mm]  zend=    4050.000     [mm]
           buckl. length about x-x      =  4050.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      0.0000     XMAX =      4050.0
               BXMIN=      0.0000     BXMAX=     0.41470E+08
               X(1) =      0.0000     X(N) =      7000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.39707E+16
  "    "   : ERR Q M - PARABOLA CENTR.  0.48086E+16
```

```
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Table B.3  : PSI         0.0000
  "     "    ALPHA      0.21503
  "     "    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]=  41.470


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      =  4050.000     [mm]  zend=    7000.000     [mm]
           buckl. length about x-x      =  2950.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      4050.0     XMAX =      7000.0
               BXMIN=     0.41470E+08 BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      7000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.18315E+16
  "    "   : ERR Q M - PARABOLA CENTR.  0.37815E+16
Table B.3  : PSI         0.0000
  "     "    ALPHA      0.81995
  "     "    Cm unif.   0.85596
  "     "    Cm conc.   0.85596
  "     "    Cm avrg.   0.85596
```

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

  "     "    Cm     .   0.85596
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      = 0.85596
          Max. bending moment (abs value) [kNm]=  47.805


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.      294
EC3_EN_1993-5:20   RESISTANCE RATIO            0.056
                   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      -.5000E-08  0.000       0.000       0.000
 2     0.200  0.000       0.000      0.5800E-08  0.000       0.000       0.000
 3     0.400  0.000       0.000      0.1547      0.000       0.000       0.000
 4     0.600  0.000       0.000      0.8684      0.000      0.3094E-01   0.000
 5     0.800  0.000       0.000       2.026      0.000      0.2046       0.000
 6     1.000  0.000       0.000       3.534      0.000      0.6098       0.000
 7     1.200  0.000       0.000       5.356      0.000       1.317       0.000
 8     1.400  0.000       0.000       7.470      0.000       2.388       0.000
 9     1.600  0.000       0.000       9.868      0.000       3.882       0.000
10     1.800  0.000       0.000       12.56      0.000       5.855       0.000
11     2.000  0.000       0.000       12.56      0.000       8.368       0.000
12     2.200  0.000       0.000       12.56      0.000       10.88       0.000
13     2.400  0.000       0.000       12.56      0.000       13.39       0.000
14     2.600  0.000       0.000       12.72      0.000       15.91       0.000
15     2.800  0.000       0.000       13.20      0.000       18.45       0.000
16     3.000  0.000       0.000       13.99      0.000       21.09       0.000
17     3.200  0.000       0.000       15.10      0.000       23.89       0.000
18     3.400  0.000       0.000       16.52      0.000       26.91       0.000
```

```
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19     3.600  0.000      0.000      18.26      0.000      30.21      0.000
20     3.800  0.000      0.000      20.32      0.000      33.86      0.000
21     4.000  0.000      0.000      22.91      0.000      37.93      0.000
22     4.200  0.000      0.000      9.842      0.000      42.51      0.000
23     4.400  0.000      0.000     -3.920      0.000      44.48      0.000
24     4.600  0.000      0.000     -18.38      0.000      43.69      0.000
25     4.800  0.000      0.000     -14.29      0.000      40.02      0.000
26     5.000  0.000      0.000     -11.31      0.000      37.16      0.000
27     5.200  0.000      0.000     -9.412      0.000      34.90      0.000
28     5.400  0.000      0.000     -8.626      0.000      33.02      0.000
29     5.600  0.000      0.000     -8.961      0.000      31.29      0.000
30     5.800  0.000      0.000     -10.42      0.000      29.50      0.000
31     6.000  0.000      0.000     -12.99      0.000      27.42      0.000
32     6.200  0.000      0.000     -32.57      0.000      24.82      0.000
33     6.400  0.000      0.000     -41.87      0.000      18.30      0.000
34     6.600  0.000      0.000     -35.04      0.000      9.929      0.000
35     6.800  0.000      0.000     -14.60      0.000      2.920      0.000
36     7.000  0.000      0.000     -14.60      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
```

```
--------------------------------------------------------------------------------
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                      CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------

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

          Section no.     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 = 0.1547     kN , VplRd =  1117.     kN, ratio = 0.1385E-03

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

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

```
--------------------------------------------------------------------------------
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--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------


           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 = 0.8684     kN , VplRd =  1117.     kN, ratio = 0.7775E-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       =    0.001
          max. resist. ratio (max. among above)=    0.001
          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
```

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

          Vsd =  2.026     kN , VplRd =  1117.     kN, ratio = 0.1814E-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       =    0.002
          max. resist. ratio (max. among above)=    0.002
          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 =  3.534     kN , VplRd =  1117.     kN, ratio = 0.3164E-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       =    0.001
```

```
--------------------------------------------------------------------------------
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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.     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 =  5.356     kN , VplRd =  1117.     kN, ratio = 0.4795E-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       =    0.002
          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.     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 =  7.470     kN , VplRd =  1117.     kN, ratio = 0.6689E-02

               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.   168
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--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------


           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       =    0.003
          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.     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 =  9.868     kN , VplRd =  1117.     kN, ratio = 0.8835E-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       =    0.005
          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.    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 =  12.56     kN , VplRd =  1117.     kN, ratio = 0.1125E-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.    10 at x=  1800.000     [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.    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 =  12.56     kN , VplRd =  1117.     kN, ratio = 0.1125E-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       =    0.010
          resist. ratio according to 5.4       =    0.011
```

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

          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 =  12.56     kN , VplRd =  1117.     kN, ratio = 0.1125E-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       =    0.013
          resist. ratio according to 5.4       =    0.011
          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 =  12.56     kN , VplRd =  1117.     kN, ratio = 0.1125E-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
--------------------------------------------------------------------------------

           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       =    0.016
          resist. ratio according to 5.4       =    0.011
          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 =  12.72     kN , VplRd =  1117.     kN, ratio = 0.1139E-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       =    0.019
          resist. ratio according to 5.4       =    0.011
          max. resist. ratio (max. among above)=    0.019
          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 =  13.20     kN , VplRd =  1117.     kN, ratio = 0.1181E-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.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.022
          resist. ratio according to 5.4       =    0.012
          max. resist. ratio (max. among above)=    0.022
          web buckling ratio (5.7)             =    0.000

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  13.99     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


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       =    0.025
          resist. ratio according to 5.4       =    0.013
          max. resist. ratio (max. among above)=    0.025
```

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

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  15.10     kN , VplRd =  1117.     kN, ratio = 0.1352E-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       =    0.028
          resist. ratio according to 5.4       =    0.014
          max. resist. ratio (max. among above)=    0.028
          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 =  16.52     kN , VplRd =  1117.     kN, ratio = 0.1479E-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       =    0.031
          resist. ratio according to 5.4       =    0.015
          max. resist. ratio (max. among above)=    0.031
          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 =  18.26     kN , VplRd =  1117.     kN, ratio = 0.1635E-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       =    0.035
          resist. ratio according to 5.4       =    0.016
          max. resist. ratio (max. among above)=    0.035
          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 =  20.32     kN , VplRd =  1117.     kN, ratio = 0.1820E-01

               betab     1.000
```

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--------------------------------------------------------------------------------
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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.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.040
          resist. ratio according to 5.4       =    0.018
          max. resist. ratio (max. among above)=    0.040
          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 =  22.91     kN , VplRd =  1117.     kN, ratio = 0.2051E-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       =    0.044
          resist. ratio according to 5.4       =    0.021
          max. resist. ratio (max. among above)=    0.044
          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 =  9.842     kN , VplRd =  1117.     kN, ratio = 0.8812E-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.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.050
          resist. ratio according to 5.4       =    0.009
          max. resist. ratio (max. among above)=    0.050
          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 = -3.920     kN , VplRd =  1117.     kN, ratio = 0.3510E-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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--------------------------------------------------------------------------------
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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       =    0.052
          resist. ratio according to 5.4       =    0.004
          max. resist. ratio (max. among above)=    0.052
          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 = -18.38     kN , VplRd =  1117.     kN, ratio = 0.1645E-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       =    0.051
          resist. ratio according to 5.4       =    0.016
          max. resist. ratio (max. among above)=    0.051
          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 = -14.29     kN , VplRd =  1117.     kN, ratio = 0.1280E-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.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.047
          resist. ratio according to 5.4       =    0.013
          max. resist. ratio (max. among above)=    0.047
          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 = -11.31     kN , VplRd =  1117.     kN, ratio = 0.1012E-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       =    0.043
          resist. ratio according to 5.4       =    0.010
          max. resist. ratio (max. among above)=    0.043
          web buckling ratio (5.7)             =    0.000
```

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--------------------------------------------------------------------------------
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          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 = -9.412     kN , VplRd =  1117.     kN, ratio = 0.8427E-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.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.041
          resist. ratio according to 5.4       =    0.008
          max. resist. ratio (max. among above)=    0.041
          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 = -8.626     kN , VplRd =  1117.     kN, ratio = 0.7723E-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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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   180
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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       =    0.039
          resist. ratio according to 5.4       =    0.008
          max. resist. ratio (max. among above)=    0.039
          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 = -8.961     kN , VplRd =  1117.     kN, ratio = 0.8023E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.037
          resist. ratio according to 5.4       =    0.008
          max. resist. ratio (max. among above)=    0.037
          web buckling ratio (5.7)             =    0.000

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -10.42     kN , VplRd =  1117.     kN, ratio = 0.9326E-02

               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.   181
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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.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.034
          resist. ratio according to 5.4       =    0.009
          max. resist. ratio (max. among above)=    0.034
          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 = -12.99     kN , VplRd =  1117.     kN, ratio = 0.1163E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.032
          resist. ratio according to 5.4       =    0.012
          max. resist. ratio (max. among above)=    0.032
          web buckling ratio (5.7)             =    0.000

          Section no.    32 at x=  6199.999     [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 = -32.57     kN , VplRd =  1117.     kN, ratio = 0.2916E-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       =    0.029
          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.    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 = -41.87     kN , VplRd =  1117.     kN, ratio = 0.3749E-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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--------------------------------------------------------------------------------
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                      CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------


          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.021
          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.    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 = -35.04     kN , VplRd =  1117.     kN, ratio = 0.3138E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.012
          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.    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 = -14.60     kN , VplRd =  1117.     kN, ratio = 0.1307E-01

               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.   184
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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       =    0.003
          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.    36 at x=  7000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -14.60     kN , VplRd =  1117.     kN, ratio = 0.1307E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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

          Section no.    36 at x=  7000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.013
          max. resist. ratio (max. among above)=    0.013
          web buckling ratio (5.7)             =    0.000

          Summary of resistance checks over all the sections
          max salected class: 2, at station no.  36
```

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

          maximum resistance   ratio               =    0.052
          maximum web buckling ratio               =    0.000

EC3 PILING: START BUCKLING CHECKS


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  1
           zstart      =  0.000000     [mm]  zend=    4050.000     [mm]
           buckl. length about x-x      =  4050.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      0.0000     XMAX =      4050.0
               BXMIN=      0.0000     BXMAX=     0.39073E+08
               X(1) =      0.0000     X(N) =      7000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.34719E+16
  "    "   : ERR Q M - PARABOLA CENTR.  0.42330E+16
Table B.3  : PSI          0.0000
  "     "    ALPHA      0.22220
  "     "    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]=  39.073


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

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


          No axial compression: skipping buckling
```

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CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  2
           zstart      =  4050.000     [mm]  zend=    7000.000     [mm]
           buckl. length about x-x      =  2950.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      4050.0     XMAX =      7000.0
               BXMIN=     0.39073E+08 BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      7000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.11992E+16
  "    "   : ERR Q M - PARABOLA CENTR.  0.25781E+16
Table B.3  : PSI         0.0000
  "     "    ALPHA      0.81740
  "     "    Cm unif.   0.85392
  "     "    Cm conc.   0.85392
  "     "    Cm avrg.   0.85392
  "     "    Cm     .   0.85392
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      = 0.85392
          Max. bending moment (abs value) [kNm]=  44.478


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.      384
EC3_EN_1993-5:20   RESISTANCE RATIO            0.052
                   AXIAL   BUCKLING RATIO      0.000
                   LATERAL BUCKLING RATIO      0.000
                   LOCAL   BUCKLING RATIO      0.000
                   RETURNED ERROR CODE            0
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.   187
                                                      14 May 2019       17:21:15
                          DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                      CHECK OF DIRECTLY INPUT MEMBER LW0_S1
--------------------------------------------------------------------------------


MEMBER LW0_S1
                  MAX RESISTANCE RATIO            0.056 FOR LCASE        3
                  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
```