



PROVINCIA DI RAVENNA

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SETTORE LAVORI PUBBLICI

UNITA' ORGANIZZATIVA PROGETTAZIONE STRADE

RAZIONALIZZAZIONE E MESSA IN SICUREZZA CON ELIMINAZIONE PUNTI CRITICI LUNGO LA EX S.S. 306 CASOLANA 1° LOTTO 2° STRALCIO

PROGETTO ESECUTIVO

Tavola/Elaborato

GER_020

RELAZIONE SULLA STABILITA' DEL VERSANTE

Scala

-

Data

05 dicembre 2011

Dirigente del Settore Lavori Pubblici:

Dott. Ing. Valentino Natali

Responsabile Unico del Procedimento:

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THESIS ENGINEERING



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COMUNE DI RIOLO TERME

PROVINCIA DI RAVENNA

SETTORE LAVORI PUBBLICI - UNITA ORGANIZZATIVA PROGETTAZIONE STRADE

INTERVENTO DI RAZIONALIZZAZIONE E MESSA IN SICUREZZA CON ELIMINAZIONE PUNTI CRITICI LUNGO LA EX S.S. 306 "CASOLANA" – 1° LOTTO 2° STRALCIO

RELAZIONE DI CALCOLO OPERE DI SOSTEGNO



THESIS ENGINEERING



A	05/12/2011	Nota tecnica	Forlani	Barbieri	Comastri
Rev.	Data	Descrizione	Redazione	Controllo	Approvazione



1. Progetto

Codici

Codice Commessa: 02.2011

Committente: Provincia di Ravenna

Anno costruzione opera previsto: //

Intervento di progetto Thesis: Opere Civili e Geotecnica

Progettista: prof. Ing. Claudio Comastri

Collaborazioni specialistiche: Ing. Barbara Barbieri

Ing. Elisa Maniezzo

Arch. Cinzia Fontanelli

Geom. Simone Lamma

Geom. Cristiano Lamma

2. Struttura Documento

Pagine numerate: N. 9

Fogli A4: N. 10

Foglia A3: N.0

Tavole allegate: N.0

3. Redazione Documento

Redazione documento: Ing. Federica Forlani

Controllo documento: Ing. Barbara Barbieri

Approvazione documento: Ing. Claudio Comastri

Revisione: A

Data ultima revisione:

Autorizzazione alla trasmissione: Ing. Claudio Comastri

4. Indirizzo di trasmissione

Provincia di Ravenna

Trasmissione: Direttamente a mano e Email

Data di trasmissione: 05/12/2011



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5. Documentazione di riferimento

Per la presente relazione si è fatto riferimento agli elaborati grafici

IST_102_PEVBD001-D011 con le relative fasi di realizzazione del progetto

Inoltre si è fatto riferimento alla relazione geologica fornita dalla Provincia di Ravenna.

6. Normativa

- L. 05.11.1971 N. 1086 Norme per la disciplina delle opere di conglomerato cementizio armato, normale e precompresso ed a struttura metallica.
- D.M. 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 e il collaudo delle opere di sostegno delle terre e delle opere di fondazione.
- D.M. 14.02.1992 Norme tecniche per l'esecuzione delle opere in cemento armato normale e precompresso e per le strutture metalliche.
- D.M. 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.
- Circ. Min. LL. PP. 15.10.1996 Istruzioni per l'applicazione delle « Norme tecniche per il calcolo, l'esecuzione ed il collaudo delle strutture in cemento armato, normale e precompresso e per le strutture metalliche » di cui al decreto ministeriale 9 gennaio 1996.
- D.M. 16.01.1996 Norme tecniche relative ai «Criteri generali per la verifica di sicurezza delle costruzioni e dei carichi e sovraccarichi».
- Circ. Min. LL. PP. 04.07.1996 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 gennaio 1996.
- DM 16.01.1996 Norme tecniche per le costruzioni in zone sismiche.
- OPCM 3274 20 Marzo 2003, Primi elementi in materia di criteri generali per la classificazione sismica del territorio nazionale e di normative integrative (OPCM 3316 del tecniche per le costruzioni in zona sismica



2 Ottobre 2033 e OPCM 3431
del 3 Maggio 2005)

DM 14 Settembre 2005 Norme Tecniche per le costruzioni
(Testo Unitario)

OPCM 3519 28 Aprile 2006 Criteri generali da utilizzare per l'individuazione delle zone
sismiche e per la formazione e l'aggiornamento degli elenchi
delle medesime zone.

DM 14 gennaio 2008 Norme Tecniche per le costruzioni
(Testo Unitario)

7. Introduzione

La presente relazione esamina il problema del consolidamento delle scarpate presenti ai lati del tratto della SS306 Casolana ubicato nel territorio del comune di Riolo Terme. In questa sede si è tenuto conto, oltre che dei dati di letteratura disponibili sull'area in esame, anche dei risultati di una campagna di indagini geognostiche appositamente eseguita dalla Ditta Perigeo srl. In particolare sono stati realizzati n. 5 sondaggi denominati con la lettera S seguita da numeri progressivi spinti fino alla profondità max di mt 25 dal p.c. Due sondaggi sono stati successivamente attrezzati con piezometri casagrande per il rilievo ed il monitoraggio della falda. Per il dettaglio delle indagini eseguite si rimanda all'apposito elaborato.

Geologicamente il tracciato interessa una coltre di terreni di copertura e di riporto di spessore compreso fra 1 e 5 mt, che nasconde una formazione terrazzata alluvionale sabbioso ghiaiosa di spessore massimo di circa 2 mt e che poggia a sua volta su una formazione argilloso marnosa pliocenica. La parte bassa della valle del Senio è interessata dalla presenza di una coltre di depositi alluvionali recenti.

In generale, i rilievi eseguiti non hanno evidenziati fenomeni di dissesto. I sopralluoghi hanno riscontrato soltanto un localizzato fenomeno di scivolamento superficiale che interessa la coltre di copertura e che sta coinvolgendo alcuni muretti di contenimento in pietrame lungo la SS 306 circa all'altezza della progressiva 650.

8. Azione sismica

Località in cui sorge l'opera	Comune di Riolo Terme (RA)
Periodo di vita nominale V_N della costruzione	anni 50
Classe d'uso III Corrispondente coefficiente C_U (Tab 2.4.II)	$C_U = 1,5$
Periodo di vita di riferimento V_R della costruzione	anni 50
Accelerazione orizzontale al suolo (spettri di risposta vers 1.03)	ag/g =0.292



Fattore di amplificazione orizzontale (spettri di risposta vers 1.03) $F_0 = 2.563$

Categoria di sottosuolo (tab. 3.2.II)

Suolo di tipo C: Depositi di sabbie o ghiaie mediamente addensate, o di argille di media rigidità, con spessori variabili da diverse decine fino a centinaia di metri, caratterizzati da valori di V30 compresi tra 180 e 360 m/s (ovvero resist. penetr.: $15 < N_{spt} < 50$, coesione non drenata: $70 < C_u < 250$ kPa)

C

Corrispondente coeff. di amplificazione stratigrafica (tab 3.2.V) $S_s = 1..251$

Categoria topografica (tab 3.2.IV)

(l'opera non sorge in prossimità di cigli scoscesi isolati, né in prossimità di creste strette e ripide)

T1

Corrispondente coeff. di amplificazione topografica (tab 3.2.VI) $S_T = 1.0$

Accelerazione orizzontale massima attesa

$A_{max}/g = 0.365$

Nelle verifiche allo stato limite ultimo, i valori dei coefficienti sismici orizzontale k_h e verticale k_v possono essere valutati mediante le espressioni

$$k_h = \beta_m \cdot \frac{a_{max}}{g} = 0,31 \cdot 0,365 = 0,12$$

$$k_v = \pm 0,5 k_h = 0,06$$

dove:

dove

a_{max} = accelerazione orizzontale massima attesa al sito;

g = accelerazione di gravità.

9. Intervento di consolidamento

Al fine di evitare i fenomeni di scivolamento descritti nella relazione geologica, si prevede un intervento di consolidamento tramite chiodatura (soil nailing). Lo scopo fondamentale della tecnica del "soil-nailing" consiste nel rinforzare e consolidare il terreno ("soil") esistente attraverso ravvicinate inclusioni armate con barre di acciaio chiamate "chiodi" ("nails"), al fine di creare in-situ una struttura coerente capace di incrementare il totale sforzo di taglio del terreno e limitare i suoi spostamenti. Le barre sono quindi passive e sviluppano la loro azione di rinforzo attraverso le interazioni con il terreno stesso. I chiodi lavorano prevalentemente in tensione, ma entro certi limiti sono in grado di resistere anche a sforzi di flessione e taglio. In base al tipo di installazione possono essere divisi in driven, grouted e jet grouted nails. I driven sono chiodi direttamente infissi, i grouted sono cementati a pressione atmosferica e i jet grouted cementati ad alte pressioni. Oltre all'installazione dei chiodi l'opera in Soil nailing



prevede anche l'installazione di un rivestimento del paramento esterno che dipende dal tipo di struttura, permanente o temporanea. Si adottano generalmente geotessili, oppure i chiodi fanno generalmente riscontro su una parete realizzata in calcestruzzo o più comunemente in spritz-beton armata con adeguata rete elettrosaldata

Per quanto poi concerne il piano di appoggio del rilevato stradale nel tratto soggetto a scivolamento si prevede la realizzazione di pali in ghiaia, sia per aumentare la capacità portante del terreno di fondazione sia per aumentare la stabilità del versante stesso. Le teorie più note nel campo della progettazione dei pali in ghiaia sono dovute a: Aboshi, Priebe e Van Impe.

Ipotesi teoriche

Teoria di Aboshi

:- una parte del carico va ai pali in ghiaia e una parte va al terreno coesivo tenero.

Teoria di Priebe

:- il palo in ghiaia sopporta la maggior parte del carico;- nel palo si crea uno stato tensionale limite;
- il volume del palo rimane costante;
- il carico del palo dipende solo dal terreno circostante;- i cedimenti di palo e terreno sono uguali;

Teoria di Van Impe

:- considera anche le deformazioni volumetriche del palo.

Criteri di progettazione

Sono essenzialmente di carattere empirico e comprendono molte ipotesi semplificative, diverse da autore ad autore. Le principali difficoltà che si incontrano sono nell'analizzare l'interazione palo in ghiaia – terreno coesivo

.1. Non si riesce a conoscere le modifiche dello stato tensionale e delle caratteristiche sforzi – deformazioni – resistenza a taglio, che l'esecuzione dei pali in ghiaia determina nel terreno coesivo.

2. Non è facile descrivere la relazione tensioni – deformazioni radiali al contatto tra il palo ed il terreno (quando si applica il carico in superficie).

Si assume che la tensione orizzontale efficace che il palo esercita sul terreno sia pari a:
palo

$$\sigma'_{h,palo} = K_{a,palo} \cdot \sigma'_{v,palo}$$

Dove:

$K_{a,palo}$: coefficiente di spinta attiva, si valuta con la seguente forma

$$K_{a,palo} = \begin{cases} 1 - \sin \varphi_{palo} \\ 1 + \sin \varphi_{palo} \end{cases}$$

$\sigma'_{v,palo}$: tensione verticale efficace in una sezione generica del palo.



Non è nota né in fase di esercizio né all'istante di rottura la distribuzione degli sforzi di taglio mobilitati lungo la superficie laterale del palo. Come conseguenza ci si limita ad operare con semplici metodi di dimensionamento ma il cui grado di sofisticazione sia tale da fornire dei parametri geotecnici attendibili.

Approccio generale al problema

1. Valutare per prima la capacità portante di un singolo palo in ghiaia, riferendosi alle condizioni più sfavorevoli ossia quelle non drenate del terreno coesivo.

2. Valutare la capacità portante di una fondazione poggiante su di un gruppo di pali in ghiaia, ricorrendo ai metodi convenzionali dell'equilibrio limite globale (Bishop 1954, Janbu 1957). Nell'utilizzo di questi metodi si suppone che la superficie di rottura passi attraverso un materiale composito: terreno coesivo ($\varphi = 0, \tau = C_u$) e ghiaia ($\tau = \sigma \cdot \tan \varphi_{palo}$)

3. Si cerca di valutare il cedimento della fondazione poggiante sui pali in ghiaia come: cedimento totale = cedimento terreno trattato con pali in ghiaia + cedimento strati non bonificati

10. Verifiche di stabilità

Per la determinazione dei parametri geotecnici sono state eseguite delle back analysis sul profilo attuale del terreno. L'obiettivo è quello di individuare il valore dell'angolo di resistenza al taglio e della coesione tali da garantire un coefficiente di sicurezza pari a 1 (collasso imminente). I parametri così ottenuti si definiscono operativi e possono differire da quelli individuati nel modello geotecnica a mezzo di prove in sito e di laboratorio. Inoltre la stessa eterogeneità del terreno e la variabilità dell'altezza degli strati individuati potrebbero non essere correttamente rappresentate dai campioni prelevati. L'elaborazione del modello geotecnica fa affidamento su prove di tipo puntuale che potrebbero non sempre essere significative dello strato a cui appartengono. A questo proposito si riporta di seguito il confronto tra i parametri geotecnici e quelli operativi ottenuti da back analysis per lo strato argilloso alterato.

SEZIONE	Parametri geotecnici		Parametri operativi	
	c'	φ	c'	φ
SEZIONE 29	5	26	5	26
SEZIONE 30	5	26	5	26
SEZIONE 31	5	26	5	26
SEZIONE 32	5	26	15	26
SEZIONE 33	5	26	15	26

Le verifiche di stabilità sono state eseguite con il metodo all'equilibrio limite di Morgenstern-Price. Il metodo di Morgenstern & Price è basato sull'assunzione:

- relazione nota tra forze interconco orizzontali e verticali, e sulle seguenti equazioni di equilibrio:
- equilibrio delle forze verticali e orizzontali per il calcolo di N e E, equazioni [10] e [11]
- equilibrio globale dei momenti per il calcolo di m F equazione [12]
- equilibrio globale delle forze orizzontali per il calcolo di f F equazione [13]



1) Equilibrio delle forze verticali:

$$N = \frac{W + (E_R \lambda f(x) - E_L \lambda f(x)) - \frac{c' \beta \sin \alpha + u \beta \tan \phi' \sin \alpha}{F}}{\cos \alpha + \frac{\sin \alpha \tan \phi'}{F}} \quad [10]$$

2) Equilibrio delle forze orizzontali:

$$E_R = E_L + \frac{(c' \beta - u \beta \tan \phi') \cos \alpha}{F} + N \left(\frac{\tan \phi' \cos \alpha}{F} - \sin \alpha \right) \quad [11]$$

3) Equilibrio globale dei momenti:

$$F_m = \frac{\sum (c' \beta R + (N - u \beta) R \tan \phi')}{\sum Wx - \sum Nf} \quad [12]$$

4) Equilibrio globale delle forze orizzontali

$$F_f = \frac{\sum (c' \beta \cos \alpha + (N - u \beta) \tan \phi' \cos \alpha)}{\sum N \sin \alpha} \quad [13]$$

I risultati delle verifiche di stabilità globale e locali sono riportate in allegato.



ALLEGATI

SLOPE/W Analysis

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File Information

Revision Number: 111
Date: 09/12/2011
Time: 12.40.48
File Name: sez29pali2.gsz
Directory: \\Thesis2-elia\users\Public\Documents\nuove\
Last Solved Date: 09/12/2011
Last Solved Time: 12.40.52

Project Settings

Length(L) Units: meters
Time(t) Units: Seconds
Force(F) Units: kN
Pressure(p) Units: kPa
Strength Units: kPa
Unit Weight of Water: 9.807 kN/m³
View: 2D

Analysis Settings

SLOPE/W Analysis

Kind: SLOPE/W
Method: Morgenstern-Price
Settings
 Side Function
 Interslice force function option: Half-Sine
 PWP Conditions Source: (none)
Slip Surface
 Direction of movement: Right to Left
 Use Passive Mode: No
 Slip Surface Option: Entry and Exit
 Critical slip surfaces saved: 20
 Optimize Critical Slip Surface Location: No
 Tension Crack
 Tension Crack Option: (none)
FOS Distribution
 FOS Calculation Option: Constant
Advanced
 Number of Slices: 30
 Optimization Tolerance: 0.01
 Minimum Slip Surface Depth: 0.1 m
 Optimization Maximum Iterations: 2000
 Optimization Convergence Tolerance: 1e-007
 Starting Optimization Points: 8
 Ending Optimization Points: 16
 Complete Passes per Insertion: 1
 Driving Side Maximum Convex Angle: 5 °

Resisting Side Maximum Convex Angle: 1 °

Materials

New Material

Model: Mohr-Coulomb
Unit Weight: 20 kN/m³
Cohesion: 5 kPa
Phi: 26 °
Phi-B: 0 °

New Material (2)

Model: Mohr-Coulomb
Unit Weight: 20 kN/m³
Cohesion: 0 kPa
Phi: 30 °
Phi-B: 0 °

New Material (3)

Model: Mohr-Coulomb
Unit Weight: 20 kN/m³
Cohesion: 0 kPa
Phi: 30 °
Phi-B: 0 °

New Material (5)

Model: Mohr-Coulomb
Unit Weight: 20 kN/m³
Cohesion: 20 kPa
Phi: 26 °
Phi-B: 0 °

Slip Surface Entry and Exit

Left Projection: Range
Left-Zone Left Coordinate: (238.19816, 226.40011) m
Left-Zone Right Coordinate: (246, 225.32044) m
Left-Zone Increment: 4
Right Projection: Range
Right-Zone Left Coordinate: (310.85337, 253.40366) m
Right-Zone Right Coordinate: (312, 253.40181) m
Right-Zone Increment: 4
Radius Increments: 4

Slip Surface Limits

Left Coordinate: (235.99219, 225.31771) m
Right Coordinate: (314.98783, 253.53798) m

Seismic Loads

Horz Seismic Load: 0.12
Vert Seismic Load: 0.06

Ignore seismic load in strength: No

Reinforcements

Reinforcement 1

Type: Nail
Outside Point: (291.5, 241.5) m
Inside Point: (296.86231, 237.00049) m
Slip Surface Intersection: (297.19, 236.73) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.04 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 12.566371 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip
Shear Load: 0 kN
Applied Load: 87.964557 kN
Nail Load Used: 0 kN
Resisting Force Used: 12.566 kN/m
Available Bond Length: 0 m
Required Bond Length: 0 m
Governing Component: Bond

Reinforcement 2

Type: Nail
Outside Point: (293.5, 243) m
Inside Point: (298.86231, 238.50049) m
Slip Surface Intersection: (299.11, 238.3) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip

Shear Load: 0 kN
Applied Load: 65.973418 kN
Nail Load Used: 0 kN
Resisting Force Used: 9.4248 kN/m
Available Bond Length: 0 m
Required Bond Length: 0 m
Governing Component: Bond

Reinforcement 3

Type: Nail
Outside Point: (295.5, 244.50251) m
Inside Point: (300.86231, 240.003) m
Slip Surface Intersection: (300.93, 239.94) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip
Shear Load: 0 kN
Applied Load: 65.973418 kN
Nail Load Used: 0 kN
Resisting Force Used: 9.4248 kN/m
Available Bond Length: 0 m
Required Bond Length: 0 m
Governing Component: Bond

Reinforcement 4

Type: Nail
Outside Point: (298, 246) m
Inside Point: (303.36231, 241.50049) m
Slip Surface Intersection: (302.94, 241.86) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN

Shear Safety Factor: 1
 Shear Option: Parallel to Slip
 Shear Load: 0 kN
 Applied Load: 65.973418 kN
 Nail Load Used: 5.1993 kN
 Resisting Force Used: 9.4248 kN/m
 Available Bond Length: 0.55166 m
 Required Bond Length: 0.55166 m
 Governing Component: Bond

Reinforcement 5

Type: Nail
 Outside Point: (300.03218, 247.5) m
 Inside Point: (305.39449, 243.00049) m
 Slip Surface Intersection: (304.64, 243.64) m
 Total Length: 6.9999971 m
 Reinforcement Direction: 140 °
 Applied Load Option: Variable
 F of S Dependent: No
 Bond Diameter: 0.03 m
 Bond Safety Factor: 1
 Bond Skin Friction: 100 kPa
 Bond Resistance: 9.424778 kN/m
 Nail Spacing: 1 m
 Bar Capacity: 359 kN
 Bar Safety Factor: 1
 Bar Load: 359 kN
 Load Distribution: Conc. in 1 slice
 Shear Capacity: 0 kN
 Shear Safety Factor: 1
 Shear Option: Parallel to Slip
 Shear Load: 0 kN
 Applied Load: 65.973418 kN
 Nail Load Used: 9.3342 kN
 Resisting Force Used: 9.4248 kN/m
 Available Bond Length: 0.99039 m
 Required Bond Length: 0.99039 m
 Governing Component: Bond

Regions

	Material	Points
Region 1	New Material	16,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,13,14,15
Region 2	New Material (5)	41,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,32,33,34,35,36,37,3
Region 3	New Material	18,17,66,65
Region 4	New Material	69,19,20,21,22,61,62
Region	New	24,23,58,57

5	Material	
Region 6	New Material (3)	69,62,63,64,65,18
Region 7	New Material (3)	17,66,67,68,32,16
Region 8	New Material (3)	22,61,60,59,58,23
Region 9	New Material (3)	25,24,57,56,55,54
Region 10	New Material	52,1,2,3,31,4,30,29,7,28,27,26,25,54,53
Region 11	New Material (2)	5,30,29,7,6
Region 12	New Material (2)	8,6,7,28,27,26,9
Region 13	New Material (2)	9,10,19,20,21,22,23,24,25,26
Region 14	New Material (2)	11,10,19,69,18,17,16,15,14,13,12

Points

	X (m)	Y (m)
Point 1	235.99219	225.31771
Point 2	236.95646	226.37085
Point 3	237.46746	226.50123
Point 4	246.60796	226.74097
Point 5	251.37655	230.62099
Point 6	252.858	231.47732
Point 7	256.23931	231.43428
Point 8	263.79849	236.64728
Point 9	264.87247	236.61326
Point 10	269.81962	236.69128
Point 11	275.47055	240.64637
Point 12	276.69955	240.61037
Point 13	288.24593	239.53542

Point 14	283.69089	239.53542
Point 15	282.55311	236.12209
Point 16	282.1756	236.12209
Point 17	281.1756	236.12209
Point 18	277.1756	236.12209
Point 19	274.1756	236.04702
Point 20	273.1756	235.3286
Point 21	272.38462	232.62209
Point 22	270.1756	232.62209
Point 23	269.1756	232.62209
Point 24	266.1756	232.62209
Point 25	265.1756	232.62209
Point 26	262.1756	232.62209
Point 27	261.1756	232.32256
Point 28	259.53828	231.49436
Point 29	253.60796	226.74097
Point 30	249.13474	226.74097
Point 31	246.01973	225.31771
Point 32	282.1756	229.96353
Point 33	288.24593	232.34029
Point 34	302.04593	239.71224
Point 35	304.04593	240.53084
Point 36	310.79593	244.40366
Point 37	311.50029	244.79534
Point 38	312.46753	245.20699
Point 39	313.25937	245.46031
Point 40	314.30532	245.76113
Point 41	314.98783	246.09361
Point 42	314.98783	253.53798
Point 43	313.54131	253.49163
Point 44	312.97853	252.94097
Point 45	312.46753	252.94097
Point 46	311.99812	253.40366
Point 47	310.79593	253.40366
Point 48	304.04593	248.71224
Point 49	302.04593	248.71224
Point 50	314.98783	211.93626
Point 51	235.99219	211.93626
Point 52	235.99219	216.31771
Point 53	246.01973	216.31771
Point 54	265.1756	223.54745

Point 55	265.1756	223.07051
Point 56	266.1756	223.07051
Point 57	266.1756	223.92487
Point 58	269.1756	225.05712
Point 59	269.1756	223.07051
Point 60	270.1756	223.07051
Point 61	270.1756	225.43453
Point 62	276.1756	227.69903
Point 63	276.1756	223.07051
Point 64	277.1756	223.07051
Point 65	277.1756	228.07645
Point 66	281.1756	229.58611
Point 67	281.1756	223.07051
Point 68	282.1756	223.07051
Point 69	276.1756	236.12209

Critical Slip Surfaces

	Slip Surface	FOS	Center (m)	Radius (m)	Entry (m)	Exit (m)
1	23	1.408	(258.143, 286.247)	63.083	(312, 253.402)	(238.198, 226.4)
2	18	1.409	(257.969, 286.148)	62.934	(311.714, 253.404)	(238.198, 226.4)
3	48	1.410	(258.666, 285.631)	62.315	(312, 253.402)	(240.149, 226.13)
4	13	1.410	(257.796, 286.048)	62.785	(311.427, 253.404)	(238.198, 226.4)
5	43	1.410	(258.49, 285.533)	62.17	(311.714, 253.404)	(240.149, 226.13)
6	38	1.411	(258.315, 285.432)	62.022	(311.427, 253.404)	(240.149, 226.13)
7	8	1.412	(257.623, 285.947)	62.635	(311.14, 253.404)	(238.198, 226.4)
8	33	1.412	(258.139, 285.332)	61.875	(311.14, 253.404)	(240.149, 226.13)
9	3	1.412	(257.45, 285.846)	62.485	(310.853, 253.404)	(238.198, 226.4)
10	28	1.413	(257.964, 285.231)	61.728	(310.853, 253.404)	(240.149, 226.13)
11	73	1.413	(259.166, 285.019)	61.571	(312, 253.402)	(242.099, 225.86)
12	68	1.413	(258.988, 284.921)	61.428	(311.714, 253.404)	(242.099, 225.86)

13	63	1.414	(258.81, 284.821)	61.283	(311.427, 253.404)	(242.099, 225.86)
14	58	1.414	(258.632, 284.721)	61.139	(311.14, 253.404)	(242.099, 225.86)
15	53	1.415	(258.453, 284.621)	60.994	(310.853, 253.404)	(242.099, 225.86)
16	98	1.418	(259.641, 284.411)	60.852	(312, 253.402)	(244.049, 225.59)
17	93	1.418	(259.46, 284.314)	60.712	(311.714, 253.404)	(244.049, 225.59)
18	88	1.418	(259.279, 284.215)	60.57	(311.427, 253.404)	(244.049, 225.59)
19	83	1.418	(259.098, 284.116)	60.429	(311.14, 253.404)	(244.049, 225.59)
20	78	1.419	(258.916, 284.016)	60.288	(310.853, 253.404)	(244.049, 225.59)

Slices of Slip Surface: 23

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	23	239.5018	225.9968	0	7.1125413	3.4690182	5
2	23	242.10895	225.2508	0	17.712253	8.6388428	5
3	23	244.7161	224.6241	0	25.852613	12.609162	5
4	23	246.31385	224.28395	0	48.815025	23.808679	5
5	23	247.87135	224.01925	0	75.061432	36.609906	5
6	23	250.25565	223.66945	0	135.40337	66.040634	5
7	23	252.1173	223.4571	0	201.99495	98.519522	5
8	23	253.233	223.35675	0	220.32809	107.46119	5
9	23	254.92365	223.26025	0	242.49806	118.2742	5
10	23	257.8888	223.18635	0	274.8502	134.0534	5
11	23	260.35695	223.20845	0	295.50213	144.12602	5
12	23	261.6756	223.26525	0	303.78245	148.1646	5
13	23	262.98705	223.3558	0	310.08209	151.23714	5
14	23	264.3355	223.4713	0	309.07354	150.74524	5
15	23	265.02405	223.5409	0	303.61709	148.08395	5
16	23	265.6756	223.61765	0	306.5206	176.96975	0
17	23	267.6756	223.9072	0	286.99709	139.97783	20
18	23	269.4976	224.1955	0	272.3173	157.22246	0
19	23	269.9976	224.28845	0	270.0133	155.89225	0
20	23	271.2801	224.55775	0	273.50637	133.39797	20
21	23	272.7801	224.88735	0	278.21813	135.69605	20

22	23	273.6756	225.1087	0	280.26595	136.69484	20
23	23	274.8231	225.41325	0	282.29422	137.68409	20
24	23	275.8231	225.69375	0	278.91481	136.03584	20
25	23	276.43755	225.87605	0	272.30209	157.21368	0
26	23	276.93755	226.0297	0	265.75133	153.4316	0
27	23	278.1756	226.43895	0	248.35804	121.13231	20
28	23	280.1756	227.14675	0	222.1306	108.34033	20
29	23	281.6756	227.7206	0	202.71624	117.03828	0
30	23	282.36435	228.0001	0	194.18599	94.710835	20
31	23	283.122	228.32395	0	184.55748	90.014695	20
32	23	284.82965	229.1011	0	163.03905	79.519456	20
33	23	287.10715	230.22165	0	134.95535	65.822123	20
34	23	289.55055	231.55965	0	120.11835	58.585636	20
35	23	292.1598	233.14465	0	117.29086	57.206573	20
36	23	294.76905	234.9112	0	112.98265	55.105319	20
37	23	297.3783	236.87885	0	107.01972	52.197007	20
38	23	300.3644	239.43225	0	102.15404	49.823854	5
39	23	303.0459	241.9628	0	85.262252	41.585179	5
40	23	305.1709	244.23615	0	66.789031	32.575187	5
41	23	307.4209	246.9046	0	51.008694	24.878602	5
42	23	309.6709	249.909	0	32.64485	15.921957	5
43	23	311.397	252.4515	0	9.2295583	4.5015564	5
44	23	311.99905	253.40025	0	-3.6791579	-1.7944452	5

Slices of Slip Surface: 18

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	18	239.5018	225.99985	0	7.018281	3.4230444	5
2	18	242.10895	225.26005	0	17.442016	8.5070395	5
3	18	244.7161	224.63965	0	25.392751	12.384872	5
4	18	246.31385	224.30335	0	48.207062	23.512155	5
5	18	247.87135	224.0425	0	74.286346	36.231872	5
6	18	250.25565	223.69865	0	134.32086	65.51266	5
7	18	252.1173	223.49105	0	200.61214	97.845078	5
8	18	253.233	223.3936	0	218.78955	106.71079	5
9	18	254.92365	223.30155	0	240.73455	117.41408	5
10	18	257.8888	223.2357	0	272.69699	133.00321	5
11	18	260.35695	223.26465	0	293.04852	142.92931	5
12	18	261.6756	223.3252	0	301.17625	146.89347	5
13	18	262.98705	223.41965	0	307.35685	149.90795	5

14	18	264.3355	223.5392	0	306.24779	149.36703	5
15	18	265.02405	223.6109	0	300.75439	146.68772	5
16	18	265.6756	223.6897	0	303.45857	175.20189	0
17	18	267.6756	223.9856	0	283.99192	138.51211	20
18	18	269.4976	224.2798	0	269.19316	155.41874	0
19	18	269.9976	224.37445	0	266.87097	154.07803	0
20	18	271.2801	224.6482	0	270.40432	131.885	20
21	18	272.7801	224.98305	0	275.0541	134.15285	20
22	18	273.6756	225.20765	0	277.08487	135.14332	20
23	18	274.8231	225.5165	0	279.09676	136.12459	20
24	18	275.8231	225.8008	0	275.72582	134.48047	20
25	18	276.43755	225.9855	0	269.04758	155.33469	0
26	18	276.93755	226.14115	0	262.52434	151.5685	0
27	18	278.1756	226.5555	0	245.25924	119.62093	20
28	18	280.1756	227.27175	0	219.12665	106.87521	20
29	18	281.6756	227.85225	0	199.75471	115.32843	0
30	18	282.36435	228.13495	0	191.28029	93.293633	20
31	18	283.122	228.46235	0	181.68166	88.612067	20
32	18	284.82965	229.248	0	160.22807	78.148451	20
33	18	287.10715	230.3806	0	132.20805	64.482174	20
34	18	289.4497	231.6712	0	117.48315	57.300362	20
35	18	291.8573	233.13635	0	114.91296	56.046797	20
36	18	294.2649	234.75605	0	111.05434	54.16482	20
37	18	296.67245	236.5455	0	105.78483	51.594709	20
38	18	298.91865	238.3784	0	103.58249	50.520555	5
39	18	301.0035	240.24935	0	97.585572	47.595663	5
40	18	303.0459	242.25365	0	82.249389	40.115708	5
41	18	305.1709	244.55735	0	63.26927	30.858485	5
42	18	307.4209	247.2649	0	46.456456	22.658327	5
43	18	309.6709	250.31905	0	27.249364	13.290403	5
44	18	311.2549	252.67305	0	6.2486237	3.0476574	5

Slices of Slip Surface: 48

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	48	241.6164	225.71255	0	6.8143536	3.3235823	5
2	48	244.55195	224.95345	0	16.643734	8.1176916	5
3	48	246.31385	224.55255	0	40.145713	19.580373	5
4	48	247.87135	224.2708	0	66.557945	32.462479	5
5	48	250.25565	223.8958	0	127.38899	62.13176	5

6	48	252.1173	223.66485	0	194.70363	94.963306	5
7	48	253.233	223.55375	0	213.79414	104.27437	5
8	48	254.92365	223.44175	0	237.26239	115.7206	5
9	48	257.8888	223.342	0	271.95764	132.64261	5
10	48	260.35695	223.3436	0	294.44608	143.61095	5
11	48	261.6756	223.39	0	303.58541	148.0685	5
12	48	262.98705	223.4706	0	310.65167	151.51494	5
13	48	264.3355	223.57605	0	310.27778	151.33258	5
14	48	265.02405	223.64065	0	305.07003	148.79259	5
15	48	265.6756	223.7128	0	308.2512	177.96891	0
16	48	267.6756	223.98865	0	289.16439	141.0349	20
17	48	269.4976	224.26475	0	274.84227	158.68026	0
18	48	269.9976	224.3545	0	272.5877	157.37858	0
19	48	271.2801	224.61575	0	276.11424	134.66991	20
20	48	272.7801	224.93605	0	280.88203	136.99532	20
21	48	273.6756	225.1521	0	282.91742	137.98804	20
22	48	274.8231	225.45005	0	284.88067	138.94559	20
23	48	275.8231	225.72485	0	281.38967	137.24291	20
24	48	276.43755	225.90375	0	274.74533	158.62429	0
25	48	276.93755	226.0547	0	268.10701	154.79166	0
26	48	278.1756	226.4574	0	250.38713	122.12196	20
27	48	280.1756	227.15495	0	223.77631	109.143	20
28	48	281.6756	227.72145	0	204.0896	117.83118	0
29	48	282.36435	227.9977	0	195.44866	95.326681	20
30	48	283.122	228.31805	0	185.69402	90.569024	20
31	48	284.82965	229.08775	0	163.93554	79.956704	20
32	48	287.10715	230.19895	0	135.59996	66.13652	20
33	48	289.5725	231.5412	0	120.52388	58.783424	20
34	48	292.2257	233.1475	0	117.43595	57.27734	20
35	48	294.87885	234.94355	0	112.87081	55.050773	20
36	48	297.532	236.95045	0	106.64945	52.016412	20
37	48	300.45225	239.45165	0	101.88602	49.693131	5
38	48	303.0459	241.90875	0	85.216835	41.563028	5
39	48	305.1709	244.18615	0	66.878091	32.618624	5
40	48	307.4209	246.86335	0	51.209097	24.976345	5
41	48	309.6709	249.88335	0	32.80357	15.99937	5
42	48	311.397	252.4436	0	9.2747585	4.523602	5
43	48	311.99905	253.40025	0	-3.6989128	-1.8040803	5

Slices of Slip Surface: 13

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal	Frictional Strength	Cohesive Strength
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					Stress (kPa)	(kPa)	(kPa)
1	13	239.5018	226.00295	0	6.9241884	3.3771523	5
2	13	242.10895	225.2693	0	17.17129	8.3749979	5
3	13	244.7161	224.65505	0	24.931097	12.159709	5
4	13	246.31385	224.3226	0	47.593158	23.212734	5
5	13	247.87135	224.0656	0	73.506195	35.851367	5
6	13	250.25565	223.7277	0	133.22345	64.977418	5
7	13	252.1173	223.5248	0	199.19357	97.153197	5
8	13	253.233	223.4302	0	217.22227	105.94638	5
9	13	254.92365	223.3426	0	238.927	116.53248	5
10	13	257.8888	223.28475	0	270.49622	131.92982	5
11	13	260.35695	223.3206	0	290.55632	141.71379	5
12	13	261.6756	223.38495	0	298.54828	145.61173	5
13	13	262.98705	223.48325	0	304.58726	148.55713	5
14	13	264.3355	223.60685	0	303.38361	147.97007	5
15	13	265.02405	223.68065	0	297.86777	145.27982	5
16	13	265.6756	223.76145	0	300.376	173.42217	0
17	13	267.6756	224.0638	0	280.97008	137.03826	20
18	13	269.4976	224.36395	0	266.05417	153.60645	0
19	13	269.9976	224.4603	0	263.72083	152.25929	0
20	13	271.2801	224.7385	0	267.30303	130.3724	20
21	13	272.7801	225.0786	0	271.91565	132.62212	20
22	13	273.6756	225.3065	0	273.92396	133.60164	20
23	13	274.8231	225.61965	0	275.91564	134.57305	20
24	13	275.8231	225.90775	0	272.5519	132.93244	20
25	13	276.43755	226.09485	0	265.83137	153.47782	0
26	13	276.93755	226.2525	0	259.33941	149.72968	0
27	13	278.1756	226.67195	0	242.19601	118.12689	20
28	13	280.1756	227.39675	0	216.15854	105.42757	20
29	13	281.6756	227.98395	0	196.8524	113.65278	0
30	13	282.36435	228.26985	0	188.41997	91.898562	20
31	13	283.122	228.6009	0	178.85851	87.235122	20
32	13	284.82965	229.3951	0	157.46581	76.801205	20
33	13	287.10715	230.53985	0	129.5101	63.166297	20
34	13	289.34465	231.77995	0	114.90545	56.043132	20
35	13	291.54215	233.1192	0	112.59655	54.917005	20
36	13	293.7396	234.58715	0	109.19525	53.258081	20
37	13	295.93705	236.1952	0	104.62089	51.027018	20
38	13	298.28835	238.09345	0	102.27648	49.883571	5
39	13	300.7934	240.3291	0	95.359841	46.510102	5

40	13	303.0459	242.5473	0	79.213685	38.635095	5
41	13	305.1709	244.8822	0	59.704878	29.120014	5
42	13	307.4209	247.6301	0	41.836098	20.404828	5
43	13	309.6709	250.73595	0	21.73937	10.602999	5
44	13	311.1115	252.89615	0	3.2292421	1.5750066	5

Slices of Slip Surface: 43

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	43	241.6164	225.71615	0	6.7076115	3.2715207	5
2	43	244.55195	224.96435	0	16.333807	7.9665299	5
3	43	246.31385	224.56785	0	39.681752	19.354084	5
4	43	247.87135	224.29005	0	65.935394	32.158841	5
5	43	250.25565	223.9212	0	126.45999	61.678659	5
6	43	252.1173	223.69505	0	193.47396	94.363557	5
7	43	253.233	223.58685	0	212.42114	103.60471	5
8	43	254.92365	223.4794	0	235.64589	114.93218	5
9	43	257.8888	223.38785	0	269.92923	131.65328	5
10	43	260.35695	223.3965	0	292.09571	142.46459	5
11	43	261.6756	223.44675	0	301.08407	146.84852	5
12	43	262.98705	223.53125	0	307.99193	150.2177	5
13	43	264.3355	223.6408	0	307.50149	149.9785	5
14	43	265.02405	223.70755	0	302.25229	147.41829	5
15	43	265.6756	223.78175	0	305.23031	176.2248	0
16	43	267.6756	224.0641	0	286.17894	139.57879	20
17	43	269.4976	224.3462	0	271.71633	156.8755	0
18	43	269.9976	224.43765	0	269.43761	155.55988	0
19	43	271.2801	224.7034	0	273.00036	133.15117	20
20	43	272.7801	225.02905	0	277.7017	135.44417	20
21	43	273.6756	225.24845	0	279.71207	136.42469	20
22	43	274.8231	225.5507	0	281.64071	137.36535	20
23	43	275.8231	225.82935	0	278.15394	135.66474	20
24	43	276.43755	226.0107	0	271.4479	156.72052	0
25	43	276.93755	226.16365	0	264.83333	152.9016	0
26	43	278.1756	226.57145	0	247.24843	120.59112	20
27	43	280.1756	227.27755	0	220.73233	107.65835	20
28	43	281.6756	227.8508	0	201.09282	116.10099	0
29	43	282.36435	228.1303	0	192.50853	93.892685	20
30	43	283.122	228.4543	0	182.79461	89.15489	20
31	43	284.82965	229.23255	0	161.10109	78.574253	20

32	43	287.10715	230.35595	0	132.83739	64.789124	20
33	43	289.4731	231.65225	0	117.89056	57.499067	20
34	43	291.9275	233.14115	0	115.07067	56.123715	20
35	43	294.38195	234.7925	0	110.9635	54.120515	20
36	43	296.8364	236.62275	0	105.43394	51.423567	20
37	43	299.05915	238.4426	0	103.16076	50.314865	5
38	43	301.0503	240.23575	0	97.320057	47.466163	5
39	43	303.0459	242.1994	0	82.238465	40.110379	5
40	43	305.1709	244.5077	0	63.390577	30.91765	5
41	43	307.4209	247.2248	0	46.67748	22.766128	5
42	43	309.6709	250.29585	0	27.406064	13.366831	5
43	43	311.2549	252.6668	0	6.2834872	3.0646615	5

Slices of Slip Surface: 38

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	38	241.6164	225.71975	0	6.6006622	3.2193581	5
2	38	244.55195	224.97515	0	16.023402	7.8151354	5
3	38	246.31385	224.583	0	39.21534	19.126599	5
4	38	247.87135	224.30915	0	65.30397	31.850874	5
5	38	250.25565	223.94635	0	125.52046	61.220418	5
6	38	252.1173	223.725	0	192.22206	93.752962	5
7	38	253.233	223.6198	0	211.00604	102.91452	5
8	38	254.92365	223.5169	0	233.99287	114.12595	5
9	38	257.8888	223.4335	0	267.85909	130.64361	5
10	38	260.35695	223.44915	0	289.7007	141.29647	5
11	38	261.6756	223.50325	0	298.53086	145.60323	5
12	38	262.98705	223.5917	0	305.2998	148.90466	5
13	38	264.3355	223.7054	0	304.69559	148.60997	5
14	38	265.02405	223.77425	0	299.40709	146.03059	5
15	38	265.6756	223.8505	0	302.17909	174.46318	0
16	38	267.6756	224.13935	0	283.17337	138.11288	20
17	38	269.4976	224.42745	0	268.56011	155.05325	0
18	38	269.9976	224.52065	0	266.27962	153.73661	0
19	38	271.2801	224.79095	0	269.8782	131.62839	20
20	38	272.7801	225.12195	0	274.52222	133.89343	20
21	38	273.6756	225.3446	0	276.50779	134.86186	20
22	38	274.8231	225.6512	0	278.42435	135.79663	20
23	38	275.8231	225.93375	0	274.93326	134.09391	20
24	38	276.43755	226.11755	0	268.18876	154.83885	0

25	38	276.93755	226.2725	0	261.58173	151.02428	0
26	38	278.1756	226.6855	0	244.14043	119.07524	20
27	38	280.1756	227.4003	0	217.72423	106.1912	20
28	38	281.6756	227.9803	0	198.13674	114.3943	0
29	38	282.36435	228.263	0	189.61146	92.479689	20
30	38	283.122	228.5907	0	179.93163	87.758518	20
31	38	284.82965	229.37765	0	158.31158	77.213715	20
32	38	287.10715	230.5133	0	130.12047	63.463995	20
33	38	289.36975	231.76055	0	115.30877	56.239843	20
34	38	291.6174	233.12635	0	112.76614	54.999721	20
35	38	293.865	234.6283	0	109.12504	53.223839	20
36	38	296.11265	236.27885	0	104.28702	50.864179	20
37	38	298.43885	238.16365	0	101.76998	49.636537	5
38	38	300.84355	240.31775	0	95.144234	46.404943	5
39	38	303.0459	242.49295	0	79.236965	38.64645	5
40	38	305.1709	244.83305	0	59.855562	29.193508	5
41	38	307.4209	247.5913	0	42.0734	20.520568	5
42	38	309.6709	250.71545	0	21.887669	10.675329	5
43	38	311.1115	252.8917	0	3.250111	1.585185	5

Slices of Slip Surface: 8

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	8	239.5018	226.006	0	6.8281289	3.330301	5
2	8	242.10895	225.27855	0	16.896512	8.2409794	5
3	8	244.7161	224.6706	0	24.463294	11.931546	5
4	8	246.31385	224.342	0	46.970212	22.908903	5
5	8	247.87135	224.08885	0	72.709517	35.462801	5
6	8	250.25565	223.7569	0	132.09378	64.426443	5
7	8	252.1173	223.5587	0	197.73293	96.440795	5
8	8	253.233	223.467	0	215.59994	105.15512	5
9	8	254.92365	223.3839	0	237.06829	115.62593	5
10	8	257.8888	223.3341	0	268.24189	130.83031	5
11	8	260.35695	223.37685	0	288.00731	140.47055	5
12	8	261.6756	223.44505	0	295.84872	144.29506	5
13	8	262.98705	223.54725	0	301.77884	147.18737	5
14	8	264.3355	223.67485	0	300.48111	146.55443	5
15	8	265.02405	223.75075	0	294.93708	143.85043	5
16	8	265.6756	223.83365	0	297.23276	171.60741	0
17	8	267.6756	224.14245	0	277.91459	135.548	20
18	8	269.4976	224.4486	0	262.88451	151.77644	0

19	8	269.9976	224.54665	0	260.55137	150.4294	0
20	8	271.2801	224.8293	0	264.18832	128.85325	20
21	8	272.7801	225.17475	0	268.75287	131.07953	20
22	8	273.6756	225.40595	0	270.75383	132.05547	20
23	8	274.8231	225.72345	0	272.7349	133.0217	20
24	8	275.8231	226.01545	0	269.37878	131.38481	20
25	8	276.43755	226.205	0	262.61622	151.62154	0
26	8	276.93755	226.36465	0	256.15576	147.8916	0
27	8	278.1756	226.78925	0	239.14837	116.64045	20
28	8	280.1756	227.5227	0	213.21614	103.99246	20
29	8	281.6756	228.11665	0	193.97163	111.98957	0
30	8	282.36435	228.40575	0	185.58978	90.518184	20
31	8	283.122	228.7405	0	176.06307	85.871695	20
32	8	284.82965	229.5434	0	154.73596	75.469772	20
33	8	287.10715	230.7004	0	126.84554	61.866702	20
34	8	289.56345	232.08945	0	111.95795	54.605539	20
35	8	292.1985	233.74345	0	108.8413	53.085448	20
36	8	294.8335	235.58965	0	104.07593	50.761222	20
37	8	297.62475	237.7873	0	101.5553	49.53183	5
38	8	300.5722	240.4011	0	93.042314	45.379769	5
39	8	303.0459	242.84465	0	76.136472	37.134238	5
40	8	305.1709	245.21165	0	56.079269	27.351687	5
41	8	307.4209	248.0012	0	37.13021	18.109613	5
42	8	309.6709	251.16085	0	16.09329	7.8492222	5
43	8	310.96805	253.1239	0	0.12738951	0.062132018	5

Slices of Slip Surface: 33

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	33	241.6164	225.72335	0	6.4938945	3.167284	5
2	33	244.55195	224.986	0	15.711951	7.6632307	5
3	33	246.31385	224.59825	0	38.74669	18.898023	5
4	33	247.87135	224.32835	0	64.671759	31.542524	5
5	33	250.25565	223.97165	0	124.57538	60.759471	5
6	33	252.1173	223.75515	0	190.96175	93.138268	5
7	33	253.233	223.6529	0	209.58913	102.22345	5
8	33	254.92365	223.5546	0	232.32646	113.31318	5
9	33	257.8888	223.47945	0	265.77775	129.62847	5
10	33	260.35695	223.50215	0	287.29721	140.12421	5
11	33	261.6756	223.5601	0	295.9655	144.35202	5
12	33	262.98705	223.6525	0	302.59937	147.58757	5

13	33	264.3355	223.77035	0	301.879	147.23622	5
14	33	265.02405	223.84135	0	296.56017	144.64206	5
15	33	265.6756	223.91965	0	299.12625	172.70062	0
16	33	266.2904	223.99625	0	287.16584	140.06014	5
17	33	267.7904	224.2303	0	279.2302	136.18967	20
18	33	269.4976	224.50925	0	265.40353	153.2308	0
19	33	269.9976	224.60415	0	263.11313	151.90844	0
20	33	271.2801	224.879	0	266.75591	130.10555	20
21	33	272.7801	225.2154	0	271.3551	132.34873	20
22	33	273.6756	225.4414	0	273.32327	133.30867	20
23	33	274.8231	225.7524	0	275.21578	134.23171	20
24	33	275.8231	226.03885	0	271.72687	132.53005	20
25	33	276.43755	226.2251	0	264.93063	152.95777	0
26	33	276.93755	226.3821	0	258.37135	149.17077	0
27	33	278.1756	226.80035	0	241.05755	117.57162	20
28	33	280.1756	227.5239	0	214.75108	104.7411	20
29	33	281.6756	228.11075	0	195.2207	112.71073	0
30	33	282.36435	228.3967	0	186.75185	91.084962	20
31	33	283.122	228.7281	0	177.10457	86.379672	20
32	33	284.82965	229.5238	0	155.55843	75.870913	20
33	33	287.10715	230.6719	0	127.44085	62.157055	20
34	33	289.5995	232.075	0	112.3211	54.78266	20
35	33	292.30665	233.77155	0	108.90236	53.11523	20
36	33	295.0138	235.67365	0	103.79932	50.626312	20
37	33	297.787	237.86455	0	100.96412	49.243492	5
38	33	300.62625	240.39245	0	92.858711	45.29022	5
39	33	303.0459	242.7902	0	76.186861	37.158815	5
40	33	305.1709	245.16305	0	56.250801	27.435349	5
41	33	307.4209	247.96395	0	37.377129	18.230044	5
42	33	309.6709	251.1433	0	16.22527	7.913593	5
43	33	310.96805	253.12135	0	0.12960138	0.063210815	5

Slices of Slip Surface: 3

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	3	239.5018	226.0091	0	6.7326708	3.283743	5
2	3	242.10895	225.28785	0	16.619156	8.1057038	5
3	3	244.7161	224.6862	0	23.9882	11.699827	5
4	3	246.31385	224.3615	0	46.334856	22.599019	5
5	3	247.87135	224.1122	0	71.892421	35.064277	5

6	3	250.25565	223.78625	0	130.93185	63.859728	5
7	3	252.1173	223.59285	0	196.22362	95.704656	5
8	3	253.233	223.50405	0	213.92258	104.33701	5
9	3	254.92365	223.42545	0	235.15058	114.6906	5
10	3	257.8888	223.38375	0	265.92496	129.70027	5
11	3	260.35695	223.43345	0	285.39529	139.19659	5
12	3	261.6756	223.5055	0	293.1173	142.96286	5
13	3	262.98705	223.6116	0	298.9196	145.79283	5
14	3	264.3355	223.74335	0	297.54914	145.12441	5
15	3	265.02405	223.8214	0	291.98204	142.40915	5
16	3	265.6756	223.9063	0	294.06808	169.78029	0
17	3	266.27745	223.9872	0	282.31122	137.69238	5
18	3	267.77745	224.2361	0	273.99811	133.63781	20
19	3	269.4976	224.53375	0	259.6995	149.93758	0
20	3	269.9976	224.6335	0	257.37371	148.59478	0
21	3	271.2801	224.92075	0	261.07386	127.33423	20
22	3	272.7801	225.27155	0	265.62718	129.55503	20
23	3	273.6756	225.50605	0	267.6133	130.52373	20
24	3	274.8231	225.82795	0	269.59946	131.49244	20
25	3	275.8231	226.12385	0	266.26063	129.86398	20
26	3	276.43755	226.31585	0	259.45679	149.79745	0
27	3	276.93755	226.47755	0	253.03329	146.08884	0
28	3	278.1756	226.90735	0	236.1638	115.18478	20
29	3	280.1756	227.6495	0	210.34129	102.5903	20
30	3	281.6756	228.2503	0	191.15848	110.3654	0
31	3	282.36435	228.54265	0	182.8261	89.170249	20
32	3	283.122	228.8811	0	173.3274	84.537423	20
33	3	284.82965	229.69275	0	152.06612	74.167602	20
34	3	287.10715	230.8622	0	124.22987	60.590955	20
35	3	289.40675	232.1675	0	109.53538	53.423975	20
36	3	291.72845	233.62055	0	106.88507	52.131333	20
37	3	294.0501	235.22175	0	102.93952	50.20696	20
38	3	296.3501	236.9676	0	102.10505	49.799961	5
39	3	298.62845	238.87285	0	96.55289	47.091991	5
40	3	300.90675	240.97475	0	89.555062	43.678922	5
41	3	303.0459	243.14585	0	77.49021	37.794501	5
42	3	305.1709	245.54585	0	48.585088	23.696531	5
43	3	307.4209	248.37845	0	32.324633	15.765777	5
44	3	309.6709	251.5941	0	10.295522	5.0214618	5
45	3	310.82465	253.3565	0	-3.0653016	-1.4950475	5

Slices of Slip Surface: 28

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	28	241.6164	225.72695	0	6.3856667	3.1144977	5
2	28	244.55195	224.9969	0	15.395803	7.5090349	5
3	28	246.31385	224.61355	0	38.26745	18.664283	5
4	28	247.87135	224.3476	0	64.019272	31.224285	5
5	28	250.25565	223.9971	0	123.58923	60.278497	5
6	28	252.1173	223.7855	0	189.63929	92.493261	5
7	28	253.233	223.6862	0	208.09065	101.49259	5
8	28	254.92365	223.5925	0	230.58225	112.46248	5
9	28	257.8888	223.5256	0	263.60636	128.56941	5
10	28	260.35695	223.5554	0	284.80634	138.90933	5
11	28	261.6756	223.6173	0	293.3282	143.06572	5
12	28	262.98705	223.71365	0	299.82337	146.23363	5
13	28	264.3355	223.83565	0	299.00495	145.83446	5
14	28	265.02405	223.90885	0	293.65603	143.22562	5
15	28	265.6756	223.98925	0	296.01239	170.90283	0
16	28	266.4423	224.0892	0	282.99019	138.02354	5
17	28	267.9423	224.32825	0	274.91579	134.08539	20
18	28	269.4976	224.59155	0	262.21612	151.39055	0
19	28	269.9976	224.6882	0	259.91896	150.06428	0
20	28	271.2801	224.96765	0	263.62016	128.57614	20
21	28	272.7801	225.3095	0	268.18815	130.8041	20
22	28	273.6756	225.5389	0	270.14847	131.76021	20
23	28	274.8231	225.85435	0	272.03749	132.68155	20
24	28	275.8231	226.14475	0	268.57541	130.99298	20
25	28	276.43755	226.33345	0	261.72824	151.10887	0
26	28	276.93755	226.4925	0	255.20214	147.34102	0
27	28	278.1756	226.916	0	238.02359	116.09186	20
28	28	280.1756	227.64835	0	211.83167	103.31721	20
29	28	281.6756	228.2421	0	192.3725	111.06631	0
30	28	282.36435	228.53135	0	183.95156	89.71917	20
31	28	283.122	228.8665	0	174.34553	85.033998	20
32	28	284.82965	229.67105	0	152.8653	74.557386	20
33	28	287.10715	230.8318	0	124.81408	60.875894	20
34	28	289.446	232.1537	0	109.90267	53.603115	20
35	28	291.84615	233.65385	0	106.96867	52.172106	20
36	28	294.24625	235.31445	0	102.69072	50.08561	20
37	28	296.54625	237.06785	0	101.5576	49.532951	5

38	28	298.74615	238.91755	0	96.154863	46.89786	5
39	28	300.946	240.9539	0	89.434381	43.620062	5
40	28	303.0459	243.0915	0	77.494844	37.796761	5
41	28	305.1709	245.4979	0	48.85113	23.826288	5
42	28	307.4209	248.34285	0	32.582967	15.891775	5
43	28	309.6709	251.5798	0	10.409894	5.0772445	5
44	28	310.82465	253.35605	0	-3.0832977	-1.5038248	5

SLOPE/W Analysis

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File Information

Revision Number: 90
Date: 09/12/2011
Time: 13.19.23
File Name: sez31pali2.gsz
Directory: \\Thesis2-elia\users\Public\Documents\nuove\
Last Solved Date: 09/12/2011
Last Solved Time: 13.19.28

Project Settings

Length(L) Units: meters
Time(t) Units: Seconds
Force(F) Units: kN
Pressure(p) Units: kPa
Strength Units: kPa
Unit Weight of Water: 9.807 kN/m³
View: 2D

Analysis Settings

SLOPE/W Analysis

Kind: SLOPE/W
Method: Morgenstern-Price
Settings
 Side Function
 Interslice force function option: Half-Sine
 PWP Conditions Source: (none)
Slip Surface
 Direction of movement: Right to Left
 Use Passive Mode: No
 Slip Surface Option: Entry and Exit
 Critical slip surfaces saved: 20
 Optimize Critical Slip Surface Location: No
 Tension Crack
 Tension Crack Option: (none)
FOS Distribution
 FOS Calculation Option: Constant
Advanced
 Number of Slices: 30
 Optimization Tolerance: 0.01
 Minimum Slip Surface Depth: 0.1 m
 Optimization Maximum Iterations: 2000
 Optimization Convergence Tolerance: 1e-007
 Starting Optimization Points: 8
 Ending Optimization Points: 16
 Complete Passes per Insertion: 1
 Driving Side Maximum Convex Angle: 5 °

Resisting Side Maximum Convex Angle: 1 °

Materials

New Material

Model: Mohr-Coulomb
Unit Weight: 20 kN/m³
Cohesion: 5 kPa
Phi: 26 °
Phi-B: 0 °

New Material (2)

Model: Mohr-Coulomb
Unit Weight: 25 kN/m³
Cohesion: 0 kPa
Phi: 30 °
Phi-B: 0 °

New Material (3)

Model: Mohr-Coulomb
Unit Weight: 20 kN/m³
Cohesion: 0 kPa
Phi: 30 °
Phi-B: 0 °

New Material (5)

Model: Mohr-Coulomb
Unit Weight: 20 kN/m³
Cohesion: 20 kPa
Phi: 26 °
Phi-B: 0 °

Slip Surface Entry and Exit

Left Projection: Range
Left-Zone Left Coordinate: (153, 167.69688) m
Left-Zone Right Coordinate: (159.57438, 167.85309) m
Left-Zone Increment: 4
Right Projection: Range
Right-Zone Left Coordinate: (218.11871, 196.049) m
Right-Zone Right Coordinate: (219.35763, 196) m
Right-Zone Increment: 4
Radius Increments: 4

Slip Surface Limits

Left Coordinate: (149.72309, 167.28751) m
Right Coordinate: (226.2, 196.4) m

Seismic Loads

Horz Seismic Load: 0.12
Vert Seismic Load: 0.06

Ignore seismic load in strength: No

Reinforcements

Reinforcement 1

Type: Nail
Outside Point: (202.7, 186.5) m
Inside Point: (208.06231, 182.00049) m
Slip Surface Intersection: (208.05, 182.01) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip
Shear Load: 0 kN
Applied Load: 65.973418 kN
Nail Load Used: 0.1009 kN
Resisting Force Used: 9.4248 kN/m
Available Bond Length: 0.010706 m
Required Bond Length: 0.010706 m
Governing Component: Bond

Reinforcement 2

Type: Nail
Outside Point: (204.5, 187.8) m
Inside Point: (209.86231, 183.30049) m
Slip Surface Intersection: (209.62, 183.5) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip

Shear Load: 0 kN
Applied Load: 65.973418 kN
Nail Load Used: 2.9219 kN
Resisting Force Used: 9.4248 kN/m
Available Bond Length: 0.31002 m
Required Bond Length: 0.31002 m
Governing Component: Bond

Reinforcement 3

Type: Nail
Outside Point: (206.1, 189.30251) m
Inside Point: (211.46231, 184.803) m
Slip Surface Intersection: (211.16, 185.06) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip
Shear Load: 0 kN
Applied Load: 65.973418 kN
Nail Load Used: 3.7095 kN
Resisting Force Used: 9.4248 kN/m
Available Bond Length: 0.39359 m
Required Bond Length: 0.39359 m
Governing Component: Bond

Reinforcement 4

Type: Nail
Outside Point: (209.6, 191.5) m
Inside Point: (214.96231, 187.00049) m
Slip Surface Intersection: (213.75, 188.02) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.35 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 109.95574 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN

Shear Safety Factor: 1
Shear Option: Parallel to Slip
Shear Load: 0 kN
Applied Load: 359 kN
Nail Load Used: 174.42 kN
Resisting Force Used: 109.96 kN/m
Available Bond Length: 1.5863 m
Required Bond Length: 1.5863 m
Governing Component: Bond

Reinforcement 5

Type: Nail
Outside Point: (214.4, 193.9) m
Inside Point: (219.76231, 189.40049) m
Slip Surface Intersection: (216.72, 191.95) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip
Shear Load: 0 kN
Applied Load: 65.973418 kN
Nail Load Used: 37.429 kN
Resisting Force Used: 9.4248 kN/m
Available Bond Length: 3.9713 m
Required Bond Length: 3.9713 m
Governing Component: Bond

Reinforcement 6

Type: Nail
Outside Point: (216.9, 195.4) m
Inside Point: (222.26231, 190.90049) m
Slip Surface Intersection: (218.28, 194.24) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN

Load Distribution: Conc. in 1 slice
 Shear Capacity: 0 kN
 Shear Safety Factor: 1
 Shear Option: Parallel to Slip
 Shear Load: 0 kN
 Applied Load: 65.973418 kN
 Nail Load Used: 48.981 kN
 Resisting Force Used: 9.4248 kN/m
 Available Bond Length: 5.1971 m
 Required Bond Length: 5.1971 m
 Governing Component: Bond

Reinforcement 7

Type: Nail
 Outside Point: (208, 190.1) m
 Inside Point: (213.36231, 185.60049) m
 Slip Surface Intersection: (212.39, 186.42) m
 Total Length: 6.9999971 m
 Reinforcement Direction: 140 °
 Applied Load Option: Variable
 F of S Dependent: No
 Bond Diameter: 0.35 m
 Bond Safety Factor: 1
 Bond Skin Friction: 100 kPa
 Bond Resistance: 109.95574 kN/m
 Nail Spacing: 1 m
 Bar Capacity: 359 kN
 Bar Safety Factor: 1
 Bar Load: 359 kN
 Load Distribution: Conc. in 1 slice
 Shear Capacity: 0 kN
 Shear Safety Factor: 1
 Shear Option: Parallel to Slip
 Shear Load: 0 kN
 Applied Load: 359 kN
 Nail Load Used: 140.02 kN
 Resisting Force Used: 109.96 kN/m
 Available Bond Length: 1.2734 m
 Required Bond Length: 1.2734 m
 Governing Component: Bond

Regions

	Material	Points	Area (m ²)
Region 1	New Material (2)	1,2,3,4,5,6,7,8,9,52,51,50,49,10,11,12,13,14,15,16,17,18,19	133.3880
Region 2	New Material (5)	20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42	1485.4500
Region 3	New Material	23,43,44,45,46,47,48,1,19,18,17,16,15,26,25,24	206.2780
Region	New	14,13,30,29	21.9187

4	Material		
Region 5	New Material	12,11,10,49,34,33	32.0965
Region 6	New Material	50,51,38,37	18.1514
Region 7	New Material	52,9,8,53,54,55,56,57,58,59,60,61,62,20,42,41	383.266
Region 8	New Material (3)	15,14,29,28,27,26	9.96139
Region 9	New Material (3)	13,12,33,32,31,30	9.68173
Region 10	New Material (3)	49,50,37,36,35,34	11.1716
Region 11	New Material (3)	51,52,41,40,39,38	11.1198

Points

	X (m)	Y (m)
Point 1	159.70865	167.85628
Point 2	162.2664	173.00403
Point 3	163.9964	174.00403
Point 4	165.9964	173.97403
Point 5	175.15865	179.30103
Point 6	186.10574	178.38474
Point 7	187.10574	178.6772
Point 8	189.10574	178.67337
Point 9	187.91172	174.32438
Point 10	180.09076	174.32438
Point 11	179.2482	172.69052
Point 12	177.33604	172.69052
Point 13	176.3	172.7
Point 14	173.4	172.7
Point 15	172.3	172.7
Point 16	169.7	172.7
Point 17	165.21357	169.52854
Point 18	164.4319	169.3901
Point 19	163.7	167.9
Point 20	226.1	189.2

Point 21	226.6	151.4
Point 22	149.72309	151.4709
Point 23	149.7	158.3
Point 24	163.64833	158.85029
Point 25	169.72755	163.69052
Point 26	172.33604	164.49587
Point 27	172.33604	163.13894
Point 28	173.33604	163.13894
Point 29	173.33604	164.80461
Point 30	176.33604	165.73084
Point 31	176.33604	163.13894
Point 32	177.33604	163.13894
Point 33	177.33604	166.03958
Point 34	182.09076	167.50756
Point 35	182.09076	163.12691
Point 36	183.09076	163.12691
Point 37	183.09076	167.8163
Point 38	186.1	168.7
Point 39	186.09076	163.12691
Point 40	187.09076	163.12691
Point 41	187.09076	169.05127
Point 42	189.10574	169.67337
Point 43	149.72309	167.28751
Point 44	150.46066	167.33444
Point 45	150.82052	167.06654
Point 46	151.32052	167.06654
Point 47	151.82052	167.56654
Point 48	152.33384	167.68105
Point 49	182.1	174.3
Point 50	183.1	174.3
Point 51	186.1	174.3
Point 52	187.1	174.3
Point 53	199.10574	185.62362
Point 54	201.10574	185.62362
Point 55	211.10574	192.57387
Point 56	213.10574	192.57387
Point 57	218.10574	196.049
Point 58	219.30792	196.049
Point 59	219.77734	195.58631
Point 60	220.28834	195.58631
Point 61	220.88864	196.17368

Point 62	226.2	196.4
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Critical Slip Surfaces

	Slip Surface	FOS	Center (m)	Radius (m)	Entry (m)	Exit (m)
1	23	1.257	(167.095, 226.591)	60.557	(219.358, 196)	(153, 167.697)
2	48	1.262	(167.72, 226.014)	59.727	(219.358, 196)	(154.644, 167.736)
3	18	1.264	(166.857, 226.552)	60.464	(219.063, 196.049)	(153, 167.697)
4	73	1.267	(168.332, 225.44)	58.909	(219.358, 196)	(156.287, 167.775)
5	43	1.268	(167.478, 225.976)	59.637	(219.063, 196.049)	(154.644, 167.736)
6	13	1.271	(166.654, 226.443)	60.312	(218.748, 196.049)	(153, 167.697)
7	68	1.274	(168.087, 225.402)	58.822	(219.063, 196.049)	(156.287, 167.775)
8	98	1.274	(168.932, 224.868)	58.104	(219.358, 196)	(157.931, 167.814)
9	38	1.275	(167.273, 225.868)	59.488	(218.748, 196.049)	(154.644, 167.736)
10	8	1.278	(166.451, 226.335)	60.161	(218.434, 196.049)	(153, 167.697)
11	93	1.281	(168.683, 224.83)	58.021	(219.063, 196.049)	(157.931, 167.814)
12	63	1.281	(167.88, 225.294)	58.676	(218.748, 196.049)	(156.287, 167.775)
13	123	1.282	(169.517, 224.298)	57.313	(219.358, 196)	(159.574, 167.853)
14	33	1.283	(167.068, 225.76)	59.339	(218.434, 196.049)	(154.644, 167.736)
15	3	1.285	(166.248, 226.227)	60.01	(218.119, 196.049)	(153, 167.697)
16	88	1.288	(168.473, 224.723)	57.877	(218.748, 196.049)	(157.931, 167.814)
17	58	1.289	(167.672, 225.187)	58.53	(218.434, 196.049)	(156.287, 167.775)
18	118	1.289	(169.265, 224.261)	57.234	(219.063, 196.049)	(159.574, 167.853)
19	28	1.290	(166.862, 225.652)	59.191	(218.119, 196.049)	(154.644, 167.736)
20	53	1.296	(167.464,	58.384	(218.119,	(156.287,

			225.079)		196.049)	167.775)
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Slices of Slip Surface: 23

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	23	154.1181	167.45155	0	7.8391034	3.8233862	5
2	23	156.3543	167.00465	0	20.915777	10.201306	5
3	23	158.59055	166.64445	0	32.473098	15.838188	5
4	23	160.98755	166.35615	0	121.43384	59.227239	5
5	23	162.9832	166.1777	0	220.12406	107.36168	5
6	23	163.8482	166.12095	0	236.38011	115.29028	5
7	23	164.21415	166.10265	0	235.37037	114.7978	5
8	23	164.82275	166.0776	0	233.34841	113.81162	5
9	23	165.605	166.0533	0	232.13847	113.2215	5
10	23	166.9223	166.04105	0	243.07596	118.55607	5
11	23	168.7741	166.06405	0	265.34781	129.41877	5
12	23	171	166.17375	0	291.9754	142.40592	5
13	23	172.85	166.3103	0	321.99942	185.90645	0
14	23	174.2793	166.46785	0	326.51464	159.25183	5
15	23	175.7293	166.65515	0	327.13514	159.55447	5
16	23	176.818	166.82165	0	322.88581	186.41821	0
17	23	178.2921	167.0858	0	296.7799	144.74923	5
18	23	179.6695	167.35515	0	275.30539	134.27541	5
19	23	181.09105	167.68225	0	252.67842	123.2395	5
20	23	182.59565	168.05345	0	237.60761	137.18282	0
21	23	184.60285	168.64105	0	206.30455	100.62145	5
22	23	186.6057	169.26525	0	187.02453	107.97867	0
23	23	187.5087	169.5797	0	177.63328	86.637537	5
24	23	188.5087	169.9497	0	156.91331	76.531736	5
25	23	190.1057	170.5863	0	141.8671	69.193206	5
26	23	192.1057	171.45075	0	142.8427	69.669041	5
27	23	194.1057	172.4028	0	142.85184	69.673496	5
28	23	196.1057	173.44715	0	142.07013	69.292231	5
29	23	198.1057	174.58935	0	140.60664	68.578441	5
30	23	200.1057	175.8361	0	128.42642	62.637748	5
31	23	202.1057	177.1953	0	115.95709	56.556053	5
32	23	204.1057	178.6765	0	112.71088	54.972768	5
33	23	206.1057	180.2915	0	108.56561	52.950984	5
34	23	208.1057	182.05495	0	103.35492	50.40956	5
35	23	210.1057	183.9853	0	97.48049	47.544412	5

36	23	212.1057	186.1066	0	114.9956	56.087104	5
37	23	214.3557	188.7808	0	87.946847	42.894543	5
38	23	216.8557	192.1492	0	41.12014	20.055632	5
39	23	218.7068	194.9352	0	26.526204	12.937694	5
40	23	219.33275	195.9576	0	-3.2210793	-1.5710253	5

Slices of Slip Surface: 48

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	48	155.90985	167.48045	0	8.1054886	3.953311	5
2	48	158.4424	167.02585	0	21.626536	10.547967	5
3	48	160.98755	166.6816	0	111.08474	54.179647	5
4	48	162.9832	166.47945	0	210.10633	102.4757	5
5	48	163.8482	166.4128	0	226.93743	110.68478	5
6	48	164.21415	166.3904	0	226.23392	110.34166	5
7	48	164.82275	166.3586	0	224.72786	109.6071	5
8	48	165.605	166.32575	0	224.18648	109.34305	5
9	48	166.9223	166.29955	0	236.19777	115.20135	5
10	48	168.7741	166.30355	0	260.0253	126.82281	5
11	48	171	166.3914	0	288.53672	140.72876	5
12	48	172.85	166.51035	0	319.76821	184.61826	0
13	48	174.2793	166.65495	0	325.64956	158.8299	5
14	48	175.7293	166.82935	0	327.12686	159.55043	5
15	48	176.818	166.98645	0	323.29303	186.65332	0
16	48	178.2921	167.23825	0	297.70198	145.19896	5
17	48	179.6695	167.49625	0	276.47001	134.84343	5
18	48	181.09115	167.8121	0	253.93977	123.8547	5
19	48	182.59575	168.1716	0	239.02079	137.99872	0
20	48	184.60285	168.74435	0	207.51965	101.21409	5
21	48	186.6057	169.35405	0	188.20025	108.65746	0
22	48	187.5087	169.66225	0	178.61644	87.117056	5
23	48	188.5087	170.02545	0	157.74064	76.935253	5
24	48	190.1057	170.65145	0	142.51512	69.509267	5
25	48	192.1057	171.5032	0	143.35391	69.918375	5
26	48	194.1057	172.4431	0	143.20194	69.844255	5
27	48	196.1057	173.4759	0	142.25442	69.382116	5
28	48	198.1057	174.6073	0	140.64701	68.598131	5
29	48	200.1057	175.84395	0	128.34252	62.596827	5
30	48	202.1057	177.1938	0	115.8036	56.48119	5
31	48	204.1057	178.6666	0	112.52161	54.880455	5

32	48	206.1057	180.27435	0	108.37706	52.859022	5
33	48	208.1057	182.0318	0	103.17639	50.322487	5
34	48	210.1057	183.95785	0	97.360977	47.486121	5
35	48	212.1057	186.0771	0	114.56393	55.87656	5
36	48	214.3557	188.753	0	87.77874	42.812552	5
37	48	216.8557	192.13015	0	41.237806	20.113022	5
38	48	218.7068	194.9287	0	26.546584	12.947634	5
39	48	219.33275	195.9573	0	-3.227176	-1.5739989	5

Slices of Slip Surface: 18

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	18	154.1181	167.45585	0	7.6897824	3.7505575	5
2	18	156.3543	167.01755	0	20.495908	9.996522	5
3	18	158.59055	166.666	0	31.758822	15.489812	5
4	18	160.98755	166.38695	0	120.0673	58.560736	5
5	18	162.9832	166.21615	0	218.01523	106.33313	5
6	18	163.8482	166.16275	0	234.02824	114.1432	5
7	18	164.21415	166.14585	0	232.93452	113.60976	5
8	18	164.82275	166.12315	0	230.81073	112.57391	5
9	18	165.605	166.1019	0	229.46425	111.91719	5
10	18	166.9223	166.0948	0	240.11219	117.11054	5
11	18	168.7741	166.12515	0	261.9591	127.76599	5
12	18	171	166.24385	0	288.11314	140.52217	5
13	18	172.85	166.38795	0	317.42901	183.26773	0
14	18	174.2793	166.5515	0	322.07786	157.08787	5
15	18	175.7293	166.74495	0	322.58316	157.33432	5
16	18	176.818	166.91615	0	317.97592	183.58348	0
17	18	178.2921	167.18685	0	292.27967	142.55432	5
18	18	179.6695	167.46235	0	270.90721	132.13028	5
19	18	181.09115	167.79605	0	248.4215	121.16326	5
20	18	182.59575	168.17435	0	233.24388	134.66342	0
21	18	184.60285	168.7719	0	202.4226	98.728097	5
22	18	186.6057	169.4063	0	183.18899	105.76421	0
23	18	187.5087	169.72555	0	174.05292	84.891279	5
24	18	188.5087	170.101	0	153.49114	74.862633	5
25	18	190.1057	170.7466	0	138.59356	67.596597	5
26	18	192.1057	171.62285	0	139.67086	68.122029	5
27	18	194.1057	172.58745	0	139.77634	68.173474	5
28	18	196.1057	173.64525	0	139.07219	67.830038	5

29	18	198.1057	174.80195	0	137.67207	67.147154	5
30	18	200.1057	176.06435	0	125.55408	61.236815	5
31	18	202.1057	177.44065	0	113.10696	55.165952	5
32	18	204.1057	178.94075	0	109.80321	53.554606	5
33	18	206.1057	180.5768	0	105.55257	51.481426	5
34	18	208.1057	182.364	0	100.77888	49.153143	5
35	18	210.1057	184.32165	0	96.187199	46.913632	5
36	18	212.1057	186.47485	0	116.60018	56.869706	5
37	18	214.3557	189.19315	0	87.941594	42.891981	5
38	18	216.8557	192.62455	0	44.238913	21.57676	5
39	18	218.58435	195.25785	0	6.1456351	2.9974265	5

Slices of Slip Surface: 73

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	73	157.14255	167.6095	0	5.4668718	2.6663715	5
2	73	158.8533	167.30455	0	14.280687	6.9651563	5
3	73	160.98755	167.00435	0	100.90877	49.216497	5
4	73	162.9832	166.77825	0	199.89622	97.4959	5
5	73	163.8482	166.70155	0	217.2223	105.94639	5
6	73	164.21415	166.67495	0	216.81622	105.74833	5
7	73	164.82275	166.6364	0	215.80702	105.25612	5
8	73	165.605	166.59495	0	215.90715	105.30495	5
9	73	166.9223	166.55465	0	228.94936	111.66606	5
10	73	168.7741	166.53945	0	254.30218	124.03146	5
11	73	171	166.60535	0	284.72278	138.86858	5
12	73	172.85	166.7066	0	317.12667	183.09317	0
13	73	174.2793	166.83815	0	324.53783	158.28767	5
14	73	175.7293	166.9996	0	326.96572	159.47184	5
15	73	176.818	167.1472	0	323.54627	186.79952	0
16	73	178.2921	167.38665	0	298.64455	145.65868	5
17	73	179.6695	167.63335	0	277.72731	135.45666	5
18	73	181.0912	167.93795	0	255.35324	124.5441	5
19	73	182.5958	168.28575	0	240.59926	138.91005	0
20	73	184.60285	168.84365	0	208.9569	101.91509	5
21	73	186.6057	169.43885	0	189.59153	109.46072	0
22	73	187.5087	169.74075	0	179.84272	87.715154	5
23	73	188.5087	170.09715	0	158.78536	77.444796	5
24	73	190.1057	170.71265	0	143.37422	69.92828	5
25	73	192.1057	171.5517	0	144.05425	70.259953	5

26	73	194.1057	172.47955	0	143.71489	70.094435	5
27	73	196.1057	173.50095	0	142.57999	69.540909	5
28	73	198.1057	174.62155	0	140.79913	68.672326	5
29	73	200.1057	175.84815	0	128.35048	62.600713	5
30	73	202.1057	177.18885	0	115.72289	56.441823	5
31	73	204.1057	178.6534	0	112.38664	54.814627	5
32	73	206.1057	180.25395	0	108.2329	52.788711	5
33	73	208.1057	182.00565	0	103.06572	50.268509	5
34	73	210.1057	183.9277	0	97.263291	47.438477	5
35	73	212.1057	186.04515	0	114.1128	55.656531	5
36	73	214.3557	188.72315	0	87.615818	42.73309	5
37	73	216.8557	192.1098	0	41.378914	20.181845	5
38	73	218.7068	194.9218	0	26.581223	12.964529	5
39	73	219.33275	195.957	0	-3.2308221	-1.5757772	5

Slices of Slip Surface: 43

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	43	155.90985	167.48545	0	7.9381435	3.8716913	5
2	43	158.4424	167.0409	0	21.148502	10.314814	5
3	43	160.98755	166.70675	0	109.971	53.63644	5
4	43	162.9832	166.5125	0	208.2716	101.58085	5
5	43	163.8482	166.44925	0	224.86232	109.67268	5
6	43	164.21415	166.42825	0	224.0838	109.29297	5
7	43	164.82275	166.3989	0	222.45622	108.49915	5
8	43	165.605	166.3692	0	221.76499	108.16201	5
9	43	166.9223	166.34825	0	233.46545	113.86871	5
10	43	168.7741	166.35975	0	256.83538	125.26699	5
11	43	171	166.4568	0	284.82869	138.92024	5
12	43	172.85	166.58345	0	315.33106	182.05647	0
13	43	174.2793	166.73415	0	321.28555	156.70143	5
14	43	175.7293	166.91485	0	322.61284	157.34879	5
15	43	176.818	167.07675	0	318.41256	183.83558	0
16	43	178.2921	167.3352	0	293.1904	142.99851	5
17	43	179.6695	167.59945	0	272.04571	132.68556	5
18	43	181.0912	167.922	0	249.6403	121.75771	5
19	43	182.5958	168.28875	0	234.60104	135.44697	0
20	43	184.60285	168.8716	0	203.57325	99.289307	5
21	43	186.6057	169.4916	0	184.29011	106.39995	0
22	43	187.5087	169.8046	0	174.98114	85.344006	5

23	43	188.5087	170.1733	0	154.24741	75.231487	5
24	43	190.1057	170.80845	0	139.19157	67.888265	5
25	43	192.1057	171.67215	0	140.13234	68.347107	5
26	43	194.1057	172.6248	0	140.08182	68.322471	5
27	43	196.1057	173.6712	0	139.22558	67.904851	5
28	43	198.1057	174.8172	0	137.69062	67.156202	5
29	43	200.1057	176.06965	0	125.46139	61.19161	5
30	43	202.1057	177.4368	0	112.95286	55.090793	5
31	43	204.1057	178.92875	0	109.62855	53.469416	5
32	43	206.1057	180.5578	0	105.38492	51.399659	5
33	43	208.1057	182.33935	0	100.61277	49.072129	5
34	43	210.1057	184.29305	0	96.058051	46.850642	5
35	43	212.1057	186.44465	0	116.26284	56.705176	5
36	43	214.3557	189.16545	0	87.804309	42.825023	5
37	43	216.8557	192.607	0	44.350189	21.631032	5
38	43	218.58435	195.25285	0	6.1860697	3.0171478	5

Slices of Slip Surface: 13

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	13	154.1181	167.45925	0	7.5746906	3.6944234	5
2	13	156.3543	167.02775	0	20.181356	9.843105	5
3	13	158.59055	166.68305	0	31.22913	15.231464	5
4	13	160.98755	166.41145	0	119.08353	58.080919	5
5	13	162.9832	166.247	0	216.52705	105.6073	5
6	13	163.8482	166.1964	0	232.37294	113.33585	5
7	13	164.21415	166.1807	0	231.24562	112.78603	5
8	13	164.82275	166.16	0	229.01914	111.7001	5
9	13	165.605	166.1413	0	227.56286	110.98982	5
10	13	166.9223	166.1386	0	237.98235	116.07175	5
11	13	168.7741	166.1753	0	259.47883	126.55628	5
12	13	171	166.3018	0	285.22172	139.11193	5
13	13	172.85	166.4525	0	313.99348	181.28422	0
14	13	174.2793	166.6214	0	318.60624	155.39465	5
15	13	175.7293	166.82035	0	318.94465	155.5597	5
16	13	176.818	166.99575	0	314.07904	181.33362	0
17	13	178.2921	167.27235	0	288.56323	140.74169	5
18	13	179.6695	167.5535	0	267.21768	130.33077	5
19	13	181.0912	167.8933	0	244.78512	119.38968	5
20	13	182.5958	168.2782	0	229.51183	132.50872	0

21	13	184.60285	168.88505	0	198.96852	97.043432	5
22	13	186.6057	169.52895	0	179.74582	103.7763	0
23	13	187.5087	169.8527	0	170.76361	83.286978	5
24	13	188.5087	170.23335	0	150.32488	73.318342	5
25	13	190.1057	170.8876	0	135.5344	66.104543	5
26	13	192.1057	171.77525	0	136.64677	66.647085	5
27	13	194.1057	172.7521	0	136.78798	66.715956	5
28	13	196.1057	173.8231	0	136.11978	66.390052	5
29	13	198.1057	174.9941	0	134.75119	65.722548	5
30	13	200.1057	176.27215	0	122.68137	59.835701	5
31	13	202.1057	177.6657	0	110.24763	53.771364	5
32	13	204.1057	179.185	0	106.88574	52.131657	5
33	13	206.1057	180.84265	0	102.52953	50.006992	5
34	13	208.1057	182.6544	0	98.142026	47.867065	5
35	13	210.1057	184.64045	0	93.82141	45.759759	5
36	13	212.1057	186.82715	0	118.67791	57.883082	5
37	13	214.3557	189.5925	0	87.599152	42.724961	5
38	13	216.8557	193.09215	0	39.098382	19.069555	5
39	13	218.42695	195.51135	0	2.9166028	1.4225222	5

Slices of Slip Surface: 68

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	68	157.14255	167.613	0	5.3468356	2.607826	5
2	68	158.8533	167.315	0	13.957876	6.8077109	5
3	68	160.98755	167.0235	0	100.04281	48.794138	5
4	68	162.9832	166.80555	0	198.34903	96.741284	5
5	68	163.8482	166.7324	0	215.43029	105.07237	5
6	68	164.21415	166.7073	0	214.94696	104.83664	5
7	68	164.82275	166.6712	0	213.81397	104.28404	5
8	68	165.605	166.63295	0	213.75111	104.25338	5
9	68	166.9223	166.59805	0	226.47575	110.4596	5
10	68	168.7741	166.5905	0	251.34374	122.58853	5
11	68	171	166.6658	0	281.2006	137.1507	5
12	68	172.85	166.77495	0	312.86018	180.62991	0
13	68	174.2793	166.9127	0	320.28689	156.21435	5
14	68	175.7293	167.08055	0	322.5246	157.30576	5
15	68	176.818	167.23305	0	318.70529	184.00458	0
16	68	178.2921	167.47925	0	294.14264	143.46295	5
17	68	179.6695	167.7323	0	273.28868	133.29179	5

18	68	181.0913	168.04375	0	251.02117	122.4312	5
19	68	182.5959	168.3989	0	236.13298	136.33144	0
20	68	184.60285	168.967	0	204.9489	99.960259	5
21	68	186.6057	169.57265	0	185.61547	107.16514	0
22	68	187.5087	169.8795	0	176.12846	85.903591	5
23	68	188.5087	170.2415	0	155.23633	75.713817	5
24	68	190.1057	170.86625	0	139.99074	68.278044	5
25	68	192.1057	171.7174	0	140.77783	68.661936	5
26	68	194.1057	172.6581	0	140.54944	68.55054	5
27	68	196.1057	173.69325	0	139.51527	68.046146	5
28	68	198.1057	174.82865	0	137.81595	67.217331	5
29	68	200.1057	176.07125	0	125.45584	61.188901	5
30	68	202.1057	177.42945	0	112.87121	55.050967	5
31	68	204.1057	178.91335	0	109.4999	53.406669	5
32	68	206.1057	180.5355	0	105.26123	51.339332	5
33	68	208.1057	182.3116	0	100.47731	49.006058	5
34	68	210.1057	184.26165	0	95.946657	46.796311	5
35	68	212.1057	186.41195	0	115.91204	56.534078	5
36	68	214.3557	189.13565	0	87.671288	42.760144	5
37	68	216.8557	192.5882	0	44.485333	21.696946	5
38	68	218.58435	195.2475	0	6.2355052	3.0412591	5

Slices of Slip Surface: 98

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	98	158.81975	167.6569	0	5.1897008	2.5311862	5
2	98	160.98755	167.32325	0	91.018308	44.392595	5
3	98	162.9832	167.07295	0	189.62331	92.48547	5
4	98	163.8482	166.98615	0	207.35301	101.13282	5
5	98	164.21415	166.95535	0	207.22406	101.06993	5
6	98	164.82275	166.9099	0	206.69143	100.81015	5
7	98	165.605	166.85975	0	207.39273	101.15219	5
8	98	166.9223	166.8053	0	221.41952	107.99352	5
9	98	168.7741	166.77075	0	248.23861	121.07406	5
10	98	171	166.81455	0	280.57194	136.84408	5
11	98	172.85	166.89805	0	314.1196	181.35704	0
12	98	174.2793	167.0165	0	323.21187	157.64096	5
13	98	175.7293	167.16505	0	326.68461	159.33473	5
14	98	176.818	167.30325	0	323.66278	186.8668	0
15	98	178.2921	167.5303	0	299.62725	146.13797	5

16	98	179.6695	167.7656	0	279.11144	136.13175	5
17	98	181.0913	168.05895	0	256.94792	125.32187	5
18	98	182.5959	168.3951	0	242.38112	139.93881	0
19	98	184.60285	168.9382	0	210.6518	102.74175	5
20	98	186.6057	169.51895	0	191.23656	110.41048	0
21	98	187.5087	169.8146	0	181.32437	88.437802	5
22	98	188.5087	170.16425	0	160.08768	78.079981	5
23	98	190.1057	170.7693	0	144.46821	70.461852	5
24	98	192.1057	171.5957	0	144.95804	70.700758	5
25	98	194.1057	172.51155	0	144.40443	70.430746	5
26	98	196.1057	173.5216	0	143.04704	69.768705	5
27	98	198.1057	174.63155	0	141.06272	68.800886	5
28	98	200.1057	175.84825	0	128.44578	62.647192	5
29	98	202.1057	177.17985	0	115.70234	56.4318	5
30	98	204.1057	178.63635	0	112.29745	54.771125	5
31	98	206.1057	180.23	0	108.12092	52.734097	5
32	98	208.1057	181.97615	0	102.97434	50.223941	5
33	98	210.1057	183.8944	0	97.179454	47.397587	5
34	98	212.1057	186.0104	0	113.62435	55.4183	5
35	98	214.3557	188.691	0	87.447043	42.650773	5
36	98	216.8557	192.08805	0	41.540187	20.260503	5
37	98	218.7068	194.91445	0	26.627912	12.9873	5
38	98	219.33275	195.95665	0	-3.2323534	-1.5765241	5

Slices of Slip Surface: 38

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	38	155.90985	167.48945	0	7.8091207	3.8087627	5
2	38	158.4424	167.05285	0	20.788655	10.139305	5
3	38	160.98755	166.7268	0	109.16907	53.245315	5
4	38	162.9832	166.53905	0	206.98608	100.95386	5
5	38	163.8482	166.47865	0	223.40746	108.9631	5
6	38	164.21415	166.4589	0	222.57766	108.55838	5
7	38	164.82275	166.43155	0	220.86469	107.72291	5
8	38	165.605	166.40445	0	220.05059	107.32584	5
9	38	166.9223	166.388	0	231.52208	112.92086	5
10	38	168.7741	166.4059	0	254.53603	124.14552	5
11	38	171	166.5109	0	282.08692	137.58298	5
12	38	172.85	166.6443	0	312.02879	180.14991	0
13	38	174.2793	166.8004	0	317.91491	155.05746	5

14	38	175.7293	166.98665	0	319.05538	155.61371	5
15	38	176.818	167.1528	0	314.56499	181.61418	0
16	38	178.2921	167.41725	0	289.49965	141.19841	5
17	38	179.6695	167.68725	0	268.3546	130.88528	5
18	38	181.0913	168.01595	0	245.99196	119.9783	5
19	38	182.5959	168.3893	0	230.84376	133.27771	0
20	38	184.60285	168.98155	0	200.08173	97.586379	5
21	38	186.6057	169.6112	0	180.80214	104.38616	0
22	38	187.5087	169.9288	0	171.65	83.719301	5
23	38	188.5087	170.30275	0	151.04291	73.668551	5
24	38	190.1057	170.94665	0	136.08828	66.374689	5
25	38	192.1057	171.82185	0	137.06889	66.852965	5
26	38	194.1057	172.7868	0	137.05886	66.848072	5
27	38	196.1057	173.84655	0	136.24333	66.450313	5
28	38	198.1057	175.007	0	134.74449	65.719277	5
29	38	200.1057	176.27525	0	122.57649	59.784547	5
30	38	202.1057	177.65985	0	110.08959	53.694279	5
31	38	204.1057	179.17115	0	106.71437	52.048077	5
32	38	206.1057	180.82195	0	102.37551	49.931871	5
33	38	208.1057	182.62835	0	98.003148	47.799329	5
34	38	210.1057	184.6109	0	93.723736	45.71212	5
35	38	212.1057	186.79655	0	118.386	57.740709	5
36	38	214.3557	189.56515	0	87.486044	42.669795	5
37	38	216.8557	193.0764	0	39.202949	19.120556	5
38	38	218.42695	195.50775	0	2.9448447	1.4362967	5

Slices of Slip Surface: 8

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	8	154.1181	167.46265	0	7.4598612	3.6384174	5
2	8	156.3543	167.038	0	19.868586	9.6905569	5
3	8	158.59055	166.7002	0	30.703226	14.974964	5
4	8	160.98755	166.43615	0	118.11772	57.60986	5
5	8	162.9832	166.2781	0	215.07825	104.90067	5
6	8	163.8482	166.2303	0	230.75194	112.54524	5
7	8	164.21415	166.2158	0	229.577	111.97218	5
8	8	164.82275	166.1971	0	227.26325	110.84369	5
9	8	165.605	166.181	0	225.70993	110.08609	5
10	8	166.9223	166.18275	0	235.89294	115.05268	5
11	8	168.7741	166.2258	0	257.05516	125.37418	5
12	8	171	166.36015	0	282.3775	137.72471	5

13	8	172.85	166.51755	0	310.61897	179.33595	0
14	8	174.2793	166.6918	0	315.18854	153.72772	5
15	8	175.7293	166.8963	0	315.35591	153.80935	5
16	8	176.818	167.076	0	310.22854	179.11053	0
17	8	178.2921	167.35855	0	284.87677	138.94368	5
18	8	179.6695	167.6454	0	263.55141	128.54261	5
19	8	181.0913	167.99135	0	241.16931	117.62613	5
20	8	182.5959	168.38285	0	225.80026	130.36584	0
21	8	184.60285	168.99905	0	195.52672	95.364754	5
22	8	186.6057	169.6526	0	176.31618	101.79619	0
23	8	187.5087	169.98095	0	167.49021	81.690433	5
24	8	188.5087	170.3668	0	147.17146	71.780318	5
25	8	190.1057	171.0298	0	132.48114	64.61537	5
26	8	192.1057	171.92905	0	133.62012	65.170885	5
27	8	194.1057	172.9183	0	133.79334	65.255373	5
28	8	196.1057	174.00265	0	133.15765	64.945323	5
29	8	198.1057	175.1882	0	131.81307	64.289528	5
30	8	200.1057	176.48215	0	119.79361	58.427246	5
31	8	202.1057	177.89325	0	107.36793	52.366838	5
32	8	204.1057	179.4321	0	103.94308	50.696429	5
33	8	206.1057	181.11175	0	99.474283	48.516849	5
34	8	208.1057	182.9487	0	95.457388	46.557679	5
35	8	210.1057	184.964	0	91.380094	44.56905	5
36	8	212.1057	187.18535	0	120.56075	58.801406	5
37	8	214.3557	189.99945	0	87.044806	42.454589	5
38	8	216.8557	193.5704	0	33.760046	16.465875	5
39	8	218.2696	195.7712	0	-0.42799747	-0.20874832	5

SLOPE/W Analysis

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File Information

Revision Number: 92
Date: 09/12/2011
Time: 17.32.01
File Name: sez31pali2.gsz
Directory: \\Thesis2-elia\users\Public\Documents\nuove\
Last Solved Date: 09/12/2011
Last Solved Time: 17.32.05

Project Settings

Length(L) Units: meters
Time(t) Units: Seconds
Force(F) Units: kN
Pressure(p) Units: kPa
Strength Units: kPa
Unit Weight of Water: 9.807 kN/m³
View: 2D

Analysis Settings

SLOPE/W Analysis

Kind: SLOPE/W
Method: Morgenstern-Price
Settings
 Side Function
 Interslice force function option: Half-Sine
 PWP Conditions Source: (none)
Slip Surface
 Direction of movement: Right to Left
 Use Passive Mode: No
 Slip Surface Option: Entry and Exit
 Critical slip surfaces saved: 20
 Optimize Critical Slip Surface Location: No
 Tension Crack
 Tension Crack Option: (none)
FOS Distribution
 FOS Calculation Option: Constant
Advanced
 Number of Slices: 30
 Optimization Tolerance: 0.01
 Minimum Slip Surface Depth: 0.1 m
 Optimization Maximum Iterations: 2000
 Optimization Convergence Tolerance: 1e-007
 Starting Optimization Points: 8
 Ending Optimization Points: 16
 Complete Passes per Insertion: 1
 Driving Side Maximum Convex Angle: 5 °

Resisting Side Maximum Convex Angle: 1 °

Materials

New Material

Model: Mohr-Coulomb
Unit Weight: 20 kN/m³
Cohesion: 5 kPa
Phi: 26 °
Phi-B: 0 °

New Material (2)

Model: Mohr-Coulomb
Unit Weight: 25 kN/m³
Cohesion: 0 kPa
Phi: 30 °
Phi-B: 0 °

New Material (3)

Model: Mohr-Coulomb
Unit Weight: 20 kN/m³
Cohesion: 0 kPa
Phi: 30 °
Phi-B: 0 °

New Material (5)

Model: Mohr-Coulomb
Unit Weight: 20 kN/m³
Cohesion: 20 kPa
Phi: 26 °
Phi-B: 0 °

Slip Surface Entry and Exit

Left Projection: Range
Left-Zone Left Coordinate: (153, 167.69688) m
Left-Zone Right Coordinate: (159.57438, 167.85309) m
Left-Zone Increment: 4
Right Projection: Range
Right-Zone Left Coordinate: (218.11871, 196.049) m
Right-Zone Right Coordinate: (219.35763, 196) m
Right-Zone Increment: 4
Radius Increments: 4

Slip Surface Limits

Left Coordinate: (149.72309, 167.28751) m
Right Coordinate: (226.2, 196.4) m

Seismic Loads

Horz Seismic Load: 0.12
Vert Seismic Load: 0.06

Ignore seismic load in strength: No

Reinforcements

Reinforcement 1

Type: Nail
Outside Point: (190.8, 179.8) m
Inside Point: (196.16231, 175.30049) m
Slip Surface Intersection: (197.47, 174.21) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip
Shear Load: 0 kN
Applied Load: 65.973418 kN
Nail Load Used: 0 kN
Resisting Force Used: 9.4248 kN/m
Available Bond Length: 0 m
Required Bond Length: 0 m
Governing Component: Bond

Reinforcement 2

Type: Nail
Outside Point: (192.5, 180.9) m
Inside Point: (197.86231, 176.40049) m
Slip Surface Intersection: (199.22, 175.26) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip

Shear Load: 0 kN
Applied Load: 65.973418 kN
Nail Load Used: 0 kN
Resisting Force Used: 9.4248 kN/m
Available Bond Length: 0 m
Required Bond Length: 0 m
Governing Component: Bond

Reinforcement 3

Type: Nail
Outside Point: (194.7, 182.40251) m
Inside Point: (200.06231, 177.903) m
Slip Surface Intersection: (201.46, 176.73) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip
Shear Load: 0 kN
Applied Load: 65.973418 kN
Nail Load Used: 0 kN
Resisting Force Used: 9.4248 kN/m
Available Bond Length: 0 m
Required Bond Length: 0 m
Governing Component: Bond

Reinforcement 4

Type: Nail
Outside Point: (198.6, 185.2) m
Inside Point: (203.96231, 180.70049) m
Slip Surface Intersection: (205.28, 179.6) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.35 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 109.95574 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN

Shear Safety Factor: 1
Shear Option: Parallel to Slip
Shear Load: 0 kN
Applied Load: 359 kN
Nail Load Used: 0 kN
Resisting Force Used: 109.96 kN/m
Available Bond Length: 0 m
Required Bond Length: 0 m
Governing Component: Bond

Reinforcement 5

Type: Nail
Outside Point: (214.4, 193.9) m
Inside Point: (219.76231, 189.40049) m
Slip Surface Intersection: (216.72, 191.95) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip
Shear Load: 0 kN
Applied Load: 65.973418 kN
Nail Load Used: 37.429 kN
Resisting Force Used: 9.4248 kN/m
Available Bond Length: 3.9713 m
Required Bond Length: 3.9713 m
Governing Component: Bond

Reinforcement 6

Type: Nail
Outside Point: (216.9, 195.4) m
Inside Point: (222.26231, 190.90049) m
Slip Surface Intersection: (218.28, 194.24) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN

Load Distribution: Conc. in 1 slice
 Shear Capacity: 0 kN
 Shear Safety Factor: 1
 Shear Option: Parallel to Slip
 Shear Load: 0 kN
 Applied Load: 65.973418 kN
 Nail Load Used: 48.981 kN
 Resisting Force Used: 9.4248 kN/m
 Available Bond Length: 5.1971 m
 Required Bond Length: 5.1971 m
 Governing Component: Bond

Reinforcement 7

Type: Nail
 Outside Point: (197, 184.3) m
 Inside Point: (202.36231, 179.80049) m
 Slip Surface Intersection: (203.9, 178.51) m
 Total Length: 6.9999971 m
 Reinforcement Direction: 140 °
 Applied Load Option: Variable
 F of S Dependent: No
 Bond Diameter: 0.35 m
 Bond Safety Factor: 1
 Bond Skin Friction: 100 kPa
 Bond Resistance: 109.95574 kN/m
 Nail Spacing: 1 m
 Bar Capacity: 359 kN
 Bar Safety Factor: 1
 Bar Load: 359 kN
 Load Distribution: Conc. in 1 slice
 Shear Capacity: 0 kN
 Shear Safety Factor: 1
 Shear Option: Parallel to Slip
 Shear Load: 0 kN
 Applied Load: 359 kN
 Nail Load Used: 0 kN
 Resisting Force Used: 109.96 kN/m
 Available Bond Length: 0 m
 Required Bond Length: 0 m
 Governing Component: Bond

Regions

	Material	Points	Area (m ²)
Region 1	New Material (2)	1,2,3,4,5,6,7,8,9,52,51,50,49,10,11,12,13,14,15,16,17,18,19	133.3880
Region 2	New Material (5)	20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42	1485.4500
Region 3	New Material	23,43,44,45,46,47,48,1,19,18,17,16,15,26,25,24	206.2780
Region	New	14,13,30,29	21.9187

4	Material		
Region 5	New Material	12,11,10,49,34,33	32.0965
Region 6	New Material	50,51,38,37	18.1514
Region 7	New Material	52,9,8,53,54,55,56,57,58,59,60,61,62,20,42,41	383.266
Region 8	New Material (3)	15,14,29,28,27,26	9.96139
Region 9	New Material (3)	13,12,33,32,31,30	9.68173
Region 10	New Material (3)	49,50,37,36,35,34	11.1716
Region 11	New Material (3)	51,52,41,40,39,38	11.1198

Points

	X (m)	Y (m)
Point 1	159.70865	167.85628
Point 2	162.2664	173.00403
Point 3	163.9964	174.00403
Point 4	165.9964	173.97403
Point 5	175.15865	179.30103
Point 6	186.10574	178.38474
Point 7	187.10574	178.6772
Point 8	189.10574	178.67337
Point 9	187.91172	174.32438
Point 10	180.09076	174.32438
Point 11	179.2482	172.69052
Point 12	177.33604	172.69052
Point 13	176.3	172.7
Point 14	173.4	172.7
Point 15	172.3	172.7
Point 16	169.7	172.7
Point 17	165.21357	169.52854
Point 18	164.4319	169.3901
Point 19	163.7	167.9
Point 20	226.1	189.2

Point 21	226.6	151.4
Point 22	149.72309	151.4709
Point 23	149.7	158.3
Point 24	163.64833	158.85029
Point 25	169.72755	163.69052
Point 26	172.33604	164.49587
Point 27	172.33604	163.13894
Point 28	173.33604	163.13894
Point 29	173.33604	164.80461
Point 30	176.33604	165.73084
Point 31	176.33604	163.13894
Point 32	177.33604	163.13894
Point 33	177.33604	166.03958
Point 34	182.09076	167.50756
Point 35	182.09076	163.12691
Point 36	183.09076	163.12691
Point 37	183.09076	167.8163
Point 38	186.1	168.7
Point 39	186.09076	163.12691
Point 40	187.09076	163.12691
Point 41	187.09076	169.05127
Point 42	189.10574	169.67337
Point 43	149.72309	167.28751
Point 44	150.46066	167.33444
Point 45	150.82052	167.06654
Point 46	151.32052	167.06654
Point 47	151.82052	167.56654
Point 48	152.33384	167.68105
Point 49	182.1	174.3
Point 50	183.1	174.3
Point 51	186.1	174.3
Point 52	187.1	174.3
Point 53	199.10574	185.62362
Point 54	201.10574	185.62362
Point 55	211.10574	192.57387
Point 56	213.10574	192.57387
Point 57	218.10574	196.049
Point 58	219.30792	196.049
Point 59	219.77734	195.58631
Point 60	220.28834	195.58631
Point 61	220.88864	196.17368

Point 62	226.2	196.4
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Critical Slip Surfaces

	Slip Surface	FOS	Center (m)	Radius (m)	Entry (m)	Exit (m)
1	23	1.232	(167.095, 226.591)	60.557	(219.358, 196)	(153, 167.697)
2	18	1.233	(166.857, 226.552)	60.464	(219.063, 196.049)	(153, 167.697)
3	13	1.235	(166.654, 226.443)	60.312	(218.748, 196.049)	(153, 167.697)
4	48	1.236	(167.72, 226.014)	59.727	(219.358, 196)	(154.644, 167.736)
5	8	1.237	(166.451, 226.335)	60.161	(218.434, 196.049)	(153, 167.697)
6	43	1.237	(167.478, 225.976)	59.637	(219.063, 196.049)	(154.644, 167.736)
7	38	1.239	(167.273, 225.868)	59.488	(218.748, 196.049)	(154.644, 167.736)
8	3	1.239	(166.248, 226.227)	60.01	(218.119, 196.049)	(153, 167.697)
9	33	1.241	(167.068, 225.76)	59.339	(218.434, 196.049)	(154.644, 167.736)
10	73	1.242	(168.332, 225.44)	58.909	(219.358, 196)	(156.287, 167.775)
11	68	1.243	(168.087, 225.402)	58.822	(219.063, 196.049)	(156.287, 167.775)
12	28	1.243	(166.862, 225.652)	59.191	(218.119, 196.049)	(154.644, 167.736)
13	63	1.245	(167.88, 225.294)	58.676	(218.748, 196.049)	(156.287, 167.775)
14	58	1.247	(167.672, 225.187)	58.53	(218.434, 196.049)	(156.287, 167.775)
15	98	1.249	(168.932, 224.868)	58.104	(219.358, 196)	(157.931, 167.814)
16	53	1.249	(167.464, 225.079)	58.384	(218.119, 196.049)	(156.287, 167.775)
17	93	1.250	(168.683, 224.83)	58.021	(219.063, 196.049)	(157.931, 167.814)
18	88	1.252	(168.473, 224.723)	57.877	(218.748, 196.049)	(157.931, 167.814)
19	83	1.254	(168.262, 224.616)	57.734	(218.434, 196.049)	(157.931, 167.814)
20	78	1.257	(168.051,	57.591	(218.119,	(157.931,

			224.509)		196.049)	167.814)
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Slices of Slip Surface: 23

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	23	154.1181	167.45155	0	7.8919552	3.8491637	5
2	23	156.3543	167.00465	0	21.045164	10.264412	5
3	23	158.59055	166.64445	0	32.701115	15.949399	5
4	23	160.98755	166.35615	0	122.14566	59.574419	5
5	23	162.9832	166.1777	0	221.46025	108.01338	5
6	23	163.8482	166.12095	0	237.89278	116.02806	5
7	23	164.21415	166.10265	0	236.93003	115.5585	5
8	23	164.82275	166.0776	0	234.9592	114.59726	5
9	23	165.605	166.0533	0	233.83692	114.04989	5
10	23	166.9223	166.04105	0	244.9336	119.4621	5
11	23	168.7741	166.06405	0	267.43686	130.43767	5
12	23	171	166.17375	0	294.26677	143.52349	5
13	23	172.85	166.3103	0	324.79579	187.52094	0
14	23	174.2793	166.46785	0	328.92549	160.42768	5
15	23	175.7293	166.65515	0	329.45057	160.68378	5
16	23	176.818	166.82165	0	325.4295	187.88681	0
17	23	178.2921	167.0858	0	298.70207	145.68674	5
18	23	179.6695	167.35515	0	276.9656	135.08515	5
19	23	181.09105	167.68225	0	254.04012	123.90365	5
20	23	182.59565	168.05345	0	238.88224	137.91872	0
21	23	184.60285	168.64105	0	206.96699	100.94455	5
22	23	186.6057	169.26525	0	187.4316	108.21369	0
23	23	187.5087	169.5797	0	177.76177	86.700207	5
24	23	188.5087	169.9497	0	156.85847	76.50499	5
25	23	190.1057	170.5863	0	141.55723	69.042075	5
26	23	192.1057	171.45075	0	142.2462	69.378105	5
27	23	194.1057	172.4028	0	141.97923	69.247899	5
28	23	196.1057	173.44715	0	140.92468	68.733561	5
29	23	198.1057	174.58935	0	139.21097	67.897726	5
30	23	200.1057	175.8361	0	126.81689	61.852732	5
31	23	202.1057	177.1953	0	114.16222	55.680634	5
32	23	204.1057	178.6765	0	110.72051	54.002002	5
33	23	206.1057	180.2915	0	106.39758	51.893568	5
34	23	208.1057	182.05495	0	101.00092	49.261442	5
35	23	210.1057	183.9853	0	94.236184	45.962058	5

36	23	212.1057	186.1066	0	76.519959	37.321277	5
37	23	214.3557	188.7808	0	54.347378	26.506987	5
38	23	216.8557	192.1492	0	40.787773	19.893526	5
39	23	218.7068	194.9352	0	26.248299	12.802151	5
40	23	219.33275	195.9576	0	-3.2783696	-1.5989677	5

Slices of Slip Surface: 18

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	18	154.1181	167.45585	0	7.7505452	3.7801935	5
2	18	156.3543	167.01755	0	20.641675	10.067617	5
3	18	158.59055	166.666	0	32.012652	15.613613	5
4	18	160.98755	166.38695	0	120.85722	58.946004	5
5	18	162.9832	166.21615	0	219.49795	107.0563	5
6	18	163.8482	166.16275	0	235.70969	114.9633	5
7	18	164.21415	166.14585	0	234.67797	114.46009	5
8	18	164.82275	166.12315	0	232.60075	113.44697	5
9	18	165.605	166.1019	0	231.34165	112.83286	5
10	18	166.9223	166.0948	0	242.16965	118.11403	5
11	18	168.7741	166.12515	0	264.2746	128.89533	5
12	18	171	166.24385	0	290.65714	141.76296	5
13	18	172.85	166.38795	0	320.53184	185.05914	0
14	18	174.2793	166.5515	0	324.75836	158.39524	5
15	18	175.7293	166.74495	0	325.15717	158.58975	5
16	18	176.818	166.91615	0	320.80343	185.21595	0
17	18	178.2921	167.18685	0	294.42108	143.59876	5
18	18	179.6695	167.46235	0	272.76306	133.03543	5
19	18	181.09115	167.79605	0	249.94195	121.90483	5
20	18	182.59575	168.17435	0	234.66079	135.48147	0
21	18	184.60285	168.7719	0	203.16362	99.089517	5
22	18	186.6057	169.4063	0	183.62376	106.01523	0
23	18	187.5087	169.72555	0	174.19285	84.959529	5
24	18	188.5087	170.101	0	153.42077	74.828308	5
25	18	190.1057	170.7466	0	138.24279	67.425512	5
26	18	192.1057	171.62285	0	138.99395	67.791877	5
27	18	194.1057	172.58745	0	138.77656	67.685852	5
28	18	196.1057	173.64525	0	137.76819	67.194038	5
29	18	198.1057	174.80195	0	136.07984	66.370573	5
30	18	200.1057	176.06435	0	123.71255	60.33864	5
31	18	202.1057	177.44065	0	111.04346	54.159512	5

32	18	204.1057	178.94075	0	107.5113	52.436764	5
33	18	206.1057	180.5768	0	103.05037	50.261021	5
34	18	208.1057	182.364	0	97.449187	47.529144	5
35	18	210.1057	184.32165	0	90.39906	44.090568	5
36	18	212.1057	186.47485	0	72.303248	35.26465	5
37	18	214.3557	189.19315	0	49.516139	24.150635	5
38	18	216.8557	192.62455	0	43.803194	21.364245	5
39	18	218.58435	195.25785	0	5.9920618	2.9225238	5

Slices of Slip Surface: 13

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	13	154.1181	167.45925	0	7.6420522	3.7272779	5
2	13	156.3543	167.02775	0	20.337333	9.9191799	5
3	13	158.59055	166.68305	0	31.495916	15.361585	5
4	13	160.98755	166.41145	0	119.9165	58.487185	5
5	13	162.9832	166.247	0	218.08665	106.36796	5
6	13	163.8482	166.1964	0	234.13553	114.19553	5
7	13	164.21415	166.1807	0	233.05814	113.67005	5
8	13	164.82275	166.16	0	230.89886	112.6169	5
9	13	165.605	166.1413	0	229.52978	111.94916	5
10	13	166.9223	166.1386	0	240.13699	117.12264	5
11	13	168.7741	166.1753	0	261.91279	127.7434	5
12	13	171	166.3018	0	287.89936	140.4179	5
13	13	172.85	166.4525	0	317.24889	183.16373	0
14	13	174.2793	166.6214	0	321.44908	156.78119	5
15	13	175.7293	166.82035	0	321.69044	156.89891	5
16	13	176.818	166.99575	0	317.05695	183.05292	0
17	13	178.2921	167.27235	0	290.85696	141.86042	5
18	13	179.6695	167.5535	0	269.19939	131.29732	5
19	13	181.0912	167.8933	0	246.42527	120.18964	5
20	13	182.5958	168.2782	0	231.01341	133.37566	0
21	13	184.60285	168.88505	0	199.78161	97.440002	5
22	13	186.6057	169.52895	0	180.21767	104.04872	0
23	13	187.5087	169.8527	0	170.93824	83.372151	5
24	13	188.5087	170.23335	0	150.27024	73.291692	5
25	13	190.1057	170.8876	0	135.17049	65.927054	5
26	13	192.1057	171.77525	0	135.93059	66.297777	5
27	13	194.1057	172.7521	0	135.72844	66.199182	5
28	13	196.1057	173.8231	0	134.72359	65.709085	5

29	13	198.1057	174.9941	0	133.03198	64.884032	5
30	13	200.1057	176.27215	0	120.68036	58.859744	5
31	13	202.1057	177.6657	0	107.99075	52.670608	5
32	13	204.1057	179.185	0	104.36603	50.902714	5
33	13	206.1057	180.84265	0	99.761628	48.656997	5
34	13	208.1057	182.6544	0	93.962602	45.828623	5
35	13	210.1057	184.64045	0	86.631844	42.253174	5
36	13	212.1057	186.82715	0	68.159964	33.243835	5
37	13	214.3557	189.5925	0	44.743501	21.822863	5
38	13	216.8557	193.09215	0	38.633558	18.842845	5
39	13	218.42695	195.51135	0	2.7709124	1.3514643	5

Slices of Slip Surface: 48

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	48	155.90985	167.48045	0	8.1581292	3.9789855	5
2	48	158.4424	167.02585	0	21.76111	10.613602	5
3	48	160.98755	166.6816	0	111.64803	54.454382	5
4	48	162.9832	166.47945	0	211.23974	103.02851	5
5	48	163.8482	166.4128	0	228.25382	111.32683	5
6	48	164.21415	166.3904	0	227.59552	111.00575	5
7	48	164.82275	166.3586	0	226.159	110.30512	5
8	48	165.605	166.32575	0	225.70565	110.084	5
9	48	166.9223	166.29955	0	237.90406	116.03356	5
10	48	168.7741	166.30355	0	261.99065	127.78138	5
11	48	171	166.3914	0	290.7526	141.80952	5
12	48	172.85	166.51035	0	322.51257	186.20272	0
13	48	174.2793	166.65495	0	328.06287	160.00695	5
14	48	175.7293	166.82935	0	329.47111	160.6938	5
15	48	176.818	166.98645	0	325.88777	188.15139	0
16	48	178.2921	167.23825	0	299.7042	146.1755	5
17	48	179.6695	167.49625	0	278.22593	135.69985	5
18	48	181.09115	167.8121	0	255.41089	124.57222	5
19	48	182.59575	168.1716	0	240.41324	138.80265	0
20	48	184.60285	168.74435	0	208.30149	101.59542	5
21	48	186.6057	169.35405	0	188.72203	108.95871	0
22	48	187.5087	169.66225	0	178.86227	87.236958	5
23	48	188.5087	170.02545	0	157.7956	76.962058	5
24	48	190.1057	170.65145	0	142.30652	69.40753	5
25	48	192.1057	171.5032	0	142.8473	69.671282	5

26	48	194.1057	172.4431	0	142.40802	69.457034	5
27	48	196.1057	173.4759	0	141.18547	68.860752	5
28	48	198.1057	174.6073	0	139.31699	67.949434	5
29	48	200.1057	175.84395	0	126.78822	61.838748	5
30	48	202.1057	177.1938	0	114.0581	55.629855	5
31	48	204.1057	178.6666	0	110.57105	53.929106	5
32	48	206.1057	180.27435	0	106.24375	51.818542	5
33	48	208.1057	182.0318	0	100.87458	49.199819	5
34	48	210.1057	183.95785	0	94.173837	45.931649	5
35	48	212.1057	186.0771	0	76.55543	37.338578	5
36	48	214.3557	188.753	0	54.475952	26.569697	5
37	48	216.8557	192.13015	0	40.906269	19.95132	5
38	48	218.7068	194.9287	0	26.268591	12.812048	5
39	48	219.33275	195.9573	0	-3.2843721	-1.6018953	5

Slices of Slip Surface: 8

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	8	154.1181	167.46265	0	7.5325165	3.6738538	5
2	8	156.3543	167.038	0	20.029933	9.769251	5
3	8	158.59055	166.7002	0	30.974112	15.107084	5
4	8	160.98755	166.43615	0	118.96261	58.021942	5
5	8	162.9832	166.2781	0	216.64511	105.66488	5
6	8	163.8482	166.2303	0	232.53502	113.4149	5
7	8	164.21415	166.2158	0	231.38975	112.85632	5
8	8	164.82275	166.1971	0	229.15594	111.76682	5
9	8	165.605	166.181	0	227.67696	111.04547	5
10	8	166.9223	166.18275	0	238.07454	116.11671	5
11	8	168.7741	166.2258	0	259.51579	126.57431	5
12	8	171	166.36015	0	285.10044	139.05278	5
13	8	172.85	166.51755	0	313.92737	181.24605	0
14	8	174.2793	166.6918	0	318.10894	155.1521	5
15	8	175.7293	166.8963	0	318.18666	155.19	5
16	8	176.818	167.076	0	313.29004	180.87809	0
17	8	178.2921	167.35855	0	287.27125	140.11155	5
18	8	179.6695	167.6454	0	265.63556	129.55912	5
19	8	181.0913	167.99135	0	242.90462	118.4725	5
20	8	182.5959	168.38285	0	227.37674	131.27602	0
21	8	184.60285	168.99905	0	196.41166	95.796367	5
22	8	186.6057	169.6526	0	176.82497	102.08994	0
23	8	187.5087	169.98095	0	167.71103	81.798137	5

24	8	188.5087	170.3668	0	147.14029	71.765116	5
25	8	190.1057	171.0298	0	132.12256	64.440479	5
26	8	192.1057	171.92905	0	132.89653	64.817966	5
27	8	194.1057	172.9183	0	132.70548	64.724789	5
28	8	196.1057	174.00265	0	131.70905	64.238796	5
29	8	198.1057	175.1882	0	130.01463	63.412372	5
30	8	200.1057	176.48215	0	117.67183	57.392384	5
31	8	202.1057	177.89325	0	104.95585	51.190386	5
32	8	204.1057	179.4321	0	101.22939	49.372872	5
33	8	206.1057	181.11175	0	96.478024	47.055476	5
34	8	208.1057	182.9487	0	90.46198	44.121256	5
35	8	210.1057	184.964	0	82.833309	40.400504	5
36	8	212.1057	187.18535	0	63.959917	31.195336	5
37	8	214.3557	189.99945	0	39.875895	19.448774	5
38	8	216.8557	193.5704	0	33.276078	16.229828	5
39	8	218.2696	195.7712	0	-0.55447911	-0.27043753	5

Slices of Slip Surface: 43

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	43	155.90985	167.48545	0	7.9981841	3.900975	5
2	43	158.4424	167.0409	0	21.299159	10.388294	5
3	43	160.98755	166.70675	0	110.59672	53.941623	5
4	43	162.9832	166.5125	0	209.53752	102.19828	5
5	43	163.8482	166.44925	0	226.32384	110.38551	5
6	43	164.21415	166.42825	0	225.59703	110.03102	5
7	43	164.82275	166.3989	0	224.05377	109.27833	5
8	43	165.605	166.3692	0	223.45035	108.98402	5
9	43	166.9223	166.34825	0	235.35542	114.79051	5
10	43	168.7741	166.35975	0	259.02193	126.33344	5
11	43	171	166.4568	0	287.29361	140.12246	5
12	43	172.85	166.58345	0	318.37319	183.81284	0
13	43	174.2793	166.73415	0	323.97451	158.01293	5
14	43	175.7293	166.91485	0	325.23338	158.62692	5
15	43	176.818	167.07675	0	321.282	185.49225	0
16	43	178.2921	167.3352	0	295.42759	144.08966	5
17	43	179.6695	167.59945	0	274.00914	133.64319	5
18	43	181.0912	167.922	0	251.2898	122.56223	5
19	43	182.5958	168.28875	0	236.14554	136.33869	0
20	43	184.60285	168.8716	0	204.44961	99.716735	5

21	43	186.6057	169.4916	0	184.86788	106.73352	0
22	43	187.5087	169.8046	0	175.24993	85.475103	5
23	43	188.5087	170.1733	0	154.3101	75.262066	5
24	43	190.1057	170.80845	0	138.95102	67.77094	5
25	43	192.1057	171.67215	0	139.55858	68.067269	5
26	43	194.1057	172.6248	0	139.1826	67.883891	5
27	43	196.1057	173.6712	0	138.01065	67.312291	5
28	43	198.1057	174.8172	0	136.17197	66.415509	5
29	43	200.1057	176.06965	0	123.68278	60.324122	5
30	43	202.1057	177.4368	0	110.94617	54.112063	5
31	43	204.1057	178.92875	0	107.37972	52.372587	5
32	43	206.1057	180.5578	0	102.92064	50.197751	5
33	43	208.1057	182.33935	0	97.352209	47.481845	5
34	43	210.1057	184.29305	0	90.367068	44.074964	5
35	43	212.1057	186.44465	0	72.370866	35.29763	5
36	43	214.3557	189.16545	0	49.66923	24.225302	5
37	43	216.8557	192.607	0	43.91569	21.419113	5
38	43	218.58435	195.25285	0	6.0321312	2.942067	5

Slices of Slip Surface: 38

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	38	155.90985	167.48945	0	7.8753982	3.8410884	5
2	38	158.4424	167.05285	0	20.948364	10.2172	5
3	38	160.98755	166.7268	0	109.83	53.56767	5
4	38	162.9832	166.53905	0	208.31493	101.60198	5
5	38	163.8482	166.47865	0	224.94	109.71057	5
6	38	164.21415	166.4589	0	224.16225	109.33123	5
7	38	164.82275	166.43155	0	222.52638	108.53337	5
8	38	165.605	166.40445	0	221.81273	108.1853	5
9	38	166.9223	166.388	0	233.4985	113.88483	5
10	38	168.7741	166.4059	0	256.81957	125.25927	5
11	38	171	166.5109	0	284.6703	138.84298	5
12	38	172.85	166.6443	0	315.2147	181.98929	0
13	38	174.2793	166.8004	0	320.75515	156.44274	5
14	38	175.7293	166.98665	0	321.83061	156.96728	5
15	38	176.818	167.1528	0	317.5946	183.36333	0
16	38	178.2921	167.41725	0	291.88936	142.36396	5
17	38	179.6695	167.68725	0	270.45565	131.91004	5
18	38	181.0913	168.01595	0	247.76613	120.84362	5

19	38	182.5959	168.3893	0	232.49217	134.22942	0
20	38	184.60285	168.98155	0	201.03968	98.053604	5
21	38	186.6057	169.6112	0	181.41685	104.74107	0
22	38	187.5087	169.9288	0	171.96502	83.872946	5
23	38	188.5087	170.30275	0	151.12115	73.706708	5
24	38	190.1057	170.94665	0	135.8482	66.257594	5
25	38	192.1057	171.82185	0	136.46462	66.558244	5
26	38	194.1057	172.7868	0	136.10393	66.382323	5
27	38	196.1057	173.84655	0	134.94011	65.814691	5
28	38	198.1057	175.007	0	133.11117	64.922654	5
29	38	200.1057	176.27525	0	120.64201	58.841041	5
30	38	202.1057	177.65985	0	107.89298	52.622924	5
31	38	204.1057	179.17115	0	104.24113	50.841798	5
32	38	206.1057	180.82195	0	99.645039	48.600133	5
33	38	208.1057	182.62835	0	93.884391	45.790477	5
34	38	210.1057	184.6109	0	86.623347	42.249029	5
35	38	212.1057	186.79655	0	68.253118	33.28927	5
36	38	214.3557	189.56515	0	44.916618	21.907299	5
37	38	216.8557	193.0764	0	38.739583	18.894557	5
38	38	218.42695	195.50775	0	2.7985161	1.3649275	5

Slices of Slip Surface: 3

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	3	154.1181	167.4661	0	7.4219376	3.6199208	5
2	3	156.3543	167.04835	0	19.71989	9.6180331	5
3	3	158.59055	166.7175	0	30.447674	14.850323	5
4	3	160.98755	166.46105	0	117.99556	57.55028	5
5	3	162.9832	166.30945	0	215.18018	104.95039	5
6	3	163.8482	166.26445	0	230.90151	112.61819	5
7	3	164.21415	166.25115	0	229.71866	112.04128	5
8	3	164.82275	166.2345	0	227.39754	110.90919	5
9	3	165.605	166.221	0	225.80872	110.13427	5
10	3	166.9223	166.2272	0	235.9717	115.09109	5
11	3	168.7741	166.2766	0	257.07831	125.38547	5
12	3	171	166.4189	0	282.26811	137.67136	5
13	3	172.85	166.5831	0	310.55788	179.30068	0
14	3	174.2793	166.76275	0	314.7327	153.50539	5
15	3	175.7293	166.9728	0	314.66369	153.47173	5
16	3	176.818	167.1568	0	309.49286	178.68579	0

17	3	178.2921	167.4454	0	283.67435	138.35723	5
18	3	179.6695	167.73795	0	262.06004	127.81522	5
19	3	181.09135	168.0901	0	239.38501	116.75587	5
20	3	182.59595	168.4883	0	223.74106	129.17696	0
21	3	184.60285	169.114	0	193.05715	94.160264	5
22	3	186.6057	169.7773	0	173.45505	100.14432	0
23	3	187.5087	170.1103	0	164.49969	80.231862	5
24	3	188.5087	170.50145	0	144.03887	70.252453	5
25	3	190.1057	171.17325	0	129.10368	62.968071	5
26	3	192.1057	172.0842	0	129.89187	63.352497	5
27	3	194.1057	173.08605	0	129.71675	63.267084	5
28	3	196.1057	174.184	0	128.72906	62.78536	5
29	3	198.1057	175.3843	0	127.02378	61.953637	5
30	3	200.1057	176.69445	0	114.68713	55.936649	5
31	3	202.1057	178.1234	0	101.93921	49.719073	5
32	3	204.1057	179.6822	0	98.102001	47.847543	5
33	3	206.1057	181.3844	0	93.189254	45.451436	5
34	3	208.1057	183.2471	0	86.945309	42.40606	5
35	3	210.1057	185.29245	0	79.00269	38.532187	5
36	3	212.1057	187.54955	0	59.701358	29.118298	5
37	3	214.3557	190.41435	0	34.903593	17.02362	5
38	3	216.8557	194.0601	0	27.720112	13.520002	5
39	3	218.1122	196.03785	0	-3.992674	-1.9473572	5

Slices of Slip Surface: 33

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	33	155.90985	167.4934	0	7.7512616	3.7805429	5
2	33	158.4424	167.06485	0	20.594758	10.044735	5
3	33	160.98755	166.747	0	109.04635	53.185457	5
4	33	162.9832	166.56575	0	207.06899	100.99429	5
5	33	163.8482	166.50825	0	223.52986	109.0228	5
6	33	164.21415	166.4897	0	222.69949	108.6178	5
7	33	164.82275	166.4644	0	220.98354	107.78087	5
8	33	165.605	166.43995	0	220.15965	107.37904	5
9	33	166.9223	166.42805	0	231.61173	112.96459	5
10	33	168.7741	166.4524	0	254.58742	124.17058	5
11	33	171	166.56535	0	282.01321	137.54703	5
12	33	172.85	166.70555	0	312.01708	180.14315	0
13	33	174.2793	166.8671	0	317.50466	154.85737	5
14	33	175.7293	167.059	0	318.39973	155.29393	5

15	33	176.818	167.2295	0	313.88649	181.22245	0
16	33	178.2921	167.49995	0	288.32931	140.6276	5
17	33	179.6695	167.7757	0	266.90169	130.17665	5
18	33	181.09135	168.11065	0	244.23818	119.12292	5
19	33	182.59595	168.4907	0	228.83004	132.11508	0
20	33	184.60285	169.0924	0	197.63853	96.394754	5
21	33	186.6057	169.7318	0	177.9887	102.76182	0
22	33	187.5087	170.05405	0	168.6958	82.278439	5
23	33	188.5087	170.43325	0	147.96055	72.165184	5
24	33	190.1057	171.086	0	132.76512	64.753874	5
25	33	192.1057	171.97285	0	133.40006	65.063556	5
26	33	194.1057	172.9503	0	133.05496	64.895242	5
27	33	196.1057	174.02355	0	131.90412	64.33394	5
28	33	198.1057	175.1987	0	130.07251	63.440601	5
29	33	200.1057	176.48305	0	117.62908	57.371535	5
30	33	202.1057	177.88535	0	104.85759	51.142465	5
31	33	204.1057	179.4164	0	101.11505	49.317103	5
32	33	206.1057	181.0895	0	96.37442	47.004945	5
33	33	208.1057	182.9214	0	90.409515	44.095667	5
34	33	210.1057	184.93355	0	82.85155	40.409401	5
35	33	212.1057	187.1543	0	64.081809	31.254787	5
36	33	214.3557	189.9726	0	40.065087	19.541049	5
37	33	216.8557	193.5569	0	33.370242	16.275755	5
38	33	218.2696	195.76925	0	-0.54294938	-0.26481411	5

Slices of Slip Surface: 73

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	73	157.14255	167.6095	0	5.5043476	2.6846497	5
2	73	158.8533	167.30455	0	14.36261	7.0051132	5
3	73	160.98755	167.00435	0	101.33548	49.424616	5
4	73	162.9832	166.77825	0	200.84096	97.956681	5
5	73	163.8482	166.70155	0	218.34252	106.49276	5
6	73	164.21415	166.67495	0	217.98442	106.3181	5
7	73	164.82275	166.6364	0	217.05852	105.86652	5
8	73	165.605	166.59495	0	217.247	105.95844	5
9	73	166.9223	166.55465	0	230.49336	112.41912	5
10	73	168.7741	166.53945	0	256.13278	124.9243	5
11	73	171	166.60535	0	286.84367	139.90301	5
12	73	172.85	166.7066	0	319.79153	184.63172	0

13	73	174.2793	166.83815	0	326.93079	159.4548	5
14	73	175.7293	166.9996	0	329.33	160.62497	5
15	73	176.818	167.1472	0	326.16337	188.31051	0
16	73	178.2921	167.38665	0	300.71146	146.66678	5
17	73	179.6695	167.63335	0	279.56749	136.35417	5
18	73	181.0912	167.93795	0	256.92919	125.31274	5
19	73	182.5958	168.28575	0	242.10992	139.78223	0
20	73	184.60285	168.84365	0	209.85539	102.35331	5
21	73	186.6057	169.43885	0	190.22847	109.82846	0
22	73	187.5087	169.74075	0	180.20639	87.89253	5
23	73	188.5087	170.09715	0	158.9506	77.525388	5
24	73	190.1057	170.71265	0	143.26737	69.876164	5
25	73	192.1057	171.5517	0	143.64254	70.059146	5
26	73	194.1057	172.47955	0	143.00904	69.750169	5
27	73	196.1057	173.50095	0	141.58793	69.057046	5
28	73	198.1057	174.62155	0	139.53942	68.057922	5
29	73	200.1057	175.84815	0	126.86014	61.873824	5
30	73	202.1057	177.18885	0	114.02295	55.612707	5
31	73	204.1057	178.6534	0	110.4801	53.884745	5
32	73	206.1057	180.25395	0	106.13453	51.765268	5
33	73	208.1057	182.00565	0	100.79053	49.158825	5
34	73	210.1057	183.9277	0	94.144184	45.917186	5
35	73	212.1057	186.04515	0	76.624854	37.372438	5
36	73	214.3557	188.72315	0	54.635471	26.6475	5
37	73	216.8557	192.1098	0	41.050528	20.02168	5
38	73	218.7068	194.9218	0	26.304084	12.829359	5
39	73	219.33275	195.957	0	-3.2878052	-1.6035698	5

SLOPE/W Analysis

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File Information

Revision Number: 72
Date: 09/12/2011
Time: 14.48.57
File Name: sez32pali2.gsz
Directory: \\Thesis2-elia\users\Public\Documents\nuove\
Last Solved Date: 09/12/2011
Last Solved Time: 14.49.00

Project Settings

Length(L) Units: meters
Time(t) Units: Seconds
Force(F) Units: kN
Pressure(p) Units: kPa
Strength Units: kPa
Unit Weight of Water: 9.807 kN/m³
View: 2D

Analysis Settings

SLOPE/W Analysis

Kind: SLOPE/W
Method: Morgenstern-Price
Settings
 Side Function
 Interslice force function option: Half-Sine
 PWP Conditions Source: (none)
Slip Surface
 Direction of movement: Right to Left
 Use Passive Mode: No
 Slip Surface Option: Entry and Exit
 Critical slip surfaces saved: 20
 Optimize Critical Slip Surface Location: No
 Tension Crack
 Tension Crack Option: (none)
FOS Distribution
 FOS Calculation Option: Constant
Advanced
 Number of Slices: 30
 Optimization Tolerance: 0.01
 Minimum Slip Surface Depth: 0.1 m
 Optimization Maximum Iterations: 2000
 Optimization Convergence Tolerance: 1e-007
 Starting Optimization Points: 8
 Ending Optimization Points: 16
 Complete Passes per Insertion: 1
 Driving Side Maximum Convex Angle: 5 °

Resisting Side Maximum Convex Angle: 1 °

Materials

New Material

Model: Mohr-Coulomb
Unit Weight: 20 kN/m³
Cohesion: 15 kPa
Phi: 26 °
Phi-B: 0 °

New Material (2)

Model: Mohr-Coulomb
Unit Weight: 25 kN/m³
Cohesion: 0 kPa
Phi: 35 °
Phi-B: 0 °

New Material (3)

Model: Mohr-Coulomb
Unit Weight: 20 kN/m³
Cohesion: 0 kPa
Phi: 30 °
Phi-B: 0 °

New Material (5)

Model: Mohr-Coulomb
Unit Weight: 20 kN/m³
Cohesion: 20 kPa
Phi: 26 °
Phi-B: 0 °

Slip Surface Entry and Exit

Left Projection: Range
Left-Zone Left Coordinate: (247.4, 127.50841) m
Left-Zone Right Coordinate: (250, 127.6) m
Left-Zone Increment: 4
Right Projection: Range
Right-Zone Left Coordinate: (312.58527, 159.67988) m
Right-Zone Right Coordinate: (313.30066, 159.71086) m
Right-Zone Increment: 4
Radius Increments: 4

Slip Surface Limits

Left Coordinate: (239.96995, 126.94318) m
Right Coordinate: (318.2, 152.1) m

Seismic Loads

Horz Seismic Load: 0.12
Vert Seismic Load: 0.06

Ignore seismic load in strength: No

Reinforcements

Reinforcement 1

Type: Nail
Outside Point: (281.3, 138.9) m
Inside Point: (286.66231, 134.40049) m
Slip Surface Intersection: (286.96, 134.15) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip
Shear Load: 0 kN
Applied Load: 65.973418 kN
Nail Load Used: 0 kN
Resisting Force Used: 9.4248 kN/m
Available Bond Length: 0 m
Required Bond Length: 0 m
Governing Component: Bond

Reinforcement 2

Type: Nail
Outside Point: (278.9, 137.1) m
Inside Point: (284.26231, 132.60049) m
Slip Surface Intersection: (284.09, 132.74) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip

Shear Load: 0 kN
Applied Load: 65.973418 kN
Nail Load Used: 2.1039 kN
Resisting Force Used: 9.4248 kN/m
Available Bond Length: 0.22323 m
Required Bond Length: 0.22323 m
Governing Component: Bond

Reinforcement 3

Type: Nail
Outside Point: (285.3, 142.1) m
Inside Point: (290.66231, 137.60049) m
Slip Surface Intersection: (291.61, 136.8) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip
Shear Load: 0 kN
Applied Load: 65.973418 kN
Nail Load Used: 0 kN
Resisting Force Used: 9.4248 kN/m
Available Bond Length: 0 m
Required Bond Length: 0 m
Governing Component: Bond

Reinforcement 4

Type: Nail
Outside Point: (283.4, 140.6) m
Inside Point: (288.76231, 136.10049) m
Slip Surface Intersection: (289.47, 135.51) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN

Shear Safety Factor: 1
Shear Option: Parallel to Slip
Shear Load: 0 kN
Applied Load: 65.973418 kN
Nail Load Used: 0 kN
Resisting Force Used: 9.4248 kN/m
Available Bond Length: 0 m
Required Bond Length: 0 m
Governing Component: Bond

Reinforcement 5

Type: Nail
Outside Point: (287.4, 143.6) m
Inside Point: (292.76231, 139.10049) m
Slip Surface Intersection: (293.79, 138.24) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip
Shear Load: 0 kN
Applied Load: 65.973418 kN
Nail Load Used: 0 kN
Resisting Force Used: 9.4248 kN/m
Available Bond Length: 0 m
Required Bond Length: 0 m
Governing Component: Bond

Reinforcement 6

Type: Nail
Outside Point: (306.7, 154.8999) m
Inside Point: (312.06231, 150.40039) m
Slip Surface Intersection: (308.98, 152.98) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 40 kPa
Bond Resistance: 3.7699112 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN

Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip
Shear Load: 0 kN
Applied Load: 26.389367 kN
Nail Load Used: 15.156 kN
Resisting Force Used: 3.7699 kN/m
Available Bond Length: 4.0202 m
Required Bond Length: 4.0202 m
Governing Component: Bond

Reinforcement 7

Type: Nail
Outside Point: (309.2, 156.8) m
Inside Point: (314.56231, 152.30049) m
Slip Surface Intersection: (310.74, 155.5) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 40 kPa
Bond Resistance: 3.7699112 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip
Shear Load: 0 kN
Applied Load: 26.389367 kN
Nail Load Used: 18.791 kN
Resisting Force Used: 3.7699 kN/m
Available Bond Length: 4.9845 m
Required Bond Length: 4.9845 m
Governing Component: Bond

Reinforcement 8

Type: Nail
Outside Point: (311.6, 158.9) m
Inside Point: (316.96231, 154.40049) m
Slip Surface Intersection: (312.43, 158.2) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 40 kPa
Bond Resistance: 3.7699112 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN

Bar Safety Factor: 1
 Bar Load: 359 kN
 Load Distribution: Conc. in 1 slice
 Shear Capacity: 0 kN
 Shear Safety Factor: 1
 Shear Option: Parallel to Slip
 Shear Load: 0 kN
 Applied Load: 26.389367 kN
 Nail Load Used: 22.307 kN
 Resisting Force Used: 3.7699 kN/m
 Available Bond Length: 5.917 m
 Required Bond Length: 5.917 m
 Governing Component: Bond

Reinforcement 9

Type: Nail
 Outside Point: (304, 153) m
 Inside Point: (309.36231, 148.50049) m
 Slip Surface Intersection: (307.03, 150.46) m
 Total Length: 6.9999971 m
 Reinforcement Direction: 140 °
 Applied Load Option: Variable
 F of S Dependent: No
 Bond Diameter: 0.03 m
 Bond Safety Factor: 1
 Bond Skin Friction: 40 kPa
 Bond Resistance: 3.7699112 kN/m
 Nail Spacing: 1 m
 Bar Capacity: 359 kN
 Bar Safety Factor: 1
 Bar Load: 359 kN
 Load Distribution: Conc. in 1 slice
 Shear Capacity: 0 kN
 Shear Safety Factor: 1
 Shear Option: Parallel to Slip
 Shear Load: 0 kN
 Applied Load: 26.389367 kN
 Nail Load Used: 11.468 kN
 Resisting Force Used: 3.7699 kN/m
 Available Bond Length: 3.042 m
 Required Bond Length: 3.042 m
 Governing Component: Bond

Regions

	Material	Points
Region 1	New Material (5)	1,2,3,4,5,6
Region 2	New Material	1,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33
Region 3	New Material	16,17,18,19

	(3)	
Region 4	New Material (3)	20,21,22,23
Region 5	New Material (3)	26,27,28,29
Region 6	New Material (3)	30,31,32,33
Region 7	New Material (2)	12,49,48,47,46,45,44,43,36,35,34,33,30,29,26,25,24,23,20,19,16,15,14,13

Points

	X (m)	Y (m)
Point 1	239.96995	117.94318
Point 2	239.96995	112.99558
Point 3	317.8	113.1
Point 4	318.2	152.1
Point 5	275.06258	124.35516
Point 6	254.7565	118.62768
Point 7	239.96995	126.94318
Point 8	241.27805	127.04827
Point 9	241.56062	126.83793
Point 10	242.06062	126.83793
Point 11	242.56062	127.33793
Point 12	250	127.6
Point 13	254.7565	127.62768
Point 14	256.03102	130.17671
Point 15	257.79257	131.47398
Point 16	259.88434	131.47398
Point 17	259.9	124.9
Point 18	260.9	124.9
Point 19	260.88434	131.47398
Point 20	263.88434	131.47398
Point 21	263.9	124.9
Point 22	264.9	124.9
Point 23	264.88434	131.47398
Point 24	267.04175	131.47398
Point 25	267.57013	133.36115
Point 26	267.88431	133.36115

Point 27	267.9	124.9
Point 28	268.9	124.9
Point 29	268.88431	133.35516
Point 30	271.88431	133.35516
Point 31	271.9	124.9
Point 32	272.9	124.9
Point 33	272.88431	133.35516
Point 34	275.06258	133.35516
Point 35	275.7224	135.61287
Point 36	277.38914	135.96287
Point 37	288.58914	144.47772
Point 38	290.58914	144.47772
Point 39	300.58914	152.08027
Point 40	302.58914	152.08027
Point 41	312.58914	159.68282
Point 42	318.1	159.9
Point 43	275.58914	136.18287
Point 44	264.89308	136.32371
Point 45	264.14308	136.44371
Point 46	263.44558	136.25321
Point 47	255.73083	131.14671
Point 48	253.73083	131.17671
Point 49	252.00083	130.17671

Critical Slip Surfaces

	Slip Surface	FOS	Center (m)	Radius (m)	Entry (m)	Exit (m)
1	123	1.253	(257.967, 190.342)	63.246	(313.301, 159.711)	(250, 127.6)
2	98	1.254	(257.748, 190.566)	63.547	(313.301, 159.711)	(249.35, 127.577)
3	73	1.255	(257.526, 190.791)	63.85	(313.301, 159.711)	(248.7, 127.554)
4	48	1.256	(257.302, 191.016)	64.155	(313.301, 159.711)	(248.05, 127.531)
5	23	1.257	(257.075, 191.242)	64.463	(313.301, 159.711)	(247.4, 127.508)
6	118	1.258	(257.849, 190.273)	63.163	(313.122, 159.704)	(250, 127.6)
7	93	1.258	(257.63, 190.497)	63.463	(313.122, 159.704)	(249.35, 127.577)
8	68	1.259	(257.409,	63.765	(313.122,	(248.7,

			190.722)		159.704)	127.554)
9	43	1.260	(257.185, 190.947)	64.07	(313.122, 159.704)	(248.05, 127.531)
10	18	1.261	(256.959, 191.172)	64.377	(313.122, 159.704)	(247.4, 127.508)
11	113	1.262	(257.731, 190.204)	63.08	(312.943, 159.697)	(250, 127.6)
12	88	1.263	(257.513, 190.428)	63.379	(312.943, 159.697)	(249.35, 127.577)
13	63	1.264	(257.292, 190.653)	63.681	(312.943, 159.697)	(248.7, 127.554)
14	38	1.264	(257.069, 190.877)	63.985	(312.943, 159.697)	(248.05, 127.531)
15	13	1.265	(256.844, 191.103)	64.292	(312.943, 159.697)	(247.4, 127.508)
16	108	1.267	(257.612, 190.135)	62.997	(312.763, 159.69)	(250, 127.6)
17	83	1.267	(257.395, 190.359)	63.295	(312.763, 159.69)	(249.35, 127.577)
18	58	1.268	(257.175, 190.583)	63.596	(312.763, 159.69)	(248.7, 127.554)
19	33	1.269	(256.952, 190.808)	63.9	(312.763, 159.69)	(248.05, 127.531)
20	8	1.270	(256.728, 191.033)	64.206	(312.763, 159.69)	(247.4, 127.508)

Slices of Slip Surface: 123

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	123	251.0004	127.4891	0	41.353962	20.169675	15
2	123	252.8658	127.3082	0	99.13249	48.350146	15
3	123	254.24365	127.20795	0	118.37049	57.733147	15
4	123	255.24365	127.1567	0	115.63369	56.39832	15
5	123	255.8809	127.13075	0	112.78044	55.006696	15
6	123	256.9118	127.1111	0	129.05588	62.944757	15
7	123	258.83845	127.1108	0	164.46236	80.213654	15
8	123	260.38945	127.14455	0	194.85484	112.4995	0
9	123	262.1701	127.24885	0	225.44948	109.95906	15
10	123	263.66495	127.35365	0	247.34917	120.64025	15
11	123	264.0137	127.38595	0	250.81705	144.80929	0
12	123	264.5181	127.43745	0	248.31057	143.36217	0
13	123	265.9674	127.6135	0	237.67886	115.92373	15

14	123	267.3059	127.78995	0	225.03168	109.75528	15
15	123	267.7323	127.85475	0	217.27773	105.97343	15
16	123	268.39435	127.96365	0	213.87077	123.47835	0
17	123	270.38925	128.34675	0	197.11547	96.139641	15
18	123	272.38845	128.7644	0	180.67135	104.31065	0
19	123	273.9776	129.16645	0	165.45314	80.696889	15
20	123	275.32585	129.52555	0	148.3924	72.375808	15
21	123	275.65575	129.6201	0	139.72013	68.146059	15
22	123	276.55575	129.89575	0	126.65088	61.77176	15
23	123	278.5091	130.5367	0	119.90115	58.479699	15
24	123	280.7491	131.35395	0	126.70468	61.798003	15
25	123	282.9891	132.2691	0	132.0622	64.411037	15
26	123	285.2291	133.28685	0	133.76063	65.23942	15
27	123	287.4691	134.41275	0	134.83765	65.764718	15
28	123	289.5891	135.58095	0	123.45957	60.215256	15
29	123	291.5891	136.7862	0	111.74457	54.501469	15
30	123	293.5891	138.0958	0	110.42594	53.858327	15
31	123	295.5891	139.51785	0	108.29753	52.820236	15
32	123	297.5891	141.0621	0	105.33564	51.375623	15
33	123	299.5891	142.7405	0	101.42962	49.470531	15
34	123	301.5891	144.56785	0	86.38925	42.134853	15
35	123	303.5891	146.5629	0	69.878988	34.08226	15
36	123	305.5891	148.75	0	61.124119	29.812225	15
37	123	307.5891	151.16145	0	52.414032	25.564032	15
38	123	309.5891	153.8422	0	38.063084	18.564606	15
39	123	311.5891	156.85795	0	23.226769	11.328452	15
40	123	312.9449	159.08515	0	-4.5767919	-2.2322506	15

Slices of Slip Surface: 98

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	98	249.675	127.5355	0	3.0796126	1.5020274	15
2	98	251.0004	127.38705	0	44.432285	21.671074	15
3	98	252.8658	127.2135	0	102.32669	49.908059	15
4	98	254.24365	127.1185	0	121.43301	59.226839	15
5	98	255.24365	127.071	0	118.50219	57.797378	15
6	98	255.8809	127.04735	0	115.51694	56.341374	15
7	98	256.9118	127.03135	0	131.62832	64.19942	15
8	98	258.83845	127.03775	0	166.67161	81.291174	15
9	98	260.38955	127.0767	0	196.76673	113.60333	0

10	98	262.1702	127.1867	0	226.8229	110.62892	15
11	98	263.66495	127.2962	0	248.27849	121.09351	15
12	98	264.0137	127.32955	0	251.73553	145.33958	0
13	98	264.5181	127.38255	0	249.08086	143.8069	0
14	98	265.9674	127.56285	0	238.05217	116.1058	15
15	98	267.3059	127.7432	0	225.1243	109.80046	15
16	98	267.73235	127.80925	0	217.31004	105.98919	15
17	98	268.3944	127.92	0	213.80375	123.43966	0
18	98	270.38925	128.3085	0	196.78882	95.980319	15
19	98	272.3885	128.73145	0	180.16149	104.01628	0
20	98	273.97765	129.13745	0	164.88829	80.421392	15
21	98	275.32585	129.4999	0	147.80617	72.089885	15
22	98	275.65575	129.59525	0	139.14709	67.86657	15
23	98	276.55575	129.87305	0	126.0908	61.498593	15
24	98	278.5091	130.51855	0	119.34065	58.206326	15
25	98	280.7491	131.34075	0	126.15075	61.527832	15
26	98	282.9891	132.2606	0	131.53383	64.153334	15
27	98	285.2291	133.2828	0	133.34637	65.037372	15
28	98	287.4691	134.4129	0	134.5203	65.609935	15
29	98	289.5891	135.5848	0	123.2358	60.106117	15
30	98	291.5891	136.79325	0	111.59066	54.426401	15
31	98	293.5891	138.1058	0	110.33757	53.81523	15
32	98	295.5891	139.53045	0	108.26197	52.80289	15
33	98	297.5891	141.07695	0	105.32929	51.372526	15
34	98	299.5891	142.7572	0	101.44245	49.476791	15
35	98	301.5891	144.58585	0	86.382279	42.131453	15
36	98	303.5891	146.5815	0	69.843793	34.065094	15
37	98	305.5891	148.7683	0	61.066919	29.784327	15
38	98	307.5891	151.1783	0	52.349074	25.532349	15
39	98	309.5891	153.85585	0	37.994599	18.531204	15
40	98	311.5891	156.86565	0	23.199981	11.315387	15
41	98	312.9449	159.0871	0	-4.5664405	-2.2272019	15

Slices of Slip Surface: 73

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	73	249.35	127.47025	0	4.5951608	2.2412097	15
2	73	251.0004	127.28355	0	47.571177	23.202013	15
3	73	252.8658	127.11745	0	105.55583	51.48302	15
4	73	254.24365	127.0277	0	124.50488	60.725088	15

5	73	255.24365	126.9839	0	121.36994	59.196075	15
6	73	255.8809	126.96265	0	118.2558	57.67721	15
7	73	256.9118	126.9503	0	134.19942	65.453433	15
8	73	258.83845	126.9633	0	168.85956	82.358311	15
9	73	260.3896	127.0075	0	198.64492	114.6877	0
10	73	262.17025	127.12325	0	228.15865	111.28041	15
11	73	263.66495	127.23745	0	249.20475	121.54528	15
12	73	264.0137	127.27185	0	252.62019	145.85033	0
13	73	264.5181	127.3264	0	249.83497	144.24228	0
14	73	265.9674	127.511	0	238.40893	116.27981	15
15	73	267.3059	127.69525	0	225.23344	109.85369	15
16	73	267.73235	127.7625	0	217.34779	106.0076	15
17	73	268.39445	127.87515	0	213.74455	123.40547	0
18	73	270.3893	128.26905	0	196.48381	95.831555	15
19	73	272.3885	128.6973	0	179.68877	103.74336	0
20	73	273.97765	129.10735	0	164.36293	80.165158	15
21	73	275.32585	129.47315	0	147.265	71.825938	15
22	73	275.65575	129.5693	0	138.61677	67.607915	15
23	73	276.55575	129.84925	0	125.57055	61.244851	15
24	73	278.5091	130.4993	0	118.81788	57.951354	15
25	73	280.7491	131.3265	0	125.64232	61.279853	15
26	73	282.9891	132.25105	0	131.04191	63.913409	15
27	73	285.2291	133.2777	0	132.96368	64.850722	15
28	73	287.4691	134.41205	0	134.2298	65.468249	15
29	73	289.5891	135.5877	0	123.03286	60.007136	15
30	73	291.5891	136.7994	0	111.45279	54.35916	15
31	73	293.5891	138.1149	0	110.26057	53.777671	15
32	73	295.5891	139.54225	0	108.22933	52.786972	15
33	73	297.5891	141.0911	0	105.32954	51.372649	15
34	73	299.5891	142.7732	0	101.45774	49.484246	15
35	73	301.5891	144.6032	0	86.381391	42.13102	15
36	73	303.5891	146.59955	0	69.807514	34.0474	15
37	73	305.5891	148.7861	0	61.015133	29.759069	15
38	73	307.5891	151.19465	0	52.285948	25.501561	15
39	73	309.5891	153.8691	0	37.93061	18.499994	15
40	73	311.5891	156.8731	0	23.175275	11.303337	15
41	73	312.9449	159.08895	0	-4.5553546	-2.2217949	15

Slices of Slip Surface: 48

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress	Frictional Strength (kPa)	Cohesive Strength (kPa)
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					(kPa)		
1	48	249.025	127.40445	0	6.1436019	2.9964349	15
2	48	251.0004	127.17885	0	50.767127	24.760782	15
3	48	252.8658	127.02015	0	108.79675	53.063723	15
4	48	254.24365	126.9357	0	127.58598	62.227838	15
5	48	255.24365	126.8956	0	124.24709	60.599354	15
6	48	255.8809	126.87665	0	120.99036	59.01094	15
7	48	256.9118	126.86795	0	136.752	66.698407	15
8	48	258.83845	126.88765	0	171.01652	83.410328	15
9	48	260.3897	126.9371	0	200.48976	115.75282	0
10	48	262.17035	127.05855	0	229.45654	111.91343	15
11	48	263.66495	127.17745	0	250.08261	121.97344	15
12	48	264.0137	127.21295	0	253.47103	146.34157	0
13	48	264.5181	127.26905	0	250.54634	144.653	0
14	48	265.9674	127.45795	0	238.75401	116.44811	15
15	48	267.3059	127.6461	0	225.34042	109.90587	15
16	48	267.7324	127.71455	0	217.38807	106.02724	15
17	48	268.39455	127.82905	0	213.69336	123.37592	0
18	48	270.38935	128.22845	0	196.20048	95.693366	15
19	48	272.38855	128.6621	0	179.24366	103.48638	0
20	48	273.9777	129.07615	0	163.87263	79.926023	15
21	48	275.32585	129.4453	0	146.76157	71.580403	15
22	48	275.65575	129.5423	0	138.1219	67.366554	15
23	48	276.55575	129.8244	0	125.09	61.010467	15
24	48	278.5091	130.47895	0	118.33699	57.716805	15
25	48	280.7491	131.31115	0	125.16684	61.047945	15
26	48	282.9891	132.2405	0	130.58244	63.689311	15
27	48	285.2291	133.2717	0	132.61266	64.679515	15
28	48	287.4691	134.4103	0	133.96621	65.339686	15
29	48	289.5891	135.5897	0	122.85071	59.918293	15
30	48	291.5891	136.8047	0	111.33526	54.301836	15
31	48	293.5891	138.12325	0	110.19503	53.745707	15
32	48	295.5891	139.5533	0	108.20768	52.776413	15
33	48	297.5891	141.10445	0	105.33647	51.376028	15
34	48	299.5891	142.78845	0	101.47935	49.494787	15
35	48	301.5891	144.61985	0	86.382965	42.131787	15
36	48	303.5891	146.6169	0	69.777101	34.032566	15
37	48	305.5891	148.8033	0	60.965537	29.734879	15
38	48	307.5891	151.21055	0	52.22778	25.47319	15
39	48	309.5891	153.882	0	37.868271	18.46959	15
40	48	311.5891	156.8804	0	23.152701	11.292327	15

41	48	312.9449	159.0908	0	-4.5434739	-2.2160003	15
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Slices of Slip Surface: 23

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	23	248.7	127.33805	0	7.7243327	3.7674088	15
2	23	251.0004	127.073	0	54.011021	26.342935	15
3	23	252.8658	126.92165	0	112.06091	54.655758	15
4	23	254.24365	126.8425	0	130.66631	63.730215	15
5	23	255.24365	126.80615	0	127.11298	61.997145	15
6	23	255.8809	126.7895	0	123.72041	60.342473	15
7	23	256.9118	126.78445	0	139.2973	67.939834	15
8	23	258.83845	126.81085	0	173.15213	84.451934	15
9	23	260.3898	126.86555	0	202.31068	116.80413	0
10	23	262.17045	126.9927	0	230.72846	112.53379	15
11	23	263.66495	127.11635	0	250.95739	122.4001	15
12	23	264.0137	127.1529	0	254.29958	146.81993	0
13	23	264.5181	127.2105	0	251.24157	145.05439	0
14	23	265.9674	127.40375	0	239.0966	116.61521	15
15	23	267.3059	127.59585	0	225.44521	109.95697	15
16	23	267.73245	127.66555	0	217.43706	106.05114	15
17	23	268.39465	127.78195	0	213.65017	123.35098	0
18	23	270.3894	128.18675	0	195.94528	95.568901	15
19	23	272.3886	128.62575	0	178.83578	103.25088	0
20	23	273.97775	129.0439	0	163.42172	79.706096	15
21	23	275.32585	129.41645	0	146.29956	71.355064	15
22	23	275.65575	129.51425	0	137.66972	67.146011	15
23	23	276.55575	129.7985	0	124.65485	60.798232	15
24	23	278.5091	130.45765	0	117.89794	57.502666	15
25	23	280.7491	131.2949	0	124.7326	60.836153	15
26	23	282.9891	132.22905	0	129.4032	63.114155	15
27	23	285.2291	133.2648	0	133.00404	64.870403	15
28	23	287.4691	134.40765	0	133.72154	65.220355	15
29	23	289.5891	135.59085	0	122.68077	59.835408	15
30	23	291.5891	136.80915	0	111.22536	54.248232	15
31	23	293.5891	138.13075	0	110.13682	53.717318	15
32	23	295.5891	139.56355	0	108.18898	52.767293	15
33	23	297.5891	141.1171	0	105.34617	51.38076	15
34	23	299.5891	142.80305	0	101.49984	49.504779	15
35	23	301.5891	144.63585	0	86.383475	42.132036	15

36	23	303.5891	146.63375	0	69.745679	34.017241	15
37	23	305.5891	148.8201	0	60.914862	29.710163	15
38	23	307.5891	151.22605	0	52.168454	25.444255	15
39	23	309.5891	153.89455	0	37.807627	18.440012	15
40	23	311.5891	156.8875	0	23.132576	11.282511	15
41	23	312.9449	159.0926	0	-4.5307312	-2.2097852	15

Slices of Slip Surface: 118

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	118	251.0004	127.49085	0	41.238138	20.113184	15
2	118	252.8658	127.31325	0	98.841139	48.208045	15
3	118	254.24365	127.2155	0	117.96427	57.535017	15
4	118	255.24365	127.16605	0	115.15032	56.162565	15
5	118	255.8809	127.14125	0	112.25764	54.75171	15
6	118	256.9118	127.1235	0	128.42388	62.636511	15
7	118	258.83845	127.1268	0	163.62122	79.803399	15
8	118	260.38945	127.16355	0	193.79094	111.88525	0
9	118	262.1701	127.27135	0	224.19518	109.3473	15
10	118	263.66495	127.3791	0	245.89686	119.93191	15
11	118	264.0137	127.4121	0	249.2911	143.92829	0
12	118	264.5181	127.4646	0	246.74632	142.45906	0
13	118	265.9674	127.64365	0	236.08379	115.14576	15
14	118	267.3059	127.8229	0	223.37042	108.94503	15
15	118	267.73225	127.8886	0	215.61291	105.16144	15
16	118	268.39425	127.99895	0	212.11879	122.46684	0
17	118	270.3892	128.38655	0	195.37278	95.289671	15
18	118	272.3884	128.80875	0	178.86392	103.26713	0
19	118	273.97755	129.2146	0	163.69464	79.83921	15
20	118	275.32585	129.577	0	146.65843	71.530096	15
21	118	275.65575	129.6724	0	138.00482	67.309448	15
22	118	276.55575	129.9504	0	124.97106	60.952459	15
23	118	278.5091	130.59655	0	118.23548	57.667298	15
24	118	280.7491	131.4201	0	125.02928	60.980854	15
25	118	282.9891	132.34195	0	130.69701	63.745189	15
26	118	285.2291	133.3669	0	132.10271	64.430798	15
27	118	287.4691	134.5006	0	133.19786	64.964937	15
28	118	289.5891	135.67675	0	121.86292	59.436519	15
29	118	291.5891	136.89015	0	110.16976	53.733382	15
30	118	293.5891	138.20865	0	108.84705	53.088255	15

31	118	295.5891	139.64045	0	106.70066	52.04139	15
32	118	297.5891	141.19555	0	103.69292	50.574417	15
33	118	299.5891	142.88615	0	99.717286	48.63537	15
34	118	301.5891	144.72735	0	84.574891	41.249931	15
35	118	303.5891	146.73835	0	67.912189	33.122988	15
36	118	305.5891	148.94415	0	58.926096	28.740177	15
37	118	307.5891	151.3781	0	49.99712	24.385225	15
38	118	309.5891	154.08675	0	35.201329	17.168835	15
39	118	311.5891	157.13845	0	19.830443	9.6719534	15
40	118	312.85535	159.23205	0	-6.535567	-3.187609	15

Slices of Slip Surface: 93

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	93	249.675	127.53605	0	3.0358616	1.4806887	15
2	93	251.0004	127.3899	0	44.282304	21.597923	15
3	93	252.8658	127.21965	0	102.00029	49.748866	15
4	93	254.24365	127.1271	0	120.9774	59.00462	15
5	93	255.24365	127.08135	0	117.97709	57.541272	15
6	93	255.8809	127.05885	0	114.95015	56.064932	15
7	93	256.9118	127.04475	0	130.96148	63.874183	15
8	93	258.83845	127.0547	0	165.78647	80.859465	15
9	93	260.3895	127.0966	0	195.66294	112.96605	0
10	93	262.17015	127.2101	0	225.52816	109.99743	15
11	93	263.66495	127.32255	0	246.82524	120.38471	15
12	93	264.0137	127.35655	0	250.1741	144.43808	0
13	93	264.5181	127.41055	0	247.48935	142.88804	0
14	93	265.9674	127.5939	0	236.42882	115.31404	15
15	93	267.3059	127.77705	0	223.46287	108.99013	15
16	93	267.7323	127.84395	0	215.6283	105.16895	15
17	93	268.39435	127.95615	0	212.0419	122.42245	0
18	93	270.38925	128.3491	0	195.03666	95.125737	15
19	93	272.38845	128.77655	0	178.35525	102.97345	0
20	93	273.9776	129.1864	0	163.12629	79.562008	15
21	93	275.32585	129.55215	0	146.07706	71.246541	15
22	93	275.65575	129.64835	0	137.44018	67.034056	15
23	93	276.55575	129.9285	0	124.41237	60.679967	15
24	93	278.5091	130.57915	0	117.68073	57.396729	15
25	93	280.7491	131.4076	0	124.48536	60.715569	15
26	93	282.9891	132.3341	0	130.17848	63.492289	15

27	93	285.2291	133.36345	0	131.69843	64.233617	15
28	93	287.4691	134.5013	0	132.89039	64.814975	15
29	93	289.5891	135.6811	0	121.64543	59.330441	15
30	93	291.5891	136.8977	0	110.02197	53.661301	15
31	93	293.5891	138.2191	0	108.76058	53.046079	15
32	93	295.5891	139.6535	0	106.65896	52.021052	15
33	93	297.5891	141.21085	0	103.68462	50.570367	15
34	93	299.5891	142.9032	0	99.724594	48.638934	15
35	93	301.5891	144.7456	0	84.566345	41.245762	15
36	93	303.5891	146.75715	0	67.868554	33.101705	15
37	93	305.5891	148.96255	0	58.860865	28.708362	15
38	93	307.5891	151.39485	0	49.927394	24.351217	15
39	93	309.5891	154.10005	0	35.129975	17.134033	15
40	93	311.5891	157.14545	0	19.807074	9.6605554	15
41	93	312.85535	159.23355	0	-6.5211739	-3.180589	15

Slices of Slip Surface: 68

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	68	249.35	127.4714	0	4.535944	2.2123277	15
2	68	251.0004	127.2875	0	47.386519	23.111949	15
3	68	252.8658	127.1246	0	105.1828	51.301081	15
4	68	254.24365	127.03735	0	124.00968	60.48356	15
5	68	255.24365	126.9953	0	120.80309	58.919603	15
6	68	255.8809	126.9751	0	117.64835	57.380935	15
7	68	256.9118	126.96465	0	133.4863	65.105619	15
8	68	258.83845	126.98125	0	167.93035	81.905104	15
9	68	260.3896	127.02835	0	197.50128	114.02742	0
10	68	262.17025	127.1475	0	226.82731	110.63107	15
11	68	263.66495	127.26465	0	247.70519	120.8139	15
12	68	264.0137	127.29975	0	251.02714	144.93059	0
13	68	264.5181	127.3553	0	248.20291	143.30002	0
14	68	265.9674	127.5429	0	236.76217	115.47663	15
15	68	267.3059	127.7299	0	223.53446	109.02504	15
16	68	267.73235	127.79805	0	215.64925	105.17916	15
17	68	268.3944	127.9121	0	211.96319	122.37701	0
18	68	270.38925	128.31045	0	194.72542	94.973933	15
19	68	272.38845	128.74325	0	177.87392	102.69555	0
20	68	273.9776	129.1571	0	162.60181	79.3062	15
21	68	275.32585	129.52615	0	145.54075	70.984967	15

22	68	275.65575	129.6231	0	136.91105	66.77598	15
23	68	276.55575	129.9054	0	123.89914	60.42965	15
24	68	278.5091	130.5606	0	117.16785	57.14658	15
25	68	280.7491	131.394	0	123.98275	60.470429	15
26	68	282.9891	132.3252	0	129.69642	63.25717	15
27	68	285.2291	133.359	0	131.32573	64.051838	15
28	68	287.4691	134.50105	0	132.60968	64.678064	15
29	68	289.5891	135.6846	0	121.44868	59.23448	15
30	68	291.5891	136.9044	0	109.89016	53.59701	15
31	68	293.5891	138.2287	0	108.68545	53.009436	15
32	68	295.5891	139.66575	0	106.62817	52.006035	15
33	68	297.5891	141.22535	0	103.68288	50.569519	15
34	68	299.5891	142.9195	0	99.738123	48.645533	15
35	68	301.5891	144.7632	0	84.556583	41.241001	15
36	68	303.5891	146.7753	0	67.823823	33.079889	15
37	68	305.5891	148.98035	0	58.801016	28.679172	15
38	68	307.5891	151.4111	0	49.859472	24.318089	15
39	68	309.5891	154.11295	0	35.060222	17.100013	15
40	68	311.5891	157.15225	0	19.785616	9.6500899	15
41	68	312.85535	159.235	0	-6.5062261	-3.1732985	15

Slices of Slip Surface: 43

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	43	249.025	127.4061	0	6.0691266	2.9601108	15
2	43	251.0004	127.18385	0	50.546681	24.653264	15
3	43	252.8658	127.02835	0	108.38861	52.864658	15
4	43	254.24365	126.9463	0	127.051	61.966915	15
5	43	255.24365	126.90795	0	123.63843	60.302493	15
6	43	255.8809	126.89015	0	120.34217	58.694796	15
7	43	256.9118	126.88335	0	135.99831	66.330808	15
8	43	258.83845	126.9066	0	170.04808	82.937991	15
9	43	260.38965	126.9589	0	199.3059	115.06932	0
10	43	262.1703	127.0837	0	228.09261	111.2482	15
11	43	263.66495	127.20555	0	248.55948	121.23056	15
12	43	264.0137	127.24175	0	251.8464	145.40359	0
13	43	264.5181	127.2988	0	248.88709	143.69503	0
14	43	265.9674	127.4907	0	237.08837	115.63572	15
15	43	267.3059	127.68165	0	223.62259	109.06802	15
16	43	267.7324	127.75095	0	215.6727	105.19061	15

17	43	268.3945	127.86685	0	211.90218	122.34178	0
18	43	270.3893	128.27065	0	194.43581	94.83268	15
19	43	272.3885	128.70875	0	177.43003	102.43928	0
20	43	273.97765	129.1266	0	162.11682	79.069658	15
21	43	275.32585	129.49905	0	145.04218	70.741798	15
22	43	275.65575	129.59685	0	136.42465	66.538747	15
23	43	276.55575	129.88125	0	123.42558	60.198679	15
24	43	278.5091	130.54095	0	116.6926	56.914783	15
25	43	280.7491	131.37935	0	123.51721	60.243371	15
26	43	282.9891	132.3153	0	129.24666	63.037807	15
27	43	285.2291	133.3536	0	130.98053	63.883473	15
28	43	287.4691	134.49985	0	132.35191	64.552338	15
29	43	289.5891	135.6871	0	121.27269	59.148642	15
30	43	291.5891	136.91015	0	109.77442	53.540564	15
31	43	293.5891	138.23745	0	108.62173	52.978358	15
32	43	295.5891	139.6772	0	106.60836	51.99637	15
33	43	297.5891	141.2391	0	103.68778	50.571907	15
34	43	299.5891	142.9351	0	99.754156	48.653353	15
35	43	301.5891	144.7801	0	84.552905	41.239207	15
36	43	303.5891	146.79285	0	67.788385	33.062604	15
37	43	305.5891	148.9977	0	58.74334	28.651041	15
38	43	307.5891	151.427	0	49.793407	24.285867	15
39	43	309.5891	154.1256	0	34.994997	17.0682	15
40	43	311.5891	157.15895	0	19.766104	9.6405732	15
41	43	312.85535	159.23645	0	-6.4907346	-3.1657428	15

Slices of Slip Surface: 18

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	18	248.7	127.3402	0	7.6336693	3.7231893	15
2	18	251.0004	127.079	0	53.755762	26.218437	15
3	18	252.8658	126.93085	0	111.606	54.433882	15
4	18	254.24365	126.85405	0	130.0819	63.445183	15
5	18	255.24365	126.8194	0	126.46251	61.679888	15
6	18	255.8809	126.8039	0	123.02482	60.003214	15
7	18	256.9118	126.80075	0	138.49735	67.549669	15
8	18	258.83845	126.83065	0	172.13482	83.955762	15
9	18	260.38975	126.8882	0	201.07715	116.09195	0
10	18	262.1704	127.01875	0	229.32413	111.84885	15
11	18	263.66495	127.1453	0	249.38815	121.63473	15

12	18	264.0137	127.18255	0	252.63198	145.85714	0
13	18	264.5181	127.24115	0	249.55513	144.08072	0
14	18	265.9674	127.43735	0	237.39819	115.78683	15
15	18	267.3059	127.6322	0	223.70859	109.10997	15
16	18	267.73245	127.70275	0	215.70184	105.20481	15
17	18	268.3946	127.8205	0	211.83955	122.30562	0
18	18	270.38935	128.2297	0	194.16787	94.701996	15
19	18	272.38855	128.67315	0	177.02335	102.20448	0
20	18	273.9777	129.09505	0	161.66683	78.850182	15
21	18	275.32585	129.47085	0	144.58312	70.517902	15
22	18	275.65575	129.56945	0	135.98081	66.322271	15
23	18	276.55575	129.85605	0	122.99169	59.987056	15
24	18	278.5091	130.5203	0	116.25921	56.703406	15
25	18	280.7491	131.3637	0	123.09283	60.036383	15
26	18	282.9891	132.30445	0	128.82516	62.832229	15
27	18	285.2291	133.34725	0	130.66689	63.730503	15
28	18	287.4691	134.49775	0	132.12089	64.439665	15
29	18	289.5891	135.6888	0	121.1132	59.070855	15
30	18	291.5891	136.91515	0	109.67474	53.491947	15
31	18	293.5891	138.2455	0	108.56941	52.952837	15
32	18	295.5891	139.6879	0	106.5955	51.990099	15
33	18	297.5891	141.2521	0	103.69934	50.577546	15
34	18	299.5891	142.95005	0	99.776584	48.664292	15
35	18	301.5891	144.79645	0	84.551736	41.238637	15
36	18	303.5891	146.8099	0	67.751948	33.044833	15
37	18	305.5891	149.01455	0	58.691155	28.625589	15
38	18	307.5891	151.44245	0	49.729269	24.254585	15
39	18	309.5891	154.1379	0	34.931492	17.037227	15
40	18	311.5891	157.16545	0	19.748592	9.6320318	15
41	18	312.85535	159.23785	0	-6.4745299	-3.1578392	15

SLOPE/W Analysis

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File Information

Revision Number: 94
Date: 09/12/2011
Time: 14.46.11
File Name: sez33pali2.gsz
Directory: \\Thesis2-elia\users\Public\Documents\nuove\
Last Solved Date: 09/12/2011
Last Solved Time: 14.46.12

Project Settings

Length(L) Units: meters
Time(t) Units: Seconds
Force(F) Units: kN
Pressure(p) Units: kPa
Strength Units: kPa
Unit Weight of Water: 9.807 kN/m³
View: 2D

Analysis Settings

SLOPE/W Analysis

Kind: SLOPE/W
Method: Morgenstern-Price
Settings
 Side Function
 Interslice force function option: Half-Sine
 PWP Conditions Source: (none)
Slip Surface
 Direction of movement: Right to Left
 Use Passive Mode: No
 Slip Surface Option: Entry and Exit
 Critical slip surfaces saved: 20
 Optimize Critical Slip Surface Location: No
 Tension Crack
 Tension Crack Option: (none)
FOS Distribution
 FOS Calculation Option: Constant
Advanced
 Number of Slices: 30
 Optimization Tolerance: 0.01
 Minimum Slip Surface Depth: 0.1 m
 Optimization Maximum Iterations: 2000
 Optimization Convergence Tolerance: 1e-007
 Starting Optimization Points: 8
 Ending Optimization Points: 16
 Complete Passes per Insertion: 1
 Driving Side Maximum Convex Angle: 5 °

Resisting Side Maximum Convex Angle: 1 °

Materials

New Material

Model: Mohr-Coulomb
Unit Weight: 20 kN/m³
Cohesion: 15 kPa
Phi: 26 °
Phi-B: 0 °

New Material (2)

Model: Mohr-Coulomb
Unit Weight: 25 kN/m³
Cohesion: 0 kPa
Phi: 30 °
Phi-B: 0 °

New Material (3)

Model: Mohr-Coulomb
Unit Weight: 20 kN/m³
Cohesion: 0 kPa
Phi: 30 °
Phi-B: 0 °

New Material (5)

Model: Mohr-Coulomb
Unit Weight: 20 kN/m³
Cohesion: 20 kPa
Phi: 26 °
Phi-B: 0 °

Slip Surface Entry and Exit

Left Projection: Range
Left-Zone Left Coordinate: (125.95304, 236.39942) m
Left-Zone Right Coordinate: (131.8, 237.72761) m
Left-Zone Increment: 4
Right Projection: Range
Right-Zone Left Coordinate: (191.14543, 266.47767) m
Right-Zone Right Coordinate: (192.5, 266.29615) m
Right-Zone Increment: 4
Radius Increments: 4

Slip Surface Limits

Left Coordinate: (123.23402, 236.30691) m
Right Coordinate: (196.29502, 266.91454) m

Seismic Loads

Horz Seismic Load: 0.12
Vert Seismic Load: 0.06

Ignore seismic load in strength: No

Reinforcements

Reinforcement 1

Type: Nail
Outside Point: (156.5, 243.5) m
Inside Point: (161.86231, 239.00049) m
Slip Surface Intersection: (161.22, 239.54) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip
Shear Load: 0 kN
Applied Load: 65.973418 kN
Nail Load Used: 7.8705 kN
Resisting Force Used: 9.4248 kN/m
Available Bond Length: 0.83509 m
Required Bond Length: 0.83509 m
Governing Component: Bond

Reinforcement 2

Type: Nail
Outside Point: (158.5, 245.5) m
Inside Point: (163.86231, 241.00049) m
Slip Surface Intersection: (164.16, 240.75) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip

Shear Load: 0 kN
Applied Load: 65.973418 kN
Nail Load Used: 0 kN
Resisting Force Used: 9.4248 kN/m
Available Bond Length: 0 m
Required Bond Length: 0 m
Governing Component: Bond

Reinforcement 3

Type: Nail
Outside Point: (161, 247.00251) m
Inside Point: (166.36231, 242.503) m
Slip Surface Intersection: (166.92, 242.04) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip
Shear Load: 0 kN
Applied Load: 65.973418 kN
Nail Load Used: 0 kN
Resisting Force Used: 9.4248 kN/m
Available Bond Length: 0 m
Required Bond Length: 0 m
Governing Component: Bond

Reinforcement 4

Type: Nail
Outside Point: (163.5, 248.5) m
Inside Point: (168.86231, 244.00049) m
Slip Surface Intersection: (169.54, 243.43) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN

Shear Safety Factor: 1
Shear Option: Parallel to Slip
Shear Load: 0 kN
Applied Load: 65.973418 kN
Nail Load Used: 0 kN
Resisting Force Used: 9.4248 kN/m
Available Bond Length: 0 m
Required Bond Length: 0 m
Governing Component: Bond

Reinforcement 5

Type: Nail
Outside Point: (184.4, 261.5) m
Inside Point: (189.76231, 257.00049) m
Slip Surface Intersection: (187.51, 258.89) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip
Shear Load: 0 kN
Applied Load: 65.973418 kN
Nail Load Used: 27.665 kN
Resisting Force Used: 9.4248 kN/m
Available Bond Length: 2.9354 m
Required Bond Length: 2.9354 m
Governing Component: Bond

Reinforcement 6

Type: Nail
Outside Point: (190, 265.5) m
Inside Point: (195.36231, 261.00049) m
Slip Surface Intersection: (191.35, 264.37) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN

Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip
Shear Load: 0 kN
Applied Load: 65.973418 kN
Nail Load Used: 49.389 kN
Resisting Force Used: 9.4248 kN/m
Available Bond Length: 5.2403 m
Required Bond Length: 5.2403 m
Governing Component: Bond

Reinforcement 7

Type: Nail
Outside Point: (188.58164, 264.6) m
Inside Point: (193.94395, 260.10049) m
Slip Surface Intersection: (190.47, 263.02) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip
Shear Load: 0 kN
Applied Load: 65.973418 kN
Nail Load Used: 42.771 kN
Resisting Force Used: 9.4248 kN/m
Available Bond Length: 4.5381 m
Required Bond Length: 4.5381 m
Governing Component: Bond

Reinforcement 8

Type: Nail
Outside Point: (166, 250.5) m
Inside Point: (171.36231, 246.00049) m
Slip Surface Intersection: (172.38, 245.14) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN

Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip
Shear Load: 0 kN
Applied Load: 65.973418 kN
Nail Load Used: 0 kN
Resisting Force Used: 9.4248 kN/m
Available Bond Length: 0 m
Required Bond Length: 0 m
Governing Component: Bond

Reinforcement 9

Type: Nail
Outside Point: (182.59327, 260) m
Inside Point: (187.95558, 255.50049) m
Slip Surface Intersection: (186.05, 257.1) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m
Nail Spacing: 1 m
Bar Capacity: 359 kN
Bar Safety Factor: 1
Bar Load: 359 kN
Load Distribution: Conc. in 1 slice
Shear Capacity: 0 kN
Shear Safety Factor: 1
Shear Option: Parallel to Slip
Shear Load: 0 kN
Applied Load: 65.973418 kN
Nail Load Used: 23.439 kN
Resisting Force Used: 9.4248 kN/m
Available Bond Length: 2.4869 m
Required Bond Length: 2.4869 m
Governing Component: Bond

Reinforcement 10

Type: Nail
Outside Point: (186.67085, 263.1) m
Inside Point: (192.03316, 258.60049) m
Slip Surface Intersection: (189.13, 261.03) m
Total Length: 6.9999971 m
Reinforcement Direction: 140 °
Applied Load Option: Variable
F of S Dependent: No
Bond Diameter: 0.03 m
Bond Safety Factor: 1
Bond Skin Friction: 100 kPa
Bond Resistance: 9.424778 kN/m

Nail Spacing: 1 m
 Bar Capacity: 359 kN
 Bar Safety Factor: 1
 Bar Load: 359 kN
 Load Distribution: Conc. in 1 slice
 Shear Capacity: 0 kN
 Shear Safety Factor: 1
 Shear Option: Parallel to Slip
 Shear Load: 0 kN
 Applied Load: 65.973418 kN
 Nail Load Used: 35.657 kN
 Resisting Force Used: 9.4248 kN/m
 Available Bond Length: 3.7833 m
 Required Bond Length: 3.7833 m
 Governing Component: Bond

Regions

	Material	Points
Region 1	New Material (2)	1,2,3,4,5,6,7,8,9,10,11,12,13
Region 2		14,15,16,17,18,19
Region 3		20,17,16,15,14,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42
Region 4	New Material (5)	51,52,53,54,55,56
Region 5	New Material	57,54,53,52,51,58,59,60,61,62,63,64,65,66,67,7,8,9,10,68,69,11,12,70,71,13,1,72
Region 6	New Material (3)	13,12,70,71
Region 7	New Material (3)	11,10,68,69

Points

	X (m)	Y (m)
Point 1	136	239.5
Point 2	141.92555	242.80071
Point 3	142.36255	243.01371
Point 4	142.84155	243.09771
Point 5	143.59155	243.12771
Point 6	154.11366	242.97716
Point 7	155.41366	242.75771

Point 8	147.21001	242.40771
Point 9	146.36979	239.53268
Point 10	144.21238	239.53268
Point 11	143.21238	239.53268
Point 12	140.21238	239.53268
Point 13	139.21238	239.53268
Point 14	206.81788	147.09028
Point 15	165.93653	122.93346
Point 16	146.08318	119.70843
Point 17	133.75688	116.48265
Point 18	133.75688	112.89918
Point 19	206.81788	112.89918
Point 20	133.75688	125.48265
Point 21	206.81788	156.09028
Point 22	204.5424	155.89843
Point 23	203.81913	155.19072
Point 24	203.30813	155.19072
Point 25	202.83871	155.65341
Point 26	201.63653	155.65341
Point 27	191.63653	148.05087
Point 28	189.63653	148.05087
Point 29	179.63653	140.44832
Point 30	177.63653	140.44832
Point 31	165.93653	131.93346
Point 32	157.73288	131.58346
Point 33	156.89265	128.70843
Point 34	154.73524	128.70843
Point 35	154.73524	123.93264
Point 36	153.73524	123.93264
Point 37	153.73524	128.70843
Point 38	150.73524	128.70843
Point 39	150.73524	123.93264
Point 40	149.73524	123.93264
Point 41	149.73524	128.70843
Point 42	146.08318	128.70843
Point 43	144.3641	127.30315
Point 44	141.72845	126.78694
Point 45	139.80105	125.76212
Point 46	138.39315	125.6485
Point 47	135.40126	125.53407
Point 48	134.9854	125.11821

Point 49	134.4854	125.11821
Point 50	134.02664	125.4815
Point 51	196.29502	257.91454
Point 52	155.41366	233.75771
Point 53	135.56032	230.53268
Point 54	123.23402	227.30691
Point 55	123.23402	223.72343
Point 56	196.29502	223.72343
Point 57	123.23402	236.30691
Point 58	196.29502	266.91454
Point 59	194.01954	266.72268
Point 60	193.29626	266.01497
Point 61	192.78526	266.01497
Point 62	192.31585	266.47767
Point 63	191.11367	266.47767
Point 64	181.11366	258.87512
Point 65	179.11366	258.87512
Point 66	169.11366	251.27257
Point 67	167.11366	251.27257
Point 68	144.2	233.7
Point 69	143.2	233.7
Point 70	140.2	233.7
Point 71	139.2	233.7
Point 72	133.84123	238.1274
Point 73	131.20559	237.61119
Point 74	129.27819	236.58637
Point 75	127.87028	236.47275
Point 76	124.87839	236.35832
Point 77	124.46254	235.94246
Point 78	123.96254	235.94246
Point 79	123.50378	236.30575

Critical Slip Surfaces

	Slip Surface	FOS	Center (m)	Radius (m)	Entry (m)	Exit (m)
1	73	1.262	(139.741, 296.303)	60.695	(192.5, 266.296)	(129.008, 236.565)
2	123	1.263	(141.906, 295.025)	58.182	(192.5, 266.296)	(131.8, 237.728)
3	98	1.263	(140.852, 295.66)	59.411	(192.5, 266.296)	(130.39, 237.177)

4	48	1.267	(139.121, 296.853)	61.506	(192.5, 266.296)	(127.482, 236.458)
5	23	1.273	(138.541, 297.391)	62.277	(192.5, 266.296)	(125.953, 236.399)
6	68	1.274	(139.355, 296.441)	60.763	(192.217, 266.478)	(129.008, 236.565)
7	93	1.276	(140.466, 295.797)	59.48	(192.217, 266.478)	(130.39, 237.177)
8	118	1.276	(141.518, 295.162)	58.251	(192.217, 266.478)	(131.8, 237.728)
9	43	1.279	(138.74, 296.989)	61.569	(192.217, 266.478)	(127.482, 236.458)
10	18	1.285	(138.165, 297.527)	62.335	(192.217, 266.478)	(125.953, 236.399)
11	63	1.285	(139.113, 296.32)	60.603	(191.86, 266.478)	(129.008, 236.565)
12	88	1.288	(140.224, 295.676)	59.32	(191.86, 266.478)	(130.39, 237.177)
13	113	1.290	(141.276, 295.041)	58.092	(191.86, 266.478)	(131.8, 237.728)
14	38	1.290	(138.501, 296.868)	61.406	(191.86, 266.478)	(127.482, 236.458)
15	13	1.297	(137.929, 297.405)	62.17	(191.86, 266.478)	(125.953, 236.399)
16	58	1.298	(138.87, 296.199)	60.444	(191.503, 266.478)	(129.008, 236.565)
17	83	1.302	(139.981, 295.556)	59.161	(191.503, 266.478)	(130.39, 237.177)
18	33	1.303	(138.261, 296.746)	61.244	(191.503, 266.478)	(127.482, 236.458)
19	108	1.305	(141.032, 294.921)	57.933	(191.503, 266.478)	(131.8, 237.728)
20	8	1.310	(137.692, 297.283)	62.005	(191.503, 266.478)	(125.953, 236.399)

Slices of Slip Surface: 73

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	73	129.143	236.5406	0	3.1738164	1.5479737	15
2	73	130.2419	236.36385	0	20.187511	9.8461072	15
3	73	132.5234	236.05325	0	47.975408	23.39917	15
4	73	134.9206	235.8094	0	79.206211	38.63145	15
5	73	136.801	235.68455	0	114.02752	55.614939	15

6	73	138.40305	235.62805	0	143.48325	69.981457	15
7	73	139.70825	235.6101	0	166.25592	95.9879	0
8	73	141.06895	235.62855	0	188.48843	91.931949	15
9	73	142.14405	235.65595	0	204.60604	99.793035	15
10	73	142.6021	235.6759	0	208.20256	101.54718	15
11	73	143.027	235.69725	0	208.8565	101.86612	15
12	73	143.402	235.71875	0	209.5737	120.99743	0
13	73	143.902	235.75155	0	208.40632	120.32344	0
14	73	145.2911	235.87195	0	201.96733	98.506049	15
15	73	146.7899	236.02015	0	187.18729	91.29734	15
16	73	148.3606	236.2344	0	169.82201	82.827728	15
17	73	150.6618	236.61	0	153.64558	74.937955	15
18	73	152.96305	237.07735	0	135.1223	65.903548	15
19	73	154.7637	237.50025	0	117.19006	57.157412	15
20	73	156.3887	237.94445	0	113.86792	55.537095	15
21	73	158.3387	238.5365	0	122.0904	59.547467	15
22	73	160.2887	239.20125	0	132.1171	64.437814	15
23	73	162.2387	239.94125	0	132.34381	64.548391	15
24	73	164.1887	240.75955	0	134.98513	65.836646	15
25	73	166.1387	241.6597	0	136.33996	66.497442	15
26	73	168.1137	242.6596	0	125.33845	61.131647	15
27	73	170.1137	243.76665	0	114.45906	55.825413	15
28	73	172.1137	244.9755	0	114.29625	55.746006	15
29	73	174.1137	246.2935	0	113.20431	55.213433	15
30	73	176.1137	247.7296	0	111.20748	54.239511	15
31	73	178.1137	249.2947	0	108.24554	52.794877	15
32	73	180.1137	251.0022	0	93.886234	45.791376	15
33	73	182.1137	252.86895	0	78.233573	38.157063	15
34	73	184.1137	254.91665	0	70.829978	34.546089	15
35	73	186.1137	257.1739	0	66.737025	32.549822	15
36	73	188.1137	259.6798	0	54.320073	26.49367	15
37	73	190.1137	262.49035	0	47.29278	23.06623	15
38	73	191.7148	264.9774	0	23.767576	11.592221	15
39	73	192.40795	266.13545	0	-9.1280584	-4.4520516	15

Slices of Slip Surface: 123

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	123	132.8206	237.56625	0	11.311393	5.5169349	15
2	123	134.9206	237.2743	0	40.773877	19.886749	15

3	123	136.8017	237.0731	0	77.136746	37.622105	15
4	123	138.4051	236.9542	0	108.60274	52.969098	15
5	123	139.7096	236.8869	0	132.61545	76.565566	0
6	123	141.06895	236.85555	0	157.98901	77.05639	15
7	123	142.14405	236.8441	0	176.22963	85.952933	15
8	123	142.6021	236.84785	0	180.73862	88.152117	15
9	123	143.027	236.8543	0	182.21138	88.870427	15
10	123	143.402	236.86275	0	182.91812	105.60782	0
11	123	143.902	236.87825	0	182.67995	105.47032	0
12	123	145.2911	236.9518	0	179.42947	87.513599	15
13	123	146.7899	237.0501	0	167.04297	81.472302	15
14	123	148.3606	237.21395	0	151.89271	74.083025	15
15	123	150.6618	237.5176	0	138.76562	67.680514	15
16	123	152.96305	237.9156	0	122.72862	59.858749	15
17	123	154.7637	238.28565	0	106.32719	51.859237	15
18	123	156.3887	238.68355	0	104.49023	50.96329	15
19	123	158.3387	239.2213	0	114.55684	55.873104	15
20	123	160.2887	239.83315	0	129.43976	63.13199	15
21	123	162.2387	240.52165	0	127.47967	62.175991	15
22	123	164.1887	241.2897	0	131.71888	64.243589	15
23	123	166.1387	242.14075	0	132.99468	64.86584	15
24	123	168.1137	243.09215	0	122.29482	59.647171	15
25	123	170.1137	244.1513	0	111.67263	54.46638	15
26	123	172.1137	245.31345	0	111.86158	54.55854	15
27	123	174.1137	246.586	0	111.06434	54.169698	15
28	123	176.1137	247.978	0	109.32577	53.321741	15
29	123	178.1137	249.50045	0	106.61527	51.999743	15
30	123	180.1137	251.167	0	92.474919	45.103032	15
31	123	182.1137	252.99485	0	77.086634	37.597664	15
32	123	184.1137	255.0062	0	70.00087	34.141706	15
33	123	186.1137	257.2306	0	66.362617	32.367211	15
34	123	188.1137	259.7087	0	54.178046	26.424399	15
35	123	190.1137	262.49925	0	47.344658	23.091533	15
36	123	191.7148	264.9778	0	23.805319	11.61063	15
37	123	192.40795	266.1352	0	-9.1289209	-4.4524722	15

Slices of Slip Surface: 98

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	98	130.79755	237.10725	0	9.1320688	4.4540076	15

2	98	132.5234	236.85055	0	27.697824	13.509131	15
3	98	134.9206	236.55555	0	59.582	29.060083	15
4	98	136.80135	236.39245	0	95.308406	46.485016	15
5	98	138.4041	236.30465	0	125.8656	61.388754	15
6	98	139.70895	236.2619	0	149.30871	86.203426	0
7	98	141.06895	236.2553	0	173.1866	84.468751	15
8	98	142.14405	236.26315	0	190.39664	92.862646	15
9	98	142.6021	236.27495	0	194.45844	94.843717	15
10	98	143.027	236.2888	0	195.52461	95.363726	15
11	98	143.402	236.30375	0	196.23229	113.29477	0
12	98	143.902	236.32785	0	195.52819	112.88825	0
13	98	145.2911	236.42465	0	190.68547	93.003517	15
14	98	146.7899	236.5477	0	177.08614	86.370681	15
15	98	148.3606	236.7365	0	160.81399	78.434225	15
16	98	150.6618	237.07575	0	146.13509	71.274848	15
17	98	152.96305	237.508	0	128.83148	62.835314	15
18	98	154.7637	237.9042	0	111.64557	54.453183	15
19	98	156.3887	238.325	0	109.06182	53.193005	15
20	98	158.3387	238.8895	0	118.20197	57.650951	15
21	98	160.2887	239.5274	0	130.67053	63.732274	15
22	98	162.2387	240.24125	0	129.78911	63.302377	15
23	98	164.1887	241.034	0	132.87532	64.807626	15
24	98	166.1387	241.9092	0	134.56619	65.632315	15
25	98	168.1137	242.88445	0	123.72816	60.346254	15
26	98	170.1137	243.96705	0	112.98887	55.108353	15
27	98	172.1137	245.15205	0	113.01868	55.122895	15
28	98	174.1137	246.44685	0	112.09028	54.670083	15
29	98	176.1137	247.8604	0	110.2361	53.765738	15
30	98	178.1137	249.4036	0	107.41074	52.387717	15
31	98	180.1137	251.09	0	93.167574	45.440862	15
32	98	182.1137	252.93665	0	77.645705	37.870341	15
33	98	184.1137	254.9655	0	70.404513	34.338576	15
34	98	186.1137	257.2056	0	66.550833	32.45901	15
35	98	188.1137	259.69675	0	54.252171	26.460552	15
36	98	190.1137	262.4963	0	47.326615	23.082732	15
37	98	191.7148	264.97815	0	23.798987	11.607541	15
38	98	192.40795	266.1354	0	-9.1213766	-4.4487926	15

Slices of Slip Surface: 48

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress	Frictional Strength (kPa)	Cohesive Strength (kPa)
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					(kPa)		
1	48	127.6761	236.4211	0	3.5955227	1.7536536	15
2	48	128.57425	236.2618	0	9.3675651	4.5688668	15
3	48	130.2419	235.99865	0	30.256047	14.75686	15
4	48	132.5234	235.7158	0	57.828478	28.204833	15
5	48	134.9206	235.4997	0	88.454514	43.142149	15
6	48	137.60175	235.3862	0	136.74631	66.695633	15
7	48	139.70795	235.3514	0	173.28241	100.04465	0
8	48	141.06895	235.38335	0	194.4015	94.815946	15
9	48	142.14405	235.42125	0	209.72105	102.28779	15
10	48	142.6021	235.4456	0	212.9775	103.87607	15
11	48	143.027	235.471	0	213.33764	104.05172	15
12	48	143.402	235.496	0	213.94837	123.52315	0
13	48	143.902	235.5334	0	212.44099	122.65286	0
14	48	145.2911	235.6664	0	205.01293	99.991489	15
15	48	146.7899	235.828	0	189.45987	92.405754	15
16	48	148.3606	236.05565	0	171.47848	83.635643	15
17	48	150.6618	236.45035	0	154.54727	75.377742	15
18	48	152.96305	236.936	0	135.5265	66.100688	15
19	48	154.7637	237.37275	0	117.36314	57.241827	15
20	48	156.5837	237.8902	0	114.65838	55.92263	15
21	48	158.9237	238.63465	0	123.72641	60.345404	15
22	48	161.2637	239.4842	0	132.90143	64.820356	15
23	48	163.6037	240.4436	0	133.87479	65.295098	15
24	48	165.9437	241.51855	0	135.88938	66.277678	15
25	48	168.1137	242.6203	0	125.18861	61.058567	15
26	48	170.1137	243.7384	0	114.42485	55.808726	15
27	48	172.1137	244.95765	0	114.35607	55.775182	15
28	48	174.1137	246.2854	0	113.35145	55.285197	15
29	48	176.1137	247.7305	0	111.41156	54.339047	15
30	48	178.1137	249.3036	0	108.48305	52.910719	15
31	48	180.1137	251.018	0	94.089603	45.890566	15
32	48	182.1137	252.8903	0	78.36191	38.219657	15
33	48	184.1137	254.94175	0	70.90381	34.582099	15
34	48	186.1137	257.2004	0	66.781823	32.571671	15
35	48	188.1137	259.70435	0	54.323231	26.49521	15
36	48	190.1137	262.50795	0	47.344028	23.091225	15
37	48	191.7148	264.9847	0	23.877201	11.645689	15
38	48	192.40795	266.13645	0	-9.0548405	-4.4163408	15

Slices of Slip Surface: 23

	Slip	X (m)	Y (m)	PWP	Base	Frictional	Cohesive
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	Surface			(kPa)	Normal Stress (kPa)	Strength (kPa)	Strength (kPa)
1	23	126.91165	236.21715	0	8.3424798	4.0688993	15
2	23	128.57425	235.9208	0	18.720505	9.1306003	15
3	23	130.2419	235.6771	0	39.563954	19.29663	15
4	23	132.5234	235.4195	0	66.75511	32.558642	15
5	23	134.9206	235.22865	0	96.632074	47.130612	15
6	23	137.6015	235.1416	0	143.65171	70.063619	15
7	23	139.7077	235.12685	0	179.07006	103.38615	0
8	23	141.06895	235.1711	0	199.10964	97.112259	15
9	23	142.14405	235.2186	0	213.68044	104.21891	15
10	23	142.6021	235.24695	0	216.63608	105.66048	15
11	23	143.027	235.27595	0	216.7131	105.69804	15
12	23	143.402	235.30415	0	217.206	125.40394	0
13	23	143.902	235.34585	0	215.39197	124.35661	0
14	23	145.2911	235.4903	0	207.11474	101.01661	15
15	23	146.7899	235.66405	0	190.9191	93.117466	15
16	23	148.3606	235.90395	0	172.42275	84.096192	15
17	23	150.6618	236.31605	0	154.8829	75.541438	15
18	23	152.96305	236.81835	0	135.49109	66.08342	15
19	23	154.7637	237.2677	0	117.18617	57.155512	15
20	23	156.5837	237.7973	0	114.31584	55.755561	15
21	23	158.9237	238.55685	0	123.21695	60.096922	15
22	23	161.2637	239.4208	0	132.0675	64.413623	15
23	23	163.6037	240.39385	0	133.39191	65.059581	15
24	23	165.9437	241.48175	0	135.54008	66.107315	15
25	23	168.1137	242.59485	0	124.99406	60.963676	15
26	23	170.1137	243.7228	0	114.35014	55.772288	15
27	23	172.1137	244.9513	0	114.38639	55.789971	15
28	23	174.1137	246.2876	0	113.4711	55.343552	15
29	23	176.1137	247.74045	0	111.59811	54.430035	15
30	23	178.1137	249.3204	0	108.70459	53.018771	15
31	23	180.1137	251.04055	0	94.27157	45.979317	15
32	23	182.1137	252.9172	0	78.473895	38.274276	15
33	23	184.1137	254.97125	0	70.967795	34.613306	15
34	23	186.1137	257.2301	0	66.826452	32.593438	15
35	23	188.1137	259.73095	0	54.334856	26.50088	15
36	23	190.1137	262.5265	0	47.417386	23.127005	15
37	23	191.7148	264.99225	0	24.004972	11.708007	15
38	23	192.40795	266.1375	0	-8.9732745	-4.3765584	15

Slices of Slip Surface: 68

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	68	129.143	236.54155	0	3.0309947	1.4783149	15
2	68	130.2419	236.37225	0	19.761431	9.6382937	15
3	68	132.5234	236.0769	0	46.907311	22.878224	15
4	68	134.9206	235.8488	0	77.346581	37.724448	15
5	68	136.80105	235.7361	0	111.41766	54.342024	15
6	68	138.40315	235.68985	0	140.19266	68.37653	15
7	68	139.7083	235.68025	0	162.31898	93.714909	0
8	68	141.06895	235.70735	0	184.07657	89.780143	15
9	68	142.14405	235.74155	0	199.77776	97.438126	15
10	68	142.6021	235.7644	0	203.22903	99.121422	15
11	68	143.027	235.78845	0	203.77703	99.388697	15
12	68	143.402	235.81235	0	204.2189	117.90584	0
13	68	143.902	235.8483	0	202.94721	117.17163	0
14	68	145.2911	235.9775	0	196.49107	95.835098	15
15	68	146.7899	236.1352	0	181.6245	88.58419	15
16	68	148.3606	236.35945	0	164.27689	80.123192	15
17	68	150.6618	236.74985	0	148.14663	72.255939	15
18	68	152.96305	237.23225	0	129.78911	63.30238	15
19	68	154.7637	237.66715	0	112.05899	54.654822	15
20	68	156.3887	238.12235	0	108.86655	53.097764	15
21	68	158.3387	238.7278	0	117.18714	57.155986	15
22	68	160.2887	239.4064	0	128.35542	62.60312	15
23	68	162.2387	240.16075	0	127.74147	62.303676	15
24	68	164.1887	240.99385	0	130.55466	63.675761	15
25	68	166.1387	241.9094	0	132.07728	64.418393	15
26	68	168.1137	242.9257	0	121.25942	59.142171	15
27	68	170.1137	244.0502	0	110.5156	53.902062	15
28	68	172.1137	245.2776	0	110.42021	53.855535	15
29	68	174.1137	246.6155	0	109.35052	53.333814	15
30	68	176.1137	248.0731	0	107.31521	52.341127	15
31	68	178.1137	249.66165	0	104.24652	50.844424	15
32	68	180.1137	251.39505	0	89.6855	43.742541	15
33	68	182.1137	253.2908	0	73.716679	35.954027	15
34	68	184.1137	255.37155	0	65.884236	32.133889	15
35	68	186.1137	257.6674	0	61.865179	30.173664	15
36	68	188.1137	260.2195	0	57.229427	27.912656	15
37	68	190.1137	263.0875	0	43.681839	21.305056	15
38	68	191.66545	265.54355	0	0.099734775	0.0486439	15

Slices of Slip Surface: 93

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	93	130.79755	237.11005	0	8.9090237	4.3452212	15
2	93	132.5234	236.8652	0	27.026824	13.181863	15
3	93	134.9206	236.58655	0	58.158412	28.365753	15
4	93	136.8014	236.436	0	93.134883	45.424918	15
5	93	138.4042	236.3587	0	123.005	59.993545	15
6	93	139.709	236.3245	0	145.80728	84.181874	0
7	93	141.06895	236.3268	0	169.1339	82.492113	15
8	93	142.14405	236.34165	0	185.88708	90.663189	15
9	93	142.6021	236.3564	0	189.78563	92.564638	15
10	93	143.027	236.373	0	190.7298	93.025139	15
11	93	143.402	236.3904	0	191.17421	110.37448	0
12	93	143.902	236.41775	0	190.34568	109.89613	0
13	93	145.2911	236.5235	0	185.406	90.428548	15
14	93	146.7899	236.65625	0	171.66661	83.727399	15
15	93	148.3606	236.8553	0	155.36443	75.776294	15
16	93	150.6618	237.20965	0	140.66677	68.607767	15
17	93	152.96305	237.6572	0	123.49083	60.230502	15
18	93	154.7637	238.0655	0	106.498	51.942544	15
19	93	156.3887	238.4974	0	104.01751	50.73273	15
20	93	158.3387	239.07555	0	113.23479	55.228297	15
21	93	160.2887	239.7275	0	126.79153	61.84036	15
22	93	162.2387	240.4558	0	125.1165	61.023395	15
23	93	164.1887	241.2635	0	128.92462	62.880736	15
24	93	166.1387	242.15425	0	130.25172	63.52801	15
25	93	168.1137	243.146	0	119.61177	58.338559	15
26	93	170.1137	244.2462	0	109.02539	53.175236	15
27	93	172.1137	245.4499	0	109.13484	53.228619	15
28	93	174.1137	246.76475	0	108.24006	52.792202	15
29	93	176.1137	248.19995	0	106.3619	51.876167	15
30	93	178.1137	249.76675	0	103.44275	50.452401	15
31	93	180.1137	251.47925	0	89.005667	43.410964	15
32	93	182.1137	253.35515	0	73.177652	35.691125	15
33	93	184.1137	255.41735	0	65.512162	31.952416	15
34	93	186.1137	257.69635	0	61.727347	30.106439	15
35	93	188.1137	260.23425	0	57.244814	27.920161	15
36	93	190.1137	263.0921	0	43.739361	21.333112	15
37	93	191.66545	265.5439	0	0.12114683	0.059087255	15

Slices of Slip Surface: 118

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	118	132.8206	237.57345	0	10.946633	5.3390298	15
2	118	134.9206	237.29625	0	39.785415	19.404644	15
3	118	136.80175	237.10805	0	75.431704	36.7905	15
4	118	138.4052	237	0	106.19946	51.796939	15
5	118	139.70965	236.9415	0	129.58869	74.818064	0
6	118	141.06895	236.91925	0	154.34086	75.277066	15
7	118	142.14405	236.91495	0	172.08847	83.933157	15
8	118	142.6021	236.9218	0	176.41623	86.043945	15
9	118	143.027	236.9311	0	177.74961	86.694277	15
10	118	143.402	236.942	0	178.212	102.89074	0
11	118	143.902	236.96085	0	177.83843	102.67507	0
12	118	145.2911	237.0436	0	174.38878	85.055092	15
13	118	146.7899	237.1518	0	161.8145	78.922207	15
14	118	148.3606	237.3261	0	146.57365	71.488748	15
15	118	150.6618	237.6451	0	133.35834	65.043208	15
16	118	152.96305	238.0586	0	117.40194	57.260751	15
17	118	154.7637	238.441	0	101.15553	49.336848	15
18	118	156.3887	238.8503	0	99.412697	48.486812	15
19	118	158.3387	239.4019	0	109.53516	53.423865	15
20	118	160.2887	240.02795	0	125.44237	61.182334	15
21	118	162.2387	240.73105	0	122.73611	59.862401	15
22	118	164.1887	241.5142	0	128.15553	62.505628	15
23	118	166.1387	242.381	0	128.61845	62.731412	15
24	118	168.1137	243.3491	0	118.13616	57.618853	15
25	118	170.1137	244.426	0	107.68008	52.519086	15
26	118	172.1137	245.607	0	107.96971	52.660347	15
27	118	174.1137	246.89975	0	107.22182	52.295576	15
28	118	176.1137	248.31355	0	105.47388	51.443048	15
29	118	178.1137	249.8598	0	102.68274	50.08172	15
30	118	180.1137	251.55265	0	88.360087	43.096094	15
31	118	182.1137	253.41	0	72.664857	35.441019	15
32	118	184.1137	255.455	0	65.159773	31.780545	15
33	118	186.1137	257.7187	0	61.595285	30.042028	15
34	118	188.1137	260.24415	0	57.249087	27.922246	15
35	118	190.1137	263.09395	0	43.776464	21.351208	15
36	118	191.66545	265.5435	0	0.13105321	0.063918921	15

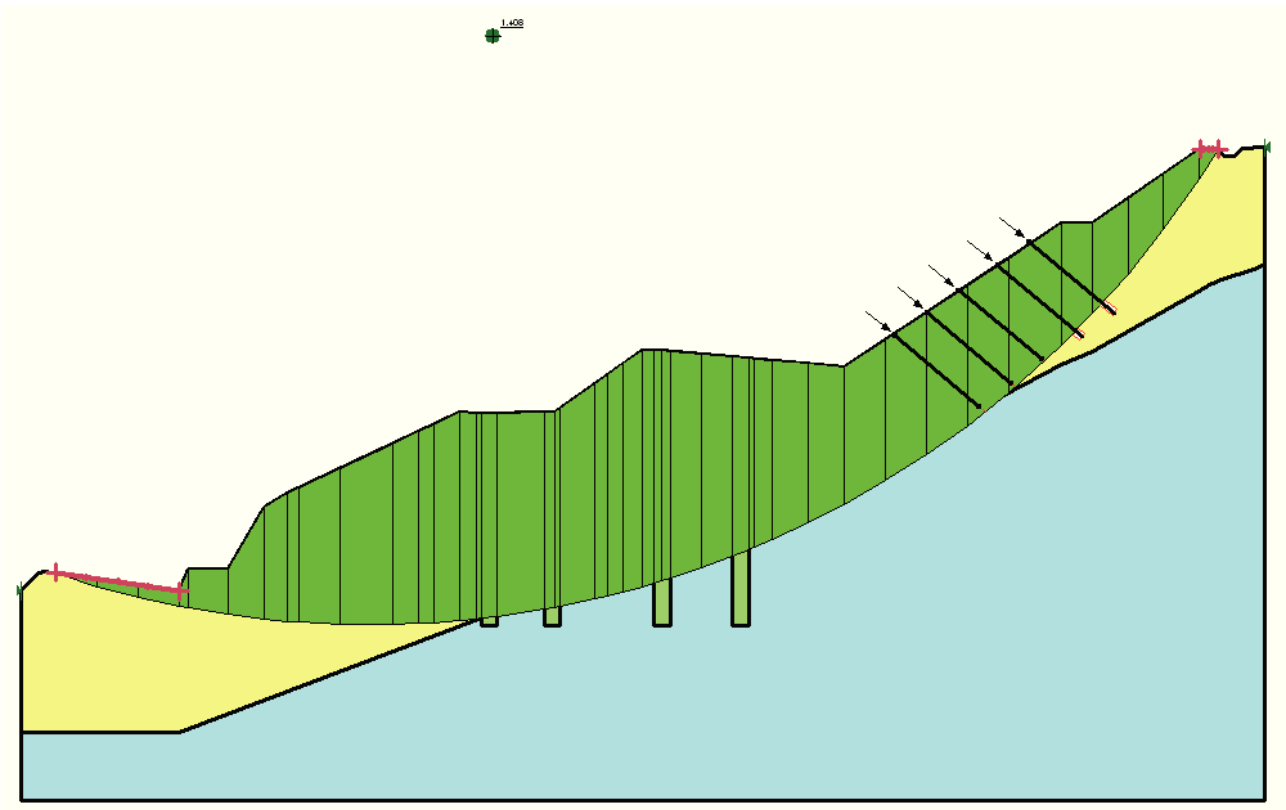
Slices of Slip Surface: 43

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	43	127.6761	236.4224	0	3.4408195	1.6781998	15
2	43	128.57425	236.26905	0	9.024837	4.4017071	15
3	43	130.2419	236.0169	0	29.48156	14.379118	15
4	43	132.5234	235.74885	0	56.37585	27.496339	15
5	43	134.9206	235.548	0	86.19761	42.041383	15
6	43	137.60185	235.45125	0	133.41231	65.069533	15
7	43	139.70805	235.42955	0	168.99423	97.568865	0
8	43	141.06895	235.4699	0	189.69352	92.519711	15
9	43	142.14405	235.5144	0	204.63615	99.807718	15
10	43	142.6021	235.54155	0	207.77164	101.337	15
11	43	143.027	235.56955	0	208.0368	101.46633	15
12	43	143.402	235.5969	0	208.36703	120.30076	0
13	43	143.902	235.63745	0	206.76581	119.3763	0
14	43	145.2911	235.77905	0	199.4026	97.255146	15
15	43	146.7899	235.9499	0	183.82398	89.656948	15
16	43	148.3606	236.18735	0	165.89072	80.910311	15
17	43	150.6618	236.59655	0	149.05183	72.697436	15
18	43	152.96305	237.09695	0	130.22907	63.516959	15
19	43	154.7637	237.5454	0	112.29179	54.768364	15
20	43	156.5837	238.07495	0	109.723	53.515484	15
21	43	158.9237	238.8354	0	118.92929	58.00569	15
22	43	161.2637	239.7015	0	129.1061	62.969255	15
23	43	163.6037	240.6781	0	129.4433	63.133714	15
24	43	165.9437	241.77115	0	131.65471	64.212292	15
25	43	168.1137	242.89055	0	121.13114	59.079603	15
26	43	170.1137	244.02585	0	110.48944	53.889302	15
27	43	172.1137	245.2634	0	110.47567	53.882586	15
28	43	174.1137	246.6108	0	109.47727	53.395631	15
29	43	176.1137	248.0771	0	107.48805	52.425425	15
30	43	178.1137	249.67335	0	104.44287	50.94019	15
31	43	180.1137	251.4133	0	89.834547	43.815236	15
32	43	182.1137	253.3142	0	73.785866	35.987772	15
33	43	184.1137	255.39825	0	65.898432	32.140813	15
34	43	186.1137	257.6948	0	61.853202	30.167822	15
35	43	188.1137	260.2441	0	57.225093	27.910543	15
36	43	190.1137	263.10395	0	43.717448	21.322424	15
37	43	191.66545	265.5489	0	0.14118391	0.068859993	15

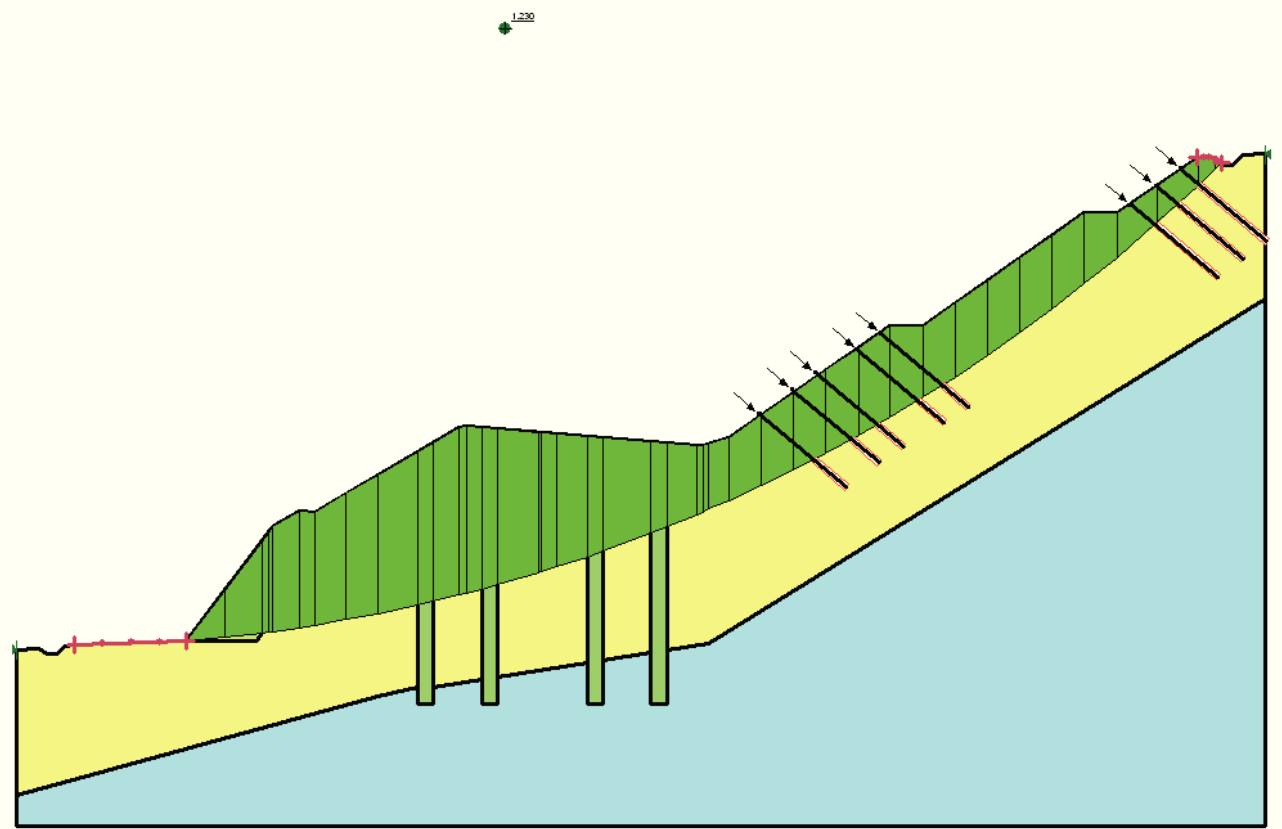
Slices of Slip Surface: 18

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	18	126.91165	236.22345	0	8.030674	3.9168214	15
2	18	128.57425	235.93785	0	18.045041	8.8011546	15
3	18	130.2419	235.7047	0	38.426999	18.7421	15
4	18	132.5234	235.4614	0	64.919558	31.663384	15
5	18	134.9206	235.28535	0	93.990797	45.842375	15
6	18	137.6016	235.2146	0	139.9675	68.266712	15
7	18	139.7078	235.2126	0	174.46174	100.72553	0
8	18	141.06895	235.26505	0	194.14215	94.689453	15
9	18	142.14405	235.319	0	208.37739	101.63244	15
10	18	142.6021	235.3501	0	211.21653	103.01718	15
11	18	143.027	235.3817	0	211.22525	103.02144	15
12	18	143.402	235.41215	0	211.44228	122.07626	0
13	18	143.902	235.4568	0	209.55094	120.98429	0
14	18	145.2911	235.60965	0	201.39976	98.229228	15
15	18	146.7899	235.7925	0	185.21173	90.333796	15
16	18	148.3606	236.042	0	166.81092	81.359124	15
17	18	150.6618	236.4683	0	149.40903	72.871651	15
18	18	152.96305	236.98505	0	130.2427	63.523608	15
19	18	154.7637	237.44585	0	112.16727	54.707634	15
20	18	156.5837	237.98735	0	109.44268	53.378763	15
21	18	158.9237	238.7626	0	118.48277	57.787909	15
22	18	161.2637	239.6428	0	128.34634	62.598692	15
23	18	163.6037	240.63285	0	129.0156	62.92511	15
24	18	165.9437	241.73855	0	131.34086	64.059218	15
25	18	168.1137	242.86905	0	120.95756	58.994943	15
26	18	170.1137	244.014	0	110.42231	53.856559	15
27	18	172.1137	245.26055	0	110.50101	53.894945	15
28	18	174.1137	246.6162	0	109.57606	53.443816	15
29	18	176.1137	248.08995	0	107.6428	52.5009	15
30	18	178.1137	249.69275	0	104.61875	51.025975	15
31	18	180.1137	251.43805	0	89.965201	43.87896	15
32	18	182.1137	253.3429	0	73.841289	36.014803	15
33	18	184.1137	255.4291	0	65.904914	32.143974	15
34	18	186.1137	257.7253	0	61.846004	30.164312	15
35	18	188.1137	260.27065	0	57.232728	27.914267	15
36	18	190.1137	263.1212	0	43.77365	21.349836	15
37	18	191.66545	265.5544	0	0.19227882	0.093780645	15

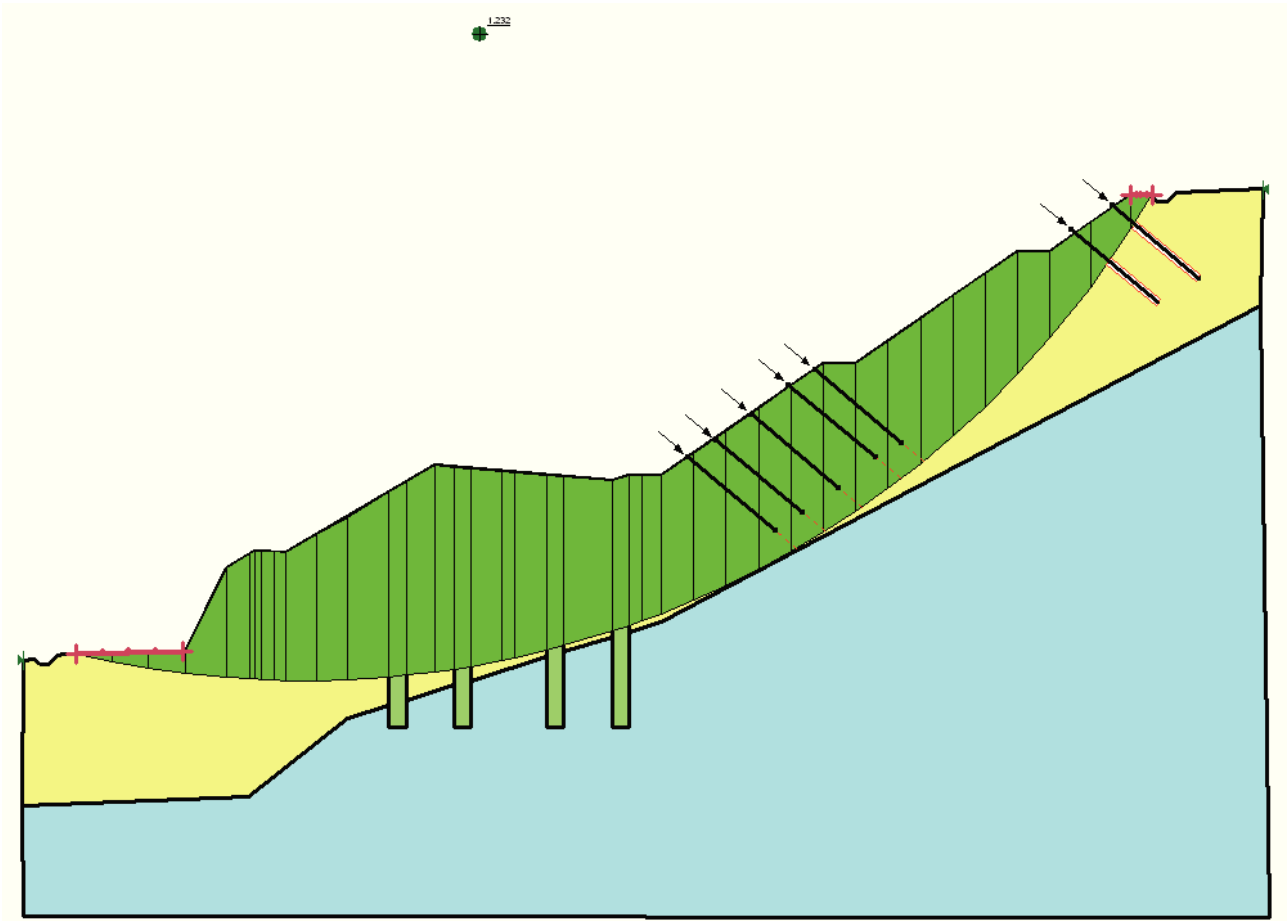
SEZIONE 29



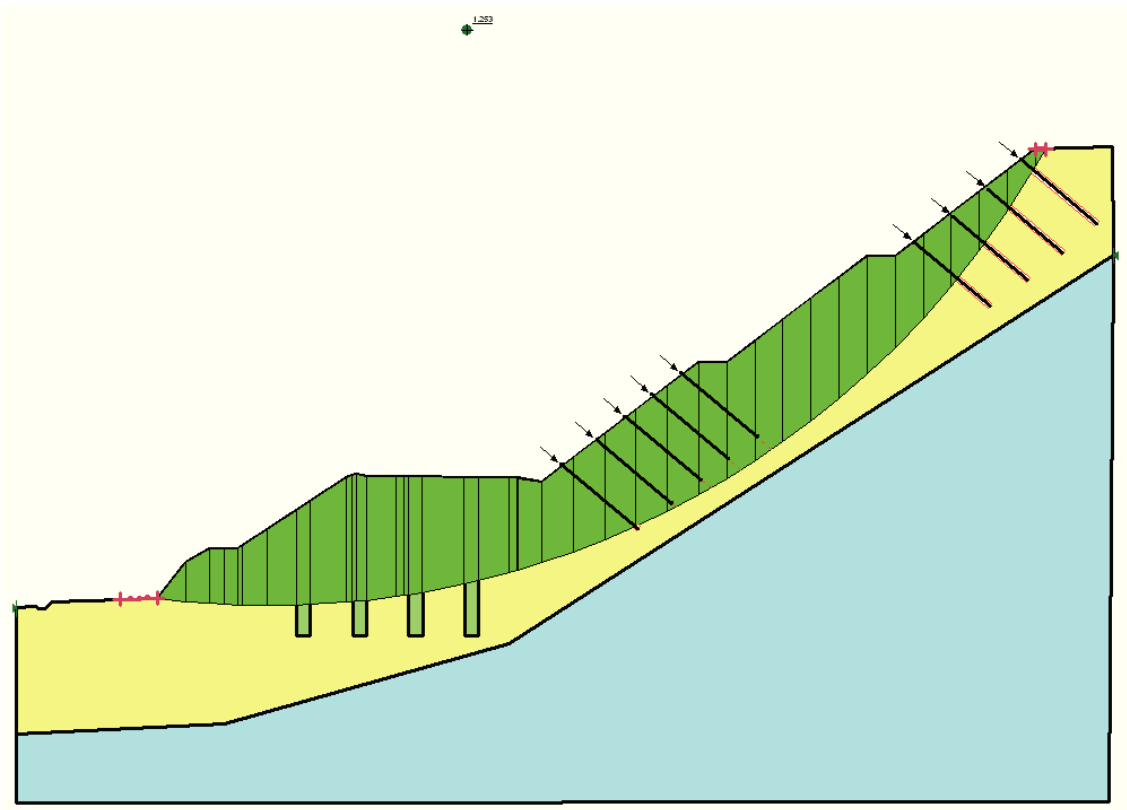
SEZIONE 30



SEZIONE 31



SEZIONE 32



SEZIONE 33

