RAPPORT

PM Ras och Skred

Fasanvägen etapp 13, Tyresö kommun

Framställd för:

Insänd av:

Golder Associates AB
Box 20127
104 60, Stockholm, Sverige

08-506 306 00

18112896

2019-04-12

Innehållsförteckning

1.0 INLEDNING

Golder Associates AB (Golder) har på uppdrag av Tyresö kommun utfört en stabilitetsutredning i detaljplaneskedet för privata fastigheter i planområdet Fasanvägen etapp 13, Brevikshalvön, Tyresö kommun. Se figur 1.

Utredningen omfattar stabilitetsberäkningar i fastigheterna:

- Trinntorp 1:228, 1:25, 1:26, 1:92, 1:66, 1:67, 1:77, 1:78, 1:79, 1:80, 1:81
- Brevik 1:182, 1:305

Föreliggande utredning är ett underlag till planarbetet för bedömning lämpligheten till att ge utökade byggrätter inom privata fastigheter.

Figur 1: Översikt, med aktuellt område ungefärligt markerat. (Karta från Eniro https://kartor.eniro.se/m/aAPWW)

Projekteringsfrågor avseende slänter och uppfyllning som kan bli aktuellt vid för utbyggnad av vägar och VA behandlas i separat PM Geoteknik, daterad 2019-03-15.

2.0 UNDERLAG FÖR UTREDNINGEN

Som underlag för utredningen har använts:

[1]. Länsstyrelsen Stockholm. (2015). PM lågpunktskarta och flödesackumulation

[2]. Länsstyrelserna Stockholm och Västra Götaland. (2018). Rekommendationer för hantering av översvämning till följd av skyfall – stöd i fysisk planering. Rapport 2018:5.

[3]. Plangräns - modellfil ” Bilaga 3. Fasanvägen etapp 13_Karta 2_Utökad plangräns.dwg” erhållen från Tyresö kommun i samband med förfrågan uppdrag

[4]. Markteknisk undersökningsrapport (MUR)/Geoteknik, Hydrogeologi, Miljöteknik och Bergteknik daterad 2019-04-12 upprättad av Golder Associates.

[5]. Plangräns - modellfil ” Bilaga 3. Fasanvägen etapp 13_Karta 2_Utökad plangräns.dwg Baskarta” erhållen från Tyresö kommun i samband med förfrågan uppdrag

[6]. Inmätning väg ”Etapp 13 Trinntorp_Inmätning_3D” erhållen från kommunen 2019-01-23.

[7]. Laserdata från Lantmäteriet Ny Nationell Höjdmodell beställd och erhållen från Metria 2018-12-20

[8]. Bilaga 7. Kartmaterial över befintliga dagvattenledningar. Erhållen från Tyresö kommun i samband med uppdragsförfrågan.

3.0 UTFÖRD UNDERSÖKNING

En geoteknisk undersökning har genomförts för planerad ny- och utbyggnad av vägar och VA samt för ev utökad byggrätt inom tomtmark. Genomförd undersökning finns redovisad i Markteknisk undersökningsrapport (MUR)/Geoteknik, Hydrogeologi, Miljöteknik och Bergteknik, upprättad av Golder, daterad 2019-04-12.

4.0 BEFINTLIGA FÖRHÅLLANDEN

4.1 Topografi och markförhållanden

Generellt för utredningen har marknivåer enligt höjdkurvor i grundkartan ” Bilaga 3. Fasanvägen etapp 13_Karta 2_Utökad plangräns” [3] använts.

För beräkningssektioner har marknivåer tagits fram ur laserdata från Lantmäteriet [7].

4.2 Hydrogeologiska förhållanden

Grundvattennivåer framgår av MUR daterad 2019-03-15.

Då markförhållandena bedöms ha varit oförändrade under flera årtionden och då ingen särskild påverkan på grundvattennivån bedöms ha förekommit antas grundvattenytans trycknivå vara hydrostatisk för uppmätta grundvattennivåer.

Inom området omkring korsningen Fasanvägen-Rödhakevägen har artesiskt grundvatten uppmätts. Här har portrycket vid underkant lerlager antagits motsvara ett artesiskt tryck en meter över markytan som övergår till noll i torrskorpeleras underkant.

4.3 Mark- och jordartsförhållanden

Jordlagerföljd och jordparametrar har hämtats ur ”Markteknisk undersökningsrapport (MUR) - Geoteknik, Hydrogeologi, Miljöteknik, Bergteknik”, Fasanvägen etapp 13, daterad 2019-04-12.

5.0 RAS OCH SKRED

5.1 Krav

För bedömning av släntens status ur stabilitetssynpunkt rekommenderas att följa Rapport IEG 4:2010 rekommendationer. Släntens stabilitet bedöms utifrån en totalsäkerhetsfaktor (F_c, F_{Komb}) som tecknas till 1,0 när stjälpande krafter är precis lika stora som mothållande krafter. Beroende på markens nyttjande samt konsekvenser av skred och brott i jorden ställs olika krav på totalsäkerhetsfaktorn enligt Rapport IEG 4:2010 och nedan tecknat. För aktuellt område gäller idag krav för befintlig bebyggelse och anläggning. För att kraven nedan skall gälla krävs att den geotekniska utredningen uppfyller krav och nivå för detaljerad utredning.

Befintlig bebyggelse och anläggning

$F_c \geq 1,7 – 1,5$

$F_{Komb} \geq 1,5 – 1,3$

Kraven anger ett spann. Baserat på ett antal gynnsamma eller ogynnsamma faktorer enligt IEG:s rapport 4:2010 kapitel 4.5.2.1 bedöms krav enligt nedre delen av spannet gälla i den nu aktuella utredningen.

Föreliggande geotekniska utredning bedöms ha en omfattning som motsvarar krav enligt Rapport IEG 4:2010 för ”Detaljerad utredning”.

5.2 Förutsättningar

Följande förutsättningar har antagits i föreliggande utredning:

- För samtliga fastigheter har byggnader förutsatts vara grundlagda på fast botten och inga laster från befintliga byggnader har inkluderats i stabilitetsberäkningarna.

5.3 Materialparametrar

I Tabell 1 redovisas utvärderade dimensionerande materialparameter som ligger till grund för stabilitetsberäkningarna.

Utifrån resultat från den geotekniska undersökningen (enligt MUR) har ett försiktigt valt medelvärde av odränerad skjuvhållfasthet utvärderats (karakteristiskt värde) inom olika delar av området se Figur 2 och 3.

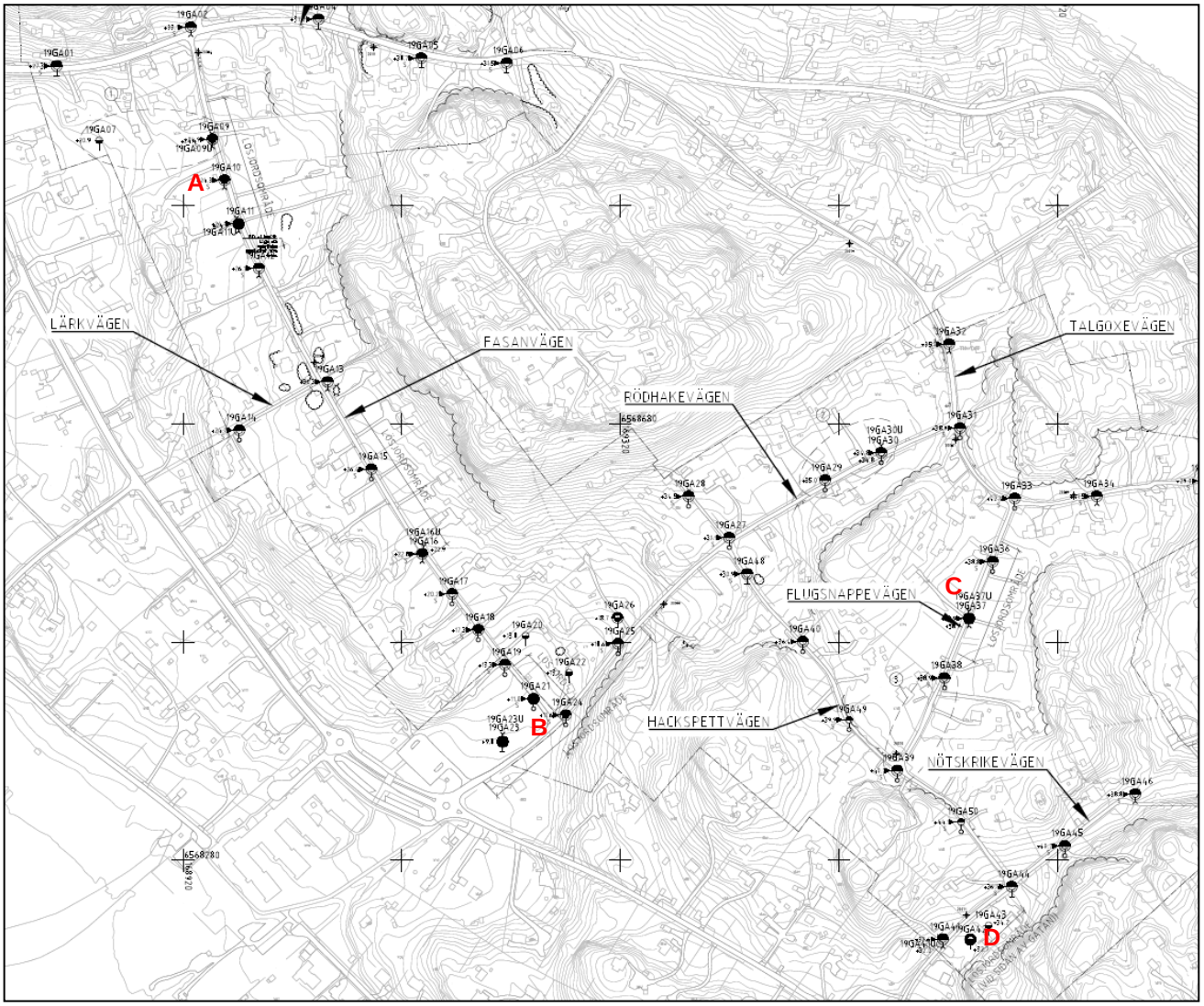
De dränerade hållfasthetsegenskaperna i lera tecknas med $\tau_{fdk} = c' + \sigma' * \tan\varphi_d$.

I lera har kohesionsinterceptet c' har valts till 0,1 * c. Friktionsvinkeln φ_d har valts till 30°.

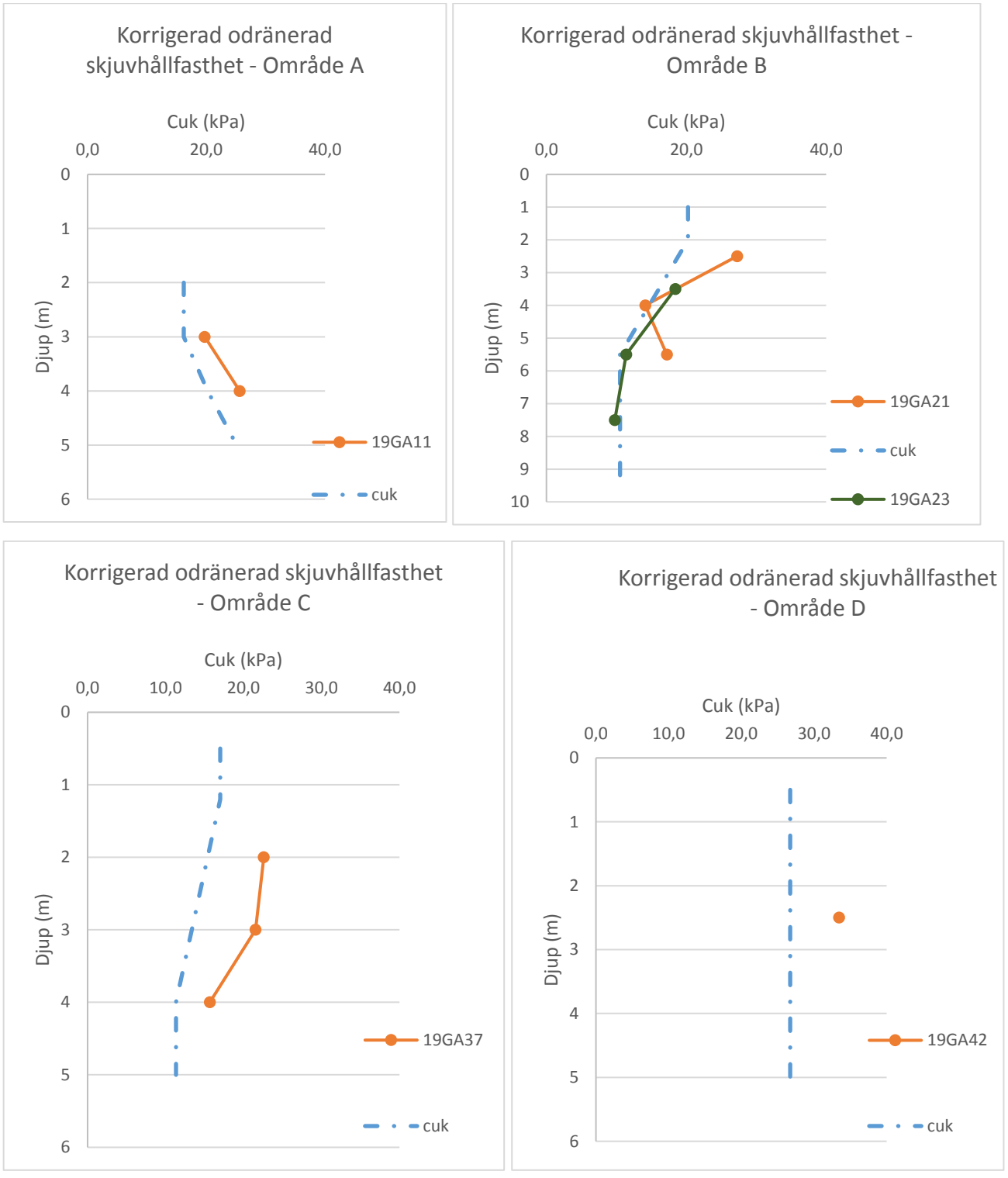
Tabell 1: Karakteristiska jordparametrar

	Tunghet		Friktionsvinkel (grader)	Odränerad skjuvhållfasthet (kPa)
	Över gw-ytan	Under gw-ytan		
Fyllning	18	11	34	0
Torrskorpelera	18	8	30	30
Lera	16-18	6-8	30	*
Friktionsjord/morän	19	12	40	0

*Se Bilaga C för utvärderat karakteristiskt värde



Figur 2: Planredovisning lösjordsområden

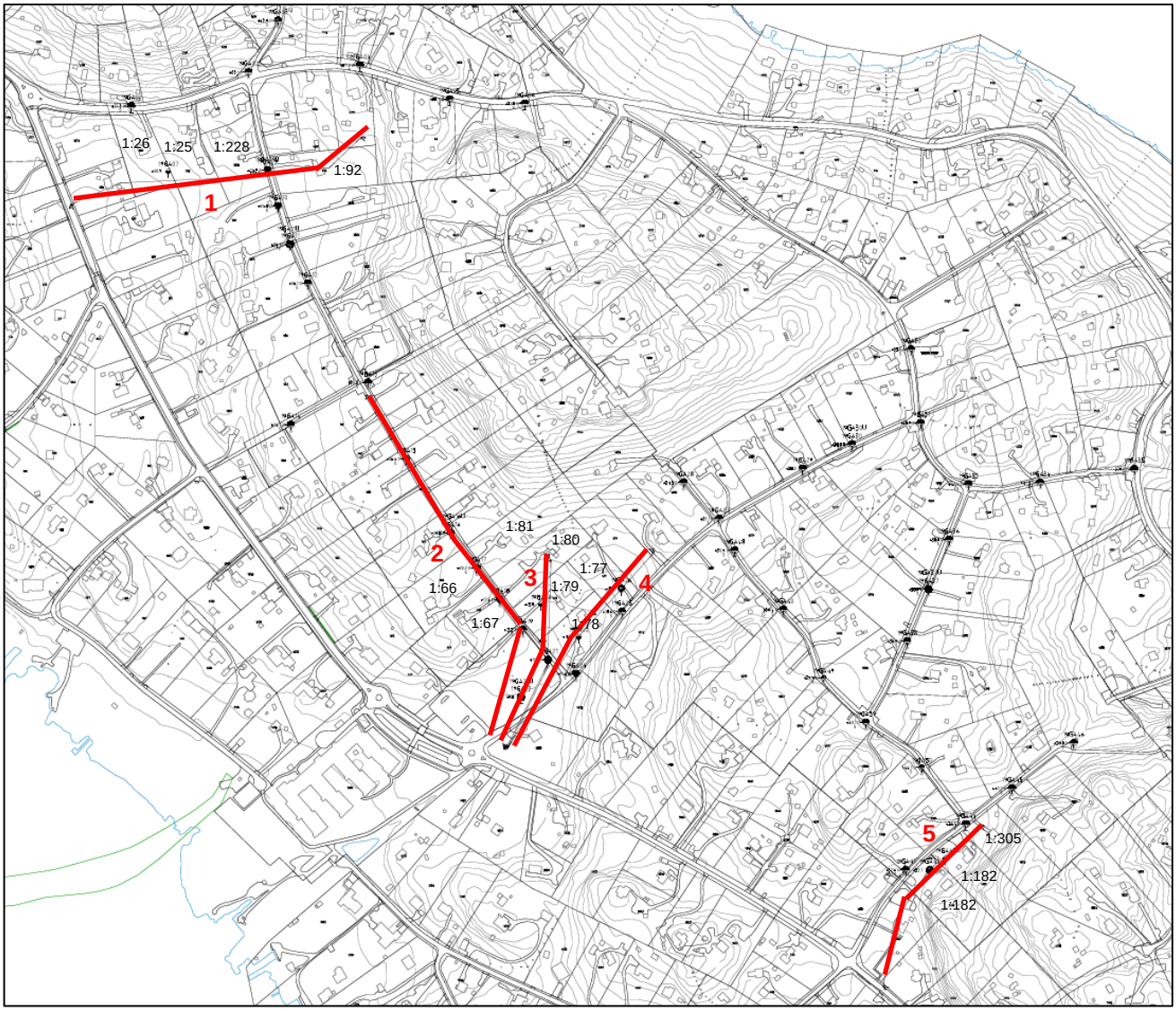


Figur 3: Streckade linjer motsvarar utvärderat karakteristiskt värde av odränerad korrigerad skjuvhållfasthet.

5.4 Beräkningssektioner

Stabilitetsberäkningar har utförts med totalstabilitetsanalys i programmet GeoSuite. Stabilitetsberäkningar har utförts som odränerad analys. Kombinerad analys har utförts vid beräkningssektioner omkring Fasanvägen Rödhakevägen där artesiskt grundvatten uppmätts. Vid kombinerad analys ansätts skjuvhållfastheten i jordlagren till det lägsta värdet av dränerad respektive odränerad skjuvhållfasthet i varje beräkningslamell längs de beräknade glidytorna.

Utifrån upprättade sektioner (markytor) tvärs över fastigheter och utifrån undersökningsresultat från den geotekniska undersökningen har ett antal sektioner valts ut för stabilitetsberäkningar. Beräkningssektionerna har valts ut för att dels motsvara ”värsta fallet” och dels i övrigt typiska förhållanden som även kan antas gälla för övriga fastigheter i området. För den senare bedömningen nyttjas geologi och marknivåer.



Figur 4: Beräkningssektioner.

5.5 Lastfall

Stabilitetsberäkningar har i ett första skede utförts för befintliga markförhållanden utan påförda laster. Hänsyn har inte tagits till särskild framtida exploatering så som nybyggnation eller annan förändring (uppfyllnad/schakt) från dagens förhållanden som kan komma att påverka stabilitetsförhållandena.

Där erforderlig stabilitet uppnåtts med god marginal har kontrollberäkningar utförts med påförda laster som ett led i utredningen att bedöma begränsning i byggrätten.

Kontrollberäkningar har utförts med påförda laster om 20 kPa respektive 40 kPa, vilket motsvarar 1 respektive 2 meter uppfyllnad eller utbredd last av en 1-plans- respektive 2-plansbyggnad.

5.6 Resultat

Stabilitetsberäkningar har utförts för ett urval av representativa sektioner inom fastigheterna i Fasanvägen etapp 13, se Figur 4. Beräkningsresultaten framgår av bilagor 1-5.

I samtliga beräkningssektioner uppnås erforderlig säkerhet mot skred för befintliga förhållanden utan påförda laster och i några av sektionerna uppnås erforderlig säkerhet mot skred även med påförd last, se Tabell 3.

Tabell 2: Beräkningsresultat för sektion i fastighet.

Fastighet	F_c/F_{komb}			Kommentar	Bilaga
	Befintligt	20 kPa överlast	40 kPa överlast		
Beräkningssektion 1 Trinntorp 1:228, 1:25, 1:26, 1:92	>2,0	-	>2,0	Stabilt med 40 kPa överlast.	1:1-1:2
Beräkningssektion 2 Trinntorp 1:66, 1:67, 1:79, 1:80, 1:81	>2,0/>2,0	-	1,7/1,7	Stabilt med 40 kPa överlast.	2:1-2:4
Beräkningssektion 3 Trinntorp 1:79, 1:80	>2,0/>2,0	-	>2,0/>2,0	Stabilt med 40 kPa överlast.	3:1-3:4
Beräkningssektion 4 Trinntorp 1:77 Trinntorp 1:78	>2,0/>2,0 >2,0/>2,0	>2,0/1,9 >2,0/1,7	1,6/1,5 1,5/1,3	Stabilt med 20 kPa överlast.	4:1-4:6
Beräkningssektion 5 Brevik 1:182, 1:305	>2,0	-	>2,0	Stabilt med 40 kPa överlast.	5:1-5:2

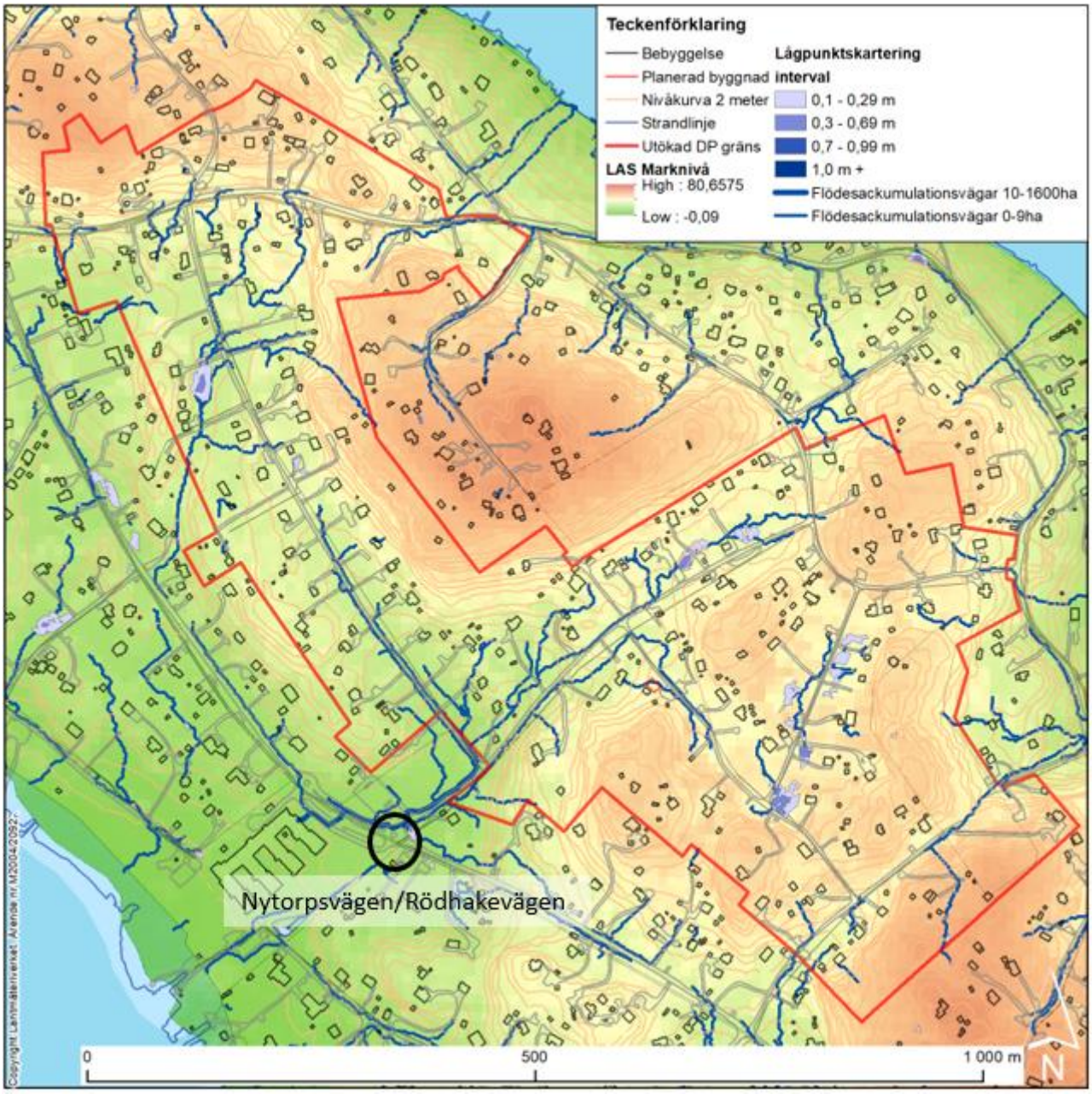
6.0 KARTERING ÖVERSVÄMNINGSRISK

Under 2015 tog Länsstyrelsen fram ett underlag för att lokalisera områden med översvämningsrisker till följd av kraftiga skyfall i länet [1]. Arbetet resulterade i en topografisk lågpunktskarta som finns tillgänglig i Länsstyrelsens webgis.

Lågpunktskarteringen visar områden där vatten kan ansamlas och översvämmas vid kraftiga skyfall samt vilka flödesvägar som ytvatten sannolikt tar sig fram i topografin. Lågpunktskarteringen tar inte hänsyn till åtgärder som har gjorts i landskapet som tillexempel kulvertar och vägtrummor och inte heller markens infiltrationskapacitet. Underlaget ska användas i ett tidigt planeringsskede för att lokalisera områden där det potentiellt finns en översvämningsrisk till följd av skyfall under naturliga förhållanden och där fördjupade undersökningar kan behövas.

Karteringsmetodiken bygger på att i höjdmodellen fylla upp alla låga punkter i terrängen upp till lägsta dräneringsnivå där ytvattnet kan rinna undan. Kartan visar till vilka djup ytvatten kan ansamlas vid kraftiga skyfall i de instängda sänkorna innan ytvattnet kan rinna vidare i terrängen (**Figur 5**).

Kommunen har angett att rondellen vid Rödhakevägen/Nytorpsvägen i dagsläget översvämmas vid större skyfall. Området ligger nedströms, strax utanför aktuellt detaljplaneområde men resultaten från lågpunktskarteringen för området tas med i denna rapport som underlag för att kunna arbeta förebyggande med dagvattenhanteringen inom detaljplaneområdet, dvs säkerställa att nedströms områden inte belastas ytterligare.

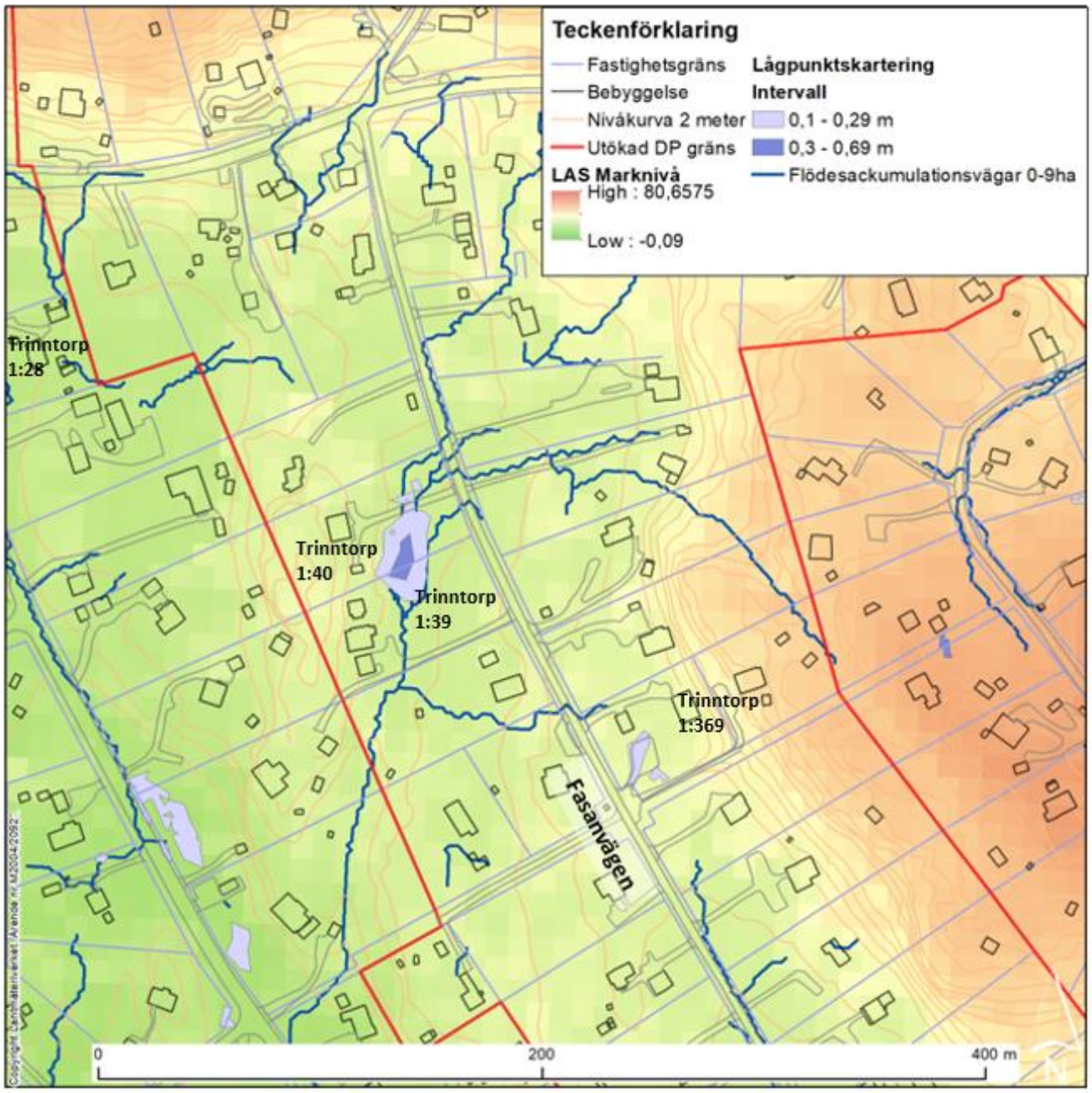


Figur 5 Översiktlig bild på detaljplaneområdet och instängda sänkor med översvämmningsrisk. Rondellen Nytorpsvägen/Rödhakevägen är markerad med svart cirkel. Lågpunktskarteringen visar vilket djup stillastående vatten kan ha innan det har möjlighet att avrinna via topografiska flödesvägar.

6.1 Områden med översvämningsrisk

Inom detaljplaneområdet har tre områden lokaliserats där ytvatten riskerar att ansamlas i lågpunkter vid kraftiga skyfall om inte åtgärder för att avattna området projekteras.

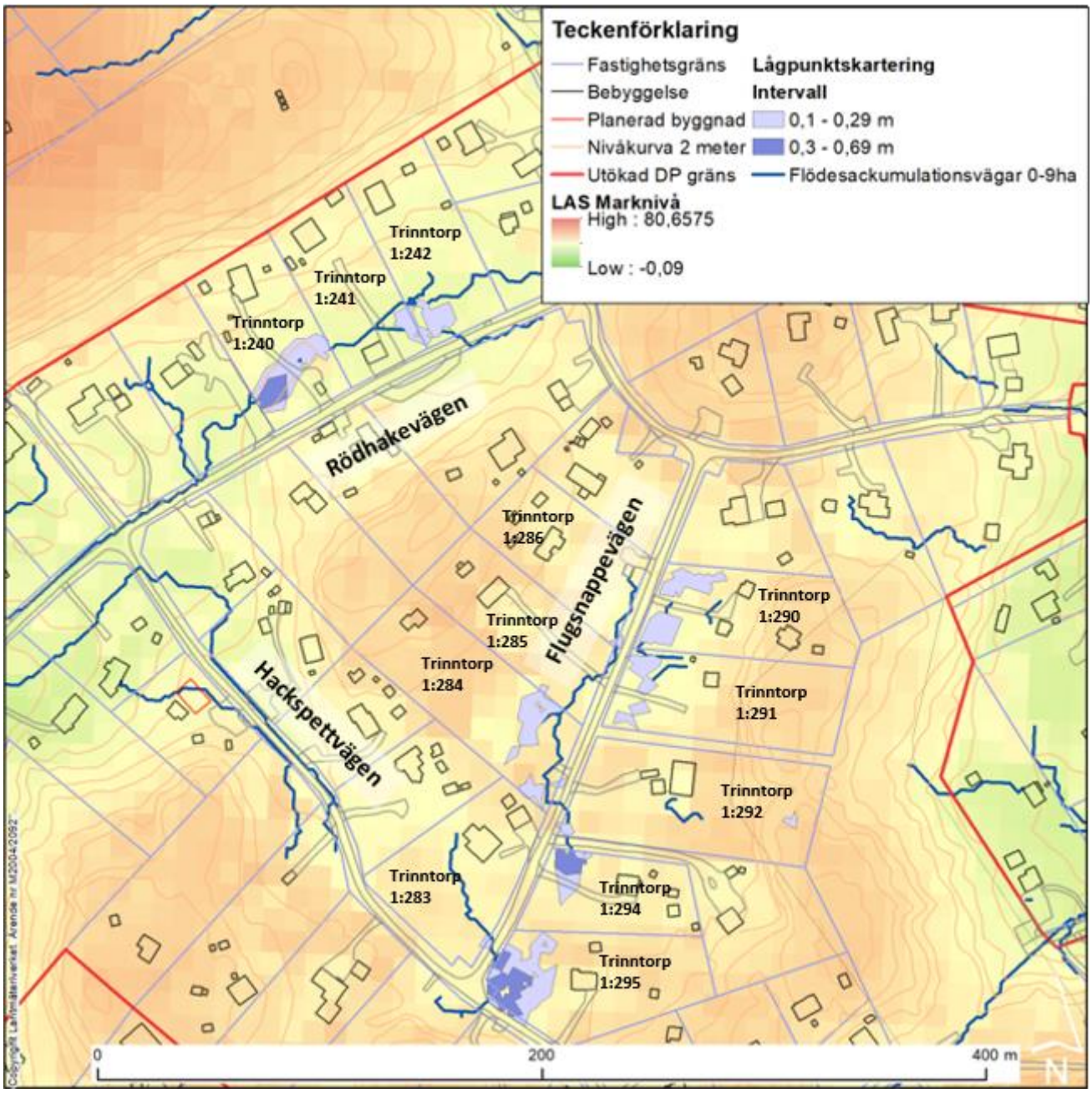
- Längs Fasanvägen ligger tre fastigheter i lågpunkter där ytvatten kan ansamlas (**Figur 6**). På fastigheterna Trinntorp 1:40 och 1:39 anger lågpunktskarteringen att översvämning med ett vattendjup på upp till 0,7 meter är möjlig. Idag avvattnas fastigheterna och omgivande fastigheter via en betongledning som går nordväst genom fastigheterna till fastigheten Trinntorp 1:28 [8]. Även vid fastigheten Trinntorp 1:369 finns en liten svacka där ytvatten upp till 0,3 meter över markytan kan ansamlas vid kraftiga skyfall.



Figur 6 Instängda områden med översvämmningsrisk längs Fasanvägen. Lågpunktskarteringen visar vilket djup stillastående vatten kan ha innan det har möjlighet att avrinna bort via topografiska flödesvägar.

- I norra änden av Rödhakevägen visar lågpunktkarteringen att på fastigheterna Trinntorp 1:240, 1:241 och 1:242 finns sänkor där ytvatten kan ansamlas till ett djup på upp till 0,7 meter vid skyfall utan hänsyn till dräneringsåtgärder (**Figur 7**). Fastighetsägaren på Trinntorp 1:241 bekräftade att området tidigare var ett våtmarksområde men att fastigheterna idag avvattnas via en kulvert som bitvis övergår till öppna diken ner mot Nytorpsvägen.

- Flugsnappevägen går genom en sänka där i stor sett alla fastigheter utom de längst upp belägna Trinntorp 1:287 och 1:289 riskerar översvämning på upp till 0,1-0,7 meter utan dräneringsåtgärder.



Figur 7 Instängda områden med översvämmningsrisk längs Rödhakevägen och Flugsnappevägen. Lågpunktskarteringen visar vilket djup stillastående vatten kan ha innan det har möjlighet att avrinna bort via topografiska flödesvägar.

Utifrån de topografiska flödesackumulationsvägarna i lågpunktskartan framgår att över halva detaljplaneområdet avvattnas till rondellen vid Rödhakevägen/Nytorpsvägen innan det rinner vidare mot Kalvfjärden (**Figur 5**). Lågpunktskartan visar att området vid rondellen ligger i en liten svacka där ytvatten kan ansamlas till ett djup upp till 0,3 meter och att de största flödesackumulationsvägarna passerar rondellen.

7.0 SLUTSATS OCH REKOMMENDATIONER

7.1 Ras och skred

Beräkningar och analyser utförda inom ramen för denna detaljerade stabilitetsutredning visar att stabiliteten uppfyller kraven enligt rapport IEG 4:2010 för befintliga byggnader och anläggningar.

Restriktioner avseende stabilitet behöver inte införas i detaljplan vid exploatering inom Fasanvägen etapp 13.

Med exploatering avses tillbyggnad och nybyggnad samt uppfyllnader eller avschaktning/urgrävningar motsvarande nivåändring större än 0,5 m.

7.2 Kartering översvämningsrisk

I sina rekommendationer för hantering av översvämning till följd av skyfall i den fysiska planeringen rekommenderar Länsstyrelsen att [2]:

- Ny bebyggelse ska planeras så att marken är lämplig för ändamålet med hänsyn till översvämning.
- Ny bebyggelse bör planeras så den inte tar skada eller orsakar skada vid översvämning från ett regn med återkomsttid på som minst 100 år.
- Risken för översvämning från ett 100-årsregn bedöms i detaljplan och eventuella skyddsåtgärder säkerställs i planen.
- Samhällsviktig verksamhet ska planeras så att den kan upprätthållas vid en översvämning.
- Framkomligheten till och från planområdet bedöms och ska vid behov säkerställas.

Inga befintliga byggnader berörs direkt av översvämningsytorna, men för att undvika stående vatten och översvämning som innebär risk för skada inom fastigheterna vid en konvertering till permanentbostäder, bör alla nya anläggningar för dagvattenhantering förses med bräddningsmöjlighet. Bräddningsfunktionen ska säkerställa att dagvatten leds bort via så kallade sekundära avrinningsvägar, företrädelsevis på markytan, så att inte dämning uppstår.

Avrinningsvägarna inom detaljplaneområdet är koncentrarade till gatorna i svackorna på grund av den kuperade terrängen. Det är därför viktigt att det säkerställs att nya VA-ledningar och gator projekteras med höjdsättning även anpassad efter behovet av avvattning. Gator ska ligga lägre än byggnader, om möjligt upp till 0,5 meter, för att kunna fungera som avrinningsvägar vid skyfall. Marken ska luta ut från byggnader. Det rekommenderas i Svenskt Vattens P105 (2011) att ha en minsta lutning på 1:20 närmsta 3 meterna kring byggnader och därefter en lutning på 1:50 -1:100.

Eftersom det redan idag förekommer problem med översvämning nedströms detaljplaneområdet vid rondellen Rödhakevägen/Nytorpsvägen som är en av utfarterna till detaljplaneområdet, är det viktigt att nya dagvattensystem projekteras så att de inte förvärrar situationen. Golder rekommenderar att en dagvattenutredning utförs för att säkerställa att nya dagvattensystem kan minska översvämmningsriskerna och även utreda behovet och förutsättningarna för en dagvattendamm/fördröjningsmagasin vid rondellen Rödhakevägen/Nytorpsvägen eftersom det idag finns goda naturliga förutsättningar för en sådan anläggning på platsen.

Eftersom lågpunktskarteringen har begränsningar, bland annat då de inte baseras på någon bestämd regnmängd utan är en ren topografisk analys, rekommenderas även att det i nästa detaljplaneskede utförs en mer detaljerad (hydraulisk) översvämningskartering för detaljplaneområdet, enligt Länsstyrelsens rekommendationer, för minst ett 100-årsregn. Verkligheten kan skilja sig från vad lågpunktskarteringen visar beroende på regnmängd och varaktigheter samt var inom avrinningsområdet man är. Områden som är plana/jämnt lutande utan några instängda områden syns inte i lågpunktskarteringen men kan i realiteten ändå vara översvämningsområden (t.ex. trånga svackor där vatten från ett större område koncentreras). En mer

detaljerad kartering är lämplig för att redovisa konsekvenser och eventuella riskreducerande åtgärder på detaljplanenivå, och för att kunna föreslå lämpliga planbestämmelser vid behov.

Signatur sida

Golder Associates AB

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g:\projekt\2018\18112896 fasanvägen etapp 13\19_granskning\190410 intern\pm ras skred översvämning_slutlig.docx

BILAGA 1

Stabilitetsberäkning
Beräkningssektion 1

GeoSuite Stability Report

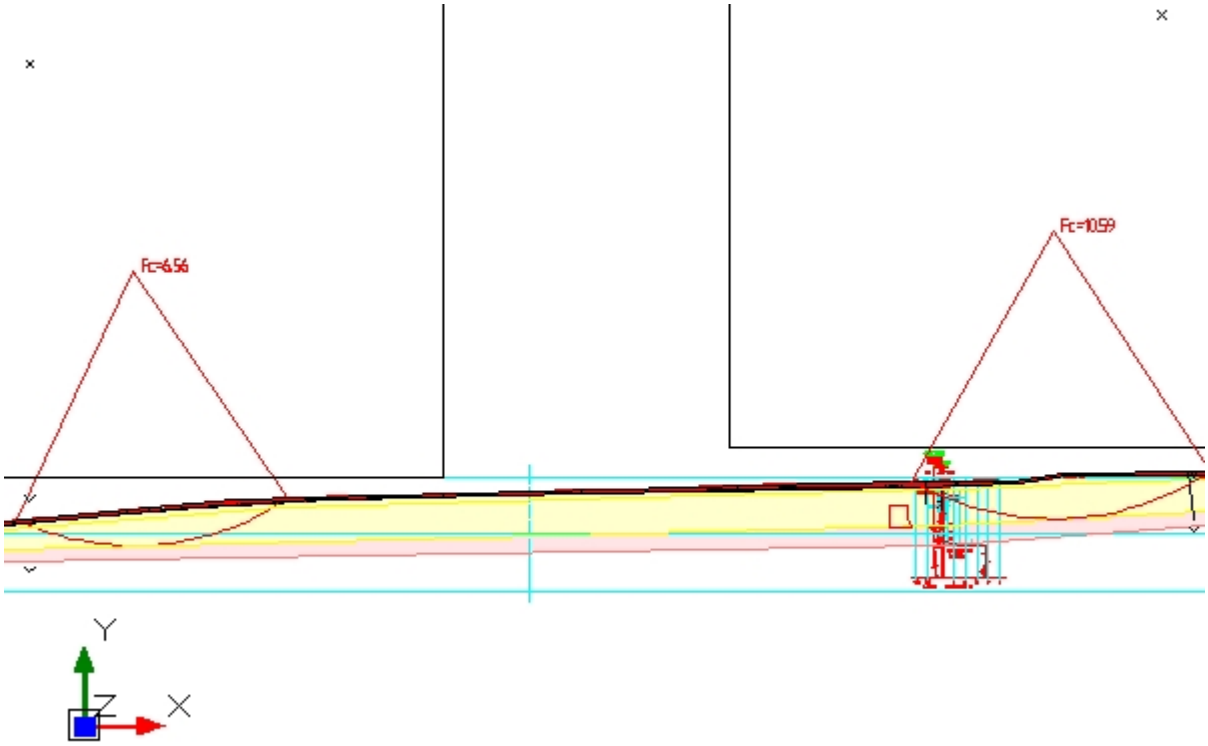
Calculation data

Project name:	Fasanvägen etapp 13
Project number:	18112896
Contractor:	
Comment:	

Calculation name:	BS_BEF
Description:	
File name:	g:\projekt\2018\18112896 fasanvägen etapp 13\15_geosuite\stabgraf.rit\bs_bef.dwg
Critical Safety Factor:	10,59
Result Date:	2019-02-21 16:18
Result Text:	Fc=6,56

Horizontally density spacing:	3
Vertically density spacing:	15
Side friction:	0,00
Number of slices:	30
Correction of exit angle:	Yes

Graphic Model



Soil

Materials

Material	ρ [kN/m³]	Ø [°]	C' [kPa]	C [kPa]	Aa	Ad	Ap
Fy	18,00	34,0	0,0		1,00	1,00	1,00
Let	18,00			30,0	1,00	1,00	1,00
Le	17,00			CProf	1,00	1,00	1,00
Fr	18,00	40,0	0,0		1,00	1,00	1,00

Soil Parameter Variations

η-factors

Material	Param	Drained	γm	η(1,2)	η(3)	η(4,5,6,7)	η(8)	η
Fy	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00
Let	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Le	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Fr	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00

Scaling factors

Material	+ Factor	- Facktor
Fy	1,00	1,00
Let	1,00	1,00
Le	1,00	1,00
Fr	1,00	1,00

C Profiles

C-profile, X = 206,65 m

Z [m]	C [kPa]
22,50	16,20
21,99	16,20
21,50	16,20
20,50	20,30

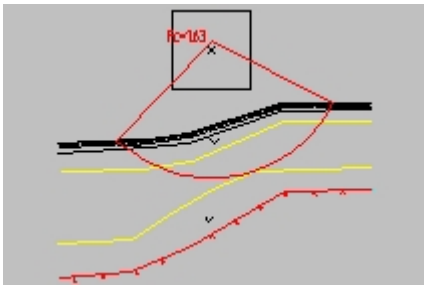
Model Data

Tangent Strategy Data

Centre point X:	230,63
Centre point Z:	65,78
Search area:	38,12
Upper Z-level:	25,06
Lower Z-level:	20,15
Number of levels:	50

Search Criteria

Calculation method:	Beast 2003
Calculation Strategy:	Tangent
Slope type:	Left slope



Result file

Location: g:\projekt\2018\18112896 fasanvägen etapp 13\15_geosuite\stabgraf.rit\bs_bef.RES

Created: 2019-02-21 16:18

Modified: 2019-02-21 16:18

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#
      ECHO PRINT OF DATA ON FORTRAN UNIT NUMBER = 14

      000000000111111111122222222223333333333444444444455555555556666666666777777777 8
      123456789012345678901234567890123456789012345678901234567890123456789012345678 90

 1----
 2----
 3---- * Version : 4.0.0.0
 4----
 5----  ****************** CONTROL SECTION
 6----   1.0 1.0 CONFRC,CONLTH   CONVERTION FACTORS ON FORCES AND LENGTHS
 7----   1.0 1.0 FCTSUC,FCTTAN   MATERIAL FACTORS ON SU,C AND TAN(PHI)
 8----     1 IDTYP     SOLUTION TYPE (1=STAB/BEARING 2=EARTH PRESS)
 9----    31 ANALYSIS METHOD & TYPE, E.G. 31 = BEAST-2003 & EFF.STRESS
10----     0 NUMGEN    NUMBER OF GENERAL SHEAR SURFACES
11----    30 NUMSLC    NUMBER OF SLICES (ZERO OK FOR GENERAL SURFACES)
12----   0.000 SIDSHR    SIDE SHEAR FACTOR (0.0=PLANE STRAIN , 2.0/LENGTH=MAX)
13----  0.00 0.00 VALUES FOR H3-ASSMPTN (H3(X)=H31+(H32-H31)/XTOT*X)
14----  0.50 0.50 0.00 VALUES FOR R-ASSMPTN  (R(X)=R1+(R2-R1)/XTOT*X+H(X)/HMAX*R3)
15----     0 ITENSP    ALLOW P-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
16----     0 ITENSE    ALLOW E-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
17----     0 JPRINT    TRACE PRINT CODE (0=NON 1=LIM 2=TRACE 3=DETLD TRACE)
18----     2 IPRTTP    FILE NF16 PRINT TYPE FOR SLICE OUTPUT (1=FORCES 2=STRESSES)
19----     1 JPLOT     CODE FOR PLOT(S) ON NF16 (0=NO 1=YES 2=+PWP/SU0 3=+MESH)
20----   0.000 CRTFRC    CONVERGENCE CRITERION , FORCES   (DEFAULT=SUM(FZ)/1.0E4)
21----   2.000 CRTSCR    CONVERGENCE CRITERION , SOLUTION SCORE
22----  1 0 0 0 0 0.0  0.0  0.0  0.0  0.0 First flag, exit angle, third adjust low circ
23----
24----  ****************** GEOMETRY SECTION
25----     19 NUMXLN    NUMBER OF X-LINES WITH SURFACE, ROCK AND ELEMENT SPECS
26----     1 NUMELZ    NUMBER OF ELEMENTS IN Z-DIRECTION
27----     1 NUMLAY    NUMBER OF HORIZONTAL LAYERS
28----    42 NUMTRI    NUMBER OF MATERIAL I.D. TRIANGLES
29----    X-VALUE  Z-SURFACE  Z-ROCK  NUMBER OF X-ELEMENTS TO NEXT X-LINE
30----     -421.89     -31.62      68.38       1
31----     -321.89     -31.62      68.38       1
32----     -280.36     -26.64      70.33       1
33----     -251.93     -26.42      71.67       1
34----     -245.10     -25.80      71.99       1
35----     -243.26     -25.41      72.08       1
36----     -240.74     -25.52      72.20       1
37----     -221.99     -25.30      73.08       1
38----     -217.45     -24.68      73.29       1
39----     -208.33     -24.63      73.72       1
40----     -162.10     -23.45      75.90       1
41----     -148.95     -23.01      76.52       1
42----     -127.29     -20.99      77.54       1
43----     -124.43     -20.99      77.67       1
44----     -88.22      -19.87      79.38       1
45----     -66.17      -18.58      80.41       1
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  46----    -45.63      -18.36      81.38       1
  47----    -26.93      -17.74      82.26       1
  48----     73.07      -17.74      82.26       0
  49---- 00 00 00  0.0 0.0 NP1,NP2,NSTEP,ZN1,ZN2  NODE NEW Z , NP2=MAX TERMINATES
  50---- 00 00 00   0 NE1,NE2,NSTEP,MAT     ELEMENT MATRL , NE2=MAX TERMINATES
  51----   LAYER  Z-BOTTOM  MATERIAL-I.D.
  52----    1      82.26       1
  53----   TRIANGLE  MATERIAL   X1  Z1     X2  Z2     X3  Z3
  54----    1  4  -174.41   92.26     72.03    92.26     72.03    -12.09
  55----    2  4  -174.41   92.26     72.03    -12.09    -27.97   -12.09
  56----    3  4  -174.41   92.26     -27.97   -12.09    -107.27  -18.18
  57----    4  4  -174.41   92.26     -107.27  -18.18    -211.23  -20.72
  58----    5  4  -174.41   92.26     -211.23  -20.72    -281.61  -24.72
  59----    6  4  -174.41   92.26     -281.61  -24.72    -321.74  -29.71
  60----    7  4  -174.41   92.26     -421.74  -29.71    -321.74  -29.71
  61----    8  4  -174.41   92.26     -421.74  -29.71    -421.74  92.26
  62----    9  3  -174.41   92.26     71.59    92.26     71.59    -17.15
  63----    10  3  -174.41   92.26     71.59    -17.15    -28.41   -17.15
  64----    11  3  -174.41   92.26     -28.41   -17.15    -56.69   -17.62
  65----    12  3  -174.41   92.26     -56.69   -17.62    -107.87  -19.91
  66----    13  3  -174.41   92.26     -107.87  -19.91    -128.02  -20.38
  67----    14  3  -174.41   92.26     -128.02  -20.38    -152.94  -22.39
  68----    15  3  -174.41   92.26     -152.94  -22.39    -190.41  -23.40
  69----    16  3  -174.41   92.26     -190.41  -23.40    -218.08  -24.07
  70----    17  3  -174.41   92.26     -218.08  -24.07    -222.92  -24.54
  71----    18  3  -174.41   92.26     -222.92  -24.54    -244.75  -24.95
  72----    19  3  -174.41   92.26     -244.75  -24.95    -250.86  -25.15
  73----    20  3  -174.41   92.26     -250.86  -25.15    -280.95  -26.02
  74----    21  3  -174.41   92.26     -280.95  -26.02    -318.29  -30.39
  75----    22  3  -174.41   92.26     -418.29  -30.39    -318.29  -30.39
  76----    23  3  -174.41   92.26     -418.29  -30.39    -418.29  92.26
  77----    24  2  -174.41   92.26     66.32    92.26     66.32    -17.55
  78----    25  2  -174.41   92.26     66.32    -17.55    -33.68   -17.55
  79----    26  2  -174.41   92.26     -33.68   -17.55    -54.63   -18.06
  80----    27  2  -174.41   92.26     -54.63   -18.06    -68.19   -18.33
  81----    28  2  -174.41   92.26     -68.19   -18.33    -83.35   -19.15
  82----    29  2  -174.41   92.26     -83.35   -19.15    -110.64  -20.43
  83----    30  2  -174.41   92.26     -110.64  -20.43    -126.85  -20.66
  84----    31  2  -174.41   92.26     -126.85  -20.66    -145.00  -22.29
  85----    32  2  -174.41   92.26     -145.00  -22.29    -156.46  -22.99
  86----    33  2  -174.41   92.26     -156.46  -22.99    -180.09  -23.65
  87----    34  2  -174.41   92.26     -180.09  -23.65    -209.13  -24.20
  88----    35  2  -174.41   92.26     -209.13  -24.20    -217.95  -24.51
  89----    36  2  -174.41   92.26     -217.95  -24.51    -222.34  -25.09
  90----    37  2  -174.41   92.26     -222.34  -25.09    -242.98  -25.21
  91----    38  2  -174.41   92.26     -242.98  -25.21    -249.47  -25.75
  92----    39  2  -174.41   92.26     -249.47  -25.75    -280.41  -26.26
  93----    40  2  -174.41   92.26     -280.41  -26.26    -318.77  -30.84
  94----    41  2  -174.41   92.26     -418.77  -30.84    -318.77  -30.84
  95----    42  2  -174.41   92.26     -418.77  -30.84    -418.77  92.26
  96----   0 0 0 XWALL,HWALL,RWALL   WALL SPECIFICATIONS
(LOCATION,HEIGHT,ROUGHNESS)
  97----
  98---- ****************** MATERIAL PROPERTIES SECTION
  99----    4   3   15 NUMMAT    NUMBER OF DIFFERENT MATERIALS (NDX, NDZ DENSITY GRID S
 100----     1 NUMXSU    NUMBER OF VERTICAL X-LINES WITH GIVEN SU-VALUES
 101----     0 NODSU     NUMBER OF MESH NODAL POINTS WITH GIVEN SU-VALUES
 102----    0.00 CRACKZ    SURFACE OPEN CRACK DEPTH
 103----    0.00 CRACKW    WATER DEPTH IN OPEN SURFACE CRACK
 104----    0.0 PHIREF    FRICTION ANGLE REFERENCE PRESSURE
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 105----  EFFECTIVE STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO
OK)
 106----  MAT  GAMTOT  COHSN  PHIANG  PHIRED  PWPMAT  RU-MAT  B-FACT K-NOT B-SIG2
D-FCT
 107----  1   18.00    0.00   34.00  0   0.00   0.00  0  0  0  0.001  -0.00 21.00
 108----  2   18.00    0.00    0.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 109----  3   17.00    0.00    0.00  0   0.00   0.00  0  0  0  0.001  -0.00 17.00
 110----  4   18.00    0.00   40.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 111----  TOTAL STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO OK)
 112----  MAT  GAMTOT  SUA/SU0 SUD/SU0 SUP/SU0  SU0-MAT  (A:ACTIVE D:DIRECT
P:PASSIVE)C-
 113----  1   18.00    1.00    1.00    1.00    0.00   1
 114----  2   18.00    1.00    1.00    1.00   30.00   0
 115----  3   17.00    1.00    1.00    1.00    0.00   1
 116----  4   18.00    1.00    1.00    1.00    0.00   1
 117----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : SU0-VALUES
 118----  1    -206.65  4    -22.50    -21.99    -21.50    -20.50
 119----                    16.20     16.20     16.20     20.30
 120----  NODE   SU0   (IF ALL NODES, SKIP NODE NUMBERS : SU0(1),SU0(2),...)
 121----
 122----  ****************** PORE-WATER-PRESSURES SECTION
 123----     1 IDPWP     PWP INDICATOR (1=HYDROSTATIC  2=NON-HYDROSTATIC)
 124----     0 NUMBER OF VERTICAL X-LINES WITH GIVEN PWP WITH DEPTH
 125----     0 NODPWP    NUMBER OF MESH NODAL POINTS WITH GIVEN PWP
 126----   0.0 FCTNOD    FACTOR ON PWP-VALUES GIVEN AT NODAL POINTS
 127----   92.260 WATERZ    HORIZONTAL WATER TABLE Z-LEVEL
 128----   10.0 GAMWAT    FREE WATER UNIT WEIGHT
 129----   10.0 GAMPWP    PORE WATER UNIT WEIGHT (=GAMWAT IF HYDROSTATIC)
 130----    0.00 PWPMIN    MINIMUM ALLOWABLE PWP (CAPILLARY TENSION)
 131----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : PWP-VALUES
 132----   NODE  PWP-VALUE  (IF ALL NODES , SKIP NODE NUMBERS : PWP(1),PWP(2),...)
 133----
 134----  ****************** LOAD SECTION
 135----     0 NUMPNT           NUMBER OF POINT LOADS & 100*SOIL NAILS
 136----     0 NUMSIG           NUMBER OF SURFACE DISTRIBUTED LOADS
 137----   0.0 SIGTOP           UNIFORM INITIAL VERTICAL STRESS AT SURFACE
 138---- -100 100 XTOP1,XTOP2        STRESS 'SIGTOP' ACTS FROM XTOP1 TO XTOP2
 139----   10.0000   5.0000 FCTPNT,FCTSIG      POINT AND DISTRIBUTED LOAD FACTORS
 140----   0.00 1.00 ACCXRT,ACCZRT       ACCELERATION RATIOS IN X- AND Z-DIRECTIONS
 141----    POINT   X-COORD   Z-COORD   X-FORCE   Z-FORCE
 142----   STRIP     X1       X2       SIGZ1     SIGZ2     TAUX1     TAUX2
 143----
 144----  ****************** GIVEN SHEAR SURFACE
 145----    2 RESTRICT SHEAR SURFACE, NUMBER OF POINTS ON LINE (X-Z)
 146----   -232.91   -233.47
 147----    -25.51    -21.33
 148---- END

      000000000111111111122222222223333333333444444444455555555556666666666777777777778
      123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890


 BEAST  Output   Program Version = 30 Apr 2015    Time = 21 FEB 2019  16:18:07



 ========================================================= SAFETY FACTOR =   10.593
 SURFACE NO : 597     SUMMARY OF GEOMETRY AND STRESSES
 ========================================================= SOLUTION SCORE=    0.041
```

SURFACE TYPE = CIRCLE X-CENTER Z-CENTER RADIUS
-221.100 -46.720 25.370

SOLUTION METHOD = BEAST-2003 / EFFECTIVE STRESS ANALYSIS

SLICE	X1	Z1	Z2	WXT-FRC	P-STR	E2-STR	U2-STR	ROUGH	H2/Z23
	X2	Z4	Z3	WZT-FRC	S-STR	T2-STR	U3-STR		H3/L34
1	-234.92	-25.45	-25.44	0.000E+00	3.981E+00	1.950E+00	0.000E+00	0.081	0.321
1	-234.05	-25.45	-24.91	4.221E+00	1.285E+00	6.518E-02	0.000E+00		0.334
2	-234.05	-25.44	-25.43	0.000E+00	1.262E+01	5.409E+00	0.000E+00	0.071	0.288
2	-233.17	-24.91	-24.41	1.219E+01	2.050E+00	1.330E-01	0.000E+00		0.448
3	-233.17	-25.43	-25.42	0.000E+00	2.090E+01	9.327E+00	0.000E+00	0.153	0.284
3	-232.29	-24.41	-23.95	1.917E+01	1.529E+00	1.984E-01	0.000E+00		0.470
4	-232.29	-25.42	-25.41	0.000E+00	2.810E+01	1.280E+01	0.000E+00*******	0.291	WARNINGS: 1
4	-231.42	-23.95	-23.54	2.546E+01	1.529E+00	2.582E-01	0.000E+00		0.480
5	-231.42	-25.41	-25.40	0.000E+00	3.464E+01	1.588E+01	0.000E+00*******	0.297	WARNINGS: 1
5	-230.54	-23.54	-23.17	3.115E+01	1.529E+00	3.131E-01	0.000E+00		0.485
6	-230.54	-25.40	-25.39	0.000E+00	4.050E+01	1.863E+01	0.000E+00	0.251	0.301
6	-229.66	-23.17	-22.84	3.623E+01	1.529E+00	3.625E-01	0.000E+00		0.489
7	-229.66	-25.39	-25.38	0.000E+00	4.570E+01	2.105E+01	0.000E+00	0.274	0.303
7	-228.79	-22.84	-22.55	4.074E+01	1.529E+00	4.064E-01	0.000E+00		0.491
8	-228.79	-25.38	-25.37	0.000E+00	5.040E+01	2.317E+01	0.000E+00	0.294	0.305
8	-227.91	-22.55	-22.28	4.480E+01	1.529E+00	4.450E-01	0.000E+00		0.493
9	-227.91	-25.37	-25.36	0.000E+00	5.437E+01	2.498E+01	0.000E+00	0.309	0.306
9	-227.03	-22.28	-22.06	4.822E+01	1.529E+00	4.780E-01	0.000E+00		0.494
10	-227.03	-25.36	-25.35	0.000E+00	5.784E+01	2.650E+01	0.000E+00	0.322	0.307
10	-226.16	-22.06	-21.86	5.118E+01	1.529E+00	5.055E-01	0.000E+00		0.495
11	-226.16	-25.35	-25.34	0.000E+00	6.082E+01	2.774E+01	0.000E+00	0.332	0.308
11	-225.28	-21.86	-21.70	5.371E+01	1.529E+00	5.274E-01	0.000E+00		0.496
12	-225.28	-25.34	-25.33	0.000E+00	6.325E+01	2.870E+01	0.000E+00	0.339	0.308
12	-224.40	-21.70	-21.57	5.577E+01	1.529E+00	5.436E-01	0.000E+00		0.497
13	-224.40	-25.33	-25.32	0.000E+00	6.515E+01	2.937E+01	0.000E+00	0.343	0.309
13	-223.53	-21.57	-21.47	5.735E+01	1.531E+00	5.542E-01	0.000E+00		0.498
14	-223.53	-25.32	-25.31	0.000E+00	6.652E+01	2.975E+01	0.000E+00	0.343	0.309
14	-222.65	-21.47	-21.40	5.847E+01	1.554E+00	5.589E-01	0.000E+00		0.499
15	-222.65	-25.31	-25.27	0.000E+00	6.731E+01	3.005E+01	0.000E+00	0.343	0.311
15	-221.78	-21.40	-21.36	5.908E+01	1.575E+00	5.616E-01	0.000E+00		0.500
16	-221.78	-25.27	-25.15	0.000E+00	6.629E+01	3.071E+01	0.000E+00	0.346	0.320
16	-220.90	-21.36	-21.35	5.809E+01	1.584E+00	5.706E-01	0.000E+00		0.502
17	-220.90	-25.15	-25.03	0.000E+00	6.421E+01	3.114E+01	0.000E+00	0.347	0.330
17	-220.02	-21.35	-21.38	5.619E+01	1.582E+00	5.747E-01	0.000E+00		0.503
18	-220.02	-25.03	-24.91	0.000E+00	6.161E+01	3.136E+01	0.000E+00	0.347	0.341

18	-219.15	-21.38	-21.43	5.382E+01	1.567E+00	5.743E-01	0.000E+00		0.504
19	-219.15	-24.91	-24.79	0.000E+00	5.847E+01	3.140E+01	0.000E+00	0.346	0.353
19	-218.27	-21.43	-21.51	5.099E+01	1.541E+00	5.702E-01	0.000E+00		0.505
20	-218.27	-24.79	-24.68	0.000E+00	5.480E+01	3.124E+01	0.000E+00	0.342	0.365
20	-217.39	-21.51	-21.62	4.771E+01	1.529E+00	5.619E-01	0.000E+00		0.506
21	-217.39	-24.68	-24.67	0.000E+00	5.171E+01	2.981E+01	0.000E+00	0.327	0.365
21	-216.52	-21.62	-21.77	4.493E+01	1.529E+00	5.301E-01	0.000E+00		0.504
22	-216.52	-24.67	-24.67	0.000E+00	4.899E+01	2.812E+01	0.000E+00	0.309	0.365
22	-215.64	-21.77	-21.95	4.248E+01	1.529E+00	4.934E-01	0.000E+00		0.505
23	-215.64	-24.67	-24.67	0.000E+00	4.577E+01	2.617E+01	0.000E+00	0.289	0.365
23	-214.76	-21.95	-22.16	3.959E+01	1.529E+00	4.517E-01	0.000E+00		0.507
24	-214.76	-24.67	-24.66	0.000E+00	4.184E+01	2.394E+01	0.000E+00	0.265	0.365
24	-213.89	-22.16	-22.40	3.608E+01	1.529E+00	4.051E-01	0.000E+00		0.509
25	-213.89	-24.66	-24.66	0.000E+00	3.746E+01	2.143E+01	0.000E+00	0.237	0.365
25	-213.01	-22.40	-22.68	3.219E+01	1.529E+00	3.534E-01	0.000E+00		0.511
26	-213.01	-24.66	-24.65	0.000E+00	3.243E+01	1.860E+01	0.000E+00	0.205	0.365
26	-212.13	-22.68	-22.99	2.774E+01	1.529E+00	2.966E-01	0.000E+00		0.515
27	-212.13	-24.65	-24.65	0.000E+00	2.674E+01	1.546E+01	0.000E+00	0.115	0.360
27	-211.26	-22.99	-23.34	2.272E+01	1.529E+00	2.346E-01	0.000E+00		0.520
28	-211.26	-24.65	-24.64	0.000E+00	2.044E+01	1.194E+01	0.000E+00	0.084	0.338
28	-210.38	-23.34	-23.73	1.717E+01	1.529E+00	1.666E-01	0.000E+00		0.530
29	-210.38	-24.64	-24.64	0.000E+00	1.373E+01	6.210E+00	0.000E+00	0.084	0.338
29	-209.50	-23.73	-24.16	1.093E+01	2.311E+00	8.420E-02	0.000E+00		0.552
30	-209.50	-24.64	-24.63	0.000E+00	4.776E+00	1.509E-10	0.000E+00	0.000	0.500
30	-208.63	-24.16	-24.63	3.760E+00	8.097E-01	5.443E-10	0.000E+00		0.666

BEAST Output Program Version = 30 Apr 2015 Time = 21 FEB 2019 16:18:07

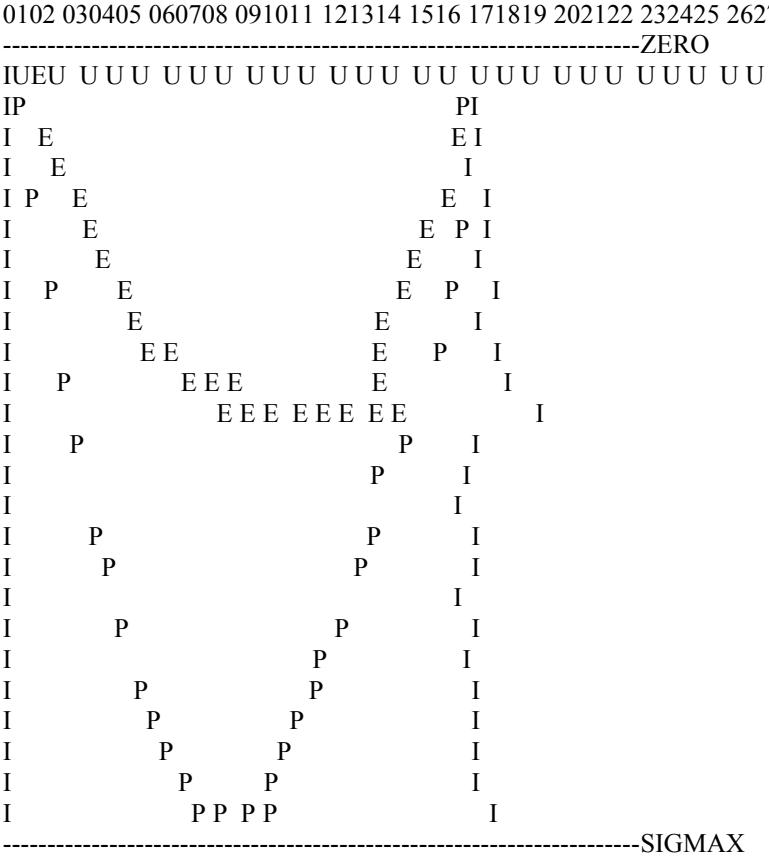
SURFACE NO:597 TYPE: CIRCLE SAFETY-FACTOR: 10.593 SCORE: 0.041
BELOW SKETCH SHOWS SHEAR SURFACE WITH SLICE DIVISIONS AND MATERIAL ID-S

```
112 2 2 2  2 2 2  2 2 2  1 1 1  1 1 1  1 1 1
  3 333 3  3 3 3  3 3 3  3 3 3  3 3 2  2 2 2  2 2 2  1 1 1  1 1 1  111
     333  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 333 2
       3 333 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3 3333
          333 333 3  3 3 3  3 3 3  3 3 3  3 3 3 333333
               333 333333 33333 333333 333333
0102 030405 060708 091011 121314 1516 171819 202122 232425 262728 2930
```

MAT	GAMTOT	SUA/SU0	SUD/SU0	SUP/SU0	COHESN	PHIANG	PHIRED	RU-FCT	B-FCT	K-NOT	B-SIG2	D/SU(B)
1	18.000	1.000	1.000	1.000	0.000	34.00	0.00	0.000	0.000	0.000	0.000	0.001
2	18.000	1.000	1.000	1.000	0.000	0.00	0.00	0.000	0.000	0.000	0.000	0.001
3	17.000	1.000	1.000	1.000	0.000	0.00	0.00	0.000	0.000	0.000	0.000	0.001
4	18.000	1.000	1.000	1.000	0.000	40.00	0.00	0.000	0.000	0.000	0.000	0.001

BEAST Output Program Version = 30 Apr 2015 Time = 21 FEB 2019 16:18:07

SURFACE NO:597 TYPE: CIRCLE SAFETY-FACTOR: 10.593 SCORE: 0.041
BELOW SKETCH SHOWS EFFECTIVE NORMAL STRESSES: P=SHEAR-SURFACE E=INTER-SLICE
U=RESULTING PWP AT SHEAR SURFACE



P-MIN = 3.981E+00 P-MAX = 6.731E+01
E-MIN = 1.950E+00 E-MAX = 3.140E+01
U-MIN = 0.000E+00 U-MAX = 0.000E+00

THIS RUN WAS TERMINATED : 21 FEB 2019 AT 16:18:07 HOURS

TIME USED = 1 SECONDS

GeoSuite Stability Report

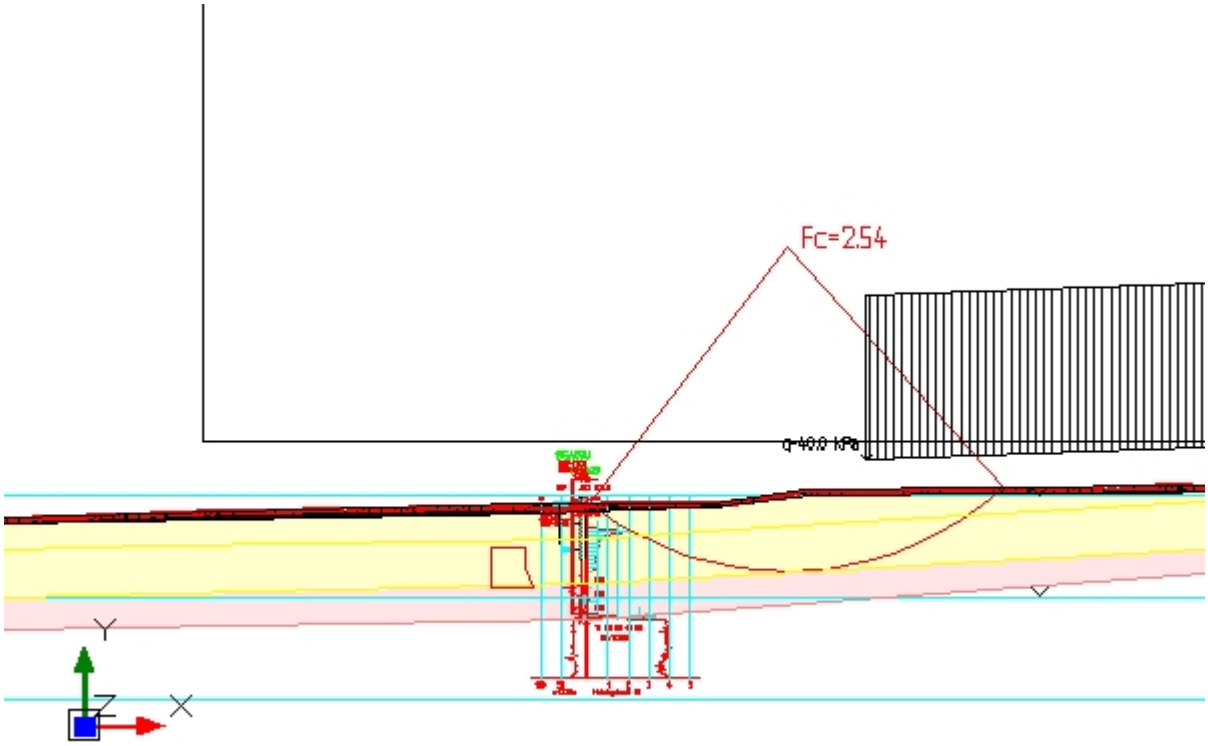
Calculation data

Project name:	Fasanvägen etapp 13
Project number:	18112896
Contractor:	
Comment:	

Calculation name:	BS_40 KPA
Description:	
File name:	g:\projekt\2018\18112896 fasanvägen etapp 13\15_geosuite\stabgraf.rit\bs_40 kpa.dwg
Critical Safety Factor:	4,16
Result Date:	2019-02-21 16:34
Result Text:	Fc=4,16

Horizontally density spacing:	3
Vertically density spacing:	15
Side friction:	0,00
Number of slices:	30
Correction of exit angle:	Yes

Graphic Model



Soil

Materials

Material	ρ [kN/m³]	Ø [°]	C' [kPa]	C [kPa]	Aa	Ad	Ap
Fy	18,00	34,0	0,0		1,00	1,00	1,00
Let	18,00			30,0	1,00	1,00	1,00
Le	17,00			CProf	1,00	1,00	1,00
Fr	18,00	40,0	0,0		1,00	1,00	1,00

Soil Parameter Variations

η-factors

Material	Param	Drained	γm	η(1,2)	η(3)	η(4,5,6,7)	η(8)	η
Fy	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00
Let	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Le	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Fr	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00

Scaling factors

Material	+ Factor	- Facktor
Fy	1,00	1,00
Let	1,00	1,00
Le	1,00	1,00
Fr	1,00	1,00

C Profiles

C-profile, X = 206,65 m

Z [m]	C [kPa]
22,50	16,20
21,99	16,20
21,50	16,20
20,50	20,30

Loads

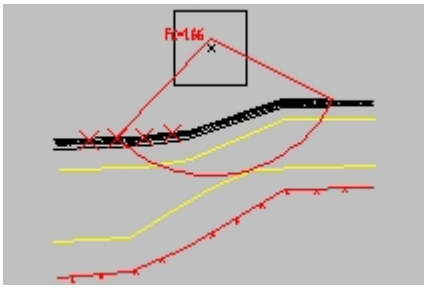
Distributed Loads

q1 [kPa]	q2 [kPa]	X1 [m]	X2 [m]
40,00	40,00	100,48	110,48
40,00	40,00	225,00	250,00

Model Data

Search Criteria

Calculation method:	Beast 2003
Calculation Strategy:	Points
Slope type:	Left slope



Points Strategy Data

Centre point X:	93,68
Centre point Z:	48,24
Search area:	24,23

X [m]	Z [m]
89,17	16,66
111,06	20,83

Result file

Location: g:\projekt\2018\18112896 fasanvägen etapp 13\15_geosuite\stabgraf.rit\bs_40 kpa.RES

Created: 2019-02-21 16:33

Modified: 2019-02-21 16:34

```
#
      ECHO PRINT OF DATA ON FORTRAN UNIT NUMBER = 14

      000000000111111111122222222223333333333444444444455555555556666666666777777777 8
      123456789012345678901234567890123456789012345678901234567890123456789012345678 90

 1----
 2----
 3---- * Version : 4.0.0.0
 4----
 5----  ****************** CONTROL SECTION
 6----   1.0 1.0 CONFRC,CONLTH   CONVERTION FACTORS ON FORCES AND LENGTHS
 7----   1.0 1.0 FCTSUC,FCTTAN   MATERIAL FACTORS ON SU,C AND TAN(PHI)
 8----     1 IDTYP     SOLUTION TYPE (1=STAB/BEARING 2=EARTH PRESS)
 9----    31 ANALYSIS METHOD & TYPE, E.G. 31 = BEAST-2003 & EFF.STRESS
10----     0 NUMGEN    NUMBER OF GENERAL SHEAR SURFACES
11----    30 NUMSLC    NUMBER OF SLICES (ZERO OK FOR GENERAL SURFACES)
12----   0.000 SIDSHR    SIDE SHEAR FACTOR (0.0=PLANE STRAIN , 2.0/LENGTH=MAX)
13----  0.00 0.00 VALUES FOR H3-ASSMPTN (H3(X)=H31+(H32-H31)/XTOT*X)
14----  0.50 0.50 0.00 VALUES FOR R-ASSMPTN  (R(X)=R1+(R2-R1)/XTOT*X+H(X)/HMAX*R3)
15----     0 ITENSP    ALLOW P-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
16----     0 ITENSE    ALLOW E-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
17----     0 JPRINT    TRACE PRINT CODE (0=NON 1=LIM 2=TRACE 3=DETLD TRACE)
18----     2 IPRTTP    FILE NF16 PRINT TYPE FOR SLICE OUTPUT (1=FORCES 2=STRESSES)
19----     1 JPLOT     CODE FOR PLOT(S) ON NF16 (0=NO 1=YES 2=+PWP/SU0 3=+MESH)
20----   0.000 CRTFRC    CONVERGENCE CRITERION , FORCES   (DEFAULT=SUM(FZ)/1.0E4)
21----   2.000 CRTSCR    CONVERGENCE CRITERION , SOLUTION SCORE
22----  1 0 0 0 0 0.0  0.0  0.0  0.0  0.0 First flag, exit angle, third adjust low circ
23----
24----  ****************** GEOMETRY SECTION
25----     19 NUMXLN    NUMBER OF X-LINES WITH SURFACE, ROCK AND ELEMENT SPECS
26----     1 NUMELZ    NUMBER OF ELEMENTS IN Z-DIRECTION
27----     1 NUMLAY    NUMBER OF HORIZONTAL LAYERS
28----    42 NUMTRI    NUMBER OF MATERIAL I.D. TRIANGLES
29----    X-VALUE  Z-SURFACE  Z-ROCK  NUMBER OF X-ELEMENTS TO NEXT X-LINE
30----     -421.89     -31.62      68.38       1
31----     -321.89     -31.62      68.38       1
32----     -280.36     -26.64      70.33       1
33----     -251.93     -26.42      71.67       1
34----     -245.10     -25.80      71.99       1
35----     -243.26     -25.41      72.08       1
36----     -240.74     -25.52      72.20       1
37----     -221.99     -25.30      73.08       1
38----     -217.45     -24.68      73.29       1
39----     -208.33     -24.63      73.72       1
40----     -162.10     -23.45      75.90       1
41----     -148.95     -23.01      76.52       1
42----     -127.29     -20.99      77.54       1
43----     -124.50     -20.99      77.67       1
44----     -88.22      -19.87      79.38       1
45----     -66.17      -18.58      80.41       1
```

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  46----    -45.63      -18.36      81.38       1
  47----    -26.93      -17.74      82.26       1
  48----     73.07      -17.74      82.26       0
  49---- 00 00 00  0.0 0.0 NP1,NP2,NSTEP,ZN1,ZN2  NODE NEW Z , NP2=MAX TERMINATES
  50---- 00 00 00   0 NE1,NE2,NSTEP,MAT     ELEMENT MATRL , NE2=MAX TERMINATES
  51----   LAYER  Z-BOTTOM  MATERIAL-I.D.
  52----     1      82.26        1
  53----   TRIANGLE  MATERIAL   X1  Z1     X2  Z2     X3  Z3
  54----     1   4  -174.41   92.26     72.03    92.26     72.03    -12.09
  55----     2   4  -174.41   92.26     72.03    -12.09    -27.97   -12.09
  56----     3   4  -174.41   92.26     -27.97   -12.09    -107.27  -18.18
  57----     4   4  -174.41   92.26     -107.27  -18.18    -211.23  -20.72
  58----     5   4  -174.41   92.26     -211.23  -20.72    -281.61  -24.72
  59----     6   4  -174.41   92.26     -281.61  -24.72    -321.74  -29.71
  60----     7   4  -174.41   92.26     -421.74  -29.71    -321.74  -29.71
  61----     8   4  -174.41   92.26     -421.74  -29.71    -421.74   92.26
  62----     9   3  -174.41   92.26     71.59    92.26     71.59    -17.15
  63----     10   3  -174.41   92.26     71.59    -17.15    -28.41   -17.15
  64----     11   3  -174.41   92.26     -28.41   -17.15    -56.69   -17.62
  65----     12   3  -174.41   92.26     -56.69   -17.62    -107.87  -19.24
  66----     13   3  -174.41   92.26     -107.87  -19.24    -128.71  -19.90
  67----     14   3  -174.41   92.26     -128.71  -19.90    -152.97  -21.64
  68----     15   3  -174.41   92.26     -152.97  -21.64    -190.40  -22.62
  69----     16   3  -174.41   92.26     -190.40  -22.62    -211.05  -22.92
  70----     17   3  -174.41   92.26     -211.05  -22.92    -223.06  -23.64
  71----     18   3  -174.41   92.26     -223.06  -23.64    -244.75  -24.95
  72----     19   3  -174.41   92.26     -244.75  -24.95    -250.86  -25.15
  73----     20   3  -174.41   92.26     -250.86  -25.15    -280.95  -26.02
  74----     21   3  -174.41   92.26     -280.95  -26.02    -318.29  -30.39
  75----     22   3  -174.41   92.26     -418.29  -30.39    -318.29  -30.39
  76----     23   3  -174.41   92.26     -418.29  -30.39    -418.29   92.26
  77----     24   2  -174.41   92.26     66.32    92.26     66.32    -17.55
  78----     25   2  -174.41   92.26     66.32    -17.55    -33.68   -17.55
  79----     26   2  -174.41   92.26     -33.68   -17.55    -54.63   -18.06
  80----     27   2  -174.41   92.26     -54.63   -18.06    -68.19   -18.33
  81----     28   2  -174.41   92.26     -68.19   -18.33    -83.35   -19.15
  82----     29   2  -174.41   92.26     -83.35   -19.15    -110.64  -20.43
  83----     30   2  -174.41   92.26     -110.64  -20.43    -126.85  -20.66
  84----     31   2  -174.41   92.26     -126.85  -20.66    -145.00  -22.29
  85----     32   2  -174.41   92.26     -145.00  -22.29    -156.46  -22.99
  86----     33   2  -174.41   92.26     -156.46  -22.99    -180.09  -23.65
  87----     34   2  -174.41   92.26     -180.09  -23.65    -209.13  -24.20
  88----     35   2  -174.41   92.26     -209.13  -24.20    -217.95  -24.51
  89----     36   2  -174.41   92.26     -217.95  -24.51    -222.34  -25.09
  90----     37   2  -174.41   92.26     -222.34  -25.09    -242.98  -25.21
  91----     38   2  -174.41   92.26     -242.98  -25.21    -249.47  -25.75
  92----     39   2  -174.41   92.26     -249.47  -25.75    -280.41  -26.26
  93----     40   2  -174.41   92.26     -280.41  -26.26    -318.77  -30.84
  94----     41   2  -174.41   92.26     -418.77  -30.84    -318.77  -30.84
  95----     42   2  -174.41   92.26     -418.77  -30.84    -418.77   92.26
  96----   0 0 0 XWALL,HWALL,RWALL   WALL SPECIFICATIONS
(LOCATION,HEIGHT,ROUGHNESS)
  97----
  98----  ****************** MATERIAL PROPERTIES SECTION
  99----     4    3   15 NUMMAT    NUMBER OF DIFFERENT MATERIALS (NDX, NDZ DENSITY GRID S
 100----      1 NUMXSU    NUMBER OF VERTICAL X-LINES WITH GIVEN SU-VALUES
 101----      0 NODSU     NUMBER OF MESH NODAL POINTS WITH GIVEN SU-VALUES
 102----    0.00 CRACKZ    SURFACE OPEN CRACK DEPTH
 103----    0.00 CRACKW    WATER DEPTH IN OPEN SURFACE CRACK
 104----    0.0 PHIREF    FRICTION ANGLE REFERENCE PRESSURE
```

```
 105----  EFFECTIVE STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO
OK)
 106----  MAT  GAMTOT  COHSN  PHIANG  PHIRED  PWPMAT  RU-MAT  B-FACT K-NOT B-SIG2
D-FCT
 107----  1   18.00    0.00   34.00  0   0.00   0.00  0  0  0  0.001  -0.00 21.00
 108----  2   18.00    0.00    0.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 109----  3   17.00    0.00    0.00  0   0.00   0.00  0  0  0  0.001  -0.00 17.00
 110----  4   18.00    0.00   40.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 111----  TOTAL STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO OK)
 112----  MAT  GAMTOT  SUA/SU0 SUD/SU0 SUP/SU0  SU0-MAT  (A:ACTIVE D:DIRECT
P:PASSIVE)C-
 113----  1   18.00    1.00    1.00    1.00    0.00   1
 114----  2   18.00    1.00    1.00    1.00   30.00   0
 115----  3   17.00    1.00    1.00    1.00    0.00   1
 116----  4   18.00    1.00    1.00    1.00    0.00   1
 117----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : SU0-VALUES
 118----  1    -206.65  4    -22.50    -21.99    -21.50    -20.50
 119----                    16.20     16.20     16.20     20.30
 120----  NODE   SU0   (IF ALL NODES, SKIP NODE NUMBERS : SU0(1),SU0(2),...)
 121----
 122----  ****************** PORE-WATER-PRESSURES SECTION
 123----     1 IDPWP     PWP INDICATOR (1=HYDROSTATIC  2=NON-HYDROSTATIC)
 124----     0 NUMBER OF VERTICAL X-LINES WITH GIVEN PWP WITH DEPTH
 125----     0 NODPWP    NUMBER OF MESH NODAL POINTS WITH GIVEN PWP
 126----   0.0 FCTNOD    FACTOR ON PWP-VALUES GIVEN AT NODAL POINTS
 127----   92.260 WATERZ    HORIZONTAL WATER TABLE Z-LEVEL
 128----   10.0 GAMWAT    FREE WATER UNIT WEIGHT
 129----   10.0 GAMPWP    PORE WATER UNIT WEIGHT (=GAMWAT IF HYDROSTATIC)
 130----    0.00 PWPMIN    MINIMUM ALLOWABLE PWP (CAPILLARY TENSION)
 131----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : PWP-VALUES
 132----   NODE  PWP-VALUE  (IF ALL NODES , SKIP NODE NUMBERS : PWP(1),PWP(2),...)
 133----
 134----  ****************** LOAD SECTION
 135----     0 NUMPNT           NUMBER OF POINT LOADS & 100*SOIL NAILS
 136----     2 NUMSIG           NUMBER OF SURFACE DISTRIBUTED LOADS
 137----   0.0 SIGTOP           UNIFORM INITIAL VERTICAL STRESS AT SURFACE
 138---- -100 100 XTOP1,XTOP2       STRESS 'SIGTOP' ACTS FROM XTOP1 TO XTOP2
 139----   10.0000   5.0000 FCTPNT,FCTSIG      POINT AND DISTRIBUTED LOAD FACTORS
 140----   0.00 1.00 ACCXRT,ACCZRT      ACCELERATION RATIOS IN X- AND Z-DIRECTIONS
 141----    POINT   X-COORD   Z-COORD   X-FORCE   Z-FORCE
 142----   STRIP     X1       X2       SIGZ1     SIGZ2     TAUX1     TAUX2
 143----     1  -250.00   -225.00    8.00    8.00     -0.00   -0.00
 144----     2  -110.48   -100.48    8.00    8.00     -0.00   -0.00
 145----
 146----  ****************** GIVEN SHEAR SURFACE
 147---- END

      000000000111111111122222222223333333333444444444455555555556666666666777777777778
      123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890


 BEAST  Output   Program Version = 30 Apr 2015    Time = 21 FEB 2019  16:34:24



 ========================================================= SAFETY FACTOR =    4.159
 SURFACE NO :  19    SUMMARY OF GEOMETRY AND STRESSES
 ========================================================= SOLUTION SCORE=    0.001
```

SURFACE TYPE = CIRCLE X-CENTER Z-CENTER RADIUS
-99.740 -42.180 24.165

SOLUTION METHOD = BEAST-2003 / EFFECTIVE STRESS ANALYSIS

SLICE	X1	Z1	Z2	WXT-FRC	P-STR	E2-STR	U2-STR	ROUGH	H2/Z23	
	X2	Z4	Z3	WZT-FRC	S-STR	T2-STR	U3-STR		H3/L34	
1	-110.52	-20.56	-20.54	0.000E+00	3.612E+01	2.363E+01	0.000E+00	0.278	0.412	
1	-109.85	-20.56	-20.24	2.700E+01	6.671E+00	1.768E+00	0.000E+00		0.458	
2	-109.85	-20.54	-20.52	0.000E+00	4.400E+01	2.656E+01	0.000E+00	0.276	0.415	
2	-109.18	-20.24	-19.94	3.230E+01	7.213E+00	1.790E+00	0.000E+00		0.491	
3	-109.18	-20.52	-20.50	0.000E+00	4.908E+01	2.880E+01	0.000E+00	0.275	0.412	
3	-108.50	-19.94	-19.66	3.552E+01	7.213E+00	1.807E+00	0.000E+00		0.493	
4	-108.50	-20.50	-20.48	0.000E+00	5.373E+01	3.070E+01	0.000E+00*******	0.408	WARNINGS: 1	
4	-107.83	-19.66	-19.41	3.846E+01	7.213E+00	1.821E+00	0.000E+00		0.494	
5	-107.83	-20.48	-20.45	0.000E+00	5.846E+01	3.264E+01	0.000E+00*******	0.403	WARNINGS: 1	
5	-107.16	-19.41	-19.18	4.112E+01	6.747E+00	1.662E+00	0.000E+00		0.495	
6	-107.16	-20.45	-20.43	0.000E+00	6.246E+01	3.507E+01	0.000E+00	0.270	0.394	
6	-106.48	-19.18	-18.98	4.343E+01	4.881E+00	1.684E+00	0.000E+00		0.496	
7	-106.48	-20.43	-20.41	0.000E+00	6.563E+01	3.695E+01	0.000E+00	0.269	0.389	
7	-105.81	-18.98	-18.79	4.542E+01	4.881E+00	1.702E+00	0.000E+00		0.496	
8	-105.81	-20.41	-20.39	0.000E+00	6.843E+01	3.844E+01	0.000E+00	0.269	0.387	
8	-105.13	-18.79	-18.63	4.718E+01	4.881E+00	1.717E+00	0.000E+00		0.497	
9	-105.13	-20.39	-20.37	0.000E+00	7.086E+01	3.961E+01	0.000E+00	0.269	0.386	
9	-104.46	-18.63	-18.48	4.869E+01	4.881E+00	1.729E+00	0.000E+00		0.497	
10	-104.46	-20.37	-20.35	0.000E+00	7.302E+01	4.047E+01	0.000E+00	0.269	0.386	
10	-103.79	-18.48	-18.36	5.002E+01	4.881E+00	1.740E+00	0.000E+00		0.498	
11	-103.79	-20.35	-20.33	0.000E+00	7.480E+01	4.106E+01	0.000E+00	0.269	0.386	
11	-103.11	-18.36	-18.25	5.109E+01	4.881E+00	1.750E+00	0.000E+00		0.498	
12	-103.11	-20.33	-20.31	0.000E+00	7.634E+01	4.129E+01	0.000E+00	0.270	0.387	
12	-102.44	-18.25	-18.17	5.197E+01	4.881E+00	1.756E+00	0.000E+00		0.499	
13	-102.44	-20.31	-20.29	0.000E+00	7.746E+01	4.126E+01	0.000E+00	0.271	0.388	
13	-101.77	-18.17	-18.10	5.260E+01	4.881E+00	1.761E+00	0.000E+00		0.499	
14	-101.77	-20.29	-20.27	0.000E+00	7.817E+01	4.095E+01	0.000E+00	0.272	0.390	
14	-101.09	-18.10	-18.06	5.296E+01	4.881E+00	1.765E+00	0.000E+00		0.500	
15	-101.09	-20.27	-20.25	0.000E+00	7.489E+01	4.030E+01	0.000E+00	0.273	0.393	
15	-100.42	-18.06	-18.03	5.063E+01	4.881E+00	1.767E+00	0.000E+00		0.522	
16	-100.42	-20.25	-20.23	0.000E+00	3.881E+01	3.918E+01	0.000E+00	0.274	0.399	
16	-99.74	-18.03	-18.01	2.618E+01	4.881E+00	1.759E+00	0.000E+00		0.500	
17	-99.74	-20.23	-20.20	0.000E+00	3.873E+01	3.805E+01	0.000E+00	0.275	0.404	
17	-99.07	-18.01	-18.03	2.596E+01	4.881E+00	1.752E+00	0.000E+00		0.501	
18	-99.07	-20.20	-20.18	0.000E+00	3.827E+01	3.687E+01	0.000E+00	0.276	0.407	

18	-98.40	-18.03	-18.06	2.554E+01	4.881E+00	1.744E+00	0.000E+00		0.502
19	-98.40	-20.18	-20.16	0.000E+00	3.740E+01	3.564E+01	0.000E+00	0.277	0.409
19	-97.72	-18.06	-18.10	2.484E+01	4.881E+00	1.737E+00	0.000E+00		0.503
20	-97.72	-20.16	-20.14	0.000E+00	3.623E+01	3.433E+01	0.000E+00	0.278	0.411
20	-97.05	-18.10	-18.17	2.393E+01	4.881E+00	1.729E+00	0.000E+00		0.504
21	-97.05	-20.14	-20.12	0.000E+00	3.487E+01	3.293E+01	0.000E+00	0.279	0.411
21	-96.37	-18.17	-18.25	2.290E+01	4.881E+00	1.721E+00	0.000E+00		0.504
22	-96.37	-20.12	-20.10	0.000E+00	3.310E+01	3.142E+01	0.000E+00	0.281	0.409
22	-95.70	-18.25	-18.36	2.155E+01	4.881E+00	1.713E+00	0.000E+00		0.506
23	-95.70	-20.10	-20.08	0.000E+00	3.097E+01	2.981E+01	0.000E+00	0.282	0.405
23	-95.03	-18.36	-18.48	1.999E+01	4.881E+00	1.703E+00	0.000E+00		0.507
24	-95.03	-20.08	-20.06	0.000E+00	2.849E+01	2.808E+01	0.000E+00	0.284	0.394
24	-94.35	-18.48	-18.63	1.820E+01	4.881E+00	1.694E+00	0.000E+00		0.509
25	-94.35	-20.06	-20.04	0.000E+00	2.571E+01	2.623E+01	0.000E+00	0.286	0.373
25	-93.68	-18.63	-18.79	1.620E+01	4.881E+00	1.684E+00	0.000E+00		0.511
26	-93.68	-20.04	-20.02	0.000E+00	2.288E+01	2.268E+01	0.000E+00	0.289	0.354
26	-93.01	-18.79	-18.97	1.391E+01	7.213E+00	1.828E+00	0.000E+00		0.515
27	-93.01	-20.02	-20.00	0.000E+00	2.043E+01	1.788E+01	0.000E+00	0.282	0.328
27	-92.33	-18.97	-19.18	1.129E+01	7.213E+00	1.123E+00	0.000E+00		0.520
28	-92.33	-20.00	-19.98	0.000E+00	1.555E+01	1.091E+01	0.000E+00	0.280	0.318
28	-91.66	-19.18	-19.41	8.397E+00	7.213E+00	8.753E-01	0.000E+00		0.530
29	-91.66	-19.98	-19.96	0.000E+00	9.891E+00	3.746E+00	0.000E+00	0.000	0.333
29	-90.98	-19.41	-19.66	5.226E+00	3.848E+00	8.615E-02	0.000E+00		0.553
30	-90.98	-19.96	-19.93	0.000E+00	2.884E+00	6.332E-11	0.000E+00	0.000	0.500
30	-90.31	-19.66	-19.93	1.788E+00	4.677E-01	1.817E-10	0.000E+00		0.665

BEAST Output Program Version = 30 Apr 2015 Time = 21 FEB 2019 16:34:24

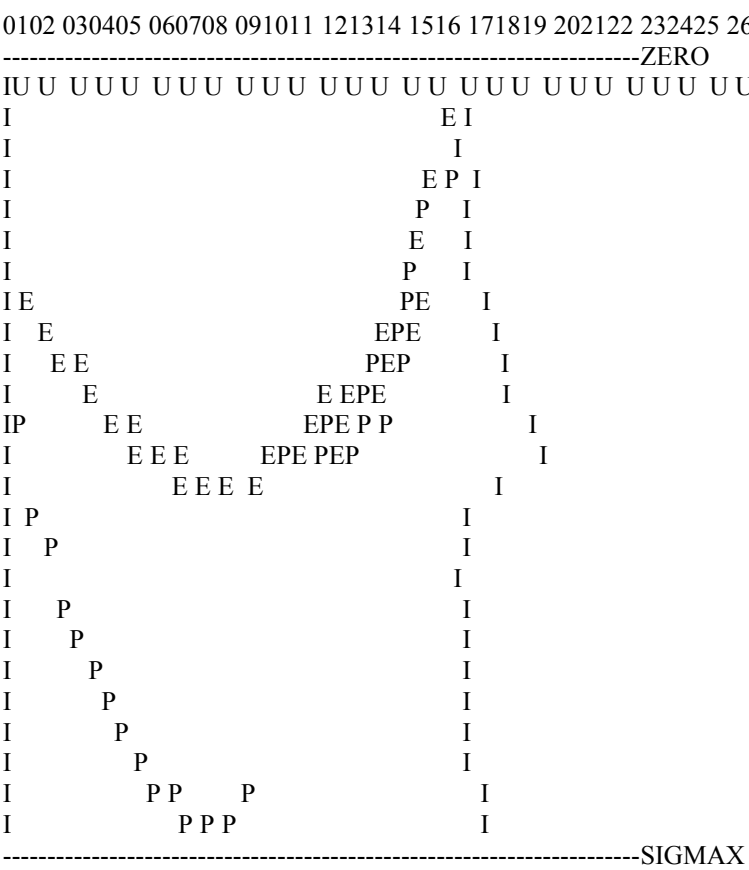
SURFACE NO: 19 TYPE: CIRCLE SAFETY-FACTOR: 4.159 SCORE: 0.001
BELOW SKETCH SHOWS SHEAR SURFACE WITH SLICE DIVISIONS AND MATERIAL ID-S

```
1222 2 2 1  1 1 1  1 1 1  1 1 1  1 1 1  1 1 1  1 1 1  1 1
   222 2  2 2 2  2 2 2  2 2 2  2 2 2  2 2 2  1 1 1  1 1 1  1 1 1  111
     222 232 2  2 2 2  2 2 2  2 2 2  2 2 2  2 2 2  2 2 2  22222 1
         3333 333 3  3 3 3  3 3 3  3 3 3  3 3 3  33333 22
              3333 333333 33333 333333 333333 33
0102 030405 060708 091011 121314 1516 171819 202122 232425 262728 2930
```

MAT	GAMTOT	SUA/SU0	SUD/SU0	SUP/SU0	COHESN	PHIANG	PHIRED	RU-FCT	B-FCT	K-NOT	B-SIG2	D/SU(B)
1	18.000	1.000	1.000	1.000	0.000	34.00	0.00	0.000	0.000	0.000	0.000	0.001
2	18.000	1.000	1.000	1.000	0.000	0.00	0.00	0.000	0.000	0.000	0.000	0.001
3	17.000	1.000	1.000	1.000	0.000	0.00	0.00	0.000	0.000	0.000	0.000	0.001
4	18.000	1.000	1.000	1.000	0.000	40.00	0.00	0.000	0.000	0.000	0.000	0.001

BEAST Output Program Version = 30 Apr 2015 Time = 21 FEB 2019 16:34:24

SURFACE NO: 19 TYPE: CIRCLE SAFETY-FACTOR: 4.159 SCORE: 0.001
BELOW SKETCH SHOWS EFFECTIVE NORMAL STRESSES: P=SHEAR-SURFACE E=INTER-SLICE
U=RESULTING PWP AT SHEAR SURFACE



P-MIN = 2.884E+00 P-MAX = 7.817E+01
E-MIN = 3.746E+00 E-MAX = 4.129E+01
U-MIN = 0.000E+00 U-MAX = 0.000E+00

THIS RUN WAS TERMINATED : 21 FEB 2019 AT 16:34:24 HOURS

TIME USED = 0 SECONDS

BILAGA 2

Stabilitetsberäkning
Beräkningssektion 2

GeoSuite Stability Report

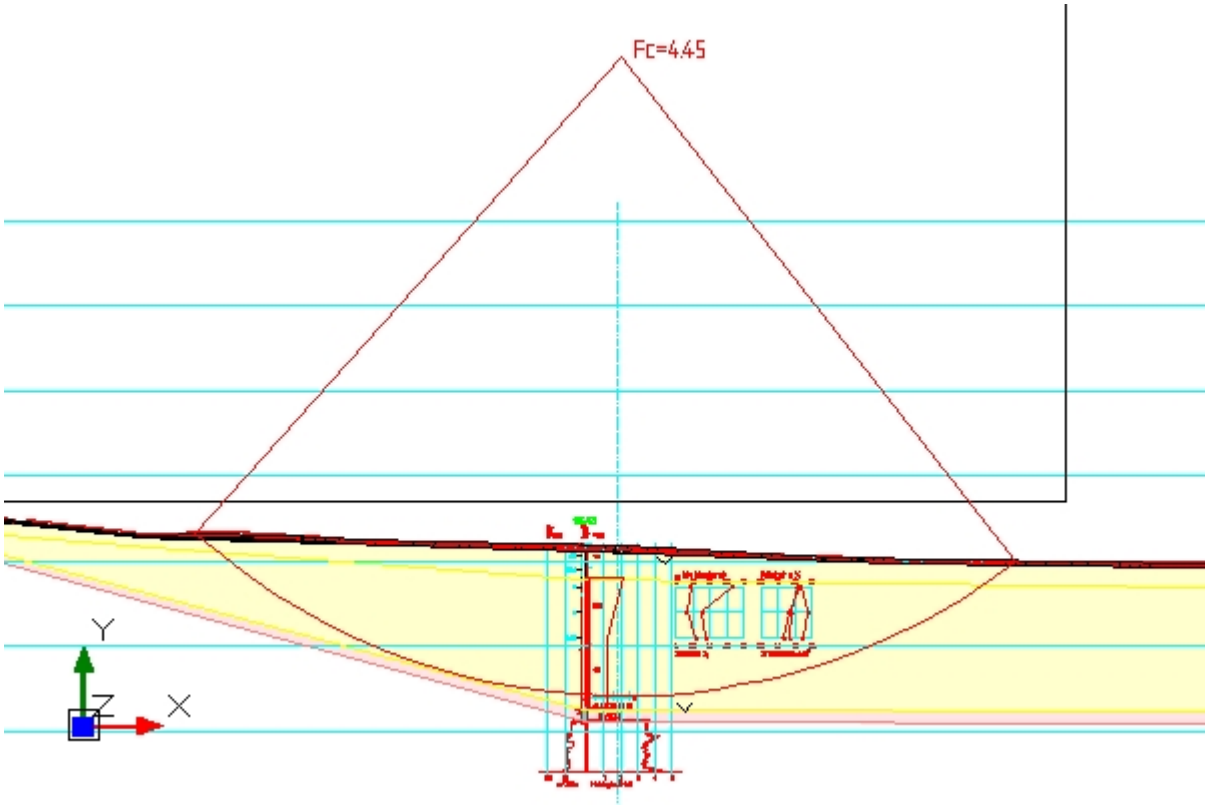
Calculation data

Project name:	Fasanvägen etapp 13
Project number:	18112896
Contractor:	
Comment:	

Calculation name:	BS2_BEF
Description:	
File name:	g:\projekt\2018\18112896 fasanvägen etapp 13\15_geosuite\stabgraf.rit\bs2_bef.dwg
Critical Safety Factor:	4,45
Result Date:	2019-02-21 16:49
Result Text:	

Horizontally density spacing:	3
Vertically density spacing:	15
Side friction:	0,00
Number of slices:	30
Correction of exit angle:	Yes

Graphic Model



Soil

Materials

Material	ρ [kN/m³]	Ø [°]	C' [kPa]	C [kPa]	Aa	Ad	Ap
Fy	18,00	34,0	0,0		1,00	1,00	1,00
Let	18,00			30,0	1,00	1,00	1,00
Le	17,00			CProf	1,00	1,00	1,00
Fr	18,00	40,0	0,0		1,00	1,00	1,00

Soil Parameter Variations

η-factors

Material	Param	Drained	γm	η(1,2)	η(3)	η(4,5,6,7)	η(8)	η
Fy	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00
Let	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Le	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Fr	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00

Scaling factors

Material	+ Factor	- Facktor
Fy	1,00	1,00
Let	1,00	1,00
Le	1,00	1,00
Fr	1,00	1,00

C Profiles

C-profile, X = 333,59 m

Z [m]	C [kPa]
9,00	20,30
5,50	10,50
1,38	10,50

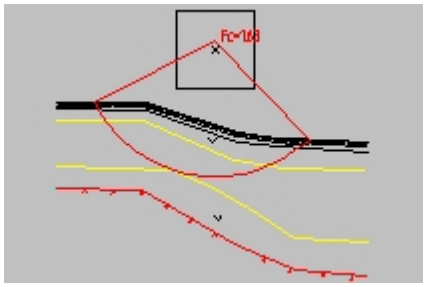
Model Data

Tangent Strategy Data

Centre point X:	326,86
Centre point Z:	48,31
Search area:	34,76
Upper Z-level:	9,87
Lower Z-level:	1,18
Number of levels:	50

Search Criteria

Calculation method:	Beast 2003
Calculation Strategy:	Tangent
Slope type:	Right slope



Result file

Location: g:\projekt\2018\18112896 fasanvägen etapp 13\15_geosuite\stabgraf.rit\bs2_bef.RES

Created: 2019-02-21 16:49

Modified: 2019-02-21 16:49

```
#
      ECHO PRINT OF DATA ON FORTRAN UNIT NUMBER = 14

      000000000111111111122222222223333333333444444444455555555556666666666777777777 8
      123456789012345678901234567890123456789012345678901234567890123456789012345678 90

 1----
 2----
 3---- * Version : 4.0.0.0
 4----
 5----  ****************** CONTROL SECTION
 6----   1.0 1.0 CONFRC,CONLTH   CONVERTION FACTORS ON FORCES AND LENGTHS
 7----   1.0 1.0 FCTSUC,FCTTAN   MATERIAL FACTORS ON SU,C AND TAN(PHI)
 8----     1 IDTYP     SOLUTION TYPE (1=STAB/BEARING 2=EARTH PRESS)
 9----    31 ANALYSIS METHOD & TYPE, E.G. 31 = BEAST-2003 & EFF.STRESS
10----     0 NUMGEN    NUMBER OF GENERAL SHEAR SURFACES
11----    30 NUMSLC    NUMBER OF SLICES (ZERO OK FOR GENERAL SURFACES)
12----   0.000 SIDSHR    SIDE SHEAR FACTOR (0.0=PLANE STRAIN , 2.0/LENGTH=MAX)
13----  0.00 0.00 VALUES FOR H3-ASSMPTN (H3(X)=H31+(H32-H31)/XTOT*X)
14----  0.50 0.50 0.00 VALUES FOR R-ASSMPTN  (R(X)=R1+(R2-R1)/XTOT*X+H(X)/HMAX*R3)
15----     0 ITENSP    ALLOW P-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
16----     0 ITENSE    ALLOW E-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
17----     0 JPRINT    TRACE PRINT CODE (0=NON 1=LIM 2=TRACE 3=DETLD TRACE)
18----     2 IPRTTP    FILE NF16 PRINT TYPE FOR SLICE OUTPUT (1=FORCES 2=STRESSES)
19----     1 JPLOT     CODE FOR PLOT(S) ON NF16 (0=NO 1=YES 2=+PWP/SU0 3=+MESH)
20----   0.000 CRTFRC    CONVERGENCE CRITERION , FORCES   (DEFAULT=SUM(FZ)/1.0E4)
21----   2.000 CRTSCR    CONVERGENCE CRITERION , SOLUTION SCORE
22----  1 0 0 0 0 0.0  0.0  0.0  0.0  0.0 First flag, exit angle, third adjust low circ
23----
24----  ****************** GEOMETRY SECTION
25----     17 NUMXLN    NUMBER OF X-LINES WITH SURFACE, ROCK AND ELEMENT SPECS
26----     1 NUMELZ    NUMBER OF ELEMENTS IN Z-DIRECTION
27----     1 NUMLAY    NUMBER OF HORIZONTAL LAYERS
28----     30 NUMTRI    NUMBER OF MATERIAL I.D. TRIANGLES
29----    X-VALUE  Z-SURFACE  Z-ROCK  NUMBER OF X-ELEMENTS TO NEXT X-LINE
30----     152.31      -17.58      82.42       1
31----     252.31      -17.58      82.42       1
32----     280.43      -14.44      83.82       1
33----     292.79      -13.16      84.44       1
34----     307.50      -11.55      85.17       1
35----     311.26      -11.69      85.36       1
36----     318.78      -11.42      85.73       1
37----     319.79      -11.28      85.78       1
38----     335.64      -10.88      86.57       1
39----     348.00      -10.21      87.19       1
40----     386.08      -9.60       89.08       1
41----     393.80      -8.86       89.47       1
42----     399.18      -9.00       89.73       1
43----     408.91      -8.86       90.22       1
44----     411.60      -8.60       90.35       1
45----     434.03      -8.53       91.47       1
```

```
  46----    534.03      -8.53       91.47       0
  47----  00 00 00  0.0 0.0 NP1,NP2,NSTEP,ZN1,ZN2  NODE NEW Z , NP2=MAX TERMINATES
  48----  00 00 00   0 NE1,NE2,NSTEP,MAT     ELEMENT MATRL , NE2=MAX TERMINATES
  49----   LAYER  Z-BOTTOM  MATERIAL-I.D.
  50----    1      91.47        1
  51----   TRIANGLE  MATERIAL   X1  Z1     X2  Z2     X3  Z3
  52----    1  4  343.17   101.47    152.48   101.47    152.48   -15.86
  53----    2  4  343.17   101.47    152.48   -15.86    252.48   -15.86
  54----    3  4  343.17   101.47    252.48   -15.86    292.65   -12.02
  55----    4  4  343.17   101.47    292.65   -12.02    333.29   -1.33
  56----    5  4  343.17   101.47    333.29   -1.33     433.66   -1.01
  57----    6  4  343.17   101.47    533.66   -1.01     433.66   -1.01
  58----    7  4  343.17   101.47    533.66   -1.01     533.66   101.47
  59----    8  3  343.17   101.47    152.52   101.47    152.52   -15.98
  60----    9  3  343.17   101.47    152.52   -15.98    252.52   -15.98
  61----    10  3  343.17   101.47    252.52   -15.98    292.63   -12.08
  62----    11  3  343.17   101.47    292.63   -12.08    307.99   -10.83
  63----    12  3  343.17   101.47    307.99   -10.83    333.31   -8.98
  64----    13  3  343.17   101.47    333.31   -8.98     433.75   -7.56
  65----    14  3  343.17   101.47    533.75   -7.56     433.75   -7.56
  66----    15  3  343.17   101.47    533.75   -7.56     533.75   101.47
  67----    16  2  343.17   101.47    152.31   101.47    152.31   -16.76
  68----    17  2  343.17   101.47    152.31   -16.76    252.31   -16.76
  69----    18  2  343.17   101.47    252.31   -16.76    292.63   -13.01
  70----    19  2  343.17   101.47    292.63   -13.01    307.61   -11.36
  71----    20  2  343.17   101.47    307.61   -11.36    333.53   -10.62
  72----    21  2  343.17   101.47    333.53   -10.62    351.47   -9.90
  73----    22  2  343.17   101.47    351.47   -9.90     368.67   -9.65
  74----    23  2  343.17   101.47    368.67   -9.65     386.00   -9.26
  75----    24  2  343.17   101.47    386.00   -9.26     393.74   -8.54
  76----    25  2  343.17   101.47    393.74   -8.54     402.61   -8.58
  77----    26  2  343.17   101.47    402.61   -8.58     409.54   -8.54
  78----    27  2  343.17   101.47    409.54   -8.54     411.33   -8.35
  79----    28  2  343.17   101.47    411.33   -8.35     433.29   -8.19
  80----    29  2  343.17   101.47    533.29   -8.19     433.29   -8.19
  81----    30  2  343.17   101.47    533.29   -8.19     533.29   101.47
  82----   0 0 0 XWALL,HWALL,RWALL   WALL SPECIFICATIONS
(LOCATION,HEIGHT,ROUGHNESS)
  83----
  84---- ****************** MATERIAL PROPERTIES SECTION
  85----    4   3   15 NUMMAT    NUMBER OF DIFFERENT MATERIALS (NDX, NDZ DENSITY GRID S
  86----    1 NUMXSU    NUMBER OF VERTICAL X-LINES WITH GIVEN SU-VALUES
  87----    0 NODSU     NUMBER OF MESH NODAL POINTS WITH GIVEN SU-VALUES
  88----   0.00 CRACKZ    SURFACE OPEN CRACK DEPTH
  89----   0.00 CRACKW    WATER DEPTH IN OPEN SURFACE CRACK
  90----   0.0 PHIREF    FRICTION ANGLE REFERENCE PRESSURE
  91----   EFFECTIVE STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO
OK)
  92----   MAT  GAMTOT  COHSN  PHIANG  PHIRED  PWPMAT  RU-MAT  B-FACT K-NOT B-SIG2 D-
FCT
  93----   1   18.00    0.00   34.00  0   0.00   0.00  0  0  0  0.001  -0.00 21.00
  94----   2   18.00    0.00    0.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
  95----   3   17.00    0.00    0.00  0   0.00   0.00  0  0  0  0.001  -0.00 17.00
  96----   4   18.00    0.00   40.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
  97----   TOTAL STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO OK)
  98----   MAT  GAMTOT  SUA/SU0 SUD/SU0 SUP/SU0  SU0-MAT  (A:ACTIVE D:DIRECT
P:PASSIVE)C-
  99----   1   18.00    1.00    1.00    1.00    0.00   1
 100----   2   18.00    1.00    1.00    1.00   30.00   0
 101----   3   17.00    1.00    1.00    1.00    0.00   1
```

```
102----  4   18.00    1.00    1.00    1.00    0.00   1
103----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : SU0-VALUES
104----  1     333.59  3     -9.00    -5.50    -1.38
105----                     20.30    10.50    10.50
106----  NODE   SU0   (IF ALL NODES, SKIP NODE NUMBERS : SU0(1),SU0(2),...)
107----
108----  ****************** PORE-WATER-PRESSURES SECTION
109----    1 IDPWP     PWP INDICATOR (1=HYDROSTATIC  2=NON-HYDROSTATIC)
110----    0 NUMBER OF VERTICAL X-LINES WITH GIVEN PWP WITH DEPTH
111----    0 NODPWP    NUMBER OF MESH NODAL POINTS WITH GIVEN PWP
112----   0.0 FCTNOD    FACTOR ON PWP-VALUES GIVEN AT NODAL POINTS
113----   101.470 WATERZ    HORIZONTAL WATER TABLE Z-LEVEL
114----   10.0 GAMWAT    FREE WATER UNIT WEIGHT
115----   10.0 GAMPWP    PORE WATER UNIT WEIGHT (=GAMWAT IF HYDROSTATIC)
116----    0.00 PWPMIN    MINIMUM ALLOWABLE PWP (CAPILLARY TENSION)
117----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : PWP-VALUES
118----   NODE  PWP-VALUE  (IF ALL NODES , SKIP NODE NUMBERS : PWP(1),PWP(2),...)
119----
120----  ****************** LOAD SECTION
121----    0 NUMPNT           NUMBER OF POINT LOADS & 100*SOIL NAILS
122----    0 NUMSIG           NUMBER OF SURFACE DISTRIBUTED LOADS
123----   0.0 SIGTOP          UNIFORM INITIAL VERTICAL STRESS AT SURFACE
124---- -100 100 XTOP1,XTOP2       STRESS 'SIGTOP' ACTS FROM XTOP1 TO XTOP2
125----   10.0000   5.0000 FCTPNT,FCTSIG      POINT AND DISTRIBUTED LOAD FACTORS
126----   0.00 1.00 ACCXRT,ACCZRT       ACCELERATION RATIOS IN X- AND Z-DIRECTIONS
127----   POINT   X-COORD   Z-COORD   X-FORCE   Z-FORCE
128----  STRIP    X1      X2      SIGZ1    SIGZ2    TAUX1    TAUX2
129----
130----  ****************** GIVEN SHEAR SURFACE
131---- END

      000000000111111111122222222223333333333444444444455555555556666666666777777777 8
      123456789012345678901234567890123456789012345678901234567890123456789012345678 9
```

BEAST Output   Program Version = 30 Apr 2015   Time = 21 FEB 2019 16:49:28

========== SAFETY FACTOR = 4.454
SURFACE NO : 801   SUMMARY OF GEOMETRY AND STRESSES
========== SOLUTION SCORE= 0.032

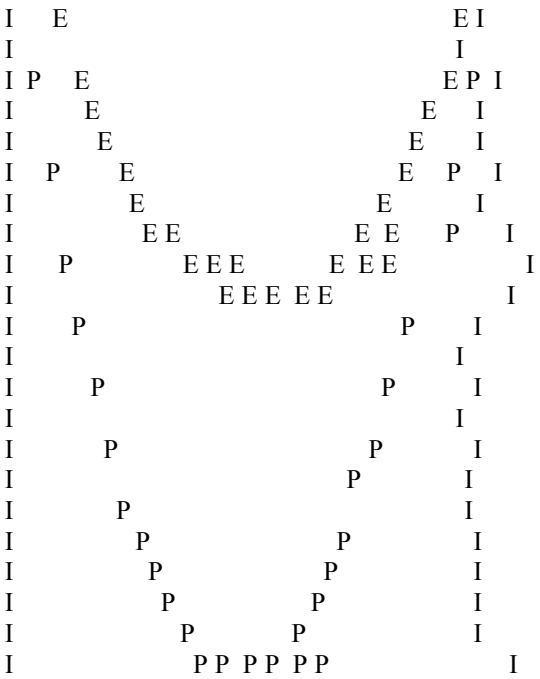
SURFACE TYPE = CIRCLE   X-CENTER Z-CENTER   RADIUS
                  335.550   -39.620   37.550

SOLUTION METHOD = BEAST-2003 / EFFECTIVE STRESS ANALYSIS

SLICE	X1	Z1	Z2	WXT-FRC	P-STR	E2-STR	U2-STR	ROUGH	H2/Z23
	X2	Z4	Z3	WZT-FRC	S-STR	T2-STR	U3-STR		H3/L34
1	310.49	-11.66	-11.66	0.000E+00	8.019E+00	1.863E+00	0.000E+00	0.018	0.282
1	312.09	-11.66	-10.31	2.002E+01	5.196E+00	8.212E-02	0.000E+00		0.334
2	312.09	-11.66	-11.60	0.000E+00	3.038E+01	1.280E+01	0.000E+00	0.050	0.245
2	313.70	-10.31	-9.09	5.474E+01	4.558E+00	1.969E-01	0.000E+00		0.450
3	313.70	-11.60	-11.54	0.000E+00	4.953E+01	2.233E+01	0.000E+00	0.074	0.277
3	315.31	-9.09	-8.00	8.478E+01	4.271E+00	3.032E-01	0.000E+00		0.472

4	315.31	-11.54	-11.49	0.000E+00	6.674E+01	3.103E+01	0.000E+00	*******	0.292	WARNINGS: 1
4	316.91	-8.00	-7.02	1.115E+02	3.623E+00	4.018E-01	0.000E+00		0.481	
5	316.91	-11.49	-11.43	0.000E+00	8.187E+01	3.877E+01	0.000E+00	*******	0.301	WARNINGS: 1
5	318.52	-7.02	-6.16	1.349E+02	3.045E+00	4.929E-01	0.000E+00		0.486	
6	318.52	-11.43	-11.27	0.000E+00	9.435E+01	4.643E+01	0.000E+00	0.132	0.313	
6	320.12	-6.16	-5.39	1.544E+02	2.534E+00	5.838E-01	0.000E+00		0.491	
7	320.12	-11.27	-11.23	0.000E+00	1.052E+02	5.225E+01	0.000E+00	0.145	0.317	
7	321.73	-5.39	-4.71	1.714E+02	2.358E+00	6.548E-01	0.000E+00		0.491	
8	321.73	-11.23	-11.19	0.000E+00	1.155E+02	5.731E+01	0.000E+00	0.156	0.320	
8	323.34	-4.71	-4.12	1.878E+02	2.358E+00	7.182E-01	0.000E+00		0.493	
9	323.34	-11.19	-11.15	0.000E+00	1.245E+02	6.170E+01	0.000E+00	0.165	0.322	
9	324.94	-4.12	-3.60	2.020E+02	2.358E+00	7.731E-01	0.000E+00		0.495	
10	324.94	-11.15	-11.11	0.000E+00	1.322E+02	6.541E+01	0.000E+00	0.172	0.324	
10	326.55	-3.60	-3.17	2.140E+02	2.358E+00	8.199E-01	0.000E+00		0.496	
11	326.55	-11.11	-11.07	0.000E+00	1.385E+02	6.842E+01	0.000E+00	0.179	0.326	
11	328.16	-3.17	-2.81	2.238E+02	2.358E+00	8.589E-01	0.000E+00		0.497	
12	328.16	-11.07	-11.03	0.000E+00	1.434E+02	7.082E+01	0.000E+00	0.183	0.327	
12	329.76	-2.81	-2.52	2.316E+02	2.358E+00	8.892E-01	0.000E+00		0.498	
13	329.76	-11.03	-10.99	0.000E+00	1.473E+02	7.263E+01	0.000E+00	0.187	0.328	
13	331.37	-2.52	-2.31	2.374E+02	2.358E+00	9.106E-01	0.000E+00		0.498	
14	331.37	-10.99	-10.95	0.000E+00	1.499E+02	7.383E+01	0.000E+00	0.189	0.329	
14	332.98	-2.31	-2.16	2.413E+02	2.358E+00	9.232E-01	0.000E+00		0.499	
15	332.98	-10.95	-10.91	0.000E+00	1.513E+02	7.438E+01	0.000E+00	0.189	0.331	
15	334.58	-2.16	-2.09	2.433E+02	2.358E+00	9.278E-01	0.000E+00		0.500	
16	334.58	-10.91	-10.85	0.000E+00	1.514E+02	7.447E+01	0.000E+00	0.189	0.332	
16	336.19	-2.09	-2.08	2.431E+02	2.358E+00	9.252E-01	0.000E+00		0.500	
17	336.19	-10.85	-10.76	0.000E+00	1.498E+02	7.426E+01	0.000E+00	0.188	0.335	
17	337.80	-2.08	-2.14	2.403E+02	2.358E+00	9.168E-01	0.000E+00		0.501	
18	337.80	-10.76	-10.68	0.000E+00	1.468E+02	7.348E+01	0.000E+00	0.185	0.339	
18	339.40	-2.14	-2.27	2.352E+02	2.358E+00	8.996E-01	0.000E+00		0.502	
19	339.40	-10.68	-10.59	0.000E+00	1.427E+02	7.207E+01	0.000E+00	0.181	0.342	
19	341.01	-2.27	-2.47	2.283E+02	2.358E+00	8.746E-01	0.000E+00		0.503	
20	341.01	-10.59	-10.50	0.000E+00	1.373E+02	7.008E+01	0.000E+00	0.176	0.346	
20	342.61	-2.47	-2.75	2.193E+02	2.358E+00	8.414E-01	0.000E+00		0.504	
21	342.61	-10.50	-10.41	0.000E+00	1.306E+02	6.756E+01	0.000E+00	0.169	0.351	
21	344.22	-2.75	-3.09	2.083E+02	2.358E+00	7.999E-01	0.000E+00		0.505	
22	344.22	-10.41	-10.33	0.000E+00	1.227E+02	6.451E+01	0.000E+00	0.161	0.356	
22	345.83	-3.09	-3.51	1.955E+02	2.358E+00	7.504E-01	0.000E+00		0.506	
23	345.83	-10.33	-10.24	0.000E+00	1.135E+02	6.088E+01	0.000E+00	0.152	0.362	
23	347.43	-3.51	-4.00	1.804E+02	2.358E+00	6.945E-01	0.000E+00		0.507	

```
 24  347.43  -10.24  -10.19   0.000E+00  1.035E+02  5.632E+01  0.000E+00  0.139  0.366
 24  349.04   -4.00   -4.58   1.641E+02  2.358E+00  6.268E-01  0.000E+00         0.509

 25  349.04  -10.19  -10.17   0.000E+00  9.244E+01  5.102E+01  0.000E+00  0.125  0.370
 25  350.65   -4.58   -5.24   1.461E+02  2.358E+00  5.490E-01  0.000E+00         0.511

 26  350.65  -10.17  -10.14   0.000E+00  8.017E+01  4.510E+01  0.000E+00  0.106  0.374
 26  352.25   -5.24   -5.99   1.262E+02  2.459E+00  4.644E-01  0.000E+00         0.514

 27  352.25  -10.14  -10.12   0.000E+00  6.647E+01  3.847E+01  0.000E+00  0.085  0.377
 27  353.86   -5.99   -6.84   1.036E+02  2.935E+00  3.728E-01  0.000E+00         0.520

 28  353.86  -10.12  -10.09   0.000E+00  5.130E+01  3.119E+01  0.000E+00  0.050  0.376
 28  355.47   -6.84   -7.79   7.851E+01  3.499E+00  2.730E-01  0.000E+00         0.529

 29  355.47  -10.09  -10.06   0.000E+00  3.458E+01  2.274E+01  0.000E+00  0.028  0.329
 29  357.07   -7.79   -8.86   5.019E+01  4.599E+00  1.645E-01  0.000E+00         0.552

 30  357.07  -10.06  -10.04   0.000E+00  1.531E+01  4.593E-10  0.000E+00  0.000  0.500
 30  358.68   -8.86  -10.04   1.746E+01  5.853E+00  1.725E-09  0.000E+00         0.666

BEAST  Output   Program Version = 30 Apr 2015    Time = 21 FEB 2019  16:49:28



SURFACE NO:801  TYPE: CIRCLE    SAFETY-FACTOR:  4.454   SCORE:  0.032
BELOW SKETCH SHOWS SHEAR SURFACE WITH SLICE DIVISIONS AND MATERIAL ID-S

122  2 2 2  1 1 1  1 1 1  1 1 1  1 1 1  1 1 1  1 1 1  1
 33 3 3 3  3 3 2  2 2 2  2 2 2  2 2 2  2 2 2  2 2 2  2 2 2  2 2 1  121
   333 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 2 32
     333  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 333
       3 333 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  333
          333  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 333 3
            3 33333  3 3 3  3 3 3  3 3 3  3 333 333
                33 333333 33333 333333 3333
0102 030405 060708 091011 121314 1516 171819 202122 232425 262728 2930

 MAT GAMTOT SUA/SU0 SUD/SU0 SUP/SU0 COHESN PHIANG PHIRED RU-FCT  B-FCT  K-NOT B-
SIG2 D/SU(B)
  1  18.000  1.000   1.000   1.000   0.000  34.00  0.00  0.000   0.000  0.000  0.000  0.001
  2  18.000  1.000   1.000   1.000   0.000   0.00  0.00  0.000   0.000  0.000  0.000  0.001
  3  17.000  1.000   1.000   1.000   0.000   0.00  0.00  0.000   0.000  0.000  0.000  0.001
  4  18.000  1.000   1.000   1.000   0.000  40.00  0.00  0.000   0.000  0.000  0.000  0.001

BEAST  Output   Program Version = 30 Apr 2015    Time = 21 FEB 2019  16:49:29



SURFACE NO:801  TYPE: CIRCLE    SAFETY-FACTOR:  4.454   SCORE:  0.032
BELOW SKETCH SHOWS EFFECTIVE NORMAL STRESSES: P=SHEAR-SURFACE  E=INTER-SLICE
                              U=RESULTING PWP AT SHEAR SURFACE

0102 030405 060708 091011 121314 1516 171819 202122 232425 262728 2930
------------------------------------------------------------------------ZERO
IUEU UUUU UUUU UUUU UUUU UU UUUU UUUU UUUU UUUU UUI
IP                                          I
I   E                                       PI
```



P-MIN = 8.019E+00 P-MAX = 1.514E+02
E-MIN = 1.863E+00 E-MAX = 7.447E+01
U-MIN = 0.000E+00 U-MAX = 0.000E+00

THIS RUN WAS TERMINATED : 21 FEB 2019 AT 16:49:29 HOURS

TIME USED = 1 SECONDS

GeoSuite Stability Report

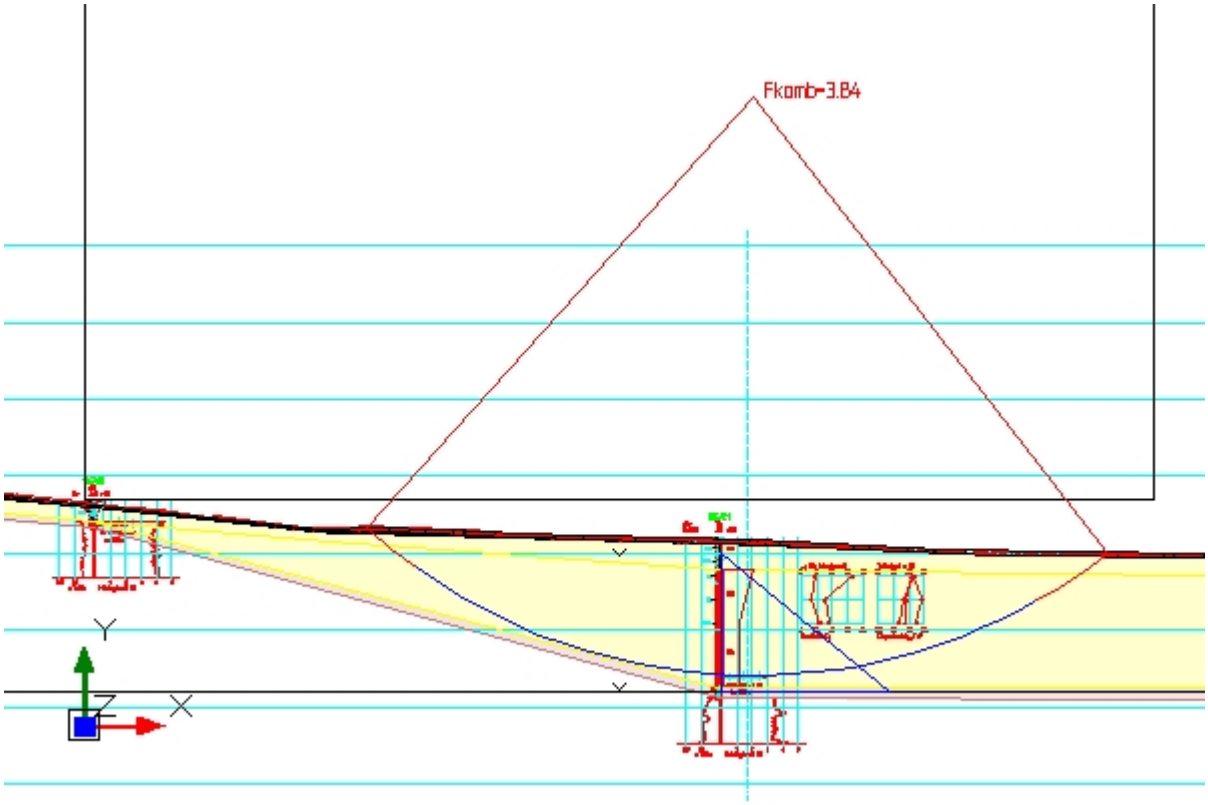
Calculation data

Project name:	Fasanvägen etapp 13
Project number:	18112896
Contractor:	
Comment:	

Calculation name:	BS2_BEF_KOMB
Description:	
File name:	g:\projekt\2018\18112896 fasanvägen etapp 13\15_geosuite\stabgraf.rit\bs2_bef_komb.dwg
Critical Safety Factor:	3,84
Result Date:	2019-03-07 16:55
Result Text:	

Horizontally density spacing:	3
Vertically density spacing:	15
Side friction:	0,00
Number of slices:	30
Correction of exit angle:	Yes

Graphic Model



Soil

Materials (combined analysis)

Material	ρ [kN/m³]	Ø [°]	C' [kPa]	C [kPa]	Aa	Ad	Ap
Fy	18,00	34,0	0,0	100,0	1,00	1,00	1,00
Let	18,00	30,0	10 %	30,0	1,00	1,00	1,00
Le	17,00	30,0	10 %	CProf	1,00	1,00	1,00
Fr	18,00	40,0	0,0	100,0	1,00	1,00	1,00

Soil Parameter Variations

η-factors

Material	Param	Drained	γm	η(1,2)	η(3)	η(4,5,6,7)	η(8)	η
Fy	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00
Let	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Le	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Fr	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00

Scaling factors

Material	+ Factor	- Facktor
Fy	1,00	1,00
Let	1,00	1,00
Le	1,00	1,00
Fr	1,00	1,00

C Profiles

C-profile, X = 333,59 m

Z [m]	C [kPa]
9,00	20,30
5,50	10,50
1,38	10,50

Pore Profiles

Pore-profile, X = 333,50 m

Z [m]	Pore P [kPa]
10,02	0,01
1,05	110,00

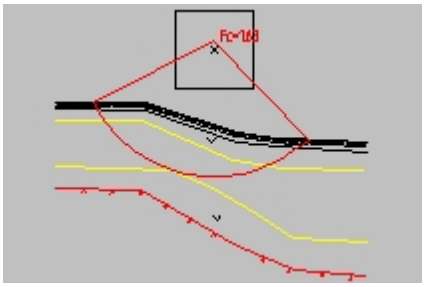
Model Data

Tangent Strategy Data

Centre point X:	326,86
Centre point Z:	48,31
Search area:	34,76
Upper Z-level:	9,87
Lower Z-level:	1,18
Number of levels:	50

Search Criteria

Calculation method:	Beast 2003
Calculation Strategy:	Tangent
Slope type:	Right slope



Result file

Location: g:\projekt\2018\18112896 fasanvägen etapp 13\15_geosuite\stabgraf.rit\bs2_bef_komb.RES

Created: 2019-03-07 16:55

Modified: 2019-03-07 16:55

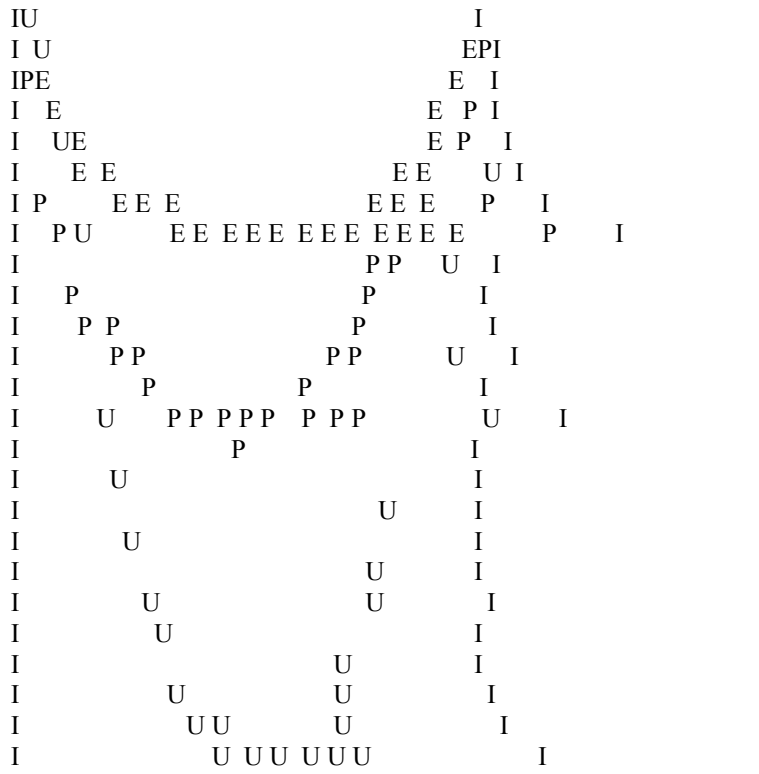
```
#
      ECHO PRINT OF DATA ON FORTRAN UNIT NUMBER = 14

      000000000111111111122222222223333333333444444444455555555556666666666777777777778
      123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890

 1----
 2----
 3---- * Version : 4.0.0.0
 4----
 5----  ****************** CONTROL SECTION
 6----   1.0 1.0 CONFRC,CONLTH   CONVERTION FACTORS ON FORCES AND LENGTHS
 7----   1.0 1.0 FCTSUC,FCTTAN   MATERIAL FACTORS ON SU,C AND TAN(PHI)
 8----     1 IDTYP     SOLUTION TYPE (1=STAB/BEARING 2=EARTH PRESS)
 9----    33 ANALYSIS METHOD & TYPE, E.G. 31 = BEAST-2003 & EFF.STRESS
10----     0 NUMGEN    NUMBER OF GENERAL SHEAR SURFACES
11----    30 NUMSLC    NUMBER OF SLICES (ZERO OK FOR GENERAL SURFACES)
12----   0.000 SIDSHR    SIDE SHEAR FACTOR (0.0=PLANE STRAIN , 2.0/LENGTH=MAX)
13----  0.00 0.00 VALUES FOR H3-ASSMPTN (H3(X)=H31+(H32-H31)/XTOT*X)
14----  0.50 0.50 0.00 VALUES FOR R-ASSMPTN  (R(X)=R1+(R2-R1)/XTOT*X+H(X)/HMAX*R3)
15----     0 ITENSP    ALLOW P-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
16----     0 ITENSE    ALLOW E-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
17----     0 JPRINT    TRACE PRINT CODE (0=NON 1=LIM 2=TRACE 3=DETLD TRACE)
18----     2 IPRTTP    FILE NF16 PRINT TYPE FOR SLICE OUTPUT (1=FORCES 2=STRESSES)
19----     1 JPLOT     CODE FOR PLOT(S) ON NF16 (0=NO 1=YES 2=+PWP/SU0 3=+MESH)
20----   0.000 CRTFRC    CONVERGENCE CRITERION , FORCES   (DEFAULT=SUM(FZ)/1.0E4)
21----   2.000 CRTSCR    CONVERGENCE CRITERION , SOLUTION SCORE
22----  1 0 0 0 0 0.0  0.0  0.0  0.0  0.0 First flag, exit angle, third adjust low circ
23----
24----  ****************** GEOMETRY SECTION
25----     17 NUMXLN    NUMBER OF X-LINES WITH SURFACE, ROCK AND ELEMENT SPECS
26----     1 NUMELZ    NUMBER OF ELEMENTS IN Z-DIRECTION
27----     1 NUMLAY    NUMBER OF HORIZONTAL LAYERS
28----     30 NUMTRI    NUMBER OF MATERIAL I.D. TRIANGLES
29----    X-VALUE  Z-SURFACE  Z-ROCK  NUMBER OF X-ELEMENTS TO NEXT X-LINE
30----     152.31      -17.58      82.42       1
31----     252.31      -17.58      82.42       1
32----     280.43      -14.44      83.82       1
33----     292.79      -13.16      84.44       1
34----     307.50      -11.55      85.17       1
35----     311.26      -11.69      85.36       1
36----     318.78      -11.42      85.73       1
37----     319.79      -11.28      85.78       1
38----     335.64      -10.88      86.57       1
39----     348.00      -10.21      87.19       1
40----     386.08      -9.60       89.08       1
41----     393.80      -8.86       89.47       1
42----     399.18      -9.00       89.73       1
43----     408.91      -8.86       90.22       1
44----     411.60      -8.60       90.35       1
```

```
  45----    434.03      -8.53       91.47       1
  46----    534.03      -8.53       91.47       0
  47----  00 00 00  0.0 0.0 NP1,NP2,NSTEP,ZN1,ZN2  NODE NEW Z , NP2=MAX TERMINATES
  48----  00 00 00   0 NE1,NE2,NSTEP,MAT     ELEMENT MATRL , NE2=MAX TERMINATES
  49----   LAYER  Z-BOTTOM  MATERIAL-I.D.
  50----    1      91.47       1
  51----   TRIANGLE  MATERIAL   X1  Z1     X2  Z2     X3  Z3
  52----    1  4   343.17   101.47    152.48   101.47    152.48   -15.86
  53----    2  4   343.17   101.47    152.48   -15.86    252.48   -15.86
  54----    3  4   343.17   101.47    252.48   -15.86    292.65   -12.02
  55----    4  4   343.17   101.47    292.65   -12.02    333.29   -1.33
  56----    5  4   343.17   101.47    333.29   -1.33     433.66   -1.01
  57----    6  4   343.17   101.47    533.66   -1.01     433.66   -1.01
  58----    7  4   343.17   101.47    533.66   -1.01     533.66   101.47
  59----    8  3   343.17   101.47    152.52   101.47    152.52   -15.98
  60----    9  3   343.17   101.47    152.52   -15.98    252.52   -15.98
  61----    10  3   343.17   101.47    252.52   -15.98    292.63   -12.08
  62----    11  3   343.17   101.47    292.63   -12.08    307.99   -10.83
  63----    12  3   343.17   101.47    307.99   -10.83    333.31   -8.98
  64----    13  3   343.17   101.47    333.31   -8.98     433.75   -7.56
  65----    14  3   343.17   101.47    533.75   -7.56     433.75   -7.56
  66----    15  3   343.17   101.47    533.75   -7.56     533.75   101.47
  67----    16  2   343.17   101.47    152.31   101.47    152.31   -16.76
  68----    17  2   343.17   101.47    152.31   -16.76    252.31   -16.76
  69----    18  2   343.17   101.47    252.31   -16.76    292.63   -13.01
  70----    19  2   343.17   101.47    292.63   -13.01    307.61   -11.36
  71----    20  2   343.17   101.47    307.61   -11.36    333.53   -10.62
  72----    21  2   343.17   101.47    333.53   -10.62    351.47   -9.90
  73----    22  2   343.17   101.47    351.47   -9.90     368.67   -9.65
  74----    23  2   343.17   101.47    368.67   -9.65     386.00   -9.26
  75----    24  2   343.17   101.47    386.00   -9.26     393.74   -8.54
  76----    25  2   343.17   101.47    393.74   -8.54     402.61   -8.58
  77----    26  2   343.17   101.47    402.61   -8.58     409.54   -8.54
  78----    27  2   343.17   101.47    409.54   -8.54     411.33   -8.35
  79----    28  2   343.17   101.47    411.33   -8.35     433.29   -8.19
  80----    29  2   343.17   101.47    533.29   -8.19     433.29   -8.19
  81----    30  2   343.17   101.47    533.29   -8.19     533.29   101.47
  82----   0 0 0 XWALL,HWALL,RWALL   WALL SPECIFICATIONS
(LOCATION,HEIGHT,ROUGHNESS)
  83----
  84----  ****************** MATERIAL PROPERTIES SECTION
  85----    4   3   15 NUMMAT    NUMBER OF DIFFERENT MATERIALS (NDX, NDZ DENSITY GRID S
  86----    1 NUMXSU    NUMBER OF VERTICAL X-LINES WITH GIVEN SU-VALUES
  87----    0 NODSU     NUMBER OF MESH NODAL POINTS WITH GIVEN SU-VALUES
  88----   0.00 CRACKZ    SURFACE OPEN CRACK DEPTH
  89----   0.00 CRACKW    WATER DEPTH IN OPEN SURFACE CRACK
  90----   0.0 PHIREF    FRICTION ANGLE REFERENCE PRESSURE
  91----   EFFECTIVE STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO
OK)
  92----   MAT  GAMTOT  COHSN  PHIANG  PHIRED  PWPMAT  RU-MAT  B-FACT K-NOT B-SIG2 D-
FCT
  93----   1   18.00    0.00   34.00  0   0.00   0.00  0  0  0  0.001  -0.00 21.00
  94----   2   18.00   -10.00   30.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
  95----   3   17.00   -10.00   30.00  0   0.00   0.00  0  0  0  0.001  -0.00 17.00
  96----   4   18.00    0.00   40.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
  97----   TOTAL STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO OK)
  98----   MAT  GAMTOT  SUA/SU0 SUD/SU0 SUP/SU0  SU0-MAT  (A:ACTIVE D:DIRECT
P:PASSIVE)C-
  99----   1   18.00    1.00    1.00    1.00   100.00   0
 100----   2   18.00    1.00    1.00    1.00   30.00   0
```

```
101----  3   17.00    1.00    1.00    1.00    0.00   1
102----  4   18.00    1.00    1.00    1.00   100.00   0
103----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : SU0-VALUES
104----  1     333.59  3     -9.00    -5.50    -1.38
105----                    20.30    10.50    10.50
106----  NODE   SU0   (IF ALL NODES, SKIP NODE NUMBERS : SU0(1),SU0(2),...)
107----
108----  ****************** PORE-WATER-PRESSURES SECTION
109----    2 IDPWP     PWP INDICATOR (1=HYDROSTATIC  2=NON-HYDROSTATIC)
110----    1 NUMBER OF VERTICAL X-LINES WITH GIVEN PWP WITH DEPTH
111----    0 NODPWP    NUMBER OF MESH NODAL POINTS WITH GIVEN PWP
112----   0.0 FCTNOD    FACTOR ON PWP-VALUES GIVEN AT NODAL POINTS
113----   0.000 WATERZ    HORIZONTAL WATER TABLE Z-LEVEL
114----   10.0 GAMWAT    FREE WATER UNIT WEIGHT
115----   10.0 GAMPWP    PORE WATER UNIT WEIGHT (=GAMWAT IF HYDROSTATIC)
116----    0.00 PWPMIN    MINIMUM ALLOWABLE PWP (CAPILLARY TENSION)
117----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : PWP-VALUES
118----  1     333.50  2    -10.02    -1.05
119----                     0.00    110.00
120----   NODE  PWP-VALUE  (IF ALL NODES , SKIP NODE NUMBERS : PWP(1),PWP(2),...)
121----
122----  ****************** LOAD SECTION
123----    0 NUMPNT            NUMBER OF POINT LOADS & 100*SOIL NAILS
124----    0 NUMSIG            NUMBER OF SURFACE DISTRIBUTED LOADS
125----   0.0 SIGTOP           UNIFORM INITIAL VERTICAL STRESS AT SURFACE
126---- -100 100 XTOP1,XTOP2        STRESS 'SIGTOP' ACTS FROM XTOP1 TO XTOP2
127----   10.0000   5.0000 FCTPNT,FCTSIG      POINT AND DISTRIBUTED LOAD FACTORS
128----   0.00 1.00 ACCXRT,ACCZRT       ACCELERATION RATIOS IN X- AND Z-DIRECTIONS
129----   POINT   X-COORD   Z-COORD   X-FORCE   Z-FORCE
130----  STRIP     X1      X2      SIGZ1     SIGZ2     TAUX1     TAUX2
131----
132----  ****************** GIVEN SHEAR SURFACE
133---- END

      000000000111111111122222222223333333333444444444455555555556666666666777777777 8
      123456789012345678901234567890123456789012345678901234567890123456789012345678 90


BEAST  Output   Program Version = 30 Apr 2015    Time = 07 MAR 2019  16:55:44



=================================================== SAFETY FACTOR =    3.836
SURFACE NO : 798    SUMMARY OF GEOMETRY AND STRESSES
=================================================== SOLUTION SCORE=    0.005

SURFACE TYPE = CIRCLE        X-CENTER  Z-CENTER   RADIUS
                    335.550   -39.620    37.550

SOLUTION METHOD = BEAST-2003 / SWEDISH COMBINED ANALYSIS

SLICE   X1     Z1     Z2     WXT-FRC   P-STR     E2-STR     U2-STR    ROUGH  H2/Z23
      X2     Z4     Z3     WZT-FRC   S-STR     T2-STR     U3-STR          H3/L34

  1  310.49  -11.66  -11.66   0.000E+00  1.042E+01  7.998E+00  0.000E+00  0.233  0.307
  1  312.09  -11.66  -10.31   2.002E+01  2.045E+00  3.845E-01  0.000E+00         0.334

  2  312.09  -11.66  -11.60   0.000E+00  2.560E+01  1.389E+01  2.153E+00  0.262  0.308
  2  313.70  -10.31   -9.09   5.474E+01  4.383E+00  6.743E-01  4.423E+00         0.450
```

3	313.70	-11.60	-11.54	-3.553E-15	3.060E+01	1.697E+01	7.101E+00	0.265	0.341
3	315.31	-9.09	-8.00	8.478E+01	4.960E+00	8.054E-01	1.810E+01	0.472	
4	315.31	-11.54	-11.49	0.000E+00	3.533E+01	1.967E+01	1.238E+01*******	0.351	WARNINGS: 1
4	316.91	-8.00	-7.02	1.115E+02	4.207E+00	9.127E-01	3.075E+01	0.481	
5	316.91	-11.49	-11.43	0.000E+00	3.932E+01	2.200E+01	1.740E+01*******	0.354	WARNINGS: 1
5	318.52	-7.02	-6.16	1.349E+02	3.536E+00	1.005E+00	4.203E+01	0.486	
6	318.52	-11.43	-11.27	0.000E+00	4.188E+01	2.443E+01	2.240E+01	0.265	0.363
6	320.12	-6.16	-5.39	1.544E+02	2.943E+00	1.098E+00	5.207E+01	0.491	
7	320.12	-11.27	-11.23	-1.421E-14	4.390E+01	2.592E+01	2.657E+01	0.265	0.363
7	321.73	-5.39	-4.71	1.714E+02	2.738E+00	1.155E+00	6.097E+01	0.491	
8	321.73	-11.23	-11.19	7.105E-15	4.654E+01	2.712E+01	3.030E+01	0.265	0.363
8	323.34	-4.71	-4.12	1.878E+02	2.738E+00	1.203E+00	6.875E+01	0.493	
9	323.34	-11.19	-11.15	0.000E+00	4.878E+01	2.813E+01	3.357E+01	0.265	0.362
9	324.94	-4.12	-3.60	2.020E+02	2.738E+00	1.242E+00	7.554E+01	0.495	
10	324.94	-11.15	-11.11	7.105E-15	5.065E+01	2.896E+01	3.638E+01	0.265	0.362
10	326.55	-3.60	-3.17	2.140E+02	2.738E+00	1.272E+00	8.137E+01	0.496	
11	326.55	-11.11	-11.07	-2.132E-14	5.214E+01	2.958E+01	3.869E+01	0.264	0.361
11	328.16	-3.17	-2.81	2.238E+02	2.738E+00	1.294E+00	8.623E+01	0.497	
12	328.16	-11.07	-11.03	-1.066E-14	5.324E+01	3.001E+01	4.059E+01	0.263	0.361
12	329.76	-2.81	-2.52	2.316E+02	2.738E+00	1.306E+00	9.017E+01	0.498	
13	329.76	-11.03	-10.99	3.553E-15	5.401E+01	3.027E+01	4.207E+01	0.262	0.361
13	331.37	-2.52	-2.31	2.374E+02	2.738E+00	1.308E+00	9.325E+01	0.498	
14	331.37	-10.99	-10.95	2.665E-14	5.444E+01	3.034E+01	4.314E+01	0.260	0.361
14	332.98	-2.31	-2.16	2.413E+02	2.738E+00	1.300E+00	9.549E+01	0.499	
15	332.98	-10.95	-10.91	5.329E-15	5.453E+01	3.021E+01	4.375E+01	0.258	0.361
15	334.58	-2.16	-2.09	2.433E+02	2.738E+00	1.284E+00	9.684E+01	0.500	
16	334.58	-10.91	-10.85	1.565E-14	5.420E+01	2.989E+01	4.410E+01	0.255	0.361
16	336.19	-2.09	-2.08	2.431E+02	2.738E+00	1.259E+00	9.732E+01	0.500	
17	336.19	-10.85	-10.76	-8.882E-16	5.295E+01	2.948E+01	4.420E+01	0.253	0.362
17	337.80	-2.08	-2.14	2.403E+02	2.738E+00	1.229E+00	9.698E+01	0.501	
18	337.80	-10.76	-10.68	-3.553E-15	5.120E+01	2.891E+01	4.390E+01	0.249	0.364
18	339.40	-2.14	-2.27	2.352E+02	2.738E+00	1.190E+00	9.583E+01	0.502	
19	339.40	-10.68	-10.59	2.487E-14	4.910E+01	2.816E+01	4.314E+01	0.245	0.366
19	341.01	-2.27	-2.47	2.283E+02	2.738E+00	1.144E+00	9.380E+01	0.503	
20	341.01	-10.59	-10.50	-2.487E-14	4.661E+01	2.726E+01	4.194E+01	0.241	0.369
20	342.61	-2.47	-2.75	2.193E+02	2.738E+00	1.089E+00	9.088E+01	0.504	
21	342.61	-10.50	-10.41	2.132E-14	4.376E+01	2.622E+01	4.031E+01	0.235	0.372
21	344.22	-2.75	-3.09	2.083E+02	2.738E+00	1.027E+00	8.709E+01	0.505	
22	344.22	-10.41	-10.33	7.105E-15	4.055E+01	2.505E+01	3.825E+01	0.229	0.375
22	345.83	-3.09	-3.51	1.955E+02	2.738E+00	9.583E-01	8.244E+01	0.506	

```
 23  345.83  -10.33  -10.24  -1.421E-14  3.696E+01  2.377E+01  3.567E+01  0.222  0.377
 23  347.43   -3.51   -4.00   1.804E+02  2.738E+00  8.860E-01  7.683E+01         0.507

 24  347.43  -10.24  -10.19   0.000E+00  3.356E+01  2.220E+01  3.238E+01  0.214  0.376
 24  349.04   -4.00   -4.58   1.641E+02  2.738E+00  8.023E-01  7.022E+01         0.509

 25  349.04  -10.19  -10.17  -7.105E-15  3.116E+01  2.024E+01  2.848E+01  0.203  0.373
 25  350.65   -4.58   -5.24   1.478E+02  2.738E+00  7.010E-01  6.264E+01         0.511

 26  350.65  -10.17  -10.14   1.421E-14  2.742E+01  1.798E+01  2.401E+01  0.188  0.367
 26  352.25   -5.24   -5.99   1.276E+02  2.855E+00  5.895E-01  5.399E+01         0.514

 27  352.25  -10.14  -10.12   7.105E-15  2.343E+01  1.507E+01  1.895E+01  0.171  0.363
 27  353.86   -5.99   -6.84   1.048E+02  3.408E+00  4.619E-01  4.417E+01         0.520

 28  353.86  -10.12  -10.09   0.000E+00  1.878E+01  1.148E+01  1.330E+01  0.155  0.358
 28  355.47   -6.84   -7.79   7.967E+01  3.233E+00  3.376E-01  3.317E+01         0.529

 29  355.47  -10.09  -10.06   0.000E+00  1.309E+01  7.082E+00  6.884E+00  0.130  0.332
 29  357.07   -7.79   -8.86   5.132E+01  2.451E+00  1.961E-01  2.082E+01         0.552

 30  357.07  -10.06  -10.04   0.000E+00  5.503E+00 -2.444E-11  0.000E+00  0.000  0.500
 30  358.68   -8.86  -10.04   1.839E+01  1.279E+00  3.180E-11  7.044E+00         0.666

BEAST  Output   Program Version = 30 Apr 2015    Time = 07 MAR 2019  16:55:44



SURFACE NO:798  TYPE: CIRCLE    SAFETY-FACTOR:  3.836   SCORE:  0.005
BELOW SKETCH SHOWS SHEAR SURFACE WITH SLICE DIVISIONS AND MATERIAL ID-S

122  2 2 2  1 1 1  1 1 1  1 1 1  1 1 1  1 1 1  1
 33 3 3 3  3 3 2  2 2 2  2 2 2  2 2 2  2 2 2  2 2 2  2 2 2  2 2 1  121
   333 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 2 32
     333  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 333
       3 333 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  333
          333  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 333 3
            3 33333  3 3 3  3 3 3  3 3 3  3 333 333
                33 333333 33333 333333 3333
0102 030405 060708 091011 121314 1516 171819 202122 232425 262728 2930

 MAT GAMTOT SUA/SU0 SUD/SU0 SUP/SU0 COHESN PHIANG PHIRED RU-FCT  B-FCT  K-NOT B-
SIG2 D/SU(B)
  1  18.000  1.000   1.000   1.000   0.000  34.00  0.00  0.000   0.000  0.000  0.000  0.001
  2  18.000  1.000   1.000   1.000 10.0%*C  30.00  0.00  0.000   0.000  0.000  0.000  0.001
  3  17.000  1.000   1.000   1.000 10.0%*C  30.00  0.00  0.000   0.000  0.000  0.000  0.001
  4  18.000  1.000   1.000   1.000   0.000  40.00  0.00  0.000   0.000  0.000  0.000  0.001

BEAST  Output   Program Version = 30 Apr 2015    Time = 07 MAR 2019  16:55:44



SURFACE NO:798  TYPE: CIRCLE    SAFETY-FACTOR:  3.836   SCORE:  0.005
BELOW SKETCH SHOWS EFFECTIVE NORMAL STRESSES: P=SHEAR-SURFACE  E=INTER-SLICE
                        U=RESULTING PWP AT SHEAR SURFACE

0102 030405 060708 091011 121314 1516 171819 202122 232425 262728 2930
------------------------------------------------------------------------ZERO
```



P-MIN = 5.503E+00 P-MAX = 5.453E+01
E-MIN = 7.082E+00 E-MAX = 3.034E+01
U-MIN = 0.000E+00 U-MAX = 9.732E+01

THIS RUN WAS TERMINATED : 07 MAR 2019 AT 16:55:44 HOURS

TIME USED = 1 SECONDS

GeoSuite Stability Report

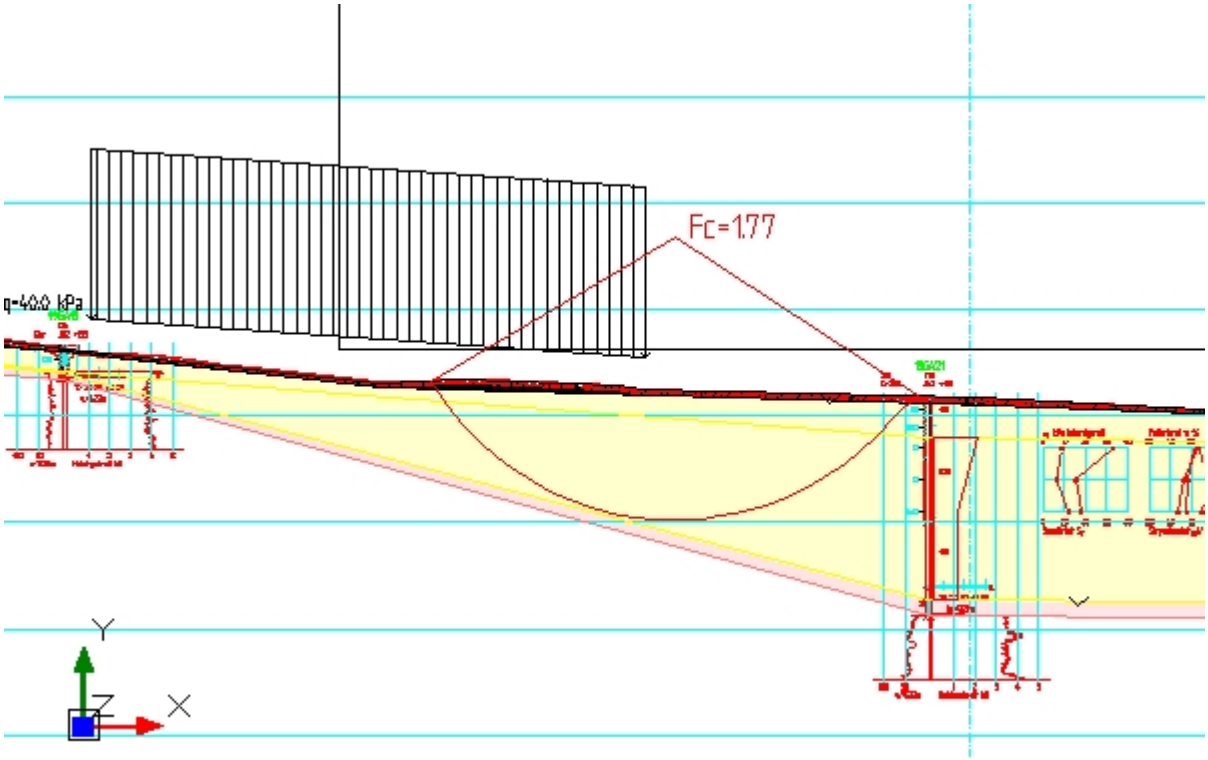
Calculation data

Project name:	Fasanvägen etapp 13
Project number:	18112896
Contractor:	
Comment:	

Calculation name:	BS2_40KPA
Description:	
File name:	G:\Projekt\2018\18112896 Fasanvägen etapp 13\15_Geosuite\STABGRAF.RIT\BS2_40kPa.dwg
Critical Safety Factor:	1,77
Result Date:	2019-03-07 16:38
Result Text:	

Horizontally density spacing:	3
Vertically density spacing:	15
Side friction:	0,00
Number of slices:	30
Correction of exit angle:	Yes

Graphic Model



Soil

Materials

Material	ρ [kN/m³]	Ø [°]	C' [kPa]	C [kPa]	Aa	Ad	Ap
Fy	18,00	34,0	0,0		1,00	1,00	1,00
Let	18,00			30,0	1,00	1,00	1,00
Le	17,00			CProf	1,00	1,00	1,00
Fr	18,00	40,0	0,0		1,00	1,00	1,00

Soil Parameter Variations

η-factors

Material	Param	Drained	γm	η(1,2)	η(3)	η(4,5,6,7)	η(8)	η
Fy	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00
Let	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Le	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Fr	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00

Scaling factors

Material	+ Factor	- Facktor
Fy	1,00	1,00
Let	1,00	1,00
Le	1,00	1,00
Fr	1,00	1,00

C Profiles

C-profile, X = 333,59 m

Z [m]	C [kPa]
9,00	20,30
5,50	10,50
1,38	10,50

Loads

Distributed Loads

q1 [kPa]	q2 [kPa]	X1 [m]	X2 [m]
40,00	40,00	293,92	320,00

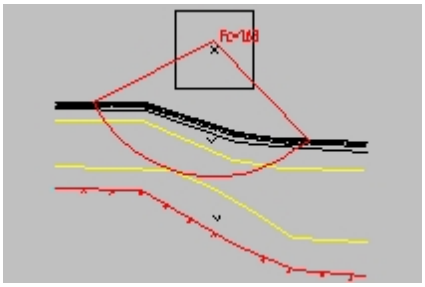
Model Data

Tangent Strategy Data

Centre point X:	326,64
Centre point Z:	34,22
Search area:	21,07
Upper Z-level:	10,55
Lower Z-level:	1,05
Number of levels:	50

Search Criteria

Calculation method:	Beast 2003
Calculation Strategy:	Tangent
Slope type:	Right slope



Result file

Location: G:\Projekt\2018\18112896 Fasanvägen etapp 13\15_Geosuite\STABGRAF.RIT\BS2_40kPa.RES

Created: 2019-03-07 16:38

Modified: 2019-03-07 16:38

```
#
      ECHO PRINT OF DATA ON FORTRAN UNIT NUMBER = 14

      000000000111111111122222222223333333333444444444455555555556666666666777777777778
      123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890

 1----
 2----
 3---- * Version : 4.0.0.0
 4----
 5----  ****************** CONTROL SECTION
 6----   1.0 1.0 CONFRC,CONLTH   CONVERTION FACTORS ON FORCES AND LENGTHS
 7----   1.0 1.0 FCTSUC,FCTTAN   MATERIAL FACTORS ON SU,C AND TAN(PHI)
 8----    1 IDTYP     SOLUTION TYPE (1=STAB/BEARING 2=EARTH PRESS)
 9----    31 ANALYSIS METHOD & TYPE, E.G. 31 = BEAST-2003 & EFF.STRESS
10----    0 NUMGEN    NUMBER OF GENERAL SHEAR SURFACES
11----    30 NUMSLC    NUMBER OF SLICES (ZERO OK FOR GENERAL SURFACES)
12----   0.000 SIDSHR    SIDE SHEAR FACTOR (0.0=PLANE STRAIN , 2.0/LENGTH=MAX)
13----  0.00 0.00 VALUES FOR H3-ASSMPTN (H3(X)=H31+(H32-H31)/XTOT*X)
14----  0.50 0.50 0.00 VALUES FOR R-ASSMPTN  (R(X)=R1+(R2-R1)/XTOT*X+H(X)/HMAX*R3)
15----    0 ITENSP    ALLOW P-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
16----    0 ITENSE    ALLOW E-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
17----    0 JPRINT    TRACE PRINT CODE (0=NON 1=LIM 2=TRACE 3=DETLD TRACE)
18----    2 IPRTTP    FILE NF16 PRINT TYPE FOR SLICE OUTPUT (1=FORCES 2=STRESSES)
19----    1 JPLOT     CODE FOR PLOT(S) ON NF16 (0=NO 1=YES 2=+PWP/SU0 3=+MESH)
20----   0.000 CRTFRC    CONVERGENCE CRITERION , FORCES   (DEFAULT=SUM(FZ)/1.0E4)
21----   2.000 CRTSCR    CONVERGENCE CRITERION , SOLUTION SCORE
22----  1 0 0 0 0 0.0  0.0  0.0  0.0  0.0 First flag, exit angle, third adjust low circ
23----
24----  ****************** GEOMETRY SECTION
25----    17 NUMXLN    NUMBER OF X-LINES WITH SURFACE, ROCK AND ELEMENT SPECS
26----    1 NUMELZ    NUMBER OF ELEMENTS IN Z-DIRECTION
27----    1 NUMLAY    NUMBER OF HORIZONTAL LAYERS
28----    30 NUMTRI    NUMBER OF MATERIAL I.D. TRIANGLES
29----    X-VALUE  Z-SURFACE  Z-ROCK  NUMBER OF X-ELEMENTS TO NEXT X-LINE
30----    152.31      -17.58      82.42       1
31----    252.31      -17.58      82.42       1
32----    280.43      -14.44      83.82       1
33----    292.79      -13.16      84.44       1
34----    307.50      -11.55      85.17       1
35----    311.26      -11.69      85.36       1
36----    318.78      -11.42      85.73       1
37----    319.79      -11.28      85.78       1
38----    335.64      -10.88      86.57       1
39----    348.00      -10.21      87.19       1
40----    386.08      -9.60       89.08       1
41----    393.80      -8.86       89.47       1
42----    399.18      -9.00       89.73       1
43----    408.91      -8.86       90.22       1
44----    411.60      -8.60       90.35       1
```

```
  45----    434.03      -8.53       91.47       1
  46----    534.03      -8.53       91.47       0
  47----  00 00 00  0.0 0.0 NP1,NP2,NSTEP,ZN1,ZN2  NODE NEW Z , NP2=MAX TERMINATES
  48----  00 00 00   0 NE1,NE2,NSTEP,MAT     ELEMENT MATRL , NE2=MAX TERMINATES
  49----   LAYER  Z-BOTTOM  MATERIAL-I.D.
  50----    1      91.47        1
  51----   TRIANGLE  MATERIAL   X1  Z1     X2  Z2     X3  Z3
  52----    1  4   343.17   101.47    152.48   101.47    152.48   -15.86
  53----    2  4   343.17   101.47    152.48   -15.86    252.48   -15.86
  54----    3  4   343.17   101.47    252.48   -15.86    292.65   -12.02
  55----    4  4   343.17   101.47    292.65   -12.02    333.29   -1.33
  56----    5  4   343.17   101.47    333.29   -1.33     433.66   -1.01
  57----    6  4   343.17   101.47    533.66   -1.01     433.66   -1.01
  58----    7  4   343.17   101.47    533.66   -1.01     533.66   101.47
  59----    8  3   343.17   101.47    152.52   101.47    152.52   -15.98
  60----    9  3   343.17   101.47    152.52   -15.98    252.52   -15.98
  61----    10  3   343.17   101.47    252.52   -15.98    292.63   -12.08
  62----    11  3   343.17   101.47    292.63   -12.08    307.99   -10.83
  63----    12  3   343.17   101.47    307.99   -10.83    333.31   -8.98
  64----    13  3   343.17   101.47    333.31   -8.98     433.75   -7.56
  65----    14  3   343.17   101.47    533.75   -7.56     433.75   -7.56
  66----    15  3   343.17   101.47    533.75   -7.56     533.75   101.47
  67----    16  2   343.17   101.47    152.31   101.47    152.31   -16.76
  68----    17  2   343.17   101.47    152.31   -16.76    252.31   -16.76
  69----    18  2   343.17   101.47    252.31   -16.76    292.63   -13.01
  70----    19  2   343.17   101.47    292.63   -13.01    307.61   -11.36
  71----    20  2   343.17   101.47    307.61   -11.36    333.53   -10.62
  72----    21  2   343.17   101.47    333.53   -10.62    351.47   -9.90
  73----    22  2   343.17   101.47    351.47   -9.90     368.67   -9.65
  74----    23  2   343.17   101.47    368.67   -9.65     386.00   -9.26
  75----    24  2   343.17   101.47    386.00   -9.26     393.74   -8.54
  76----    25  2   343.17   101.47    393.74   -8.54     402.61   -8.58
  77----    26  2   343.17   101.47    402.61   -8.58     409.54   -8.54
  78----    27  2   343.17   101.47    409.54   -8.54     411.33   -8.35
  79----    28  2   343.17   101.47    411.33   -8.35     433.29   -8.19
  80----    29  2   343.17   101.47    533.29   -8.19     433.29   -8.19
  81----    30  2   343.17   101.47    533.29   -8.19     533.29   101.47
  82----   0 0 0 XWALL,HWALL,RWALL   WALL SPECIFICATIONS
(LOCATION,HEIGHT,ROUGHNESS)
  83----
  84----  ****************** MATERIAL PROPERTIES SECTION
  85----    4   3   15 NUMMAT    NUMBER OF DIFFERENT MATERIALS (NDX, NDZ DENSITY GRID S
  86----    1 NUMXSU    NUMBER OF VERTICAL X-LINES WITH GIVEN SU-VALUES
  87----    0 NODSU     NUMBER OF MESH NODAL POINTS WITH GIVEN SU-VALUES
  88----   0.00 CRACKZ    SURFACE OPEN CRACK DEPTH
  89----   0.00 CRACKW    WATER DEPTH IN OPEN SURFACE CRACK
  90----   0.0 PHIREF    FRICTION ANGLE REFERENCE PRESSURE
  91----   EFFECTIVE STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO
OK)
  92----   MAT  GAMTOT  COHSN  PHIANG  PHIRED  PWPMAT  RU-MAT  B-FACT K-NOT B-SIG2 D-
FCT
  93----   1   18.00    0.00   34.00  0   0.00   0.00  0  0  0  0.001  -0.00 21.00
  94----   2   18.00    0.00    0.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
  95----   3   17.00    0.00    0.00  0   0.00   0.00  0  0  0  0.001  -0.00 17.00
  96----   4   18.00    0.00   40.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
  97----   TOTAL STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO OK)
  98----   MAT  GAMTOT  SUA/SU0 SUD/SU0 SUP/SU0  SU0-MAT  (A:ACTIVE D:DIRECT
P:PASSIVE)C-
  99----   1   18.00    1.00    1.00    1.00    0.00   1
 100----   2   18.00    1.00    1.00    1.00   30.00   0
```

```
101----  3   17.00    1.00    1.00    1.00    0.00   1
102----  4   18.00    1.00    1.00    1.00    0.00   1
103----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : SU0-VALUES
104----  1     333.59  3     -9.00    -5.50    -1.38
105----                    20.30     10.50     10.50
106----  NODE   SU0   (IF ALL NODES, SKIP NODE NUMBERS : SU0(1),SU0(2),...)
107----
108----  ****************** PORE-WATER-PRESSURES SECTION
109----     1 IDPWP     PWP INDICATOR (1=HYDROSTATIC  2=NON-HYDROSTATIC)
110----     0 NUMBER OF VERTICAL X-LINES WITH GIVEN PWP WITH DEPTH
111----     0 NODPWP    NUMBER OF MESH NODAL POINTS WITH GIVEN PWP
112----    0.0 FCTNOD    FACTOR ON PWP-VALUES GIVEN AT NODAL POINTS
113----    101.470 WATERZ    HORIZONTAL WATER TABLE Z-LEVEL
114----    10.0 GAMWAT    FREE WATER UNIT WEIGHT
115----    10.0 GAMPWP    PORE WATER UNIT WEIGHT (=GAMWAT IF HYDROSTATIC)
116----     0.00 PWPMIN    MINIMUM ALLOWABLE PWP (CAPILLARY TENSION)
117----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : PWP-VALUES
118----   NODE  PWP-VALUE  (IF ALL NODES , SKIP NODE NUMBERS : PWP(1),PWP(2),...)
119----
120----  ****************** LOAD SECTION
121----     0 NUMPNT            NUMBER OF POINT LOADS & 100*SOIL NAILS
122----     1 NUMSIG            NUMBER OF SURFACE DISTRIBUTED LOADS
123----    0.0 SIGTOP           UNIFORM INITIAL VERTICAL STRESS AT SURFACE
124----  -100 100 XTOP1,XTOP2        STRESS 'SIGTOP' ACTS FROM XTOP1 TO XTOP2
125----    10.0000   5.0000 FCTPNT,FCTSIG      POINT AND DISTRIBUTED LOAD FACTORS
126----   0.00 1.00 ACCXRT,ACCZRT       ACCELERATION RATIOS IN X- AND Z-DIRECTIONS
127----    POINT   X-COORD   Z-COORD   X-FORCE   Z-FORCE
128----   STRIP     X1      X2      SIGZ1     SIGZ2     TAUX1     TAUX2
129----     1  293.92    320.00     8.00    8.00     0.00    0.00
130----
131----  ****************** GIVEN SHEAR SURFACE
132---- END

      000000000111111111122222222223333333333444444444455555555556666666666777777777 8
      123456789012345678901234567890123456789012345678901234567890123456789012345678 90


BEAST  Output   Program Version = 30 Apr 2015    Time = 07 MAR 2019  16:38:15



========================================================  SAFETY FACTOR =    1.774
SURFACE NO : 576     SUMMARY OF GEOMETRY AND STRESSES
========================================================  SOLUTION SCORE=    0.000

SURFACE TYPE = CIRCLE        X-CENTER  Z-CENTER   RADIUS
                    321.370   -18.410    13.290

SOLUTION METHOD = BEAST-2003 / EFFECTIVE STRESS ANALYSIS

SLICE    X1      Z1      Z2     WXT-FRC    P-STR      E2-STR     U2-STR    ROUGH  H2/Z23
       X2      Z4      Z3     WZT-FRC    S-STR      T2-STR     U3-STR          H3/L34

  1   309.94  -11.64  -11.67   0.000E+00  2.944E+01  1.995E+01  0.000E+00  0.028  0.448
  1   310.68  -11.64  -10.51   3.768E+01  1.353E+01  3.686E-01  0.000E+00         0.466

  2   310.68  -11.67  -11.68   0.000E+00  5.393E+01  3.069E+01  0.000E+00  0.033  0.379
  2   311.43  -10.51   -9.59   5.145E+01  1.144E+01  4.636E-01  0.000E+00         0.480
```

3	311.43	-11.68	-11.66	0.000E+00	7.038E+01	3.882E+01	0.000E+00	0.046	0.374	
3	312.18	-9.59	-8.81	6.215E+01	1.141E+01	5.655E-01	0.000E+00		0.487	
4	312.18	-11.66	-11.63	0.000E+00	8.457E+01	4.555E+01	0.000E+00*******		0.371	WARNINGS: 1
4	312.93	-8.81	-8.15	7.099E+01	1.062E+01	6.598E-01	0.000E+00		0.490	
5	312.93	-11.63	-11.60	0.000E+00	9.676E+01	5.134E+01	0.000E+00*******		0.369	WARNINGS: 1
5	313.68	-8.15	-7.58	7.860E+01	9.648E+00	7.453E-01	0.000E+00		0.493	
6	313.68	-11.60	-11.58	0.000E+00	1.068E+02	5.628E+01	0.000E+00	0.062	0.368	
6	314.42	-7.58	-7.08	8.496E+01	8.806E+00	8.213E-01	0.000E+00		0.494	
7	314.42	-11.58	-11.55	0.000E+00	1.156E+02	6.053E+01	0.000E+00	0.066	0.367	
7	315.17	-7.08	-6.65	9.056E+01	8.079E+00	8.880E-01	0.000E+00		0.495	
8	315.17	-11.55	-11.52	0.000E+00	1.230E+02	6.413E+01	0.000E+00	0.070	0.367	
8	315.92	-6.65	-6.29	9.533E+01	7.454E+00	9.455E-01	0.000E+00		0.496	
9	315.92	-11.52	-11.50	0.000E+00	1.292E+02	6.714E+01	0.000E+00	0.073	0.367	
9	316.67	-6.29	-5.98	9.933E+01	6.923E+00	9.938E-01	0.000E+00		0.497	
10	316.67	-11.50	-11.47	0.000E+00	1.342E+02	6.962E+01	0.000E+00	0.076	0.367	
10	317.42	-5.98	-5.72	1.025E+02	6.476E+00	1.032E+00	0.000E+00		0.498	
11	317.42	-11.47	-11.44	0.000E+00	1.382E+02	7.161E+01	0.000E+00	0.078	0.368	
11	318.16	-5.72	-5.51	1.050E+02	6.106E+00	1.061E+00	0.000E+00		0.498	
12	318.16	-11.44	-11.40	0.000E+00	1.415E+02	7.322E+01	0.000E+00	0.079	0.370	
12	318.91	-5.51	-5.35	1.071E+02	5.919E+00	1.083E+00	0.000E+00		0.499	
13	318.91	-11.40	-11.30	0.000E+00	1.430E+02	7.511E+01	0.000E+00	0.080	0.376	
13	319.66	-5.35	-5.23	1.079E+02	5.919E+00	1.106E+00	0.000E+00		0.500	
14	319.66	-11.30	-11.26	0.000E+00	1.221E+02	7.539E+01	0.000E+00	0.080	0.380	
14	320.41	-5.23	-5.16	9.185E+01	5.919E+00	1.106E+00	0.000E+00		0.540	
15	320.41	-11.26	-11.25	0.000E+00	1.050E+02	7.506E+01	0.000E+00	0.080	0.384	
15	321.16	-5.16	-5.12	7.868E+01	5.919E+00	1.097E+00	0.000E+00		0.500	
16	321.16	-11.25	-11.23	0.000E+00	1.053E+02	7.452E+01	0.000E+00	0.079	0.387	
16	321.90	-5.12	-5.13	7.859E+01	5.919E+00	1.083E+00	0.000E+00		0.500	
17	321.90	-11.23	-11.21	0.000E+00	1.052E+02	7.376E+01	0.000E+00	0.078	0.390	
17	322.65	-5.13	-5.18	7.817E+01	5.919E+00	1.062E+00	0.000E+00		0.501	
18	322.65	-11.21	-11.19	0.000E+00	1.042E+02	7.276E+01	0.000E+00	0.077	0.392	
18	323.40	-5.18	-5.28	7.708E+01	5.919E+00	1.037E+00	0.000E+00		0.502	
19	323.40	-11.19	-11.17	0.000E+00	1.023E+02	7.153E+01	0.000E+00	0.075	0.395	
19	324.15	-5.28	-5.41	7.535E+01	5.919E+00	1.005E+00	0.000E+00		0.502	
20	324.15	-11.17	-11.15	0.000E+00	9.965E+01	7.004E+01	0.000E+00	0.072	0.397	
20	324.90	-5.41	-5.60	7.304E+01	5.960E+00	9.680E-01	0.000E+00		0.503	
21	324.90	-11.15	-11.13	0.000E+00	9.628E+01	6.827E+01	0.000E+00	0.069	0.400	
21	325.64	-5.60	-5.83	7.012E+01	6.256E+00	9.255E-01	0.000E+00		0.504	
22	325.64	-11.13	-11.11	0.000E+00	9.253E+01	6.618E+01	0.000E+00	0.065	0.402	
22	326.39	-5.83	-6.11	6.685E+01	6.657E+00	8.770E-01	0.000E+00		0.505	

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 23  326.39  -11.11  -11.09   0.000E+00  8.766E+01  6.377E+01  0.000E+00  0.061  0.405
 23  327.14   -6.11   -6.44   6.264E+01  7.139E+00  8.237E-01  0.000E+00        0.506

 24  327.14  -11.09  -11.08   0.000E+00  8.215E+01  6.100E+01  0.000E+00  0.057  0.408
 24  327.89   -6.44   -6.83   5.785E+01  7.710E+00  7.656E-01  0.000E+00        0.508

 25  327.89  -11.08  -11.06   0.000E+00  7.572E+01  5.787E+01  0.000E+00  0.052  0.411
 25  328.64   -6.83   -7.28   5.224E+01  8.378E+00  7.033E-01  0.000E+00        0.510

 26  328.64  -11.06  -11.04   0.000E+00  6.851E+01  5.435E+01  0.000E+00  0.040  0.412
 26  329.38   -7.28   -7.81   4.584E+01  9.152E+00  6.376E-01  0.000E+00        0.513

 27  329.38  -11.04  -11.02   0.000E+00  6.028E+01  5.046E+01  0.000E+00  0.036  0.408
 27  330.13   -7.81   -8.42   3.839E+01  1.005E+01  5.705E-01  0.000E+00        0.518

 28  330.13  -11.02  -11.00   0.000E+00  5.101E+01  4.634E+01  0.000E+00  0.032  0.381
 28  330.88   -8.42   -9.13   2.978E+01  1.107E+01  5.068E-01  0.000E+00        0.527

 29  330.88  -11.00  -10.98   0.000E+00  4.285E+01  3.440E+01  0.000E+00  0.022  0.328
 29  331.79   -9.13  -10.04   2.307E+01  1.691E+01  3.531E-01  0.000E+00        0.555

 30  331.79  -10.98  -10.95   0.000E+00  2.019E+01 -2.931E-11  0.000E+00  0.000  0.500
 30  332.84  -10.04  -10.95   8.875E+00  1.322E+01  2.425E-10  0.000E+00        0.666

BEAST  Output   Program Version = 30 Apr 2015    Time = 07 MAR 2019  16:38:15



SURFACE NO:576  TYPE: CIRCLE    SAFETY-FACTOR:  1.774   SCORE:  0.000
BELOW SKETCH SHOWS SHEAR SURFACE WITH SLICE DIVISIONS AND MATERIAL ID-S

1 1  1 1 1 1  1 1 1  1 1 1 1  1 1 1  1 1 1 1  1
 22  2 2 2 2  2 2 2  2 2 2 2  2 2 2  2 2 2 2  2 1 1  1 1 1 1  1 1  1  1
  33 3 3 3 3  3 2 2  2 2 2 2  2 2 2  2 2 2 2  2 2 2  2 2 2 2  2 2  22
    3 3 3 3  3 3 3  3 3 3 3  3 3 3  3 2 2 2  2 2 2  2 2 2 2  2 22 2
     33 3 3  3 3 3  3 3 3 3  3 3 3  3 3 3 3  3 3 3  3 3 3 3  2 2
     333 3  3 3 3  3 3 3 3  3 3 3  3 3 3 3  3 3 3  3 3 3 3  33
       333  3 3 3  3 3 3 3  3 3 3  3 3 3 3  3 3 3  3 3 3 3 3
        3 33 3 3  3 3 3 3  3 3 3  3 3 3 3  3 3 3  3 3 333
          333 3  3 3 3 3  3 3 3  3 3 3 3  3 3 3  3 333
            333  3 3 3 3  3 3 3  3 3 3 3  3 3 33 33
              3 333 3 3  3 3 3  3 3 3 3  33333
                  3333 3333333 3333333 33
0102 030405 06070809 101112 13141516 171819 20212223 242526 272829 30

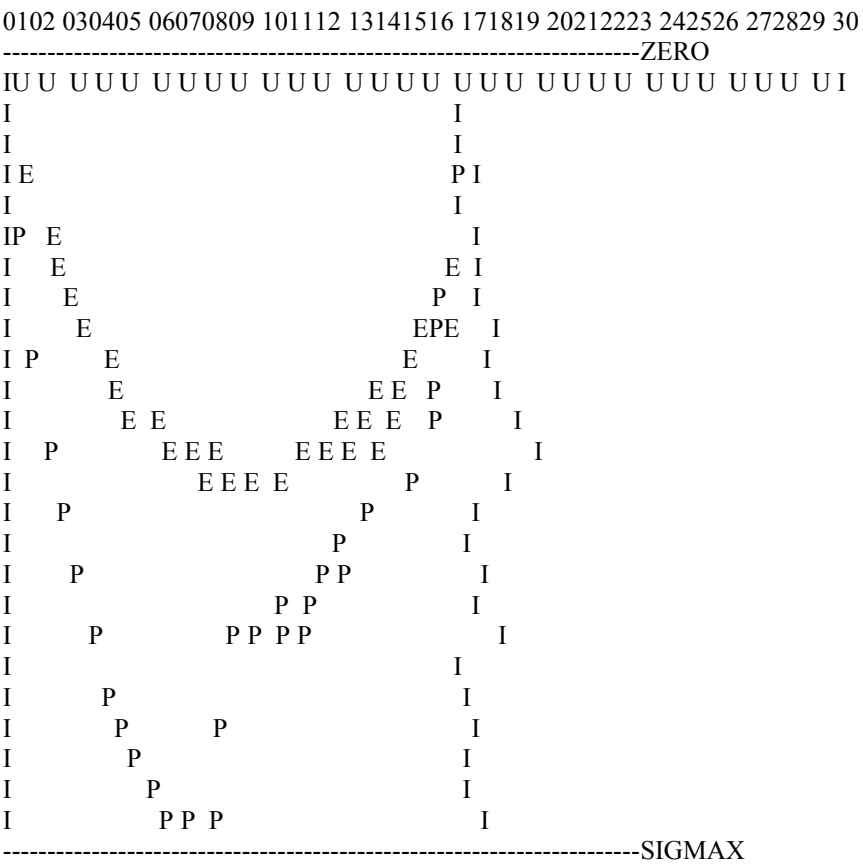
 MAT GAMTOT SUA/SU0 SUD/SU0 SUP/SU0 COHESN PHIANG PHIRED RU-FCT  B-FCT  K-NOT B-
SIG2 D/SU(B)
  1  18.000  1.000   1.000   1.000   0.000  34.00  0.00  0.000   0.000  0.000  0.000  0.001
  2  18.000  1.000   1.000   1.000   0.000   0.00  0.00  0.000   0.000  0.000  0.000  0.001
  3  17.000  1.000   1.000   1.000   0.000   0.00  0.00  0.000   0.000  0.000  0.000  0.001
  4  18.000  1.000   1.000   1.000   0.000  40.00  0.00  0.000   0.000  0.000  0.000  0.001

BEAST  Output   Program Version = 30 Apr 2015    Time = 07 MAR 2019  16:38:15



SURFACE NO:576  TYPE: CIRCLE    SAFETY-FACTOR:  1.774   SCORE:  0.000
BELOW SKETCH SHOWS EFFECTIVE NORMAL STRESSES: P=SHEAR-SURFACE  E=INTER-SLICE
```

U=RESULTING PWP AT SHEAR SURFACE



P-MIN = 2.019E+01 P-MAX = 1.430E+02
E-MIN = 1.995E+01 E-MAX = 7.539E+01
U-MIN = 0.000E+00 U-MAX = 0.000E+00

THIS RUN WAS TERMINATED : 07 MAR 2019 AT 16:38:15 HOURS

TIME USED = 1 SECONDS

GeoSuite Stability Report

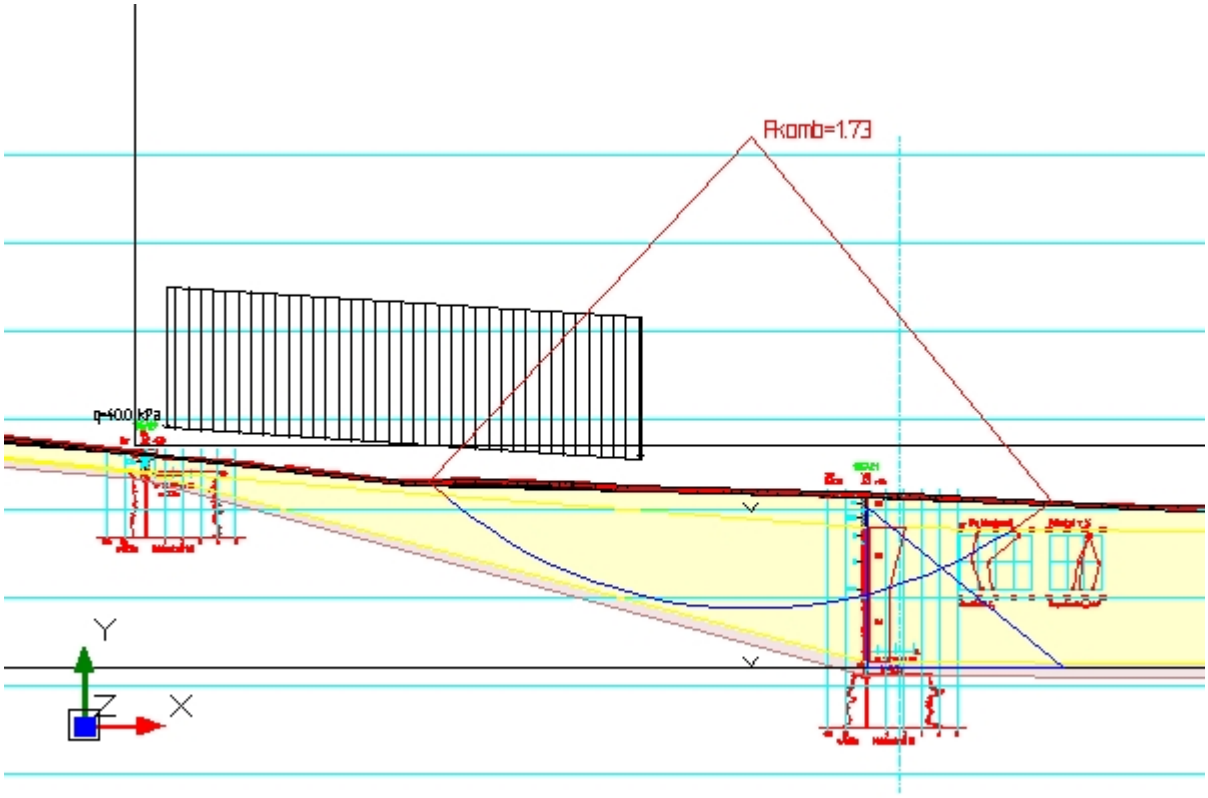
Calculation data

Project name:	Fasanvägen etapp 13
Project number:	18112896
Contractor:	
Comment:	

Calculation name:	BS2_40KPA_KOMB
Description:	
File name:	G:\Projekt\2018\18112896 Fasanvägen etapp 13\15_Geosuite\STABGRAF.RIT\BS2_40kPa_KOMB.dwg
Critical Safety Factor:	1,73
Result Date:	2019-03-07 16:58
Result Text:	

Horizontally density spacing:	3
Vertically density spacing:	15
Side friction:	0,00
Number of slices:	30
Correction of exit angle:	Yes

Graphic Model



Soil

Materials (combined analysis)

Material	ρ [kN/m³]	Ø [°]	C' [kPa]	C [kPa]	Aa	Ad	Ap
Fy	18,00	34,0	0,0	100,0	1,00	1,00	1,00
Let	18,00	30,0	10 %	30,0	1,00	1,00	1,00
Le	17,00	30,0	10 %	CProf	1,00	1,00	1,00
Fr	18,00	40,0	0,0	100,0	1,00	1,00	1,00

Soil Parameter Variations

η-factors

Material	Param	Drained	γm	η(1,2)	η(3)	η(4,5,6,7)	η(8)	η
Fy	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00
Let	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Le	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Fr	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00

Scaling factors

Material	+ Factor	- Facktor
Fy	1,00	1,00
Let	1,00	1,00
Le	1,00	1,00
Fr	1,00	1,00

C Profiles

C-profile, X = 333,59 m

Z [m]	C [kPa]
9,00	20,30
5,50	10,50
1,38	10,50

Pore Profiles

Pore-profile, X = 333,50 m

Z [m]	Pore P [kPa]
10,02	0,01
1,05	110,00

Loads

Distributed Loads

q1 [kPa]	q2 [kPa]	X1 [m]	X2 [m]
40,00	40,00	293,87	320,64

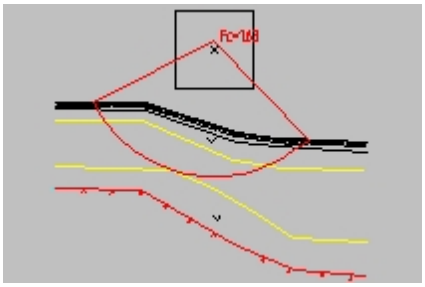
Model Data

Tangent Strategy Data

Centre point X:	326,86
Centre point Z:	48,31
Search area:	34,76
Upper Z-level:	9,87
Lower Z-level:	1,18
Number of levels:	50

Search Criteria

Calculation method:	Beast 2003
Calculation Strategy:	Tangent
Slope type:	Right slope



Result file

Location: G:\Projekt\2018\18112896 Fasanvägen etapp 13\15_Geosuite\STABGRAF.RIT\BS2_40kPa_KOMB.RES

Created: 2019-03-07 16:57

Modified: 2019-03-07 16:58

```
#
      ECHO PRINT OF DATA ON FORTRAN UNIT NUMBER = 14

      000000000111111111122222222223333333333444444444455555555556666666666777777777 8
      123456789012345678901234567890123456789012345678901234567890123456789012345678 90

 1----
 2----
 3---- * Version : 4.0.0.0
 4----
 5----  ****************** CONTROL SECTION
 6----   1.0 1.0 CONFRC,CONLTH   CONVERTION FACTORS ON FORCES AND LENGTHS
 7----   1.0 1.0 FCTSUC,FCTTAN   MATERIAL FACTORS ON SU,C AND TAN(PHI)
 8----     1 IDTYP     SOLUTION TYPE (1=STAB/BEARING 2=EARTH PRESS)
 9----    33 ANALYSIS METHOD & TYPE, E.G. 31 = BEAST-2003 & EFF.STRESS
10----     0 NUMGEN    NUMBER OF GENERAL SHEAR SURFACES
11----    30 NUMSLC    NUMBER OF SLICES (ZERO OK FOR GENERAL SURFACES)
12----   0.000 SIDSHR    SIDE SHEAR FACTOR (0.0=PLANE STRAIN , 2.0/LENGTH=MAX)
13----  0.00 0.00 VALUES FOR H3-ASSMPTN (H3(X)=H31+(H32-H31)/XTOT*X)
14----  0.50 0.50 0.00 VALUES FOR R-ASSMPTN  (R(X)=R1+(R2-R1)/XTOT*X+H(X)/HMAX*R3)
15----     0 ITENSP    ALLOW P-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
16----     0 ITENSE    ALLOW E-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
17----     0 JPRINT    TRACE PRINT CODE (0=NON 1=LIM 2=TRACE 3=DETLD TRACE)
18----     2 IPRTTP    FILE NF16 PRINT TYPE FOR SLICE OUTPUT (1=FORCES 2=STRESSES)
19----     1 JPLOT     CODE FOR PLOT(S) ON NF16 (0=NO 1=YES 2=+PWP/SU0 3=+MESH)
20----   0.000 CRTFRC    CONVERGENCE CRITERION , FORCES   (DEFAULT=SUM(FZ)/1.0E4)
21----   2.000 CRTSCR    CONVERGENCE CRITERION , SOLUTION SCORE
22----  1 0 0 0 0 0.0  0.0  0.0  0.0  0.0 First flag, exit angle, third adjust low circ
23----
24----  ****************** GEOMETRY SECTION
25----     17 NUMXLN    NUMBER OF X-LINES WITH SURFACE, ROCK AND ELEMENT SPECS
26----     1 NUMELZ    NUMBER OF ELEMENTS IN Z-DIRECTION
27----     1 NUMLAY    NUMBER OF HORIZONTAL LAYERS
28----     30 NUMTRI    NUMBER OF MATERIAL I.D. TRIANGLES
29----    X-VALUE  Z-SURFACE  Z-ROCK  NUMBER OF X-ELEMENTS TO NEXT X-LINE
30----     152.31      -17.58      82.42       1
31----     252.31      -17.58      82.42       1
32----     280.43      -14.44      83.82       1
33----     292.79      -13.16      84.44       1
34----     307.50      -11.55      85.17       1
35----     311.26      -11.69      85.36       1
36----     318.78      -11.42      85.73       1
37----     319.79      -11.28      85.78       1
38----     335.64      -10.88      86.57       1
39----     348.00      -10.21      87.19       1
40----     386.08      -9.60       89.08       1
41----     393.80      -8.86       89.47       1
42----     399.18      -9.00       89.73       1
43----     408.91      -8.86       90.22       1
44----     411.60      -8.60       90.35       1
```

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  45----    434.03      -8.53       91.47       1
  46----    534.03      -8.53       91.47       0
  47----  00 00 00  0.0 0.0 NP1,NP2,NSTEP,ZN1,ZN2  NODE NEW Z , NP2=MAX TERMINATES
  48----  00 00 00   0 NE1,NE2,NSTEP,MAT     ELEMENT MATRL , NE2=MAX TERMINATES
  49----   LAYER  Z-BOTTOM  MATERIAL-I.D.
  50----    1      91.47        1
  51----   TRIANGLE  MATERIAL   X1  Z1     X2  Z2     X3  Z3
  52----    1  4   343.17   101.47    152.48   101.47    152.48   -15.86
  53----    2  4   343.17   101.47    152.48   -15.86    252.48   -15.86
  54----    3  4   343.17   101.47    252.48   -15.86    292.65   -12.02
  55----    4  4   343.17   101.47    292.65   -12.02    333.29   -1.33
  56----    5  4   343.17   101.47    333.29   -1.33     433.66   -1.01
  57----    6  4   343.17   101.47    533.66   -1.01     433.66   -1.01
  58----    7  4   343.17   101.47    533.66   -1.01     533.66   101.47
  59----    8  3   343.17   101.47    152.52   101.47    152.52   -15.98
  60----    9  3   343.17   101.47    152.52   -15.98    252.52   -15.98
  61----    10  3   343.17   101.47    252.52   -15.98    292.63   -12.08
  62----    11  3   343.17   101.47    292.63   -12.08    307.99   -10.83
  63----    12  3   343.17   101.47    307.99   -10.83    333.31   -8.98
  64----    13  3   343.17   101.47    333.31   -8.98     433.75   -7.56
  65----    14  3   343.17   101.47    533.75   -7.56     433.75   -7.56
  66----    15  3   343.17   101.47    533.75   -7.56     533.75   101.47
  67----    16  2   343.17   101.47    152.31   101.47    152.31   -16.76
  68----    17  2   343.17   101.47    152.31   -16.76    252.31   -16.76
  69----    18  2   343.17   101.47    252.31   -16.76    292.63   -13.01
  70----    19  2   343.17   101.47    292.63   -13.01    307.61   -11.36
  71----    20  2   343.17   101.47    307.61   -11.36    333.53   -10.62
  72----    21  2   343.17   101.47    333.53   -10.62    351.47   -9.90
  73----    22  2   343.17   101.47    351.47   -9.90     368.67   -9.65
  74----    23  2   343.17   101.47    368.67   -9.65     386.00   -9.26
  75----    24  2   343.17   101.47    386.00   -9.26     393.74   -8.54
  76----    25  2   343.17   101.47    393.74   -8.54     402.61   -8.58
  77----    26  2   343.17   101.47    402.61   -8.58     409.54   -8.54
  78----    27  2   343.17   101.47    409.54   -8.54     411.33   -8.35
  79----    28  2   343.17   101.47    411.33   -8.35     433.29   -8.19
  80----    29  2   343.17   101.47    533.29   -8.19     433.29   -8.19
  81----    30  2   343.17   101.47    533.29   -8.19     533.29   101.47
  82----   0 0 0 XWALL,HWALL,RWALL   WALL SPECIFICATIONS
(LOCATION,HEIGHT,ROUGHNESS)
  83----
  84----  ****************** MATERIAL PROPERTIES SECTION
  85----    4   3   15 NUMMAT    NUMBER OF DIFFERENT MATERIALS (NDX, NDZ DENSITY GRID S
  86----    1 NUMXSU    NUMBER OF VERTICAL X-LINES WITH GIVEN SU-VALUES
  87----    0 NODSU     NUMBER OF MESH NODAL POINTS WITH GIVEN SU-VALUES
  88----   0.00 CRACKZ    SURFACE OPEN CRACK DEPTH
  89----   0.00 CRACKW    WATER DEPTH IN OPEN SURFACE CRACK
  90----   0.0 PHIREF    FRICTION ANGLE REFERENCE PRESSURE
  91----   EFFECTIVE STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO
OK)
  92----   MAT  GAMTOT  COHSN  PHIANG  PHIRED  PWPMAT  RU-MAT  B-FACT K-NOT B-SIG2 D-
FCT
  93----   1   18.00    0.00   34.00  0   0.00   0.00  0  0  0  0.001  -0.00 21.00
  94----   2   18.00   -10.00   30.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
  95----   3   17.00   -10.00   30.00  0   0.00   0.00  0  0  0  0.001  -0.00 17.00
  96----   4   18.00    0.00   40.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
  97----   TOTAL STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO OK)
  98----   MAT  GAMTOT  SUA/SU0 SUD/SU0 SUP/SU0  SU0-MAT  (A:ACTIVE D:DIRECT
P:PASSIVE)C-
  99----   1   18.00    1.00    1.00    1.00   100.00   0
 100----   2   18.00    1.00    1.00    1.00   30.00   0
```
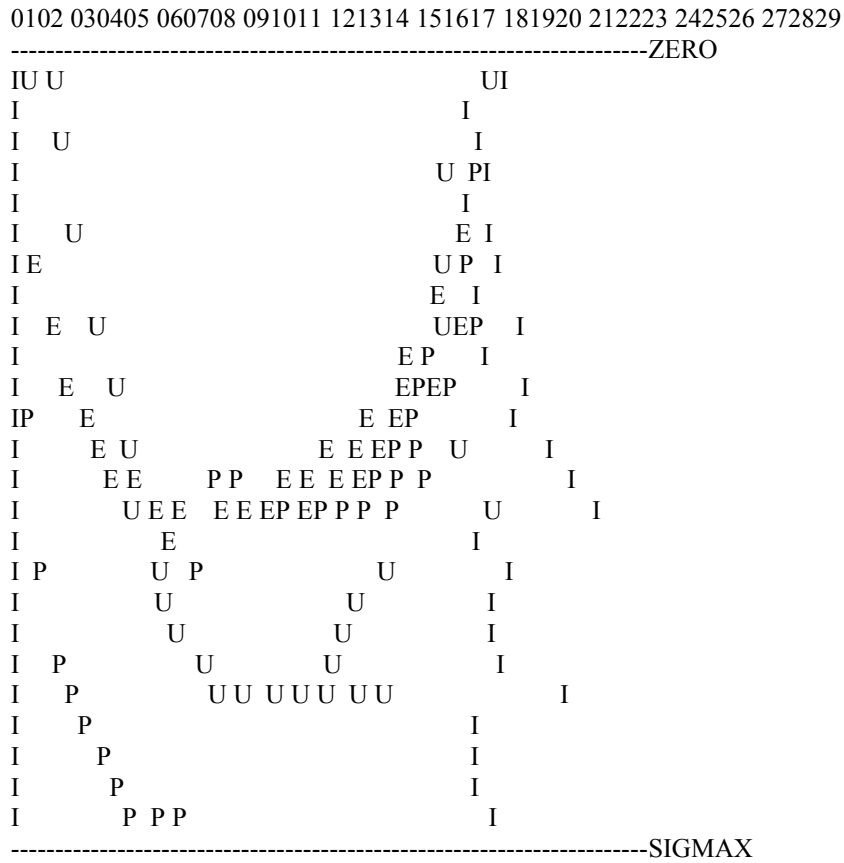

```
101----  3   17.00    1.00    1.00    1.00    0.00   1
102----  4   18.00    1.00    1.00    1.00   100.00   0
103----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : SU0-VALUES
104----  1     333.59  3     -9.00    -5.50    -1.38
105----                    20.30    10.50    10.50
106----  NODE   SU0   (IF ALL NODES, SKIP NODE NUMBERS : SU0(1),SU0(2),...)
107----
108----  ****************** PORE-WATER-PRESSURES SECTION
109----    2 IDPWP     PWP INDICATOR (1=HYDROSTATIC  2=NON-HYDROSTATIC)
110----    1 NUMBER OF VERTICAL X-LINES WITH GIVEN PWP WITH DEPTH
111----    0 NODPWP    NUMBER OF MESH NODAL POINTS WITH GIVEN PWP
112----   0.0 FCTNOD    FACTOR ON PWP-VALUES GIVEN AT NODAL POINTS
113----   0.000 WATERZ    HORIZONTAL WATER TABLE Z-LEVEL
114----   10.0 GAMWAT    FREE WATER UNIT WEIGHT
115----   10.0 GAMPWP    PORE WATER UNIT WEIGHT (=GAMWAT IF HYDROSTATIC)
116----    0.00 PWPMIN    MINIMUM ALLOWABLE PWP (CAPILLARY TENSION)
117----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : PWP-VALUES
118----  1     333.50  2    -10.02    -1.05
119----                     0.00    110.00
120----   NODE  PWP-VALUE  (IF ALL NODES , SKIP NODE NUMBERS : PWP(1),PWP(2),...)
121----
122----  ****************** LOAD SECTION
123----    0 NUMPNT            NUMBER OF POINT LOADS & 100*SOIL NAILS
124----    1 NUMSIG            NUMBER OF SURFACE DISTRIBUTED LOADS
125----   0.0 SIGTOP           UNIFORM INITIAL VERTICAL STRESS AT SURFACE
126---- -100 100 XTOP1,XTOP2        STRESS 'SIGTOP' ACTS FROM XTOP1 TO XTOP2
127----   10.0000   5.0000 FCTPNT,FCTSIG      POINT AND DISTRIBUTED LOAD FACTORS
128----   0.00 1.00 ACCXRT,ACCZRT       ACCELERATION RATIOS IN X- AND Z-DIRECTIONS
129----   POINT   X-COORD   Z-COORD   X-FORCE   Z-FORCE
130----  STRIP     X1       X2      SIGZ1     SIGZ2     TAUX1     TAUX2
131----    1  293.87    320.64     8.00    8.00     0.00    0.00
132----
133----  ****************** GIVEN SHEAR SURFACE
134---- END

      000000000111111111122222222223333333333444444444455555555556666666666777777777778
      123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890


BEAST  Output   Program Version = 30 Apr 2015    Time = 07 MAR 2019  16:58:08



=================================================== SAFETY FACTOR =    1.727
SURFACE NO : 576    SUMMARY OF GEOMETRY AND STRESSES
=================================================== SOLUTION SCORE=    0.002

SURFACE TYPE = CIRCLE        X-CENTER  Z-CENTER   RADIUS
                    326.860   -30.930    26.560

SOLUTION METHOD = BEAST-2003 / SWEDISH COMBINED ANALYSIS

SLICE    X1      Z1      Z2     WXT-FRC    P-STR      E2-STR     U2-STR    ROUGH  H2/Z23
       X2      Z4      Z3     WZT-FRC    S-STR      T2-STR     U3-STR          H3/L34

  1   308.66  -11.59  -11.64   0.000E+00  3.657E+01  2.045E+01  0.000E+00  0.150  0.418
  1   309.83  -11.59  -10.55   5.818E+01  1.358E+01  1.204E+00  0.000E+00         0.467

  2   309.83  -11.64  -11.68   0.000E+00  5.561E+01  2.909E+01  4.636E-01  0.150  0.359
```

2	311.00	-10.55	-9.63	7.915E+01	1.175E+01	1.651E+00	1.029E+00	0.479	
3	311.00	-11.68	-11.66	0.000E+00	6.300E+01	3.429E+01	3.199E+00	0.150	0.366
3	312.17	-9.63	-8.81	9.693E+01	1.172E+01	1.918E+00	9.821E+00	0.486	
4	312.17	-11.66	-11.62	0.000E+00	6.760E+01	3.798E+01	6.611E+00*******	0.375	WARNINGS: 1
4	313.34	-8.81	-8.07	1.117E+02	1.085E+01	2.103E+00	1.937E+01	0.490	
5	313.34	-11.62	-11.57	0.000E+00	7.166E+01	4.093E+01	1.003E+01*******	0.379	WARNINGS: 1
5	314.51	-8.07	-7.42	1.247E+02	9.721E+00	2.251E+00	2.788E+01	0.492	
6	314.51	-11.57	-11.53	0.000E+00	7.511E+01	4.332E+01	1.325E+01	0.149	0.381
6	315.68	-7.42	-6.84	1.361E+02	8.724E+00	2.369E+00	3.542E+01	0.493	
7	315.68	-11.53	-11.49	0.000E+00	7.808E+01	4.535E+01	1.622E+01	0.149	0.381
7	316.85	-6.84	-6.33	1.462E+02	7.841E+00	2.469E+00	4.210E+01	0.495	
8	316.85	-11.49	-11.45	0.000E+00	8.069E+01	4.697E+01	1.891E+01	0.149	0.381
8	318.02	-6.33	-5.89	1.550E+02	7.067E+00	2.546E+00	4.795E+01	0.496	
9	318.02	-11.45	-11.36	-7.105E-15	8.263E+01	4.870E+01	2.140E+01	0.149	0.383
9	319.19	-5.89	-5.51	1.624E+02	6.399E+00	2.629E+00	5.301E+01	0.497	
10	319.19	-11.36	-11.27	3.553E-15	8.248E+01	5.018E+01	2.362E+01	0.149	0.387
10	320.36	-5.51	-5.18	1.666E+02	6.079E+00	2.703E+00	5.735E+01	0.498	
11	320.36	-11.27	-11.24	-1.066E-14	5.369E+01	4.943E+01	2.531E+01	0.149	0.394
11	321.53	-5.18	-4.91	1.362E+02	6.079E+00	2.662E+00	6.099E+01	0.529	
12	321.53	-11.24	-11.21	-1.776E-15	4.519E+01	4.839E+01	2.671E+01	0.149	0.402
12	322.70	-4.91	-4.70	1.291E+02	6.079E+00	2.607E+00	6.391E+01	0.498	
13	322.70	-11.21	-11.18	8.882E-15	4.596E+01	4.745E+01	2.781E+01	0.149	0.408
13	323.87	-4.70	-4.54	1.322E+02	6.079E+00	2.557E+00	6.619E+01	0.498	
14	323.87	-11.18	-11.15	5.329E-15	4.649E+01	4.657E+01	2.859E+01	0.149	0.413
14	325.04	-4.54	-4.43	1.343E+02	6.079E+00	2.511E+00	6.784E+01	0.499	
15	325.04	-11.15	-11.12	4.441E-15	4.724E+01	4.572E+01	2.903E+01	0.149	0.416
15	326.21	-4.43	-4.38	1.359E+02	6.079E+00	2.466E+00	6.883E+01	0.500	
16	326.21	-11.12	-11.09	-4.857E-15	4.722E+01	4.486E+01	2.918E+01	0.149	0.418
16	327.38	-4.38	-4.38	1.358E+02	6.079E+00	2.422E+00	6.916E+01	0.500	
17	327.38	-11.09	-11.06	-3.997E-15	4.696E+01	4.397E+01	2.903E+01	0.149	0.420
17	328.55	-4.38	-4.43	1.348E+02	6.079E+00	2.376E+00	6.889E+01	0.501	
18	328.55	-11.06	-11.03	-3.553E-15	4.647E+01	4.304E+01	2.856E+01	0.149	0.420
18	329.72	-4.43	-4.53	1.327E+02	6.079E+00	2.329E+00	6.799E+01	0.502	
19	329.72	-11.03	-11.00	5.329E-15	4.572E+01	4.206E+01	2.776E+01	0.149	0.420
19	330.89	-4.53	-4.68	1.295E+02	6.079E+00	2.279E+00	6.643E+01	0.502	
20	330.89	-11.00	-10.97	1.243E-14	4.495E+01	4.100E+01	2.665E+01	0.149	0.420
20	332.06	-4.68	-4.89	1.256E+02	6.079E+00	2.226E+00	6.421E+01	0.503	
21	332.06	-10.97	-10.94	7.105E-15	4.376E+01	3.987E+01	2.523E+01	0.149	0.418
21	333.23	-4.89	-5.15	1.204E+02	6.079E+00	2.170E+00	6.136E+01	0.504	
22	333.23	-10.94	-10.91	7.105E-15	4.220E+01	3.866E+01	2.344E+01	0.149	0.415

```
 22  334.40  -5.15  -5.46  1.140E+02  6.079E+00  2.109E+00  5.782E+01        0.505

 23  334.40 -10.91 -10.88  0.000E+00  4.062E+01  3.729E+01  2.130E+01  0.149  0.410
 23  335.57  -5.46  -5.84  1.066E+02  6.327E+00  2.043E+00  5.355E+01        0.506

 24  335.57 -10.88 -10.82 -3.553E-15  3.855E+01  3.590E+01  1.897E+01  0.149  0.406
 24  336.74  -5.84  -6.28  9.758E+01  6.984E+00  1.976E+00  4.858E+01        0.509

 25  336.74 -10.82 -10.76  7.105E-15  3.608E+01  3.420E+01  1.622E+01  0.149  0.401
 25  337.91  -6.28  -6.78  8.696E+01  7.745E+00  1.894E+00  4.283E+01        0.511

 26  337.91 -10.76 -10.69  3.553E-15  3.331E+01  3.202E+01  1.308E+01  0.149  0.392
 26  339.08  -6.78  -7.35  7.490E+01  8.615E+00  1.786E+00  3.624E+01        0.514

 27  339.08 -10.69 -10.63  0.000E+00  3.054E+01  2.886E+01  9.595E+00  0.149  0.378
 27  340.25  -7.35  -7.99  6.158E+01  9.598E+00  1.622E+00  2.881E+01        0.520

 28  340.25 -10.63 -10.57  0.000E+00  2.763E+01  2.360E+01  5.627E+00  0.148  0.368
 28  341.42  -7.99  -8.72  4.665E+01  1.071E+01  1.344E+00  2.042E+01        0.529

 29  341.42 -10.57 -10.50  0.000E+00  2.154E+01  1.683E+01  1.524E+00  0.143  0.308
 29  342.59  -8.72  -9.53  2.974E+01  8.366E+00  9.622E-01  1.100E+01        0.552

 30  342.59 -10.50 -10.43  0.000E+00  1.129E+01 -1.541E-10  0.000E+00  0.000  0.500
 30  343.86  -9.53 -10.43  1.119E+01  4.842E+00 -2.576E-11  1.686E+00        0.667

 BEAST  Output   Program Version = 30 Apr 2015    Time = 07 MAR 2019  16:58:08



 SURFACE NO:576  TYPE: CIRCLE    SAFETY-FACTOR:  1.727   SCORE:  0.002
 BELOW SKETCH SHOWS SHEAR SURFACE WITH SLICE DIVISIONS AND MATERIAL ID-S

 122  2 2 1  1 1 1  1 1 1  1 1 1  1 1 1  1 1 1  1 1 1  1 1 1  1 1
  33 3 3 3  3 2 2  2 2 2  2 2 2  2 2 2  2 2 2  2 2 2  2 2 2 2  2 1 1 21
    333 3  3 3 3  3 3 3  3 3 3  3 3 3  2 2 2  2 2 2  2 2 2 2  2 222
     333  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3 3  333
       3 333 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3 3 33
          333  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3333
            3 33333  3 3 3  3 3 3  3 3 3  3 3333 33
                33 333333 333333 333333 333
 0102 030405 060708 091011 121314 151617 181920 212223 242526 272829 30

  MAT GAMTOT SUA/SU0 SUD/SU0 SUP/SU0 COHESN PHIANG PHIRED RU-FCT  B-FCT  K-NOT B-
 SIG2 D/SU(B)
   1  18.000  1.000   1.000   1.000   0.000  34.00  0.00  0.000   0.000  0.000  0.000  0.001
   2  18.000  1.000   1.000   1.000 10.0%*C  30.00  0.00  0.000   0.000  0.000  0.000  0.001
   3  17.000  1.000   1.000   1.000 10.0%*C  30.00  0.00  0.000   0.000  0.000  0.000  0.001
   4  18.000  1.000   1.000   1.000   0.000  40.00  0.00  0.000   0.000  0.000  0.000  0.001

 BEAST  Output   Program Version = 30 Apr 2015    Time = 07 MAR 2019  16:58:08



 SURFACE NO:576  TYPE: CIRCLE    SAFETY-FACTOR:  1.727   SCORE:  0.002
 BELOW SKETCH SHOWS EFFECTIVE NORMAL STRESSES: P=SHEAR-SURFACE  E=INTER-SLICE
                       U=RESULTING PWP AT SHEAR SURFACE
```



P-MIN = 1.129E+01 P-MAX = 8.263E+01
E-MIN = 1.683E+01 E-MAX = 5.018E+01
U-MIN = 0.000E+00 U-MAX = 6.916E+01

THIS RUN WAS TERMINATED : 07 MAR 2019 AT 16:58:08 HOURS

TIME USED = 1 SECONDS

BILAGA 3

Stabilitetsberäkning
Beräkningssektion 3

GeoSuite Stability Report

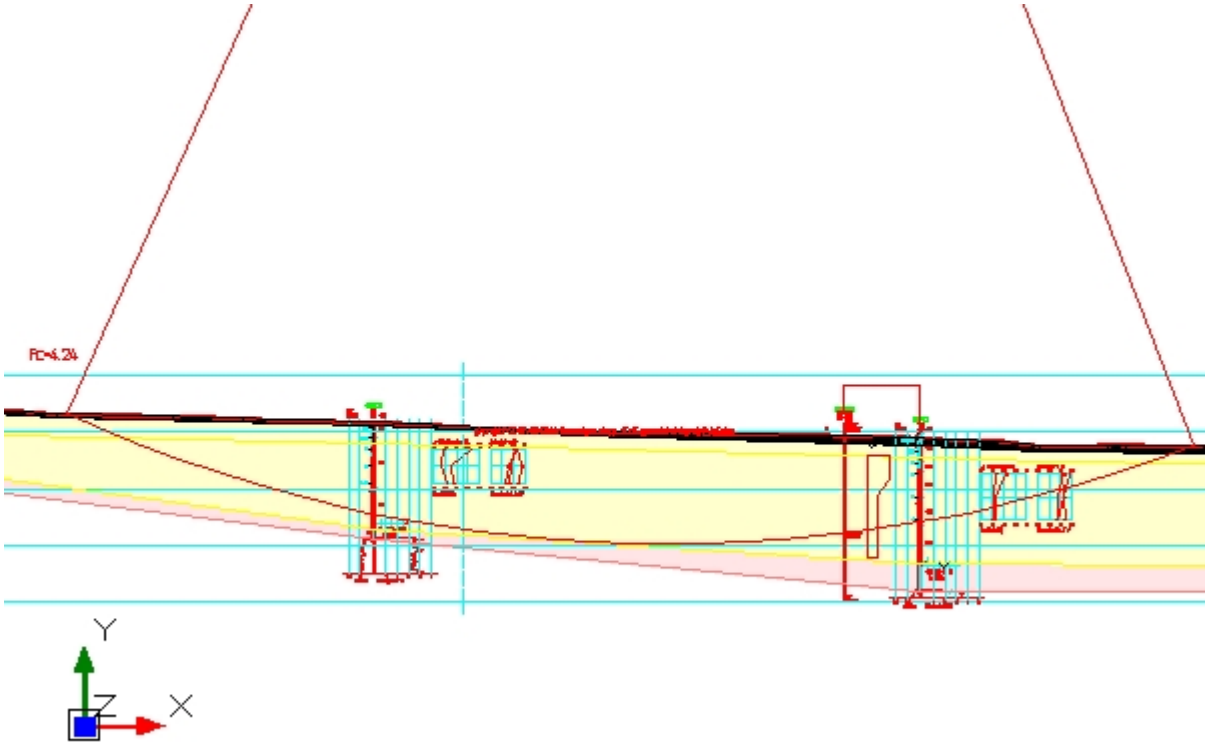
Calculation data

Project name:	Fasanvägen etapp 13
Project number:	18112896
Contractor:	
Comment:	

Calculation name:	BS3
Description:	
File name:	g:\projekt\2018\18112896 fasanvägen etapp 13\15_geosuite\stabgraf.rit\bs3.dwg
Critical Safety Factor:	4,24
Result Date:	2019-02-21 17:13
Result Text:	

Horizontally density spacing:	3
Vertically density spacing:	15
Side friction:	0,00
Number of slices:	30
Correction of exit angle:	Yes

Graphic Model



Soil

Materials

Material	ρ [kN/m³]	Ø [°]	C' [kPa]	C [kPa]	Aa	Ad	Ap
Fy	18,00	34,0	0,0		1,00	1,00	1,00
Let	18,00			30,0	1,00	1,00	1,00
Le	17,00			CProf	1,00	1,00	1,00
Fr	18,00	40,0	0,0		1,00	1,00	1,00

Soil Parameter Variations

η-factors

Material	Param	Drained	γm	η(1,2)	η(3)	η(4,5,6,7)	η(8)	η
Fy	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00
Let	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Le	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Fr	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00

Scaling factors

Material	+ Factor	- Facktor
Fy	1,00	1,00
Let	1,00	1,00
Le	1,00	1,00
Fr	1,00	1,00

C Profiles

C-profile, X = 147,42 m

Z [m]	C [kPa]
8,00	20,30
5,91	20,30
4,50	10,50
-1,00	10,50

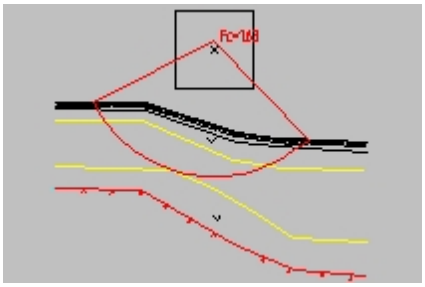
Model Data

Tangent Strategy Data

Centre point X:	129,90
Centre point Z:	102,20
Search area:	53,19
Upper Z-level:	8,58
Lower Z-level:	-2,01
Number of levels:	50

Search Criteria

Calculation method:	Beast 2003
Calculation Strategy:	Tangent
Slope type:	Right slope



Result file

Location: g:\projekt\2018\18112896 fasanvägen etapp 13\15_geosuite\stabgraf.rit\bs3.RES

Created: 2019-02-21 17:12

Modified: 2019-02-21 17:13

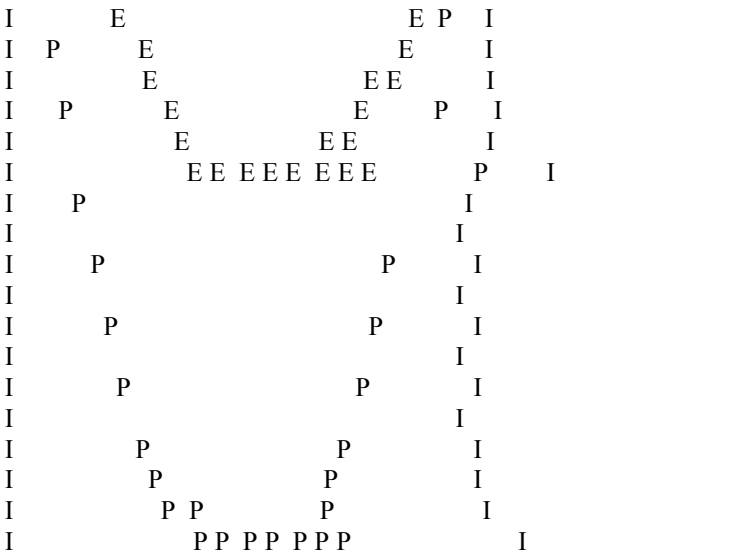
```
#
      ECHO PRINT OF DATA ON FORTRAN UNIT NUMBER = 14

      000000000111111111122222222223333333333444444444455555555556666666666777777777 8
      123456789012345678901234567890123456789012345678901234567890123456789012345678 90

  1----
  2----
  3---- * Version : 4.0.0.0
  4----
  5----  ****************** CONTROL SECTION
  6----   1.0 1.0 CONFRC,CONLTH   CONVERTION FACTORS ON FORCES AND LENGTHS
  7----   1.0 1.0 FCTSUC,FCTTAN   MATERIAL FACTORS ON SU,C AND TAN(PHI)
  8----     1 IDTYP     SOLUTION TYPE (1=STAB/BEARING 2=EARTH PRESS)
  9----    31 ANALYSIS METHOD & TYPE, E.G. 31 = BEAST-2003 & EFF.STRESS
 10----     0 NUMGEN    NUMBER OF GENERAL SHEAR SURFACES
 11----    30 NUMSLC    NUMBER OF SLICES (ZERO OK FOR GENERAL SURFACES)
 12----   0.000 SIDSHR    SIDE SHEAR FACTOR (0.0=PLANE STRAIN , 2.0/LENGTH=MAX)
 13----  0.00 0.00 VALUES FOR H3-ASSMPTN (H3(X)=H31+(H32-H31)/XTOT*X)
 14----  0.50 0.50 0.00 VALUES FOR R-ASSMPTN  (R(X)=R1+(R2-R1)/XTOT*X+H(X)/HMAX*R3)
 15----     0 ITENSP    ALLOW P-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
 16----     0 ITENSE    ALLOW E-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
 17----     0 JPRINT    TRACE PRINT CODE (0=NON 1=LIM 2=TRACE 3=DETLD TRACE)
 18----     2 IPRTTP    FILE NF16 PRINT TYPE FOR SLICE OUTPUT (1=FORCES 2=STRESSES)
 19----     1 JPLOT     CODE FOR PLOT(S) ON NF16 (0=NO 1=YES 2=+PWP/SU0 3=+MESH)
 20----   0.000 CRTFRC    CONVERGENCE CRITERION , FORCES   (DEFAULT=SUM(FZ)/1.0E4)
 21----   2.000 CRTSCR    CONVERGENCE CRITERION , SOLUTION SCORE
 22----  1 0 0 0 0 0.0  0.0  0.0  0.0  0.0 First flag, exit angle, third adjust low circ
 23----
 24----  ****************** GEOMETRY SECTION
 25----     16 NUMXLN    NUMBER OF X-LINES WITH SURFACE, ROCK AND ELEMENT SPECS
 26----     1 NUMELZ    NUMBER OF ELEMENTS IN Z-DIRECTION
 27----     1 NUMLAY    NUMBER OF HORIZONTAL LAYERS
 28----     29 NUMTRI    NUMBER OF MATERIAL I.D. TRIANGLES
 29----    X-VALUE  Z-SURFACE  Z-ROCK  NUMBER OF X-ELEMENTS TO NEXT X-LINE
 30----     -100.00      -19.70       80.30        1
 31----     0.00        -19.70       80.30        1
 32----     27.91        -15.74       81.81        1
 33----     36.77        -14.65       82.29        1
 34----     42.87        -13.68       82.62        1
 35----     50.18        -13.25       83.02        1
 36----     54.15        -12.71       83.23        1
 37----     76.53        -11.62       84.45        1
 38----     103.93       -11.00       85.93        1
 39----     121.27       -10.03       86.87        1
 40----     145.68       -9.79        88.19        1
 41----     159.36       -9.21        88.94        1
 42----     162.94       -8.86        89.13        1
 43----     189.72       -8.82        90.58        1
 44----     206.51       -8.51        91.49        1
 45----     306.51       -8.51        91.49        0
```

```
  46----  00 00 00  0.0 0.0 NP1,NP2,NSTEP,ZN1,ZN2  NODE NEW Z , NP2=MAX TERMINATES
  47----  00 00 00   0 NE1,NE2,NSTEP,MAT     ELEMENT MATRL , NE2=MAX TERMINATES
  48----   LAYER  Z-BOTTOM  MATERIAL-I.D.
  49----    1      91.49        1
  50----   TRIANGLE  MATERIAL   X1  Z1     X2  Z2     X3  Z3
  51----    1  4  103.26   101.49    -99.65   101.49    -99.65   -17.64
  52----    2  4  103.26   101.49    -99.65   -17.64    0.35     -17.64
  53----    3  4  103.26   101.49    0.35     -17.64    46.28    -9.27
  54----    4  4  103.26   101.49    46.28    -9.27     104.24   -1.49
  55----    5  4  103.26   101.49    104.24   -1.49     152.26   1.60
  56----    6  4  103.26   101.49    152.26   1.60      205.92   1.87
  57----    7  4  103.26   101.49    305.92   1.87      205.92   1.87
  58----    8  4  103.26   101.49    305.92   1.87      305.92   101.49
  59----    9  3  103.26   101.49    -99.64   101.49    -99.64   -18.28
  60----    10  3  103.26   101.49    -99.64   -18.28    0.36     -18.28
  61----    11  3  103.26   101.49    0.36     -18.28    46.11    -10.25
  62----    12  3  103.26   101.49    46.11    -10.25    103.92   -8.98
  63----    13  3  103.26   101.49    103.92   -8.98     152.27   -7.85
  64----    14  3  103.26   101.49    152.27   -7.85     163.31   -7.47
  65----    15  3  103.26   101.49    163.31   -7.47     206.41   -6.62
  66----    16  3  103.26   101.49    306.41   -6.62     206.41   -6.62
  67----    17  3  103.26   101.49    306.41   -6.62     306.41   101.49
  68----    18  2  103.26   101.49    -99.29   101.49    -99.29   -19.01
  69----    19  2  103.26   101.49    -99.29   -19.01    0.71     -19.01
  70----    20  2  103.26   101.49    0.71     -19.01    42.77    -13.39
  71----    21  2  103.26   101.49    42.77    -13.39    46.29    -13.05
  72----    22  2  103.26   101.49    46.29    -13.05    75.91    -11.33
  73----    23  2  103.26   101.49    75.91    -11.33    103.66   -10.61
  74----    24  2  103.26   101.49    103.66   -10.61    123.45   -9.67
  75----    25  2  103.26   101.49    123.45   -9.67     152.25   -8.83
  76----    26  2  103.26   101.49    152.25   -8.83     162.87   -8.35
  77----    27  2  103.26   101.49    162.87   -8.35     205.40   -7.83
  78----    28  2  103.26   101.49    305.40   -7.83     205.40   -7.83
  79----    29  2  103.26   101.49    305.40   -7.83     305.40   101.49
  80----   0 0 0 XWALL,HWALL,RWALL   WALL SPECIFICATIONS
(LOCATION,HEIGHT,ROUGHNESS)
  81----
  82----  ****************** MATERIAL PROPERTIES SECTION
  83----    4   3  15 NUMMAT    NUMBER OF DIFFERENT MATERIALS (NDX, NDZ DENSITY GRID S
  84----    1 NUMXSU    NUMBER OF VERTICAL X-LINES WITH GIVEN SU-VALUES
  85----    0 NODSU     NUMBER OF MESH NODAL POINTS WITH GIVEN SU-VALUES
  86----   0.00 CRACKZ    SURFACE OPEN CRACK DEPTH
  87----   0.00 CRACKW    WATER DEPTH IN OPEN SURFACE CRACK
  88----   0.0 PHIREF    FRICTION ANGLE REFERENCE PRESSURE
  89----   EFFECTIVE STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO
OK)
  90----   MAT  GAMTOT  COHSN  PHIANG  PHIRED  PWPMAT  RU-MAT  B-FACT K-NOT B-SIG2 D-
FCT
  91----   1   18.00    0.00   34.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
  92----   2   18.00    0.00    0.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
  93----   3   17.00    0.00    0.00  0   0.00   0.00  0  0  0  0.001  -0.00 17.00
  94----   4   18.00    0.00   40.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
  95----   TOTAL STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO OK)
  96----   MAT  GAMTOT  SUA/SU0 SUD/SU0 SUP/SU0  SU0-MAT  (A:ACTIVE D:DIRECT
P:PASSIVE)C-
  97----   1   18.00    1.00    1.00    1.00    0.00   1
  98----   2   18.00    1.00    1.00    1.00   30.00   0
  99----   3   17.00    1.00    1.00    1.00    0.00   1
 100----   4   18.00    1.00    1.00    1.00    0.00   1
 101----   X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : SU0-VALUES
```

```
102----  1     147.42  4     -8.00     -5.91     -4.50      1.00
103----                     20.30     20.30     10.50     10.50
104----  NODE   SU0   (IF ALL NODES, SKIP NODE NUMBERS : SU0(1),SU0(2),...)
105----
106----  ****************** PORE-WATER-PRESSURES SECTION
107----     1 IDPWP     PWP INDICATOR (1=HYDROSTATIC  2=NON-HYDROSTATIC)
108----     0 NUMBER OF VERTICAL X-LINES WITH GIVEN PWP WITH DEPTH
109----     0 NODPWP    NUMBER OF MESH NODAL POINTS WITH GIVEN PWP
110----    0.0 FCTNOD    FACTOR ON PWP-VALUES GIVEN AT NODAL POINTS
111----    101.490 WATERZ    HORIZONTAL WATER TABLE Z-LEVEL
112----    10.0 GAMWAT    FREE WATER UNIT WEIGHT
113----    10.0 GAMPWP    PORE WATER UNIT WEIGHT (=GAMWAT IF HYDROSTATIC)
114----     0.00 PWPMIN    MINIMUM ALLOWABLE PWP (CAPILLARY TENSION)
115----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : PWP-VALUES
116----   NODE  PWP-VALUE  (IF ALL NODES , SKIP NODE NUMBERS : PWP(1),PWP(2),...)
117----
118----  ****************** LOAD SECTION
119----     0 NUMPNT            NUMBER OF POINT LOADS & 100*SOIL NAILS
120----     0 NUMSIG            NUMBER OF SURFACE DISTRIBUTED LOADS
121----    0.0 SIGTOP           UNIFORM INITIAL VERTICAL STRESS AT SURFACE
122----  -100 100 XTOP1,XTOP2        STRESS 'SIGTOP' ACTS FROM XTOP1 TO XTOP2
123----    10.0000   5.0000 FCTPNT,FCTSIG      POINT AND DISTRIBUTED LOAD FACTORS
124----   0.00 1.00 ACCXRT,ACCZRT       ACCELERATION RATIOS IN X- AND Z-DIRECTIONS
125----    POINT   X-COORD   Z-COORD   X-FORCE   Z-FORCE
126----   STRIP     X1       X2       SIGZ1     SIGZ2     TAUX1     TAUX2
127----
128----  ****************** GIVEN SHEAR SURFACE
129---- END

      0000000001111111111222222222233333333334444444445555555555666666666677777777778
      1234567890123456789012345678901234567890123456789012345678901234567890123456789


BEAST  Output   Program Version = 30 Apr 2015    Time = 21 FEB 2019  17:13:10



========================================================= SAFETY FACTOR =    4.244
SURFACE NO : 855     SUMMARY OF GEOMETRY AND STRESSES
========================================================= SOLUTION SCORE=    0.113

SURFACE TYPE = CIRCLE        X-CENTER  Z-CENTER   RADIUS
                     129.900  -128.800   128.650

SOLUTION METHOD = BEAST-2003 / EFFECTIVE STRESS ANALYSIS

SLICE    X1      Z1      Z2     WXT-FRC    P-STR      E2-STR     U2-STR    ROUGH  H2/Z23
       X2      Z4      Z3     WZT-FRC    S-STR      T2-STR     U3-STR          H3/L34

  1    76.85  -11.61  -11.54   0.000E+00  9.655E+00 -4.312E+00  0.000E+00  0.022  0.373  WARNINGS: 1
  1    80.16  -11.61  -10.17   4.070E+01  5.961E+00  1.114E-01  0.000E+00         0.334

  2    80.16  -11.54  -11.46   0.000E+00  3.316E+01  6.861E+00  0.000E+00  0.048  0.047
  2    83.48  -10.17   -8.84   1.187E+02  6.154E+00  2.414E-01  0.000E+00         0.447

  3    83.48  -11.46  -11.39   0.000E+00  5.453E+01  1.839E+01  0.000E+00  0.066  0.194
  3    86.79   -8.84   -7.60   1.875E+02  4.783E+00  3.610E-01  0.000E+00         0.470

  4    86.79  -11.39  -11.31   0.000E+00  7.362E+01  2.840E+01  0.000E+00******  0.242  WARNINGS: 1
```

4	90.11	-7.60	-6.46	2.505E+02	4.783E+00	4.694E-01	0.000E+00	0.479	
5	90.11	-11.31	-11.24	0.000E+00	9.079E+01	3.706E+01	0.000E+00*******	0.266	WARNINGS: 1
5	93.42	-6.46	-5.44	3.068E+02	4.611E+00	5.701E-01	0.000E+00	0.485	
6	93.42	-11.24	-11.16	0.000E+00	1.066E+02	4.555E+01	0.000E+00	0.137	0.277
6	96.74	-5.44	-4.52	3.575E+02	3.261E+00	6.608E-01	0.000E+00	0.489	
7	96.74	-11.16	-11.09	0.000E+00	1.204E+02	5.339E+01	0.000E+00	0.144	0.284
7	100.06	-4.52	-3.68	4.024E+02	2.474E+00	7.407E-01	0.000E+00	0.491	
8	100.06	-11.09	-11.01	0.000E+00	1.330E+02	6.032E+01	0.000E+00	0.150	0.290
8	103.37	-3.68	-2.92	4.439E+02	2.474E+00	8.104E-01	0.000E+00	0.493	
9	103.37	-11.01	-10.85	0.000E+00	1.430E+02	6.676E+01	0.000E+00	0.156	0.299
9	106.69	-2.92	-2.27	4.770E+02	2.474E+00	8.815E-01	0.000E+00	0.495	
10	106.69	-10.85	-10.66	0.000E+00	1.499E+02	7.241E+01	0.000E+00	0.160	0.307
10	110.00	-2.27	-1.72	4.995E+02	2.474E+00	9.436E-01	0.000E+00	0.496	
11	110.00	-10.66	-10.47	0.000E+00	1.558E+02	7.729E+01	0.000E+00	0.165	0.315
11	113.32	-1.72	-1.24	5.184E+02	2.474E+00	9.947E-01	0.000E+00	0.497	
12	113.32	-10.47	-10.29	0.000E+00	1.602E+02	8.145E+01	0.000E+00	0.174	0.322
12	116.64	-1.24	-0.84	5.329E+02	2.474E+00	1.035E+00	0.000E+00	0.498	
13	116.64	-10.29	-10.10	0.000E+00	1.627E+02	8.464E+01	0.000E+00	0.181	0.328
13	119.95	-0.84	-0.55	5.406E+02	2.474E+00	1.069E+00	0.000E+00	0.499	
14	119.95	-10.10	-10.01	0.000E+00	1.641E+02	8.632E+01	0.000E+00	0.185	0.331
14	123.27	-0.55	-0.34	5.451E+02	2.474E+00	1.083E+00	0.000E+00	0.499	
15	123.27	-10.01	-9.98	0.000E+00	1.664E+02	8.686E+01	0.000E+00	0.186	0.332
15	126.59	-0.34	-0.21	5.522E+02	2.474E+00	1.080E+00	0.000E+00	0.499	
16	126.59	-9.98	-9.95	0.000E+00	1.676E+02	8.678E+01	0.000E+00	0.185	0.332
16	129.90	-0.21	-0.15	5.558E+02	2.474E+00	1.067E+00	0.000E+00	0.500	
17	129.90	-9.95	-9.91	0.000E+00	1.672E+02	8.575E+01	0.000E+00	0.183	0.332
17	133.22	-0.15	-0.21	5.540E+02	2.474E+00	1.048E+00	0.000E+00	0.501	
18	133.22	-9.91	-9.88	0.000E+00	1.657E+02	8.407E+01	0.000E+00	0.179	0.332
18	136.53	-0.21	-0.34	5.488E+02	2.474E+00	1.019E+00	0.000E+00	0.501	
19	136.53	-9.88	-9.85	0.000E+00	1.623E+02	8.173E+01	0.000E+00	0.172	0.332
19	139.85	-0.34	-0.55	5.372E+02	2.474E+00	9.782E-01	0.000E+00	0.502	
20	139.85	-9.85	-9.81	0.000E+00	1.576E+02	7.866E+01	0.000E+00	0.164	0.332
20	143.17	-0.55	-0.84	5.212E+02	2.474E+00	9.274E-01	0.000E+00	0.503	
21	143.17	-9.81	-9.76	0.000E+00	1.512E+02	7.483E+01	0.000E+00	0.154	0.333
21	146.48	-0.84	-1.24	4.994E+02	2.474E+00	8.715E-01	0.000E+00	0.504	
22	146.48	-9.76	-9.62	0.000E+00	1.418E+02	7.107E+01	0.000E+00	0.144	0.338
22	149.80	-1.24	-1.72	4.681E+02	2.474E+00	8.133E-01	0.000E+00	0.506	
23	149.80	-9.62	-9.47	0.000E+00	1.306E+02	6.671E+01	0.000E+00	0.132	0.344
23	153.11	-1.72	-2.27	4.306E+02	2.474E+00	7.450E-01	0.000E+00	0.508	
24	153.11	-9.47	-9.33	0.000E+00	1.182E+02	6.172E+01	0.000E+00	0.122	0.352

```
 24  156.43  -2.27  -2.92  3.893E+02  2.474E+00  6.670E-01  0.000E+00       0.510

 25  156.43  -9.33  -9.17  0.000E+00  1.039E+02  5.624E+01  0.000E+00  0.112  0.362
 25  159.75  -2.92  -3.68  3.415E+02  2.474E+00  5.848E-01  0.000E+00       0.513

 26  159.75  -9.17  -8.86  0.000E+00  8.596E+01  5.264E+01  0.000E+00  0.101  0.384
 26  163.06  -3.68  -4.52  2.820E+02  2.474E+00  5.161E-01  0.000E+00       0.520

 27  163.06  -8.86  -8.85  0.000E+00  6.843E+01  4.525E+01  0.000E+00  0.079  0.378
 27  166.38  -4.52  -5.45  2.230E+02  3.262E+00  4.086E-01  0.000E+00       0.520

 28  166.38  -8.85  -8.85  0.000E+00  5.245E+01  3.588E+01  0.000E+00  0.047  0.370
 28  169.70  -5.45  -6.46  1.685E+02  4.611E+00  2.879E-01  0.000E+00       0.529

 29  169.70  -8.85  -8.84  0.000E+00  3.432E+01  2.348E+01  0.000E+00  0.025  0.338
 29  173.01  -6.46  -7.60  1.073E+02  5.240E+00  1.530E-01  0.000E+00       0.553

 30  173.01  -8.84  -8.84  0.000E+00  1.276E+01 -4.671E-10  0.000E+00  0.000  0.500
 30  176.32  -7.60  -8.84  3.709E+01  4.044E+00  3.920E-10  0.000E+00       0.666

BEAST  Output   Program Version = 30 Apr 2015    Time = 21 FEB 2019  17:13:10



SURFACE NO:855  TYPE: CIRCLE    SAFETY-FACTOR:  4.244   SCORE:  0.113
BELOW SKETCH SHOWS SHEAR SURFACE WITH SLICE DIVISIONS AND MATERIAL ID-S

1222 2 2 2  2 2 2  2 1 1  1 1 1  1 1 1  1 1 1  1 1 1  1 1
   33333  3 3 3  3 3 3  3 3 3  3 3 3  3 3 2  2 2 2  2 2 2  2 2 2 3211
      33 333 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  33333
         3333 333 3  3 3 3  3 3 3  3 3 3  3 3 3  33333 33
              3333 333333 33333 333333 333333 33
0102 030405 060708 091011 121314 1516 171819 202122 232425 262728 2930

 MAT GAMTOT SUA/SU0 SUD/SU0 SUP/SU0 COHESN PHIANG PHIRED RU-FCT  B-FCT  K-NOT B-
SIG2 D/SU(B)
  1  18.000  1.000   1.000   1.000   0.000  34.00  0.00  0.000   0.000  0.000  0.000  0.001
  2  18.000  1.000   1.000   1.000   0.000   0.00  0.00  0.000   0.000  0.000  0.000  0.001
  3  17.000  1.000   1.000   1.000   0.000   0.00  0.00  0.000   0.000  0.000  0.000  0.001
  4  18.000  1.000   1.000   1.000   0.000  40.00  0.00  0.000   0.000  0.000  0.000  0.001

BEAST  Output   Program Version = 30 Apr 2015    Time = 21 FEB 2019  17:13:10



SURFACE NO:855  TYPE: CIRCLE    SAFETY-FACTOR:  4.244   SCORE:  0.113
BELOW SKETCH SHOWS EFFECTIVE NORMAL STRESSES: P=SHEAR-SURFACE  E=INTER-SLICE
                          U=RESULTING PWP AT SHEAR SURFACE

0102 030405 060708 091011 121314 1516 171819 202122 232425 262728 2930
------------------------------------------------------------------------ZERO
IU U UUU UUU UUU UUU UUU UU UUU UUU UUU UUU UUU UUI
IP  E                                        PI
I    E                                       I
I                                          E I
I P    E                                     I
I       E                                  E P I
I         E                              E    I
```



P-MIN = 9.655E+00 P-MAX = 1.676E+02
E-MIN = -4.312E+00 E-MAX = 8.686E+01
U-MIN = 0.000E+00 U-MAX = 0.000E+00

THIS RUN WAS TERMINATED : 21 FEB 2019 AT 17:13:10 HOURS

TIME USED = 1 SECONDS

GeoSuite Stability Report

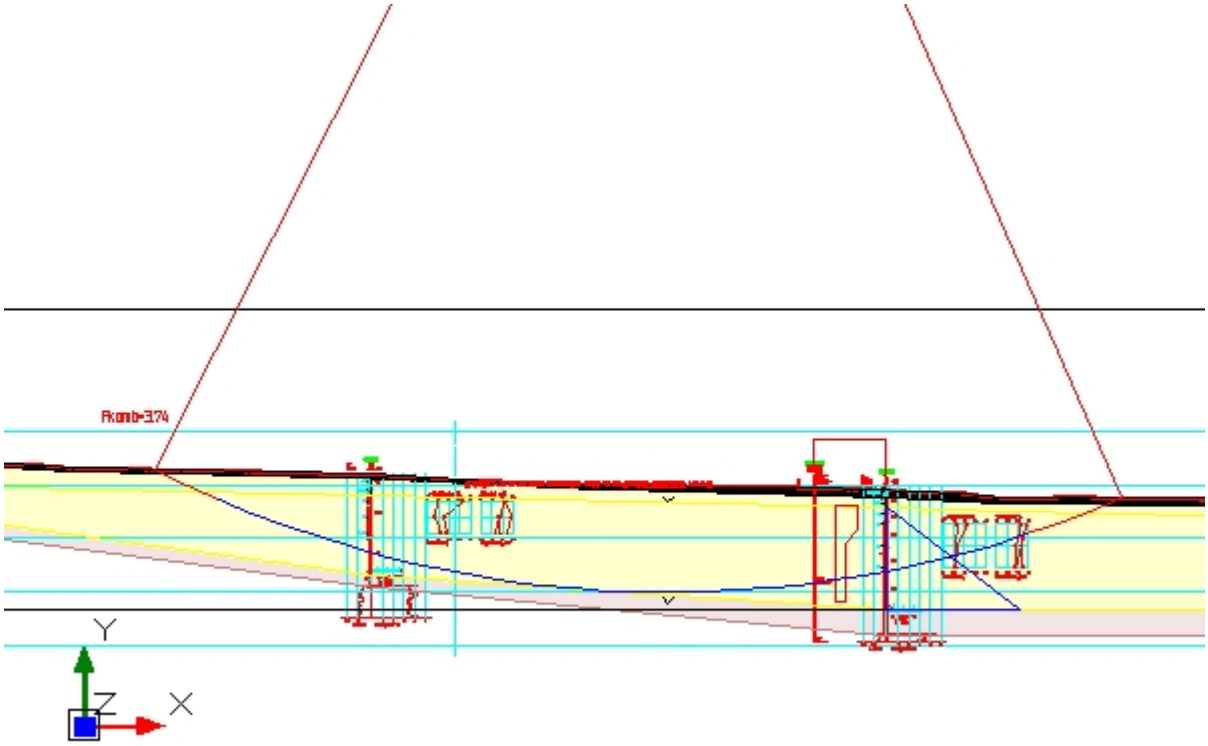
Calculation data

Project name:	Fasanvägen etapp 13
Project number:	18112896
Contractor:	
Comment:	

Calculation name:	BS3_BEF_KOMB
Description:	
File name:	G:\Projekt\2018\18112896 Fasanvägen etapp 13\15_Geosuite\STABGRAF.RIT\BS3_BEF_komb.dwg
Critical Safety Factor:	3,74
Result Date:	2019-03-07 17:04
Result Text:	

Horizontally density spacing:	3
Vertically density spacing:	15
Side friction:	0,00
Number of slices:	30
Correction of exit angle:	Yes

Graphic Model



Soil

Materials (combined analysis)

Material	ρ [kN/m³]	Ø [°]	C' [kPa]	C [kPa]	Aa	Ad	Ap
Fy	18,00	34,0	0,0	100,0	1,00	1,00	1,00
Let	18,00	30,0	10 %	30,0	1,00	1,00	1,00
Le	17,00	30,0	10 %	CProf	1,00	1,00	1,00
Fr	18,00	40,0	0,0	100,0	1,00	1,00	1,00

Soil Parameter Variations

η-factors

Material	Param	Drained	γm	η(1,2)	η(3)	η(4,5,6,7)	η(8)	η
Fy	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00
Let	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Le	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Fr	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00

Scaling factors

Material	+ Factor	- Facktor
Fy	1,00	1,00
Let	1,00	1,00
Le	1,00	1,00
Fr	1,00	1,00

C Profiles

C-profile, X = 147,42 m

Z [m]	C [kPa]
8,00	20,30
5,91	20,30
4,50	10,50
-1,00	10,50

Pore Profiles

Pore-profile, X = 152,16 m

Z [m]	Pore P [kPa]
7,87	1,00
-1,59	125,00

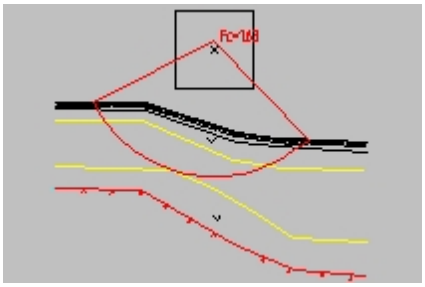
Model Data

Tangent Strategy Data

Centre point X:	131,78
Centre point Z:	90,06
Search area:	63,58
Upper Z-level:	8,45
Lower Z-level:	-1,03
Number of levels:	50

Search Criteria

Calculation method:	Beast 2003
Calculation Strategy:	Tangent
Slope type:	Right slope



Result file

Location: G:\Projekt\2018\18112896 Fasanvägen etapp 13\15_Geosuite\STABGRAF.RIT\BS3_BEF_komb.RES

Created: 2019-03-07 17:03

Modified: 2019-03-07 17:04

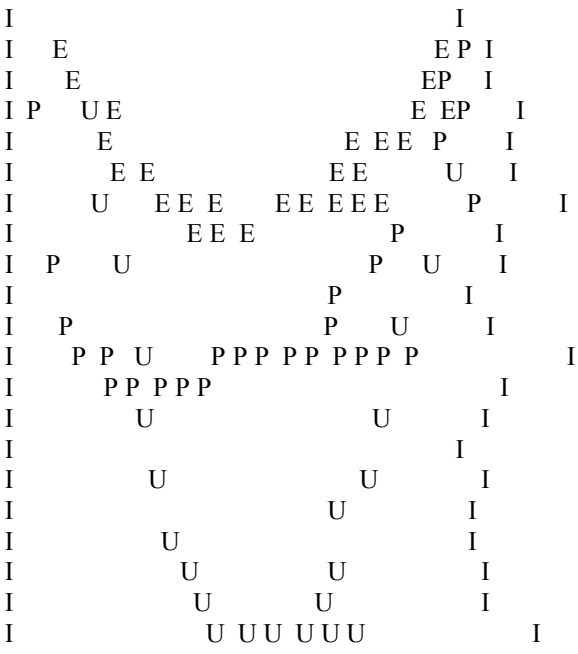
```
#
      ECHO PRINT OF DATA ON FORTRAN UNIT NUMBER = 14

      000000000111111111122222222223333333333444444444455555555556666666666777777777778
      123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890

 1----
 2----
 3---- * Version : 4.0.0.0
 4----
 5----  ****************** CONTROL SECTION
 6----   1.0 1.0 CONFRC,CONLTH   CONVERTION FACTORS ON FORCES AND LENGTHS
 7----   1.0 1.0 FCTSUC,FCTTAN   MATERIAL FACTORS ON SU,C AND TAN(PHI)
 8----     1 IDTYP     SOLUTION TYPE (1=STAB/BEARING 2=EARTH PRESS)
 9----    33 ANALYSIS METHOD & TYPE, E.G. 31 = BEAST-2003 & EFF.STRESS
10----     0 NUMGEN    NUMBER OF GENERAL SHEAR SURFACES
11----    30 NUMSLC    NUMBER OF SLICES (ZERO OK FOR GENERAL SURFACES)
12----   0.000 SIDSHR    SIDE SHEAR FACTOR (0.0=PLANE STRAIN , 2.0/LENGTH=MAX)
13----  0.00 0.00 VALUES FOR H3-ASSMPTN (H3(X)=H31+(H32-H31)/XTOT*X)
14----  0.50 0.50 0.00 VALUES FOR R-ASSMPTN  (R(X)=R1+(R2-R1)/XTOT*X+H(X)/HMAX*R3)
15----     0 ITENSP    ALLOW P-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
16----     0 ITENSE    ALLOW E-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
17----     0 JPRINT    TRACE PRINT CODE (0=NON 1=LIM 2=TRACE 3=DETLD TRACE)
18----     2 IPRTTP    FILE NF16 PRINT TYPE FOR SLICE OUTPUT (1=FORCES 2=STRESSES)
19----     1 JPLOT     CODE FOR PLOT(S) ON NF16 (0=NO 1=YES 2=+PWP/SU0 3=+MESH)
20----   0.000 CRTFRC    CONVERGENCE CRITERION , FORCES   (DEFAULT=SUM(FZ)/1.0E4)
21----   2.000 CRTSCR    CONVERGENCE CRITERION , SOLUTION SCORE
22----  1 0 0 0 0 0.0  0.0  0.0  0.0  0.0 First flag, exit angle, third adjust low circ
23----
24----  ****************** GEOMETRY SECTION
25----     16 NUMXLN    NUMBER OF X-LINES WITH SURFACE, ROCK AND ELEMENT SPECS
26----     1 NUMELZ    NUMBER OF ELEMENTS IN Z-DIRECTION
27----     1 NUMLAY    NUMBER OF HORIZONTAL LAYERS
28----     29 NUMTRI    NUMBER OF MATERIAL I.D. TRIANGLES
29----    X-VALUE  Z-SURFACE  Z-ROCK  NUMBER OF X-ELEMENTS TO NEXT X-LINE
30----     -100.00     -19.70      80.30       1
31----     0.00        -19.70      80.30       1
32----     27.91       -15.74      81.81       1
33----     36.77       -14.65      82.29       1
34----     42.87       -13.68      82.62       1
35----     50.18       -13.25      83.02       1
36----     54.15       -12.71      83.23       1
37----     76.53       -11.62      84.45       1
38----     103.93      -11.00      85.93       1
39----     121.27      -10.03      86.87       1
40----     145.68      -9.79       88.19       1
41----     159.36      -9.21       88.94       1
42----     162.94      -8.86       89.13       1
43----     189.72      -8.82       90.58       1
44----     206.51      -8.51       91.49       1
```

```
  45----    306.51      -8.51       91.49       0
  46----  00 00 00  0.0 0.0 NP1,NP2,NSTEP,ZN1,ZN2  NODE NEW Z , NP2=MAX TERMINATES
  47----  00 00 00   0 NE1,NE2,NSTEP,MAT     ELEMENT MATRL , NE2=MAX TERMINATES
  48----   LAYER  Z-BOTTOM  MATERIAL-I.D.
  49----    1      91.49        1
  50----   TRIANGLE  MATERIAL   X1  Z1     X2  Z2     X3  Z3
  51----    1  4   103.26   101.49    -99.65   101.49    -99.65   -17.64
  52----    2  4   103.26   101.49    -99.65   -17.64    0.35     -17.64
  53----    3  4   103.26   101.49    0.35     -17.64    46.28    -9.27
  54----    4  4   103.26   101.49    46.28    -9.27     104.24   -1.49
  55----    5  4   103.26   101.49    104.24   -1.49     152.26   1.60
  56----    6  4   103.26   101.49    152.26   1.60      205.92   1.87
  57----    7  4   103.26   101.49    305.92   1.87      205.92   1.87
  58----    8  4   103.26   101.49    305.92   1.87      305.92   101.49
  59----    9  3   103.26   101.49    -99.64   101.49    -99.64   -18.28
  60----    10  3   103.26   101.49    -99.64   -18.28    0.36     -18.28
  61----    11  3   103.26   101.49    0.36     -18.28    46.11    -10.25
  62----    12  3   103.26   101.49    46.11    -10.25    103.92   -8.98
  63----    13  3   103.26   101.49    103.92   -8.98     152.27   -7.85
  64----    14  3   103.26   101.49    152.27   -7.85     163.31   -7.47
  65----    15  3   103.26   101.49    163.31   -7.47     206.41   -6.62
  66----    16  3   103.26   101.49    306.41   -6.62     206.41   -6.62
  67----    17  3   103.26   101.49    306.41   -6.62     306.41   101.49
  68----    18  2   103.26   101.49    -99.29   101.49    -99.29   -19.01
  69----    19  2   103.26   101.49    -99.29   -19.01    0.71     -19.01
  70----    20  2   103.26   101.49    0.71     -19.01    42.77    -13.39
  71----    21  2   103.26   101.49    42.77    -13.39    46.29    -13.05
  72----    22  2   103.26   101.49    46.29    -13.05    75.91    -11.33
  73----    23  2   103.26   101.49    75.91    -11.33    103.66   -10.61
  74----    24  2   103.26   101.49    103.66   -10.61    123.45   -9.67
  75----    25  2   103.26   101.49    123.45   -9.67     152.25   -8.83
  76----    26  2   103.26   101.49    152.25   -8.83     162.87   -8.35
  77----    27  2   103.26   101.49    162.87   -8.35     205.40   -7.83
  78----    28  2   103.26   101.49    305.40   -7.83     205.40   -7.83
  79----    29  2   103.26   101.49    305.40   -7.83     305.40   101.49
  80----   0 0 0 XWALL,HWALL,RWALL   WALL SPECIFICATIONS
(LOCATION,HEIGHT,ROUGHNESS)
  81----
  82----  ****************** MATERIAL PROPERTIES SECTION
  83----    4   3   15 NUMMAT    NUMBER OF DIFFERENT MATERIALS (NDX, NDZ DENSITY GRID S
  84----    1 NUMXSU    NUMBER OF VERTICAL X-LINES WITH GIVEN SU-VALUES
  85----    0 NODSU     NUMBER OF MESH NODAL POINTS WITH GIVEN SU-VALUES
  86----   0.00 CRACKZ    SURFACE OPEN CRACK DEPTH
  87----   0.00 CRACKW    WATER DEPTH IN OPEN SURFACE CRACK
  88----   0.0 PHIREF    FRICTION ANGLE REFERENCE PRESSURE
  89----   EFFECTIVE STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO
OK)
  90----   MAT  GAMTOT  COHSN  PHIANG  PHIRED  PWPMAT  RU-MAT  B-FACT K-NOT B-SIG2 D-
FCT
  91----   1   18.00    0.00   34.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
  92----   2   18.00   -10.00   30.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
  93----   3   17.00   -10.00   30.00  0   0.00   0.00  0  0  0  0.001  -0.00 17.00
  94----   4   18.00    0.00   40.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
  95----   TOTAL STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO OK)
  96----   MAT  GAMTOT  SUA/SU0 SUD/SU0 SUP/SU0  SU0-MAT  (A:ACTIVE D:DIRECT
P:PASSIVE)C-
  97----   1   18.00    1.00    1.00    1.00   100.00   0
  98----   2   18.00    1.00    1.00    1.00   30.00   0
  99----   3   17.00    1.00    1.00    1.00    0.00   1
 100----   4   18.00     1.00    1.00    1.00   100.00   0
```

```
101----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : SU0-VALUES
102----  1     147.42  4     -8.00    -5.91    -4.50     1.00
103----                     20.30    20.30    10.50    10.50
104----  NODE   SU0   (IF ALL NODES, SKIP NODE NUMBERS : SU0(1),SU0(2),...)
105----
106----  ****************** PORE-WATER-PRESSURES SECTION
107----    2 IDPWP     PWP INDICATOR (1=HYDROSTATIC  2=NON-HYDROSTATIC)
108----    1 NUMBER OF VERTICAL X-LINES WITH GIVEN PWP WITH DEPTH
109----    0 NODPWP    NUMBER OF MESH NODAL POINTS WITH GIVEN PWP
110----   0.0 FCTNOD    FACTOR ON PWP-VALUES GIVEN AT NODAL POINTS
111----   0.000 WATERZ    HORIZONTAL WATER TABLE Z-LEVEL
112----   10.0 GAMWAT    FREE WATER UNIT WEIGHT
113----   10.0 GAMPWP    PORE WATER UNIT WEIGHT (=GAMWAT IF HYDROSTATIC)
114----    0.00 PWPMIN    MINIMUM ALLOWABLE PWP (CAPILLARY TENSION)
115----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : PWP-VALUES
116----  1     152.16  2     -7.87     1.59
117----                     1.00    125.00
118----   NODE  PWP-VALUE  (IF ALL NODES , SKIP NODE NUMBERS : PWP(1),PWP(2),...)
119----
120----  ****************** LOAD SECTION
121----    0 NUMPNT            NUMBER OF POINT LOADS & 100*SOIL NAILS
122----    0 NUMSIG            NUMBER OF SURFACE DISTRIBUTED LOADS
123----   0.0 SIGTOP           UNIFORM INITIAL VERTICAL STRESS AT SURFACE
124---- -100 100 XTOP1,XTOP2        STRESS 'SIGTOP' ACTS FROM XTOP1 TO XTOP2
125----   10.0000   5.0000 FCTPNT,FCTSIG      POINT AND DISTRIBUTED LOAD FACTORS
126----  0.00 1.00 ACCXRT,ACCZRT       ACCELERATION RATIOS IN X- AND Z-DIRECTIONS
127----   POINT   X-COORD   Z-COORD   X-FORCE   Z-FORCE
128----  STRIP     X1      X2      SIGZ1     SIGZ2     TAUX1     TAUX2
129----
130----  ****************** GIVEN SHEAR SURFACE
131---- END

      000000000111111111122222222223333333333444444444455555555556666666666777777777 8
      123456789012345678901234567890123456789012345678901234567890123456789012345678 90


BEAST  Output   Program Version = 30 Apr 2015    Time = 07 MAR 2019  17:04:28



========================================================== SAFETY FACTOR =    3.737
SURFACE NO : 944     SUMMARY OF GEOMETRY AND STRESSES
========================================================== SOLUTION SCORE=    0.004

SURFACE TYPE = CIRCLE        X-CENTER  Z-CENTER   RADIUS
                    131.780  -105.960   106.020

SOLUTION METHOD = BEAST-2003 / SWEDISH COMBINED ANALYSIS

SLICE   X1     Z1     Z2     WXT-FRC   P-STR     E2-STR     U2-STR    ROUGH  H2/Z23
        X2     Z4     Z3     WZT-FRC   S-STR     T2-STR     U3-STR          H3/L34

  1   83.76  -11.46  -11.39   0.000E+00  1.054E+01  6.544E+00  1.000E+00  0.139  0.449
  1   86.78  -11.45   -9.98   3.818E+01  2.117E+00  2.029E-01  1.000E+00         0.334

  2   86.78  -11.39  -11.32   0.000E+00  3.309E+01  1.379E+01  1.000E+00  0.091  0.345
  2   89.80   -9.98   -8.62   1.109E+02  5.655E+00  2.396E-01  1.000E+00         0.448

  3   89.80  -11.32  -11.25   0.000E+00  5.295E+01  2.240E+01  1.470E+00  0.121  0.306
```

3	92.81	-8.62	-7.37	1.748E+02	5.432E+00	4.853E-01	2.301E+00	0.470	
4	92.81	-11.25	-11.18	0.000E+00	5.953E+01	2.797E+01	4.641E+00*******	0.313	WARNINGS: 1
4	95.83	-7.37	-6.23	2.325E+02	5.432E+00	6.429E-01	1.503E+01	0.480	
5	95.83	-11.18	-11.11	0.000E+00	6.310E+01	3.189E+01	9.053E+00*******	0.327	WARNINGS: 1
5	98.85	-6.23	-5.19	2.853E+02	4.974E+00	7.407E-01	2.935E+01	0.485	
6	98.85	-11.11	-11.05	0.000E+00	6.646E+01	3.548E+01	1.369E+01	0.142	0.334
6	101.87	-5.19	-4.26	3.325E+02	3.280E+00	8.602E-01	4.225E+01	0.489	
7	101.87	-11.05	-10.95	-7.105E-15	6.864E+01	3.857E+01	1.826E+01	0.150	0.341
7	104.88	-4.26	-3.42	3.734E+02	2.810E+00	9.842E-01	5.381E+01	0.491	
8	104.88	-10.95	-10.78	1.421E-14	6.958E+01	4.110E+01	2.292E+01	0.155	0.351
8	107.90	-3.42	-2.68	4.069E+02	2.810E+00	1.077E+00	6.415E+01	0.494	
9	107.90	-10.78	-10.61	1.421E-14	6.913E+01	4.311E+01	2.716E+01	0.159	0.361
9	110.92	-2.68	-2.03	4.328E+02	2.810E+00	1.157E+00	7.330E+01	0.495	
10	110.92	-10.61	-10.44	-1.421E-14	6.886E+01	4.463E+01	3.105E+01	0.162	0.370
10	113.93	-2.03	-1.46	4.557E+02	2.810E+00	1.221E+00	8.129E+01	0.496	
11	113.93	-10.44	-10.27	1.421E-14	6.830E+01	4.568E+01	3.461E+01	0.163	0.378
11	116.95	-1.46	-0.98	4.740E+02	2.810E+00	1.252E+00	8.814E+01	0.497	
12	116.95	-10.27	-10.10	-2.842E-14	6.689E+01	4.646E+01	3.753E+01	0.164	0.386
12	119.97	-0.98	-0.61	4.861E+02	2.810E+00	1.272E+00	9.372E+01	0.498	
13	119.97	-10.10	-10.01	2.487E-14	6.561E+01	4.663E+01	3.964E+01	0.165	0.390
13	122.99	-0.61	-0.32	4.950E+02	2.810E+00	1.282E+00	9.806E+01	0.498	
14	122.99	-10.01	-9.98	3.553E-15	6.599E+01	4.634E+01	4.103E+01	0.166	0.392
14	126.00	-0.32	-0.11	5.057E+02	2.810E+00	1.285E+00	1.013E+02	0.498	
15	126.00	-9.98	-9.95	-8.882E-15	6.626E+01	4.591E+01	4.191E+01	0.169	0.392
15	129.02	-0.11	0.01	5.127E+02	2.810E+00	1.289E+00	1.035E+02	0.499	
16	129.02	-9.95	-9.92	-1.776E-15	6.621E+01	4.530E+01	4.229E+01	0.171	0.392
16	132.04	0.01	0.06	5.156E+02	2.810E+00	1.292E+00	1.046E+02	0.500	
17	132.04	-9.92	-9.89	7.105E-15	6.583E+01	4.448E+01	4.207E+01	0.174	0.392
17	135.06	0.06	0.00	5.138E+02	2.810E+00	1.288E+00	1.045E+02	0.501	
18	135.06	-9.89	-9.86	2.309E-14	6.572E+01	4.344E+01	4.130E+01	0.177	0.392
18	138.07	0.00	-0.14	5.092E+02	2.810E+00	1.280E+00	1.033E+02	0.501	
19	138.07	-9.86	-9.84	2.132E-14	6.457E+01	4.217E+01	4.002E+01	0.180	0.391
19	141.09	-0.14	-0.37	4.981E+02	2.810E+00	1.270E+00	1.008E+02	0.502	
20	141.09	-9.84	-9.81	1.776E-14	6.309E+01	4.065E+01	3.823E+01	0.184	0.391
20	144.11	-0.37	-0.67	4.827E+02	2.810E+00	1.258E+00	9.734E+01	0.503	
21	144.11	-9.81	-9.73	0.000E+00	6.107E+01	3.912E+01	3.610E+01	0.190	0.393
21	147.13	-0.67	-1.07	4.624E+02	2.810E+00	1.250E+00	9.276E+01	0.504	
22	147.13	-9.73	-9.60	7.105E-15	5.744E+01	3.762E+01	3.362E+01	0.196	0.397
22	150.14	-1.07	-1.54	4.339E+02	2.810E+00	1.247E+00	8.706E+01	0.506	
23	150.14	-9.60	-9.47	-7.105E-15	5.324E+01	3.590E+01	3.049E+01	0.202	0.401

```
 23  153.16  -1.54  -2.13  3.997E+02  2.810E+00  1.232E+00  8.010E+01        0.508

 24  153.16  -9.47  -9.34 -1.421E-14  4.890E+01  3.399E+01  2.682E+01  0.208  0.405
 24  156.18  -2.13  -2.80  3.613E+02  2.810E+00  1.207E+00  7.186E+01        0.510

 25  156.18  -9.34  -9.22  7.105E-15  4.399E+01  3.194E+01  2.259E+01  0.214  0.407
 25  159.20  -2.80  -3.56  3.178E+02  2.810E+00  1.173E+00  6.245E+01        0.512

 26  159.20  -9.22  -8.93  7.105E-15  3.734E+01  3.117E+01  1.838E+01  0.220  0.414
 26  162.21  -3.56  -4.42  2.654E+02  2.810E+00  1.178E+00  5.186E+01        0.519

 27  162.21  -8.93  -8.86  0.000E+00  3.053E+01  2.903E+01  1.280E+01  0.221  0.390
 27  165.23  -4.42  -5.37  2.082E+02  3.538E+00  1.118E+00  4.004E+01        0.521

 28  165.23  -8.86  -8.85  0.000E+00  2.708E+01  2.415E+01  6.707E+00  0.189  0.348
 28  168.25  -5.37  -6.41  1.562E+02  4.701E+00  8.103E-01  2.696E+01        0.530

 29  168.25  -8.85  -8.85  0.000E+00  2.273E+01  1.592E+01  1.476E+00  0.031  0.352
 29  171.27  -6.41  -7.57  9.975E+01  4.055E+00  9.221E-02  1.250E+01        0.552

 30  171.27  -8.85  -8.84  0.000E+00  1.092E+01  1.133E-10  1.000E+00  0.000  0.500
 30  174.28  -7.57  -8.84  3.465E+01  2.127E+00 -7.774E-11  1.507E+00        0.666

BEAST  Output   Program Version = 30 Apr 2015    Time = 07 MAR 2019  17:04:28



SURFACE NO:944  TYPE: CIRCLE    SAFETY-FACTOR:  3.737   SCORE:  0.004
BELOW SKETCH SHOWS SHEAR SURFACE WITH SLICE DIVISIONS AND MATERIAL ID-S

1223 2 2 2  2 2 2  2 1 1  1 1 1  1 1 1  1 1 1  1 1 1  1 1 1
   333 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 2 2  2 2 2  2 2 2 3221
     333 333 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  33333
         3333 333 3  3 3 3  3 3 3  3 3 3  3 3 3  33333 33
              3333 333333 33333 333333 333333 33
0102 030405 060708 091011 121314 1516 171819 202122 232425 262728 2930

 MAT GAMTOT SUA/SU0 SUD/SU0 SUP/SU0 COHESN PHIANG PHIRED RU-FCT  B-FCT  K-NOT B-
SIG2 D/SU(B)
  1  18.000  1.000   1.000   1.000   0.000  34.00  0.00  0.000   0.000  0.000  0.000  0.001
  2  18.000  1.000   1.000   1.000 10.0%*C  30.00  0.00  0.000   0.000  0.000  0.000  0.001
  3  17.000  1.000   1.000   1.000 10.0%*C  30.00  0.00  0.000   0.000  0.000  0.000  0.001
  4  18.000  1.000   1.000   1.000   0.000  40.00  0.00  0.000   0.000  0.000  0.000  0.001

BEAST  Output   Program Version = 30 Apr 2015    Time = 07 MAR 2019  17:04:28



SURFACE NO:944  TYPE: CIRCLE    SAFETY-FACTOR:  3.737   SCORE:  0.004
BELOW SKETCH SHOWS EFFECTIVE NORMAL STRESSES: P=SHEAR-SURFACE  E=INTER-SLICE
                              U=RESULTING PWP AT SHEAR SURFACE

0102 030405 060708 091011 121314 1516 171819 202122 232425 262728 2930
------------------------------------------------------------------------ZERO
IU U  U                                          UI
I E                                             I
IP                                             U PI
I   E  U                                         E I
```



----------SIGMAX

P-MIN = 1.054E+01 P-MAX = 6.958E+01
E-MIN = 6.544E+00 E-MAX = 4.663E+01
U-MIN = 1.000E+00 U-MAX = 1.046E+02

THIS RUN WAS TERMINATED : 07 MAR 2019 AT 17:04:28 HOURS

TIME USED = 1 SECONDS

GeoSuite Stability Report

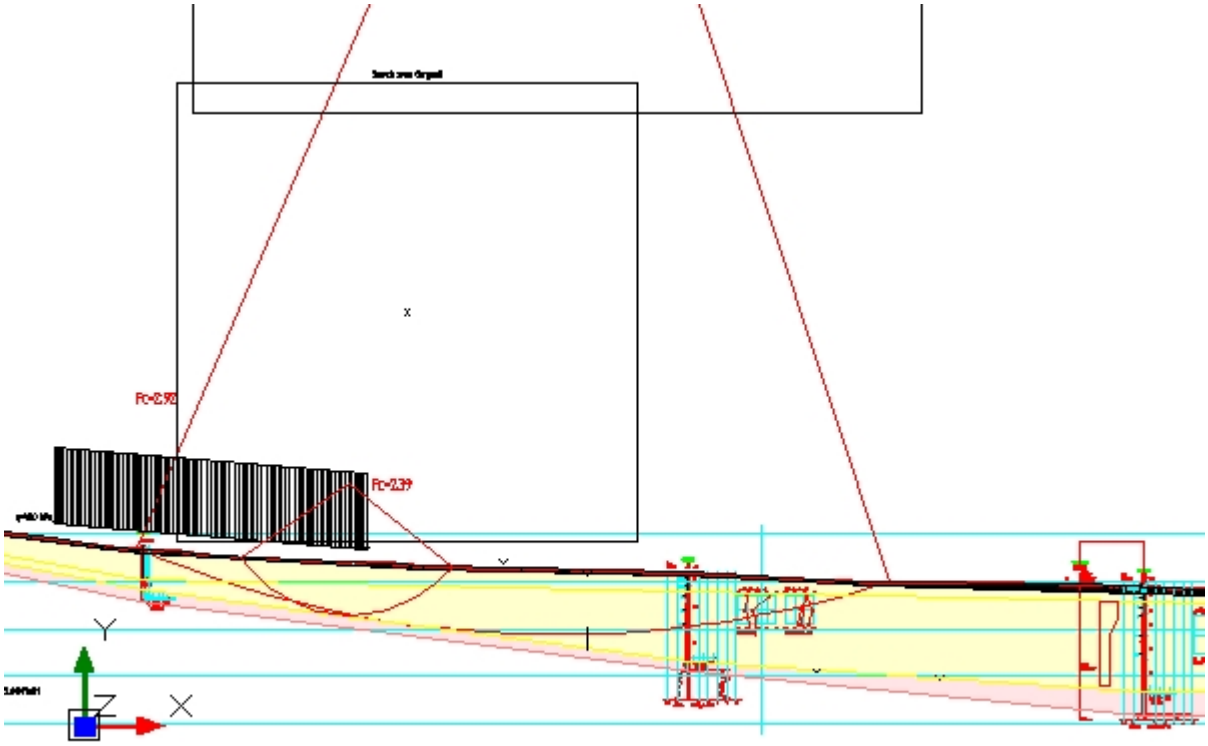
Calculation data

Project name:	Fasanvägen etapp 13
Project number:	18112896
Contractor:	
Comment:	

Calculation name:	BS3_40KPA
Description:	
File name:	g:\projekt\2018\18112896 fasanvägen etapp 13\15_geosuite\stabgraf.rit\bs3_40kpa.dwg
Critical Safety Factor:	2,39
Result Date:	2019-02-21 17:20
Result Text:	Fc=2,92

Horizontally density spacing:	3
Vertically density spacing:	15
Side friction:	0,00
Number of slices:	30
Correction of exit angle:	Yes

Graphic Model



Soil

Materials

Material	ρ [kN/m³]	Ø [°]	C' [kPa]	C [kPa]	Aa	Ad	Ap
Fy	18,00	34,0	0,0		1,00	1,00	1,00
Let	18,00			30,0	1,00	1,00	1,00
Le	17,00			CProf	1,00	1,00	1,00
Fr	18,00	40,0	0,0		1,00	1,00	1,00

Soil Parameter Variations

η-factors

Material	Param	Drained	γm	η(1,2)	η(3)	η(4,5,6,7)	η(8)	η
Fy	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00
Let	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Le	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Fr	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00

Scaling factors

Material	+ Factor	- Facktor
Fy	1,00	1,00
Let	1,00	1,00
Le	1,00	1,00
Fr	1,00	1,00

C Profiles

C-profile, X = 147,42 m

Z [m]	C [kPa]
8,00	20,30
5,91	20,30
4,50	10,50
-1,00	10,50

Loads

Distributed Loads

q1 [kPa]	q2 [kPa]	X1 [m]	X2 [m]
40,00	40,00	36,99	70,00

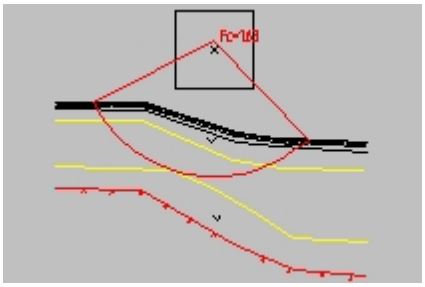
Model Data

Tangent Strategy Data

Centre point X:	74,21
Centre point Z:	38,50
Search area:	24,26
Upper Z-level:	11,93
Lower Z-level:	0,38
Number of levels:	50

Search Criteria

Calculation method:	Beast 2003
Calculation Strategy:	Tangent
Slope type:	Right slope



Result file

Location: g:\projekt\2018\18112896 fasanvägen etapp 13\15_geosuite\stabgraf.rit\bs3_40kpa.RES

Created: 2019-02-21 17:18

Modified: 2019-02-21 17:20

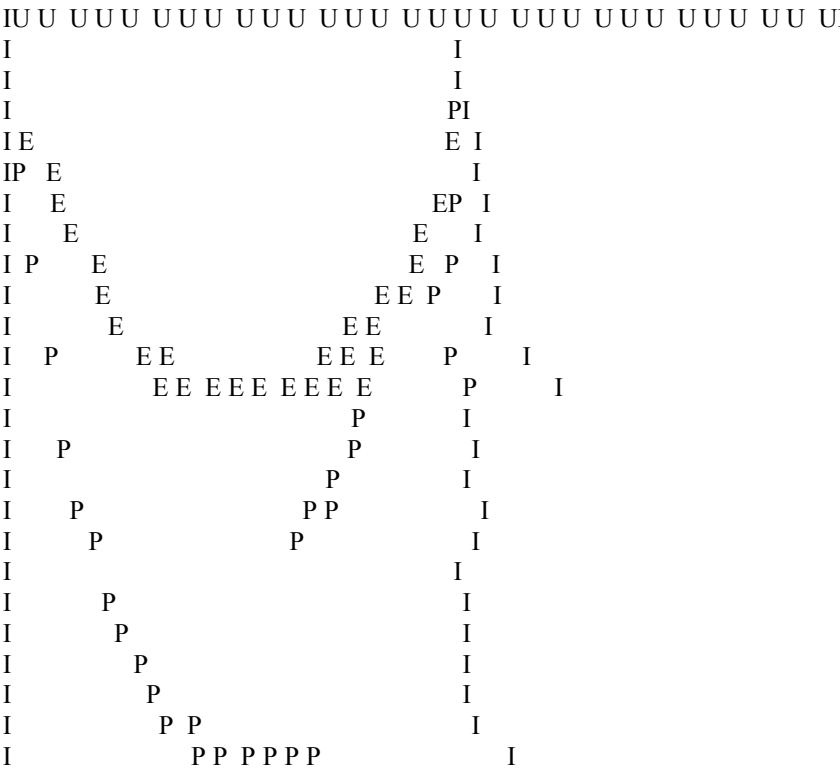
```
#
      ECHO PRINT OF DATA ON FORTRAN UNIT NUMBER = 14

      000000000111111111122222222223333333333444444444455555555556666666666777777777 8
      123456789012345678901234567890123456789012345678901234567890123456789012345678 90

 1----
 2----
 3---- * Version : 4.0.0.0
 4----
 5----  ****************** CONTROL SECTION
 6----   1.0 1.0 CONFRC,CONLTH   CONVERTION FACTORS ON FORCES AND LENGTHS
 7----   1.0 1.0 FCTSUC,FCTTAN   MATERIAL FACTORS ON SU,C AND TAN(PHI)
 8----     1 IDTYP     SOLUTION TYPE (1=STAB/BEARING 2=EARTH PRESS)
 9----    31 ANALYSIS METHOD & TYPE, E.G. 31 = BEAST-2003 & EFF.STRESS
10----     0 NUMGEN    NUMBER OF GENERAL SHEAR SURFACES
11----    30 NUMSLC    NUMBER OF SLICES (ZERO OK FOR GENERAL SURFACES)
12----   0.000 SIDSHR    SIDE SHEAR FACTOR (0.0=PLANE STRAIN , 2.0/LENGTH=MAX)
13----  0.00 0.00 VALUES FOR H3-ASSMPTN (H3(X)=H31+(H32-H31)/XTOT*X)
14----  0.50 0.50 0.00 VALUES FOR R-ASSMPTN  (R(X)=R1+(R2-R1)/XTOT*X+H(X)/HMAX*R3)
15----     0 ITENSP    ALLOW P-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
16----     0 ITENSE    ALLOW E-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
17----     0 JPRINT    TRACE PRINT CODE (0=NON 1=LIM 2=TRACE 3=DETLD TRACE)
18----     2 IPRTTP    FILE NF16 PRINT TYPE FOR SLICE OUTPUT (1=FORCES 2=STRESSES)
19----     1 JPLOT     CODE FOR PLOT(S) ON NF16 (0=NO 1=YES 2=+PWP/SU0 3=+MESH)
20----   0.000 CRTFRC    CONVERGENCE CRITERION , FORCES   (DEFAULT=SUM(FZ)/1.0E4)
21----   2.000 CRTSCR    CONVERGENCE CRITERION , SOLUTION SCORE
22----  1 0 0 0 0 0.0  0.0  0.0  0.0  0.0 First flag, exit angle, third adjust low circ
23----
24----  ****************** GEOMETRY SECTION
25----     16 NUMXLN    NUMBER OF X-LINES WITH SURFACE, ROCK AND ELEMENT SPECS
26----     1 NUMELZ    NUMBER OF ELEMENTS IN Z-DIRECTION
27----     1 NUMLAY    NUMBER OF HORIZONTAL LAYERS
28----     29 NUMTRI    NUMBER OF MATERIAL I.D. TRIANGLES
29----    X-VALUE  Z-SURFACE  Z-ROCK  NUMBER OF X-ELEMENTS TO NEXT X-LINE
30----     -100.00      -19.70       80.30        1
31----     0.00        -19.70       80.30        1
32----     27.91        -15.74       81.81        1
33----     36.77        -14.65       82.29        1
34----     42.87        -13.68       82.62        1
35----     50.18        -13.25       83.02        1
36----     54.15        -12.71       83.23        1
37----     76.53        -11.62       84.45        1
38----     103.93       -11.00       85.93        1
39----     121.27       -10.03       86.87        1
40----     145.68       -9.79        88.19        1
41----     159.36       -9.21        88.94        1
42----     162.94       -8.86        89.13        1
43----     189.72       -8.82        90.58        1
44----     206.51       -8.51        91.49        1
45----     306.51       -8.51        91.49        0
```

```
  46----  00 00 00  0.0 0.0 NP1,NP2,NSTEP,ZN1,ZN2  NODE NEW Z , NP2=MAX TERMINATES
  47----  00 00 00   0 NE1,NE2,NSTEP,MAT     ELEMENT MATRL , NE2=MAX TERMINATES
  48----   LAYER  Z-BOTTOM  MATERIAL-I.D.
  49----    1      91.49        1
  50----   TRIANGLE  MATERIAL   X1  Z1     X2  Z2     X3  Z3
  51----    1  4   103.26   101.49    -99.65   101.49    -99.65   -17.64
  52----    2  4   103.26   101.49    -99.65   -17.64    0.35     -17.64
  53----    3  4   103.26   101.49    0.35     -17.64    46.28    -9.27
  54----    4  4   103.26   101.49    46.28    -9.27     104.24   -1.49
  55----    5  4   103.26   101.49    104.24   -1.49     152.26   1.60
  56----    6  4   103.26   101.49    152.26   1.60      205.92   1.87
  57----    7  4   103.26   101.49    305.92   1.87      205.92   1.87
  58----    8  4   103.26   101.49    305.92   1.87      305.92   101.49
  59----    9  3   103.26   101.49    -99.64   101.49    -99.64   -18.28
  60----    10  3   103.26   101.49    -99.64   -18.28    0.36     -18.28
  61----    11  3   103.26   101.49    0.36     -18.28    46.11    -10.25
  62----    12  3   103.26   101.49    46.11    -10.25    103.92   -8.98
  63----    13  3   103.26   101.49    103.92   -8.98     152.27   -7.85
  64----    14  3   103.26   101.49    152.27   -7.85     163.31   -7.47
  65----    15  3   103.26   101.49    163.31   -7.47     206.41   -6.62
  66----    16  3   103.26   101.49    306.41   -6.62     206.41   -6.62
  67----    17  3   103.26   101.49    306.41   -6.62     306.41   101.49
  68----    18  2   103.26   101.49    -99.29   101.49    -99.29   -19.01
  69----    19  2   103.26   101.49    -99.29   -19.01    0.71     -19.01
  70----    20  2   103.26   101.49    0.71     -19.01    42.77    -13.39
  71----    21  2   103.26   101.49    42.77    -13.39    46.29    -13.05
  72----    22  2   103.26   101.49    46.29    -13.05    75.91    -11.33
  73----    23  2   103.26   101.49    75.91    -11.33    103.66   -10.61
  74----    24  2   103.26   101.49    103.66   -10.61    123.45   -9.67
  75----    25  2   103.26   101.49    123.45   -9.67     152.25   -8.83
  76----    26  2   103.26   101.49    152.25   -8.83     162.87   -8.35
  77----    27  2   103.26   101.49    162.87   -8.35     205.40   -7.83
  78----    28  2   103.26   101.49    305.40   -7.83     205.40   -7.83
  79----    29  2   103.26   101.49    305.40   -7.83     305.40   101.49
  80----   0 0 0 XWALL,HWALL,RWALL   WALL SPECIFICATIONS
(LOCATION,HEIGHT,ROUGHNESS)
  81----
  82----  ****************** MATERIAL PROPERTIES SECTION
  83----    4   3   15 NUMMAT    NUMBER OF DIFFERENT MATERIALS (NDX, NDZ DENSITY GRID S
  84----    1 NUMXSU    NUMBER OF VERTICAL X-LINES WITH GIVEN SU-VALUES
  85----    0 NODSU     NUMBER OF MESH NODAL POINTS WITH GIVEN SU-VALUES
  86----   0.00 CRACKZ    SURFACE OPEN CRACK DEPTH
  87----   0.00 CRACKW    WATER DEPTH IN OPEN SURFACE CRACK
  88----   0.0 PHIREF    FRICTION ANGLE REFERENCE PRESSURE
  89----   EFFECTIVE STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO
OK)
  90----   MAT  GAMTOT  COHSN  PHIANG  PHIRED  PWPMAT  RU-MAT  B-FACT K-NOT B-SIG2 D-
FCT
  91----   1   18.00    0.00   34.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
  92----   2   18.00    0.00    0.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
  93----   3   17.00    0.00    0.00  0   0.00   0.00  0  0  0  0.001  -0.00 17.00
  94----   4   18.00    0.00   40.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
  95----   TOTAL STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO OK)
  96----   MAT  GAMTOT  SUA/SU0 SUD/SU0 SUP/SU0  SU0-MAT  (A:ACTIVE D:DIRECT
P:PASSIVE)C-
  97----   1   18.00    1.00    1.00    1.00    0.00   1
  98----   2   18.00    1.00    1.00    1.00   30.00   0
  99----   3   17.00    1.00    1.00    1.00    0.00   1
 100----   4   18.00    1.00    1.00    1.00    0.00   1
 101----   X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : SU0-VALUES
```

```
102----  1     147.42  4     -8.00     -5.91     -4.50      1.00
103----                     20.30     20.30     10.50     10.50
104----  NODE   SU0   (IF ALL NODES, SKIP NODE NUMBERS : SU0(1),SU0(2),...)
105----
106----  ****************** PORE-WATER-PRESSURES SECTION
107----     1 IDPWP     PWP INDICATOR (1=HYDROSTATIC  2=NON-HYDROSTATIC)
108----     0 NUMBER OF VERTICAL X-LINES WITH GIVEN PWP WITH DEPTH
109----     0 NODPWP    NUMBER OF MESH NODAL POINTS WITH GIVEN PWP
110----    0.0 FCTNOD    FACTOR ON PWP-VALUES GIVEN AT NODAL POINTS
111----    101.490 WATERZ    HORIZONTAL WATER TABLE Z-LEVEL
112----    10.0 GAMWAT    FREE WATER UNIT WEIGHT
113----    10.0 GAMPWP    PORE WATER UNIT WEIGHT (=GAMWAT IF HYDROSTATIC)
114----     0.00 PWPMIN    MINIMUM ALLOWABLE PWP (CAPILLARY TENSION)
115----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : PWP-VALUES
116----   NODE  PWP-VALUE  (IF ALL NODES , SKIP NODE NUMBERS : PWP(1),PWP(2),...)
117----
118----  ****************** LOAD SECTION
119----     0 NUMPNT            NUMBER OF POINT LOADS & 100*SOIL NAILS
120----     1 NUMSIG            NUMBER OF SURFACE DISTRIBUTED LOADS
121----    0.0 SIGTOP           UNIFORM INITIAL VERTICAL STRESS AT SURFACE
122----  -100 100 XTOP1,XTOP2        STRESS 'SIGTOP' ACTS FROM XTOP1 TO XTOP2
123----    10.0000   5.0000 FCTPNT,FCTSIG      POINT AND DISTRIBUTED LOAD FACTORS
124----   0.00 1.00 ACCXRT,ACCZRT       ACCELERATION RATIOS IN X- AND Z-DIRECTIONS
125----    POINT   X-COORD   Z-COORD   X-FORCE   Z-FORCE
126----   STRIP     X1       X2       SIGZ1     SIGZ2     TAUX1     TAUX2
127----     1  36.99     70.00      8.00    8.00     0.00    0.00
128----
129----  ****************** GIVEN SHEAR SURFACE
130---- END

      0000000001111111111222222222233333333334444444445555555555666666666677777777778
      1234567890123456789012345678901234567890123456789012345678901234567890123456789


BEAST  Output   Program Version = 30 Apr 2015    Time = 21 FEB 2019  17:20:18



========================================================  SAFETY FACTOR =    2.392
SURFACE NO : 471     SUMMARY OF GEOMETRY AND STRESSES
========================================================  SOLUTION SCORE=    0.000

SURFACE TYPE = CIRCLE        X-CENTER  Z-CENTER   RADIUS
                      68.150   -20.320    13.810

SOLUTION METHOD = BEAST-2003 / EFFECTIVE STRESS ANALYSIS

SLICE    X1      Z1      Z2     WXT-FRC    P-STR      E2-STR     U2-STR    ROUGH  H2/Z23
       X2      Z4      Z3     WZT-FRC    S-STR      T2-STR     U3-STR          H3/L34

  1    56.71  -12.59  -12.55   0.000E+00  3.134E+01  2.336E+01  0.000E+00  0.099  0.471
  1    57.45  -12.58  -11.60   3.579E+01  1.180E+01  1.097E+00  0.000E+00         0.471

  2    57.45  -12.55  -12.51   0.000E+00  4.829E+01  3.044E+01  0.000E+00  0.119  0.426
  2    58.18  -11.60  -10.76   4.745E+01  1.254E+01  1.376E+00  0.000E+00         0.481

  3    58.18  -12.51  -12.48   0.000E+00  6.329E+01  3.674E+01  0.000E+00  0.139  0.406
  3    58.92  -10.76  -10.05   5.726E+01  1.254E+01  1.663E+00  0.000E+00         0.487
```

4	58.92	-12.48	-12.44	0.000E+00	7.854E+01	4.347E+01	0.000E+00	*******	0.386	WARNINGS: 1
4	59.66	-10.05	-9.43	6.548E+01	9.299E+00	1.948E+00	0.000E+00		0.490	
5	59.66	-12.44	-12.41	0.000E+00	8.923E+01	4.912E+01	0.000E+00	*******	0.377	WARNINGS: 1
5	60.40	-9.43	-8.89	7.221E+01	8.488E+00	2.201E+00	0.000E+00		0.492	
6	60.40	-12.41	-12.37	0.000E+00	9.803E+01	5.375E+01	0.000E+00	0.199	0.373	
6	61.13	-8.89	-8.43	7.806E+01	8.488E+00	2.423E+00	0.000E+00		0.494	
7	61.13	-12.37	-12.33	0.000E+00	1.056E+02	5.762E+01	0.000E+00	0.210	0.371	
7	61.87	-8.43	-8.02	8.305E+01	8.488E+00	2.616E+00	0.000E+00		0.495	
8	61.87	-12.33	-12.30	0.000E+00	1.122E+02	6.085E+01	0.000E+00	0.219	0.369	
8	62.61	-8.02	-7.67	8.727E+01	8.488E+00	2.778E+00	0.000E+00		0.496	
9	62.61	-12.30	-12.26	0.000E+00	1.180E+02	6.350E+01	0.000E+00	0.269	0.368	
9	63.35	-7.67	-7.37	9.092E+01	8.488E+00	2.914E+00	0.000E+00		0.497	
10	63.35	-12.26	-12.23	0.000E+00	1.228E+02	6.562E+01	0.000E+00	0.275	0.368	
10	64.08	-7.37	-7.12	9.382E+01	8.488E+00	3.023E+00	0.000E+00		0.498	
11	64.08	-12.23	-12.19	0.000E+00	1.270E+02	6.728E+01	0.000E+00	0.279	0.368	
11	64.82	-7.12	-6.92	9.630E+01	8.488E+00	3.102E+00	0.000E+00		0.498	
12	64.82	-12.19	-12.15	0.000E+00	1.304E+02	6.844E+01	0.000E+00	0.282	0.368	
12	65.56	-6.92	-6.76	9.820E+01	8.488E+00	3.155E+00	0.000E+00		0.499	
13	65.56	-12.15	-12.12	0.000E+00	1.327E+02	6.917E+01	0.000E+00	0.283	0.369	
13	66.30	-6.76	-6.64	9.928E+01	8.488E+00	3.178E+00	0.000E+00		0.499	
14	66.30	-12.12	-12.08	0.000E+00	1.347E+02	6.943E+01	0.000E+00	0.282	0.370	
14	67.03	-6.64	-6.56	1.001E+02	8.488E+00	3.173E+00	0.000E+00		0.500	
15	67.03	-12.08	-12.05	0.000E+00	1.360E+02	6.923E+01	0.000E+00	0.279	0.371	
15	67.77	-6.56	-6.52	1.004E+02	8.488E+00	3.137E+00	0.000E+00		0.500	
16	67.77	-12.05	-12.01	0.000E+00	1.366E+02	6.855E+01	0.000E+00	0.274	0.374	
16	68.51	-6.52	-6.52	1.002E+02	8.488E+00	3.070E+00	0.000E+00		0.500	
17	68.51	-12.01	-11.97	0.000E+00	1.364E+02	6.737E+01	0.000E+00	0.267	0.378	
17	69.24	-6.52	-6.56	9.951E+01	8.488E+00	2.970E+00	0.000E+00		0.501	
18	69.24	-11.97	-11.94	0.000E+00	1.356E+02	6.564E+01	0.000E+00	0.258	0.383	
18	69.98	-6.56	-6.63	9.830E+01	8.488E+00	2.836E+00	0.000E+00		0.501	
19	69.98	-11.94	-11.90	0.000E+00	9.459E+01	6.420E+01	0.000E+00	0.252	0.386	
19	70.72	-6.63	-6.75	6.779E+01	8.488E+00	2.740E+00	0.000E+00		0.508	
20	70.72	-11.90	-11.87	0.000E+00	9.134E+01	6.253E+01	0.000E+00	0.244	0.388	
20	71.46	-6.75	-6.91	6.490E+01	8.488E+00	2.627E+00	0.000E+00		0.503	
21	71.46	-11.87	-11.83	0.000E+00	8.849E+01	6.055E+01	0.000E+00	0.235	0.391	
21	72.19	-6.91	-7.12	6.226E+01	8.488E+00	2.497E+00	0.000E+00		0.504	
22	72.19	-11.83	-11.80	0.000E+00	8.456E+01	5.829E+01	0.000E+00	0.224	0.393	
22	72.93	-7.12	-7.37	5.888E+01	8.488E+00	2.349E+00	0.000E+00		0.505	
23	72.93	-11.80	-11.76	0.000E+00	7.996E+01	5.570E+01	0.000E+00	0.177	0.396	
23	73.67	-7.37	-7.66	5.498E+01	8.488E+00	2.184E+00	0.000E+00		0.507	

```
 24   73.67  -11.76  -11.72   0.000E+00  7.453E+01  5.279E+01  0.000E+00  0.165  0.400
 24   74.41   -7.66   -8.01   5.048E+01  8.488E+00  2.002E+00  0.000E+00        0.508

 25   74.41  -11.72  -11.69   0.000E+00  6.819E+01  4.956E+01  0.000E+00  0.152  0.403
 25   75.14   -8.01   -8.41   4.534E+01  8.488E+00  1.804E+00  0.000E+00        0.510

 26   75.14  -11.69  -11.65   0.000E+00  6.085E+01  4.606E+01  0.000E+00  0.137  0.404
 26   75.88   -8.41   -8.88   3.945E+01  8.488E+00  1.594E+00  0.000E+00        0.514

 27   75.88  -11.65  -11.62   0.000E+00  5.234E+01  4.240E+01  0.000E+00  0.121  0.395
 27   76.62   -8.88   -9.41   3.267E+01  8.488E+00  1.376E+00  0.000E+00        0.519

 28   76.62  -11.62  -11.60   0.000E+00  4.559E+01  3.612E+01  0.000E+00  0.092  0.382
 28   77.36   -9.41  -10.03   2.509E+01  1.173E+01  1.096E+00  0.000E+00        0.528

 29   77.36  -11.60  -11.58   0.000E+00  3.537E+01  2.655E+01  0.000E+00  0.066  0.335
 29   78.09  -10.03  -10.74   1.608E+01  1.254E+01  7.430E-01  0.000E+00        0.550

 30   78.09  -11.58  -11.56   0.000E+00  1.675E+01 -2.283E-10  0.000E+00  0.000  0.500
 30   79.02  -10.74  -11.56   7.071E+00  9.416E+00  4.485E-11  0.000E+00        0.666

BEAST  Output   Program Version = 30 Apr 2015    Time = 21 FEB 2019  17:20:18



SURFACE NO:471  TYPE: CIRCLE    SAFETY-FACTOR:  2.392   SCORE:  0.000
BELOW SKETCH SHOWS SHEAR SURFACE WITH SLICE DIVISIONS AND MATERIAL ID-S

122  2 2 1  1 1 1  1 1 1 1  1 1 1  1
 2  2 2 2  2 2 2  2 2 2 2  2 2 2  2 2 1  1 1 1  1 1 1  1 1 1 1  1 1  1
  2 2 2 2  2 2 2  2 2 2 2  2 2 2  2 2 2  2 2 2  2 2 2  2 2 2 2  2 2 2
   222 2  2 2 2  2 2 2 2  2 2 2  2 2 2  2 2 2  2 2 2  2 2 2 2  222
    2 2  2 2 2  2 2 2 2  2 2 2  2 2 2  2 2 2  2 2 2  2 2 2 2  2
     33  3 3 3  3 3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3 3 2
      3 3 3 3  3 3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 33
        3333  3 3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3333
          33 3 3 3 3  3 3 3  3 3 3  3 3 3  3 3 33 3
             3333 3  3 3 3  3 3 3  3 3 3  3333
                33 333333 3333333 333333
0102 030405 060708 091011 121314 15161718 192021 222324 252627 2829 30

 MAT GAMTOT SUA/SU0 SUD/SU0 SUP/SU0 COHESN PHIANG PHIRED RU-FCT  B-FCT  K-NOT B-
SIG2 D/SU(B)
  1  18.000  1.000   1.000   1.000   0.000  34.00  0.00  0.000   0.000  0.000  0.000  0.001
  2  18.000  1.000   1.000   1.000   0.000   0.00  0.00  0.000   0.000  0.000  0.000  0.001
  3  17.000  1.000   1.000   1.000   0.000   0.00  0.00  0.000   0.000  0.000  0.000  0.001
  4  18.000  1.000   1.000   1.000   0.000  40.00  0.00  0.000   0.000  0.000  0.000  0.001

BEAST  Output   Program Version = 30 Apr 2015    Time = 21 FEB 2019  17:20:18



SURFACE NO:471  TYPE: CIRCLE    SAFETY-FACTOR:  2.392   SCORE:  0.000
BELOW SKETCH SHOWS EFFECTIVE NORMAL STRESSES: P=SHEAR-SURFACE  E=INTER-SLICE
                        U=RESULTING PWP AT SHEAR SURFACE

0102 030405 060708 091011 121314 15161718 192021 222324 252627 2829 30
------------------------------------------------------------------------ZERO
```



P-MIN = 1.675E+01 P-MAX = 1.366E+02
E-MIN = 2.336E+01 E-MAX = 6.943E+01
U-MIN = 0.000E+00 U-MAX = 0.000E+00

THIS RUN WAS TERMINATED : 21 FEB 2019 AT 17:20:19 HOURS

TIME USED = 1 SECONDS

GeoSuite Stability Report

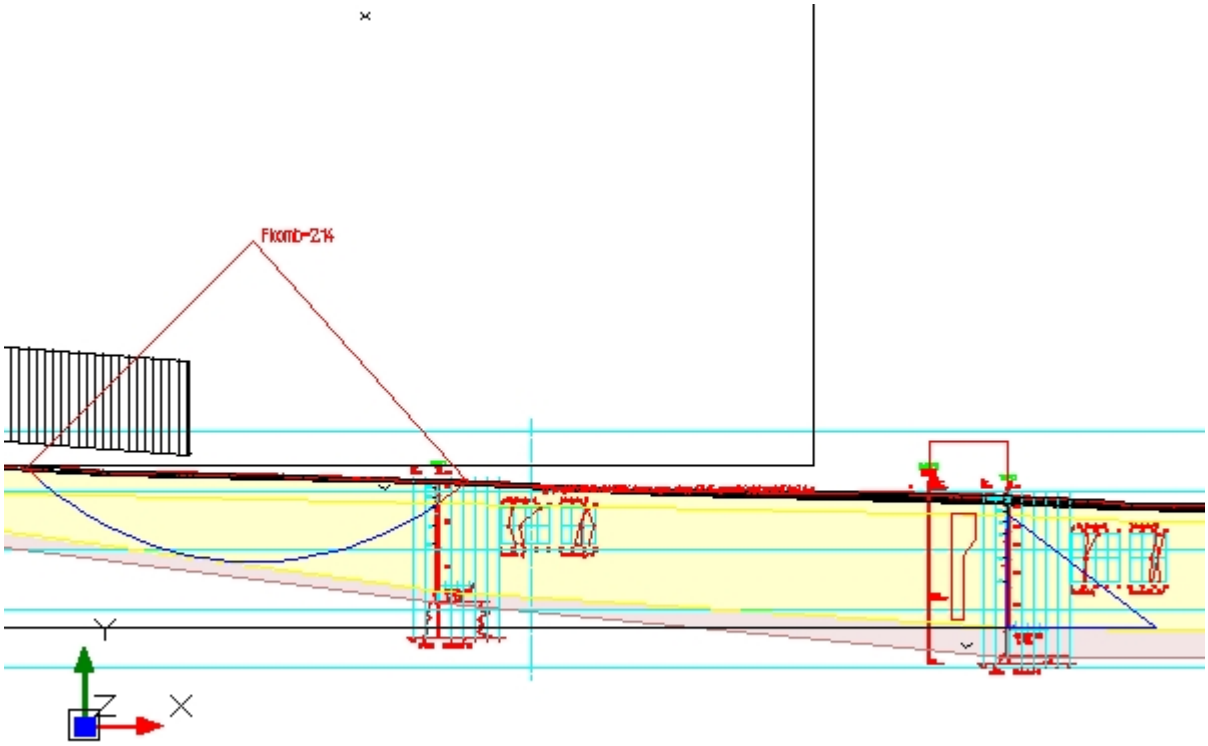
Calculation data

Project name:	Fasanvägen etapp 13
Project number:	18112896
Contractor:	
Comment:	

Calculation name:	BS3_40KPA_KOMB
Description:	
File name:	G:\Projekt\2018\18112896 Fasanvägen etapp 13\15_Geosuite\STABGRAF.RIT\BS3_40kPa_KOMB.dwg
Critical Safety Factor:	2,14
Result Date:	2019-03-07 17:07
Result Text:	

Horizontally density spacing:	3
Vertically density spacing:	15
Side friction:	0,00
Number of slices:	30
Correction of exit angle:	Yes

Graphic Model



Soil

Materials (combined analysis)

Material	ρ [kN/m³]	Ø [°]	C' [kPa]	C [kPa]	Aa	Ad	Ap
Fy	18,00	34,0	0,0	100,0	1,00	1,00	1,00
Let	18,00	30,0	10 %	30,0	1,00	1,00	1,00
Le	17,00	30,0	10 %	CProf	1,00	1,00	1,00
Fr	18,00	40,0	0,0	100,0	1,00	1,00	1,00

Soil Parameter Variations

η-factors

Material	Param	Drained	γm	η(1,2)	η(3)	η(4,5,6,7)	η(8)	η
Fy	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00
Let	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Le	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Fr	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00

Scaling factors

Material	+ Factor	- Facktor
Fy	1,00	1,00
Let	1,00	1,00
Le	1,00	1,00
Fr	1,00	1,00

C Profiles

C-profile, X = 147,42 m

Z [m]	C [kPa]
8,00	20,30
5,91	20,30
4,50	10,50
-1,00	10,50

Pore Profiles

Pore-profile, X = 152,16 m

Z [m]	Pore P [kPa]
7,87	1,00
-1,59	125,00

Loads

Distributed Loads

q1 [kPa]	q2 [kPa]	X1 [m]	X2 [m]
40,00	40,00	27,41	82,82

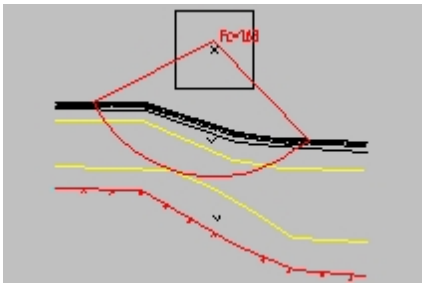
Model Data

Tangent Strategy Data

Centre point X:	97,75
Centre point Z:	50,17
Search area:	38,01
Upper Z-level:	10,02
Lower Z-level:	-3,37
Number of levels:	50

Search Criteria

Calculation method:	Beast 2003
Calculation Strategy:	Tangent
Slope type:	Right slope



Result file

Location: G:\Projekt\2018\18112896 Fasanvägen etapp 13\15_Geosuite\STABGRAF.RIT\BS3_40kPa_KOMB.RES

Created: 2019-03-07 17:06

Modified: 2019-03-07 17:07

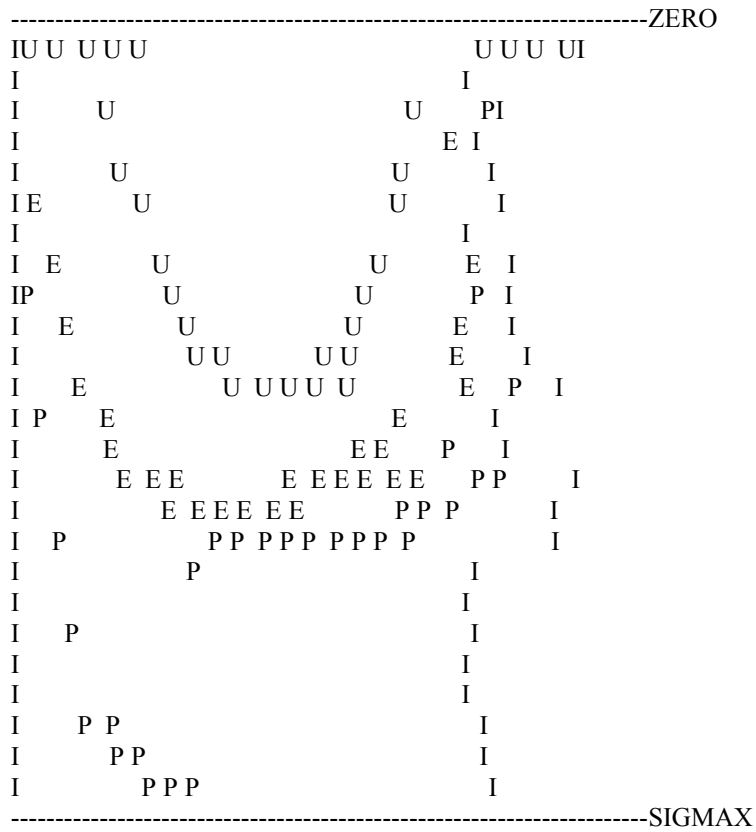
```
#
      ECHO PRINT OF DATA ON FORTRAN UNIT NUMBER = 14

      000000000111111111122222222223333333333444444444455555555556666666666777777777 8
      123456789012345678901234567890123456789012345678901234567890123456789012345678 90

 1----
 2----
 3---- * Version : 4.0.0.0
 4----
 5----  ****************** CONTROL SECTION
 6----   1.0 1.0 CONFRC,CONLTH   CONVERTION FACTORS ON FORCES AND LENGTHS
 7----   1.0 1.0 FCTSUC,FCTTAN   MATERIAL FACTORS ON SU,C AND TAN(PHI)
 8----     1 IDTYP     SOLUTION TYPE (1=STAB/BEARING 2=EARTH PRESS)
 9----    33 ANALYSIS METHOD & TYPE, E.G. 31 = BEAST-2003 & EFF.STRESS
10----     0 NUMGEN    NUMBER OF GENERAL SHEAR SURFACES
11----    30 NUMSLC    NUMBER OF SLICES (ZERO OK FOR GENERAL SURFACES)
12----   0.000 SIDSHR    SIDE SHEAR FACTOR (0.0=PLANE STRAIN , 2.0/LENGTH=MAX)
13----  0.00 0.00 VALUES FOR H3-ASSMPTN (H3(X)=H31+(H32-H31)/XTOT*X)
14----  0.50 0.50 0.00 VALUES FOR R-ASSMPTN  (R(X)=R1+(R2-R1)/XTOT*X+H(X)/HMAX*R3)
15----     0 ITENSP    ALLOW P-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
16----     0 ITENSE    ALLOW E-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
17----     0 JPRINT    TRACE PRINT CODE (0=NON 1=LIM 2=TRACE 3=DETLD TRACE)
18----     2 IPRTTP    FILE NF16 PRINT TYPE FOR SLICE OUTPUT (1=FORCES 2=STRESSES)
19----     1 JPLOT     CODE FOR PLOT(S) ON NF16 (0=NO 1=YES 2=+PWP/SU0 3=+MESH)
20----   0.000 CRTFRC    CONVERGENCE CRITERION , FORCES   (DEFAULT=SUM(FZ)/1.0E4)
21----   2.000 CRTSCR    CONVERGENCE CRITERION , SOLUTION SCORE
22----  1 0 0 0 0 0.0  0.0  0.0  0.0  0.0 First flag, exit angle, third adjust low circ
23----
24----  ****************** GEOMETRY SECTION
25----     16 NUMXLN    NUMBER OF X-LINES WITH SURFACE, ROCK AND ELEMENT SPECS
26----     1 NUMELZ    NUMBER OF ELEMENTS IN Z-DIRECTION
27----     1 NUMLAY    NUMBER OF HORIZONTAL LAYERS
28----     29 NUMTRI    NUMBER OF MATERIAL I.D. TRIANGLES
29----    X-VALUE  Z-SURFACE  Z-ROCK  NUMBER OF X-ELEMENTS TO NEXT X-LINE
30----     -100.00     -19.70      80.30       1
31----     0.00        -19.70      80.30       1
32----     27.91       -15.74      81.81       1
33----     36.77       -14.65      82.29       1
34----     42.87       -13.68      82.62       1
35----     50.18       -13.25      83.02       1
36----     54.15       -12.71      83.23       1
37----     76.53       -11.62      84.45       1
38----     103.93      -11.00      85.93       1
39----     121.27      -10.03      86.87       1
40----     145.68      -9.79       88.19       1
41----     159.36      -9.21       88.94       1
42----     162.94      -8.86       89.13       1
43----     189.72      -8.82       90.58       1
44----     206.51      -8.51       91.49       1
```

```
  45----    306.51      -8.51       91.49       0
  46----  00 00 00  0.0 0.0 NP1,NP2,NSTEP,ZN1,ZN2  NODE NEW Z , NP2=MAX TERMINATES
  47----  00 00 00   0 NE1,NE2,NSTEP,MAT     ELEMENT MATRL , NE2=MAX TERMINATES
  48----   LAYER  Z-BOTTOM  MATERIAL-I.D.
  49----    1      91.49        1
  50----   TRIANGLE  MATERIAL   X1  Z1     X2  Z2     X3  Z3
  51----    1  4   103.26    101.49    -99.65    101.49    -99.65    -17.64
  52----    2  4   103.26    101.49    -99.65    -17.64    0.35      -17.64
  53----    3  4   103.26    101.49    0.35      -17.64    46.28     -9.27
  54----    4  4   103.26    101.49    46.28     -9.27     104.24    -1.49
  55----    5  4   103.26    101.49    104.24    -1.49     152.26    1.60
  56----    6  4   103.26    101.49    152.26    1.60      205.92    1.87
  57----    7  4   103.26    101.49    305.92    1.87      205.92    1.87
  58----    8  4   103.26    101.49    305.92    1.87      305.92    101.49
  59----    9  3   103.26    101.49    -99.64    101.49    -99.64    -18.28
  60----    10  3   103.26    101.49    -99.64    -18.28    0.36      -18.28
  61----    11  3   103.26    101.49    0.36      -18.28    46.11     -10.25
  62----    12  3   103.26    101.49    46.11     -10.25    103.92    -8.98
  63----    13  3   103.26    101.49    103.92    -8.98     152.27    -7.85
  64----    14  3   103.26    101.49    152.27    -7.85     163.31    -7.47
  65----    15  3   103.26    101.49    163.31    -7.47     206.41    -6.62
  66----    16  3   103.26    101.49    306.41    -6.62     206.41    -6.62
  67----    17  3   103.26    101.49    306.41    -6.62     306.41    101.49
  68----    18  2   103.26    101.49    -99.29    101.49    -99.29    -19.01
  69----    19  2   103.26    101.49    -99.29    -19.01    0.71      -19.01
  70----    20  2   103.26    101.49    0.71      -19.01    42.77     -13.39
  71----    21  2   103.26    101.49    42.77     -13.39    46.29     -13.05
  72----    22  2   103.26    101.49    46.29     -13.05    75.91     -11.33
  73----    23  2   103.26    101.49    75.91     -11.33    103.66    -10.61
  74----    24  2   103.26    101.49    103.66    -10.61    123.45    -9.67
  75----    25  2   103.26    101.49    123.45    -9.67     152.25    -8.83
  76----    26  2   103.26    101.49    152.25    -8.83     162.87    -8.35
  77----    27  2   103.26    101.49    162.87    -8.35     205.40    -7.83
  78----    28  2   103.26    101.49    305.40    -7.83     205.40    -7.83
  79----    29  2   103.26    101.49    305.40    -7.83     305.40    101.49
  80----   0 0 0 XWALL,HWALL,RWALL   WALL SPECIFICATIONS
(LOCATION,HEIGHT,ROUGHNESS)
  81----
  82----  ****************** MATERIAL PROPERTIES SECTION
  83----    4   3   15 NUMMAT    NUMBER OF DIFFERENT MATERIALS (NDX, NDZ DENSITY GRID S
  84----    1 NUMXSU    NUMBER OF VERTICAL X-LINES WITH GIVEN SU-VALUES
  85----    0 NODSU     NUMBER OF MESH NODAL POINTS WITH GIVEN SU-VALUES
  86----   0.00 CRACKZ    SURFACE OPEN CRACK DEPTH
  87----   0.00 CRACKW    WATER DEPTH IN OPEN SURFACE CRACK
  88----   0.0 PHIREF    FRICTION ANGLE REFERENCE PRESSURE
  89----   EFFECTIVE STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO
OK)
  90----   MAT  GAMTOT  COHSN  PHIANG  PHIRED  PWPMAT  RU-MAT  B-FACT K-NOT B-SIG2 D-
FCT
  91----   1   18.00    0.00   34.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
  92----   2   18.00   -10.00   30.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
  93----   3   17.00   -10.00   30.00  0   0.00   0.00  0  0  0  0.001  -0.00 17.00
  94----   4   18.00    0.00   40.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
  95----   TOTAL STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO OK)
  96----   MAT  GAMTOT  SUA/SU0 SUD/SU0 SUP/SU0  SU0-MAT  (A:ACTIVE D:DIRECT
P:PASSIVE)C-
  97----   1   18.00    1.00    1.00    1.00   100.00   0
  98----   2   18.00    1.00    1.00    1.00   30.00   0
  99----   3   17.00    1.00    1.00    1.00    0.00   1
 100----   4   18.00    1.00    1.00    1.00   100.00   0
```

```
101----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : SU0-VALUES
102----  1     147.42  4     -8.00    -5.91    -4.50     1.00
103----                     20.30    20.30    10.50    10.50
104----  NODE   SU0   (IF ALL NODES, SKIP NODE NUMBERS : SU0(1),SU0(2),...)
105----
106----  ****************** PORE-WATER-PRESSURES SECTION
107----    2 IDPWP     PWP INDICATOR (1=HYDROSTATIC  2=NON-HYDROSTATIC)
108----    1 NUMBER OF VERTICAL X-LINES WITH GIVEN PWP WITH DEPTH
109----    0 NODPWP    NUMBER OF MESH NODAL POINTS WITH GIVEN PWP
110----   0.0 FCTNOD    FACTOR ON PWP-VALUES GIVEN AT NODAL POINTS
111----   0.000 WATERZ    HORIZONTAL WATER TABLE Z-LEVEL
112----   10.0 GAMWAT    FREE WATER UNIT WEIGHT
113----   10.0 GAMPWP    PORE WATER UNIT WEIGHT (=GAMWAT IF HYDROSTATIC)
114----    0.00 PWPMIN    MINIMUM ALLOWABLE PWP (CAPILLARY TENSION)
115----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : PWP-VALUES
116----  1     152.16  2     -7.87     1.59
117----                     1.00    125.00
118----   NODE  PWP-VALUE  (IF ALL NODES , SKIP NODE NUMBERS : PWP(1),PWP(2),...)
119----
120----  ****************** LOAD SECTION
121----    0 NUMPNT            NUMBER OF POINT LOADS & 100*SOIL NAILS
122----    1 NUMSIG            NUMBER OF SURFACE DISTRIBUTED LOADS
123----   0.0 SIGTOP           UNIFORM INITIAL VERTICAL STRESS AT SURFACE
124---- -100 100 XTOP1,XTOP2        STRESS 'SIGTOP' ACTS FROM XTOP1 TO XTOP2
125----   10.0000   5.0000 FCTPNT,FCTSIG      POINT AND DISTRIBUTED LOAD FACTORS
126----  0.00 1.00 ACCXRT,ACCZRT       ACCELERATION RATIOS IN X- AND Z-DIRECTIONS
127----   POINT   X-COORD   Z-COORD   X-FORCE   Z-FORCE
128----  STRIP     X1      X2      SIGZ1     SIGZ2     TAUX1     TAUX2
129----    1  27.41     82.82      8.00    8.00     0.00    0.00
130----
131----  ****************** GIVEN SHEAR SURFACE
132---- END

      000000000111111111122222222223333333333444444444455555555556666666666777777777 8
      123456789012345678901234567890123456789012345678901234567890123456789012345678 90


BEAST  Output   Program Version = 30 Apr 2015    Time = 07 MAR 2019  17:07:40



========================================================  SAFETY FACTOR =    2.142
SURFACE NO : 462     SUMMARY OF GEOMETRY AND STRESSES
========================================================  SOLUTION SCORE=    0.000

SURFACE TYPE = CIRCLE        X-CENTER  Z-CENTER   RADIUS
                      88.250   -31.170    27.160

SOLUTION METHOD = BEAST-2003 / SWEDISH COMBINED ANALYSIS

SLICE   X1     Z1     Z2     WXT-FRC   P-STR     E2-STR     U2-STR    ROUGH  H2/Z23
      X2     Z4     Z3     WZT-FRC   S-STR     T2-STR     U3-STR         H3/L34

  1   69.03  -11.99  -11.92   0.000E+00  3.759E+01  2.708E+01  1.000E+00  0.112  0.476
  1   70.27  -11.98  -10.82   6.203E+01  1.123E+01  9.307E-01  1.000E+00         0.467

  2   70.27  -11.92  -11.86   0.000E+00  5.494E+01  3.340E+01  1.000E+00  0.115  0.445
  2   71.51  -10.82   -9.78   8.538E+01  1.400E+01  1.163E+00  1.000E+00         0.479
```

3	71.51	-11.86	-11.80	-1.110E-16	7.534E+01	4.312E+01	1.000E+00	0.117	0.402
3	72.76	-9.78	-8.87	1.054E+02	9.476E+00	1.503E+00	1.000E+00		0.485
4	72.76	-11.80	-11.74	0.000E+00	8.954E+01	5.091E+01	1.000E+00*******	0.390	WARNINGS: 1
4	74.00	-8.87	-8.05	1.223E+02	9.476E+00	1.769E+00	1.000E+00		0.489
5	74.00	-11.74	-11.68	0.000E+00	9.960E+01	5.694E+01	1.486E+00*******	0.387	WARNINGS: 1
5	75.24	-8.05	-7.33	1.371E+02	9.476E+00	1.969E+00	3.666E+00		0.491
6	75.24	-11.68	-11.62	0.000E+00	1.024E+02	6.111E+01	2.915E+00	0.118	0.390
6	76.48	-7.33	-6.69	1.502E+02	9.476E+00	2.106E+00	1.223E+01		0.493
7	76.48	-11.62	-11.59	0.000E+00	1.047E+02	6.376E+01	4.660E+00	0.118	0.393
7	77.72	-6.69	-6.14	1.619E+02	9.476E+00	2.191E+00	2.006E+01		0.494
8	77.72	-11.59	-11.56	0.000E+00	1.070E+02	6.569E+01	6.548E+00	0.118	0.395
8	78.97	-6.14	-5.65	1.723E+02	9.249E+00	2.250E+00	2.693E+01		0.495
9	78.97	-11.56	-11.54	-3.553E-15	1.095E+02	6.731E+01	8.296E+00	0.117	0.396
9	80.21	-5.65	-5.23	1.812E+02	7.948E+00	2.297E+00	3.286E+01		0.496
10	80.21	-11.54	-11.51	3.553E-15	1.115E+02	6.865E+01	9.956E+00	0.117	0.396
10	81.45	-5.23	-4.88	1.889E+02	6.703E+00	2.339E+00	3.790E+01		0.497
11	81.45	-11.51	-11.48	-7.105E-15	1.129E+02	6.981E+01	1.133E+01	0.118	0.396
11	82.69	-4.88	-4.59	1.951E+02	5.655E+00	2.378E+00	4.213E+01		0.498
12	82.69	-11.48	-11.45	0.000E+00	7.812E+01	6.955E+01	1.241E+01	0.118	0.401
12	83.93	-4.59	-4.36	1.551E+02	4.954E+00	2.371E+00	4.553E+01		0.513
13	83.93	-11.45	-11.42	5.329E-15	7.470E+01	6.908E+01	1.332E+01	0.118	0.406
13	85.18	-4.36	-4.19	1.536E+02	4.901E+00	2.358E+00	4.814E+01		0.498
14	85.18	-11.42	-11.40	-7.105E-15	7.515E+01	6.858E+01	1.398E+01	0.118	0.409
14	86.42	-4.19	-4.07	1.561E+02	4.901E+00	2.344E+00	5.002E+01		0.499
15	86.42	-11.40	-11.37	4.441E-16	7.538E+01	6.805E+01	1.431E+01	0.118	0.410
15	87.66	-4.07	-4.02	1.573E+02	4.901E+00	2.330E+00	5.112E+01		0.500
16	87.66	-11.37	-11.34	-1.561E-15	7.531E+01	6.748E+01	1.436E+01	0.118	0.411
16	88.90	-4.02	-4.02	1.573E+02	4.901E+00	2.315E+00	5.145E+01		0.500
17	88.90	-11.34	-11.31	-1.332E-15	7.502E+01	6.686E+01	1.412E+01	0.119	0.411
17	90.14	-4.02	-4.08	1.561E+02	4.901E+00	2.301E+00	5.109E+01		0.501
18	90.14	-11.31	-11.28	4.441E-15	7.456E+01	6.616E+01	1.356E+01	0.119	0.410
18	91.38	-4.08	-4.20	1.536E+02	4.901E+00	2.284E+00	4.995E+01		0.502
19	91.38	-11.28	-11.26	5.329E-15	7.378E+01	6.539E+01	1.270E+01	0.120	0.408
19	92.63	-4.20	-4.37	1.498E+02	4.901E+00	2.266E+00	4.803E+01		0.502
20	92.63	-11.26	-11.23	-1.776E-15	7.294E+01	6.449E+01	1.161E+01	0.120	0.404
20	93.87	-4.37	-4.60	1.451E+02	4.969E+00	2.247E+00	4.539E+01		0.503
21	93.87	-11.23	-11.20	0.000E+00	7.226E+01	6.324E+01	1.029E+01	0.121	0.400
21	95.11	-4.60	-4.89	1.392E+02	5.700E+00	2.217E+00	4.195E+01		0.504
22	95.11	-11.20	-11.17	-3.553E-15	7.111E+01	6.165E+01	8.690E+00	0.121	0.394
22	96.35	-4.89	-5.25	1.316E+02	6.759E+00	2.176E+00	3.767E+01		0.505

```
 23   96.35  -11.17  -11.14  -1.776E-15  6.989E+01  5.961E+01  6.806E+00  0.122  0.389
 23   97.59   -5.25   -5.67   1.226E+02  8.015E+00  2.121E+00  3.259E+01         0.507

 24   97.59  -11.14  -11.12   1.776E-15  6.906E+01  5.661E+01  4.938E+00  0.122  0.382
 24   98.84   -5.67   -6.16   1.127E+02  9.292E+00  2.026E+00  2.661E+01         0.508

 25   98.84  -11.12  -11.09   0.000E+00  6.720E+01  5.296E+01  3.044E+00  0.122  0.374
 25  100.08   -6.16   -6.72   1.009E+02  9.476E+00  1.908E+00  1.971E+01         0.511

 26  100.08  -11.09  -11.06   0.000E+00  6.514E+01  4.808E+01  1.507E+00  0.123  0.364
 26  101.32   -6.72   -7.37   8.761E+01  9.476E+00  1.747E+00  1.182E+01         0.514

 27  101.32  -11.06  -11.03   0.000E+00  6.223E+01  4.113E+01  1.000E+00  0.123  0.353
 27  102.56   -7.37   -8.09   7.260E+01  9.476E+00  1.514E+00  3.350E+00         0.519

 28  102.56  -11.03  -11.00   1.110E-16  5.170E+01  3.193E+01  1.000E+00  0.123  0.326
 28  103.80   -8.09   -8.91   5.570E+01  9.476E+00  1.190E+00  1.000E+00         0.528

 29  103.80  -11.00  -10.94   0.000E+00  3.758E+01  1.679E+01  1.000E+00  0.097  0.335
 29  105.05   -8.91   -9.83   3.584E+01  1.108E+01  5.262E-01  1.000E+00         0.551

 30  105.05  -10.94  -10.86   0.000E+00  1.258E+01  2.038E-10  1.000E+00  0.000  0.500
 30  106.42   -9.83  -10.86   1.372E+01  4.186E+00  3.726E-10  1.000E+00         0.666

BEAST  Output   Program Version = 30 Apr 2015    Time = 07 MAR 2019  17:07:40



SURFACE NO:462  TYPE: CIRCLE    SAFETY-FACTOR:  2.142   SCORE:  0.000
BELOW SKETCH SHOWS SHEAR SURFACE WITH SLICE DIVISIONS AND MATERIAL ID-S

122  2 1 1  1 1 1  1 1 1  1 1 1  1 1 1  1 1 1  1 1 1  1 1 1 1  1
 22 2 2 2  2 2 2  2 2 2  2 2 2  2 2 2  2 2 2  2 2 2  2 2 2 2  2 2 2  1 1 1 21
   2 2 2  2 2 2  2 2 2  2 2 2  2 2 2  2 2 2  2 2 2  2 2 2 2  2 2 2  2 222
    3333  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3 3  3 3 3  333
      33 3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3 3  3 3 3 33
        333 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3 3  3 333
          333 3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3 3 333
             33333  3 3 3  3 3 3  3 3 3  3 33333
                33 333333 333333 333333 333
0102 030405 060708 091011 121314 151617 181920 212223 242526 272829 30

 MAT GAMTOT SUA/SU0 SUD/SU0 SUP/SU0 COHESN PHIANG PHIRED RU-FCT  B-FCT  K-NOT B-
SIG2 D/SU(B)
  1  18.000  1.000   1.000   1.000   0.000  34.00  0.00  0.000   0.000  0.000  0.000  0.001
  2  18.000  1.000   1.000   1.000 10.0%*C  30.00  0.00  0.000   0.000  0.000  0.000  0.001
  3  17.000  1.000   1.000   1.000 10.0%*C  30.00  0.00  0.000   0.000  0.000  0.000  0.001
  4  18.000  1.000   1.000   1.000   0.000  40.00  0.00  0.000   0.000  0.000  0.000  0.001

BEAST  Output   Program Version = 30 Apr 2015    Time = 07 MAR 2019  17:07:40



SURFACE NO:462  TYPE: CIRCLE    SAFETY-FACTOR:  2.142   SCORE:  0.000
BELOW SKETCH SHOWS EFFECTIVE NORMAL STRESSES: P=SHEAR-SURFACE  E=INTER-SLICE
                      U=RESULTING PWP AT SHEAR SURFACE

0102 030405 060708 091011 121314 151617 181920 212223 242526 272829 30
```



P-MIN = 1.258E+01 P-MAX = 1.129E+02
E-MIN = 1.679E+01 E-MAX = 6.981E+01
U-MIN = 1.000E+00 U-MAX = 5.145E+01

THIS RUN WAS TERMINATED : 07 MAR 2019 AT 17:07:40 HOURS

TIME USED = 1 SECONDS

BILAGA 4

Stabilitetsberäkning
Beräkningssektion 4

GeoSuite Stability Report

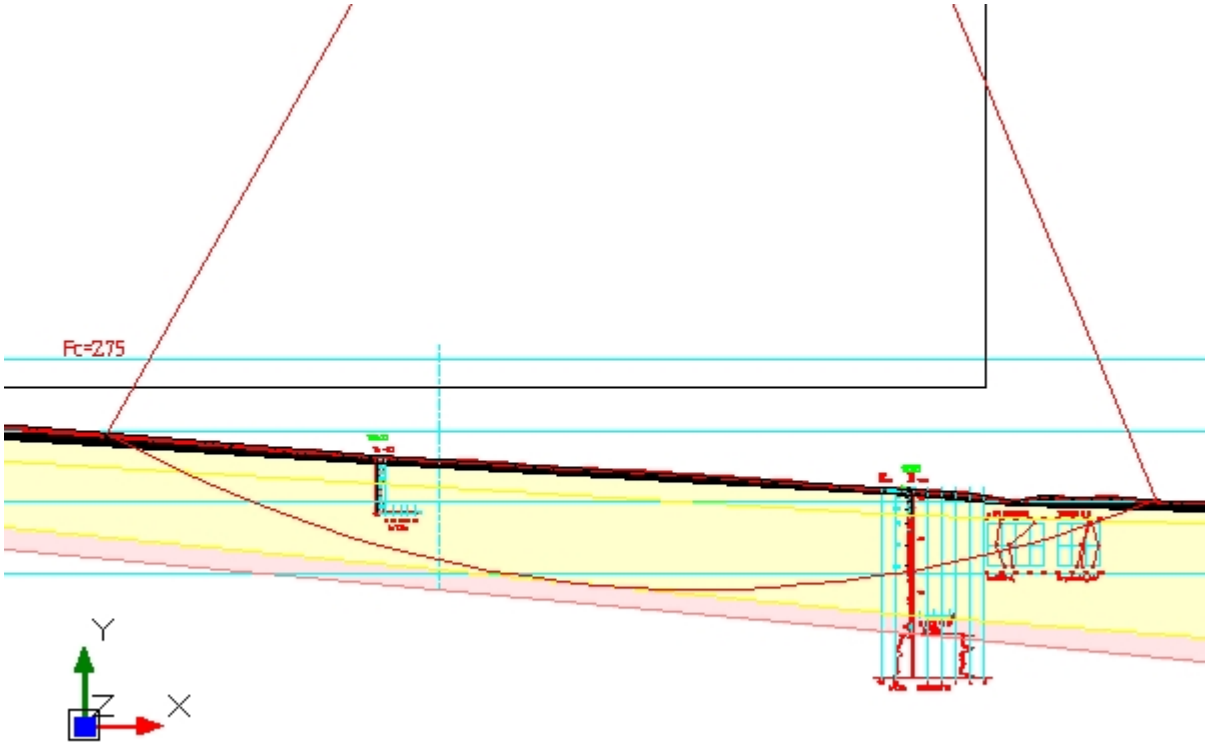
Calculation data

Project name:	Fasanvägen etapp 13
Project number:	18112896
Contractor:	
Comment:	

Calculation name:	BS4
Description:	
File name:	g:\projekt\2018\18112896 fasanvägen etapp 13\15_geosuite\stabgraf.rit\bs4.dwg
Critical Safety Factor:	2,75
Result Date:	2019-02-21 17:42
Result Text:	

Horizontally density spacing:	3
Vertically density spacing:	15
Side friction:	0,00
Number of slices:	30
Correction of exit angle:	Yes

Graphic Model



Soil

Materials

Material	ρ [kN/m³]	Ø [°]	C' [kPa]	C [kPa]	Aa	Ad	Ap
Fy	18,00	34,0	0,0		1,00	1,00	1,00
Let	18,00			30,0	1,00	1,00	1,00
Le	17,00			CProf	1,00	1,00	1,00
Fr	18,00	40,0	0,0		1,00	1,00	1,00

Soil Parameter Variations

η-factors

Material	Param	Drained	γm	η(1,2)	η(3)	η(4,5,6,7)	η(8)	η
Fy	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00
Let	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Le	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Fr	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00

Scaling factors

Material	+ Factor	- Facktor
Fy	1,00	1,00
Let	1,00	1,00
Le	1,00	1,00
Fr	1,00	1,00

C Profiles

C-profile, X = 200,31 m

Z [m]	C [kPa]
8,00	20,30
4,50	10,50
2,78	10,50
-1,22	10,50

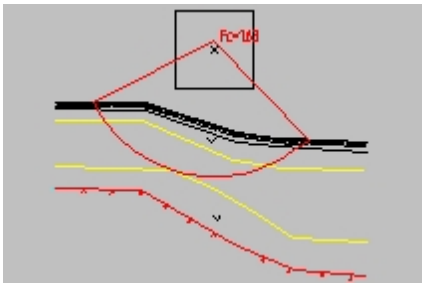
Model Data

Tangent Strategy Data

Centre point X:	120,75
Centre point Z:	58,40
Search area:	40,28
Upper Z-level:	7,93
Lower Z-level:	-2,10
Number of levels:	50

Search Criteria

Calculation method:	Beast 2003
Calculation Strategy:	Tangent
Slope type:	Right slope



Result file

Location: g:\projekt\2018\18112896 fasanvägen etapp 13\15_geosuite\stabgraf.rit\bs4.RES

Created: 2019-02-21 17:41

Modified: 2019-02-21 17:41

```
#
      ECHO PRINT OF DATA ON FORTRAN UNIT NUMBER = 14

      000000000111111111122222222223333333333444444444455555555556666666666777777777 8
      123456789012345678901234567890123456789012345678901234567890123456789012345678 90

 1----
 2----
 3---- * Version : 4.0.0.0
 4----
 5----  ****************** CONTROL SECTION
 6----   1.0 1.0 CONFRC,CONLTH   CONVERTION FACTORS ON FORCES AND LENGTHS
 7----   1.0 1.0 FCTSUC,FCTTAN   MATERIAL FACTORS ON SU,C AND TAN(PHI)
 8----     1 IDTYP     SOLUTION TYPE (1=STAB/BEARING 2=EARTH PRESS)
 9----    31 ANALYSIS METHOD & TYPE, E.G. 31 = BEAST-2003 & EFF.STRESS
10----     0 NUMGEN    NUMBER OF GENERAL SHEAR SURFACES
11----    30 NUMSLC    NUMBER OF SLICES (ZERO OK FOR GENERAL SURFACES)
12----   0.000 SIDSHR    SIDE SHEAR FACTOR (0.0=PLANE STRAIN , 2.0/LENGTH=MAX)
13----  0.00 0.00 VALUES FOR H3-ASSMPTN (H3(X)=H31+(H32-H31)/XTOT*X)
14----  0.50 0.50 0.00 VALUES FOR R-ASSMPTN  (R(X)=R1+(R2-R1)/XTOT*X+H(X)/HMAX*R3)
15----     0 ITENSP    ALLOW P-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
16----     0 ITENSE    ALLOW E-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
17----     0 JPRINT    TRACE PRINT CODE (0=NON 1=LIM 2=TRACE 3=DETLD TRACE)
18----     2 IPRTTP    FILE NF16 PRINT TYPE FOR SLICE OUTPUT (1=FORCES 2=STRESSES)
19----     1 JPLOT     CODE FOR PLOT(S) ON NF16 (0=NO 1=YES 2=+PWP/SU0 3=+MESH)
20----   0.000 CRTFRC    CONVERGENCE CRITERION , FORCES   (DEFAULT=SUM(FZ)/1.0E4)
21----   2.000 CRTSCR    CONVERGENCE CRITERION , SOLUTION SCORE
22----  1 0 0 0 0 0.0  0.0  0.0  0.0  0.0 First flag, exit angle, third adjust low circ
23----
24----  ****************** GEOMETRY SECTION
25----    29 NUMXLN    NUMBER OF X-LINES WITH SURFACE, ROCK AND ELEMENT SPECS
26----     1 NUMELZ    NUMBER OF ELEMENTS IN Z-DIRECTION
27----     1 NUMLAY    NUMBER OF HORIZONTAL LAYERS
28----    27 NUMTRI    NUMBER OF MATERIAL I.D. TRIANGLES
29----    X-VALUE  Z-SURFACE  Z-ROCK  NUMBER OF X-ELEMENTS TO NEXT X-LINE
30----     -99.78      -25.30      74.70       1
31----     0.22       -25.30      74.70       1
32----     6.71       -23.45      75.13       1
33----     18.90       -21.47      75.93       1
34----     30.62       -20.66      76.70       1
35----     37.70       -19.50      77.17       1
36----     51.51       -18.92      78.07       1
37----     53.49       -18.57      78.20       1
38----     65.56       -17.99      79.00       1
39----     74.84       -16.14      79.61       1
40----     89.00       -15.32      80.54       1
41----     92.71       -15.44      80.78       1
42----     118.06       -13.29       82.45       1
43----     155.78       -10.92       84.93       1
44----     159.98       -10.60       85.21       1
45----     163.05       -10.08       85.41       1
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  46----    164.97      -10.50      85.54       1
  47----    167.35      -10.36      85.69       1
  48----    170.75      -10.36      85.92       1
  49----    174.25      -10.04      86.15       1
  50----    190.15      -9.76       87.19       1
  51----    199.85      -9.38       87.83       1
  52----    203.77      -8.92       88.09       1
  53----    205.96      -8.87       88.23       1
  54----    211.28      -9.20       88.58       1
  55----    213.38      -8.96       88.72       1
  56----    231.48      -9.06       89.91       1
  57----    256.22      -8.46       91.54       1
  58----    356.22      -8.46       91.54       0
  59---- 00 00 00  0.0 0.0 NP1,NP2,NSTEP,ZN1,ZN2  NODE NEW Z , NP2=MAX TERMINATES
  60---- 00 00 00   0 NE1,NE2,NSTEP,MAT     ELEMENT MATRL , NE2=MAX TERMINATES
  61----   LAYER  Z-BOTTOM  MATERIAL-I.D.
  62----    1      91.54        1
  63----   TRIANGLE  MATERIAL   X1  Z1     X2  Z2     X3  Z3
  64----    1   4   128.22    101.54    -99.12    101.54    -99.12    -20.67
  65----    2   4   128.22    101.54    -99.12    -20.67     0.88     -20.67
  66----    3   4   128.22    101.54     0.88     -20.67     50.92    -12.14
  67----    4   4   128.22    101.54     50.92    -12.14     155.83    -1.98
  68----    5   4   128.22    101.54     155.83    -1.98     204.24    1.71
  69----    6   4   128.22    101.54     204.24    1.71      255.78    1.71
  70----    7   4   128.22    101.54     355.78    1.71      255.78    1.71
  71----    8   4   128.22    101.54     355.78    1.71      355.78    101.54
  72----    9   3   128.22    101.54    -98.79    101.54    -98.79    -22.63
  73----    10   3   128.22    101.54    -98.79    -22.63     1.21     -22.63
  74----    11   3   128.22    101.54     1.21     -22.63     51.01    -15.35
  75----    12   3   128.22    101.54     51.01    -15.35     155.77    -9.06
  76----    13   3   128.22    101.54     155.77    -9.06     204.10    -7.81
  77----    14   3   128.22    101.54     204.10    -7.81     255.65    -7.48
  78----    15   3   128.22    101.54     355.65    -7.48     255.65    -7.48
  79----    16   3   128.22    101.54     355.65    -7.48     355.65    101.54
  80----    17   2   128.22    101.54    -98.58    101.54    -98.58    -23.01
  81----    18   2   128.22    101.54    -98.58    -23.01     1.42     -23.01
  82----    19   2   128.22    101.54     1.42     -23.01     50.87    -17.11
  83----    20   2   128.22    101.54     50.87    -17.11     118.23    -12.68
  84----    21   2   128.22    101.54     118.23    -12.68     155.84    -10.46
  85----    22   2   128.22    101.54     155.84    -10.46     163.16    -9.79
  86----    23   2   128.22    101.54     163.16    -9.79      204.14    -8.44
  87----    24   2   128.22    101.54     204.14    -8.44      214.13    -8.22
  88----    25   2   128.22    101.54     214.13    -8.22      255.45    -8.17
  89----    26   2   128.22    101.54     355.45    -8.17      255.45    -8.17
  90----    27   2   128.22    101.54     355.45    -8.17      355.45    101.54
  91----   0 0 0 XWALL,HWALL,RWALL   WALL SPECIFICATIONS
(LOCATION,HEIGHT,ROUGHNESS)
  92----
  93---- ********** MATERIAL PROPERTIES SECTION
  94----    4   3   15 NUMMAT    NUMBER OF DIFFERENT MATERIALS (NDX, NDZ DENSITY GRID S
  95----    1 NUMXSU    NUMBER OF VERTICAL X-LINES WITH GIVEN SU-VALUES
  96----    0 NODSU     NUMBER OF MESH NODAL POINTS WITH GIVEN SU-VALUES
  97----   0.00 CRACKZ    SURFACE OPEN CRACK DEPTH
  98----   0.00 CRACKW    WATER DEPTH IN OPEN SURFACE CRACK
  99----   0.0 PHIREF    FRICTION ANGLE REFERENCE PRESSURE
 100----   EFFECTIVE STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO
OK)
 101----   MAT  GAMTOT  COHSN  PHIANG  PHIRED  PWPMAT  RU-MAT  B-FACT K-NOT B-SIG2
D-FCT
 102----   1   18.00    0.00   34.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
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 103----  2   18.00    0.00    0.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 104----  3   17.00    0.00    0.00  0   0.00   0.00  0  0  0  0.001  -0.00 17.00
 105----  4   18.00    0.00   40.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 106----  TOTAL STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO OK)
 107----  MAT  GAMTOT  SUA/SU0 SUD/SU0 SUP/SU0  SU0-MAT  (A:ACTIVE D:DIRECT
P:PASSIVE)C-
 108----  1   18.00    1.00    1.00    1.00    0.00   1
 109----  2   18.00    1.00    1.00    1.00   30.00   0
 110----  3   17.00    1.00    1.00    1.00    0.00   1
 111----  4   18.00    1.00    1.00    1.00    0.00   1
 112----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : SU0-VALUES
 113----  1     200.31  4     -8.00    -4.50    -2.78     1.22
 114----                     20.30     10.50     10.50     10.50
 115----  NODE   SU0   (IF ALL NODES, SKIP NODE NUMBERS : SU0(1),SU0(2),...)
 116----
 117----  ****************** PORE-WATER-PRESSURES SECTION
 118----    1 IDPWP     PWP INDICATOR (1=HYDROSTATIC  2=NON-HYDROSTATIC)
 119----    0 NUMBER OF VERTICAL X-LINES WITH GIVEN PWP WITH DEPTH
 120----    0 NODPWP    NUMBER OF MESH NODAL POINTS WITH GIVEN PWP
 121----   0.0 FCTNOD    FACTOR ON PWP-VALUES GIVEN AT NODAL POINTS
 122----   101.540 WATERZ    HORIZONTAL WATER TABLE Z-LEVEL
 123----   10.0 GAMWAT    FREE WATER UNIT WEIGHT
 124----   10.0 GAMPWP    PORE WATER UNIT WEIGHT (=GAMWAT IF HYDROSTATIC)
 125----    0.00 PWPMIN    MINIMUM ALLOWABLE PWP (CAPILLARY TENSION)
 126----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : PWP-VALUES
 127----  NODE  PWP-VALUE  (IF ALL NODES , SKIP NODE NUMBERS : PWP(1),PWP(2),...)
 128----
 129----  ****************** LOAD SECTION
 130----    0 NUMPNT           NUMBER OF POINT LOADS & 100*SOIL NAILS
 131----    0 NUMSIG           NUMBER OF SURFACE DISTRIBUTED LOADS
 132----   0.0 SIGTOP          UNIFORM INITIAL VERTICAL STRESS AT SURFACE
 133---- -100 100 XTOP1,XTOP2       STRESS 'SIGTOP' ACTS FROM XTOP1 TO XTOP2
 134----   10.0000   5.0000 FCTPNT,FCTSIG      POINT AND DISTRIBUTED LOAD FACTORS
 135----   0.00 1.00 ACCXRT,ACCZRT      ACCELERATION RATIOS IN X- AND Z-DIRECTIONS
 136----   POINT   X-COORD   Z-COORD   X-FORCE   Z-FORCE
 137----  STRIP    X1      X2      SIGZ1    SIGZ2    TAUX1    TAUX2
 138----
 139----  ****************** GIVEN SHEAR SURFACE
 140---- END

      000000000111111111122222222223333333333444444444455555555556666666666777777777 8
      123456789012345678901234567890123456789012345678901234567890123456789012345678 90


 BEAST  Output   Program Version = 30 Apr 2015    Time = 21 FEB 2019  17:41:59



 ========================================================  SAFETY FACTOR =    2.749
 SURFACE NO : 355    SUMMARY OF GEOMETRY AND STRESSES
 ========================================================  SOLUTION SCORE=    0.063

 SURFACE TYPE = CIRCLE        X-CENTER  Z-CENTER   RADIUS
                     140.890   -88.610    84.770

 SOLUTION METHOD = BEAST-2003 / EFFECTIVE STRESS ANALYSIS

 SLICE   X1     Z1     Z2     WXT-FRC   P-STR     E2-STR     U2-STR    ROUGH  H2/Z23
       X2     Z4     Z3     WZT-FRC   S-STR     T2-STR     U3-STR          H3/L34
```

1	99.04	-14.90	-14.69	0.000E+00	8.102E+00	1.422E+00	0.000E+00	0.000	0.272	
1	101.50	-14.90	-13.55	2.531E+01	3.773E+00	2.414E-01	0.000E+00		0.334	
2	101.50	-14.69	-14.49	0.000E+00	2.405E+01	2.152E+00	0.000E+00	0.053	0.273	
2	103.97	-13.55	-12.31	7.357E+01	1.091E+01	4.445E-01	0.000E+00		0.448	
3	103.97	-14.49	-14.28	0.000E+00	4.302E+01	1.096E+01	0.000E+00	0.085	0.191	
3	106.43	-12.31	-11.16	1.165E+02	8.090E+00	6.785E-01	0.000E+00		0.470	
4	106.43	-14.28	-14.07	0.000E+00	5.856E+01	1.953E+01	0.000E+00*******	0.232	WARNINGS: 1	
4	108.90	-11.16	-10.11	1.535E+02	7.384E+00	8.981E-01	0.000E+00		0.480	
5	108.90	-14.07	-13.86	0.000E+00	7.214E+01	2.723E+01	0.000E+00*******	0.262	WARNINGS: 1	
5	111.36	-10.11	-9.16	1.865E+02	7.384E+00	1.099E+00	0.000E+00		0.486	
6	111.36	-13.86	-13.65	0.000E+00	8.434E+01	3.416E+01	0.000E+00	0.168	0.283	
6	113.83	-9.16	-8.29	2.160E+02	7.384E+00	1.282E+00	0.000E+00		0.489	
7	113.83	-13.65	-13.44	0.000E+00	9.505E+01	4.044E+01	0.000E+00	0.183	0.298	
7	116.29	-8.29	-7.50	2.417E+02	7.223E+00	1.447E+00	0.000E+00		0.491	
8	116.29	-13.44	-13.25	0.000E+00	1.047E+02	4.621E+01	0.000E+00	0.197	0.307	
8	118.76	-7.50	-6.79	2.645E+02	6.516E+00	1.591E+00	0.000E+00		0.493	
9	118.76	-13.25	-13.09	0.000E+00	1.135E+02	5.128E+01	0.000E+00	0.208	0.313	
9	121.22	-6.79	-6.16	2.851E+02	5.835E+00	1.709E+00	0.000E+00		0.494	
10	121.22	-13.09	-12.94	0.000E+00	1.213E+02	5.590E+01	0.000E+00	0.216	0.317	
10	123.69	-6.16	-5.61	3.033E+02	5.233E+00	1.809E+00	0.000E+00		0.495	
11	123.69	-12.94	-12.78	0.000E+00	1.279E+02	6.002E+01	0.000E+00	0.223	0.320	
11	126.15	-5.61	-5.13	3.187E+02	4.707E+00	1.893E+00	0.000E+00		0.496	
12	126.15	-12.78	-12.63	0.000E+00	1.331E+02	6.349E+01	0.000E+00	0.228	0.323	
12	128.61	-5.13	-4.74	3.306E+02	4.264E+00	1.962E+00	0.000E+00		0.497	
13	128.61	-12.63	-12.47	0.000E+00	1.368E+02	6.643E+01	0.000E+00	0.231	0.326	
13	131.08	-4.74	-4.42	3.391E+02	3.911E+00	2.012E+00	0.000E+00		0.498	
14	131.08	-12.47	-12.32	0.000E+00	1.393E+02	6.876E+01	0.000E+00	0.231	0.328	
14	133.54	-4.42	-4.17	3.447E+02	3.819E+00	2.044E+00	0.000E+00		0.499	
15	133.54	-12.32	-12.16	0.000E+00	1.405E+02	7.049E+01	0.000E+00	0.229	0.331	
15	136.01	-4.17	-3.99	3.472E+02	3.819E+00	2.057E+00	0.000E+00		0.500	
16	136.01	-12.16	-12.01	0.000E+00	1.406E+02	7.162E+01	0.000E+00	0.228	0.334	
16	138.47	-3.99	-3.88	3.468E+02	3.819E+00	2.050E+00	0.000E+00		0.500	
17	138.47	-12.01	-11.85	0.000E+00	1.394E+02	7.218E+01	0.000E+00	0.225	0.338	
17	140.94	-3.88	-3.84	3.434E+02	3.819E+00	2.025E+00	0.000E+00		0.501	
18	140.94	-11.85	-11.70	0.000E+00	1.370E+02	7.205E+01	0.000E+00	0.222	0.341	
18	143.40	-3.84	-3.88	3.368E+02	3.819E+00	1.985E+00	0.000E+00		0.502	
19	143.40	-11.70	-11.54	0.000E+00	1.332E+02	7.136E+01	0.000E+00	0.216	0.345	
19	145.87	-3.88	-4.00	3.268E+02	3.819E+00	1.927E+00	0.000E+00		0.503	
20	145.87	-11.54	-11.39	0.000E+00	1.281E+02	7.015E+01	0.000E+00	0.209	0.349	
20	148.33	-4.00	-4.18	3.139E+02	3.819E+00	1.850E+00	0.000E+00		0.504	

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 21  148.33  -11.39  -11.23   0.000E+00  1.219E+02  6.844E+01  0.000E+00  0.200  0.353
 21  150.80   -4.18   -4.43   2.981E+02  3.819E+00  1.755E+00  0.000E+00        0.505

 22  150.80  -11.23  -11.08   0.000E+00  1.144E+02  6.624E+01  0.000E+00  0.188  0.358
 22  153.26   -4.43   -4.76   2.792E+02  3.923E+00  1.641E+00  0.000E+00        0.506

 23  153.26  -11.08  -10.92   0.000E+00  1.060E+02  6.346E+01  0.000E+00  0.173  0.364
 23  155.73   -4.76   -5.15   2.580E+02  4.281E+00  1.510E+00  0.000E+00        0.508

 24  155.73  -10.92  -10.74   0.000E+00  9.590E+01  6.046E+01  0.000E+00  0.159  0.373
 24  158.19   -5.15   -5.63   2.324E+02  4.726E+00  1.374E+00  0.000E+00        0.510

 25  158.19  -10.74  -10.49   0.000E+00  8.376E+01  5.796E+01  0.000E+00  0.144  0.391
 25  160.66   -5.63   -6.19   2.019E+02  5.254E+00  1.246E+00  0.000E+00        0.514

 26  160.66  -10.49  -10.10   0.000E+00  6.757E+01  5.858E+01  0.000E+00  0.134  0.426
 26  163.12   -6.19   -6.82   1.614E+02  5.860E+00  1.184E+00  0.000E+00        0.522

 27  163.12  -10.10  -10.46   0.000E+00  5.780E+01  4.592E+01  0.000E+00  0.085  0.367
 27  165.59   -6.82   -7.53   1.364E+02  6.545E+00  8.495E-01  0.000E+00        0.509

 28  165.59  -10.46  -10.36   0.000E+00  4.644E+01  3.930E+01  0.000E+00  0.065  0.347
 28  168.05   -7.53   -8.32   1.075E+02  7.243E+00  6.299E-01  0.000E+00        0.530

 29  168.05  -10.36  -10.36   0.000E+00  3.247E+01  2.430E+01  0.000E+00  0.000  0.283
 29  170.52   -8.32   -9.20   7.082E+01  9.501E+00  3.207E-01  0.000E+00        0.545

 30  170.52  -10.36  -10.16   0.000E+00  1.327E+01 -7.683E-11  0.000E+00  0.000  0.500
 30  172.98   -9.20  -10.15   2.625E+01  6.319E+00  2.081E-10  0.000E+00        0.666

BEAST  Output   Program Version = 30 Apr 2015    Time = 21 FEB 2019  17:41:59



SURFACE NO:355  TYPE: CIRCLE    SAFETY-FACTOR:  2.749   SCORE:  0.063
BELOW SKETCH SHOWS SHEAR SURFACE WITH SLICE DIVISIONS AND MATERIAL ID-S

111  1 1 1  1 1 1  1 1
  2 232 2  2 2 2  2 2 2  2 1 1  1 1 1  1 1 1  1 1
     3333 3 3 3  3 3 3  3 3 3  3 2 2  2 2 2  2 2 2  2 1 1  1 1 1  111
        33333  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 333 22
           33 33333  3 3 3  3 3 3  3 3 3  3 3 3  3 333 333
               33 333333 33333 333333 333333 3333
0102 030405 060708 091011 121314 1516 171819 202122 232425 262728 2930

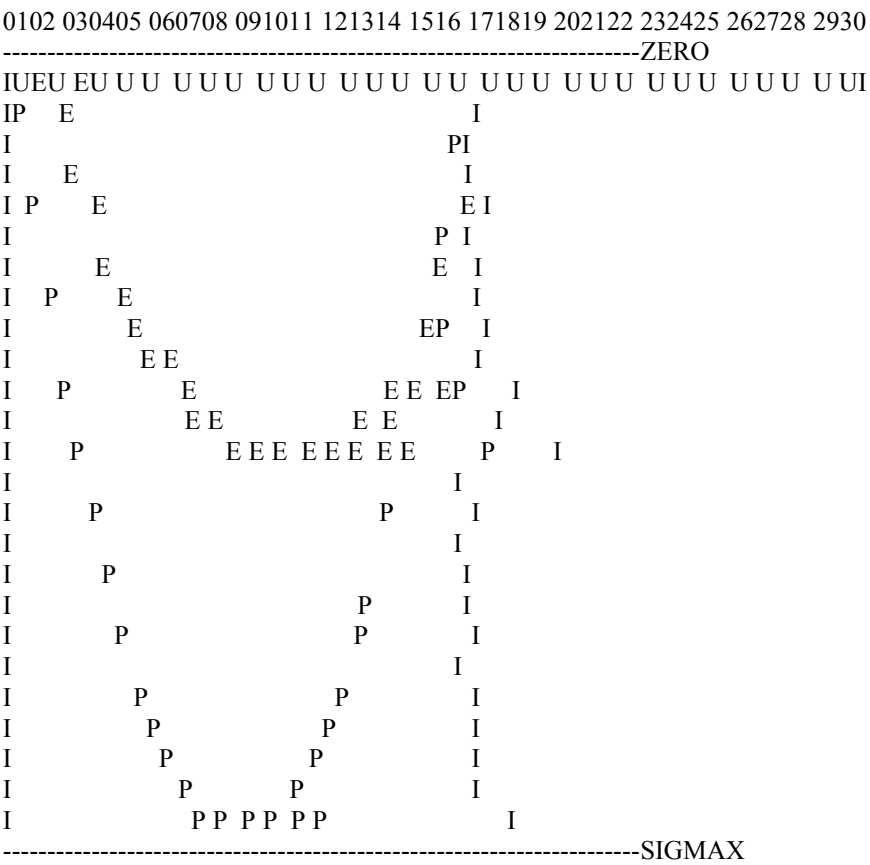
 MAT GAMTOT SUA/SU0 SUD/SU0 SUP/SU0 COHESN PHIANG PHIRED RU-FCT  B-FCT  K-NOT B-
SIG2 D/SU(B)
  1  18.000  1.000   1.000   1.000   0.000  34.00  0.00  0.000   0.000  0.000  0.000  0.001
  2  18.000  1.000   1.000   1.000   0.000   0.00  0.00  0.000   0.000  0.000  0.000  0.001
  3  17.000  1.000   1.000   1.000   0.000   0.00  0.00  0.000   0.000  0.000  0.000  0.001
  4  18.000  1.000   1.000   1.000   0.000  40.00  0.00  0.000   0.000  0.000  0.000  0.001

BEAST  Output   Program Version = 30 Apr 2015    Time = 21 FEB 2019  17:41:59



SURFACE NO:355  TYPE: CIRCLE    SAFETY-FACTOR:  2.749   SCORE:  0.063
BELOW SKETCH SHOWS EFFECTIVE NORMAL STRESSES: P=SHEAR-SURFACE  E=INTER-SLICE
```

U=RESULTING PWP AT SHEAR SURFACE



P-MIN = 8.102E+00 P-MAX = 1.406E+02
E-MIN = 1.422E+00 E-MAX = 7.218E+01
U-MIN = 0.000E+00 U-MAX = 0.000E+00

THIS RUN WAS TERMINATED : 21 FEB 2019 AT 17:41:59 HOURS

TIME USED = 1 SECONDS

GeoSuite Stability Report

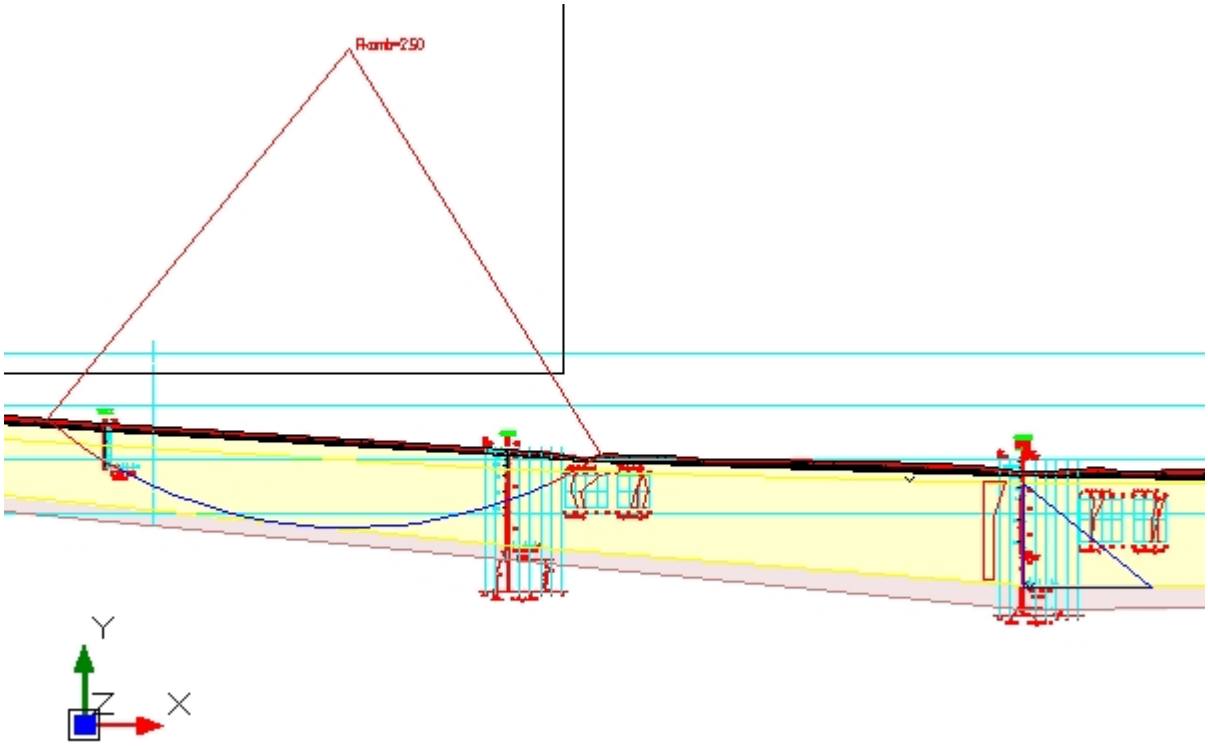
Calculation data

Project name:	Fasanvägen etapp 13
Project number:	18112896
Contractor:	
Comment:	

Calculation name:	BS4_BEF_KOMB
Description:	
File name:	G:\Projekt\2018\18112896 Fasanvägen etapp 13\15_Geosuite\STABGRAF.RIT\BS4_BEF_komb.dwg
Critical Safety Factor:	2,50
Result Date:	2019-03-07 17:17
Result Text:	

Horizontally density spacing:	3
Vertically density spacing:	15
Side friction:	0,00
Number of slices:	30
Correction of exit angle:	Yes

Graphic Model



Soil

Materials (combined analysis)

Material	ρ [kN/m³]	Ø [°]	C' [kPa]	C [kPa]	Aa	Ad	Ap
Fy	18,00	34,0	0,0	100,0	1,00	1,00	1,00
Let	18,00	30,0	10 %	30,0	1,00	1,00	1,00
Le	17,00	30,0	10 %	CProf	1,00	1,00	1,00
Fr	18,00	40,0	0,0	100,0	1,00	1,00	1,00

Soil Parameter Variations

η-factors

Material	Param	Drained	γm	η(1,2)	η(3)	η(4,5,6,7)	η(8)	η
Fy	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00
Let	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Le	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Fr	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00

Scaling factors

Material	+ Factor	- Facktor
Fy	1,00	1,00
Let	1,00	1,00
Le	1,00	1,00
Fr	1,00	1,00

C Profiles

C-profile, X = 200,31 m

Z [m]	C [kPa]
8,00	20,30
4,50	10,50
2,78	10,50
-1,22	10,50

Pore Profiles

Pore-profile, X = 97,55 m

Z [m]	Pore P [kPa]
12,60	0,01
7,00	80,00

Pore-profile, X = 204,04 m

Z [m]	Pore P [kPa]
7,80	0,01
-2,06	120,00

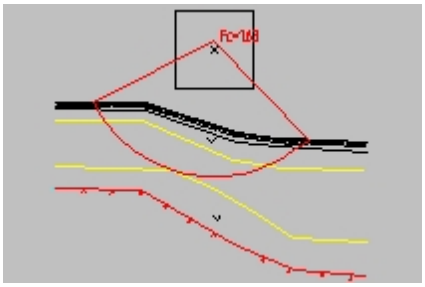
Model Data

Tangent Strategy Data

Centre point X:	120,75
Centre point Z:	58,40
Search area:	40,28
Upper Z-level:	7,93
Lower Z-level:	-2,10
Number of levels:	50

Search Criteria

Calculation method:	Beast 2003
Calculation Strategy:	Tangent
Slope type:	Right slope



Result file

Location: G:\Projekt\2018\18112896 Fasanvägen etapp 13\15_Geosuite\STABGRAF.RIT\BS4_BEF_komb.RES

Created: 2019-03-07 17:17

Modified: 2019-03-07 17:17

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#
      ECHO PRINT OF DATA ON FORTRAN UNIT NUMBER = 14

      000000000111111111122222222223333333333444444444455555555556666666666777777777778
      123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890

 1----
 2----
 3---- * Version : 4.0.0.0
 4----
 5----  ****************** CONTROL SECTION
 6----   1.0 1.0 CONFRC,CONLTH   CONVERTION FACTORS ON FORCES AND LENGTHS
 7----   1.0 1.0 FCTSUC,FCTTAN   MATERIAL FACTORS ON SU,C AND TAN(PHI)
 8----     1 IDTYP     SOLUTION TYPE (1=STAB/BEARING 2=EARTH PRESS)
 9----    33 ANALYSIS METHOD & TYPE, E.G. 31 = BEAST-2003 & EFF.STRESS
10----     0 NUMGEN    NUMBER OF GENERAL SHEAR SURFACES
11----    30 NUMSLC    NUMBER OF SLICES (ZERO OK FOR GENERAL SURFACES)
12----   0.000 SIDSHR    SIDE SHEAR FACTOR (0.0=PLANE STRAIN , 2.0/LENGTH=MAX)
13----  0.00 0.00 VALUES FOR H3-ASSMPTN (H3(X)=H31+(H32-H31)/XTOT*X)
14----  0.50 0.50 0.00 VALUES FOR R-ASSMPTN  (R(X)=R1+(R2-R1)/XTOT*X+H(X)/HMAX*R3)
15----     0 ITENSP    ALLOW P-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
16----     0 ITENSE    ALLOW E-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
17----     0 JPRINT    TRACE PRINT CODE (0=NON 1=LIM 2=TRACE 3=DETLD TRACE)
18----     2 IPRTTP    FILE NF16 PRINT TYPE FOR SLICE OUTPUT (1=FORCES 2=STRESSES)
19----     1 JPLOT     CODE FOR PLOT(S) ON NF16 (0=NO 1=YES 2=+PWP/SU0 3=+MESH)
20----   0.000 CRTFRC    CONVERGENCE CRITERION , FORCES   (DEFAULT=SUM(FZ)/1.0E4)
21----   2.000 CRTSCR    CONVERGENCE CRITERION , SOLUTION SCORE
22----  1 0 0 0 0 0.0  0.0  0.0  0.0  0.0 First flag, exit angle, third adjust low circ
23----
24----  ****************** GEOMETRY SECTION
25----     29 NUMXLN    NUMBER OF X-LINES WITH SURFACE, ROCK AND ELEMENT SPECS
26----     1 NUMELZ    NUMBER OF ELEMENTS IN Z-DIRECTION
27----     1 NUMLAY    NUMBER OF HORIZONTAL LAYERS
28----     27 NUMTRI    NUMBER OF MATERIAL I.D. TRIANGLES
29----    X-VALUE  Z-SURFACE  Z-ROCK  NUMBER OF X-ELEMENTS TO NEXT X-LINE
30----     -99.78      -25.30      74.70       1
31----     0.22        -25.30      74.70       1
32----     6.71        -23.45      75.13       1
33----     18.90       -21.47      75.93       1
34----     30.62       -20.66      76.70       1
35----     37.70       -19.50      77.17       1
36----     51.51       -18.92      78.07       1
37----     53.49       -18.57      78.20       1
38----     65.56       -17.99      79.00       1
39----     74.84       -16.14      79.61       1
40----     89.00       -15.32      80.54       1
41----     92.71       -15.44      80.78       1
42----     118.06      -13.29      82.45       1
43----     155.78      -10.92      84.93       1
44----     159.98      -10.60      85.21       1
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  45----    163.05      -10.08      85.41       1
  46----    164.97      -10.50      85.54       1
  47----    167.35      -10.36      85.69       1
  48----    170.75      -10.36      85.92       1
  49----    174.25      -10.04      86.15       1
  50----    190.15      -9.76       87.19       1
  51----    199.85      -9.38       87.83       1
  52----    203.77      -8.92       88.09       1
  53----    205.96      -8.87       88.23       1
  54----    211.28      -9.20       88.58       1
  55----    213.38      -8.96       88.72       1
  56----    231.48      -9.06       89.91       1
  57----    256.22      -8.46       91.54       1
  58----    356.22      -8.46       91.54       0
  59----  00 00 00  0.0 0.0 NP1,NP2,NSTEP,ZN1,ZN2  NODE NEW Z , NP2=MAX TERMINATES
  60----  00 00 00   0 NE1,NE2,NSTEP,MAT     ELEMENT MATRL , NE2=MAX TERMINATES
  61----   LAYER  Z-BOTTOM  MATERIAL-I.D.
  62----    1      91.54        1
  63----   TRIANGLE  MATERIAL   X1  Z1     X2  Z2     X3  Z3
  64----    1   4   128.22    101.54    -99.12    101.54    -99.12    -20.67
  65----    2   4   128.22    101.54    -99.12    -20.67    0.88      -20.67
  66----    3   4   128.22    101.54    0.88      -20.67    50.92     -12.14
  67----    4   4   128.22    101.54    50.92     -12.14    155.83    -1.98
  68----    5   4   128.22    101.54    155.83    -1.98     204.24    1.71
  69----    6   4   128.22    101.54    204.24    1.71      255.78    1.71
  70----    7   4   128.22    101.54    355.78    1.71      255.78    1.71
  71----    8   4   128.22    101.54    355.78    1.71      355.78    101.54
  72----    9   3   128.22    101.54    -98.79    101.54    -98.79    -22.63
  73----    10   3   128.22    101.54    -98.79    -22.63    1.21      -22.63
  74----    11   3   128.22    101.54    1.21      -22.63    51.01     -15.35
  75----    12   3   128.22    101.54    51.01     -15.35    155.77    -9.06
  76----    13   3   128.22    101.54    155.77    -9.06     204.10    -7.81
  77----    14   3   128.22    101.54    204.10    -7.81     255.65    -7.48
  78----    15   3   128.22    101.54    355.65    -7.48     255.65    -7.48
  79----    16   3   128.22    101.54    355.65    -7.48     355.65    101.54
  80----    17   2   128.22    101.54    -98.58    101.54    -98.58    -23.01
  81----    18   2   128.22    101.54    -98.58    -23.01    1.42      -23.01
  82----    19   2   128.22    101.54    1.42      -23.01    50.87     -17.11
  83----    20   2   128.22    101.54    50.87     -17.11    118.23    -12.68
  84----    21   2   128.22    101.54    118.23    -12.68    155.84    -10.46
  85----    22   2   128.22    101.54    155.84    -10.46    163.16    -9.79
  86----    23   2   128.22    101.54    163.16    -9.79     204.14    -8.44
  87----    24   2   128.22    101.54    204.14    -8.44     214.13    -8.22
  88----    25   2   128.22    101.54    214.13    -8.22     255.45    -8.17
  89----    26   2   128.22    101.54    355.45    -8.17     255.45    -8.17
  90----    27   2   128.22    101.54    355.45    -8.17     355.45    101.54
  91----   0 0 0 XWALL,HWALL,RWALL   WALL SPECIFICATIONS
(LOCATION,HEIGHT,ROUGHNESS)
  92----
  93----  ********** MATERIAL PROPERTIES SECTION
  94----    4   3   15 NUMMAT    NUMBER OF DIFFERENT MATERIALS (NDX, NDZ DENSITY GRID S
  95----    1 NUMXSU    NUMBER OF VERTICAL X-LINES WITH GIVEN SU-VALUES
  96----    0 NODSU     NUMBER OF MESH NODAL POINTS WITH GIVEN SU-VALUES
  97----   0.00 CRACKZ    SURFACE OPEN CRACK DEPTH
  98----   0.00 CRACKW    WATER DEPTH IN OPEN SURFACE CRACK
  99----   0.0 PHIREF    FRICTION ANGLE REFERENCE PRESSURE
 100----   EFFECTIVE STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO
OK)
 101----   MAT  GAMTOT  COHSN  PHIANG  PHIRED  PWPMAT  RU-MAT  B-FACT K-NOT B-SIG2
D-FCT
```

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 102----  1   18.00    0.00   34.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 103----  2   18.00   -10.00   30.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 104----  3   17.00   -10.00   30.00  0   0.00   0.00  0  0  0  0.001  -0.00 17.00
 105----  4   18.00    0.00   40.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 106----  TOTAL STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO OK)
 107----  MAT  GAMTOT  SUA/SU0 SUD/SU0 SUP/SU0  SU0-MAT  (A:ACTIVE D:DIRECT
P:PASSIVE)C-
 108----  1   18.00    1.00    1.00    1.00   100.00   0
 109----  2   18.00    1.00    1.00    1.00   30.00   0
 110----  3   17.00    1.00    1.00    1.00    0.00   1
 111----  4   18.00    1.00    1.00    1.00   100.00   0
 112----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : SU0-VALUES
 113----  1      200.31  4     -8.00     -4.50     -2.78      1.22
 114----                      20.30     10.50     10.50     10.50
 115----  NODE   SU0   (IF ALL NODES, SKIP NODE NUMBERS : SU0(1),SU0(2),...)
 116----
 117----  ****************** PORE-WATER-PRESSURES SECTION
 118----    2 IDPWP     PWP INDICATOR (1=HYDROSTATIC  2=NON-HYDROSTATIC)
 119----    2 NUMBER OF VERTICAL X-LINES WITH GIVEN PWP WITH DEPTH
 120----    0 NODPWP    NUMBER OF MESH NODAL POINTS WITH GIVEN PWP
 121----   0.0 FCTNOD    FACTOR ON PWP-VALUES GIVEN AT NODAL POINTS
 122----   0.000 WATERZ    HORIZONTAL WATER TABLE Z-LEVEL
 123----   10.0 GAMWAT    FREE WATER UNIT WEIGHT
 124----   10.0 GAMPWP    PORE WATER UNIT WEIGHT (=GAMWAT IF HYDROSTATIC)
 125----    0.00 PWPMIN    MINIMUM ALLOWABLE PWP (CAPILLARY TENSION)
 126----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : PWP-VALUES
 127----  1      97.55  2     -12.60     -7.00
 128----                      0.00     80.00
 129----  2     204.04  2     -7.80      2.06
 130----                      0.00    120.00
 131----  NODE  PWP-VALUE  (IF ALL NODES , SKIP NODE NUMBERS : PWP(1),PWP(2),...)
 132----
 133----  ****************** LOAD SECTION
 134----    0 NUMPNT           NUMBER OF POINT LOADS & 100*SOIL NAILS
 135----    0 NUMSIG           NUMBER OF SURFACE DISTRIBUTED LOADS
 136----   0.0 SIGTOP           UNIFORM INITIAL VERTICAL STRESS AT SURFACE
 137---- -100 100 XTOP1,XTOP2        STRESS 'SIGTOP' ACTS FROM XTOP1 TO XTOP2
 138----   10.0000   5.0000 FCTPNT,FCTSIG      POINT AND DISTRIBUTED LOAD FACTORS
 139----  0.00 1.00 ACCXRT,ACCZRT       ACCELERATION RATIOS IN X- AND Z-DIRECTIONS
 140----   POINT   X-COORD   Z-COORD   X-FORCE   Z-FORCE
 141----  STRIP     X1      X2      SIGZ1     SIGZ2     TAUX1     TAUX2
 142----
 143----  ****************** GIVEN SHEAR SURFACE
 144---- END

      0000000001111111111222222222233333333334444444445555555555666666666677777777778
      1234567890123456789012345678901234567890123456789012345678901234567890123456789


 BEAST  Output   Program Version = 30 Apr 2015    Time = 07 MAR 2019  17:17:38



================================================== SAFETY FACTOR =    2.500
SURFACE NO : 385     SUMMARY OF GEOMETRY AND STRESSES
================================================== SOLUTION SCORE=    0.002

 SURFACE TYPE = CIRCLE        X-CENTER  Z-CENTER   RADIUS
                     140.890   -48.330    44.700
```

SOLUTION METHOD = BEAST-2003 / SWEDISH COMBINED ANALYSIS

SLICE	X1	Z1	Z2	WXT-FRC	P-STR	E2-STR	U2-STR	ROUGH	H2/Z23	
	X2	Z4	Z3	WZT-FRC	S-STR	T2-STR	U3-STR		H3/L34	
1	112.57	-13.76	-13.61	0.000E+00	8.587E+00	6.015E+00	0.000E+00	0.260	0.337	
1	114.30	-13.75	-12.40	1.880E+01	2.508E+00	4.599E-01	0.000E+00		0.334	
2	114.30	-13.61	-13.46	0.000E+00	2.387E+01	1.125E+01	1.086E+00	0.263	0.309	
2	116.03	-12.40	-11.18	5.428E+01	6.324E+00	8.709E-01	2.166E+00		0.449	
3	116.03	-13.46	-13.31	0.000E+00	2.826E+01	1.400E+01	5.545E+00	0.253	0.345	
3	117.77	-11.18	-10.08	8.468E+01	7.338E+00	1.005E+00	1.523E+01		0.471	
4	117.77	-13.31	-13.20	0.000E+00	3.049E+01	1.561E+01	1.076E+01*******	0.373	WARNINGS: 1	
4	119.50	-10.08	-9.09	1.115E+02	7.853E+00	1.081E+00	2.863E+01		0.480	
5	119.50	-13.20	-13.09	0.000E+00	3.307E+01	1.695E+01	1.583E+01*******	0.391	WARNINGS: 1	
5	121.23	-9.09	-8.19	1.363E+02	8.120E+00	1.173E+00	4.061E+01		0.485	
6	121.23	-13.09	-12.98	0.000E+00	3.572E+01	1.826E+01	2.046E+01	0.252	0.400	
6	122.97	-8.19	-7.39	1.581E+02	7.856E+00	1.255E+00	5.116E+01		0.489	
7	122.97	-12.98	-12.87	0.000E+00	3.818E+01	1.968E+01	2.463E+01	0.255	0.402	
7	124.70	-7.39	-6.67	1.772E+02	7.032E+00	1.356E+00	6.037E+01		0.491	
8	124.70	-12.87	-12.76	7.105E-15	4.031E+01	2.121E+01	2.826E+01	0.261	0.403	
8	126.43	-6.67	-6.04	1.939E+02	6.279E+00	1.477E+00	6.839E+01		0.493	
9	126.43	-12.76	-12.66	7.105E-15	4.215E+01	2.280E+01	3.130E+01	0.268	0.403	
9	128.16	-6.04	-5.49	2.079E+02	5.614E+00	1.614E+00	7.505E+01		0.495	
10	128.16	-12.66	-12.55	-1.421E-14	4.697E+01	2.436E+01	3.386E+01	0.274	0.398	
10	129.90	-5.49	-5.01	2.201E+02	5.035E+00	1.747E+00	7.771E+01		0.496	
11	129.90	-12.55	-12.44	7.105E-15	5.182E+01	2.590E+01	3.588E+01	0.279	0.394	
11	131.63	-5.01	-4.60	2.301E+02	4.539E+00	1.881E+00	7.897E+01		0.497	
12	131.63	-12.44	-12.33	1.776E-14	5.545E+01	2.743E+01	3.728E+01	0.285	0.389	
12	133.36	-4.60	-4.27	2.378E+02	4.215E+00	2.025E+00	8.007E+01		0.498	
13	133.36	-12.33	-12.22	1.776E-14	5.804E+01	2.872E+01	3.831E+01	0.290	0.387	
13	135.10	-4.27	-4.01	2.433E+02	4.200E+00	2.150E+00	8.097E+01		0.498	
14	135.10	-12.22	-12.11	-2.309E-14	5.914E+01	2.974E+01	3.899E+01	0.294	0.386	
14	136.83	-4.01	-3.82	2.458E+02	4.200E+00	2.254E+00	8.166E+01		0.499	
15	136.83	-12.11	-12.00	2.309E-14	5.987E+01	3.054E+01	3.931E+01	0.298	0.387	
15	138.56	-3.82	-3.70	2.473E+02	4.200E+00	2.341E+00	8.210E+01		0.500	
16	138.56	-12.00	-11.89	-1.421E-14	5.972E+01	3.112E+01	3.927E+01	0.302	0.388	
16	140.30	-3.70	-3.64	2.467E+02	4.200E+00	2.415E+00	8.225E+01		0.501	
17	140.30	-11.89	-11.78	2.209E-14	5.876E+01	3.148E+01	3.887E+01	0.307	0.390	
17	142.03	-3.64	-3.65	2.442E+02	4.200E+00	2.475E+00	8.207E+01		0.501	
18	142.03	-11.78	-11.68	2.220E-14	5.756E+01	3.164E+01	3.811E+01	0.311	0.392	
18	143.76	-3.65	-3.73	2.406E+02	4.200E+00	2.522E+00	8.153E+01		0.502	
19	143.76	-11.68	-11.57	0.000E+00	5.507E+01	3.159E+01	3.697E+01	0.316	0.395	

```
 19  145.49  -3.73  -3.87  2.341E+02  4.200E+00  2.556E+00  8.057E+01       0.503

 20  145.49 -11.57 -11.46  0.000E+00  5.186E+01  3.137E+01  3.540E+01  0.320  0.397
 20  147.23  -3.87  -4.08  2.255E+02  4.200E+00  2.577E+00  7.916E+01       0.504

 21  147.23 -11.46 -11.35  1.421E-14  4.786E+01  3.115E+01  3.323E+01  0.325  0.396
 21  148.96  -4.08  -4.37  2.147E+02  4.200E+00  2.603E+00  7.723E+01       0.505

 22  148.96 -11.35 -11.24  3.553E-15  4.340E+01  3.080E+01  3.060E+01  0.330  0.394
 22  150.69  -4.37  -4.72  2.019E+02  4.279E+00  2.616E+00  7.462E+01       0.506

 23  150.69 -11.24 -11.13 -3.553E-15  4.089E+01  3.029E+01  2.740E+01  0.335  0.389
 23  152.43  -4.72  -5.15  1.872E+02  4.690E+00  2.617E+00  6.908E+01       0.507

 24  152.43 -11.13 -11.02  0.000E+00  3.914E+01  2.940E+01  2.374E+01  0.339  0.382
 24  154.16  -5.15  -5.65  1.705E+02  5.209E+00  2.582E+00  6.176E+01       0.509

 25  154.16 -11.02 -10.91 -7.105E-15  3.705E+01  2.802E+01  1.964E+01  0.342  0.373
 25  155.89  -5.65  -6.23  1.514E+02  5.812E+00  2.498E+00  5.350E+01       0.511

 26  155.89 -10.91 -10.78  3.553E-15  3.445E+01  2.589E+01  1.528E+01  0.342  0.360
 26  157.62  -6.23  -6.88  1.296E+02  6.500E+00  2.331E+00  4.428E+01       0.515

 27  157.62 -10.78 -10.65  0.000E+00  3.139E+01  2.243E+01  1.037E+01  0.335  0.344
 27  159.36  -6.88  -7.63  1.048E+02  7.285E+00  2.011E+00  3.398E+01       0.521

 28  159.36 -10.65 -10.41  0.000E+00  2.694E+01  1.792E+01  5.450E+00  0.288  0.341
 28  161.09  -7.63  -8.46  7.661E+01  7.023E+00  1.417E+00  2.256E+01       0.536

 29  161.09 -10.41 -10.12  0.000E+00  1.818E+01  1.408E+01  6.589E-01  0.000  0.437
 29  162.82  -8.46  -9.39  4.160E+01  5.010E+00  1.337E-01  1.004E+01       0.576

 30  162.82 -10.12 -10.41  0.000E+00  6.652E+00  9.456E-11  0.000E+00  0.000  0.500
 30  164.55  -9.39 -10.41  1.019E+01  2.016E+00 -5.097E-10  4.820E-01       0.667

BEAST  Output   Program Version = 30 Apr 2015    Time = 07 MAR 2019  17:17:38



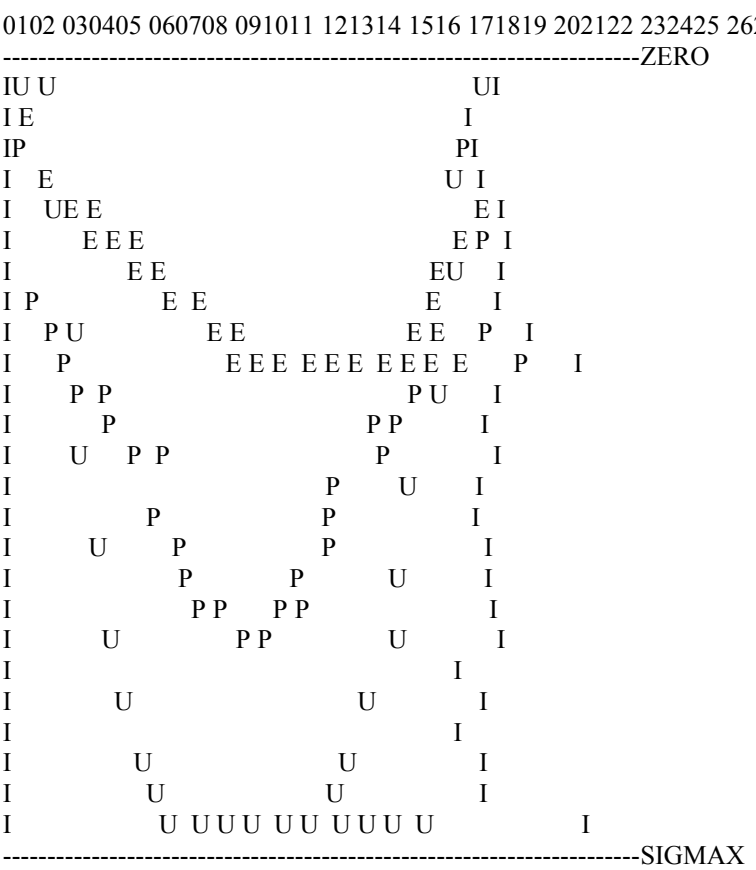
SURFACE NO:385  TYPE: CIRCLE    SAFETY-FACTOR:  2.500   SCORE:  0.002
BELOW SKETCH SHOWS SHEAR SURFACE WITH SLICE DIVISIONS AND MATERIAL ID-S

111  1 1 1  1 1 1  1 1 1
 22 2 2 2  2 2 2  2 2 2  2 1 1  1 1 1  1 1 1  1 1 1
   333 3  3 3 3  3 3 3  2 2 2  2 2 2  2 2 2  2 2 2  2 1 1  1 1 1  1 1
     33  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  2 2 2  2 2 2 221
      3 333 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 333
         3333 3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3 333
            33333  3 3 3  3 3 3  3 3 3  3 3 3 33333
               3 333333 33333 333333 333333
0102 030405 060708 091011 121314 1516 171819 202122 232425 262728 2930

 MAT GAMTOT SUA/SU0 SUD/SU0 SUP/SU0 COHESN PHIANG PHIRED RU-FCT  B-FCT  K-NOT B-
SIG2 D/SU(B)
  1  18.000  1.000   1.000   1.000   0.000  34.00  0.00  0.000   0.000  0.000  0.000  0.001
  2  18.000  1.000   1.000   1.000 10.0%*C  30.00  0.00  0.000   0.000  0.000  0.000  0.001
  3  17.000  1.000   1.000   1.000 10.0%*C  30.00  0.00  0.000   0.000  0.000  0.000  0.001
  4  18.000  1.000   1.000   1.000   0.000  40.00  0.00  0.000   0.000  0.000  0.000  0.001
```

BEAST Output Program Version = 30 Apr 2015 Time = 07 MAR 2019 17:17:38

SURFACE NO:385 TYPE: CIRCLE SAFETY-FACTOR: 2.500 SCORE: 0.002
BELOW SKETCH SHOWS EFFECTIVE NORMAL STRESSES: P=SHEAR-SURFACE E=INTER-SLICE
U=RESULTING PWP AT SHEAR SURFACE



P-MIN = 6.652E+00 P-MAX = 5.987E+01
E-MIN = 6.015E+00 E-MAX = 3.164E+01
U-MIN = 0.000E+00 U-MAX = 8.225E+01

THIS RUN WAS TERMINATED : 07 MAR 2019 AT 17:17:38 HOURS

TIME USED = 1 SECONDS

GeoSuite Stability Report

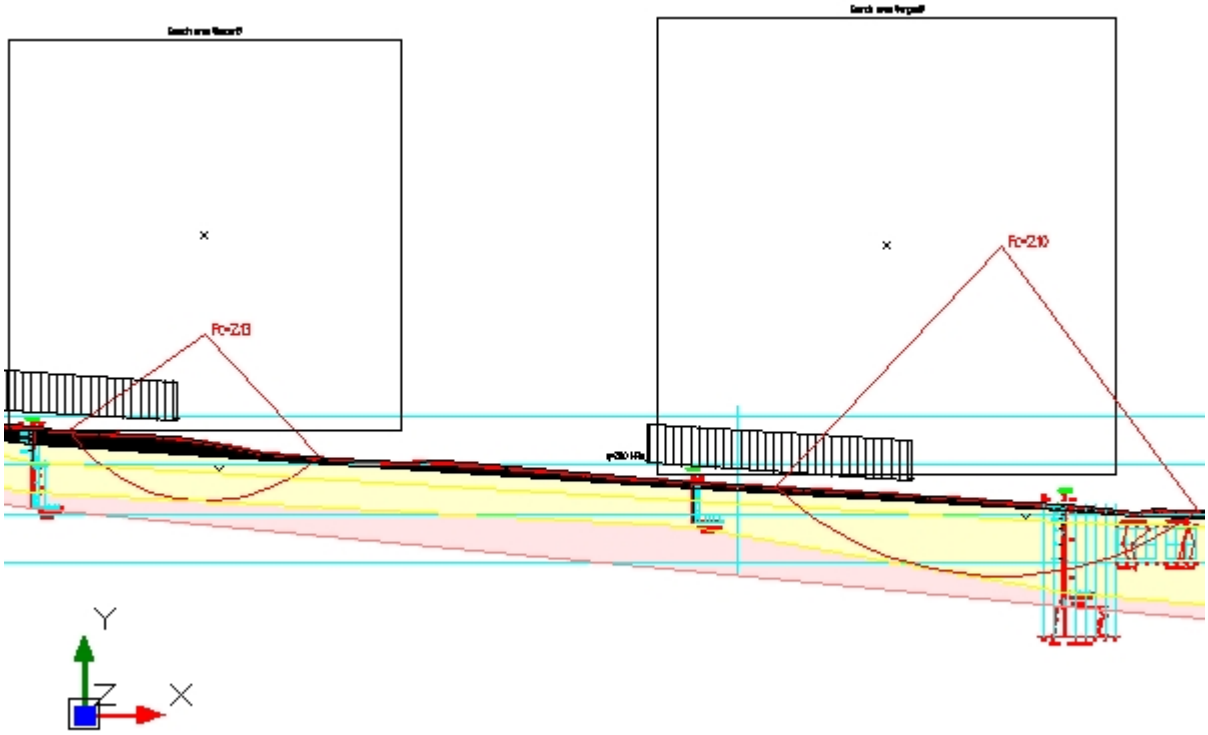
Calculation data

Project name:	Fasanvägen etapp 13
Project number:	18112896
Contractor:	
Comment:	

Calculation name:	BS4_20KPA
Description:	
File name:	G:\Projekt\2018\18112896 Fasanvägen etapp 13\15_Geosuite\STABGRAF.RIT\BS4_20KPA.dwg
Critical Safety Factor:	2,10
Result Date:	2019-03-07 17:35
Result Text:	Fc=2,13

Horizontally density spacing:	3
Vertically density spacing:	15
Side friction:	0,00
Number of slices:	30
Correction of exit angle:	Yes

Graphic Model



Soil

Materials

Material	ρ [kN/m³]	Ø [°]	C' [kPa]	C [kPa]	Aa	Ad	Ap
Fy	18,00	34,0	0,0		1,00	1,00	1,00
Let	18,00			30,0	1,00	1,00	1,00
Le	17,00			CProf	1,00	1,00	1,00
Fr	18,00	40,0	0,0		1,00	1,00	1,00

Soil Parameter Variations

η-factors

Material	Param	Drained	γm	η(1,2)	η(3)	η(4,5,6,7)	η(8)	η
Fy	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00
Let	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Le	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Fr	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00

Scaling factors

Material	+ Factor	- Facktor
Fy	1,00	1,00
Let	1,00	1,00
Le	1,00	1,00
Fr	1,00	1,00

C Profiles

C-profile, X = 200,31 m

Z [m]	C [kPa]
8,00	20,30
4,50	10,50
2,78	10,50
-1,22	10,50

Loads

Distributed Loads

q1 [kPa]	q2 [kPa]	X1 [m]	X2 [m]
20,00	20,00	45,06	65,57
20,00	20,00	113,34	140,25

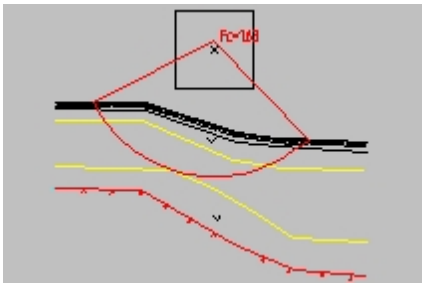
Model Data

Tangent Strategy Data

Centre point X:	137,71
Centre point Z:	37,24
Search area:	23,24
Upper Z-level:	9,61
Lower Z-level:	-0,33
Number of levels:	50

Search Criteria

Calculation method:	Beast 2003
Calculation Strategy:	Tangent
Slope type:	Right slope



Result file

Location: G:\Projekt\2018\18112896 Fasanvägen etapp 13\15_Geosuite\STABGRAF.RIT\BS4_20KPA.RES

Created: 2019-03-07 17:35

Modified: 2019-03-07 17:35

```
#
      ECHO PRINT OF DATA ON FORTRAN UNIT NUMBER = 14

      000000000111111111122222222223333333333444444444455555555556666666666777777777778
      123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890

 1----
 2----
 3---- * Version : 4.0.0.0
 4----
 5----  ****************** CONTROL SECTION
 6----   1.0 1.0 CONFRC,CONLTH   CONVERTION FACTORS ON FORCES AND LENGTHS
 7----   1.0 1.0 FCTSUC,FCTTAN   MATERIAL FACTORS ON SU,C AND TAN(PHI)
 8----     1 IDTYP     SOLUTION TYPE (1=STAB/BEARING 2=EARTH PRESS)
 9----    31 ANALYSIS METHOD & TYPE, E.G. 31 = BEAST-2003 & EFF.STRESS
10----     0 NUMGEN    NUMBER OF GENERAL SHEAR SURFACES
11----    30 NUMSLC    NUMBER OF SLICES (ZERO OK FOR GENERAL SURFACES)
12----   0.000 SIDSHR    SIDE SHEAR FACTOR (0.0=PLANE STRAIN , 2.0/LENGTH=MAX)
13----  0.00 0.00 VALUES FOR H3-ASSMPTN (H3(X)=H31+(H32-H31)/XTOT*X)
14----  0.50 0.50 0.00 VALUES FOR R-ASSMPTN  (R(X)=R1+(R2-R1)/XTOT*X+H(X)/HMAX*R3)
15----     0 ITENSP    ALLOW P-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
16----     0 ITENSE    ALLOW E-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
17----     0 JPRINT    TRACE PRINT CODE (0=NON 1=LIM 2=TRACE 3=DETLD TRACE)
18----     2 IPRTTP    FILE NF16 PRINT TYPE FOR SLICE OUTPUT (1=FORCES 2=STRESSES)
19----     1 JPLOT     CODE FOR PLOT(S) ON NF16 (0=NO 1=YES 2=+PWP/SU0 3=+MESH)
20----   0.000 CRTFRC    CONVERGENCE CRITERION , FORCES   (DEFAULT=SUM(FZ)/1.0E4)
21----   2.000 CRTSCR    CONVERGENCE CRITERION , SOLUTION SCORE
22----  1 0 0 0 0 0.0  0.0  0.0  0.0  0.0 First flag, exit angle, third adjust low circ
23----
24----  ****************** GEOMETRY SECTION
25----     29 NUMXLN    NUMBER OF X-LINES WITH SURFACE, ROCK AND ELEMENT SPECS
26----     1 NUMELZ    NUMBER OF ELEMENTS IN Z-DIRECTION
27----     1 NUMLAY    NUMBER OF HORIZONTAL LAYERS
28----     28 NUMTRI    NUMBER OF MATERIAL I.D. TRIANGLES
29----    X-VALUE  Z-SURFACE  Z-ROCK  NUMBER OF X-ELEMENTS TO NEXT X-LINE
30----     -99.78      -25.30      74.70       1
31----     0.22        -25.30      74.70       1
32----     6.71        -23.45      75.13       1
33----     18.90       -21.47      75.93       1
34----     30.62       -20.66      76.70       1
35----     37.70       -19.50      77.17       1
36----     51.51       -18.92      78.07       1
37----     53.49       -18.57      78.20       1
38----     65.56       -17.99      79.00       1
39----     74.84       -16.14      79.61       1
40----     89.00       -15.32      80.54       1
41----     92.71       -15.44      80.78       1
42----     118.06      -13.29      82.45       1
43----     155.78      -10.92      84.93       1
44----     159.98      -10.60      85.21       1
```

```
  45----    163.05      -10.08      85.41       1
  46----    164.97      -10.50      85.54       1
  47----    167.35      -10.36      85.69       1
  48----    170.75      -10.36      85.92       1
  49----    174.25      -10.04      86.15       1
  50----    190.15      -9.76       87.19       1
  51----    199.85      -9.38       87.83       1
  52----    203.77      -8.92       88.09       1
  53----    205.96      -8.87       88.23       1
  54----    211.28      -9.20       88.58       1
  55----    213.38      -8.96       88.72       1
  56----    231.48      -9.06       89.91       1
  57----    256.22      -8.46       91.54       1
  58----    356.22      -8.46       91.54       0
  59----  00 00 00  0.0 0.0 NP1,NP2,NSTEP,ZN1,ZN2  NODE NEW Z , NP2=MAX TERMINATES
  60----  00 00 00   0 NE1,NE2,NSTEP,MAT     ELEMENT MATRL , NE2=MAX TERMINATES
  61----   LAYER  Z-BOTTOM  MATERIAL-I.D.
  62----    1      91.54        1
  63----   TRIANGLE  MATERIAL   X1  Z1     X2  Z2     X3  Z3
  64----    1   4   128.22    101.54    -99.12    101.54    -99.12    -20.67
  65----    2   4   128.22    101.54    -99.12    -20.67    0.88      -20.67
  66----    3   4   128.22    101.54    0.88      -20.67    50.92     -12.14
  67----    4   4   128.22    101.54    50.92     -12.14    117.67    -8.81
  68----    5   4   128.22    101.54    117.67    -8.81     155.83    -1.98
  69----    6   4   128.22    101.54    155.83    -1.98     204.24    1.71
  70----    7   4   128.22    101.54    204.24    1.71      255.78    1.71
  71----    8   4   128.22    101.54    355.78    1.71      255.78    1.71
  72----    9   4   128.22    101.54    355.78    1.71      355.78    101.54
  73----    10   3   128.22    101.54    -98.79    101.54    -98.79    -22.63
  74----    11   3   128.22    101.54    -98.79    -22.63    1.21      -22.63
  75----    12   3   128.22    101.54    1.21      -22.63    51.01     -15.35
  76----    13   3   128.22    101.54    51.01     -15.35    155.77    -9.06
  77----    14   3   128.22    101.54    155.77    -9.06     204.10    -7.81
  78----    15   3   128.22    101.54    204.10    -7.81     255.65    -7.48
  79----    16   3   128.22    101.54    355.65    -7.48     255.65    -7.48
  80----    17   3   128.22    101.54    355.65    -7.48     355.65    101.54
  81----    18   2   128.22    101.54    -98.58    101.54    -98.58    -23.01
  82----    19   2   128.22    101.54    -98.58    -23.01    1.42      -23.01
  83----    20   2   128.22    101.54    1.42      -23.01    50.87     -17.11
  84----    21   2   128.22    101.54    50.87     -17.11    118.23    -12.68
  85----    22   2   128.22    101.54    118.23    -12.68    155.84    -10.46
  86----    23   2   128.22    101.54    155.84    -10.46    163.16    -9.79
  87----    24   2   128.22    101.54    163.16    -9.79     204.14    -8.44
  88----    25   2   128.22    101.54    204.14    -8.44     214.13    -8.22
  89----    26   2   128.22    101.54    214.13    -8.22     255.45    -8.17
  90----    27   2   128.22    101.54    355.45    -8.17     255.45    -8.17
  91----    28   2   128.22    101.54    355.45    -8.17     355.45    101.54
  92----   0 0 0 XWALL,HWALL,RWALL   WALL SPECIFICATIONS
(LOCATION,HEIGHT,ROUGHNESS)
  93----
  94----  ****************** MATERIAL PROPERTIES SECTION
  95----    4    3   15 NUMMAT    NUMBER OF DIFFERENT MATERIALS (NDX, NDZ DENSITY GRID S
  96----    1 NUMXSU    NUMBER OF VERTICAL X-LINES WITH GIVEN SU-VALUES
  97----    0 NODSU     NUMBER OF MESH NODAL POINTS WITH GIVEN SU-VALUES
  98----   0.00 CRACKZ    SURFACE OPEN CRACK DEPTH
  99----   0.00 CRACKW    WATER DEPTH IN OPEN SURFACE CRACK
 100----   0.0 PHIREF    FRICTION ANGLE REFERENCE PRESSURE
 101----   EFFECTIVE STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO
OK)
 102----   MAT  GAMTOT  COHSN  PHIANG  PHIRED  PWPMAT  RU-MAT  B-FACT K-NOT B-SIG2
```

```
D-FCT
 103----  1   18.00    0.00   34.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 104----  2   18.00    0.00    0.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 105----  3   17.00    0.00    0.00  0   0.00   0.00  0  0  0  0.001  -0.00 17.00
 106----  4   18.00    0.00   40.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 107----  TOTAL STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO OK)
 108----  MAT  GAMTOT  SUA/SU0 SUD/SU0 SUP/SU0  SU0-MAT  (A:ACTIVE D:DIRECT
P:PASSIVE)C-
 109----  1   18.00    1.00    1.00    1.00    0.00   1
 110----  2   18.00    1.00    1.00    1.00   30.00   0
 111----  3   17.00    1.00    1.00    1.00    0.00   1
 112----  4   18.00    1.00    1.00    1.00    0.00   1
 113----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : SU0-VALUES
 114----  1     200.31  4     -8.00    -4.50    -2.78     1.22
 115----                     20.30     10.50     10.50     10.50
 116----  NODE   SU0   (IF ALL NODES, SKIP NODE NUMBERS : SU0(1),SU0(2),...)
 117----
 118----  ****************** PORE-WATER-PRESSURES SECTION
 119----    1 IDPWP     PWP INDICATOR (1=HYDROSTATIC  2=NON-HYDROSTATIC)
 120----    0 NUMBER OF VERTICAL X-LINES WITH GIVEN PWP WITH DEPTH
 121----    0 NODPWP    NUMBER OF MESH NODAL POINTS WITH GIVEN PWP
 122----   0.0 FCTNOD    FACTOR ON PWP-VALUES GIVEN AT NODAL POINTS
 123----   101.540 WATERZ    HORIZONTAL WATER TABLE Z-LEVEL
 124----   10.0 GAMWAT    FREE WATER UNIT WEIGHT
 125----   10.0 GAMPWP    PORE WATER UNIT WEIGHT (=GAMWAT IF HYDROSTATIC)
 126----    0.00 PWPMIN    MINIMUM ALLOWABLE PWP (CAPILLARY TENSION)
 127----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : PWP-VALUES
 128----   NODE  PWP-VALUE  (IF ALL NODES , SKIP NODE NUMBERS : PWP(1),PWP(2),...)
 129----
 130----  ****************** LOAD SECTION
 131----    0 NUMPNT           NUMBER OF POINT LOADS & 100*SOIL NAILS
 132----    2 NUMSIG           NUMBER OF SURFACE DISTRIBUTED LOADS
 133----   0.0 SIGTOP          UNIFORM INITIAL VERTICAL STRESS AT SURFACE
 134---- -100 100 XTOP1,XTOP2       STRESS 'SIGTOP' ACTS FROM XTOP1 TO XTOP2
 135----   10.0000   5.0000 FCTPNT,FCTSIG      POINT AND DISTRIBUTED LOAD FACTORS
 136----  0.00 1.00 ACCXRT,ACCZRT      ACCELERATION RATIOS IN X- AND Z-DIRECTIONS
 137----   POINT   X-COORD   Z-COORD   X-FORCE   Z-FORCE
 138----  STRIP     X1      X2      SIGZ1     SIGZ2     TAUX1     TAUX2
 139----    1  45.06     65.57     4.00    4.00     0.00    0.00
 140----    2  113.34    140.25    4.00    4.00     0.00    0.00
 141----
 142----  ****************** GIVEN SHEAR SURFACE
 143---- END

      000000000111111111122222222223333333333444444444455555555556666666666777777777 8
      123456789012345678901234567890123456789012345678901234567890123456789012345678 90


 BEAST  Output   Program Version = 30 Apr 2015    Time = 07 MAR 2019  17:35:55



 ========================================================= SAFETY FACTOR =    2.098
 SURFACE NO : 458     SUMMARY OF GEOMETRY AND STRESSES
 ========================================================= SOLUTION SCORE=    0.003

 SURFACE TYPE = CIRCLE        X-CENTER  Z-CENTER   RADIUS
                     149.330   -37.240    33.510
```

SOLUTION METHOD = BEAST-2003 / EFFECTIVE STRESS ANALYSIS

SLICE	X1	Z1	Z2	WXT-FRC	P-STR	E2-STR	U2-STR	ROUGH	H2/Z23	
	X2	Z4	Z3	WZT-FRC	S-STR	T2-STR	U3-STR		H3/L34	
1	126.45	-12.76	-12.67	0.000E+00	2.019E+01	8.135E+00	0.000E+00	0.055	0.434	
1	127.88	-12.76	-11.50	4.370E+01	1.118E+01	6.309E-01	0.000E+00		0.442	
2	127.88	-12.67	-12.58	0.000E+00	3.910E+01	1.555E+01	0.000E+00	0.081	0.354	
2	129.31	-11.50	-10.37	7.208E+01	1.337E+01	8.713E-01	0.000E+00		0.469	
3	129.31	-12.58	-12.49	0.000E+00	5.935E+01	2.572E+01	0.000E+00	0.098	0.318	
3	130.74	-10.37	-9.36	9.625E+01	9.675E+00	1.137E+00	0.000E+00		0.480	
4	130.74	-12.49	-12.40	0.000E+00	7.466E+01	3.397E+01	0.000E+00*******	0.321	WARNINGS: 1	
4	132.17	-9.36	-8.46	1.173E+02	9.675E+00	1.379E+00	0.000E+00		0.486	
5	132.17	-12.40	-12.31	0.000E+00	8.818E+01	4.112E+01	0.000E+00*******	0.327	WARNINGS: 1	
5	133.60	-8.46	-7.65	1.358E+02	9.576E+00	1.595E+00	0.000E+00		0.489	
6	133.60	-12.31	-12.22	0.000E+00	1.007E+02	4.748E+01	0.000E+00	0.168	0.330	
6	135.03	-7.65	-6.94	1.523E+02	8.737E+00	1.796E+00	0.000E+00		0.492	
7	135.03	-12.22	-12.13	0.000E+00	1.114E+02	5.326E+01	0.000E+00	0.180	0.331	
7	136.46	-6.94	-6.31	1.662E+02	7.838E+00	1.973E+00	0.000E+00		0.493	
8	136.46	-12.13	-12.04	0.000E+00	1.210E+02	5.845E+01	0.000E+00	0.190	0.333	
8	137.89	-6.31	-5.74	1.788E+02	7.040E+00	2.127E+00	0.000E+00		0.495	
9	137.89	-12.04	-11.95	0.000E+00	1.289E+02	6.293E+01	0.000E+00	0.198	0.334	
9	139.32	-5.74	-5.27	1.891E+02	6.346E+00	2.261E+00	0.000E+00		0.496	
10	139.32	-11.95	-11.86	0.000E+00	1.287E+02	6.643E+01	0.000E+00	0.205	0.337	
10	140.75	-5.27	-4.85	1.877E+02	5.751E+00	2.362E+00	0.000E+00		0.514	
11	140.75	-11.86	-11.77	0.000E+00	1.213E+02	6.884E+01	0.000E+00	0.209	0.342	
11	142.17	-4.85	-4.51	1.762E+02	5.244E+00	2.425E+00	0.000E+00		0.497	
12	142.17	-11.77	-11.69	0.000E+00	1.256E+02	7.085E+01	0.000E+00	0.210	0.346	
12	143.60	-4.51	-4.22	1.818E+02	5.005E+00	2.473E+00	0.000E+00		0.498	
13	143.60	-11.69	-11.60	0.000E+00	1.288E+02	7.238E+01	0.000E+00	0.213	0.349	
13	145.03	-4.22	-4.01	1.857E+02	5.005E+00	2.505E+00	0.000E+00		0.499	
14	145.03	-11.60	-11.51	0.000E+00	1.308E+02	7.346E+01	0.000E+00	0.214	0.351	
14	146.46	-4.01	-3.86	1.880E+02	5.005E+00	2.519E+00	0.000E+00		0.499	
15	146.46	-11.51	-11.42	0.000E+00	1.318E+02	7.410E+01	0.000E+00	0.214	0.354	
15	147.89	-3.86	-3.76	1.888E+02	5.005E+00	2.513E+00	0.000E+00		0.500	
16	147.89	-11.42	-11.33	0.000E+00	1.317E+02	7.430E+01	0.000E+00	0.212	0.356	
16	149.32	-3.76	-3.73	1.881E+02	5.005E+00	2.489E+00	0.000E+00		0.501	
17	149.32	-11.33	-11.24	0.000E+00	1.306E+02	7.398E+01	0.000E+00	0.209	0.359	
17	150.75	-3.73	-3.76	1.859E+02	5.005E+00	2.447E+00	0.000E+00		0.501	
18	150.75	-11.24	-11.15	0.000E+00	1.284E+02	7.322E+01	0.000E+00	0.205	0.361	
18	152.18	-3.76	-3.86	1.822E+02	5.005E+00	2.386E+00	0.000E+00		0.502	
19	152.18	-11.15	-11.06	0.000E+00	1.251E+02	7.201E+01	0.000E+00	0.199	0.364	

```
 19  153.61  -3.86  -4.01  1.769E+02  5.005E+00  2.304E+00  0.000E+00       0.503

 20  153.61 -11.06 -10.97  0.000E+00  1.208E+02  7.037E+01  0.000E+00  0.192  0.367
 20  155.04  -4.01  -4.22  1.702E+02  5.005E+00  2.204E+00  0.000E+00       0.504

 21  155.04 -10.97 -10.87  0.000E+00  1.153E+02  6.837E+01  0.000E+00  0.184  0.371
 21  156.47  -4.22  -4.50  1.618E+02  5.005E+00  2.088E+00  0.000E+00       0.505

 22  156.47 -10.87 -10.76  0.000E+00  1.085E+02  6.600E+01  0.000E+00  0.172  0.376
 22  157.90  -4.50  -4.85  1.515E+02  5.238E+00  1.959E+00  0.000E+00       0.506

 23  157.90 -10.76 -10.65  0.000E+00  1.007E+02  6.316E+01  0.000E+00  0.159  0.382
 23  159.33  -4.85  -5.26  1.398E+02  5.745E+00  1.811E+00  0.000E+00       0.508

 24  159.33 -10.65 -10.47  0.000E+00  9.140E+01  6.081E+01  0.000E+00  0.147  0.396
 24  160.76  -5.26  -5.74  1.258E+02  6.339E+00  1.672E+00  0.000E+00       0.511

 25  160.76 -10.47 -10.23  0.000E+00  7.903E+01  5.940E+01  0.000E+00  0.136  0.419
 25  162.19  -5.74  -6.30  1.073E+02  7.031E+00  1.562E+00  0.000E+00       0.515

 26  162.19 -10.23 -10.20  0.000E+00  6.593E+01  5.514E+01  0.000E+00  0.122  0.416
 26  163.61  -6.30  -6.93  8.764E+01  7.828E+00  1.379E+00  0.000E+00       0.515

 27  163.61 -10.20 -10.50  0.000E+00  5.917E+01  4.411E+01  0.000E+00  0.079  0.368
 27  165.04  -6.93  -7.64  7.679E+01  8.725E+00  1.023E+00  0.000E+00       0.511

 28  165.04 -10.50 -10.41  0.000E+00  4.895E+01  3.702E+01  0.000E+00  0.061  0.351
 28  166.47  -7.64  -8.45  6.079E+01  9.571E+00  7.622E-01  0.000E+00       0.531

 29  166.47 -10.41 -10.36  0.000E+00  3.509E+01  2.299E+01  0.000E+00  0.042  0.341
 29  167.90  -8.45  -9.35  3.786E+01  1.245E+01  3.825E-01  0.000E+00       0.553

 30  167.90 -10.36 -10.36  0.000E+00  1.390E+01  1.567E-10  0.000E+00  0.000  0.500
 30  169.33  -9.35 -10.36  1.298E+01  6.434E+00  9.153E-11  0.000E+00       0.666

BEAST  Output   Program Version = 30 Apr 2015    Time = 07 MAR 2019  17:35:55



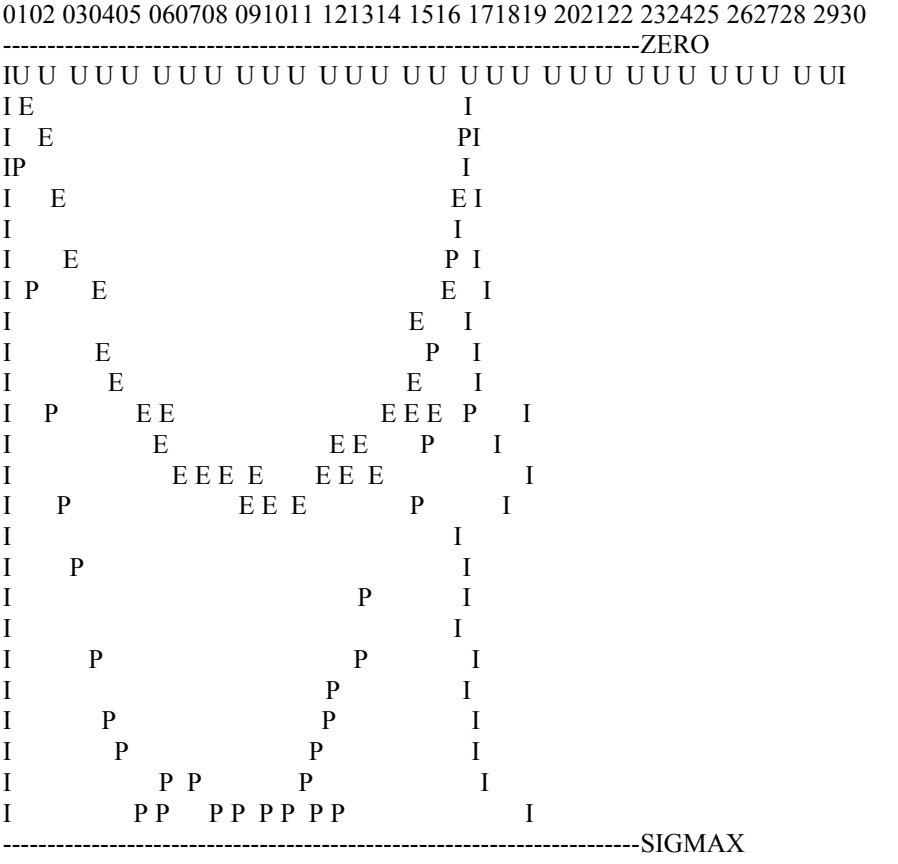
SURFACE NO:458  TYPE: CIRCLE    SAFETY-FACTOR:  2.098   SCORE:  0.003
BELOW SKETCH SHOWS SHEAR SURFACE WITH SLICE DIVISIONS AND MATERIAL ID-S

121  1 1 1  1 1 1  1 1 1  1
 22 2 2 2  2 2 2  2 2 2  2 1 1  1 1 1  1 1 1  1 1 1
   333 3  3 3 2  2 2 2  2 2 2  2 2 2  2 2 2  2 2 2  1 1 1  1 1 1  111
    333  3 3 3  3 3 3  3 3 3  3 3 3  3 3 2  2 2 2  2 2 2  2 2 2 22
     33 3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 333
       333 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  333
         333 3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 333 3
            3333  3 3 3  3 3 3  3 3 3  3 3 3 333
               3 333333 33333 333333 33333
0102 030405 060708 091011 121314 1516 171819 202122 232425 262728 2930

 MAT GAMTOT SUA/SU0 SUD/SU0 SUP/SU0 COHESN PHIANG PHIRED RU-FCT  B-FCT  K-NOT B-
SIG2 D/SU(B)
  1  18.000  1.000   1.000   1.000   0.000  34.00  0.00  0.000   0.000  0.000  0.000  0.001
  2  18.000  1.000   1.000   1.000   0.000   0.00  0.00  0.000   0.000  0.000  0.000  0.001
  3  17.000  1.000   1.000   1.000   0.000   0.00  0.00  0.000   0.000  0.000  0.000  0.001
  4  18.000  1.000   1.000   1.000   0.000  40.00  0.00  0.000   0.000  0.000  0.000  0.001
```

BEAST Output Program Version = 30 Apr 2015 Time = 07 MAR 2019 17:35:55

SURFACE NO:458 TYPE: CIRCLE SAFETY-FACTOR: 2.098 SCORE: 0.003
BELOW SKETCH SHOWS EFFECTIVE NORMAL STRESSES: P=SHEAR-SURFACE E=INTER-SLICE
U=RESULTING PWP AT SHEAR SURFACE



P-MIN = 1.390E+01 P-MAX = 1.318E+02
E-MIN = 8.135E+00 E-MAX = 7.430E+01
U-MIN = 0.000E+00 U-MAX = 0.000E+00

THIS RUN WAS TERMINATED : 07 MAR 2019 AT 17:35:55 HOURS

TIME USED = 1 SECONDS

GeoSuite Stability Report

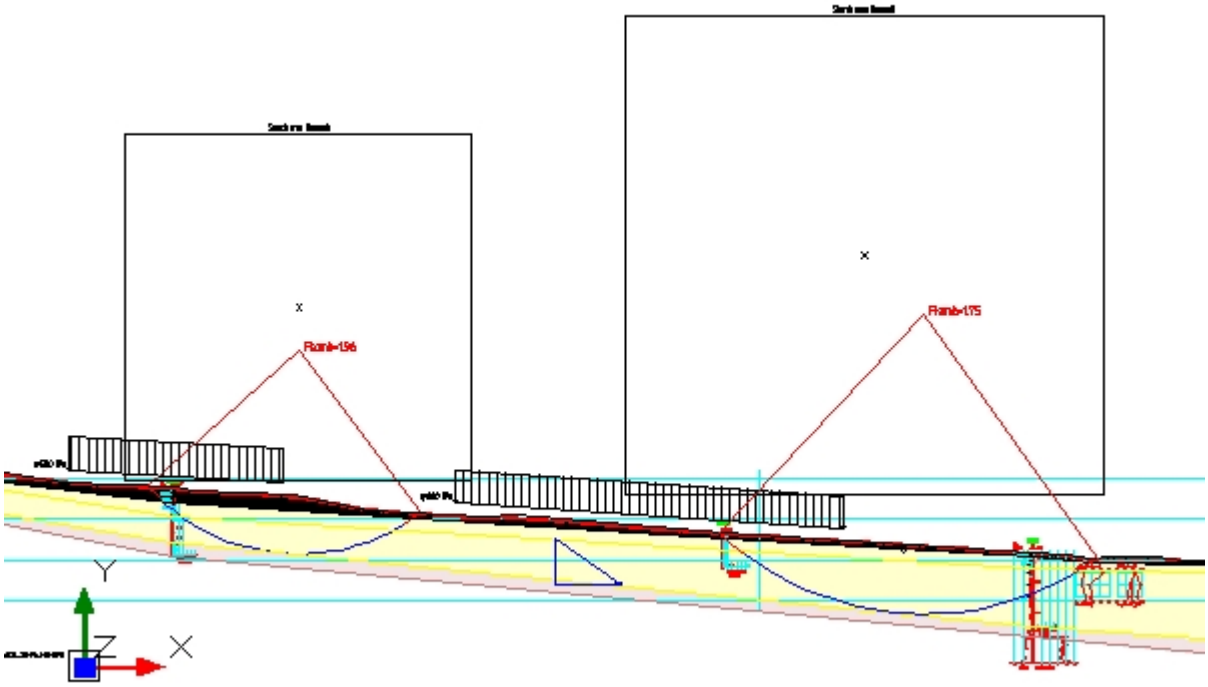
Calculation data

Project name:	Fasanvägen etapp 13
Project number:	18112896
Contractor:	
Comment:	

Calculation name:	BS4_20KPA_KOMB
Description:	
File name:	G:\Projekt\2018\18112896 Fasanvägen etapp 13\15_Geosuite\STABGRAF.RIT\BS4_20KPA_KOMB.dwg
Critical Safety Factor:	1,75
Result Date:	2019-03-07 17:32
Result Text:	Fcomb=1,96

Horizontally density spacing:	3
Vertically density spacing:	15
Side friction:	0,00
Number of slices:	30
Correction of exit angle:	Yes

Graphic Model



Soil

Materials (combined analysis)

Material	ρ [kN/m³]	Ø [°]	C' [kPa]	C [kPa]	Aa	Ad	Ap
Fy	18,00	34,0	0,0	100,0	1,00	1,00	1,00
Let	18,00	30,0	10 %	30,0	1,00	1,00	1,00
Le	17,00	30,0	10 %	CProf	1,00	1,00	1,00
Fr	18,00	40,0	0,0	100,0	1,00	1,00	1,00

Soil Parameter Variations

η-factors

Material	Param	Drained	γm	η(1,2)	η(3)	η(4,5,6,7)	η(8)	η
Fy	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00
Let	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Le	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Fr	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00

Scaling factors

Material	+ Factor	- Facktor
Fy	1,00	1,00
Let	1,00	1,00
Le	1,00	1,00
Fr	1,00	1,00

C Profiles

C-profile, X = 200,31 m

Z [m]	C [kPa]
8,00	20,30
4,50	10,50
2,78	10,50
-1,22	10,50

Pore Profiles

Pore-profile, X = 97,55 m

Z [m]	Pore P [kPa]
12,60	0,01
7,00	80,00

Pore-profile, X = 204,04 m

Z [m]	Pore P [kPa]
7,80	0,01
-2,06	120,00

Loads

Distributed Loads

q1 [kPa]	q2 [kPa]	X1 [m]	X2 [m]
20,00	20,00	85,38	132,79

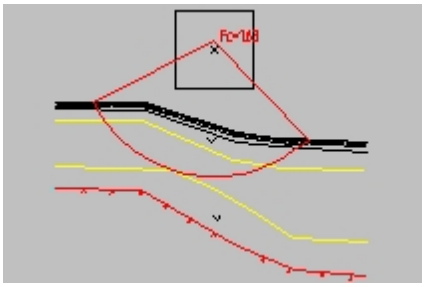
Model Data

Tangent Strategy Data

Centre point X:	135,27
Centre point Z:	47,14
Search area:	29,13
Upper Z-level:	10,89
Lower Z-level:	-1,66
Number of levels:	50

Search Criteria

Calculation method:	Beast 2003
Calculation Strategy:	Tangent
Slope type:	Right slope



Result file

Location: G:\Projekt\2018\18112896 Fasanvägen etapp 13\15_Geosuite\STABGRAF.RIT\BS4_20KPA_KOMB.RES

Created: 2019-03-07 17:32

Modified: 2019-03-07 17:32

```
#
      ECHO PRINT OF DATA ON FORTRAN UNIT NUMBER = 14

      000000000111111111122222222223333333333444444444455555555556666666666777777777 8
      123456789012345678901234567890123456789012345678901234567890123456789012345678 90

 1----
 2----
 3---- * Version : 4.0.0.0
 4----
 5----  ****************** CONTROL SECTION
 6----   1.0 1.0 CONFRC,CONLTH   CONVERTION FACTORS ON FORCES AND LENGTHS
 7----   1.0 1.0 FCTSUC,FCTTAN   MATERIAL FACTORS ON SU,C AND TAN(PHI)
 8----     1 IDTYP     SOLUTION TYPE (1=STAB/BEARING 2=EARTH PRESS)
 9----    33 ANALYSIS METHOD & TYPE, E.G. 31 = BEAST-2003 & EFF.STRESS
10----     0 NUMGEN    NUMBER OF GENERAL SHEAR SURFACES
11----    30 NUMSLC    NUMBER OF SLICES (ZERO OK FOR GENERAL SURFACES)
12----   0.000 SIDSHR    SIDE SHEAR FACTOR (0.0=PLANE STRAIN , 2.0/LENGTH=MAX)
13----  0.00 0.00 VALUES FOR H3-ASSMPTN (H3(X)=H31+(H32-H31)/XTOT*X)
14----  0.50 0.50 0.00 VALUES FOR R-ASSMPTN  (R(X)=R1+(R2-R1)/XTOT*X+H(X)/HMAX*R3)
15----     0 ITENSP    ALLOW P-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
16----     0 ITENSE    ALLOW E-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
17----     0 JPRINT    TRACE PRINT CODE (0=NON 1=LIM 2=TRACE 3=DETLD TRACE)
18----     2 IPRTTP    FILE NF16 PRINT TYPE FOR SLICE OUTPUT (1=FORCES 2=STRESSES)
19----     1 JPLOT     CODE FOR PLOT(S) ON NF16 (0=NO 1=YES 2=+PWP/SU0 3=+MESH)
20----   0.000 CRTFRC    CONVERGENCE CRITERION , FORCES   (DEFAULT=SUM(FZ)/1.0E4)
21----   2.000 CRTSCR    CONVERGENCE CRITERION , SOLUTION SCORE
22----  1 0 0 0 0 0.0  0.0  0.0  0.0  0.0 First flag, exit angle, third adjust low circ
23----
24----  ****************** GEOMETRY SECTION
25----     29 NUMXLN    NUMBER OF X-LINES WITH SURFACE, ROCK AND ELEMENT SPECS
26----     1 NUMELZ    NUMBER OF ELEMENTS IN Z-DIRECTION
27----     1 NUMLAY    NUMBER OF HORIZONTAL LAYERS
28----     27 NUMTRI    NUMBER OF MATERIAL I.D. TRIANGLES
29----    X-VALUE  Z-SURFACE  Z-ROCK  NUMBER OF X-ELEMENTS TO NEXT X-LINE
30----     -99.78      -25.30      74.70       1
31----     0.22        -25.30      74.70       1
32----     6.71        -23.45      75.13       1
33----     18.90       -21.47      75.93       1
34----     30.62       -20.66      76.70       1
35----     37.70       -19.50      77.17       1
36----     51.51       -18.92      78.07       1
37----     53.49       -18.57      78.20       1
38----     65.56       -17.99      79.00       1
39----     74.84       -16.14      79.61       1
40----     89.00       -15.32      80.54       1
41----     92.71       -15.44      80.78       1
42----     118.06      -13.29      82.45       1
43----     155.78      -10.92      84.93       1
44----     159.98      -10.60      85.21       1
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  45----    163.05      -10.08      85.41       1
  46----    164.97      -10.50      85.54       1
  47----    167.35      -10.36      85.69       1
  48----    170.75      -10.36      85.92       1
  49----    174.25      -10.04      86.15       1
  50----    190.15      -9.76       87.19       1
  51----    199.85      -9.38       87.83       1
  52----    203.77      -8.92       88.09       1
  53----    205.96      -8.87       88.23       1
  54----    211.28      -9.20       88.58       1
  55----    213.38      -8.96       88.72       1
  56----    231.48      -9.06       89.91       1
  57----    256.22      -8.46       91.54       1
  58----    356.22      -8.46       91.54       0
  59----  00 00 00  0.0 0.0 NP1,NP2,NSTEP,ZN1,ZN2  NODE NEW Z , NP2=MAX TERMINATES
  60----  00 00 00   0 NE1,NE2,NSTEP,MAT     ELEMENT MATRL , NE2=MAX TERMINATES
  61----   LAYER  Z-BOTTOM  MATERIAL-I.D.
  62----    1      91.54        1
  63----   TRIANGLE  MATERIAL   X1  Z1     X2  Z2     X3  Z3
  64----    1   4   128.22    101.54    -99.12    101.54    -99.12    -20.67
  65----    2   4   128.22    101.54    -99.12    -20.67    0.88      -20.67
  66----    3   4   128.22    101.54    0.88      -20.67    50.92     -12.14
  67----    4   4   128.22    101.54    50.92     -12.14    155.83    -1.98
  68----    5   4   128.22    101.54    155.83    -1.98     204.24    1.71
  69----    6   4   128.22    101.54    204.24    1.71      255.78    1.71
  70----    7   4   128.22    101.54    355.78    1.71      255.78    1.71
  71----    8   4   128.22    101.54    355.78    1.71      355.78    101.54
  72----    9   3   128.22    101.54    -98.79    101.54    -98.79    -22.63
  73----    10   3   128.22    101.54    -98.79    -22.63    1.21      -22.63
  74----    11   3   128.22    101.54    1.21      -22.63    51.01     -15.35
  75----    12   3   128.22    101.54    51.01     -15.35    155.77    -9.06
  76----    13   3   128.22    101.54    155.77    -9.06     204.10    -7.81
  77----    14   3   128.22    101.54    204.10    -7.81     255.65    -7.48
  78----    15   3   128.22    101.54    355.65    -7.48     255.65    -7.48
  79----    16   3   128.22    101.54    355.65    -7.48     355.65    101.54
  80----    17   2   128.22    101.54    -98.58    101.54    -98.58    -23.01
  81----    18   2   128.22    101.54    -98.58    -23.01    1.42      -23.01
  82----    19   2   128.22    101.54    1.42      -23.01    50.87     -17.11
  83----    20   2   128.22    101.54    50.87     -17.11    118.23    -12.68
  84----    21   2   128.22    101.54    118.23    -12.68    155.84    -10.46
  85----    22   2   128.22    101.54    155.84    -10.46    163.16    -9.79
  86----    23   2   128.22    101.54    163.16    -9.79     204.14    -8.44
  87----    24   2   128.22    101.54    204.14    -8.44     214.13    -8.22
  88----    25   2   128.22    101.54    214.13    -8.22     255.45    -8.17
  89----    26   2   128.22    101.54    355.45    -8.17     255.45    -8.17
  90----    27   2   128.22    101.54    355.45    -8.17     355.45    101.54
  91----   0 0 0 XWALL,HWALL,RWALL   WALL SPECIFICATIONS
(LOCATION,HEIGHT,ROUGHNESS)
  92----
  93----  ****************** MATERIAL PROPERTIES SECTION
  94----    4   3   15 NUMMAT    NUMBER OF DIFFERENT MATERIALS (NDX, NDZ DENSITY GRID S
  95----    1 NUMXSU    NUMBER OF VERTICAL X-LINES WITH GIVEN SU-VALUES
  96----    0 NODSU     NUMBER OF MESH NODAL POINTS WITH GIVEN SU-VALUES
  97----   0.00 CRACKZ    SURFACE OPEN CRACK DEPTH
  98----   0.00 CRACKW    WATER DEPTH IN OPEN SURFACE CRACK
  99----   0.0 PHIREF    FRICTION ANGLE REFERENCE PRESSURE
 100----   EFFECTIVE STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO
OK)
 101----   MAT  GAMTOT  COHSN  PHIANG  PHIRED  PWPMAT  RU-MAT  B-FACT K-NOT B-SIG2
D-FCT
```

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 102----  1   18.00    0.00   34.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 103----  2   18.00   -10.00   30.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 104----  3   17.00   -10.00   30.00  0   0.00   0.00  0  0  0  0.001  -0.00 17.00
 105----  4   18.00    0.00   40.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 106----  TOTAL STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO OK)
 107----  MAT  GAMTOT  SUA/SU0 SUD/SU0 SUP/SU0  SU0-MAT  (A:ACTIVE D:DIRECT
P:PASSIVE)C-
 108----  1   18.00    1.00    1.00    1.00   100.00   0
 109----  2   18.00    1.00    1.00    1.00   30.00   0
 110----  3   17.00    1.00    1.00    1.00    0.00   1
 111----  4   18.00    1.00    1.00    1.00   100.00   0
 112----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : SU0-VALUES
 113----  1      200.31  4     -8.00     -4.50     -2.78      1.22
 114----                      20.30     10.50     10.50     10.50
 115----  NODE   SU0   (IF ALL NODES, SKIP NODE NUMBERS : SU0(1),SU0(2),...)
 116----
 117----  ****************** PORE-WATER-PRESSURES SECTION
 118----    2 IDPWP     PWP INDICATOR (1=HYDROSTATIC  2=NON-HYDROSTATIC)
 119----    2 NUMBER OF VERTICAL X-LINES WITH GIVEN PWP WITH DEPTH
 120----    0 NODPWP    NUMBER OF MESH NODAL POINTS WITH GIVEN PWP
 121----   0.0 FCTNOD    FACTOR ON PWP-VALUES GIVEN AT NODAL POINTS
 122----   0.000 WATERZ    HORIZONTAL WATER TABLE Z-LEVEL
 123----   10.0 GAMWAT    FREE WATER UNIT WEIGHT
 124----   10.0 GAMPWP    PORE WATER UNIT WEIGHT (=GAMWAT IF HYDROSTATIC)
 125----    0.00 PWPMIN    MINIMUM ALLOWABLE PWP (CAPILLARY TENSION)
 126----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : PWP-VALUES
 127----  1      97.55  2     -12.60     -7.00
 128----                      0.00     80.00
 129----  2     204.04  2     -7.80      2.06
 130----                      0.00    120.00
 131----  NODE  PWP-VALUE  (IF ALL NODES , SKIP NODE NUMBERS : PWP(1),PWP(2),...)
 132----
 133----  ****************** LOAD SECTION
 134----    0 NUMPNT           NUMBER OF POINT LOADS & 100*SOIL NAILS
 135----    1 NUMSIG           NUMBER OF SURFACE DISTRIBUTED LOADS
 136----   0.0 SIGTOP           UNIFORM INITIAL VERTICAL STRESS AT SURFACE
 137---- -100 100 XTOP1,XTOP2        STRESS 'SIGTOP' ACTS FROM XTOP1 TO XTOP2
 138----   10.0000   5.0000 FCTPNT,FCTSIG      POINT AND DISTRIBUTED LOAD FACTORS
 139----  0.00 1.00 ACCXRT,ACCZRT       ACCELERATION RATIOS IN X- AND Z-DIRECTIONS
 140----   POINT   X-COORD   Z-COORD   X-FORCE   Z-FORCE
 141----  STRIP     X1      X2      SIGZ1     SIGZ2     TAUX1     TAUX2
 142----    1  85.38     132.79     4.00    4.00     0.00    0.00
 143----
 144----  ****************** GIVEN SHEAR SURFACE
 145---- END

      000000000111111111122222222233333333334444444445555555555666666666677777777778
      123456789012345678901234567890123456789012345678901234567890123456789012345678

 BEAST  Output   Program Version = 30 Apr 2015    Time = 07 MAR 2019  17:32:24

 ========================================================  SAFETY FACTOR =    1.748
 SURFACE NO : 548     SUMMARY OF GEOMETRY AND STRESSES
 ========================================================  SOLUTION SCORE=    0.000

 SURFACE TYPE = CIRCLE         X-CENTER  Z-CENTER   RADIUS
```

142.540 -39.860 36.400

SOLUTION METHOD = BEAST-2003 / SWEDISH COMBINED ANALYSIS

SLICE	X1	Z1	Z2	WXT-FRC	P-STR	E2-STR	U2-STR	ROUGH	H2/Z23	
	X2	Z4	Z3	WZT-FRC	S-STR	T2-STR	U3-STR		H3/L34	
1	117.63	-13.33	-13.22	0.000E+00	2.263E+01	1.396E+01	0.000E+00	0.203	0.433	
1	119.16	-13.32	-11.96	4.798E+01	8.674E+00	1.153E+00	0.000E+00		0.440	
2	119.16	-13.22	-13.12	0.000E+00	3.689E+01	1.771E+01	1.939E+00	0.197	0.392	
2	120.70	-11.96	-10.75	8.074E+01	1.335E+01	1.374E+00	4.034E+00		0.468	
3	120.70	-13.12	-13.03	0.000E+00	4.267E+01	2.139E+01	6.935E+00	0.207	0.382	
3	122.23	-10.75	-9.65	1.087E+02	1.161E+01	1.705E+00	1.824E+01		0.479	
4	122.23	-13.03	-12.93	0.000E+00	4.635E+01	2.389E+01	1.220E+01*******	0.388	WARNINGS: 1	
4	123.77	-9.65	-8.68	1.331E+02	1.161E+01	1.916E+00	3.149E+01		0.485	
5	123.77	-12.93	-12.84	0.000E+00	4.950E+01	2.595E+01	1.716E+01*******	0.395	WARNINGS: 1	
5	125.30	-8.68	-7.80	1.547E+02	1.158E+01	2.086E+00	4.318E+01		0.489	
6	125.30	-12.84	-12.74	7.105E-15	5.286E+01	2.779E+01	2.179E+01	0.214	0.395	
6	126.83	-7.80	-7.03	1.737E+02	1.068E+01	2.228E+00	5.348E+01		0.491	
7	126.83	-12.74	-12.64	7.105E-15	5.591E+01	2.971E+01	2.583E+01	0.216	0.395	
7	128.37	-7.03	-6.34	1.904E+02	9.504E+00	2.385E+00	6.245E+01		0.493	
8	128.37	-12.64	-12.55	7.105E-15	5.830E+01	3.161E+01	2.935E+01	0.218	0.394	
8	129.90	-6.34	-5.73	2.047E+02	8.463E+00	2.545E+00	7.025E+01		0.494	
9	129.90	-12.55	-12.45	1.421E-14	6.127E+01	3.346E+01	3.231E+01	0.220	0.390	
9	131.44	-5.73	-5.20	2.170E+02	7.550E+00	2.705E+00	7.612E+01		0.496	
10	131.44	-12.45	-12.35	-1.421E-14	6.464E+01	3.507E+01	3.473E+01	0.222	0.387	
10	132.97	-5.20	-4.75	2.239E+02	6.763E+00	2.844E+00	7.800E+01		0.504	
11	132.97	-12.35	-12.26	-2.132E-14	5.201E+01	3.588E+01	3.656E+01	0.223	0.392	
11	134.50	-4.75	-4.36	2.053E+02	6.134E+00	2.922E+00	7.935E+01		0.497	
12	134.50	-12.26	-12.16	7.105E-15	5.557E+01	3.671E+01	3.793E+01	0.225	0.394	
12	136.04	-4.36	-4.05	2.120E+02	6.007E+00	3.004E+00	8.052E+01		0.498	
13	136.04	-12.16	-12.06	2.132E-14	5.806E+01	3.738E+01	3.895E+01	0.226	0.397	
13	137.57	-4.05	-3.80	2.166E+02	6.007E+00	3.073E+00	8.149E+01		0.498	
14	137.57	-12.06	-11.97	-2.309E-14	5.943E+01	3.790E+01	3.958E+01	0.227	0.399	
14	139.11	-3.80	-3.63	2.190E+02	6.007E+00	3.127E+00	8.221E+01		0.499	
15	139.11	-11.97	-11.87	1.954E-14	6.023E+01	3.827E+01	3.988E+01	0.229	0.401	
15	140.64	-3.63	-3.52	2.203E+02	6.007E+00	3.172E+00	8.265E+01		0.500	
16	140.64	-11.87	-11.77	-1.421E-14	6.023E+01	3.849E+01	3.983E+01	0.230	0.403	
16	142.17	-3.52	-3.47	2.198E+02	6.007E+00	3.207E+00	8.280E+01		0.500	
17	142.17	-11.77	-11.68	7.772E-15	5.948E+01	3.856E+01	3.945E+01	0.231	0.405	
17	143.71	-3.47	-3.48	2.178E+02	6.007E+00	3.232E+00	8.263E+01		0.501	
18	143.71	-11.68	-11.58	-2.665E-14	5.837E+01	3.847E+01	3.869E+01	0.233	0.407	
18	145.24	-3.48	-3.56	2.145E+02	6.007E+00	3.246E+00	8.209E+01		0.502	

19	145.24	-11.58	-11.49	-1.776E-15	5.631E+01	3.821E+01	3.756E+01	0.234	0.410
19	146.77	-3.56	-3.71	2.092E+02	6.007E+00	3.247E+00	8.113E+01		0.503
20	146.77	-11.49	-11.39	2.132E-14	5.336E+01	3.780E+01	3.608E+01	0.236	0.411
20	148.31	-3.71	-3.93	2.018E+02	6.007E+00	3.236E+00	7.974E+01		0.503
21	148.31	-11.39	-11.29	2.487E-14	4.966E+01	3.744E+01	3.403E+01	0.238	0.411
21	149.84	-3.93	-4.20	1.927E+02	6.007E+00	3.234E+00	7.787E+01		0.504
22	149.84	-11.29	-11.20	-7.105E-15	4.542E+01	3.700E+01	3.155E+01	0.239	0.408
22	151.38	-4.20	-4.55	1.819E+02	6.012E+00	3.223E+00	7.550E+01		0.505
23	151.38	-11.20	-11.10	1.066E-14	4.237E+01	3.649E+01	2.843E+01	0.241	0.403
23	152.91	-4.55	-4.97	1.694E+02	6.426E+00	3.210E+00	7.098E+01		0.507
24	152.91	-11.10	-11.00	-1.421E-14	4.092E+01	3.565E+01	2.486E+01	0.243	0.395
24	154.44	-4.97	-5.47	1.551E+02	7.161E+00	3.163E+00	6.387E+01		0.508
25	154.44	-11.00	-10.90	1.421E-14	3.909E+01	3.436E+01	2.085E+01	0.244	0.385
25	155.98	-5.47	-6.03	1.385E+02	8.012E+00	3.075E+00	5.584E+01		0.511
26	155.98	-10.90	-10.79	0.000E+00	3.700E+01	3.238E+01	1.650E+01	0.244	0.371
26	157.51	-6.03	-6.69	1.197E+02	8.987E+00	2.918E+00	4.683E+01		0.514
27	157.51	-10.79	-10.67	-7.105E-15	3.464E+01	2.907E+01	1.168E+01	0.242	0.349
27	159.05	-6.69	-7.42	9.858E+01	1.010E+01	2.627E+00	3.673E+01		0.519
28	159.05	-10.67	-10.50	0.000E+00	3.168E+01	2.350E+01	6.639E+00	0.233	0.336
28	160.58	-7.42	-8.25	7.464E+01	1.130E+01	2.088E+00	2.554E+01		0.530
29	160.58	-10.50	-10.24	0.000E+00	2.425E+01	1.628E+01	1.623E+00	0.164	0.354
29	162.11	-8.25	-9.18	4.533E+01	9.172E+00	1.064E+00	1.318E+01		0.560
30	162.11	-10.24	-10.21	0.000E+00	1.034E+01	-4.810E-11	0.000E+00	0.000	0.500
30	163.65	-9.18	-10.21	1.271E+01	4.342E+00	-1.169E-09	1.617E+00		0.667

BEAST Output Program Version = 30 Apr 2015 Time = 07 MAR 2019 17:32:24

SURFACE NO:548 TYPE: CIRCLE SAFETY-FACTOR: 1.748 SCORE: 0.000
BELOW SKETCH SHOWS SHEAR SURFACE WITH SLICE DIVISIONS AND MATERIAL ID-S

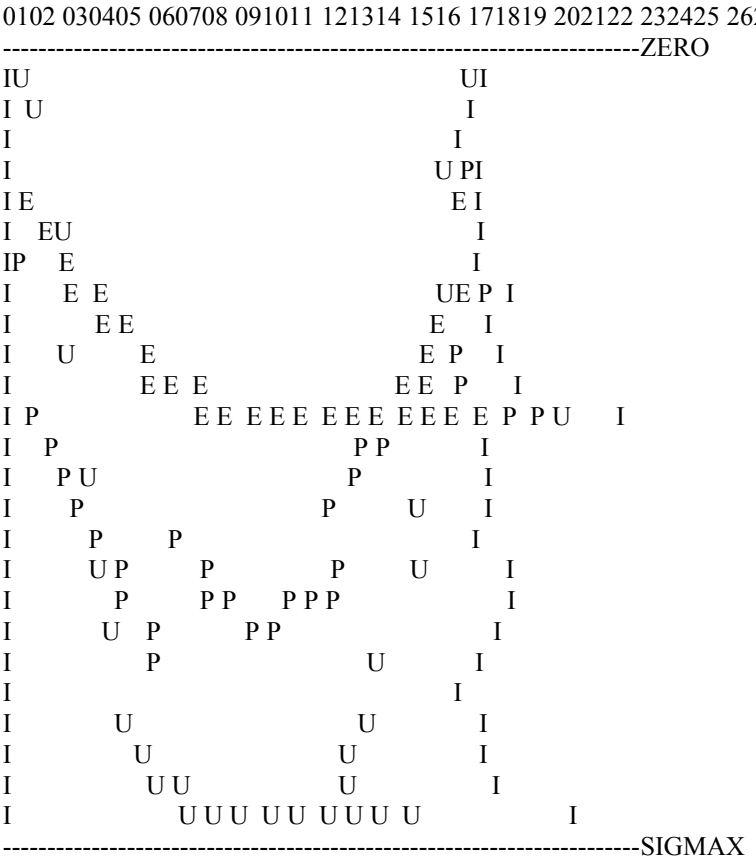
```
121 1 1 1  1 1 1  1 1 1  1
 22 2 2 2  2 2 2  2 2 2  2 1 1  1 1 1  1 1 1  1 1 1
   333 3  3 3 3  3 2 2  2 2 2  2 2 2  2 2 2  2 2 2  2 1 1  1 1 1  1 1
    333  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 2 2  2 2 2  2 2 2  22
     33 3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3 3
       333 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3333
         333 3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 333 33
            3333  3 3 3  3 3 3  3 3 3  3 3 3 3333
              3 333333 33333 333333 333333
0102 030405 060708 091011 121314 1516 171819 202122 232425 262728 2930
```

MAT	GAMTOT	SUA/SU0	SUD/SU0	SUP/SU0	COHESN	PHIANG	PHIRED	RU-FCT	B-FCT	K-NOT	B-SIG2	D/SU(B)
1	18.000	1.000	1.000	1.000	0.000	34.00	0.00	0.000	0.000	0.000	0.000	0.001
2	18.000	1.000	1.000	1.000	10.0%*C	30.00	0.00	0.000	0.000	0.000	0.000	0.001
3	17.000	1.000	1.000	1.000	10.0%*C	30.00	0.00	0.000	0.000	0.000	0.000	0.001

4 18.000 1.000 1.000 1.000 0.000 40.00 0.00 0.000 0.000 0.000 0.000 0.001

BEAST Output Program Version = 30 Apr 2015 Time = 07 MAR 2019 17:32:24

SURFACE NO:548 TYPE: CIRCLE SAFETY-FACTOR: 1.748 SCORE: 0.000
BELOW SKETCH SHOWS EFFECTIVE NORMAL STRESSES: P=SHEAR-SURFACE E=INTER-SLICE
U=RESULTING PWP AT SHEAR SURFACE



P-MIN = 1.034E+01 P-MAX = 6.464E+01
E-MIN = 1.396E+01 E-MAX = 3.856E+01
U-MIN = 0.000E+00 U-MAX = 8.280E+01

THIS RUN WAS TERMINATED : 07 MAR 2019 AT 17:32:24 HOURS

TIME USED = 1 SECONDS

GeoSuite Stability Report

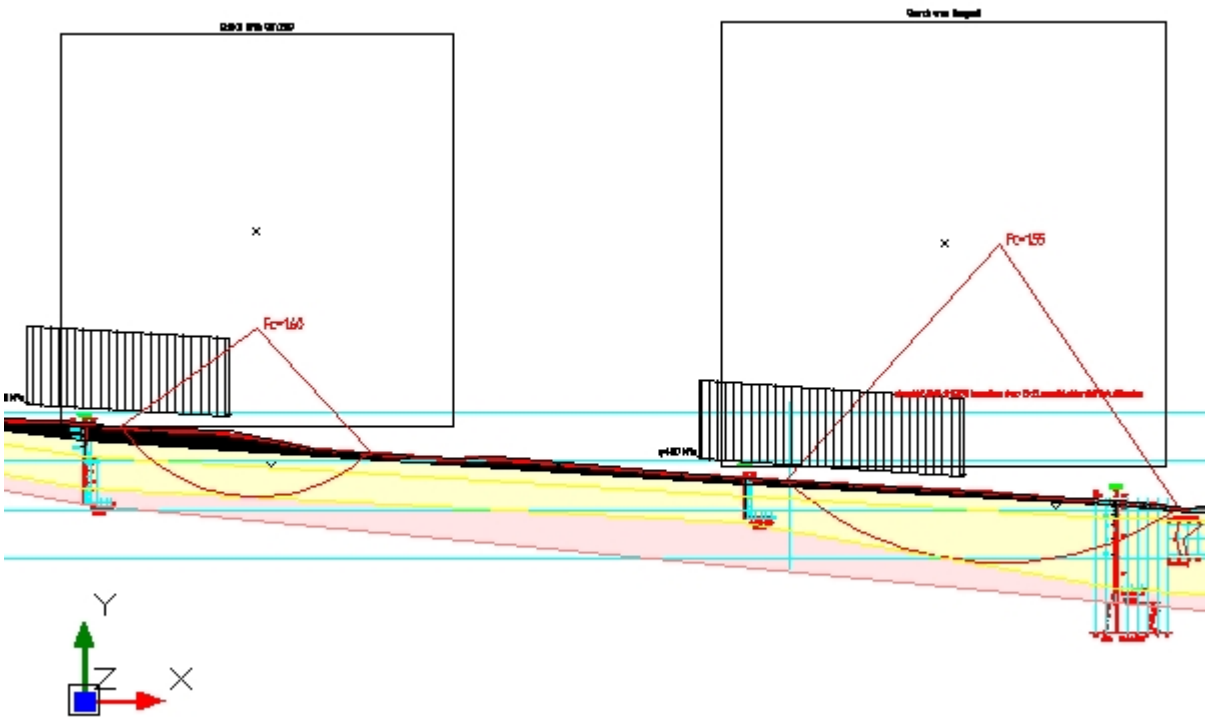
Calculation data

Project name:	Fasanvägen etapp 13
Project number:	18112896
Contractor:	
Comment:	

Calculation name:	BS4_40KPA
Description:	
File name:	g:\projekt\2018\18112896 fasanvägen etapp 13\15_geosuite\stabgraf.rit\bs4_40kpa.dwg
Critical Safety Factor:	1,60
Result Date:	2019-02-21 17:49
Result Text:	Fc=1,55

Horizontally density spacing:	3
Vertically density spacing:	15
Side friction:	0,00
Number of slices:	30
Correction of exit angle:	Yes

Graphic Model



Soil

Materials

Material	ρ [kN/m³]	Ø [°]	C' [kPa]	C [kPa]	Aa	Ad	Ap
Fy	18,00	34,0	0,0		1,00	1,00	1,00
Let	18,00			30,0	1,00	1,00	1,00
Le	17,00			CProf	1,00	1,00	1,00
Fr	18,00	40,0	0,0		1,00	1,00	1,00

Soil Parameter Variations

η-factors

Material	Param	Drained	γm	η(1,2)	η(3)	η(4,5,6,7)	η(8)	η
Fy	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00
Let	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Le	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Fr	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00

Scaling factors

Material	+ Factor	- Facktor
Fy	1,00	1,00
Let	1,00	1,00
Le	1,00	1,00
Fr	1,00	1,00

C Profiles

C-profile, X = 200,31 m

Z [m]	C [kPa]
8,00	20,30
4,50	10,50
2,78	10,50
-1,22	10,50

Loads

Distributed Loads

q1 [kPa]	q2 [kPa]	X1 [m]	X2 [m]
40,00	40,00	45,06	65,57
40,00	40,00	113,34	140,25

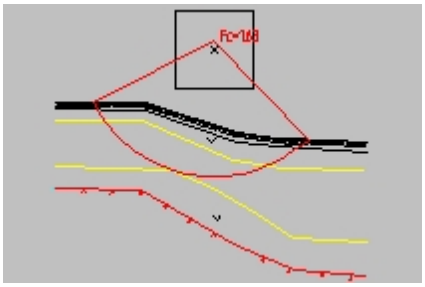
Model Data

Tangent Strategy Data

Centre point X:	68,42
Centre point Z:	38,33
Search area:	19,92
Upper Z-level:	14,37
Lower Z-level:	-0,25
Number of levels:	50

Search Criteria

Calculation method:	Beast 2003
Calculation Strategy:	Tangent
Slope type:	Right slope



Result file

Location: g:\projekt\2018\18112896 fasanvägen etapp 13\15_geosuite\stabgraf.rit\bs4_40kpa.RES

Created: 2019-02-21 17:48

Modified: 2019-02-21 17:49

```
#
      ECHO PRINT OF DATA ON FORTRAN UNIT NUMBER = 14

      000000000111111111122222222223333333333444444444455555555556666666666777777777 8
      123456789012345678901234567890123456789012345678901234567890123456789012345678 90

  1----
  2----
  3---- * Version : 4.0.0.0
  4----
  5----  ****************** CONTROL SECTION
  6----   1.0 1.0 CONFRC,CONLTH   CONVERTION FACTORS ON FORCES AND LENGTHS
  7----   1.0 1.0 FCTSUC,FCTTAN   MATERIAL FACTORS ON SU,C AND TAN(PHI)
  8----     1 IDTYP     SOLUTION TYPE (1=STAB/BEARING 2=EARTH PRESS)
  9----    31 ANALYSIS METHOD & TYPE, E.G. 31 = BEAST-2003 & EFF.STRESS
 10----     0 NUMGEN    NUMBER OF GENERAL SHEAR SURFACES
 11----    30 NUMSLC    NUMBER OF SLICES (ZERO OK FOR GENERAL SURFACES)
 12----   0.000 SIDSHR    SIDE SHEAR FACTOR (0.0=PLANE STRAIN , 2.0/LENGTH=MAX)
 13----  0.00 0.00 VALUES FOR H3-ASSMPTN (H3(X)=H31+(H32-H31)/XTOT*X)
 14----  0.50 0.50 0.00 VALUES FOR R-ASSMPTN  (R(X)=R1+(R2-R1)/XTOT*X+H(X)/HMAX*R3)
 15----     0 ITENSP    ALLOW P-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
 16----     0 ITENSE    ALLOW E-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
 17----     0 JPRINT    TRACE PRINT CODE (0=NON 1=LIM 2=TRACE 3=DETLD TRACE)
 18----     2 IPRTTP    FILE NF16 PRINT TYPE FOR SLICE OUTPUT (1=FORCES 2=STRESSES)
 19----     1 JPLOT     CODE FOR PLOT(S) ON NF16 (0=NO 1=YES 2=+PWP/SU0 3=+MESH)
 20----   0.000 CRTFRC    CONVERGENCE CRITERION , FORCES   (DEFAULT=SUM(FZ)/1.0E4)
 21----   2.000 CRTSCR    CONVERGENCE CRITERION , SOLUTION SCORE
 22----  1 0 0 0 0 0.0  0.0  0.0  0.0  0.0 First flag, exit angle, third adjust low circ
 23----
 24----  ****************** GEOMETRY SECTION
 25----    29 NUMXLN    NUMBER OF X-LINES WITH SURFACE, ROCK AND ELEMENT SPECS
 26----     1 NUMELZ    NUMBER OF ELEMENTS IN Z-DIRECTION
 27----     1 NUMLAY    NUMBER OF HORIZONTAL LAYERS
 28----    28 NUMTRI    NUMBER OF MATERIAL I.D. TRIANGLES
 29----    X-VALUE  Z-SURFACE  Z-ROCK  NUMBER OF X-ELEMENTS TO NEXT X-LINE
 30----     -99.78      -25.30      74.70       1
 31----     0.22       -25.30      74.70       1
 32----     6.71       -23.45      75.13       1
 33----     18.90       -21.47      75.93       1
 34----     30.62       -20.66      76.70       1
 35----     37.70       -19.50      77.17       1
 36----     51.51       -18.92      78.07       1
 37----     53.49       -18.57      78.20       1
 38----     65.56       -17.99      79.00       1
 39----     74.84       -16.14      79.61       1
 40----     89.00       -15.32      80.54       1
 41----     92.71       -15.44      80.78       1
 42----     118.06       -13.29       82.45       1
 43----     155.78       -10.92       84.93       1
 44----     159.98       -10.60       85.21       1
 45----     163.05       -10.08       85.41       1
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  46----    164.97      -10.50      85.54       1
  47----    167.35      -10.36      85.69       1
  48----    170.75      -10.36      85.92       1
  49----    174.25      -10.04      86.15       1
  50----    190.15      -9.76       87.19       1
  51----    199.85      -9.38       87.83       1
  52----    203.77      -8.92       88.09       1
  53----    205.96      -8.87       88.23       1
  54----    211.28      -9.20       88.58       1
  55----    213.38      -8.96       88.72       1
  56----    231.48      -9.06       89.91       1
  57----    256.22      -8.46       91.54       1
  58----    356.22      -8.46       91.54       0
  59---- 00 00 00  0.0 0.0 NP1,NP2,NSTEP,ZN1,ZN2  NODE NEW Z , NP2=MAX TERMINATES
  60---- 00 00 00   0 NE1,NE2,NSTEP,MAT     ELEMENT MATRL , NE2=MAX TERMINATES
  61----   LAYER  Z-BOTTOM  MATERIAL-I.D.
  62----    1      91.54        1
  63----   TRIANGLE  MATERIAL   X1  Z1     X2  Z2     X3  Z3
  64----    1   4   128.22    101.54    -99.12    101.54    -99.12    -20.67
  65----    2   4   128.22    101.54    -99.12    -20.67     0.88     -20.67
  66----    3   4   128.22    101.54     0.88     -20.67     50.92    -12.14
  67----    4   4   128.22    101.54     50.92    -12.14     117.67    -8.81
  68----    5   4   128.22    101.54     117.67    -8.81     155.83    -1.98
  69----    6   4   128.22    101.54     155.83    -1.98     204.24     1.71
  70----    7   4   128.22    101.54     204.24     1.71      255.78    1.71
  71----    8   4   128.22    101.54     355.78     1.71      255.78    1.71
  72----    9   4   128.22    101.54     355.78     1.71      355.78    101.54
  73----    10   3   128.22    101.54     -98.79    101.54     -98.79    -22.63
  74----    11   3   128.22    101.54     -98.79    -22.63     1.21      -22.63
  75----    12   3   128.22    101.54     1.21      -22.63     51.01     -15.35
  76----    13   3   128.22    101.54     51.01     -15.35     155.77    -9.06
  77----    14   3   128.22    101.54     155.77    -9.06      204.10    -7.81
  78----    15   3   128.22    101.54     204.10    -7.81      255.65    -7.48
  79----    16   3   128.22    101.54     355.65    -7.48      255.65    -7.48
  80----    17   3   128.22    101.54     355.65    -7.48      355.65    101.54
  81----    18   2   128.22    101.54     -98.58    101.54     -98.58    -23.01
  82----    19   2   128.22    101.54     -98.58    -23.01     1.42      -23.01
  83----    20   2   128.22    101.54     1.42      -23.01     50.87     -17.11
  84----    21   2   128.22    101.54     50.87     -17.11     118.23    -12.68
  85----    22   2   128.22    101.54     118.23    -12.68     155.84    -10.46
  86----    23   2   128.22    101.54     155.84    -10.46     163.16    -9.79
  87----    24   2   128.22    101.54     163.16    -9.79      204.14    -8.44
  88----    25   2   128.22    101.54     204.14    -8.44      214.13    -8.22
  89----    26   2   128.22    101.54     214.13    -8.22      255.45    -8.17
  90----    27   2   128.22    101.54     355.45    -8.17      255.45    -8.17
  91----    28   2   128.22    101.54     355.45    -8.17      355.45    101.54
  92----   0 0 0 XWALL,HWALL,RWALL   WALL SPECIFICATIONS
(LOCATION,HEIGHT,ROUGHNESS)
  93----
  94---- ********** MATERIAL PROPERTIES SECTION
  95----    4   3   15 NUMMAT    NUMBER OF DIFFERENT MATERIALS (NDX, NDZ DENSITY GRID S
  96----    1 NUMXSU    NUMBER OF VERTICAL X-LINES WITH GIVEN SU-VALUES
  97----    0 NODSU     NUMBER OF MESH NODAL POINTS WITH GIVEN SU-VALUES
  98----   0.00 CRACKZ    SURFACE OPEN CRACK DEPTH
  99----   0.00 CRACKW    WATER DEPTH IN OPEN SURFACE CRACK
 100----   0.0 PHIREF    FRICTION ANGLE REFERENCE PRESSURE
 101----   EFFECTIVE STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO
OK)
 102----   MAT  GAMTOT  COHSN  PHIANG  PHIRED  PWPMAT  RU-MAT  B-FACT K-NOT B-SIG2
D-FCT
```

```
 103----  1   18.00    0.00   34.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 104----  2   18.00    0.00    0.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 105----  3   17.00    0.00    0.00  0   0.00   0.00  0  0  0  0.001  -0.00 17.00
 106----  4   18.00    0.00   40.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 107----  TOTAL STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO OK)
 108----  MAT  GAMTOT  SUA/SU0 SUD/SU0 SUP/SU0  SU0-MAT  (A:ACTIVE D:DIRECT
P:PASSIVE)C-
 109----  1   18.00    1.00    1.00    1.00    0.00   1
 110----  2   18.00    1.00    1.00    1.00   30.00   0
 111----  3   17.00    1.00    1.00    1.00    0.00   1
 112----  4   18.00    1.00    1.00    1.00    0.00   1
 113----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : SU0-VALUES
 114----  1     200.31  4     -8.00    -4.50    -2.78     1.22
 115----                     20.30     10.50     10.50     10.50
 116----  NODE   SU0   (IF ALL NODES, SKIP NODE NUMBERS : SU0(1),SU0(2),...)
 117----
 118----  ****************** PORE-WATER-PRESSURES SECTION
 119----     1 IDPWP     PWP INDICATOR (1=HYDROSTATIC  2=NON-HYDROSTATIC)
 120----     0 NUMBER OF VERTICAL X-LINES WITH GIVEN PWP WITH DEPTH
 121----     0 NODPWP    NUMBER OF MESH NODAL POINTS WITH GIVEN PWP
 122----    0.0 FCTNOD    FACTOR ON PWP-VALUES GIVEN AT NODAL POINTS
 123----    101.540 WATERZ    HORIZONTAL WATER TABLE Z-LEVEL
 124----    10.0 GAMWAT    FREE WATER UNIT WEIGHT
 125----    10.0 GAMPWP    PORE WATER UNIT WEIGHT (=GAMWAT IF HYDROSTATIC)
 126----     0.00 PWPMIN    MINIMUM ALLOWABLE PWP (CAPILLARY TENSION)
 127----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : PWP-VALUES
 128----   NODE  PWP-VALUE  (IF ALL NODES , SKIP NODE NUMBERS : PWP(1),PWP(2),...)
 129----
 130----  ****************** LOAD SECTION
 131----     0 NUMPNT            NUMBER OF POINT LOADS & 100*SOIL NAILS
 132----     2 NUMSIG            NUMBER OF SURFACE DISTRIBUTED LOADS
 133----    0.0 SIGTOP           UNIFORM INITIAL VERTICAL STRESS AT SURFACE
 134---- -100 100 XTOP1,XTOP2        STRESS 'SIGTOP' ACTS FROM XTOP1 TO XTOP2
 135----    10.0000   5.0000 FCTPNT,FCTSIG      POINT AND DISTRIBUTED LOAD FACTORS
 136----   0.00 1.00 ACCXRT,ACCZRT       ACCELERATION RATIOS IN X- AND Z-DIRECTIONS
 137----    POINT   X-COORD   Z-COORD   X-FORCE   Z-FORCE
 138----   STRIP     X1       X2       SIGZ1     SIGZ2     TAUX1     TAUX2
 139----     1  45.06     65.57      8.00    8.00     0.00    0.00
 140----     2  113.34    140.25     8.00    8.00     0.00    0.00
 141----
 142----  ****************** GIVEN SHEAR SURFACE
 143---- END

      000000000111111111122222222223333333333444444444455555555556666666666777777777 8
      123456789012345678901234567890123456789012345678901234567890123456789012345678 90


 BEAST  Output   Program Version = 30 Apr 2015    Time = 21 FEB 2019  17:49:39



 ================================================== SAFETY FACTOR =    1.599
 SURFACE NO : 191     SUMMARY OF GEOMETRY AND STRESSES
 ================================================== SOLUTION SCORE=    0.011

 SURFACE TYPE = CIRCLE        X-CENTER  Z-CENTER   RADIUS
                     68.420   -28.370    16.980

 SOLUTION METHOD = BEAST-2003 / EFFECTIVE STRESS ANALYSIS
```

SLICE	X1	Z1	Z2	WXT-FRC	P-STR	E2-STR	U2-STR	ROUGH	H2/Z23	
	X2	Z4	Z3	WZT-FRC	S-STR	T2-STR	U3-STR		H3/L34	
1	54.59	-18.52	-18.48	0.000E+00	3.015E+01	2.105E+01	0.000E+00	0.260	0.444	
1	55.44	-18.52	-17.43	4.165E+01	1.272E+01	2.310E+00	0.000E+00		0.468	
2	55.44	-18.48	-18.44	0.000E+00	4.286E+01	2.400E+01	0.000E+00	0.243	0.425	
2	56.28	-17.43	-16.50	5.637E+01	1.822E+01	2.981E+00	0.000E+00		0.480	
3	56.28	-18.44	-18.40	0.000E+00	5.999E+01	2.923E+01	0.000E+00	0.238	0.385	
3	57.12	-16.50	-15.69	6.890E+01	1.877E+01	3.325E+00	0.000E+00		0.486	
4	57.12	-18.40	-18.35	0.000E+00	7.475E+01	3.443E+01	0.000E+00*******	0.363	WARNINGS: 1	
4	57.97	-15.69	-14.99	7.975E+01	1.877E+01	3.705E+00	0.000E+00		0.489	
5	57.97	-18.35	-18.31	0.000E+00	9.137E+01	4.070E+01	0.000E+00*******	0.339	WARNINGS: 1	
5	58.81	-14.99	-14.37	8.894E+01	1.391E+01	4.014E+00	0.000E+00		0.492	
6	58.81	-18.31	-18.27	0.000E+00	1.029E+02	4.626E+01	0.000E+00	0.243	0.327	
6	59.65	-14.37	-13.83	9.669E+01	1.270E+01	4.239E+00	0.000E+00		0.494	
7	59.65	-18.27	-18.23	0.000E+00	1.121E+02	5.090E+01	0.000E+00	0.247	0.322	
7	60.50	-13.83	-13.35	1.034E+02	1.270E+01	4.432E+00	0.000E+00		0.495	
8	60.50	-18.23	-18.19	0.000E+00	1.203E+02	5.472E+01	0.000E+00	0.251	0.319	
8	61.34	-13.35	-12.94	1.092E+02	1.270E+01	4.595E+00	0.000E+00		0.496	
9	61.34	-18.19	-18.15	0.000E+00	1.275E+02	5.790E+01	0.000E+00	0.253	0.317	
9	62.18	-12.94	-12.58	1.142E+02	1.270E+01	4.728E+00	0.000E+00		0.497	
10	62.18	-18.15	-18.11	0.000E+00	1.336E+02	6.045E+01	0.000E+00	0.255	0.316	
10	63.02	-12.58	-12.27	1.184E+02	1.270E+01	4.832E+00	0.000E+00		0.497	
11	63.02	-18.11	-18.07	0.000E+00	1.390E+02	6.245E+01	0.000E+00	0.256	0.315	
11	63.87	-12.27	-12.01	1.220E+02	1.270E+01	4.907E+00	0.000E+00		0.498	
12	63.87	-18.07	-18.03	0.000E+00	1.435E+02	6.388E+01	0.000E+00	0.257	0.314	
12	64.71	-12.01	-11.80	1.248E+02	1.270E+01	4.952E+00	0.000E+00		0.498	
13	64.71	-18.03	-17.99	0.000E+00	1.469E+02	6.479E+01	0.000E+00	0.256	0.313	
13	65.55	-11.80	-11.63	1.267E+02	1.270E+01	4.967E+00	0.000E+00		0.499	
14	65.55	-17.99	-17.82	0.000E+00	1.100E+02	6.568E+01	0.000E+00	0.257	0.322	
14	66.40	-11.63	-11.51	9.427E+01	1.270E+01	5.001E+00	0.000E+00		0.504	
15	66.40	-17.82	-17.66	0.000E+00	1.090E+02	6.631E+01	0.000E+00	0.257	0.331	
15	67.24	-11.51	-11.43	9.263E+01	1.270E+01	5.015E+00	0.000E+00		0.501	
16	67.24	-17.66	-17.49	0.000E+00	1.082E+02	6.662E+01	0.000E+00	0.256	0.339	
16	68.08	-11.43	-11.40	9.102E+01	1.270E+01	5.014E+00	0.000E+00		0.502	
17	68.08	-17.49	-17.32	0.000E+00	1.065E+02	6.668E+01	0.000E+00	0.255	0.348	
17	68.93	-11.40	-11.40	8.877E+01	1.270E+01	4.994E+00	0.000E+00		0.502	
18	68.93	-17.32	-17.15	0.000E+00	1.041E+02	6.646E+01	0.000E+00	0.253	0.356	
18	69.77	-11.40	-11.45	8.592E+01	1.270E+01	4.958E+00	0.000E+00		0.503	
19	69.77	-17.15	-16.98	0.000E+00	1.010E+02	6.599E+01	0.000E+00	0.251	0.364	
19	70.61	-11.45	-11.53	8.244E+01	1.270E+01	4.905E+00	0.000E+00		0.504	

20	70.61	-16.98	-16.81	0.000E+00	9.704E+01	6.528E+01	0.000E+00	0.249	0.374
20	71.45	-11.53	-11.66	7.833E+01	1.270E+01	4.837E+00	0.000E+00		0.505
21	71.45	-16.81	-16.65	0.000E+00	9.238E+01	6.434E+01	0.000E+00	0.246	0.383
21	72.30	-11.66	-11.84	7.358E+01	1.270E+01	4.755E+00	0.000E+00		0.506
22	72.30	-16.65	-16.48	0.000E+00	8.684E+01	6.325E+01	0.000E+00	0.242	0.394
22	73.14	-11.84	-12.06	6.817E+01	1.270E+01	4.661E+00	0.000E+00		0.507
23	73.14	-16.48	-16.31	0.000E+00	8.078E+01	6.204E+01	0.000E+00	0.239	0.407
23	73.98	-12.06	-12.33	6.223E+01	1.270E+01	4.560E+00	0.000E+00		0.509
24	73.98	-16.31	-16.14	0.000E+00	7.360E+01	6.091E+01	0.000E+00	0.235	0.420
24	74.83	-12.33	-12.65	5.547E+01	1.270E+01	4.457E+00	0.000E+00		0.511
25	74.83	-16.14	-16.09	0.000E+00	6.663E+01	5.774E+01	0.000E+00	0.229	0.419
25	75.67	-12.65	-13.02	4.897E+01	1.270E+01	4.267E+00	0.000E+00		0.511
26	75.67	-16.09	-16.04	0.000E+00	5.987E+01	5.436E+01	0.000E+00	0.222	0.411
26	76.51	-13.02	-13.44	4.250E+01	1.270E+01	4.064E+00	0.000E+00		0.514
27	76.51	-16.04	-15.99	0.000E+00	5.314E+01	4.975E+01	0.000E+00	0.210	0.395
27	77.36	-13.44	-13.93	3.522E+01	1.513E+01	4.057E+00	0.000E+00		0.519
28	77.36	-15.99	-15.95	0.000E+00	4.759E+01	4.136E+01	0.000E+00	0.202	0.378
28	78.20	-13.93	-14.49	2.667E+01	1.877E+01	3.717E+00	0.000E+00		0.529
29	78.20	-15.95	-15.90	0.000E+00	3.767E+01	2.649E+01	0.000E+00	0.240	0.359
29	79.04	-14.49	-15.13	1.688E+01	1.877E+01	3.142E+00	0.000E+00		0.551
30	79.04	-15.90	-15.84	0.000E+00	1.598E+01	2.744E-10	0.000E+00	0.000	0.500
30	80.03	-15.13	-15.84	6.882E+00	9.148E+00	5.218E-10	0.000E+00		0.666

BEAST Output Program Version = 30 Apr 2015 Time = 21 FEB 2019 17:49:39

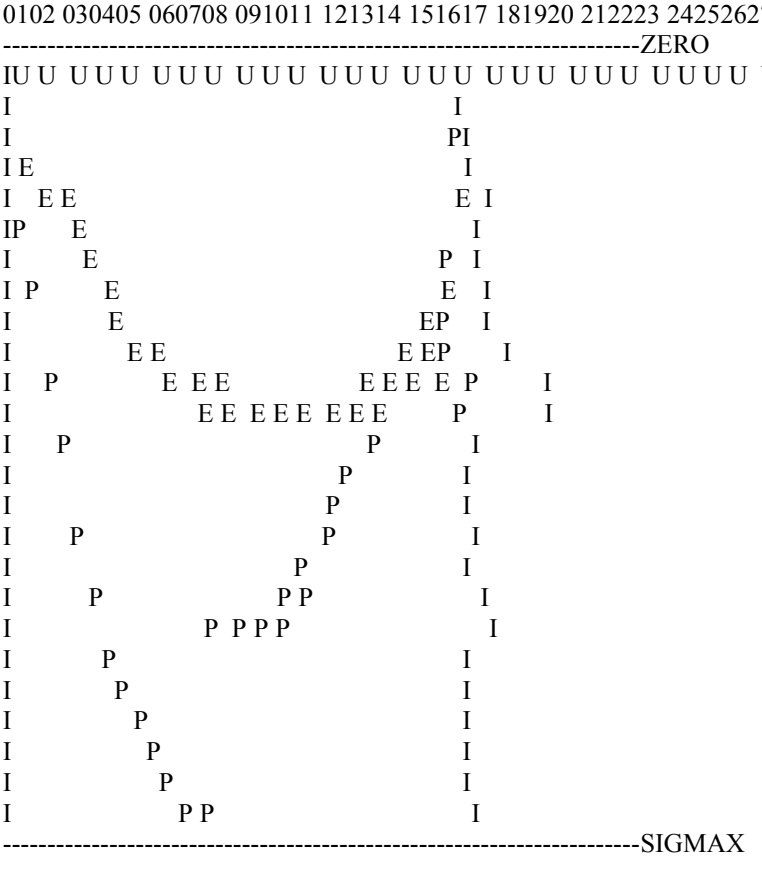
SURFACE NO:191 TYPE: CIRCLE SAFETY-FACTOR: 1.599 SCORE: 0.011
BELOW SKETCH SHOWS SHEAR SURFACE WITH SLICE DIVISIONS AND MATERIAL ID-S

```
111  1 1 1  1 1 1  1 1 1  1 1 1
 1  1 1 1  1 1 1  1 1 1  1 1 1 1  1 1 1
  1 1 1 1  1 1 1  1 1 1  1 1 1 1  1 1 1  1 1 1  1
   222 2  2 2 2  2 2 2  2 1 1 1  1 1 1  1 1 1  1 1 1  1 1 1  1 1
    222  2 2 2  2 2 2  2 2 2 2  2 2 2  2 2 2  2 2 1  1 1 1  1 1 1 11
     23 2 2 2  2 2 2  2 2 2 2  2 2 2  2 2 2  2 2 2  2 2 2  2 222
       333 3  3 3 3  3 3 3 3  3 3 2  2 2 2  2 2 2  2 2 2  222
        333  3 3 3  3 3 3 3  3 3 3  3 3 3  3 3 3  3 3 33 2
          3 333 3  3 3 3 3  3 3 3  3 3 3  3 3 3  3333
            3333 3 3 3 3  3 3 3  3 3 3  3 333 33
               3333333 333333 333333 333
0102 030405 060708 091011 121314 151617 181920 212223 24252627 2829 30
```

MAT	GAMTOT	SUA/SU0	SUD/SU0	SUP/SU0	COHESN	PHIANG	PHIRED	RU-FCT	B-FCT	K-NOT	B-SIG2	D/SU(B)
1	18.000	1.000	1.000	1.000	0.000	34.00	0.00	0.000	0.000	0.000	0.000	0.001
2	18.000	1.000	1.000	1.000	0.000	0.00	0.00	0.000	0.000	0.000	0.000	0.001
3	17.000	1.000	1.000	1.000	0.000	0.00	0.00	0.000	0.000	0.000	0.000	0.001
4	18.000	1.000	1.000	1.000	0.000	40.00	0.00	0.000	0.000	0.000	0.000	0.001

BEAST Output Program Version = 30 Apr 2015 Time = 21 FEB 2019 17:49:39

SURFACE NO:191 TYPE: CIRCLE SAFETY-FACTOR: 1.599 SCORE: 0.011
BELOW SKETCH SHOWS EFFECTIVE NORMAL STRESSES: P=SHEAR-SURFACE E=INTER-SLICE
U=RESULTING PWP AT SHEAR SURFACE



P-MIN = 1.598E+01 P-MAX = 1.469E+02
E-MIN = 2.105E+01 E-MAX = 6.668E+01
U-MIN = 0.000E+00 U-MAX = 0.000E+00

THIS RUN WAS TERMINATED : 21 FEB 2019 AT 17:49:40 HOURS

TIME USED = 1 SECONDS

GeoSuite Stability Report

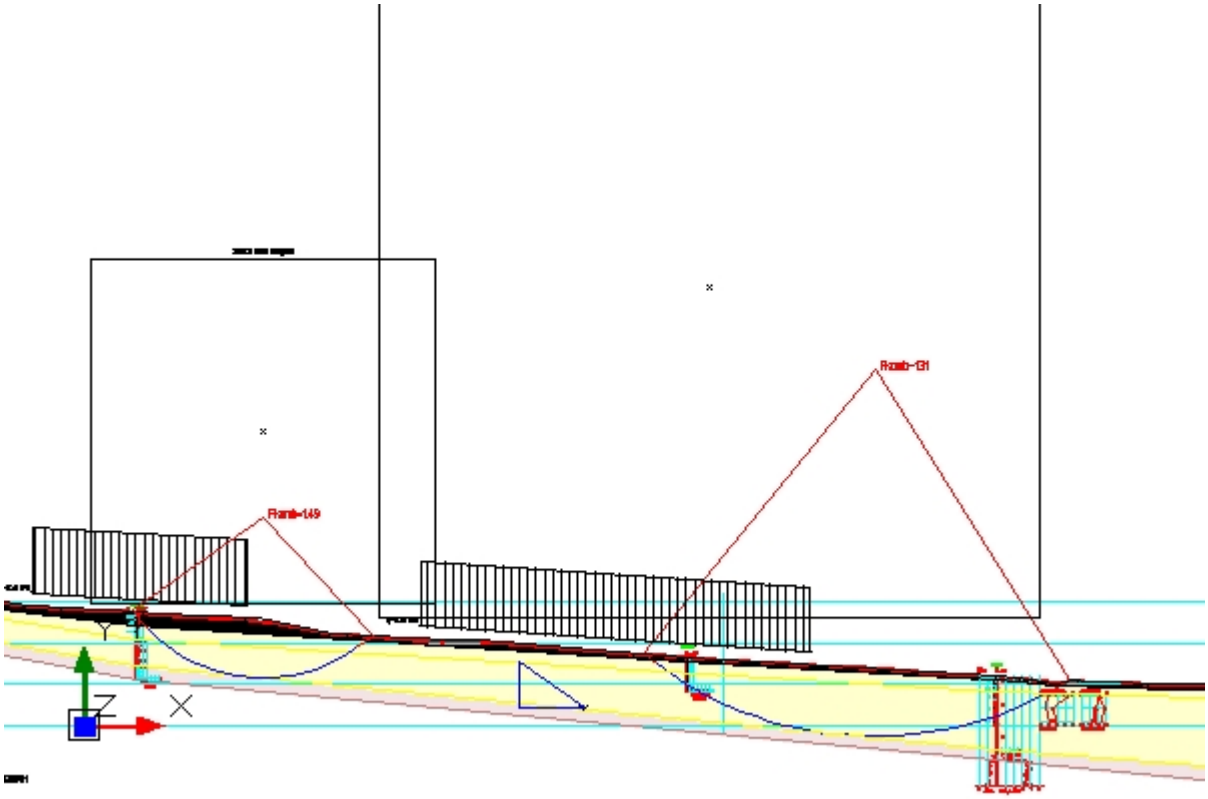
Calculation data

Project name:	Fasanvägen etapp 13
Project number:	18112896
Contractor:	
Comment:	

Calculation name:	BS4_40KPA_KOMB
Description:	
File name:	G:\Projekt\2018\18112896 Fasanvägen etapp 13\15_Geosuite\STABGRAF.RIT\BS4_40kPa_KOMB.dwg
Critical Safety Factor:	1,49
Result Date:	2019-03-07 17:24
Result Text:	Fcomb=1,31

Horizontally density spacing:	3
Vertically density spacing:	15
Side friction:	0,00
Number of slices:	30
Correction of exit angle:	Yes

Graphic Model



Soil

Materials (combined analysis)

Material	ρ [kN/m³]	Ø [°]	C' [kPa]	C [kPa]	Aa	Ad	Ap
Fy	18,00	34,0	0,0	100,0	1,00	1,00	1,00
Let	18,00	30,0	10 %	30,0	1,00	1,00	1,00
Le	17,00	30,0	10 %	CProf	1,00	1,00	1,00
Fr	18,00	40,0	0,0	100,0	1,00	1,00	1,00

Soil Parameter Variations

η-factors

Material	Param	Drained	γm	η(1,2)	η(3)	η(4,5,6,7)	η(8)	η
Fy	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00
Let	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Le	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Fr	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00

Scaling factors

Material	+ Factor	- Facktor
Fy	1,00	1,00
Let	1,00	1,00
Le	1,00	1,00
Fr	1,00	1,00

C Profiles

C-profile, X = 200,31 m

Z [m]	C [kPa]
8,00	20,30
4,50	10,50
2,78	10,50
-1,22	10,50

Pore Profiles

Pore-profile, X = 97,55 m

Z [m]	Pore P [kPa]
12,60	0,01
7,00	80,00

Pore-profile, X = 204,04 m

Z [m]	Pore P [kPa]
7,80	0,01
-2,06	120,00

Loads

Distributed Loads

q1 [kPa]	q2 [kPa]	X1 [m]	X2 [m]
40,00	40,00	38,28	64,31

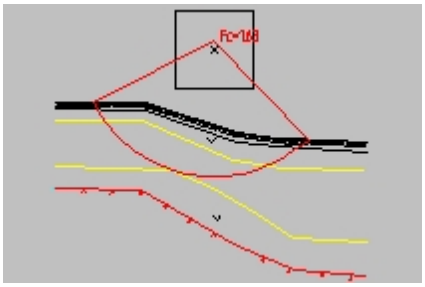
Model Data

Tangent Strategy Data

Centre point X:	66,33
Centre point Z:	40,79
Search area:	21,07
Upper Z-level:	15,54
Lower Z-level:	6,86
Number of levels:	50

Search Criteria

Calculation method:	Beast 2003
Calculation Strategy:	Tangent
Slope type:	Right slope



Result file

Location: G:\Projekt\2018\18112896 Fasanvägen etapp 13\15_Geosuite\STABGRAF.RIT\BS4_40kPa_KOMB.RES

Created: 2019-03-07 17:24

Modified: 2019-03-07 17:24

```
#
      ECHO PRINT OF DATA ON FORTRAN UNIT NUMBER = 14

      000000000111111111122222222223333333333444444444455555555556666666666777777777 8
      123456789012345678901234567890123456789012345678901234567890123456789012345678 90

 1----
 2----
 3---- * Version : 4.0.0.0
 4----
 5----  ****************** CONTROL SECTION
 6----   1.0 1.0 CONFRC,CONLTH   CONVERTION FACTORS ON FORCES AND LENGTHS
 7----   1.0 1.0 FCTSUC,FCTTAN   MATERIAL FACTORS ON SU,C AND TAN(PHI)
 8----    1 IDTYP     SOLUTION TYPE (1=STAB/BEARING 2=EARTH PRESS)
 9----    33 ANALYSIS METHOD & TYPE, E.G. 31 = BEAST-2003 & EFF.STRESS
10----    0 NUMGEN    NUMBER OF GENERAL SHEAR SURFACES
11----    30 NUMSLC    NUMBER OF SLICES (ZERO OK FOR GENERAL SURFACES)
12----   0.000 SIDSHR    SIDE SHEAR FACTOR (0.0=PLANE STRAIN , 2.0/LENGTH=MAX)
13----  0.00 0.00 VALUES FOR H3-ASSMPTN (H3(X)=H31+(H32-H31)/XTOT*X)
14----  0.50 0.50 0.00 VALUES FOR R-ASSMPTN  (R(X)=R1+(R2-R1)/XTOT*X+H(X)/HMAX*R3)
15----    0 ITENSP    ALLOW P-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
16----    0 ITENSE    ALLOW E-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
17----    0 JPRINT    TRACE PRINT CODE (0=NON 1=LIM 2=TRACE 3=DETLD TRACE)
18----    2 IPRTTP    FILE NF16 PRINT TYPE FOR SLICE OUTPUT (1=FORCES 2=STRESSES)
19----    1 JPLOT     CODE FOR PLOT(S) ON NF16 (0=NO 1=YES 2=+PWP/SU0 3=+MESH)
20----   0.000 CRTFRC    CONVERGENCE CRITERION , FORCES   (DEFAULT=SUM(FZ)/1.0E4)
21----   2.000 CRTSCR    CONVERGENCE CRITERION , SOLUTION SCORE
22----  1 0 0 0 0 0.0  0.0  0.0  0.0  0.0 First flag, exit angle, third adjust low circ
23----
24----  ****************** GEOMETRY SECTION
25----    29 NUMXLN    NUMBER OF X-LINES WITH SURFACE, ROCK AND ELEMENT SPECS
26----    1 NUMELZ    NUMBER OF ELEMENTS IN Z-DIRECTION
27----    1 NUMLAY    NUMBER OF HORIZONTAL LAYERS
28----    27 NUMTRI    NUMBER OF MATERIAL I.D. TRIANGLES
29----    X-VALUE  Z-SURFACE  Z-ROCK  NUMBER OF X-ELEMENTS TO NEXT X-LINE
30----    -99.78      -25.30      74.70       1
31----    0.22        -25.30      74.70       1
32----    6.71        -23.45      75.13       1
33----    18.90       -21.47      75.93       1
34----    30.62       -20.66      76.70       1
35----    37.70       -19.50      77.17       1
36----    51.51       -18.92      78.07       1
37----    53.49       -18.57      78.20       1
38----    65.56       -17.99      79.00       1
39----    74.84       -16.14      79.61       1
40----    89.00       -15.32      80.54       1
41----    92.71       -15.44      80.78       1
42----    118.06      -13.29      82.45       1
43----    155.78      -10.92      84.93       1
44----    159.98      -10.60      85.21       1
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  45----    163.05      -10.08      85.41       1
  46----    164.97      -10.50      85.54       1
  47----    167.35      -10.36      85.69       1
  48----    170.75      -10.36      85.92       1
  49----    174.25      -10.04      86.15       1
  50----    190.15      -9.76       87.19       1
  51----    199.85      -9.38       87.83       1
  52----    203.77      -8.92       88.09       1
  53----    205.96      -8.87       88.23       1
  54----    211.28      -9.20       88.58       1
  55----    213.38      -8.96       88.72       1
  56----    231.48      -9.06       89.91       1
  57----    256.22      -8.46       91.54       1
  58----    356.22      -8.46       91.54       0
  59----  00 00 00  0.0 0.0 NP1,NP2,NSTEP,ZN1,ZN2  NODE NEW Z , NP2=MAX TERMINATES
  60----  00 00 00   0 NE1,NE2,NSTEP,MAT     ELEMENT MATRL , NE2=MAX TERMINATES
  61----   LAYER  Z-BOTTOM  MATERIAL-I.D.
  62----    1      91.54        1
  63----   TRIANGLE  MATERIAL   X1  Z1     X2  Z2     X3  Z3
  64----    1   4   128.22    101.54    -99.12    101.54    -99.12    -20.67
  65----    2   4   128.22    101.54    -99.12    -20.67    0.88      -20.67
  66----    3   4   128.22    101.54    0.88      -20.67    50.92     -12.14
  67----    4   4   128.22    101.54    50.92     -12.14    155.83    -1.98
  68----    5   4   128.22    101.54    155.83    -1.98     204.24    1.71
  69----    6   4   128.22    101.54    204.24    1.71      255.78    1.71
  70----    7   4   128.22    101.54    355.78    1.71      255.78    1.71
  71----    8   4   128.22    101.54    355.78    1.71      355.78    101.54
  72----    9   3   128.22    101.54    -98.79    101.54    -98.79    -22.63
  73----    10   3   128.22    101.54    -98.79    -22.63    1.21      -22.63
  74----    11   3   128.22    101.54    1.21      -22.63    51.01     -15.35
  75----    12   3   128.22    101.54    51.01     -15.35    155.77    -9.06
  76----    13   3   128.22    101.54    155.77    -9.06     204.10    -7.81
  77----    14   3   128.22    101.54    204.10    -7.81     255.65    -7.48
  78----    15   3   128.22    101.54    355.65    -7.48     255.65    -7.48
  79----    16   3   128.22    101.54    355.65    -7.48     355.65    101.54
  80----    17   2   128.22    101.54    -98.58    101.54    -98.58    -23.01
  81----    18   2   128.22    101.54    -98.58    -23.01    1.42      -23.01
  82----    19   2   128.22    101.54    1.42      -23.01    50.87     -17.11
  83----    20   2   128.22    101.54    50.87     -17.11    118.23    -12.68
  84----    21   2   128.22    101.54    118.23    -12.68    155.84    -10.46
  85----    22   2   128.22    101.54    155.84    -10.46    163.16    -9.79
  86----    23   2   128.22    101.54    163.16    -9.79     204.14    -8.44
  87----    24   2   128.22    101.54    204.14    -8.44     214.13    -8.22
  88----    25   2   128.22    101.54    214.13    -8.22     255.45    -8.17
  89----    26   2   128.22    101.54    355.45    -8.17     255.45    -8.17
  90----    27   2   128.22    101.54    355.45    -8.17     355.45    101.54
  91----   0 0 0 XWALL,HWALL,RWALL   WALL SPECIFICATIONS
(LOCATION,HEIGHT,ROUGHNESS)
  92----
  93----  ****************** MATERIAL PROPERTIES SECTION
  94----    4   3   15 NUMMAT    NUMBER OF DIFFERENT MATERIALS (NDX, NDZ DENSITY GRID S
  95----    1 NUMXSU    NUMBER OF VERTICAL X-LINES WITH GIVEN SU-VALUES
  96----    0 NODSU     NUMBER OF MESH NODAL POINTS WITH GIVEN SU-VALUES
  97----   0.00 CRACKZ    SURFACE OPEN CRACK DEPTH
  98----   0.00 CRACKW    WATER DEPTH IN OPEN SURFACE CRACK
  99----   0.0 PHIREF    FRICTION ANGLE REFERENCE PRESSURE
 100----   EFFECTIVE STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO
OK)
 101----   MAT  GAMTOT  COHSN  PHIANG  PHIRED  PWPMAT  RU-MAT  B-FACT K-NOT B-SIG2
D-FCT
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 102----  1   18.00    0.00   34.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 103----  2   18.00   -10.00   30.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 104----  3   17.00   -10.00   30.00  0   0.00   0.00  0  0  0  0.001  -0.00 17.00
 105----  4   18.00    0.00   40.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 106----  TOTAL STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO OK)
 107----  MAT  GAMTOT  SUA/SU0 SUD/SU0 SUP/SU0  SU0-MAT  (A:ACTIVE D:DIRECT
P:PASSIVE)C-
 108----  1   18.00    1.00    1.00    1.00   100.00   0
 109----  2   18.00    1.00    1.00    1.00   30.00   0
 110----  3   17.00    1.00    1.00    1.00    0.00   1
 111----  4   18.00    1.00    1.00    1.00   100.00   0
 112----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : SU0-VALUES
 113----  1      200.31  4     -8.00     -4.50     -2.78      1.22
 114----                      20.30     10.50     10.50     10.50
 115----  NODE   SU0   (IF ALL NODES, SKIP NODE NUMBERS : SU0(1),SU0(2),...)
 116----
 117----  ****************** PORE-WATER-PRESSURES SECTION
 118----    2 IDPWP     PWP INDICATOR (1=HYDROSTATIC  2=NON-HYDROSTATIC)
 119----    2 NUMBER OF VERTICAL X-LINES WITH GIVEN PWP WITH DEPTH
 120----    0 NODPWP    NUMBER OF MESH NODAL POINTS WITH GIVEN PWP
 121----   0.0 FCTNOD    FACTOR ON PWP-VALUES GIVEN AT NODAL POINTS
 122----   0.000 WATERZ    HORIZONTAL WATER TABLE Z-LEVEL
 123----   10.0 GAMWAT    FREE WATER UNIT WEIGHT
 124----   10.0 GAMPWP    PORE WATER UNIT WEIGHT (=GAMWAT IF HYDROSTATIC)
 125----    0.00 PWPMIN    MINIMUM ALLOWABLE PWP (CAPILLARY TENSION)
 126----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : PWP-VALUES
 127----  1      97.55  2     -12.60     -7.00
 128----                      0.00     80.00
 129----  2     204.04  2     -7.80      2.06
 130----                      0.00    120.00
 131----  NODE  PWP-VALUE  (IF ALL NODES , SKIP NODE NUMBERS : PWP(1),PWP(2),...)
 132----
 133----  ****************** LOAD SECTION
 134----    0 NUMPNT           NUMBER OF POINT LOADS & 100*SOIL NAILS
 135----    1 NUMSIG           NUMBER OF SURFACE DISTRIBUTED LOADS
 136----   0.0 SIGTOP           UNIFORM INITIAL VERTICAL STRESS AT SURFACE
 137---- -100 100 XTOP1,XTOP2        STRESS 'SIGTOP' ACTS FROM XTOP1 TO XTOP2
 138----   10.0000   5.0000 FCTPNT,FCTSIG      POINT AND DISTRIBUTED LOAD FACTORS
 139----  0.00 1.00 ACCXRT,ACCZRT       ACCELERATION RATIOS IN X- AND Z-DIRECTIONS
 140----   POINT   X-COORD   Z-COORD   X-FORCE   Z-FORCE
 141----  STRIP     X1      X2      SIGZ1     SIGZ2     TAUX1     TAUX2
 142----    1  38.28     64.31      8.00    8.00     0.00    0.00
 143----
 144----  ****************** GIVEN SHEAR SURFACE
 145---- END

      000000000111111111122222222233333333334444444445555555555666666666677777777778
      123456789012345678901234567890123456789012345678901234567890123456789012345678

 BEAST  Output   Program Version = 30 Apr 2015    Time = 07 MAR 2019  17:24:14

 ================================================== SAFETY FACTOR =    1.490
 SURFACE NO : 479    SUMMARY OF GEOMETRY AND STRESSES
 ================================================== SOLUTION SCORE=    0.000

 SURFACE TYPE = CIRCLE        X-CENTER  Z-CENTER   RADIUS
```

66.330 -30.250 19.490

SOLUTION METHOD = BEAST-2003 / SWEDISH COMBINED ANALYSIS

SLICE	X1	Z1	Z2	WXT-FRC	P-STR	E2-STR	U2-STR	ROUGH	H2/Z23	
	X2	Z4	Z3	WZT-FRC	S-STR	T2-STR	U3-STR		H3/L34	
1	50.44	-18.96	-18.92	0.000E+00	3.062E+01	2.057E+01	0.000E+00	0.201	0.445	
1	51.41	-18.96	-17.71	4.927E+01	1.386E+01	1.874E+00	0.000E+00		0.464	
2	51.41	-18.92	-18.77	0.000E+00	4.547E+01	2.552E+01	0.000E+00	0.201	0.449	
2	52.38	-17.71	-16.64	6.792E+01	1.994E+01	2.309E+00	0.000E+00		0.481	
3	52.38	-18.77	-18.60	0.000E+00	6.225E+01	3.209E+01	0.000E+00	0.201	0.424	
3	53.35	-16.64	-15.72	8.232E+01	2.013E+01	2.884E+00	0.000E+00		0.487	
4	53.35	-18.60	-18.53	0.000E+00	7.973E+01	3.864E+01	0.000E+00*******	0.388	WARNINGS: 1	
4	54.32	-15.72	-14.90	9.519E+01	1.753E+01	3.337E+00	0.000E+00		0.489	
5	54.32	-18.53	-18.48	0.000E+00	9.601E+01	4.546E+01	0.000E+00*******	0.361	WARNINGS: 1	
5	55.28	-14.90	-14.20	1.072E+02	1.362E+01	3.884E+00	0.000E+00		0.491	
6	55.28	-18.48	-18.44	0.000E+00	1.079E+02	5.119E+01	0.000E+00	0.200	0.348	
6	56.25	-14.20	-13.57	1.174E+02	1.362E+01	4.343E+00	0.000E+00		0.493	
7	56.25	-18.44	-18.39	0.000E+00	1.182E+02	5.605E+01	0.000E+00	0.200	0.340	
7	57.22	-13.57	-13.02	1.262E+02	1.362E+01	4.732E+00	0.000E+00		0.494	
8	57.22	-18.39	-18.34	-6.939E-18	1.275E+02	6.006E+01	3.895E-02	0.200	0.336	
8	58.19	-13.02	-12.55	1.339E+02	1.362E+01	5.053E+00	7.789E-02		0.495	
9	58.19	-18.34	-18.30	0.000E+00	1.321E+02	6.317E+01	3.352E-01	0.200	0.333	
9	59.16	-12.55	-12.13	1.405E+02	1.362E+01	5.302E+00	3.742E+00		0.496	
10	59.16	-18.30	-18.25	0.000E+00	1.337E+02	6.542E+01	8.382E-01	0.200	0.332	
10	60.12	-12.13	-11.78	1.460E+02	1.362E+01	5.482E+00	9.229E+00		0.497	
11	60.12	-18.25	-18.20	0.000E+00	1.353E+02	6.700E+01	1.441E+00	0.200	0.332	
11	61.09	-11.78	-11.48	1.507E+02	1.362E+01	5.607E+00	1.388E+01		0.498	
12	61.09	-18.20	-18.16	8.882E-16	1.367E+02	6.808E+01	1.933E+00	0.200	0.331	
12	62.06	-11.48	-11.24	1.545E+02	1.362E+01	5.694E+00	1.775E+01		0.498	
13	62.06	-18.16	-18.11	-8.882E-16	1.377E+02	6.849E+01	2.531E+00	0.200	0.331	
13	63.03	-11.24	-11.04	1.571E+02	1.362E+01	5.726E+00	2.086E+01		0.499	
14	63.03	-18.11	-18.07	-8.882E-16	1.386E+02	6.843E+01	2.990E+00	0.200	0.331	
14	64.00	-11.04	-10.90	1.590E+02	1.362E+01	5.721E+00	2.324E+01		0.499	
15	64.00	-18.07	-18.02	4.441E-16	1.125E+02	6.761E+01	3.309E+00	0.200	0.332	
15	64.96	-10.90	-10.81	1.341E+02	1.362E+01	5.654E+00	2.492E+01		0.531	
16	64.96	-18.02	-17.92	-1.332E-15	1.000E+02	6.693E+01	3.483E+00	0.200	0.336	
16	65.93	-10.81	-10.77	1.217E+02	1.362E+01	5.599E+00	2.589E+01		0.501	
17	65.93	-17.92	-17.72	-2.776E-17	9.819E+01	6.689E+01	3.556E+00	0.200	0.343	
17	66.90	-10.77	-10.77	1.192E+02	1.362E+01	5.596E+00	2.617E+01		0.502	
18	66.90	-17.72	-17.53	1.332E-15	9.585E+01	6.663E+01	3.472E+00	0.200	0.349	
18	67.87	-10.77	-10.82	1.155E+02	1.362E+01	5.575E+00	2.576E+01		0.503	

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 19   67.87  -17.53  -17.34  -8.882E-16  9.328E+01  6.616E+01  3.236E+00  0.200  0.356
 19   68.84  -10.82  -10.92   1.109E+02  1.362E+01  5.537E+00  2.466E+01         0.504

 20   68.84  -17.34  -17.14  -4.441E-16  9.054E+01  6.550E+01  2.850E+00  0.200  0.362
 20   69.80  -10.92  -11.07   1.055E+02  1.362E+01  5.483E+00  2.287E+01         0.505

 21   69.80  -17.14  -16.95  -8.882E-16  8.771E+01  6.464E+01  2.297E+00  0.200  0.368
 21   70.77  -11.07  -11.28   9.930E+01  1.362E+01  5.414E+00  2.036E+01         0.506

 22   70.77  -16.95  -16.76   0.000E+00  8.470E+01  6.362E+01  1.592E+00  0.200  0.373
 22   71.74  -11.28  -11.53   9.232E+01  1.362E+01  5.331E+00  1.713E+01         0.507

 23   71.74  -16.76  -16.57   8.882E-16  8.190E+01  6.217E+01  9.613E-01  0.200  0.380
 23   72.71  -11.53  -11.84   8.453E+01  1.362E+01  5.214E+00  1.312E+01         0.508

 24   72.71  -16.57  -16.37   0.000E+00  7.837E+01  6.057E+01  2.870E-01  0.200  0.386
 24   73.68  -11.84  -12.20   7.555E+01  1.362E+01  5.083E+00  8.327E+00         0.510

 25   73.68  -16.37  -16.18   0.000E+00  7.519E+01  5.840E+01  0.000E+00  0.199  0.395
 25   74.64  -12.20  -12.63   6.583E+01  1.362E+01  4.907E+00  2.726E+00         0.513

 26   74.64  -16.18  -16.10   0.000E+00  6.850E+01  5.396E+01  0.000E+00  0.199  0.389
 26   75.61  -12.63  -13.11   5.576E+01  1.362E+01  4.545E+00  0.000E+00         0.515

 27   75.61  -16.10  -16.04   0.000E+00  5.958E+01  4.833E+01  0.000E+00  0.199  0.366
 27   76.58  -13.11  -13.67   4.616E+01  1.362E+01  4.085E+00  0.000E+00         0.519

 28   76.58  -16.04  -15.98   0.000E+00  5.329E+01  3.711E+01  0.000E+00  0.197  0.351
 28   77.55  -13.67  -14.32   3.513E+01  1.883E+01  3.160E+00  0.000E+00         0.529

 29   77.55  -15.98  -15.92   0.000E+00  3.671E+01  1.949E+01  0.000E+00  0.186  0.345
 29   78.67  -14.32  -15.08   2.519E+01  1.558E+01  1.648E+00  0.000E+00         0.555

 30   78.67  -15.92  -15.85   0.000E+00  1.247E+01  1.448E-10  0.000E+00  0.000  0.500
 30   79.84  -15.08  -15.85   8.812E+00  5.753E+00 -1.883E-10  0.000E+00         0.666

BEAST  Output   Program Version = 30 Apr 2015    Time = 07 MAR 2019  17:24:14



SURFACE NO:479  TYPE: CIRCLE    SAFETY-FACTOR:  1.490   SCORE:  0.000
BELOW SKETCH SHOWS SHEAR SURFACE WITH SLICE DIVISIONS AND MATERIAL ID-S

111  1 1 1  1 1 1 1  1 1
 1  1 1 1  1 1 1 1  1 1 1  1 1 1  1 1 1 1
  1 1 1 1  1 1 1 1  1 1 1  1 1 1  1 1 1 1  1 1 1  1
    222 2  2 2 2 2  2 2 2  2 1 1  1 1 1 1  1 1 1  1 1 1  1 1 1
     222  2 2 2 2  2 2 2  2 2 2  2 2 2 2  2 2 2  2 2 1  1 1 1  1 1 11
      33 3 3 3 3  2 2 2  2 2 2  2 2 2 2  2 2 2  2 2 2  2 2 2  222
        333 3 3  3 3 3  3 3 3  3 3 3 3  3 3 3  2 2 2  2 2 22 2
         333 3  3 3 3  3 3 3  3 3 3 3  3 3 3  3 3 3  3 333
           33 33 3 3  3 3 3  3 3 3 3  3 3 3  3 3 33 33
             33333  3 3 3  3 3 3 3  3 3 3  33333
               3 3333333 3333333 333333 3
0102 030405 060708 091011 12131415 161718 192021 22232425 262728 29 30

 MAT GAMTOT SUA/SU0 SUD/SU0 SUP/SU0 COHESN PHIANG PHIRED RU-FCT  B-FCT  K-NOT B-
SIG2 D/SU(B)
  1  18.000  1.000   1.000   1.000   0.000  34.00  0.00  0.000   0.000  0.000  0.000  0.001
```

```
  2  18.000  1.000   1.000   1.000 10.0%*C  30.00  0.00  0.000   0.000  0.000  0.000  0.001
  3  17.000  1.000   1.000   1.000 10.0%*C  30.00  0.00  0.000   0.000  0.000  0.000  0.001
  4  18.000  1.000   1.000   1.000   0.000  40.00  0.00  0.000   0.000  0.000  0.000  0.001
```

BEAST Output Program Version = 30 Apr 2015 Time = 07 MAR 2019 17:24:14

SURFACE NO:479 TYPE: CIRCLE SAFETY-FACTOR: 1.490 SCORE: 0.000
BELOW SKETCH SHOWS EFFECTIVE NORMAL STRESSES: P=SHEAR-SURFACE E=INTER-SLICE
U=RESULTING PWP AT SHEAR SURFACE

```
0102 030405 060708 091011 12131415 161718 192021 22232425 262728 29 30
----------------------------------------------------------------------ZERO
IU U  U U U  U U U  U                         U  U U U  U  UI
I               U                     U            I
I                 U                  U            PI
I E                 U U            U  U            E  I
I   E                U U  U U U  U U                  I
IP    E                                          I
I      E                                    EP   I
I                                               I
I P       E                                 E      I
I           E                             E  P     I
I            E E                        E  E  P      I
I    P           E E             E E E  E E            I
I                  E  E E E  E E E E           P        I
I                                  P          I
I     P                          P P           I
I                            P  P             I
I                         P P                 I
I      P                P P                    I
I                     P                      I
I         P                                  I
I                   P                        I
I          P                                 I
I                                           I
I           P  P                              I
I               P P  P P P                       I
----------------------------------------------------------------------SIGMAX
```

P-MIN = 1.247E+01 P-MAX = 1.386E+02
E-MIN = 1.949E+01 E-MAX = 6.849E+01
U-MIN = 0.000E+00 U-MAX = 2.617E+01

THIS RUN WAS TERMINATED : 07 MAR 2019 AT 17:24:14 HOURS

TIME USED = 1 SECONDS

BILAGA 5

Stabilitetsberäkning
Beräkningssektion 5

GeoSuite Stability Report

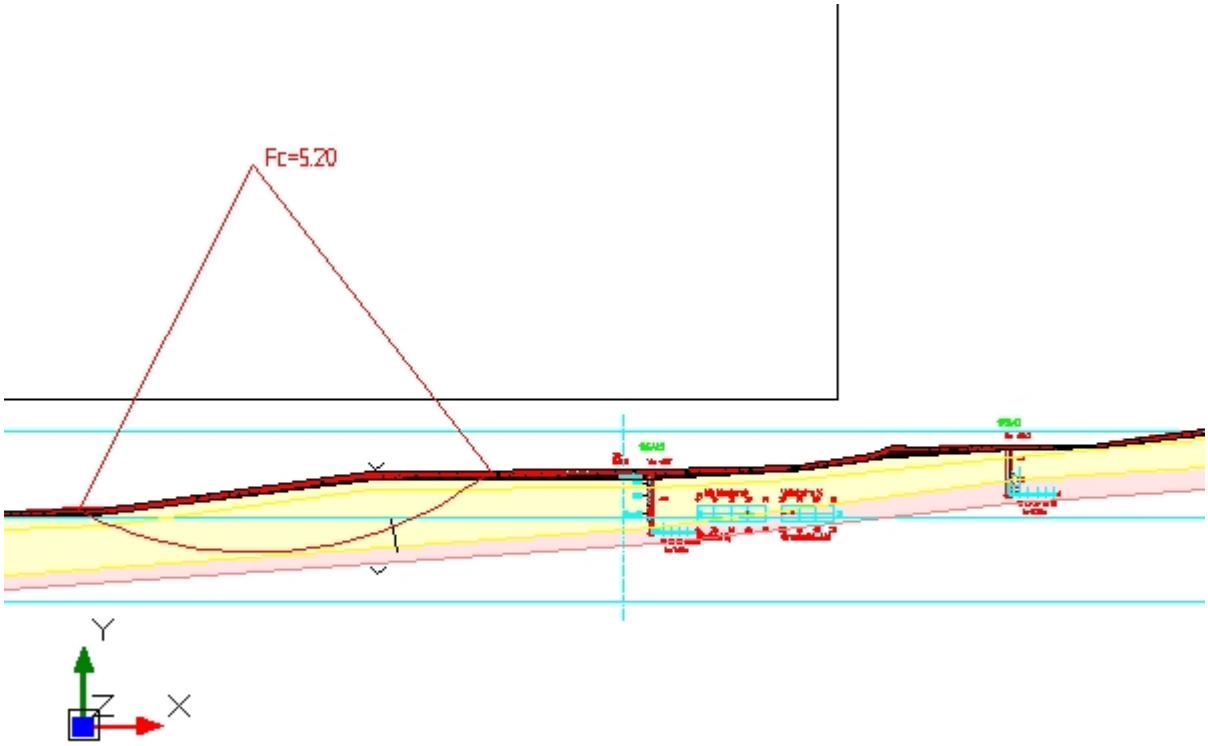
Calculation data

Project name:	Fasanvägen etapp 13
Project number:	18112896
Contractor:	
Comment:	

Calculation name:	BS5
Description:	
File name:	g:\projekt\2018\18112896 fasanvägen etapp 13\15_geosuite\stabgraf.rit\bs5.dwg
Critical Safety Factor:	5,20
Result Date:	2019-02-21 17:55
Result Text:	

Horizontally density spacing:	3
Vertically density spacing:	15
Side friction:	0,00
Number of slices:	30
Correction of exit angle:	Yes

Graphic Model



Soil

Materials

Material	ρ [kN/m³]	Ø [°]	C' [kPa]	C [kPa]	Aa	Ad	Ap
Fy	18,00	34,0	0,0		1,00	1,00	1,00
Let	18,00			30,0	1,00	1,00	1,00
Le	17,00			23,0 + CProf	1,00	1,00	1,00
Fr	18,00	40,0	0,0		1,00	1,00	1,00

Soil Parameter Variations

η-factors

Material	Param	Drained	γm	η(1,2)	η(3)	η(4,5,6,7)	η(8)	η
Fy	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00
Let	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Le	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Fr	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00

Scaling factors

Material	+ Factor	- Facktor
Fy	1,00	1,00
Let	1,00	1,00
Le	1,00	1,00
Fr	1,00	1,00

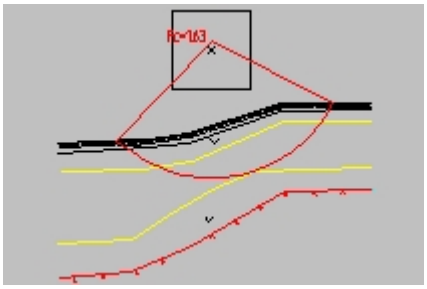
Model Data

Tangent Strategy Data

Centre point X:	118,05
Centre point Z:	64,39
Search area:	27,44
Upper Z-level:	32,77
Lower Z-level:	26,64
Number of levels:	15

Search Criteria

Calculation method:	Beast 2003
Calculation Strategy:	Tangent
Slope type:	Left slope



Result file

Location: g:\projekt\2018\18112896 fasanvägen etapp 13\15_geosuite\stabgraf.rit\bs5.RES

Created: 2019-02-21 17:55

Modified: 2019-02-21 17:55

```
#
      ECHO PRINT OF DATA ON FORTRAN UNIT NUMBER = 14

      00000000011111111112222222222333333333344444444455555555556666666666777777777 8
      12345678901234567890123456789012345678901234567890123456789012345678901234567890

  1----
  2----
  3---- * Version : 4.0.0.0
  4----
  5----  ****************** CONTROL SECTION
  6----   1.0 1.0 CONFRC,CONLTH   CONVERTION FACTORS ON FORCES AND LENGTHS
  7----   1.0 1.0 FCTSUC,FCTTAN   MATERIAL FACTORS ON SU,C AND TAN(PHI)
  8----     1 IDTYP     SOLUTION TYPE (1=STAB/BEARING 2=EARTH PRESS)
  9----    31 ANALYSIS METHOD & TYPE, E.G. 31 = BEAST-2003 & EFF.STRESS
 10----     0 NUMGEN    NUMBER OF GENERAL SHEAR SURFACES
 11----    30 NUMSLC    NUMBER OF SLICES (ZERO OK FOR GENERAL SURFACES)
 12----  0.000 SIDSHR    SIDE SHEAR FACTOR (0.0=PLANE STRAIN , 2.0/LENGTH=MAX)
 13---- 0.00 0.00 VALUES FOR H3-ASSMPTN (H3(X)=H31+(H32-H31)/XTOT*X)
 14---- 0.50 0.50 0.00 VALUES FOR R-ASSMPTN  (R(X)=R1+(R2-R1)/XTOT*X+H(X)/HMAX*R3)
 15----     0 ITENSP    ALLOW P-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
 16----     0 ITENSE    ALLOW E-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
 17----     0 JPRINT    TRACE PRINT CODE (0=NON 1=LIM 2=TRACE 3=DETLD TRACE)
 18----     2 IPRTTP    FILE NF16 PRINT TYPE FOR SLICE OUTPUT (1=FORCES 2=STRESSES)
 19----     1 JPLOT     CODE FOR PLOT(S) ON NF16 (0=NO 1=YES 2=+PWP/SU0 3=+MESH)
 20----  0.000 CRTFRC    CONVERGENCE CRITERION , FORCES   (DEFAULT=SUM(FZ)/1.0E4)
 21----  2.000 CRTSCR    CONVERGENCE CRITERION , SOLUTION SCORE
 22---- 1 0 0 0 0 0.0  0.0  0.0  0.0  0.0 First flag, exit angle, third adjust low circ
 23----
 24---- ****************** GEOMETRY SECTION
 25----    25 NUMXLN    NUMBER OF X-LINES WITH SURFACE, ROCK AND ELEMENT SPECS
 26----     1 NUMELZ    NUMBER OF ELEMENTS IN Z-DIRECTION
 27----     1 NUMLAY    NUMBER OF HORIZONTAL LAYERS
 28----    51 NUMTRI    NUMBER OF MATERIAL I.D. TRIANGLES
 29----   X-VALUE  Z-SURFACE  Z-ROCK  NUMBER OF X-ELEMENTS TO NEXT X-LINE
 30----    -303.49     -37.43      62.57       1
 31----    -203.49     -37.43      62.57       1
 32----    -193.91     -36.13      63.23       1
 33----    -187.27     -35.58      63.69       1
 34----    -177.71     -35.26      64.34       1
 35----    -167.61     -35.22      65.04       1
 36----    -160.35     -34.29      65.54       1
 37----    -155.85     -34.22      65.85       1
 38----    -150.44     -34.16      66.22       1
 39----    -148.75     -34.29      66.34       1
 40----    -147.46     -33.70      66.42       1
 41----    -143.41     -33.05      66.70       1
 42----    -134.50     -32.76      67.32       1
 43----    -118.02     -32.71      68.45       1
 44----    -101.98     -30.46      69.55       1
 45----    -87.63      -30.13      70.54       1
```

```
46----    -80.30      -29.09      71.05       1
47----    -69.42      -28.20      71.79       1
48----    -60.95      -27.88      72.38       1
49----    -57.09      -27.15      72.64       1
50----    -53.62      -27.07      72.88       1
51----    -49.43      -26.43      73.17       1
52----    -17.84      -25.14      75.34       1
53----    -13.08      -24.33      75.67       1
54----     86.92      -24.33      75.67       0
55----  00 00 00  0.0 0.0 NP1,NP2,NSTEP,ZN1,ZN2  NODE NEW Z , NP2=MAX TERMINATES
56----  00 00 00   0 NE1,NE2,NSTEP,MAT     ELEMENT MATRL , NE2=MAX TERMINATES
57----   LAYER  Z-BOTTOM  MATERIAL-I.D.
58----    1      75.67       1
59----   TRIANGLE  MATERIAL   X1  Z1     X2  Z2     X3  Z3
60----    1  4  -108.29  85.67     85.06    85.67     85.06    -21.23
61----    2  4  -108.29  85.67     85.06    -21.23    -14.94   -21.23
62----    3  4  -108.29  85.67     -14.94   -21.23    -68.62   -24.42
63----    4  4  -108.29  85.67     -68.62   -24.42    -134.77  -29.45
64----    5  4  -108.29  85.67     -134.77  -29.45    -156.05  -32.26
65----    6  4  -108.29  85.67     -156.05  -32.26    -202.96  -34.97
66----    7  4  -108.29  85.67     -302.96  -34.97    -202.96  -34.97
67----    8  4  -108.29  85.67     -302.96  -34.97    -302.96  85.67
68----    9  3  -108.29  85.67     85.92    85.67     85.92    -23.43
69----    10  3  -108.29  85.67     85.92    -23.43    -14.08   -23.43
70----    11  3  -108.29  85.67     -14.08   -23.43    -18.44   -24.04
71----    12  3  -108.29  85.67     -18.44   -24.04    -43.36   -25.32
72----    13  3  -108.29  85.67     -43.36   -25.32    -57.87   -26.46
73----    14  3  -108.29  85.67     -57.87   -26.46    -61.56   -26.93
74----    15  3  -108.29  85.67     -61.56   -26.93    -81.17   -28.20
75----    16  3  -108.29  85.67     -81.17   -28.20    -88.16   -29.01
76----    17  3  -108.29  85.67     -88.16   -29.01    -102.53  -29.55
77----    18  3  -108.29  85.67     -102.53  -29.55    -118.11  -31.63
78----    19  3  -108.29  85.67     -118.11  -31.63    -134.68  -31.73
79----    20  3  -108.29  85.67     -134.68  -31.73    -143.19  -32.26
80----    21  3  -108.29  85.67     -143.19  -32.26    -155.72  -33.54
81----    22  3  -108.29  85.67     -155.72  -33.54    -168.08  -34.65
82----    23  3  -108.29  85.67     -168.08  -34.65    -187.32  -34.95
83----    24  3  -108.29  85.67     -187.32  -34.95    -201.08  -36.20
84----    25  3  -108.29  85.67     -201.08  -36.20    -203.42  -36.62
85----    26  3  -108.29  85.67     -303.42  -36.62    -203.42  -36.62
86----    27  3  -108.29  85.67     -303.42  -36.62    -303.42  85.67
87----    28  2  -108.29  85.67     85.77    85.67     85.77    -24.05
88----    29  2  -108.29  85.67     85.77    -24.05    -14.23   -24.05
89----    30  2  -108.29  85.67     -14.23   -24.05    -18.09   -24.76
90----    31  2  -108.29  85.67     -18.09   -24.76    -49.15   -26.09
91----    32  2  -108.29  85.67     -49.15   -26.09    -53.97   -26.71
92----    33  2  -108.29  85.67     -53.97   -26.71    -57.67   -26.93
93----    34  2  -108.29  85.67     -57.67   -26.93    -61.26   -27.58
94----    35  2  -108.29  85.67     -61.26   -27.58    -70.88   -28.00
95----    36  2  -108.29  85.67     -70.88   -28.00    -80.63   -28.71
96----    37  2  -108.29  85.67     -80.63   -28.71    -88.08   -29.91
97----    38  2  -108.29  85.67     -88.08   -29.91    -101.81  -30.14
98----    39  2  -108.29  85.67     -101.81  -30.14    -117.91  -32.18
99----    40  2  -108.29  85.67     -117.91  -32.18    -134.29  -32.24
100----    41  2  -108.29  85.67     -134.29  -32.24    -143.38  -32.77
101----    42  2  -108.29  85.67     -143.38  -32.77    -148.39  -33.50
102----    43  2  -108.29  85.67     -148.39  -33.50    -155.66  -33.97
103----    44  2  -108.29  85.67     -155.66  -33.97    -160.79  -34.08
104----    45  2  -108.29  85.67     -160.79  -34.08    -167.64  -34.91
105----    46  2  -108.29  85.67     -167.64  -34.91    -181.28  -35.13
```

```
 106----    47  2  -108.29   85.67    -181.28  -35.13    -188.18  -35.43
 107----    48  2  -108.29   85.67    -188.18  -35.43    -196.80  -36.13
 108----    49  2  -108.29   85.67    -196.80  -36.13    -203.01  -37.01
 109----    50  2  -108.29   85.67    -303.01  -37.01    -203.01  -37.01
 110----    51  2  -108.29   85.67    -303.01  -37.01    -303.01   85.67
 111----  0 0 0 XWALL,HWALL,RWALL   WALL SPECIFICATIONS
(LOCATION,HEIGHT,ROUGHNESS)
 112----
 113---- ****************** MATERIAL PROPERTIES SECTION
 114----    4   3   15 NUMMAT    NUMBER OF DIFFERENT MATERIALS (NDX, NDZ DENSITY GRID
S
 115----    0 NUMXSU    NUMBER OF VERTICAL X-LINES WITH GIVEN SU-VALUES
 116----    0 NODSU     NUMBER OF MESH NODAL POINTS WITH GIVEN SU-VALUES
 117----   0.00 CRACKZ    SURFACE OPEN CRACK DEPTH
 118----   0.00 CRACKW    WATER DEPTH IN OPEN SURFACE CRACK
 119----  0.0 PHIREF    FRICTION ANGLE REFERENCE PRESSURE
 120----  EFFECTIVE STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO
OK)
 121----  MAT  GAMTOT  COHSN  PHIANG  PHIRED  PWPMAT  RU-MAT  B-FACT K-NOT B-SIG2
D-FCT
 122----  1   18.00    0.00   34.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 123----  2   18.00    0.00    0.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 124----  3   17.00    0.00    0.00  0   0.00   0.00  0  0  0  0.001  -0.00 17.00
 125----  4   18.00    0.00   40.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 126----  TOTAL STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO OK)
 127----  MAT  GAMTOT  SUA/SU0 SUD/SU0 SUP/SU0  SU0-MAT  (A:ACTIVE D:DIRECT
P:PASSIVE)C-
 128----  1   18.00    1.00    1.00    1.00    0.00   1
 129----  2   18.00    1.00    1.00    1.00   30.00   0
 130----  3   17.00    1.00    1.00    1.00   23.00   1
 131----  4   18.00    1.00    1.00    1.00    0.00   1
 132----  X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : SU0-VALUES
 133---- NODE   SU0   (IF ALL NODES, SKIP NODE NUMBERS : SU0(1),SU0(2),...)
 134----
 135---- ****************** PORE-WATER-PRESSURES SECTION
 136----    1 IDPWP     PWP INDICATOR (1=HYDROSTATIC  2=NON-HYDROSTATIC)
 137----    0 NUMBER OF VERTICAL X-LINES WITH GIVEN PWP WITH DEPTH
 138----    0 NODPWP    NUMBER OF MESH NODAL POINTS WITH GIVEN PWP
 139----   0.0 FCTNOD    FACTOR ON PWP-VALUES GIVEN AT NODAL POINTS
 140----   85.670 WATERZ    HORIZONTAL WATER TABLE Z-LEVEL
 141----   10.0 GAMWAT    FREE WATER UNIT WEIGHT
 142----   10.0 GAMPWP    PORE WATER UNIT WEIGHT (=GAMWAT IF HYDROSTATIC)
 143----    0.00 PWPMIN    MINIMUM ALLOWABLE PWP (CAPILLARY TENSION)
 144---- X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : PWP-VALUES
 145----  NODE  PWP-VALUE  (IF ALL NODES , SKIP NODE NUMBERS : PWP(1),PWP(2),...)
 146----
 147---- ****************** LOAD SECTION
 148----    0 NUMPNT           NUMBER OF POINT LOADS & 100*SOIL NAILS
 149----    0 NUMSIG           NUMBER OF SURFACE DISTRIBUTED LOADS
 150----   0.0 SIGTOP          UNIFORM INITIAL VERTICAL STRESS AT SURFACE
 151---- -100 100 XTOP1,XTOP2       STRESS 'SIGTOP' ACTS FROM XTOP1 TO XTOP2
 152----   10.0000   5.0000 FCTPNT,FCTSIG      POINT AND DISTRIBUTED LOAD FACTORS
 153----  0.00 1.00 ACCXRT,ACCZRT      ACCELERATION RATIOS IN X- AND Z-DIRECTIONS
 154----   POINT   X-COORD   Z-COORD   X-FORCE   Z-FORCE
 155----  STRIP    X1      X2      SIGZ1    SIGZ2    TAUX1    TAUX2
 156----
 157---- ****************** GIVEN SHEAR SURFACE
 158----   2 RESTRICT SHEAR SURFACE, NUMBER OF POINTS ON LINE (X-Z)
 159----  -119.30   -119.58
 160----   -29.85    -28.04
```

161---- END

00000000011111111112222222222333333333344444444445555555555666666666677777777778
12345678901234567890123456789012345678901234567890123456789012345678901234567890

BEAST Output Program Version = 30 Apr 2015 Time = 21 FEB 2019 17:55:31

========== SAFETY FACTOR = 5.203
SURFACE NO : 211 SUMMARY OF GEOMETRY AND STRESSES
========== SOLUTION SCORE= 0.145

SURFACE TYPE = CIRCLE X-CENTER Z-CENTER RADIUS
-111.190 -50.670 22.720

SOLUTION METHOD = BEAST-2003 / EFFECTIVE STRESS ANALYSIS

SLICE	X1	Z1	Z2	WXT-FRC	P-STR	E2-STR	U2-STR	ROUGH	H2/Z23
	X2	Z4	Z3	WZT-FRC	S-STR	T2-STR	U3-STR		H3/L34
1	-125.13	-32.73	-32.73	0.000E+00	4.044E+00	1.922E+00	0.000E+00	0.131	0.284
1	-124.32	-32.73	-32.13	4.334E+00	1.573E+00	2.135E-01	0.000E+00		0.334
2	-124.32	-32.73	-32.73	0.000E+00	1.151E+01	2.626E+00	0.000E+00	0.095	0.309
2	-123.51	-32.13	-31.59	1.263E+01	5.497E+00	3.875E-01	0.000E+00		0.448
3	-123.51	-32.73	-32.72	0.000E+00	2.128E+01	6.140E+00	0.000E+00	0.143	0.222
3	-122.71	-31.59	-31.09	1.996E+01	4.420E+00	5.976E-01	0.000E+00		0.470
4	-122.71	-32.72	-32.72	0.000E+00	2.942E+01	9.512E+00	0.000E+00*******	0.224	WARNINGS: 1
4	-121.90	-31.09	-30.63	2.649E+01	4.420E+00	7.935E-01	0.000E+00		0.480
5	-121.90	-32.72	-32.72	0.000E+00	3.687E+01	1.259E+01	0.000E+00*******	0.231	WARNINGS: 1
5	-121.09	-30.63	-30.22	3.242E+01	4.420E+00	9.738E-01	0.000E+00		0.485
6	-121.09	-32.72	-32.72	0.000E+00	4.364E+01	1.537E+01	0.000E+00	0.298	0.236
6	-120.28	-30.22	-29.85	3.776E+01	4.420E+00	1.137E+00	0.000E+00		0.489
7	-120.28	-32.72	-32.71	0.000E+00	4.978E+01	1.786E+01	0.000E+00	0.329	0.239
7	-119.47	-29.85	-29.52	4.257E+01	4.420E+00	1.281E+00	0.000E+00		0.491
8	-119.47	-32.71	-32.71	0.000E+00	5.537E+01	2.005E+01	0.000E+00	0.355	0.241
8	-118.66	-29.52	-29.22	4.692E+01	4.420E+00	1.406E+00	0.000E+00		0.493
9	-118.66	-32.71	-32.69	0.000E+00	6.026E+01	2.208E+01	0.000E+00	0.377	0.243
9	-117.85	-29.22	-28.95	5.067E+01	4.420E+00	1.521E+00	0.000E+00		0.494
10	-117.85	-32.69	-32.57	0.000E+00	6.340E+01	2.429E+01	0.000E+00	0.402	0.251
10	-117.04	-28.95	-28.72	5.298E+01	4.420E+00	1.649E+00	0.000E+00		0.497
11	-117.04	-32.57	-32.46	0.000E+00	6.548E+01	2.617E+01	0.000E+00	0.422	0.258
11	-116.23	-28.72	-28.52	5.441E+01	4.420E+00	1.755E+00	0.000E+00		0.498
12	-116.23	-32.46	-32.35	0.000E+00	6.703E+01	2.775E+01	0.000E+00	0.437	0.264
12	-115.43	-28.52	-28.35	5.540E+01	4.420E+00	1.841E+00	0.000E+00		0.499
13	-115.43	-32.35	-32.23	0.000E+00	6.805E+01	2.903E+01	0.000E+00	0.448	0.270

13	-114.62	-28.35	-28.21	5.596E+01	4.420E+00	1.905E+00	0.000E+00	0.499
14	-114.62	-32.23	-32.12	0.000E+00	6.856E+01	3.003E+01	0.000E+00	0.455 0.276
14	-113.81	-28.21	-28.10	5.610E+01	4.420E+00	1.950E+00	0.000E+00	0.500
15	-113.81	-32.12	-32.01	0.000E+00	6.855E+01	3.076E+01	0.000E+00	0.458 0.280
15	-113.00	-28.10	-28.02	5.583E+01	4.420E+00	1.975E+00	0.000E+00	0.501
16	-113.00	-32.01	-31.89	0.000E+00	6.804E+01	3.121E+01	0.000E+00	0.458 0.285
16	-112.19	-28.02	-27.97	5.515E+01	4.420E+00	1.981E+00	0.000E+00	0.501
17	-112.19	-31.89	-31.78	0.000E+00	6.702E+01	3.140E+01	0.000E+00	0.454 0.289
17	-111.38	-27.97	-27.95	5.407E+01	4.420E+00	1.967E+00	0.000E+00	0.502
18	-111.38	-31.78	-31.67	0.000E+00	6.549E+01	3.133E+01	0.000E+00	0.447 0.293
18	-110.57	-27.95	-27.96	5.258E+01	4.420E+00	1.934E+00	0.000E+00	0.503
19	-110.57	-31.67	-31.55	0.000E+00	6.346E+01	3.100E+01	0.000E+00	0.436 0.297
19	-109.76	-27.96	-28.00	5.069E+01	4.420E+00	1.883E+00	0.000E+00	0.503
20	-109.76	-31.55	-31.44	0.000E+00	6.098E+01	3.040E+01	0.000E+00	0.421 0.301
20	-108.96	-28.00	-28.06	4.846E+01	4.420E+00	1.812E+00	0.000E+00	0.504
21	-108.96	-31.44	-31.32	0.000E+00	5.805E+01	2.954E+01	0.000E+00	0.403 0.305
21	-108.15	-28.06	-28.16	4.588E+01	4.420E+00	1.723E+00	0.000E+00	0.505
22	-108.15	-31.32	-31.21	0.000E+00	5.443E+01	2.841E+01	0.000E+00	0.381 0.308
22	-107.34	-28.16	-28.28	4.276E+01	4.420E+00	1.616E+00	0.000E+00	0.506
23	-107.34	-31.21	-31.10	0.000E+00	5.034E+01	2.701E+01	0.000E+00	0.356 0.312
23	-106.53	-28.28	-28.43	3.927E+01	4.420E+00	1.490E+00	0.000E+00	0.508
24	-106.53	-31.10	-30.98	0.000E+00	4.574E+01	2.534E+01	0.000E+00	0.325 0.316
24	-105.72	-28.43	-28.62	3.539E+01	4.420E+00	1.346E+00	0.000E+00	0.510
25	-105.72	-30.98	-30.87	0.000E+00	4.058E+01	2.337E+01	0.000E+00	0.291 0.319
25	-104.91	-28.62	-28.84	3.109E+01	4.420E+00	1.184E+00	0.000E+00	0.512
26	-104.91	-30.87	-30.76	0.000E+00	3.482E+01	2.111E+01	0.000E+00	0.215 0.322
26	-104.10	-28.84	-29.08	2.633E+01	4.420E+00	1.005E+00	0.000E+00	0.516
27	-104.10	-30.76	-30.64	0.000E+00	2.839E+01	1.857E+01	0.000E+00	0.176 0.318
27	-103.29	-29.08	-29.37	2.106E+01	4.420E+00	8.091E-01	0.000E+00	0.522
28	-103.29	-30.64	-30.53	0.000E+00	2.159E+01	1.518E+01	0.000E+00	0.123 0.308
28	-102.48	-29.37	-29.69	1.535E+01	4.959E+00	5.910E-01	0.000E+00	0.534
29	-102.48	-30.53	-30.45	0.000E+00	1.409E+01	7.653E+00	0.000E+00	0.139 0.344
29	-101.68	-29.69	-30.04	8.976E+00	5.766E+00	3.029E-01	0.000E+00	0.557
30	-101.68	-30.45	-30.43	0.000E+00	4.656E+00	2.908E-10	0.000E+00	0.000 0.500
30	-100.87	-30.04	-30.43	2.995E+00	1.636E+00	5.258E-11	0.000E+00	0.666

BEAST Output Program Version = 30 Apr 2015 Time = 21 FEB 2019 17:55:31

SURFACE NO:211 TYPE: CIRCLE SAFETY-FACTOR: 5.203 SCORE: 0.145
BELOW SKETCH SHOWS SHEAR SURFACE WITH SLICE DIVISIONS AND MATERIAL ID-S

```
111  1 1 1  1 1 1  1 1 1  1 1 1
 22 2 2 2  2 2 2  2 2 2  2 2 1  1 1 1  1 1 1
    33 3  3 3 3  3 3 3  3 3 2  2 2 2  2 2 1  1 1 1  1 1
      333 3 3 3  3 3 3  3 3 3  3 3 3  3 2 2  2 2 2  2 1 1  1 1 1  1 1
         333 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 2 2  2 2 2 221
           333 3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  3 3 3  33332
              33333 3 3 3  3 3 3  3 3 3  3 3 3  3 333 33
                  333333 33333 333333 333333 333
0102 030405 060708 091011 121314 1516 171819 202122 232425 262728 2930
```

```
 MAT GAMTOT SUA/SU0 SUD/SU0 SUP/SU0 COHESN PHIANG PHIRED RU-FCT  B-FCT  K-NOT B-SIG2 D/SU(B)
  1  18.000  1.000   1.000   1.000   0.000  34.00  0.00  0.000   0.000  0.000  0.000  0.001
  2  18.000  1.000   1.000   1.000   0.000   0.00  0.00  0.000   0.000  0.000  0.000  0.001
  3  17.000  1.000   1.000   1.000   0.000   0.00  0.00  0.000   0.000  0.000  0.000  0.001
  4  18.000  1.000   1.000   1.000   0.000  40.00  0.00  0.000   0.000  0.000  0.000  0.001
```

BEAST Output   Program Version = 30 Apr 2015   Time = 21 FEB 2019 17:55:31

SURFACE NO:211 TYPE: CIRCLE   SAFETY-FACTOR: 5.203   SCORE: 0.145
BELOW SKETCH SHOWS EFFECTIVE NORMAL STRESSES: P=SHEAR-SURFACE E=INTER-SLICE
U=RESULTING PWP AT SHEAR SURFACE

```
0102 030405 060708 091011 121314 1516 171819 202122 232425 262728 2930
--------------------------------------------------------------------------ZERO
IUEU EU U U  U U U  U U U  U U U  U U  U U U  U U U  U U U  U U U  U UI
IP                                                PI
I     E                                          E I
I       E                                          I
I  P       E                                        I
I           E                                   E P  I
I             E                                E     I
I    P           E                             E  P    I
I                 E E                        E         I
I                     E                  E E           I
I      P                E E  E           E E        P      I
I                           E E  E E E  E                  I
I                                          P       I
I       P                                          I
I                                        P         I
I         P                                        I
I                                      P           I
I                                                 I
I           P                         P            I
I                                   P              I
I             P                                    I
I               P                   P               I
I                                 P                 I
I                P P            P P                  I
I                    P P P  P P  P                    I
--------------------------------------------------------------------------SIGMAX
```

P-MIN = 4.044E+00   P-MAX = 6.856E+01
E-MIN = 1.922E+00   E-MAX = 3.140E+01
U-MIN = 0.000E+00   U-MAX = 0.000E+00

THIS RUN WAS TERMINATED : 21 FEB 2019 AT 17:55:31 HOURS

TIME USED = 0 SECONDS

GeoSuite Stability Report

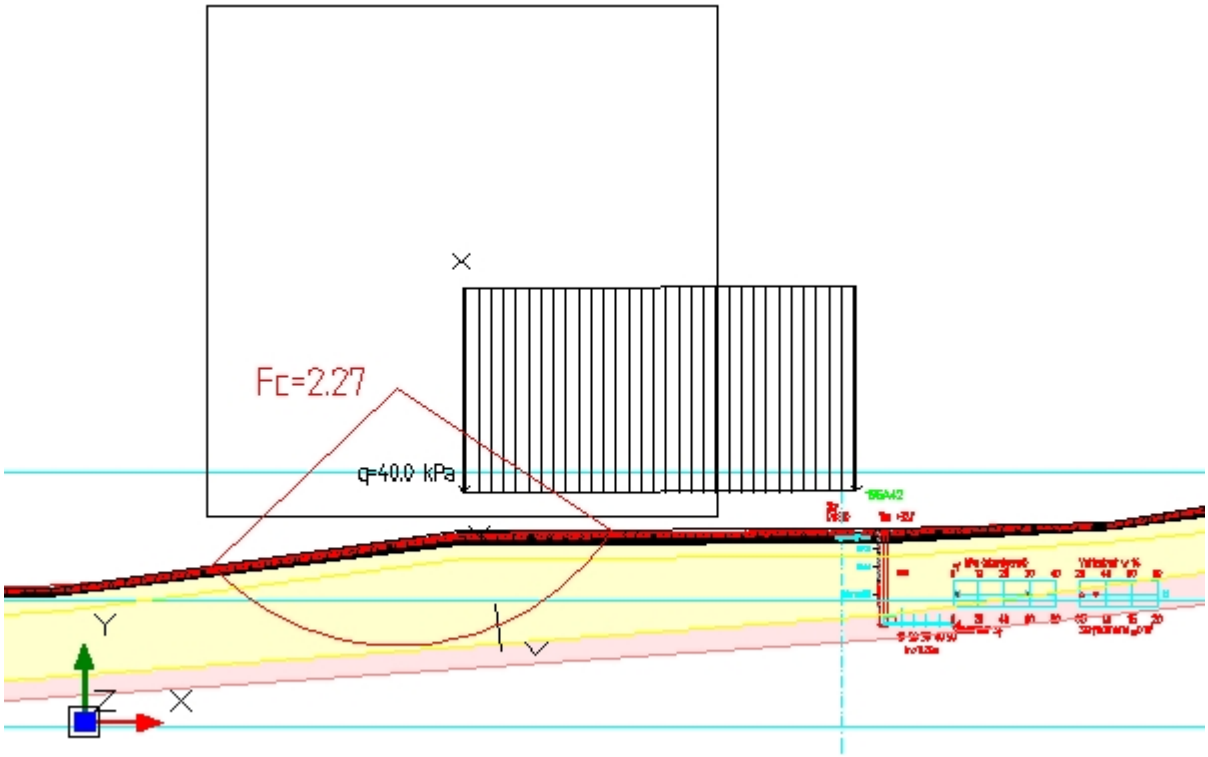
Calculation data

Project name:	Fasanvägen etapp 13
Project number:	18112896
Contractor:	
Comment:	

Calculation name:	BS5_40KPA
Description:	
File name:	G:\Projekt\2018\18112896 Fasanvägen etapp 13\15_Geosuite\STABGRAF.RIT\BS5_40kPa.dwg
Critical Safety Factor:	2,27
Result Date:	2019-03-07 16:32
Result Text:	

Horizontally density spacing:	3
Vertically density spacing:	15
Side friction:	0,00
Number of slices:	30
Correction of exit angle:	Yes

Graphic Model



Soil

Materials

Material	ρ [kN/m³]	Ø [°]	C' [kPa]	C [kPa]	Aa	Ad	Ap
Fy	18,00	34,0	0,0		1,00	1,00	1,00
Let	18,00			30,0	1,00	1,00	1,00
Le	17,00			23,0 + CProf	1,00	1,00	1,00
Fr	18,00	40,0	0,0		1,00	1,00	1,00

Soil Parameter Variations

η-factors

Material	Param	Drained	γm	η(1,2)	η(3)	η(4,5,6,7)	η(8)	η
Fy	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00
Let	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Le	φ'	No	1,3	1,00	1,0	1,00	1,00	1,00
	c'	No	1,5	1,00	1,0	1,00	1,00	1,00
	c	No	1,5	1,00	1,0	1,00	1,00	1,00
Fr	φ'	Yes	1,3	1,00	1,0	1,00	1,00	1,00
	c'	Yes	1,5	1,00	1,0	1,00	1,00	1,00
	c	Yes	1,5	1,00	1,0	1,00	1,00	1,00

Scaling factors

Material	+ Factor	- Facktor
Fy	1,00	1,00
Let	1,00	1,00
Le	1,00	1,00
Fr	1,00	1,00

Loads

Distributed Loads

q1 [kPa]	q2 [kPa]	X1 [m]	X2 [m]
40,00	40,00	118,08	133,47

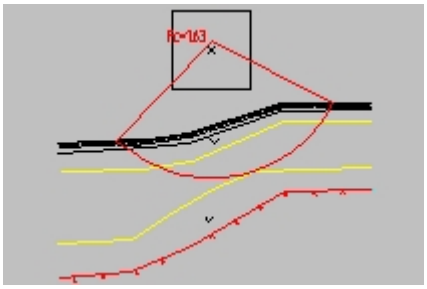
Model Data

Tangent Strategy Data

Centre point X:	118,00
Centre point Z:	43,28
Search area:	10,01
Upper Z-level:	32,45
Lower Z-level:	27,89
Number of levels:	15

Search Criteria

Calculation method:	Beast 2003
Calculation Strategy:	Tangent
Slope type:	Left slope



Result file

Location: G:\Projekt\2018\18112896 Fasanvägen etapp 13\15_Geosuite\STABGRAF.RIT\BS5_40kPa.RES

Created: 2019-03-07 16:32

Modified: 2019-03-07 16:32

```
#
      ECHO PRINT OF DATA ON FORTRAN UNIT NUMBER = 14

      000000000111111111122222222223333333333444444444455555555556666666666777777777778
      123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890

 1----
 2----
 3---- * Version : 4.0.0.0
 4----
 5----  ****************** CONTROL SECTION
 6----   1.0 1.0 CONFRC,CONLTH   CONVERTION FACTORS ON FORCES AND LENGTHS
 7----   1.0 1.0 FCTSUC,FCTTAN   MATERIAL FACTORS ON SU,C AND TAN(PHI)
 8----     1 IDTYP     SOLUTION TYPE (1=STAB/BEARING 2=EARTH PRESS)
 9----    31 ANALYSIS METHOD & TYPE, E.G. 31 = BEAST-2003 & EFF.STRESS
10----     0 NUMGEN    NUMBER OF GENERAL SHEAR SURFACES
11----    30 NUMSLC    NUMBER OF SLICES (ZERO OK FOR GENERAL SURFACES)
12----   0.000 SIDSHR    SIDE SHEAR FACTOR (0.0=PLANE STRAIN , 2.0/LENGTH=MAX)
13----  0.00 0.00 VALUES FOR H3-ASSMPTN (H3(X)=H31+(H32-H31)/XTOT*X)
14----  0.50 0.50 0.00 VALUES FOR R-ASSMPTN  (R(X)=R1+(R2-R1)/XTOT*X+H(X)/HMAX*R3)
15----     0 ITENSP    ALLOW P-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
16----     0 ITENSE    ALLOW E-FORCE TENSION IN SCORE CALCULATION (0=NO 1=YES)
17----     0 JPRINT    TRACE PRINT CODE (0=NON 1=LIM 2=TRACE 3=DETLD TRACE)
18----     2 IPRTTP    FILE NF16 PRINT TYPE FOR SLICE OUTPUT (1=FORCES 2=STRESSES)
19----     1 JPLOT     CODE FOR PLOT(S) ON NF16 (0=NO 1=YES 2=+PWP/SU0 3=+MESH)
20----   0.000 CRTFRC    CONVERGENCE CRITERION , FORCES   (DEFAULT=SUM(FZ)/1.0E4)
21----   2.000 CRTSCR    CONVERGENCE CRITERION , SOLUTION SCORE
22----  1 0 0 0 0 0.0  0.0  0.0  0.0  0.0 First flag, exit angle, third adjust low circ
23----
24----  ****************** GEOMETRY SECTION
25----     25 NUMXLN    NUMBER OF X-LINES WITH SURFACE, ROCK AND ELEMENT SPECS
26----      1 NUMELZ    NUMBER OF ELEMENTS IN Z-DIRECTION
27----      1 NUMLAY    NUMBER OF HORIZONTAL LAYERS
28----     51 NUMTRI    NUMBER OF MATERIAL I.D. TRIANGLES
29----    X-VALUE  Z-SURFACE  Z-ROCK  NUMBER OF X-ELEMENTS TO NEXT X-LINE
30----     -303.49     -37.43      62.57       1
31----     -203.49     -37.43      62.57       1
32----     -193.91     -36.13      63.23       1
33----     -187.27     -35.58      63.69       1
34----     -177.71     -35.26      64.34       1
35----     -167.61     -35.22      65.04       1
36----     -160.35     -34.29      65.54       1
37----     -155.85     -34.22      65.85       1
38----     -150.44     -34.16      66.22       1
39----     -148.75     -34.29      66.34       1
40----     -147.46     -33.70      66.42       1
41----     -143.41     -33.05      66.70       1
42----     -134.50     -32.76      67.32       1
43----     -118.02     -32.71      68.45       1
44----     -101.98     -30.46      69.55       1
```

```
45----    -87.63      -30.13      70.54       1
46----    -80.30      -29.09      71.05       1
47----    -69.42      -28.20      71.79       1
48----    -60.95      -27.88      72.38       1
49----    -57.09      -27.15      72.64       1
50----    -53.62      -27.07      72.88       1
51----    -49.43      -26.43      73.17       1
52----    -17.84      -25.14      75.34       1
53----    -13.08      -24.33      75.67       1
54----     86.92      -24.33      75.67       0
55---- 00 00 00  0.0 0.0 NP1,NP2,NSTEP,ZN1,ZN2  NODE NEW Z , NP2=MAX TERMINATES
56---- 00 00 00   0 NE1,NE2,NSTEP,MAT      ELEMENT MATRL , NE2=MAX TERMINATES
57----   LAYER  Z-BOTTOM  MATERIAL-I.D.
58----    1       75.67        1
59----   TRIANGLE  MATERIAL   X1  Z1      X2  Z2      X3  Z3
60----     1  4  -108.29  85.67     85.06    85.67     85.06    -21.23
61----     2  4  -108.29  85.67     85.06    -21.23    -14.94   -21.23
62----     3  4  -108.29  85.67     -14.94   -21.23    -68.62   -24.42
63----     4  4  -108.29  85.67     -68.62   -24.42    -134.77  -29.45
64----     5  4  -108.29  85.67     -134.77  -29.45    -156.05  -32.26
65----     6  4  -108.29  85.67     -156.05  -32.26    -202.96  -34.97
66----     7  4  -108.29  85.67     -302.96  -34.97    -202.96  -34.97
67----     8  4  -108.29  85.67     -302.96  -34.97    -302.96  85.67
68----     9  3  -108.29  85.67     85.92    85.67     85.92    -23.43
69----    10  3  -108.29  85.67     85.92    -23.43    -14.08   -23.43
70----    11  3  -108.29  85.67     -14.08   -23.43    -18.44   -24.04
71----    12  3  -108.29  85.67     -18.44   -24.04    -43.36   -25.32
72----    13  3  -108.29  85.67     -43.36   -25.32    -57.87   -26.46
73----    14  3  -108.29  85.67     -57.87   -26.46    -61.56   -26.93
74----    15  3  -108.29  85.67     -61.56   -26.93    -81.17   -28.20
75----    16  3  -108.29  85.67     -81.17   -28.20    -88.16   -29.01
76----    17  3  -108.29  85.67     -88.16   -29.01    -102.53  -29.55
77----    18  3  -108.29  85.67     -102.53  -29.55    -118.11  -31.63
78----    19  3  -108.29  85.67     -118.11  -31.63    -134.68  -31.73
79----    20  3  -108.29  85.67     -134.68  -31.73    -143.19  -32.26
80----    21  3  -108.29  85.67     -143.19  -32.26    -155.72  -33.54
81----    22  3  -108.29  85.67     -155.72  -33.54    -168.08  -34.65
82----    23  3  -108.29  85.67     -168.08  -34.65    -187.32  -34.95
83----    24  3  -108.29  85.67     -187.32  -34.95    -201.08  -36.20
84----    25  3  -108.29  85.67     -201.08  -36.20    -203.42  -36.62
85----    26  3  -108.29  85.67     -303.42  -36.62    -203.42  -36.62
86----    27  3  -108.29  85.67     -303.42  -36.62    -303.42  85.67
87----    28  2  -108.29  85.67     85.77    85.67     85.77    -24.05
88----    29  2  -108.29  85.67     85.77    -24.05    -14.23   -24.05
89----    30  2  -108.29  85.67     -14.23   -24.05    -18.09   -24.76
90----    31  2  -108.29  85.67     -18.09   -24.76    -49.15   -26.09
91----    32  2  -108.29  85.67     -49.15   -26.09    -53.97   -26.71
92----    33  2  -108.29  85.67     -53.97   -26.71    -57.67   -26.93
93----    34  2  -108.29  85.67     -57.67   -26.93    -61.26   -27.58
94----    35  2  -108.29  85.67     -61.26   -27.58    -70.88   -28.00
95----    36  2  -108.29  85.67     -70.88   -28.00    -80.63   -28.71
96----    37  2  -108.29  85.67     -80.63   -28.71    -88.08   -29.91
97----    38  2  -108.29  85.67     -88.08   -29.91    -101.81  -30.14
98----    39  2  -108.29  85.67     -101.81  -30.14    -117.91  -32.18
99----    40  2  -108.29  85.67     -117.91  -32.18    -134.29  -32.24
100----   41  2  -108.29  85.67     -134.29  -32.24    -143.38  -32.77
101----   42  2  -108.29  85.67     -143.38  -32.77    -148.39  -33.50
102----   43  2  -108.29  85.67     -148.39  -33.50    -155.66  -33.97
103----   44  2  -108.29  85.67     -155.66  -33.97    -160.79  -34.08
104----   45  2  -108.29  85.67     -160.79  -34.08    -167.64  -34.91
```

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 105----    46  2  -108.29   85.67    -167.64  -34.91    -181.28  -35.13
 106----    47  2  -108.29   85.67    -181.28  -35.13    -188.18  -35.43
 107----    48  2  -108.29   85.67    -188.18  -35.43    -196.80  -36.13
 108----    49  2  -108.29   85.67    -196.80  -36.13    -203.01  -37.01
 109----    50  2  -108.29   85.67    -303.01  -37.01    -203.01  -37.01
 110----    51  2  -108.29   85.67    -303.01  -37.01    -303.01   85.67
 111----  0 0 0 XWALL,HWALL,RWALL   WALL SPECIFICATIONS
(LOCATION,HEIGHT,ROUGHNESS)
 112----
 113---- ****************** MATERIAL PROPERTIES SECTION
 114----    4   3   15 NUMMAT    NUMBER OF DIFFERENT MATERIALS (NDX, NDZ DENSITY GRID
S
 115----    0 NUMXSU    NUMBER OF VERTICAL X-LINES WITH GIVEN SU-VALUES
 116----    0 NODSU     NUMBER OF MESH NODAL POINTS WITH GIVEN SU-VALUES
 117----   0.00 CRACKZ    SURFACE OPEN CRACK DEPTH
 118----   0.00 CRACKW    WATER DEPTH IN OPEN SURFACE CRACK
 119----   0.0 PHIREF    FRICTION ANGLE REFERENCE PRESSURE
 120----   EFFECTIVE STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO
OK)
 121----   MAT  GAMTOT  COHSN  PHIANG  PHIRED  PWPMAT  RU-MAT  B-FACT K-NOT B-SIG2
D-FCT
 122----   1   18.00    0.00   34.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 123----   2   18.00    0.00    0.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 124----   3   17.00    0.00    0.00  0   0.00   0.00  0  0  0  0.001  -0.00 17.00
 125----   4   18.00    0.00   40.00  0   0.00   0.00  0  0  0  0.001  -0.00 18.00
 126----   TOTAL STRESS ANALYSIS STRENGTH PARAMETERS (ALWAYS INCLUDE , ZERO OK)
 127----   MAT  GAMTOT  SUA/SU0 SUD/SU0 SUP/SU0  SU0-MAT  (A:ACTIVE D:DIRECT
P:PASSIVE)C-
 128----   1   18.00    1.00    1.00    1.00    0.00   1
 129----   2   18.00    1.00    1.00    1.00   30.00   0
 130----   3   17.00    1.00    1.00    1.00   23.00   1
 131----   4   18.00    1.00    1.00    1.00    0.00   1
 132----   X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : SU0-VALUES
 133----  NODE   SU0   (IF ALL NODES, SKIP NODE NUMBERS : SU0(1),SU0(2),...)
 134----
 135---- ****************** PORE-WATER-PRESSURES SECTION
 136----    1 IDPWP     PWP INDICATOR (1=HYDROSTATIC  2=NON-HYDROSTATIC)
 137----    0 NUMBER OF VERTICAL X-LINES WITH GIVEN PWP WITH DEPTH
 138----    0 NODPWP    NUMBER OF MESH NODAL POINTS WITH GIVEN PWP
 139----   0.0 FCTNOD    FACTOR ON PWP-VALUES GIVEN AT NODAL POINTS
 140----   85.670 WATERZ    HORIZONTAL WATER TABLE Z-LEVEL
 141----   10.0 GAMWAT    FREE WATER UNIT WEIGHT
 142----   10.0 GAMPWP    PORE WATER UNIT WEIGHT (=GAMWAT IF HYDROSTATIC)
 143----    0.00 PWPMIN    MINIMUM ALLOWABLE PWP (CAPILLARY TENSION)
 144---- X-LINE  X-COORD  Z-POINTS   LINE 1 : Z-VALUES / LINE 2 : PWP-VALUES
 145----  NODE  PWP-VALUE  (IF ALL NODES , SKIP NODE NUMBERS : PWP(1),PWP(2),...)
 146----
 147---- ****************** LOAD SECTION
 148----    0 NUMPNT            NUMBER OF POINT LOADS & 100*SOIL NAILS
 149----    1 NUMSIG            NUMBER OF SURFACE DISTRIBUTED LOADS
 150----   0.0 SIGTOP           UNIFORM INITIAL VERTICAL STRESS AT SURFACE
 151---- -100 100 XTOP1,XTOP2        STRESS 'SIGTOP' ACTS FROM XTOP1 TO XTOP2
 152----   10.0000   5.0000 FCTPNT,FCTSIG      POINT AND DISTRIBUTED LOAD FACTORS
 153----   0.00 1.00 ACCXRT,ACCZRT       ACCELERATION RATIOS IN X- AND Z-DIRECTIONS
 154----   POINT   X-COORD   Z-COORD   X-FORCE   Z-FORCE
 155----  STRIP     X1       X2       SIGZ1     SIGZ2     TAUX1     TAUX2
 156----    1  -133.47   -118.08    8.00    8.00     -0.00   -0.00
 157----
 158---- ****************** GIVEN SHEAR SURFACE
 159----   2 RESTRICT SHEAR SURFACE, NUMBER OF POINTS ON LINE (X-Z)
```

160---- -119.30 -119.58
161---- -29.85 -28.04
162---- END

00000000011111111112222222222333333333344444444445555555555666666666677777777778
12345678901234567890123456789012345678901234567890123456789012345678901234567890

BEAST Output Program Version = 30 Apr 2015 Time = 07 MAR 2019 16:32:47

========== SAFETY FACTOR = 2.268
SURFACE NO : 284 SUMMARY OF GEOMETRY AND STRESSES
========== SOLUTION SCORE= 0.001

SURFACE TYPE = CIRCLE X-CENTER Z-CENTER RADIUS
-115.500 -38.280 10.060

SOLUTION METHOD = BEAST-2003 / EFFECTIVE STRESS ANALYSIS

SLICE	X1	Z1	Z2	WXT-FRC	P-STR	E2-STR	U2-STR	ROUGH	H2/Z23
	X2	Z4	Z3	WZT-FRC	S-STR	T2-STR	U3-STR		H3/L34
1	-123.89	-32.73	-32.73	0.000E+00	2.940E+01	2.241E+01	0.000E+00	0.333	0.435
1	-123.37	-32.73	-32.01	2.423E+01	9.642E+00	2.766E+00	0.000E+00		0.477
2	-123.37	-32.73	-32.72	0.000E+00	3.972E+01	2.562E+01	0.000E+00	0.303	0.409
2	-122.84	-32.01	-31.41	3.042E+01	1.199E+01	3.351E+00	0.000E+00		0.485
3	-122.84	-32.72	-32.72	0.000E+00	5.362E+01	3.067E+01	0.000E+00	0.314	0.373
3	-122.32	-31.41	-30.89	3.543E+01	1.014E+01	3.589E+00	0.000E+00		0.489
4	-122.32	-32.72	-32.72	0.000E+00	6.459E+01	3.505E+01	0.000E+00*******	0.357	WARNINGS: 1
4	-121.80	-30.89	-30.44	3.972E+01	1.014E+01	3.511E+00	0.000E+00		0.491
5	-121.80	-32.72	-32.72	0.000E+00	7.194E+01	3.850E+01	0.000E+00*******	0.350	WARNINGS: 1
5	-121.28	-30.44	-30.05	4.344E+01	1.014E+01	3.707E+00	0.000E+00		0.493
6	-121.28	-32.72	-32.72	0.000E+00	7.936E+01	4.141E+01	0.000E+00	0.363	0.345
6	-120.75	-30.05	-29.70	4.670E+01	1.014E+01	3.878E+00	0.000E+00		0.494
7	-120.75	-32.72	-32.72	0.000E+00	8.589E+01	4.386E+01	0.000E+00	0.370	0.340
7	-120.23	-29.70	-29.40	4.953E+01	1.014E+01	4.024E+00	0.000E+00		0.495
8	-120.23	-32.72	-32.72	0.000E+00	9.184E+01	4.586E+01	0.000E+00	0.376	0.336
8	-119.71	-29.40	-29.15	5.204E+01	1.014E+01	4.145E+00	0.000E+00		0.496
9	-119.71	-32.72	-32.71	0.000E+00	9.677E+01	4.748E+01	0.000E+00	0.381	0.332
9	-119.19	-29.15	-28.92	5.408E+01	1.014E+01	4.241E+00	0.000E+00		0.497
10	-119.19	-32.71	-32.71	0.000E+00	1.014E+02	4.874E+01	0.000E+00	0.384	0.328
10	-118.67	-28.92	-28.73	5.592E+01	1.014E+01	4.311E+00	0.000E+00		0.497
11	-118.67	-32.71	-32.71	0.000E+00	1.054E+02	4.962E+01	0.000E+00	0.386	0.325
11	-118.14	-28.73	-28.58	5.747E+01	1.014E+01	4.356E+00	0.000E+00		0.498
12	-118.14	-32.71	-32.65	0.000E+00	7.379E+01	4.977E+01	0.000E+00	0.387	0.332
12	-117.62	-28.58	-28.45	4.022E+01	1.014E+01	4.373E+00	0.000E+00		0.527

13	-117.62	-32.65	-32.58	0.000E+00	7.066E+01	4.986E+01	0.000E+00	0.388	0.340
13	-117.10	-28.45	-28.35	3.804E+01	1.014E+01	4.386E+00	0.000E+00		0.500
14	-117.10	-32.58	-32.51	0.000E+00	7.168E+01	4.984E+01	0.000E+00	0.388	0.346
14	-116.58	-28.35	-28.28	3.814E+01	1.014E+01	4.386E+00	0.000E+00		0.500
15	-116.58	-32.51	-32.43	0.000E+00	7.231E+01	4.967E+01	0.000E+00	0.387	0.352
15	-116.06	-28.28	-28.24	3.799E+01	1.014E+01	4.375E+00	0.000E+00		0.501
16	-116.06	-32.43	-32.36	0.000E+00	7.235E+01	4.935E+01	0.000E+00	0.386	0.357
16	-115.53	-28.24	-28.22	3.759E+01	1.014E+01	4.349E+00	0.000E+00		0.501
17	-115.53	-32.36	-32.29	0.000E+00	7.202E+01	4.887E+01	0.000E+00	0.383	0.361
17	-115.01	-28.22	-28.23	3.694E+01	1.014E+01	4.309E+00	0.000E+00		0.502
18	-115.01	-32.29	-32.21	0.000E+00	7.112E+01	4.822E+01	0.000E+00	0.380	0.365
18	-114.49	-28.23	-28.27	3.605E+01	1.014E+01	4.255E+00	0.000E+00		0.502
19	-114.49	-32.21	-32.14	0.000E+00	6.982E+01	4.737E+01	0.000E+00	0.376	0.369
19	-113.97	-28.27	-28.34	3.492E+01	1.014E+01	4.187E+00	0.000E+00		0.503
20	-113.97	-32.14	-32.07	0.000E+00	6.795E+01	4.634E+01	0.000E+00	0.371	0.372
20	-113.44	-28.34	-28.43	3.353E+01	1.014E+01	4.104E+00	0.000E+00		0.504
21	-113.44	-32.07	-31.99	0.000E+00	6.576E+01	4.508E+01	0.000E+00	0.366	0.376
21	-112.92	-28.43	-28.56	3.192E+01	1.014E+01	4.006E+00	0.000E+00		0.505
22	-112.92	-31.99	-31.92	0.000E+00	6.302E+01	4.361E+01	0.000E+00	0.359	0.380
22	-112.40	-28.56	-28.71	3.009E+01	1.014E+01	3.891E+00	0.000E+00		0.506
23	-112.40	-31.92	-31.85	0.000E+00	5.971E+01	4.188E+01	0.000E+00	0.351	0.385
23	-111.88	-28.71	-28.90	2.789E+01	1.014E+01	3.763E+00	0.000E+00		0.507
24	-111.88	-31.85	-31.78	0.000E+00	5.583E+01	3.990E+01	0.000E+00	0.342	0.389
24	-111.36	-28.90	-29.11	2.546E+01	1.014E+01	3.619E+00	0.000E+00		0.509
25	-111.36	-31.78	-31.70	0.000E+00	5.143E+01	3.762E+01	0.000E+00	0.333	0.394
25	-110.83	-29.11	-29.37	2.271E+01	1.014E+01	3.460E+00	0.000E+00		0.511
26	-110.83	-31.70	-31.63	0.000E+00	4.517E+01	3.520E+01	0.000E+00	0.307	0.395
26	-110.31	-29.37	-29.66	1.963E+01	1.014E+01	3.609E+00	0.000E+00		0.514
27	-110.31	-31.63	-31.56	0.000E+00	4.090E+01	3.222E+01	0.000E+00	0.297	0.392
27	-109.79	-29.66	-30.00	1.618E+01	1.014E+01	3.423E+00	0.000E+00		0.519
28	-109.79	-31.56	-31.48	0.000E+00	3.449E+01	2.875E+01	0.000E+00	0.286	0.369
28	-109.27	-30.00	-30.38	1.233E+01	1.014E+01	3.229E+00	0.000E+00		0.529
29	-109.27	-31.48	-31.41	0.000E+00	2.943E+01	2.054E+01	0.000E+00	0.357	0.333
29	-108.74	-30.38	-30.83	7.896E+00	1.261E+01	2.818E+00	0.000E+00		0.551
30	-108.74	-31.41	-31.33	0.000E+00	1.461E+01	-2.003E-10	0.000E+00	0.000	0.500
30	-108.15	-30.83	-31.32	3.133E+00	7.899E+00	2.132E-11	0.000E+00		0.665

BEAST Output Program Version = 30 Apr 2015 Time = 07 MAR 2019 16:32:47

SURFACE NO:284 TYPE: CIRCLE SAFETY-FACTOR: 2.268 SCORE: 0.001

BELOW SKETCH SHOWS SHEAR SURFACE WITH SLICE DIVISIONS AND MATERIAL ID-S

```
111  1 1 1  1 1 1  1 1 1  1 1 1  1 1 1
 2  2 2 2  2 2 2  2 2 2  2 1 1  1 1 1 1  1 1 1  1
  2 2 2 2  2 2 2  2 2 2  2 2 2  2 2 2 2  1 1 1  1 1 1  1 1 1
    3 3 3  3 3 3  3 3 3  3 3 3  3 2 2 2  2 2 2  2 2 2  1 1 1  1 1 1  1
     33 3  3 3 3  3 3 3  3 3 3  3 3 3 3  3 3 2  2 2 2  2 2 2  2 2 1 1
       33  3 3 3  3 3 3  3 3 3  3 3 3 3  3 3 3  3 3 3  3 2 2  2 222
        33 3 3 3  3 3 3  3 3 3  3 3 3 3  3 3 3  3 3 3  3 3 3  333
           333 3  3 3 3  3 3 3  3 3 3 3  3 3 3  3 3 3  3 3 3 33
             333  3 3 3  3 3 3  3 3 3 3  3 3 3  3 3 3  3 333
                3 333 3  3 3 3  3 3 3 3  3 3 3  3 3 3 333
                    3333 3 3 3  3 3 3 3  3 3 3  33333
                         333333 3333333 333333 33
0102 030405 060708 091011 121314 151617 181920 212223 242526 272829 30
```

```
 MAT GAMTOT SUA/SU0 SUD/SU0 SUP/SU0 COHESN PHIANG PHIRED RU-FCT  B-FCT  K-NOT B-
SIG2 D/SU(B)
  1  18.000  1.000   1.000   1.000   0.000  34.00  0.00  0.000   0.000  0.000  0.000  0.001
  2  18.000  1.000   1.000   1.000   0.000   0.00  0.00  0.000   0.000  0.000  0.000  0.001
  3  17.000  1.000   1.000   1.000   0.000   0.00  0.00  0.000   0.000  0.000  0.000  0.001
  4  18.000  1.000   1.000   1.000   0.000  40.00  0.00  0.000   0.000  0.000  0.000  0.001
```

BEAST Output Program Version = 30 Apr 2015 Time = 07 MAR 2019 16:32:47

SURFACE NO:284 TYPE: CIRCLE SAFETY-FACTOR: 2.268 SCORE: 0.001
BELOW SKETCH SHOWS EFFECTIVE NORMAL STRESSES: P=SHEAR-SURFACE E=INTER-SLICE
U=RESULTING PWP AT SHEAR SURFACE

```
0102 030405 060708 091011 121314 151617 181920 212223 242526 272829 30
-----------------------------------------------------------------------ZERO
IU U  U U U  U U U  U U U  U U U  U U U  U U U  U U U  U U U  U U U  UI
I                                                     I
I                                                     I
I                                                    PI
I                                                  E  I
I E                                                    I
IP   E                                             EP   I
I      E                                         E      I
I        E                                   E E   P     I
I P        E E                             E  E    P       I
I             E  E                    E  E E      P         I
I                 E E  E E E  E E E E  E E                    I
I     P                                   P          I
I                                      P             I
I                                  P P               I
I       P                          P                 I
I                      P        P P P                 I
I         P            P   P  P P P                    I
I            P                                     I
I                                                  I
I             P                                    I
I               P                                  I
I                 P                                I
I                                                  I
I                   P P                             I
-----------------------------------------------------------------------SIGMAX
```

P-MIN = 1.461E+01 P-MAX = 1.054E+02
E-MIN = 2.054E+01 E-MAX = 4.986E+01
U-MIN = 0.000E+00 U-MAX = 0.000E+00

THIS RUN WAS TERMINATED : 07 MAR 2019 AT 16:32:47 HOURS

TIME USED = 0 SECONDS

golder.com