

Attuazione dell'articolo 11 della legge 24 giugno 2009 n. 77

MICROZONAZIONE SISMICA

Relazione illustrativa

Regione Emilia-Romagna

Comune di Castel di Casio



Regione Emilia-Romagna Studio realizzato con il contributo di cui all'OCDPC del 26 Ottobre 2015 n°293	Soggetto realizzatore  GEOLOGIA TECNICHE DI PROGETTAZIONE AMBIENTALE Piazza Giovanni XXIII 12/b 40133 Bologna tel: 051-9912225 - fax:051-4122990 luca.monti@ultraland.it Collaborazione Giorgio Ciocce Mirko Soldati	Comune di Castel di Casio Il Sindaco Mauro Brunetti	
		Data Dicembre 2021	Elaborato 1

1. INTRODUZIONE

Il presente elaborato è a corredo dello "studio di Microzonazione Sismica di terzo livello con analisi della Condizione Limite Locale per l'Emergenza (CLE)" del comune di Castel di Casio, di cui all'Ordinanza del Capo di Dipartimento della Protezione Civile n.344/2016.

Lo studio è stato elaborato conformemente alla DGR n. 630/2019 e agli "Standard di rappresentazione e archiviazione informatica versione 4.1"

Finalità dello Studio

La Microzonazione Sismica consiste nella "suddivisione dettagliata del territorio in base al comportamento dei terreni durante un evento sismico e ai possibili effetti indotti dallo scuotimento (risposta sismica locale)"; l'obiettivo di tali studi è quello di fornire uno strumento di prevenzione e riduzione del rischio sismico in modo da indirizzare le scelte della pianificazione urbanistica e, al contempo, costituire un riferimento per le scelte progettuali.

Lo studio si è posto l'obiettivo di realizzare la Microzonazione sismica di III° Livello di alcune aree urbanizzate e urbanizzabili del territorio comunale scelte, in accordo con l'Amministrazione Comunale, sulla base della loro rilevanza urbanistica, della presenza di un adeguato numero di dati geognostici di base.

In particolare le aree di studio sono:

1. il centro abitato di **Castel di Casio**
2. la località **Badi**
3. la località **Berzantina**
4. la località **Prati**

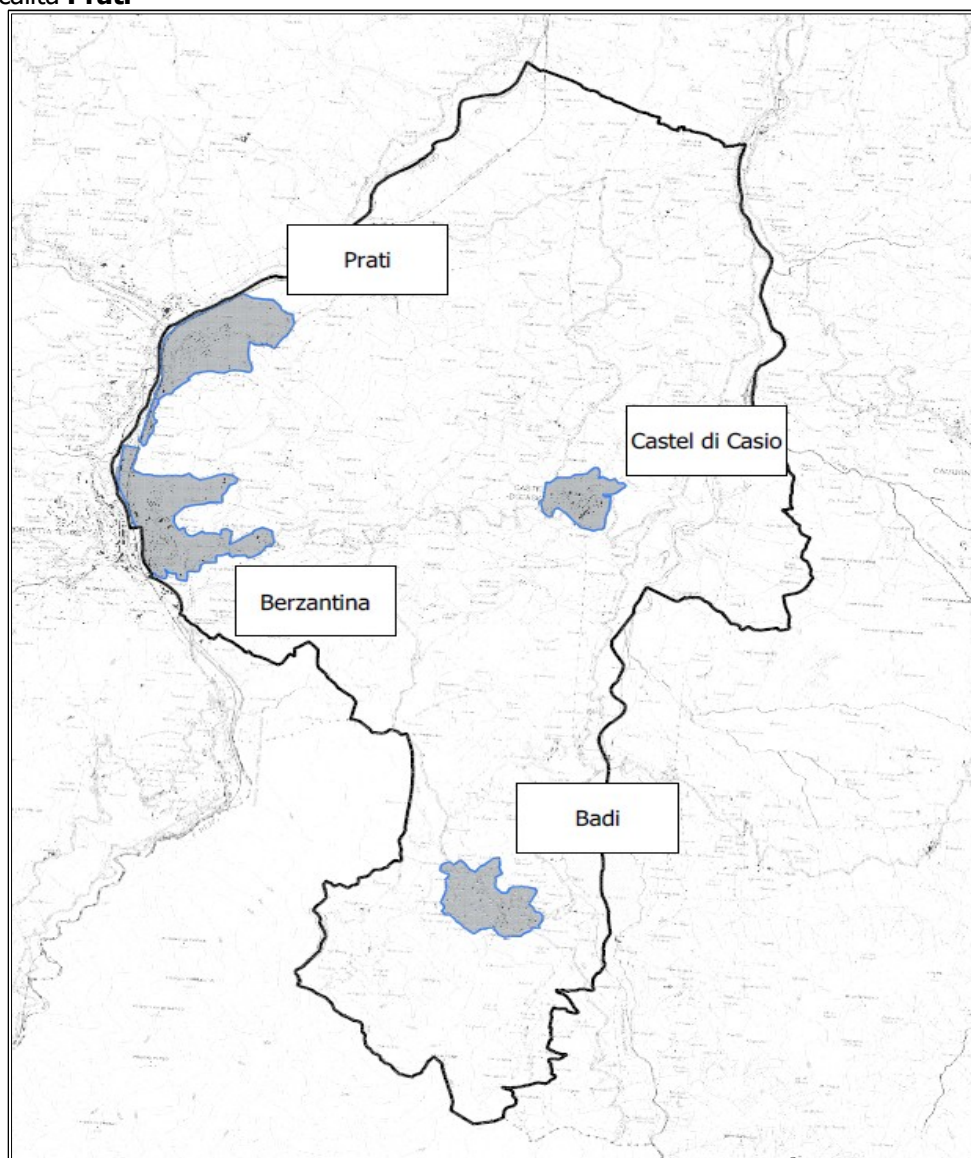


Figura 1. Individuazione delle aree studiate all'interno del territorio del Comune di Castel di Casio.

Il Comune di Castel di Casio si inserisce nell'alto Appennino bolognese, confinando con la Regione

Toscana a sud (Sambuca Pistoiese - PT) e con i seguenti comuni emiliani:

- Grizzana Morandi a Nord;
- Camugnano a Est;
- Alto Reno Terme a Ovest;
- Gaggio Montano a Nord Ovest.

Il territorio comunale si sviluppa per una superficie di 47,45 Km², ed è compreso fra le valli del Fiume Reno a Ovest, il Torrente Limentra di Treppio a Est, il Bacino di Suviana a SE ed il Torrente Limentra di Sambuca a SO.

Le sue quote sul livello del mare sono comprese tra i circa 281 m, lungo il confine settentrionale in corrispondenza del Fiume Reno e del Torrente Limentra di Treppio, e circa 1138 m lungo il confine con la Regione Toscana in corrispondenza della cima del Monte La Tose (1138,3 m).

Dal punto di vista cartografico il territorio comunale ricade nelle tavole della Carta Topografica Regionale, alla scala 1:25.000:

- 237-SO "Vergato";
 - 251-NE "Porretta Terme";
 - 252-NO "Castiglione dei Pepoli";
- e nelle sezioni della Carta Tecnica Regionale, alla scala 1:10.000:

- 237130 "Riola";
- 251040 "Alto Reno Terme".
- 252010 "Castel di Casio";
- 252050 "Suviana";
- 252090 "Treppio";

Fig. 1: Mappa Provincia di Bologna – dal sito internet www.provincia.bologna.it



Figura 2. Carta dei comuni della Provincia di Bologna

2. ASSETTO GEOLOGICO DELL'AREA

Inquadramento generale

Il territorio del Comune di Castel di Casio appartiene geologicamente alla Catena Appenninica

Settentrionale che è delimitata a N dalla Linea Sestri – Voltaggio e a S dalla Linea Ancona – Anzio: due

grandi allineamenti tettonici trasversali con forte componente trascorrente. L'Appennino è

caratterizzato dalla sovrapposizione di enormi masse rocciose di notevole estensione areale (*Falde o Unità tettoniche*) con vergenza dominante verso NE, costituite da successioni sedimentarie depostesi in domini paleogeografici diversi. Questi domini si sono formati durante le fasi di apertura dell'Oceano ligure – piemontese. Nel Giurassico inferiore – medio, l'inizio dell'apertura dell'Atlantico centrale ha causato una deriva verso E della placca africana rispetto a quella europea e fra le due si è generata una fascia a trascorrenza sinistra che ha individuato bacini estensionali a crosta oceanica, fra cui quello ligure – piemontese. Mentre nelle zone più esterne si formavano i depositi del *Dominio toscano* su crosta continentale in assottigliamento con facies che si approfondivano progressivamente, nelle zone più esterne, ad W, si creava un dominio oceanico con sedimenti pelagici che si depositavano su crosta oceanica (*Dominio ligure*) e su crosta continentale fortemente assottigliata (*Dominio sub – ligure, Complesso di Canetolo*). Dal Cretaceo superiore, in concomitanza con l'apertura dell'Atlantico settentrionale, la placca africana ha mutato traiettoria da ESE a NNE, cioè ha iniziato a convergere verso la placca europea. Questo regime compressivo ha provocato la chiusura dell'Oceano ligure – piemontese che è avvenuta completamente nell'Eocene medio – superiore con la collisione tra il margine continentale europeo (sardo – corso) e quello africano (adriatico).

In questa complessa storia tettonica si possono distinguere una fase oceanica ed una intracontinentale; la fase oceanica inizia al limite tra il Cretaceo inferiore ed il Cretaceo superiore, e termina nell'Eocene medio con la completa chiusura dell'Oceano ligure-piemontese. Durante questa fase si forma un prisma d'accrescimento costruito dall'impilamento per sottoscorrimento verso Ovest delle coperture oceaniche e di parte del loro basamento (Unità liguri). Nell'Eocene medio-superiore segue, come evidenziato in precedenza, la collisione tra il margine continentale europeo (sardo-corso) e quello adriatico che dà inizio alla fase intracontinentale dell'orogenesi appenninica, sviluppatasi

essenzialmente a spese del margine continentale adriatico occidentale. In questa fase si ha lo sviluppo di una tettonica a thrust e falde con sottoscorrimento verso Ovest delle Unità toscane, prima, e di quelle umbro-marchigiane poi, sotto le unità precedentemente impilate.

Nell'Appennino tosco-emiliano quanto descritto ha portato prima (Cretaceo superiore-Eocene) allo sradicamento delle Unità liguri dal loro substrato oceanico e al loro impilamento su se stesse secondo un ordine tettonico-geometrico che vede in alto le unità più interne ed in basso le più esterne. L'*Unità del Sambro (Cretaceo-Eocene inferiore)*, che costituisce il bed-rock della quasi totalità del territorio comunale, sovrasta le restanti unità liguri, che a loro volta sono impilate sull'Unità di Canetolo (Eocene-Oligocene). Successivamente, dopo la messa in posto della Falda toscana (Dominio toscano interno), avvenuta nel Miocene medio-superiore, sopra la più esterna Unità Cervarola-Falterona, le Unità liguri si sono rimosse, per mettersi in posto prima sopra la Falda toscana, e poi sopra l'Unità Cervarola-Falterona già sovrascorsa verso Est (Tortoniano) sulla Marnoso arenacea (Dominio Umbroromagnolo).

Geologia del territorio comunale

Dal punto di vista geologico il territorio del comune di Castel di Casio è suddivisibile in due macro settori: quello settentrionale (Tav.1.4) e quello meridionale (Tav.1.5). Il primo è caratterizzato in gran parte da litotipi ascrivibili alle **Unità Liguri**, mentre nel secondo si individuano per lo più i termini ascrivibili alle **Unità Toscane**. Tra i due settori, e in posizione centrale, è presente un'area dove si rinvengono litotipi appartenenti alla **Successione Epiligure**. Si tratta di formazioni geologiche che si sono depositate su bacini minori impostati sui terreni Liguri intensamente tettonizzati a partire dall'Eocene medio e caratterizzate da sequenze deposizionali ricche di detriti silicoclastici, qui rappresentate dalle Formazione delle Marne di Antognola (ANT), dalla Formazione di Loiano (LOI) ed infine, dalla Formazione delle Breccie Argillose di Baiso (BAI).

Le **Unità liguri** sono invece rappresentate dalle seguenti formazioni: Formazione delle Argille a Palombini (APA) che ricopre gran parte del territorio centro settentrionale del comune, la Formazioni di **Monghidoro (MOH)**, **Monte Venere (MOV)** e **Romanoro (ROA)**, localizzate al centro del territorio comunale, e la Formazione delle Argille Variegate di Grizzana Morandi (AVT) che affiora principalmente in una fascia posta al confine settentrionale del comune. Infine le **Unità toscane** sono rappresentate dalle Argille Variegate con Calcari (AVC) che ricopre gran parte del territorio centro meridionale del comune, dalle Formazioni di Castiglione dei Pepoli (CDP), Stagno (STA), Torrente Carigiola (TCG) che sono localizzate nella porzione più meridionale del territorio comunale, dalle formazioni delle Arenarie di Suviana (SUV), Marne di Baigno (BGN), Marne di Marmoreto (MMA), Marne di Civago (CIV), Argille di Fiumalbo (FIU), Abetina Reale (ABT), Serra Volpara (SVP), che compaiono localmente lungo la fascia centro meridionale del comune ed infine dalla Formazione delle Breccie Argillose Poligeniche che compare con due lembi all'altezza del Lago di Suviana.

Di seguito saranno descritte in dettaglio le caratteristiche delle singole formazioni geologiche.

→ **Successione Epiligure**

ANT - Marne di Antognola (Rupeliano terminale - Burdigaliano?)

Marne argillose e marne siltose verdognole o grigie con patine manganesifere; fratturazione concoide o con tipiche superfici concentriche; frequenti i microfossili e talora i bioclasti.

Stratificazione da molto sottile a media, talora difficilmente percepibile, sia per scarsa cassazione granulometrica che per bioturbazione. Sono presenti rari livelli torbiditici di arenarie vulcanoclastiche, arcose e quarzoso-feldspatiche, da sottili a medi, e strati sottili e sottilissimi, discontinui, di cineriti biancastre, tipicamente alterate in giallo o giallo ocra. Localmente si osservano anche orizzonti caotici (sl) e livelli di breccie con clasti extraformazionali. Localmente è stata distinta una litofacies arenacea (ANTa), potente fino a qualche decina di metri, caratterizzata dalla presenza di torbiditi sottili con base arenitica centimetrica. Il limite inferiore è netto, discordante, su MMP, sfumato su RAN; in eteropia con MVT. Ambiente di sedimentazione di piattaforma esterna, scarpata e base scarpata con apporti torbiditici. La potenza totale della formazione raggiunge alcune centinaia di metri.

LOI - Formazione di Loiano (Luteziano - Priaboniano)

Arenarie arcose, da fini a molto grossolane, a luoghi microconglomeratiche, in genere scarsamente cementate, con subordinati conglomerati, in strati medi e banchi frequentemente amalgamati, di colore biancastro o grigio chiaro (marrone chiaro se alterate); sono presenti intercalazioni, spesso discontinue, di torbiditi sottili arenaceo-pelitiche grigie o verdastre (A/P sempre >1). Frequenti anche i "cogoli". Nella porzione basale sono presenti slump intraformazionali di spessore ed estensione assai limitata ed argille rosso-mattone e grigio-verdastre, localmente marnose, interdigitate con breccie argillose a matrice nerastra, inglobanti blocchi calcilutitici di dimensioni massime decimetriche. Localmente distinta una litofacies arenaceo-pelitica (LOlap) caratterizzata da strati medi arenaceo-pelitici con A/P ³ 1. Sedimentazione torbiditica in bacino confinato profondo. Interdigitazione a scala regionale con MMP. Il limite inferiore è discordante su

MOH, MOV, BAI o risulta tettonizzato. La potenza affiorante raggiunge 700 m.

BAI - Formazione delle Breccie Argillose di Baiso. (Luteziano sup. – Bartoniano)

Brecce sedimentarie poligeniche a prevalente matrice argillosa con clasti eterometrici ed eterogenei costituiti da litotipi appartenenti a varie unità liguri. A seconda della litologia prevalente la formazione è stata interamente suddivisa in alcuni membri che affiorano in areali distinti e senza legami di carattere stratigrafico reciproci. Potenza massima di circa 200 m. Nel territorio in esame si rinviene solo il successivo membro.

BAI3 - Membro di Poggio Cavaliera (Luteziano sup. - Bartoniano)

Brecce poligeniche a prevalente matrice argillosa grigia, localmente arenacea, con clasti eterometrici di areniti calcaree fini, arenarie fini, marne e argilliti nerastre. Sono presenti a luoghi inclusi metrici e decametrici di MMP, LO11 e LOI. Materiale proveniente esclusivamente da MOH e MOV. Contatto inferiore discordante su MOH e MOV. Potenza massima di oltre 250 m.

→ **Unità Liguri**

MOH - Formazione di Monghidoro (Maastrichtiano sup. - Paleocene)

Torbiditi arenaceo-pelitici in strati generalmente spessi, raramente molto spessi, con rapporto A/P ~ 2/1. Si intercalano intervalli metrici di strati sottili e medi con rapporto A/P = 1/2. Le arenarie sono gradate con base a granulometria da media a grossolana, talora microconglomeratica, localmente poco cementate, di colore grigio scuro ma generalmente marroni o giallastre per alterazione ed ossidazione dei minerali ferri; passano ad argilliti più o meno siltose di colore nerastro. Nella parte bassa della formazione sono presenti torbiditi a base arenacea e tetto calcareo-marnoso con abbondanti tracce di fucoidi, talora cartografate (am). Localmente distinte: la litofacies arenacea (MOHa), caratterizzata da strati da sottili a spessi con rapporto A/P >>1, potente fino a 300 m; la litofacies pelitico-arenacea (MOHb), caratterizzata da strati sottili pelitico-arenacei con rapporto A/P <1; la litofacies calcareo-marnosa (MOHca), caratterizzata da banchi plurimetrici di marne calcaree intervallate a spessori decametrici di strati arenaceo-pelitici (A/P variabile da 1/1 a 1/2). Torbiditi di piana bacinale. Limite inferiore graduale su MOV, dove non tettonizzato. La potenza geometrica massima è di qualche centinaio di metri.

MOV - Formazione di Monte Venere (Campaniano sup. - Maastrichtiano sup.)

Torbiditi arenaceo-marnose con base fine grigio-chiaro, in strati da medi a molto spessi fino a banchi di oltre 15 m, al tetto intervalli sottili o medi di argille scure o nerastre. Intercalazioni metriche di strati arenaceo-pelitici da sottili a spessi grigio brunastri, con rapporto A/P >1, a luoghi prevalenti sugli strati calcareo-marnosi. Le areniti hanno composizione arcocosa e possono avere cementazione scarsa, specie quelle a grana più grossolana. Localmente, verso il basso, le torbiditi gradate calcareo-marnose con base calcilutitica o arenitica a composizione ibrida più spesse sono state cartografate (cm). Paleocorrenti con provenienza dai quadranti meridionali. Torbiditi di ambiente marino profondo. Contatto inferiore non preservato. Potenza di oltre 900 m.

AVT - Argille variegata di Grizzana Morandi (Cenomaniano - Santoniano sup.)

Argilliti e argille rosso violacee, verdastre, grigio-scure e grigio azzurrognole, con subordinate siltiti grigio-scure o nere manganesifere, in strati sottili o molto sottili e calcilutiti grigio-verdi in strati sottili e medi. Nell'area del Foglio 252 presenti inclusi da metrici a decametrici di ofioliti (of) talora cartografabili. Formazione intensamente deformata con perdita dell'originario ordine stratigrafico alla scala dell'affioramento. Pelagiti e torbiditi distali di ambiente di piana abissale. Contatto inferiore non preservato. Potenza fino a 200 m circa.

AVTa - Argille Variegata di Grizzana Morandi - Litozona Argillitica (Cenomaniano - Santoniano sup.)

Argilliti fissili grigio-bluastre, verdi e rossastre, con subordinate arenarie risedimentate grigie, fini e finissime e con siltiti nerastre fratturate. Silicizzazione intensa e diffusa. Deformazione molto intensa con pieghe isoclinali, boudinage e trasposizioni degli strati competenti; assetto complessivo caotico. Localmente sono presenti lembi con scarsa foliazione, parziale preservazione della stratificazione primaria e colore da rosso a grigio.

ROA - Formazione di Romanoro (Coniaciano inf.)

Torbiditi marnose, siltitico-marnose e arenitico-marnose in strati di potenza variabile da pochi centimetri al metro. Gli intervalli arenitici hanno generalmente colore grigio o grigio scuro ed alterazione nocciola scuro, ocra o marrone, le marne sono prevalentemente grigie, grigio verdi o nocciola (grigio chiaro o nocciola quando alterate). Spessore massimo di circa 20m.

APA - Argille a Palombini (Cretaceo inf. - Turoniano)

Argilliti ed argilliti siltose grigio scure, più raramente verdi, rossastre o grigio-azzurrognole, fissili (nella pelite è spesso presente un clivaggio scaglioso a carattere pervasivo), alternate a calcilutiti silicizzate grigio chiare e grigio-verdi, biancastre in superficie alterata, talvolta con base arenitica da fine a grossolana, in strati da medi a spessi (molto spesso discontinui per motivi tettonici) e più rari calcari marnosi grigi e verdi in strati spessi. Rapporto Argilla/Calcarea quasi sempre >1. Frequenti intercalazioni di siltiti ed arenarie torbiditiche fini (talora manganesifere) a tetto pelitico

in letti molto sottili e sottili di colore grigio scuro (o beige se alterate) e di calcareniti mediogrossolane in strati da medi a spessi. La formazione in genere è intensamente deformata con **perdita dell'originario ordine stratigrafico alla scala dell'affioramento; gli strati calcilutitici sono** spesso "boudinati", a luoghi silicizzati, pervasivamente fratturati e caratterizzati da una fitta rete di vene di calcite, spalmature verdastre sulle superfici di strato e frattura concoide. All'interno della formazione sono talora stati cartografati lembi di ofioliti (of) giurassiche, fino a decametrici, spesso distinte in: breccie ofiolitiche (bo), basalti: β , basalti brecciati (Bb); gabbri: ga, serpentine: S. Sedimentazione pelagica argillosa, intervallata da risedimentazione di fanghi carbonatici. Contatti ovunque tettonici o non affioranti. Potenza geometrica variabile da alcune decine ad alcune centinaia di metri.

APAA - Argille a palombini - litozona argillitica (Cretaceo inf. - Turoniano)

Argilliti grigie e a luoghi verdognole, con fissilità spesso molto evidente e in qualche caso silicizzate; sono alternate a calcilutiti grigie in strati medi e spessi con subordinati pacchi di strati sottili di alternanze arenaceo-pelittiche giallastre e nocciola. La litozona può essere caratterizzata da diagenesi spinta fino al limite dell'anchimetamorfismo.

→ **Unità toscane**

SUV - Arenarie di Suviana (Burdigaliano - Langhiano)

Alternanze arenaceo-pelittiche in strati gradati prevalentemente spessi e molto spessi. Le areniti alla base degli strati sono da medie a grossolane (localmente molto grossolane) con composizione feldspatolitica, tetto marnoso nel quale sporadicamente si trovano intercalati sottilissimi livelli conglomeratici a geometria lentiforme (A/P>>1). Paleocorrenti dai quadranti occidentali. Depositi torbiditici di lobo e di frangia di lobo. Contatto inferiore discordante su CIV ed MMA, netto su BGN1, BGN. Potenza massima 150 m.

CIV - Marne di Civago (Aquitano)

Marne o marne siltose grigie ad elevato contenuto di silice di colore variabile dal grigio verde al grigio scuro, localmente intervallati con liste di selce nera. Nella parte bassa della successione sono talvolta presenti breccie argillitico-calcaree a elementi liguri e sub-liguri, originate da debris flow (litofacies a breccie del Rio Rumale - CIVa). Depositi emipelagici di scarpata. Spessore massimo di circa 150m.

BGN - Marne di Bagno (Aquitano - Burdigaliano)

Marne siltose, talora calcaree, molto indurite, omogenee, di colore grigio chiaro in superficie fresca e grigio-giallastro in superficie alterata. Stratificazione mal visibile o assente. Localmente presenti indizi di bioturbazione e concentrazione di granuli glauconitici. Depositi emipelagici di piattaforma esterna e scarpata. Contatto stratigrafico inferiore non preservato, presumibilmente discordante sulle "formazioni ad affinità ligure e subligure". Potenza massima 150 m.

MMA - Marne di Marmoreto (Rupeliano - Chattiano)

Marne, marne siltose e marne calcaree, grigie, a stratificazione mal visibile con rare intercalazioni di siltiti ed arenarie fini grigio-chiare, giallastre per alterazione. Nella parte alta è stata cartografata la litofacies pelitico-arenacea (MMAc), presente localmente in prossimità del contatto con le Arenarie di Suviana, in cui ai sedimenti marnosi si intercalano torbiditi arenaceomarnose o siltitico-marnose generalmente di spessore variabile dai 5 ai 20 cm. La parte basale della formazione è talvolta caratterizzata da intercalazioni di breccie (talora grossolanamente stratificate) con clasti argillitici e calcarei, di origine ligure e/o subligure, immersi in una matrice argillitica scura (litofacies a breccie del Rifugio Battisti -MMAa). Nell'area del Foglio 252 lembi di dimensione metrica possono essere inclusi come olistoliti in BAP e come piccole scaglie tettoniche in AVC. Deposito di scarpata. Contatto inferiore in discordanza su FIU o su AVC. Spessore massimo di circa 100m.

FIU - Argille di Fiumalbo (Bartoniano - Oligocene inf.)

Argille, argilliti e argilliti-marnose grigio-scure, verdastre e rosse con stratificazione poco evidente, talora con intercalazioni di sottili strati gradati di areniti finissime e fini, grigio-verdastre; nella parte **alta della formazione prevalenza di argilliti marnose grigio-cenere con intercalazioni di siltiti e** areniti fini in strati sottili. In prossimità del contatto con le formazioni sottostanti sono presenti breccie argillitico-calcaree a elementi liguri originate da debris flow (litofacies a breccie di Riccovolto - FIUa). Depositi pelagici emipelagici e torbiditici fini distali. Limite inferiore per lo più tettonizzato, ma verosimilmente discordante sulle formazioni sottostanti. Potenza geometrica massima di alcune decine di metri.

BAP - Breccie argillose poligeniche (Cretaceo inf. - Miocene inf.)

Breccie poligeniche a matrice argillosa nerastre o grigiastre, nocciola in superficie alterata, con clasti di calcari micritici grigio-giallastri, di argilliti di dimensione millimetrica, siltiti nerastre, areniti e marne calcaree grigie. Stratificazione indistinta. Nell'area del Foglio 252 sono presenti inclusi costituiti da grossi lembi di successioni stratigrafiche (metrici o decametrici) riferibili a MMA e AVC. Depositi di colate miste di fango e detrito (debris flow) in ambiente marino profondo.

Interdigitazione con AVC, FIU e MMA. Potenza variabile da 0 a 200 m.

ABT - Formazione dell'Abetina Reale (Campaniano - Paleocene inf.)

Torbiditi a base calcilutitica grigia, passanti a marne calcaree biancastre, in strati da medi a molto spessi, localmente plurimetrici, alternate a torbiditi a base arenitica fine e siltitica e tetto argilloso grigio-scuro in strati sottili e medi. Subordinate calcilutiti silicee grigio-bluastre in strati da medi a spessi. Locali intercalazioni di brecce poligeniche con clasti ofiolitici. Localmente presenza di torbiditi silicoclastiche in strati da sottili a spessi con base a grana da arenitica medio-fine a siltitica e tetto marnoso ($A/P > 1$), alle quali si intercalano livelli, da centimetrici a pluridecimetrici, di argilliti di colore bruno scuro e, più raramente, sottili strati marnosi (litofacies arenaceo-pelitica - ABTa). Deformazione tettonica intensa. Torbiditi di ambiente marino profondo. Contatti stratigrafici inferiore e superiore non preservati. Potenza di 200 m circa.

SVP - Formazione di Serra Volpara (Cenomaniano)

Alternanza di marne siltose a stratificazione mal visibile o assente, calcari marnosi in strati spessi e molto spessi e subordinate areniti finissime in strati medi e spessi. Gli strati calcareo-marnosi e arenitici hanno base e tetto sfumati e sono privi di evidenti strutture sedimentarie interne. Talora sono presenti alternanze di marne e marne calcaree con argilliti nere molto foliate. Deformazione tettonica molto intensa che dà origine ad un diffuso boudinage dei livelli più competenti. Contatti stratigrafici inferiore e superiore non preservati. Potenza geometrica massima 70-80 metri.

AVC - Argilliti variegata con calcari (Cretaceo inf. - Eocene)

Argilliti, talora marnose, bruno verdastre o grigio-verdi, talora in bande blu, nocciola in superficie alterata, in strati sottili con intercalate calcilutiti grigie (bianco-giallastre in superficie alterata), in strati da sottili a molto spessi, a volte marnose al tetto, e siltiti e arenarie fini in strati sottili. Rapporto $A/C > 1$. Strati calcareo-marnosi grigi, biancastri se alterati, da spessi a molto spessi, con base calcarenitica fine; brecce a matrice argillosa bruna a prevalenti clasti di calcari tipo palombini; argilliti grigio-piombo in livelli di spessore decimetrico alternate a calcari silicei grigiobluastri in strati sottili e medi. Localmente è stata distinto un intervallo, spesso 80-100 m, costituito prevalentemente da torbiditi, di spessore variabile dal 50 cm a 3-4 m, a base calcarenitica fine e tetto marnoso molto sviluppato (litofacies calcareo-marnosa - AVCd). Nella parte bassa della formazione sono state talora distinte lenti di brecce poligeniche con clasti prevalentemente ofiolitici e più subordinatamente calcarei e diasprini (litofacies a brecce ofiolitiche - AVCa). Localmente sono presenti inclusi ofiolitici (of) di brecce poligeniche ad elementi ofiolitici, brecce di oficalciti e gabbri (bo) e basalti brecciati (Bb). Deformazione tettonica molto intensa che dà origine ad una foliazione ben marcata estremamente pervasiva nelle argilliti, mentre i livelli più competenti si presentano sottoforma di boudins e cerniere sradicate; solo molto raramente la stratificazione originale è preservata. Deposito di ambiente marino profondo. Contatto inferiore non affiorante; interdigitazioni con BAP. Potenza fino a circa 800 m.

CDP2 - Formazione di Castiglione dei Pepoli - membro arenaceo-pelitico (Langhiano)

Torbiditi arenaceo-pelitici in strati gradati da medi a molto spessi con geometria pianoparallela. Gli strati variano da arenaceo-pelitici a peliticoarenacei con base a grana da media a **fine. Il rapporto A/P complessivo varia da 1 a < 1. A diverse altezze, e più frequentemente nella** parte bassa del membro, presenza di intervalli plurimetrici di torbiditi sottili siltitico-marnose. Al tetto, dove la formazione passa con un contatto tettonico ad AVC, e' presente un lembo non cartografabile di brecce argillose a clasti di calcari e argilliti cretacei. Passaggio graduale al membro sottostante e sovrastante. Potenza massima di 400m.

STA2 - Formazione di Stagno - membro pelitico - arenaceo (Burdigaliano).

Alternanze pelitico-arenacee in strati gradati sottili e medi a base siltitica o arenitica fine e tetto pelitico-marnoso cui si intercalano megatorbiditi, spesse fino a 10 metri, a base arenitica mediofine e tetto marnoso molto sviluppato. Rapporto A/P complessivo da $\ll 1$ a < 1 . Al tetto del membro è spesso presente un deposito caotico, che localmente raggiunge un centinaio di metri di spessore (litofacies caotica - STA2a), con depositi da slumping e da debris-flow a elementi argilloso-calcarei, argillosi e marnosi provenienti da AVC, FIU e MMA. Contatto inferiore graduale con STA1. Potenza di 300-350m

STA1 - Formazione di Stagno - membro arenaceo-pelitico (Aquitano - Burdigaliano)

Torbiditi arenaceo-pelitici organizzate in pacchi di strati gradati spessi e molto spessi a grana media e grossolana ($A/P > 1$) alternati a pacchi di strati sottili e medi a grana fine ($A/P < 1$); alla base sono frequenti gli strati molto spessi. A diverse altezze sono presenti pebbly-sandstone a geometria lentiforme spessi fino a qualche metro. Deposito bacinale. Contatto inferiore graduale o netto con TCG2. Spessore 500-700m.

TCG2 - Formazione del Torrente Carigiola - membro pelitico (Aquitano - Burdigaliano)

Torbiditi siltitico-pelitici e marnose molto indurite a stratificazione molto sottile non sempre ben evidente, talvolta con liste di selce nera. Nella parte medio-alta del membro sono presenti sporadicamente torbiditi arenacee a geometria lenticolare, spesse da 50 cm a 2 m. Presenti

talora intercalazioni di strati gradati sottili e medi a base arenitica, più frequenti e più spessi verso il basso. Potenza variabile da 30 a 70 m. Contatto inferiore netto, localmente parzialmente eteropico con TCG1.

TCG1 - Formazione del Torrente Carigiola - membro a megastrati arenacei (Aquitani)

Torbiditi da pelitico-arenacee ad arenaceo-pelitiche con spessore degli strati variabile da molto spesso a sottile e rapporto A/P da <1 a poco>1. Si associano depositi da slumping e livelli con liste di selce nera. Si intercalano potenti strati gradati arenitici (spessi fino a 35 m: "megastrati") a base grossolana seguita da uno potente intervallo arenitico più fine, spesso con gradazione assente e strutture interne caotiche e tetto pelitico sempre subordinato alle areniti. Dove possibile i megastrati (ms) più potenti sono stati cartografati. A vari livelli stratigrafici sono presenti pebbly sandstone, di spessore variabile da 1 a circa 10m; quello più alto segna il contatto al sovrastante membro pelitico. Potenza massima circa 800 – 900 m. Contatto inferiore nonaffiorante (fuori dal territorio regionale è netto con la Formazione di Biancane).

Di seguito sono riportati gli stralci della cartografia geologica della Regione Emilia-Romagna per i 4 quattro comparti in studio, che è stata utilizzata come base di riferimento iniziale.

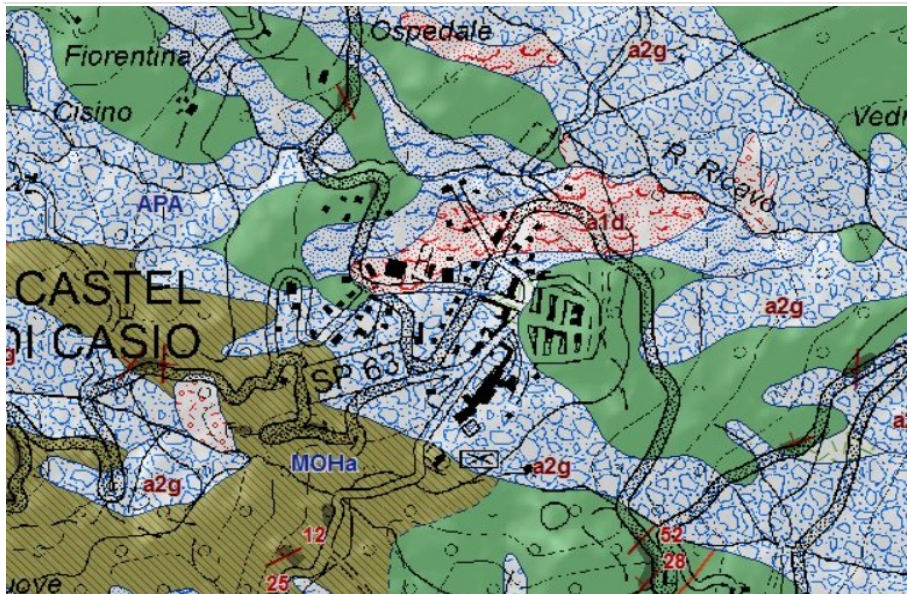


Figura 3. Carta geologica dell'area di Castel di Casio dal portale cartografico del Servizio geologico sismico e dei suoli della Regione Emilia Romagna

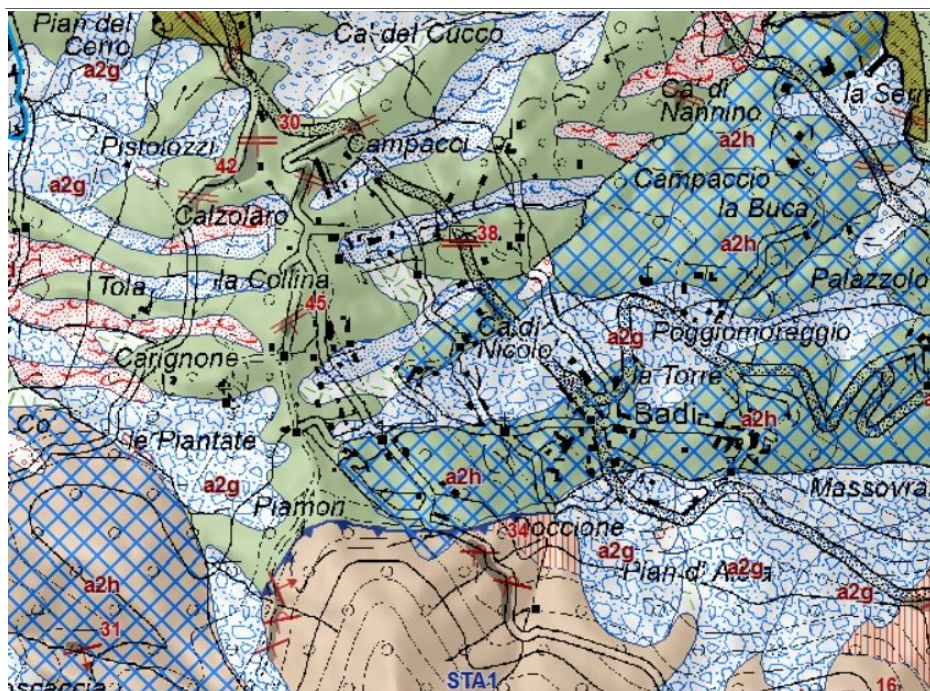


Figura 4. Carta geologica dell'area di Badi dal portale cartografico del Servizio geologico sismico e dei suoli della Regione Emilia Romagna

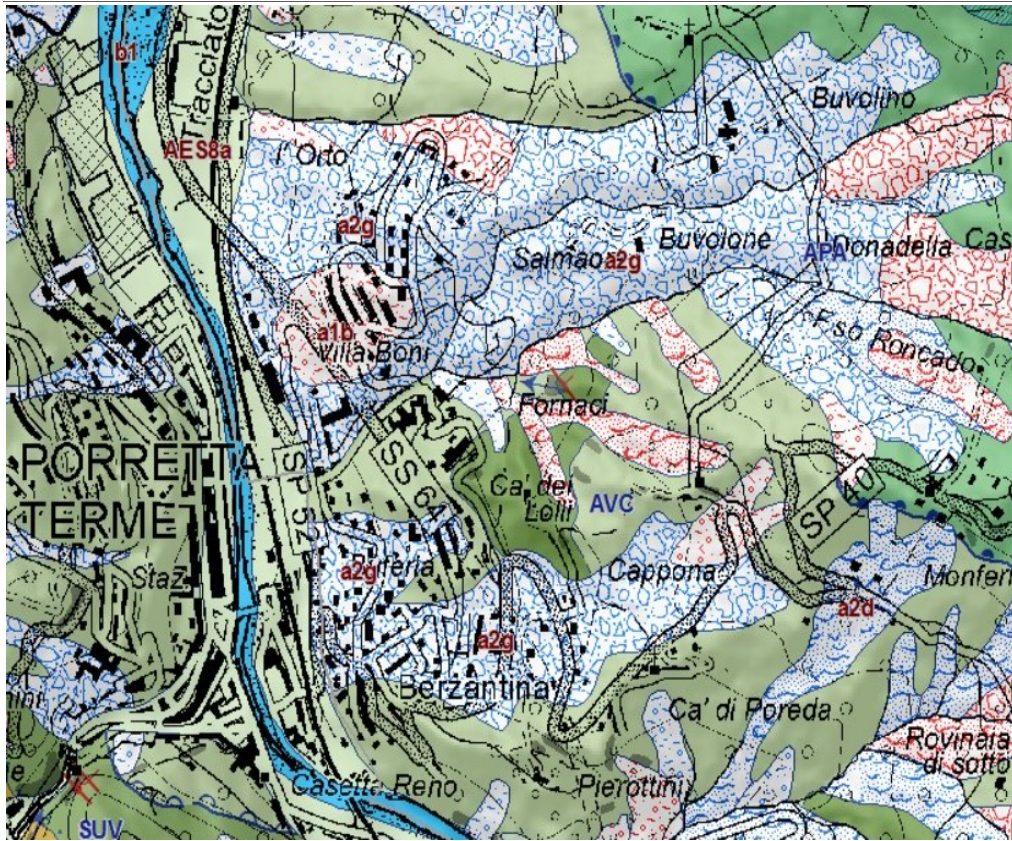


Figura 5. Carta geologica dell'area Berzantina dal portale cartografico del Servizio geologico sismico e dei suoli della Regione Emilia Romagna

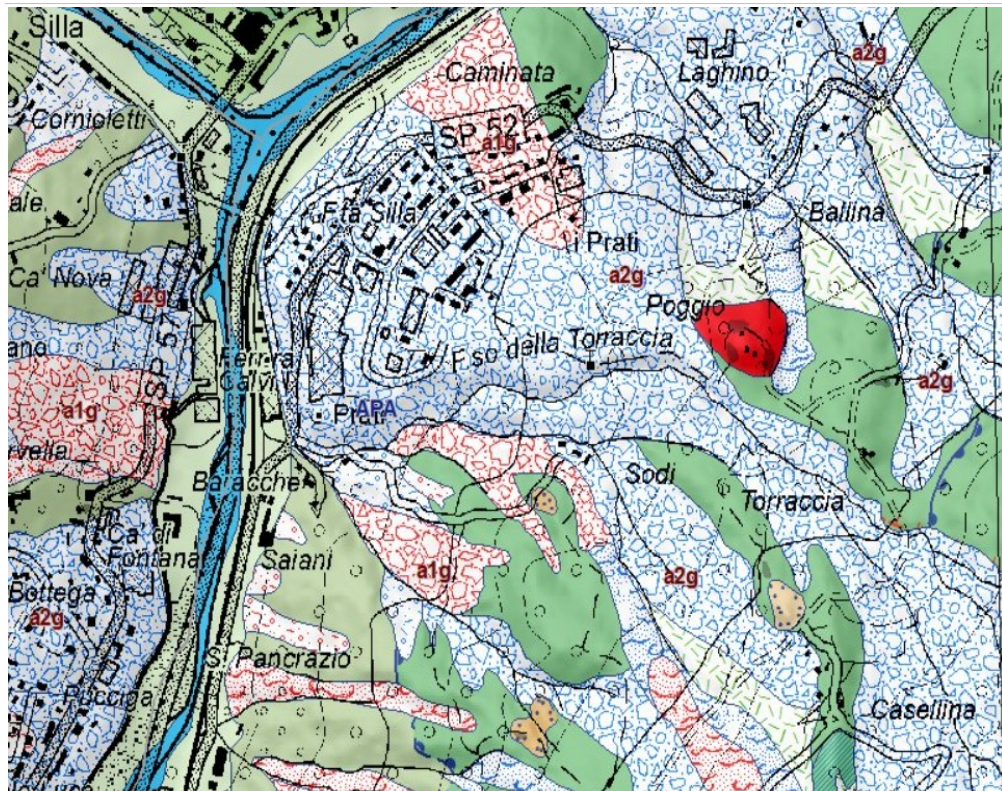


Figura 6. Carta geologica dell'area Prati dal portale cartografico del Servizio geologico sismico e dei suoli della Regione Emilia Romagna

3. MORFOLOGIA

L'assetto morfologico di un paesaggio è il risultato di una serie di processi che configurano il territorio, controllati dai fattori geologico strutturali, dagli agenti del modellamento e dalle condizioni climatiche dell'area.

I **fattori geologico strutturali** sono costituiti da:

– litologia del substrato, intesa come granulometria, composizione, coesione, alterabilità, resistenza, ecc delle rocce: cioè quelle caratteristiche fisiche e chimiche, che condizionano la resistenza del materiale;

– tettonica, considerata sia in senso dinamico, cioè come orogenesi, attività disgiuntiva di faglie e movimenti differenziali, sia in senso statico, cioè come giacitura, tettonizzazione, fratturazione delle rocce.

Gli **agenti del modellamento**, rappresentati dalle forze esogene (acqua, gravità, vento, ecc.), con la loro azione continua, operano in maniera morfoselettiva sul territorio risentendo sia delle caratteristiche **intrinseche del substrato (litologia e relative peculiarità) sia degli aspetti tettonici. Questi agenti**

agiscono con modalità ed intensità diverse a seconda delle **condizioni climatiche** che dipendono dalla radiazione solare, dal tipo e dalla distribuzione delle precipitazioni, dall'umidità dell'aria, dalla temperatura, dalla pressione atmosferica. Infatti l'orografia di un area è più o meno influenzata direttamente dal clima dell'ambiente dove si trova: il caldo o il freddo, l'umidità o l'aridità e altre condizioni meteorologiche particolari possono favorire fenomeni di smantellamento del rilievo, possono determinare modificazioni fisiche o chimiche di una roccia, possono influire su processi di accumulo di materiale detritico.

3.1 Assetto morfologico del territorio Comunale

Il territorio comunale di Castel di Casio si sviluppa su un'ampia dorsale ad andamento NNE-SSO che costituisce lo spartiacque tra la valle del Fiume Reno e la valle del Torrente Limentra di Treppio e, nella porzione più meridionale, tra quest'ultima e la valle del torrente Limentra di Sambuca.

Le forme del paesaggio sono controllate dalla litologia di base presenti, dagli spessori dei terreni di copertura e dall'assetto geostrutturale che determina lineamenti principali dell'orografia. Tale influenza si avverte sia a grande scala per quanto riguarda l'andamento dei crinali e delle valli principali, sia nel forme locali (vallecole e crinali secondari).

In particolare il territorio comunale è segnato da un evidente forte contrasto del paesaggio che indica un netto contrasto nelle litologie presenti. A sud del Bacino di Suviana la presenza delle competenti unità toscane determinano una elevata energia del rilievo con valli strette e profonde, mentre, immediatamente a nord, dove la litologia dominante è di natura argillitica, i versanti diventano meno acclivi, con un netto gradino morfologico cui si accompagna un allargamento della sezione delle valli.

Anche all'interno di quest'ultima unità del paesaggio non mancano i contrasti di forme legati sia alla

presenza di complessi geologici più resistenti, come i lembi di unità competenti Toscane, che affiorano localmente nei pressi del lago di Suviana, i Flysch cretaceo-paleocenici e i lembi di arenarie epiliguri che affiorano a monte del centro abitato di Castel di Casio, sia per la locale scarsità di terreni di copertura che portano il substrato argillitico in affioramento o in subaffioramento. Peculiari, inoltre, sono gli elementi morfologici legati ai depositi e ai processi generati per gravità, connessi sia ad accumuli legati alle fasi post-glaciali sia a fenomeni di instabilità, per lo più di tipo complesso, attivi e/o pregressi.

4. DEFINIZIONE DELLA PERICOLOSITÀ DI BASE E DEGLI EVENTI DI RIFERIMENTO

Sismicità storica dell'area di studio

L'analisi delle caratteristiche sismiche del territorio di Castel di Casio (BO) parte direttamente dall'esame delle informazioni storiche esistenti raccolte nel Database Macrosismico Italiano 2011 (DBMI15). Il DBMI15 contiene 122701 dati di intensità relativi a 3212 terremoti il cui epicentro ricade all'interno della nuova area CPTI15 (Catalogo Parametrico Dei Terremoti Italiani). I dati sono riferiti a 15416 località di cui 14150 in territorio italiano. Le informazioni sono consultabili on-line dal sito dell'Istituto Nazionale di Geofisica e Vulcanologia (<http://emidius.mi.ingv.it/DBMI15>). Di seguito si riportano le osservazioni sismiche disponibili per Camugnano .

Storia sismica di Castel di Casio

Effetti	In occasione del terremoto del									
Int.	Anno	Me	Gi	Ho	Mi	Se	Area epicentrale	NMDP	Io	Mw
8	1470	04	11				Appennino bolognese	1	8	5.56
7	1869	06	25	13	58		Appennino bolognese	18	7-8	5.43
4	1899	06	26	23	17	22	Valle del Bisenzio	138	7	5.02
5	1914	10	27	09	22		Lucchesia	660	7	5.63
5	1962	05	11	01	05	31	Appennino bolognese	15	5-6	4.69
3	1971	07	15	01	33	23	Parmense	228	8	5.51
4-5	1985	01	23	10	10	1	Garfagnana	73	6	4.60
NF	1986	12	06	17	07	1	Ferrarese	604	6	4.43
5	1995	08	24	17	27	33	Appennino pistoiese	56	6	4.45
2-3	1995	10	10	06	54	2	Lunigiana	341	7	4.82
3	1997	12	24	17	53	1	Garfagnana	98	5	4.33
NF	2002	06	08	20	13	7	Frignano	115	4	4.23
NF	2002	06	18	22	23	0	Frignano	186	4	4.30
5	2003	09	14	21	42	5	Appennino bolognese	133	6	5.24

Figura 7. Osservazioni sismiche disponibili per il Comune di Castel di Casio (BO): Int= intensità degli effetti al sito espressa secondo la scala Mercalli-Cancani-Sieberg (MCS); Io= Intensità macrosismica epicentrale (MCS) da CPTI15; Mw= Magnitudo momento associata all'evento sismico.

Le stesse osservazioni sono riportate sottoforma di diagramma nella seguente figura.

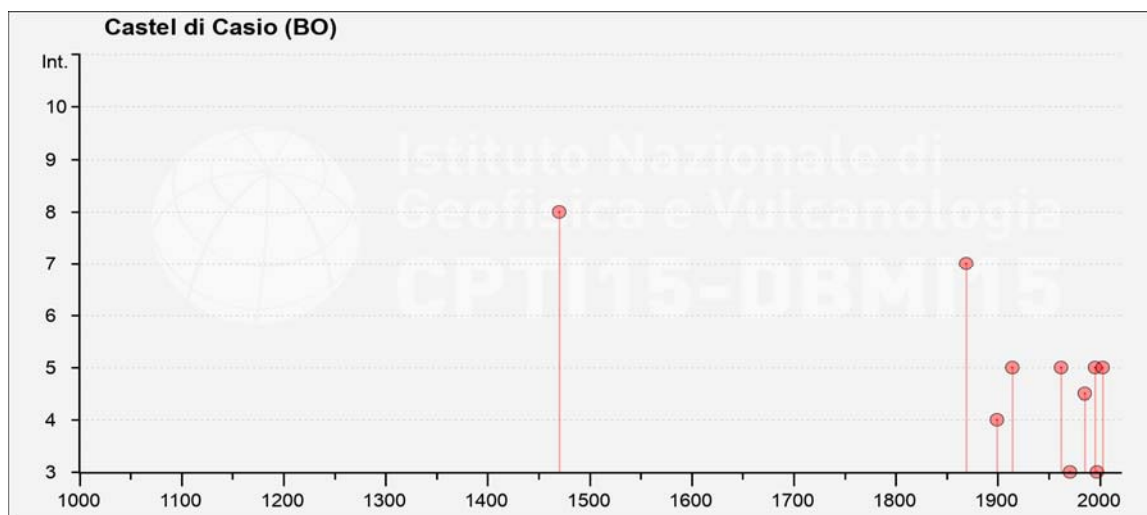


Figura 8. Osservazioni sismiche relative al comune di Castel di Casio

Per Castel di Casio sono disponibili 14 eventi sismici, 6 dei quali con intensità al sito maggiore o uguale al V° della scala MCS (Mercalli-Cancani-Sieberg).

Grado	Scossa	Descrizione
I	impercettibile	Avvertita solo dagli strumenti sismici.
II	molto leggera	Avvertita solo da qualche persona in opportune condizioni.
III	leggera	Avvertita da poche persone. Oscillano oggetti appesi con vibrazioni simili a quelle del passaggio di un'automobile.
IV	moderata	Avvertita da molte persone; tremito di infissi e cristalli, e leggere oscillazioni di oggetti appesi.
V	piuttosto forte	Avvertita anche da persone addormentate; caduta di oggetti.
VI	forte	Qualche leggera lesione negli edifici e finestre in frantumi.
VII	molto forte	Caduta di fumaioi, lesioni negli edifici.
VIII	rovinosa	Rovina parziale di qualche edificio; qualche vittima isolata.
IX	distruttiva	Rovina totale di alcuni edifici e gravi lesioni in molti altri; vittime umane sparse ma non numerose.
X	completamente distruttiva	Rovina di molti edifici; molte vittime umane; crepacci nel suolo.
XI	catastrofica	Distruzione di agglomerati urbani; moltissime vittime; crepacci e frane nel suolo; maremoto.
XII	apocalittica	Distruzione di ogni manufatto; pochi superstiti; sconvolgimento del suolo; maremoto distruttivo; fuoriuscita di lava dal terreno.

Figura 9. Scala Mercalli-Cancani-Sieberg (MCS): I gradi più bassi della scala MCS generalmente affrontano la maniera in cui il terremoto è avvertito dalla popolazione; i valori più alti della scala sono basati sui danni strutturali osservati (da: https://it.wikipedia.org/wiki/Scala_Mercalli).

L'evento più recente registrato nel catalogo è quello riguardante l'evento sismico, di magnitudo momento stimata pari a 5.29, verificatosi nel 2003 con epicentro nell'Appennino Bolognese. L'intensità risentita all'interno del territorio comunale fu del V° MCS.

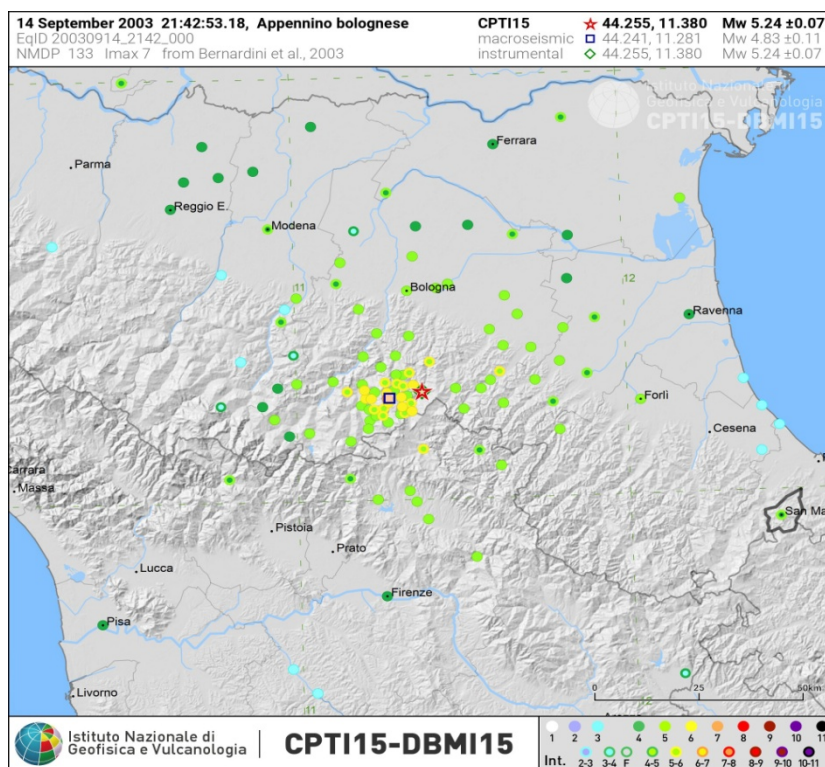


Figura 10. Dettagli dell'evento sismico del 14 settembre del 2003, localizzato nell'Appennino Bolognese

Mappe di pericolosità sismica

Le Mappe di pericolosità sismica sono state elaborate allo scopo di individuare una zonazione sismica del territorio nazionale a partire da una prima zonazione sismogenetica; l'attuale zonazione sismogenetica, denominata ZS9 (che sostituisce la precedente ZS4), è corredata, per ogni ZS, da un meccanismo focale prevalente e da un valore di profondità, determinati nella prospettiva del successivo utilizzo per le relazioni di attenuazione

Il territorio del comune di Castel di Casio ricade in parte all'interno della zona sismogenetica Z913 e in parte nella zona sismogenetica Z915.

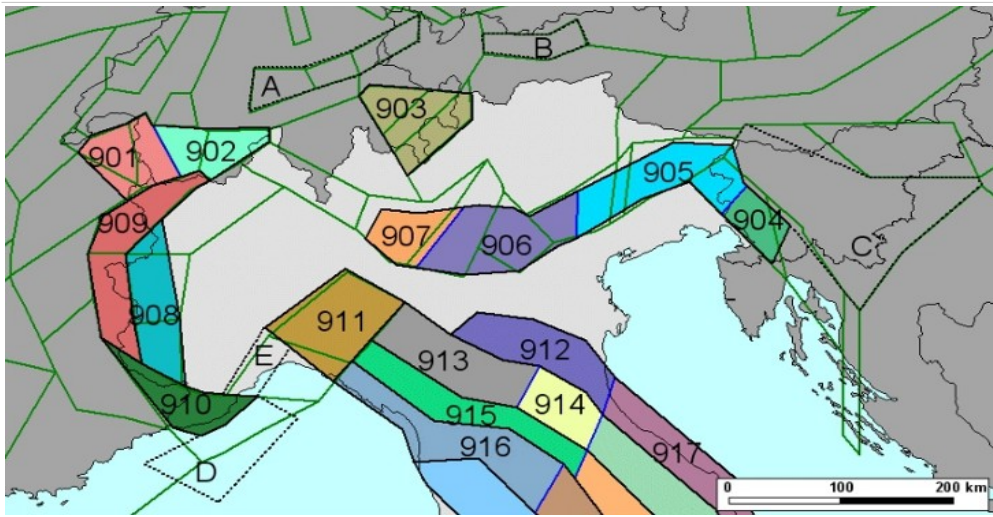


Figura 11. Stralcio Zonazione sismogenetica ZS9 (INGV).

La Z913 è caratterizzata da una sismicità storica che raramente ha raggiunto dei valori molto elevati di magnitudo e nella quale la profondità efficace (profondità alla quale avviene il maggior numero di terremoti che determina la pericolosità della zona) è relativamente elevata compresa tra 12 e 20 Km. La massima magnitudo associata alla zona è pari a 6.14 Mw. La Z915 deriva, insieme alla 919 e 923, dalla suddivisione di una lunga fascia dell'Appennino settentrionale che includeva le sorgenti sismogenetiche responsabili dei terremoti di più elevata magnitudo dell'arco Appennino settentrionale e centrale. Tali sorgenti hanno in genere espressioni superficiali, la Z915, rispetto alle altre, appare caratterizzata da tassi di sismicità leggermente inferiori.

Stima della pericolosità sismica di base

Dall'analisi della Mappa di pericolosità sismica del territorio nazionale, elaborata dall'INGV nel 2004 (consultabile on-line al sito <http://esse1-gis.mi.ingv.it>), che riporta i valori di pericolosità sismica sui punti di una griglia con passo 0.05° si può osservare (Figura 10) che la pericolosità sismica di base del territorio comunale di Castel di Casio è caratterizzata da valori di accelerazione di picco, su suolo di riferimento, $a(g)$ compresa tra 0.175 e 0.200 g. La carta è realizzata considerando una probabilità di eccedenza del 10% in 50 anni e cioè un periodo di ritorno degli eventi sismici pari a: $TR=475$ anni.

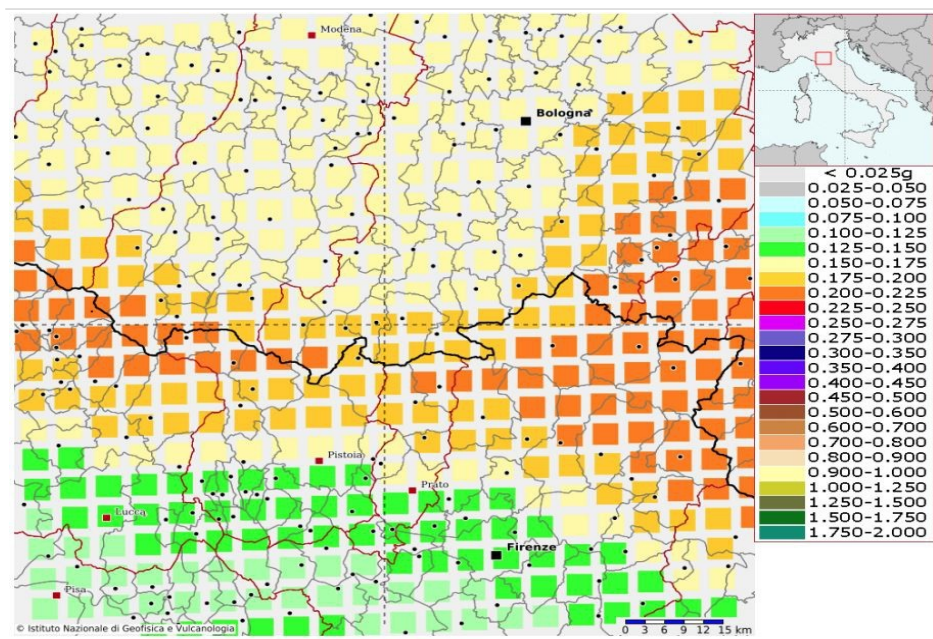


Figura 12. Mappa di pericolosità sismica (<http://esse1-gis.mi.ingv.it>).

5. DATI GEOTECNICI E GEOFISICI

Dati Geotecnici

Al fine di caratterizzare dal punto di vista litotecnico i terreni di copertura ed il substrato geologico è stato necessario reperire tutte le informazioni di carattere geologico in possesso dell'amministrazione comunale e servirsi di prove geognostiche effettuate sul territorio.

Le prove geognostiche, unitamente ai dati rilevati nel corso dei vari sopralluoghi ed alle analisi geologiche in s.l., hanno consentito di individuare lo spessore delle coltri di copertura, stabilire la profondità del substrato geologico, e di fornire le indicazioni sulle caratteristiche geomeccaniche dei terreni attraversati.

In sintesi tra le indagini esistenti sono stati utilizzati complessivamente

- 23 sondaggi stratigrafici a carotaggio continuo (S)
- 3 prove penetrometriche dinamiche superpesanti (DPSH)

Dati Geofisici

Per caratterizzare da un punto geofisico i terreni presenti è stata effettuata una campagna geosismica passiva costituita da 30 acquisizioni di microtremori a stazione singola (HVSR). Sono state inoltre analizzate 10 indagini geosismiche attive a rifrazione realizzate contestualmente allo studio di monitoraggio del dissesto in località Berzantina effettuato nel gennaio 2006.

Sono state effettuate due indagini geofisiche MASW abbinate ad una misura HVSR con tomografo digitale (comparti Castel di Casio e Berzantina).

Sono state inserite 3 tomografie elettriche effettuate durante lo studio di monitoraggio capoluogo in comune di Castel di Casio nel 2006.

Indagini HVSR

Le prove HVSR sono state ubicate con il criterio di ottenere una quanto più possibile omogenea copertura territoriale in relazione alle tipologie di terreni affioranti.

Le indagini a stazione singola, con acquisizione di microtremori ambientali, sono state eseguite utilizzando un acquirente **TROMINO®**.

Lo strumento è dotato di tre sensori elettrodinamici (velocimetri) orientati N-S, E-W e verticalmente, e permette la registrazione nel campo di frequenze 0-200 Hz. In sintesi, dopo che il segnale dei tre velocimetri è stato acquisito, per un determinato tempo t , e digitalizzato a 24 bit, viene trasmesso ad un software dedicato, denominato Grilla il quale, per ciascuna delle 3 componenti del moto, esegue le seguenti operazioni:

1. divisione del tracciato in finestre la cui lunghezza è immessa dall'operatore;
2. depurazione del segnale dal trend di ciascuna finestra;
3. "taper" con una finestra di Bartlett;
4. "pad" di ciascuna finestra con degli zero;
5. calcolo della trasformata di Fourier (FFT) per ciascuna finestra;
6. calcolo dello spettro di ampiezza per ciascuna finestra;
7. smoothing (lisciamento) dello spettro di ogni finestra secondo differenti funzioni la cui scelta viene definita dall'operatore;
8. calcolo del rapporto spettrale HVSR per ogni frequenza e per ogni finestra.

Il risultato finale consiste nella graficizzazione delle medie degli HVSR di ciascuna finestra e nell'interpretazione secondo la tecnica di Nakamura.

Il metodo si basa sulla misura del rumore sismico ambientale, il quale è il prodotto sia da fenomeni atmosferici (onde oceaniche, vento) sia dall'attività antropica oltre, ovviamente, dall'attività dinamica terrestre. Si chiama anche microtremore perché riguarda oscillazioni molto piccole (10 -15 (m/s²) in termini di accelerazione), inferiori di diversi ordini di grandezza rispetto a quelle indotte dai terremoti nel campo vicino.

I metodi che si basano sull'acquisizione dei microtremori si dicono passivi in quanto il rumore non è generato ad hoc, come avviene invece nel caso della sismica attiva (esplosioni).

Le misure di rumore ambientale vengono anche utilizzate per valutazioni stratigrafiche o, alternativamente, di velocità delle onde di taglio (V_s), come in questo caso. Il metodo risulta molto semplice ed intuitivo nell'ipotesi di un sottosuolo stratificato orizzontalmente e i cui parametri variano solo con la profondità (sistema monodimensionale 1D).

Nel caso ideale di un sottosuolo formato da due soli strati (la copertura (1) ed il bedrock (2)), separati da una superficie orizzontale e distinguibili per un diverso valore di impedenza sismica, ovvero per differenti densità e/o velocità delle onde sismiche, un'onda che viaggia nel mezzo (1) viene parzialmente riflessa dall'orizzonte che separa i due strati. L'onda così riflessa interferisce con quelle incidenti, sommandosi e raggiungendo le massime ampiezze di oscillazione (condizione di risonanza), quando la sua lunghezza d'onda λ è 4 volte (o suoi multipli dispari) lo spessore h del primo strato. In altre parole la frequenza fondamentale di risonanza (f_r) della copertura (mezzo (1)), relativa alle onde P è pari a:

$$f_{rP} = VP1 / (4 h)$$

mentre quella relativa alle onde S è:

$$f_{rS} = VS1 / (4 h)$$

Teoricamente questo effetto è sommabile cosicché la curva HVSr mostra come massimi relativi le frequenze di risonanza dei vari strati alle varie profondità. Questo, insieme ad una stima degli spessori degli strati, che è solitamente disponibile almeno a livello di massima, è in grado di fornire previsioni sulle velocità di propagazione delle onde sismiche nel sottosuolo.

Le registrazioni HVSr sono sintetizzate in un report finale che per ogni misura riporta:

- Ora di inizio e fine registrazione, frequenza di campionamento, ecc
- Grafico H/V
- Grafico Time history del rapporto H/V
- Grafico direzionalità del rapporto H/V
- Grafico delle singole componenti spettrali
- Sovrapposizione della curva sperimentale alla curva H/V e istogramma Velocità onde di taglio/Profondità
 - Corrispondenza della misura effettuata alle indicazioni del progetto SESAME (Site EffectS assessment usig Ambient Excitations).

Indagini MASW

Caratteristiche strumentazione utilizzata:

Per le indagini è stato utilizzato un tromografo digitale portatile TROMINO, prodotto da Micromed S.p.A., nella versione Engineering, al quale è stato collegato un cavo trigger della lunghezza di 50 m, unito ad un geofono con puntale, con frequenza propria di 4,5 Hz.

PROVA MASW

L'analisi multicanale delle onde superficiali di Rayleigh MASW (Multichannel Analysis of Surface Waves) è un'affidabile ed accreditata metodologia sismica che consente di determinare il profilo di velocità delle onde di taglio S nel sottosuolo. Tale metodo consiste nell'analisi delle onde di superficiali di Rayleigh, registrate da una serie di geofoni posizionati a formare uno stendimento. Le usuali e consolidate tecniche di elaborazione delle onde sismiche utilizzano unicamente i tempi di primo arrivo delle onde sismiche di volume indagate (P e S), considerando come "disturbo" la restante parte del segnale caratterizzato dalla presenza delle onde di superficie (Rayleigh e Love). Nuovi studi hanno dimostrato la possibilità di elaborare un modello matematico dall'analisi ed interpretazione di tale "disturbo".

Inoltre, a differenza di tutte le altre tecniche di indagine sismica, i metodi basati sull'analisi delle onde di superficie di Rayleigh non risultano limitati dalle inversioni di velocità e, essendo la loro propagazione funzione innanzitutto delle onde S e solo in parte legata alla V_p e alla densità del mezzo, risultano un ottimo strumento per la caratterizzazione sismica del sito tramite la ricostruzione del profilo di V_s , come previsto dalla normativa vigente (D.M. 14 gennaio 2008 e successivi aggiornamenti).

Teoria onde di superficie

Le onde di Rayleigh sono onde polarizzate su di un piano verticale (Fig.1) generate in corrispondenza della superficie libera del mezzo dall'interazione delle onde di volume P e S. Il movimento delle particelle mobilizzate da tali onde è di tipo ellittico con ampiezza dello spostamento che decresce con la distanza dalla superficie libera.

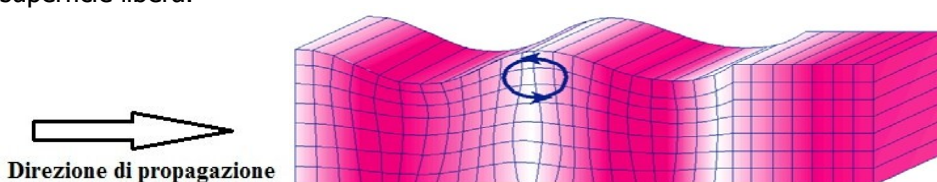


Figura 13. Rappresentazione grafica della propagazione delle onde superficiali di Rayleigh, caratterizzata dall'oscillazione polarizzata in un piano verticale e con movimento retrogrado delle particelle rispetto alla direzione di propagazione dell'onda.

Quando si applica una sollecitazione sismica in aria libera più del 65% dell'energia sismica prodotta è distribuita alle onde di Rayleigh, mentre per le onde P e S corrisponde rispettivamente al 7% e al 26%. In un mezzo stratificato le onde di superficie sono dispersive (fenomeno della dispersione geometrica), cioè onde con diversa lunghezza d'onda di propagano con diverse velocità di fase (Achenbach, J.D., 1999, Aki, K. And Richards, P.G., 1980) o detto in maniera equivalente la velocità di fase apparente delle onde di Rayleigh dipende dalla frequenza di propagazione. Le onde superficiali di Rayleigh, quando si propagano in un mezzo omogeneo, non presentano dispersione e la loro velocità è uguale a $0.92 V_s$. In un mezzo disomogeneo, quale la Terra, la loro velocità varia in funzione della lunghezza d'onda tra i limiti 0 e $0.92 V_s$ (Fig. 2). La teoria della propagazione delle onde superficiali è ben conosciuta ed è descritta dettagliatamente da Ewing et al. (1957).

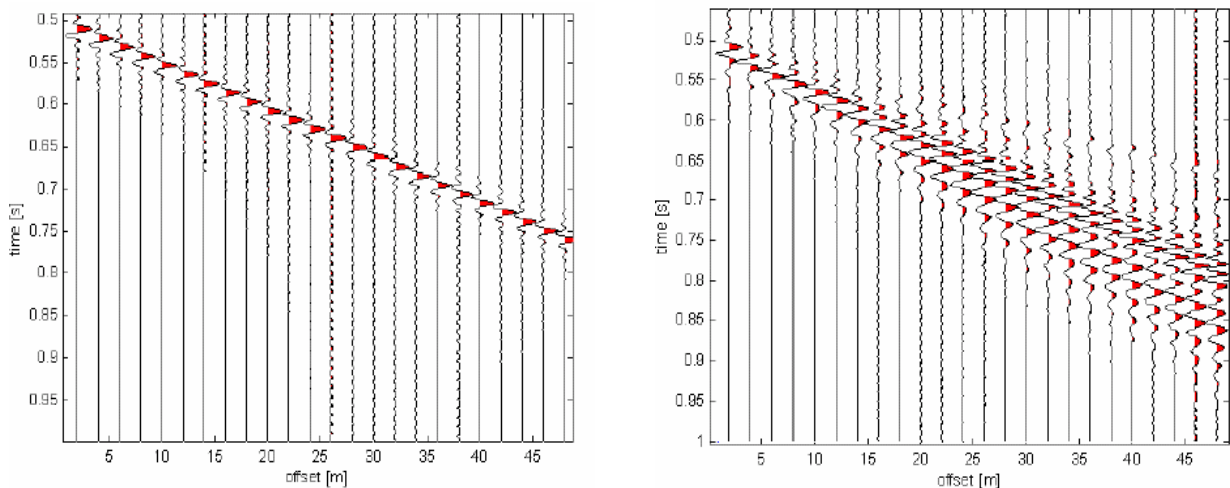


Figura 14. Segnali sismici che evidenziano (in rosso) le onde di Rayleigh in un mezzo non stratificato (a sinistra) e in un mezzo stratificato (a destra). Risulta evidente il fenomeno della dispersione di tali onde sismiche.

Tramite l'analisi e l'elaborazione numerica del segnale è possibile costruire la curva di dispersione, ovvero la variazione della velocità di fase delle onde di Rayleigh in funzione della frequenza, dalla quale è possibile determinare il profilo di velocità delle onde S tramite il processo di inversione.

Stratigrafia sismica

La tecnica MASW può essere applicata in campo geologico per fornire una prospezione del sottosuolo.

La definizione di un modello che consenta di descrivere il profilo sismico del sito, prevede la costruzione di una curva sintetica di dispersione che riesca a riprodurre la curva sperimentale.

Sono però presenti alcune limitazioni dovute a:

dimensioni dello stendimento;

tipo di energizzazione;

limiti di conoscenze del mezzo geologico;

limitazioni intrinseche della misura.

È fondamentale, ai fini di una corretta interpretazione, la determinazione della profondità di indagine massima raggiunta dalla misura. Per fare ciò si individua la frequenza minima che la curva di dispersione ha raggiunto e si applica la formula elaborata da Stokoe et al.

(1994):

$$h_{max} \cong 0,5\lambda_{max}$$

dove: - h_{max} indica la massima profondità di indagine

λ_{max} indica la massima lunghezza d'onda registrata (ricordando che $\lambda=v/f$ con v che corrisponde alla velocità e f è la frequenza dell'onda).

Acquisizione ed elaborazione dati da prova MASW

L'abbinamento tra Tromino Engineering ed un geofono consente di effettuare stendimenti sismici di dimensioni massime pari a 50 m. La presenza di un unico geofono, detto starter in quanto registra i primi arrivi delle onde sismiche, impone il suo spostamento continuo secondo le posizioni dello schema prestabilito (Fig. 3). L'interdistanza tra le varie posizioni del geofono è di 3 metri e l'energizzazione, ottenuta tramite il salto e la caduta dell'operatore, è stata effettuata a 1 m di distanza dallo starter lungo l'asse geofono-Tromino.

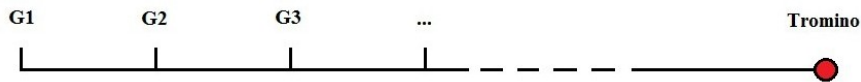


Figura 15. Schema dello stendimento per la registrazione della prova MASW. G1, G2, G3, ... corrispondono alle posizioni nelle quali il geofono starter viene spostato ad ogni energizzazione del terreno. L'interdistanza tra le posizioni del geofono è di 3,0 metri.

Da tale stendimento viene elaborato un sismogramma definito "virtuale" in quanto non deriva dalla registrazione simultanea di più geofoni, ma i segnali di ogni energizzazione vengono composti in un unico sismogramma tramite il software dedicato.

L'elaborazione del segnale registrato si compone dei seguenti passaggi:

- picking dei primi arrivi sulla traccia di registrazione del geofono;
- ricostruzione del sismogramma delle tracce registrate dal sismografo (Tromino) tramite software Grilla;
- selezione per ogni traccia delle finestre temporali contenenti onde superficiali di Rayleigh;
- calcolo della curva di dispersione sperimentale tramite software dedicato.

La curva di dispersione fornisce con una scala cromatica l'intensità della risonanza delle onde di Rayleigh alle varie frequenze (asse delle ascisse) e la relativa velocità delle onde (asse delle ordinate). A questo punto è possibile procedere con l'interpretazione della misura.

Prospezione geofisica con metodologia sismica a rifrazione

La prospezione sismica a rifrazione consiste nell'eseguire una serie di misure in superficie per determinare le variazioni di velocità sismica dei terreni e/o delle rocce in profondità.

Tale metodo richiede l'immissione nel terreno di una certa quantità di energia, la cui intensità, data la distanza variabile tra sorgente di energia e sensori di ricezione, può essere regolata al fine di rispondere, nel modo più esauriente possibile, ai quesiti posti dall'indagine.

Il metodo sismico a rifrazione utilizza i dati forniti dalla rifrazione subita dalle onde elastiche nell'attraversare i terreni e le rocce investigate; più in particolare, attraverso una serie di geofoni (ricevitori) posti a distanze variabili dalla sorgente di energia, tali onde vengono trasformate in impulsi elettrici che opportunamente amplificati e decodificati dall'apparecchiatura di registrazione, permettono la lettura dei tempi di arrivo delle onde sismiche su uno schermo e quindi memorizzati per essere trasferiti successivamente sul computer di servizio.

L'elaborazione dei valori di tali tempi rispetto alle distanze dei geofoni, permette di determinare le velocità dei sismostrati e le loro profondità rispetto alla superficie topografica.

Scopo principale del rilievo sismico a rifrazione è quello di ricostruire il "bed rock", ossia l'orizzonte caratterizzato dalle velocità di propagazione più elevate e quindi dalle migliori caratteristiche di elasticità e resistenza meccanica.

METODOLOGIA

La base sismica a rifrazione è stata realizzata con il sistema delle dromocrone reciproche, in modo da ottenere un controllo sulle reali velocità sismiche dei rifrattori.

Lo stendimento è stato eseguito con lunghezza di 110 m con schema tipico di 12 geofoni ad interdistanza di 10 m.

Per la base sismica sono stati effettuati cinque punti doppi di energizzazione (scoppi e registrazioni per VP e VS) ubicati secondo uno schema che ne prevede due alle estremità in corrispondenza dei

geofoni 1 e 12, uno tra i geofoni 3 e 4, uno al centro tra i geofoni 6 e 7 e uno tra i geofoni 9 e 10. Operando in tal modo, si sono ottenuti dati sufficienti per una corretta interpretazione delle velocità, dell'andamento dei rifrattori e della loro profondità di separazione dal piano campagna. Gli impulsi nel terreno sono stati prodotti mediante cannoncino Minibang della Four Ltd, alimentato con cartucce calibro 8 SM tipo industriale e con peculiarità costruttiva per produrre Vp e Vs. Per ogni punto di energizzazione è stata effettuata una registrazione dei tempi di arrivo ai vari geofoni degli impulsi sismici mediante memorizzazione. Tali tempi sono stati successivamente riportati su un grafico tempi/distanze, ottenendo dei tratti di velocità chiamate dromocrone. L'interpretazione opportuna di tali dromocrone ha permesso di determinare le velocità sismiche dei terreni e delle rocce investigate e le loro profondità dal piano campagna.

MODALITA' D'INTERPRETAZIONE

L'interpretazione della base sismica a rifrazione è stata effettuata partendo dalle dromocrone con l'aiuto di un PC e di software opportuno (WinSism) basato su algoritmi matematici relativi al metodo dei tempi di intercetta.

Le operazioni effettuate risultano perciò : input dei primi tempi di arrivo ai geofoni previa correzione topografica; output con visualizzazione dei diagrammi tempi/distanze geofoni; input con scelta dei tratti delle dromocrone attribuibili ai diversi strati sismici; output con calcolo delle velocità e delle profondità dei sismostrati, con visualizzazione e restituzione grafica delle sezioni interpretative.

6. METODOLOGIE DI ELABORAZIONE E RISULTATI

Premessa

Lo studio di microzonazione sismica, per le quattro aree del comune di Castel di Casio, è stato realizzato secondo le seguenti fasi:

1. Individuazione delle aree suscettibili di effetti locali, o microzone omogenee in prospettiva sismica (MOPS, I° livello di approfondimento), definendo per ognuna di esse i livelli di approfondimento ritenuti necessari;
2. Determinazione quantitativa attraverso una procedura semplificata dei fattori di amplificazione dove consentito (II° livello di approfondimento);
3. Analisi approfondita di III° livello;

Metodologie di elaborazione

Le metodologie utilizzate e i risultati ottenuti vengono qui sinteticamente descritti per i tre livelli di microzonazione sismica realizzati per i quattro comparti del comune di Castel di Casio (I, II e III livello di microzonazione). Nel successivo capitolo ("Elaborati cartografici") i risultati saranno dettagliati e spiegati per ogni singolo prodotto realizzato all'interno dello studio.

I° Livello di Microzonazione

In riferimento agli Indirizzi e Criteri per la Microzonazione Sismica del Dip. Prot. Civ., sono state individuate e caratterizzate sulla base dei dati sismici e stratigrafici, all'interno dell'area di studio, le zone a comportamento equivalente in occasione di sollecitazione sismica e i livelli di approfondimento che competono ad ognuna di esse.

Dall'analisi dei dati sono state individuate 4 **zone stabili suscettibili di amplificazioni locali** a comportamento sismico omogeneo.

Zona 1: 2001 - Argille inorganiche e limi argillosi (3 – 15 m) – Substrato coesivo sovraconsolidato

Zona 2: 2002 - Argille inorganiche e limi argillosi (15 – 30 m) – Substrato coesivo sovraconsolidato

Zona 3: 2003 - Ghiaie sabbiose (15 m) – Substrato coesivo sovraconsolidato

Zona 4: 2099 - Substrato geologico coesivo sovraconsolidato fratturato con $V_s < 800$ m/s

Dall'analisi dei dati sono emerse 4 **zone di attenzione per instabilità** a comportamento sismico omogeneo

30122004: ZAfr – Zona di attenzione per instabilità di versante - Scorrimento attiva.
Argille inorganiche e limi argillosi (3 – 10 m) – Substrato coesivo sovraconsolidato

30222005: ZAfr – Zona di attenzione per instabilità di versante – Scorrimento quiescente.
Argille inorganiche e limi argillosi (15 – 30 m) – Substrato coesivo sovra consolidato

30242006: ZAfr – Zona di attenzione per instabilità di versante – Complessa quiescente.
Argille inorganiche e limi argillosi (3 – 15 m) – Substrato coesivo sovra consolidato

30242007: ZAfr – Zona di attenzione per instabilità di versante – Complessa quiescente.
Argille inorganiche e limi argillosi (15 – 30 m) – Substrato coesivo sovra consolidato

Le corrispondenti colonne stratigrafiche sono riportate nella figura seguente.

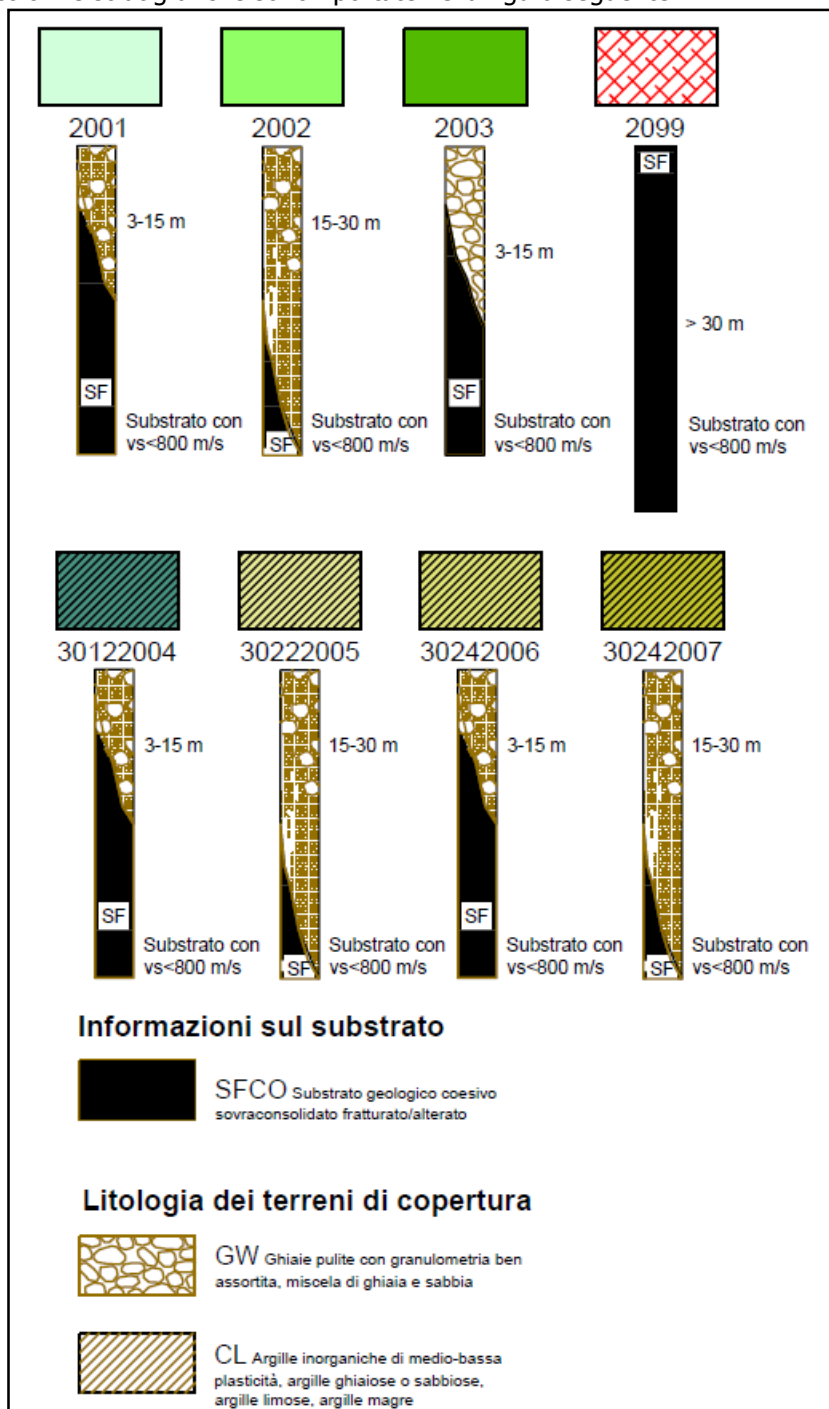


Figura 16. Colonne stratigrafiche rappresentanti le zone stabili suscettibili di amplificazioni locali e le zone di attenzione per instabilità

6.4 II° Livello di Microzonazione

Dall'analisi dei dati ottenuti e sulla base delle indagini sismiche passive realizzate è stato possibile quantificare i fattori amplificativi.

APPENNINO. Le tabelle relative al settore appenninico sono il riferimento per la stima semplificata dell'amplificazione stratigrafica nelle aree collinari e montane dell'Emilia-Romagna. Possono essere applicate anche nelle aree di pianura prossime al margine morfologico appenninico-padano dove le coperture detritiche continentali hanno spessore indicativamente non superiore a 50 metri. In caso di **coperture su substrato non rigido**, vale a dire caratterizzato da $V_s \ll 800$ m/s, si devono usare le seguenti tabelle:

V_{SH} (m/s) → H (m) ↓	150	200	250	300	350	400	450	500	600
5	2,3	2,0	1,6	1,5	1,4	1,3	1,3	1,2	1,2
10	2,3	2,2	2,0	1,8	1,6	1,4	1,3	1,3	1,2
15	2,2	2,2	2,1	2,0	1,8	1,6	1,4	1,3	1,2
20	2,1	2,1	2,1	2,0	1,9	1,7	1,5	1,4	1,2
25	2,1	2,1	2,1	2,0	1,9	1,8	1,6	1,4	1,3
30		2,1	2,1	2,0	1,9	1,8	1,6	1,4	1,3
35		2,1	2,1	2,0	1,9	1,8	1,6	1,5	1,4
40		2,0	2,0	2,0	1,9	1,8	1,6	1,5	1,4
50		1,9	1,9	1,9	1,9	1,8	1,6	1,5	1,4

Fattore di Amplificazione **PGA**

V_{SH} (m/s) → H (m) ↓	150	200	250	300	350	400	450	500	600
5	2,2	1,8	1,5	1,4	1,3	1,3	1,3	1,3	1,2
10	2,5	2,3	1,9	1,7	1,5	1,4	1,3	1,3	1,2
15	2,5	2,5	2,2	1,9	1,7	1,5	1,4	1,3	1,2
20	2,4	2,4	2,3	2,1	1,8	1,6	1,5	1,3	1,3
25	2,4	2,4	2,3	2,2	2,0	1,7	1,6	1,4	1,3
30		2,3	2,3	2,2	2,0	1,8	1,6	1,5	1,3
35		2,2	2,2	2,2	2,1	1,9	1,7	1,5	1,4
40		2,1	2,1	2,1	2,1	1,9	1,7	1,5	1,4
50		2,0	2,0	2,0	2,0	1,9	1,7	1,5	1,4

Fattore di Amplificazione **SA1** ($0,1s \leq T \leq 0,5s$)

V_{SH} (m/s) → H (m) ↓	150	200	250	300	350	400	450	500	600	700
5	2,1	1,7	1,5	1,4	1,4	1,3	1,3	1,3	1,3	
10	2,6	2,3	1,9	1,6	1,5	1,4	1,3	1,3	1,3	
15	2,7	2,6	2,3	1,9	1,6	1,5	1,4	1,3	1,3	
20	2,6	2,6	2,4	2,1	1,8	1,6	1,5	1,4	1,3	
25	2,6	2,6	2,5	2,3	2,0	1,7	1,6	1,4	1,3	
30		2,4	2,4	2,3	2,1	1,8	1,6	1,5	1,3	
35		2,4	2,4	2,3	2,2	1,9	1,7	1,5	1,4	1,2
40		2,2	2,2	2,2	2,2	2,0	1,8	1,6	1,4	1,2
50		2,1	2,1	2,1	2,1	2,0	1,8	1,6	1,5	1,3

Fattore di Amplificazione **SI1** ($0,1s \leq T \leq 0,5s$)

V_{SH} (m/s) → H (m) ↓	150	200	250	300	350	400	450	500	600
5	1,6	1,4	1,4	1,4	1,4	1,4	1,4	1,4	1,3
10	2,3	1,8	1,5	1,4	1,4	1,4	1,4	1,3	1,3
15	2,8	2,3	1,9	1,5	1,4	1,4	1,4	1,4	1,3
20	3,2	2,9	2,3	1,8	1,5	1,5	1,4	1,4	1,3
25	3,4	3,2	2,7	2,0	1,7	1,5	1,5	1,4	1,3
30		3,3	2,9	2,3	1,9	1,6	1,5	1,4	1,4
35		3,3	3,0	2,5	2,1	1,8	1,6	1,5	1,4
40		3,2	3,1	2,7	2,3	2,0	1,7	1,5	1,4
50		3,0	3,0	2,8	2,5	2,2	1,9	1,7	1,5

Fattore di Amplificazione **SA2** ($0,4s \leq T \leq 0,8s$)

V_{SH} (m/s) → H (m) ↓	150	200	250	300	350	400	450	500	600	700
5	1,4	1,4	1,4	1,3	1,3	1,3	1,3	1,3	1,3	
10	1,8	1,6	1,4	1,4	1,3	1,4	1,4	1,3	1,3	
15	2,3	1,9	1,6	1,4	1,4	1,4	1,3	1,3	1,3	
20	2,9	2,6	1,9	1,6	1,4	1,4	1,4	1,3	1,3	
25	3,6	3,0	2,3	1,7	1,5	1,4	1,4	1,4	1,3	
30		3,3	2,7	1,9	1,7	1,5	1,4	1,4	1,3	
35		3,5	3,0	2,2	1,8	1,6	1,5	1,4	1,3	1,1
40		3,5	3,2	2,6	2,0	1,8	1,6	1,5	1,4	1,2
50		3,3	3,3	3,0	2,4	2,0	1,8	1,6	1,5	1,3

Fattore di Amplificazione **SI2** ($0,5s \leq T \leq 1,0s$)

V_{SH} (m/s) → H (m) ↓	150	200	250	300	350	400	450	500	600	700
5	1,4	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3	
10	1,6	1,5	1,4	1,3	1,3	1,3	1,3	1,3	1,3	
15	1,9	1,7	1,5	1,4	1,3	1,3	1,3	1,3	1,3	
20	2,4	2,1	1,6	1,4	1,4	1,3	1,3	1,3	1,3	
25	3,4	2,5	1,9	1,5	1,4	1,4	1,3	1,3	1,3	
30		3,0	2,3	1,7	1,5	1,4	1,4	1,3	1,3	
35		3,3	2,7	1,9	1,6	1,5	1,4	1,3	1,3	1,1
40		3,6	3,1	2,2	1,7	1,6	1,5	1,4	1,3	1,2
50		3,6	3,4	2,9	2,1	1,8	1,6	1,5	1,4	1,2

Fattore di Amplificazione **SA3** ($0,7s \leq T \leq 1,1s$)

Figura 17. Tabelle dei fattori di amplificazione relative al settore appenninico in caso di coperture su substrato non rigido

In caso di **substrato marino non rigido**. Cioè caratterizzato da $V_s \ll 800$ m/s, affiorante o subaffiorante (copertura di spessore inferiore a 3 metri) si devono usare le seguenti tabelle:

V_{S30} (m/s) →	150	200	250	300	350	400	450	500	600	700
PGA					1,9	1,8	1,6	1,4	1,2	1,1

Fattore di Amplificazione **PGA**

V_{S30} (m/s) →	150	200	250	300	350	400	450	500	600	700
SA1					1,9	1,7	1,6	1,4	1,2	1,1
SA2					1,7	1,6	1,5	1,4	1,3	1,3
SA3					1,4	1,4	1,3	1,3	1,3	1,2

Fattori di Amplificazione **SA1** ($0,1s \leq T \leq 0,5s$), **SA2** ($0,4s \leq T \leq 0,8s$), **SA3** ($0,7s \leq T \leq 1,1s$)

V_{S30} (m/s) →	150	200	250	300	350	400	450	500	600	700
SI1					1,9	1,7	1,6	1,4	1,3	1,2
SI2					1,5	1,5	1,4	1,4	1,3	1,3

Fattori di Amplificazione **SI1** ($0,1s \leq T \leq 0,5s$), **SI2** ($0,5s \leq T \leq 1,0s$)

Figura 18. Tabelle dei fattori di amplificazione relative al settore appenninico in caso di substrato marino non rigido

Le analisi dei dati raccolti hanno permesso di definire gli spessori dei depositi di copertura e/o delle profondità del substrato rigido (H) oltre che di definire le velocità equivalenti delle onde di taglio per lo spessore considerato (VsH) dei depositi di copertura secondo le formule di seguito riportate:

$$V_{sH} = \frac{H}{\sum_{i=1}^N h_i / V_{s_i}}$$

Sono state quindi prodotte tre carte nelle quali il territorio è stato suddiviso in isoaree sulla base delle classi di amplificazione come indicato nelle linee guide per la Microzonazione Sismica.

III° Livello di Microzonazione

All'interno della zona in studio, in base al I° livello di approfondimento, sono state identificate n° 6 aree classificate come zone di attenzione per instabilità di versante. Si è proceduto ad una quantificazione della pericolosità di frana in condizioni sismiche, attraverso un'analisi predisposta per lo studio comparativo della franosità a vasta scala.

IN particolare la prima area è costituita da un'ampia superficie nel centro abitato di Castel di Casio classificata come **frana per scorrimento quiescente** sulla base dei riscontri strumentali (dati inclinometrici) derivati dallo studio geologico relativo al progetto di monitoraggio dell'abitato di Castel di Casio.



Figura 19. Planimetria della sezione litotecnica "Castel di Casio Nord"

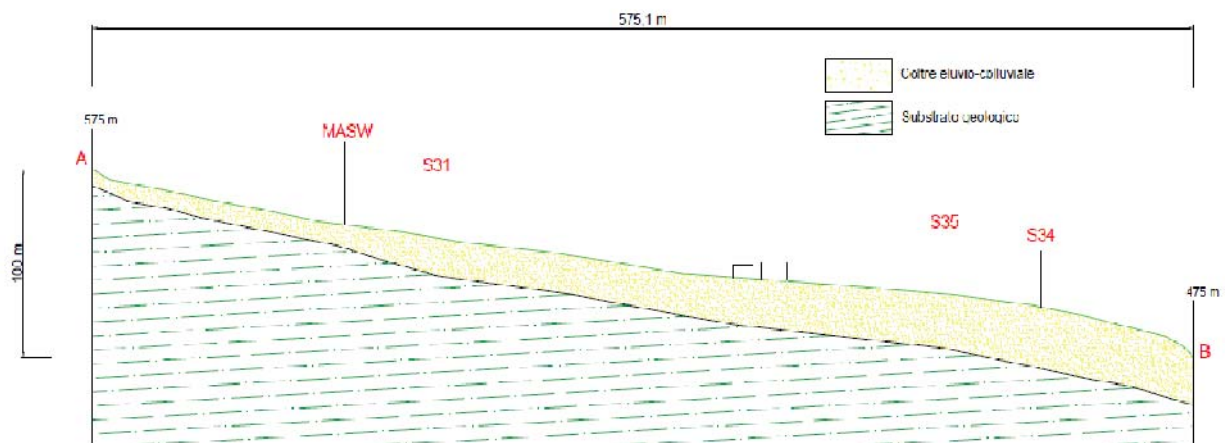


Figura 20. Sezione litotecnica "Castel di Casio Nord" con ubicazione delle prove geofisiche e geognostiche presenti nella Carta delle Indagini

L'area Castel di Casio SUD è classificata come frana a scorrimento quiescente

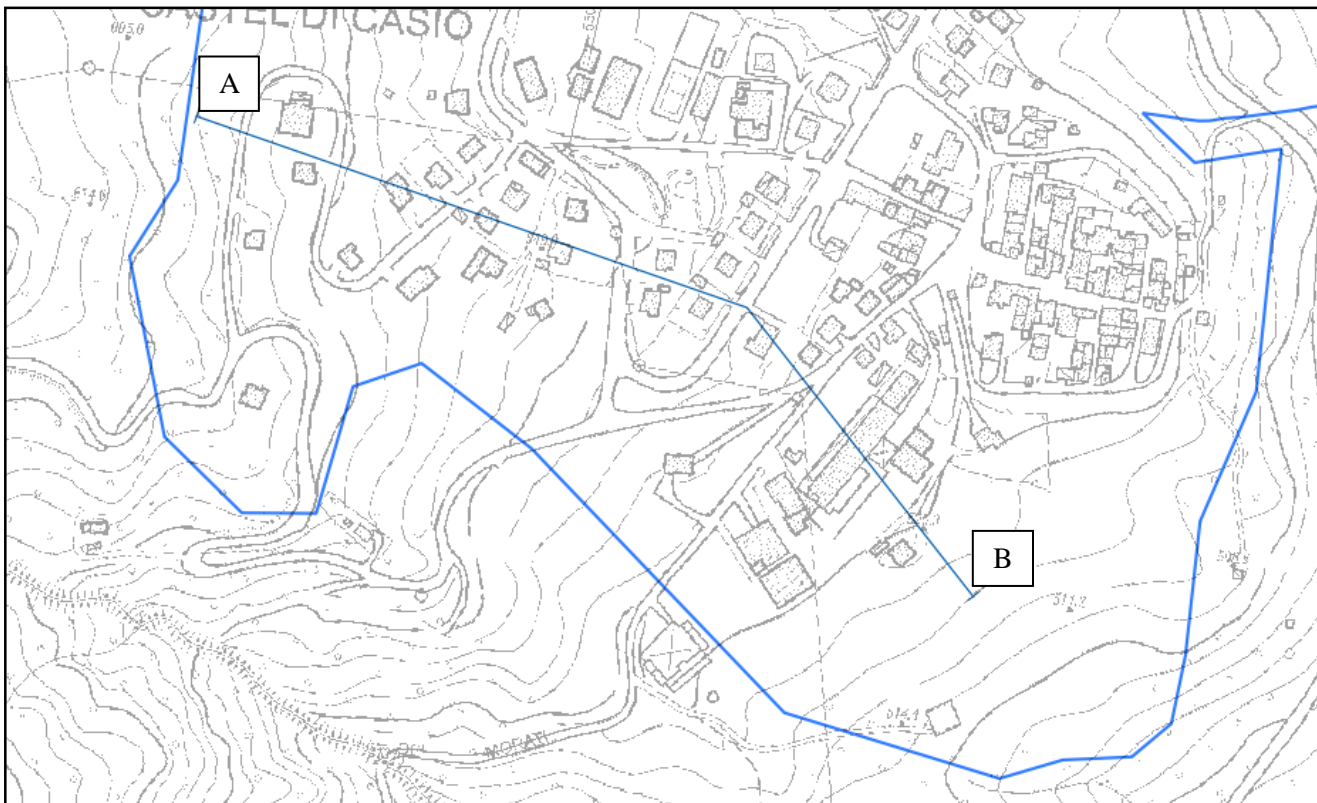


Figura 21. Planimetria della sezione litotecnica "Castel di Casio Sud"

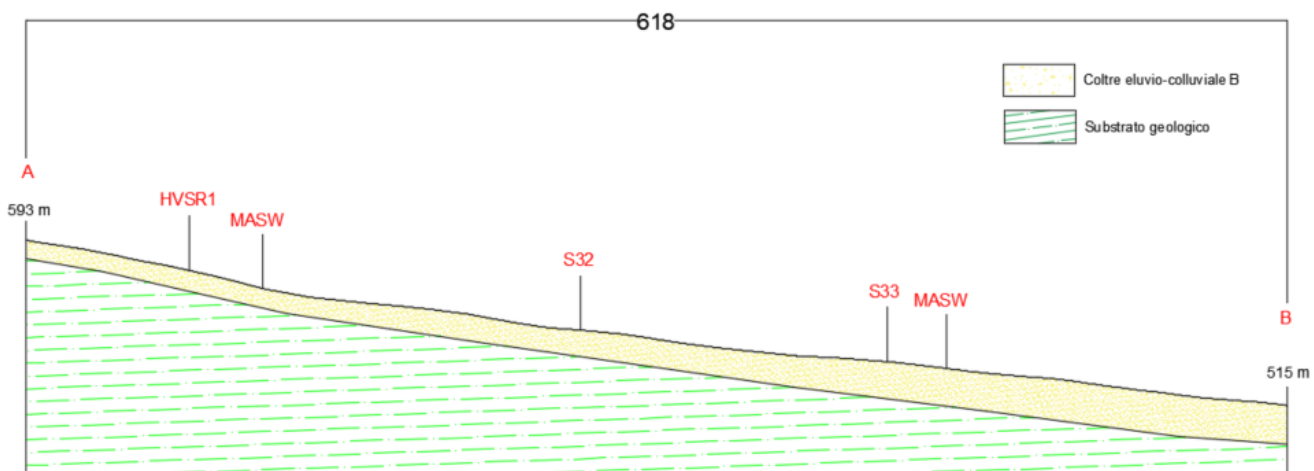


Figura 22. Sezione litotecnica "Castel di Casio Sud" con ubicazione delle prove geofisiche e geognostiche presenti nella Carta delle Indagini

L'area ubicata in località Berzantina, è costituita da una superficie classificata come **frana per scorrimento quiescente** sulla base dei riscontri strumentali eseguiti contestualmente allo studio di monitoraggio del dissesto in località Berzantina effettuato nel gennaio 2006.

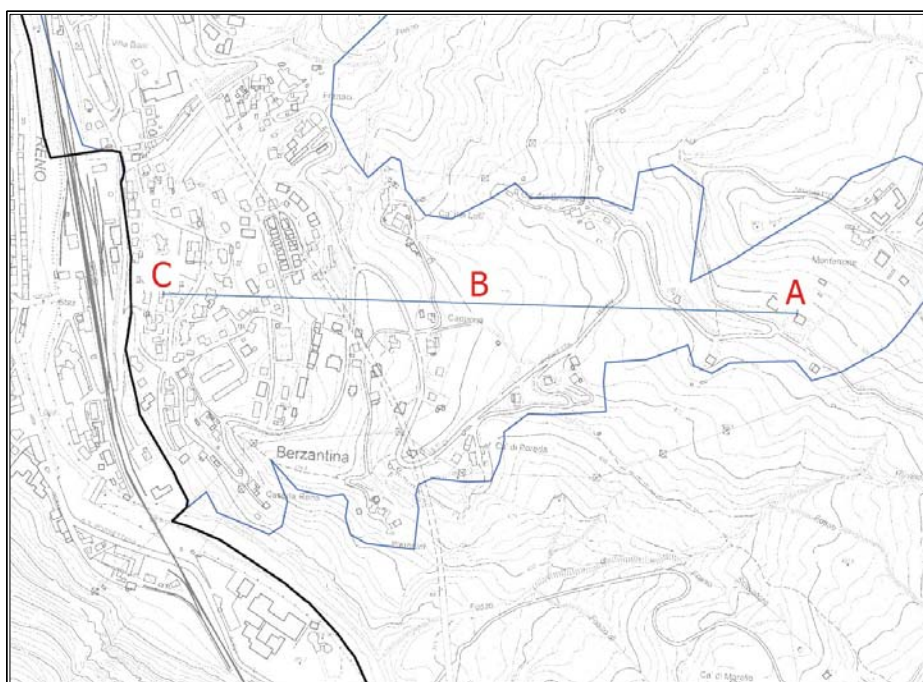


Figura 23. Planimetria della sezione litotecnica **Berzantina**

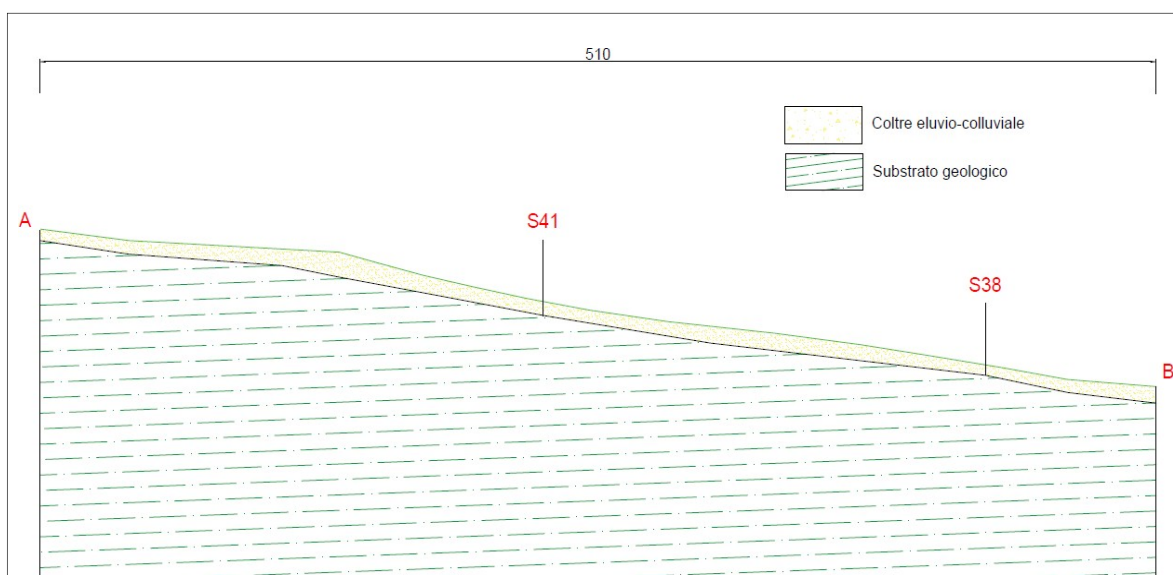


Figura 24. Tratto A – B della sezione litotecnica **Berzantina** con ubicazione delle prove geofisiche e geognostiche presenti nella Carta delle Indagini.

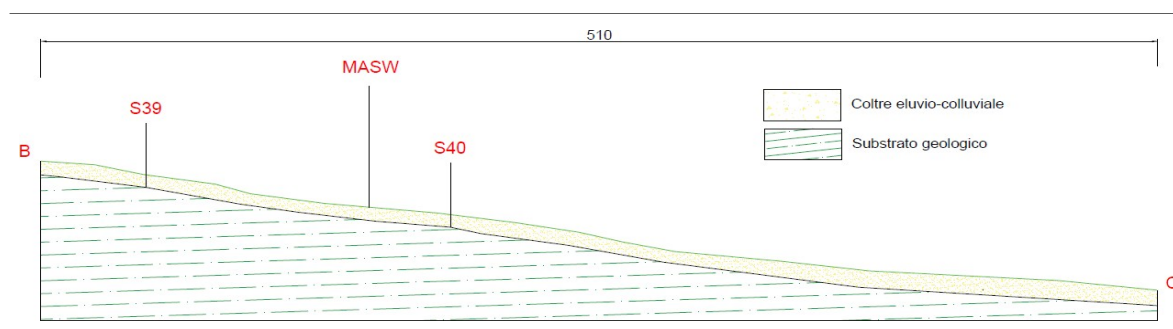


Figura 25. Tratto B – C della sezione litotecnica **Berzantina** con ubicazione delle prove geofisiche e geognostiche presenti nella Carta delle Indagini.

L'area ubicata in località Berzantina denominata Buvolone-Salmaore, è costituita da una superficie classificata come **frana complessa quiescente**

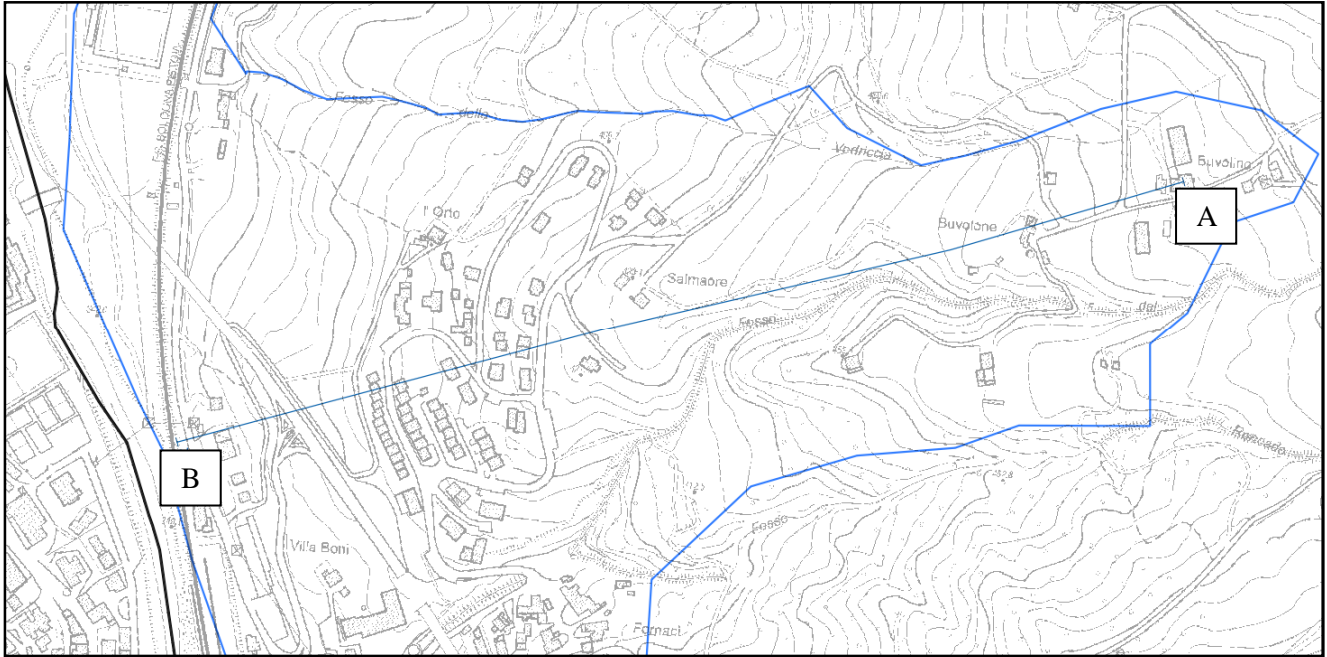


Figura 26. Planimetria della sezione litotecnica **"Buvolone-Salmaore"**

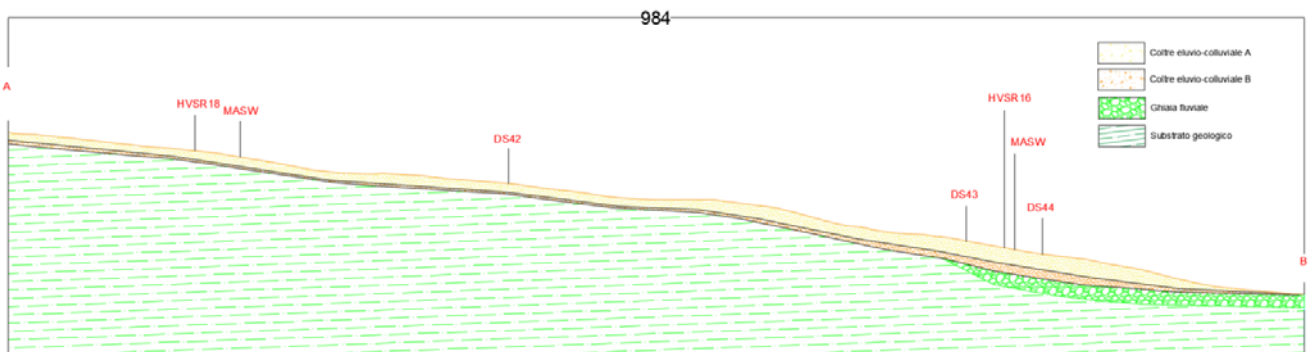


Figura 27. Sezione litotecnica **"Buvolone-Salmaore"** con ubicazione delle prove geofisiche e geognostiche presenti nella Carta delle Indagini

L'area denominata Prati 21, è costituita da una superficie classificata come **frana complessa quiescente**

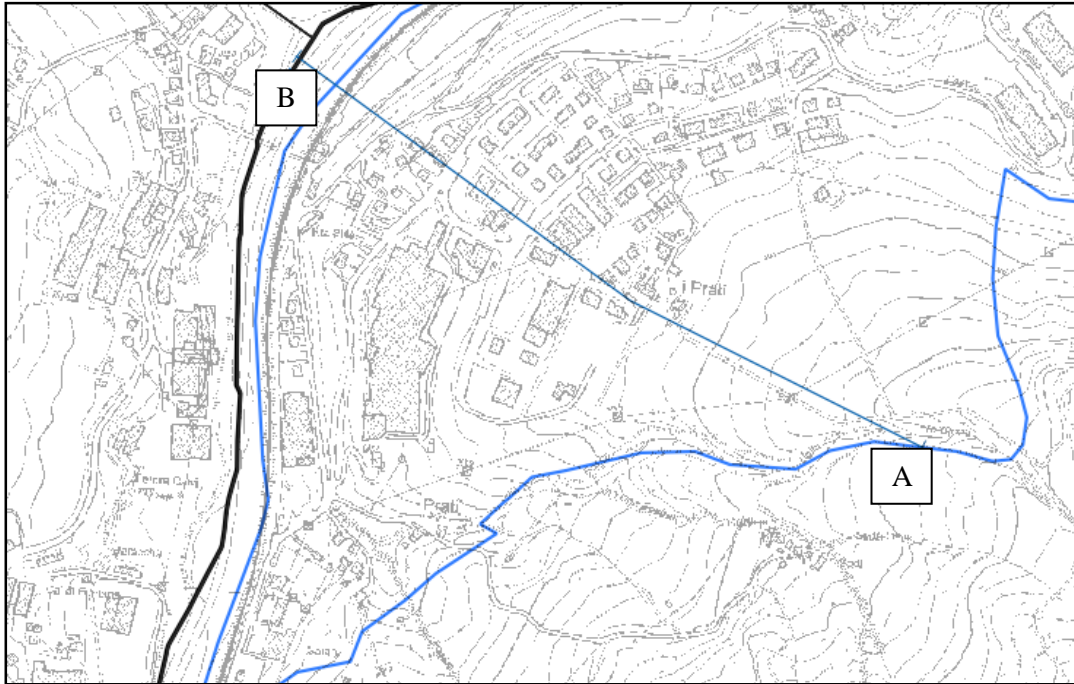


Figura 28. Planimetria della sezione litotecnica "Prati 21"

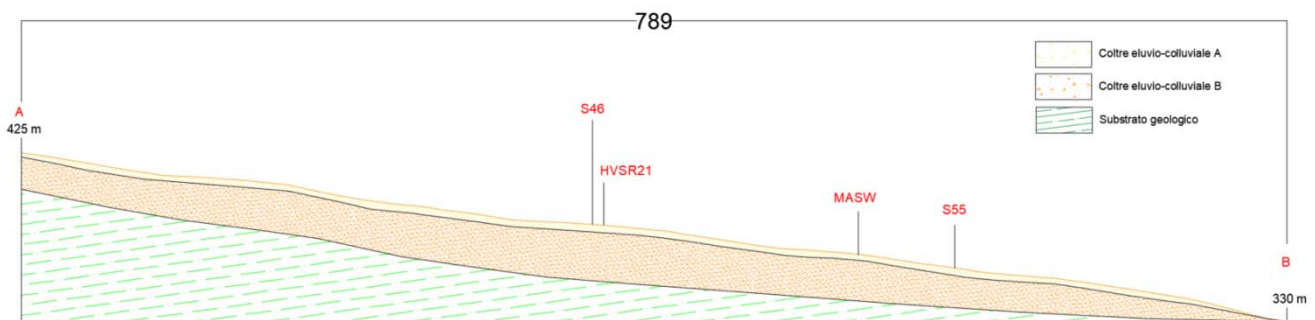


Figura 29. Sezione litotecnica "Prati 21" con ubicazione delle prove geofisiche e geognostiche presenti nella Carta delle Indagini

L'area denominata Prati 21, è costituita da una superficie classificata come **frana complessa quiescente**

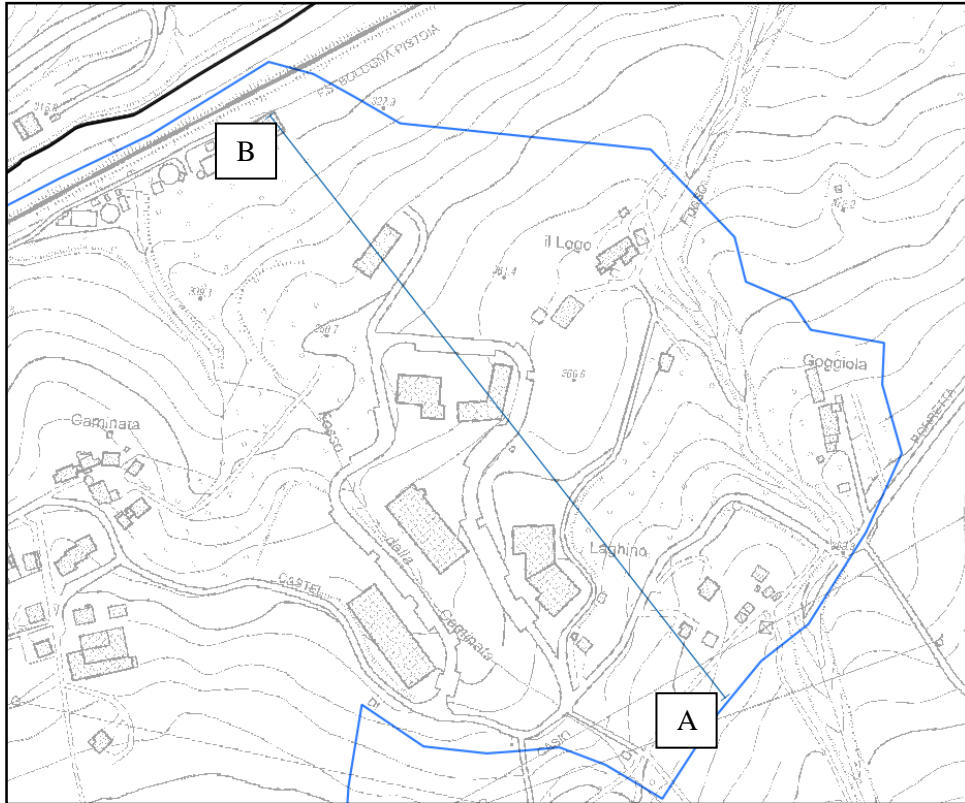


Figura 30. Planimetria della sezione litotecnica "Prati 24"

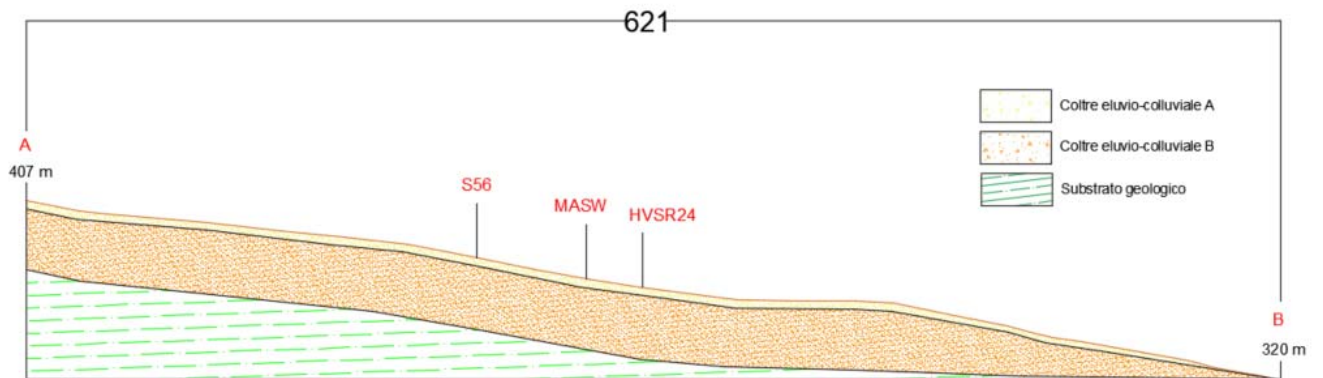


Figura 31. Sezione litotecnica "Prati 24" con ubicazione delle prove geofisiche e geognostiche presenti nella Carta delle Indagini

RISPOSTA SISMICA LOCALE

Il modello geologico generale delle aree in esame è composto da uno strato superficiale costituito da una coltre argillosa limosa che si sovrappone ai litotipi ascrivibili al substrato argillitico, inizialmente alterato e decompresso. L'andamento della stratigrafia è assimilabile a strati piano-paralleli, pertanto, per valutare gli effetti di amplificazione del terreno, è stato applicato un codice di calcolo monodimensionale (1D). Il codice di calcolo utilizzato è STRATA scritto nel 2007 da Albert Kottke e il professor Ellen M. Rathje e distribuito sotto la GNU General Public License. Il programma calcola la risposta di sito utilizzando il metodo lineare equivalente di propagazione delle onde nel dominio della frequenza con moti di ingresso nel dominio del tempo, o utilizzando il metodo della teoria vibrazione casuale (RVT), e permette la randomizzazione delle proprietà del sito.

Moto Di Input

Per la definizione del moto di input ci si è riferiti a quanto contenuto nella Delibera Giunta della Regione n. 630/2019 che, con la DGR n. 2193/2015, costituisce l'aggiornamento degli indirizzi regionali per studi di microzonazione sismica (MS) per la pianificazione urbanistica, atto d'indirizzo ai sensi dell'art. 16 della LR 20/2000 (deliberazione dell'Assemblea Legislativa n. 112 del 2 maggio 2007). La Regione Emilia Romagna ha predisposto tali aggiornamenti a seguito dell'entrata in vigore delle Norme Tecniche per le Costruzioni (D.M. 14/1/2008), della pubblicazione degli ["Indirizzi e Criteri per la Microzonazione Sismica" del Dipartimento della Protezione Civile e Conferenza delle Regioni e P. A. \(ICMS 2008\)](#), delle numerose fusioni di Comuni, avvenute e in atto, in Emilia-Romagna nonché dei numerosi dati acquisiti e studi effettuati in oltre 8 anni di attività. In particolare, l'aggiornamento tiene conto dei dati acquisiti e degli studi effettuati per la ricostruzione e la pianificazione urbanistica post-sisma di [L'Aquila 2009](#) ed [Emilia 2012](#), ai quali hanno contribuito i Servizi regionali [Geologico, Sismico e dei Suoli](#) e [Pianificazione Urbanistica, Paesaggio e Uso Sostenibile del Territorio](#) e gli studi realizzati con i [contributi per studi di riduzione del rischio sismico](#) di cui all'art. 11 della L. 77/2009 (OPCM 3907/2011 – DGR 1051/2011; OPCM 4007/2012 – DGR 1302/2012; OCDPC 52/2013 – DGR 1919 2013) che hanno consentito anche l'aggiornamento degli ICMS 2008 e degli standard nazionali di riferimento per gli studi di microzonazione sismica (v. [documenti della Commissione Tecnica per la microzonazione sismica del Dipartimento della Protezione Civile](#)).

La Deliberazione della Giunta Regionale 12 Aprile 2021 N. 476 "Aggiornamento dell'Atto di coordinamento tecnico sugli studi di microzonazione sismica per la pianificazione territoriale e urbanistica (artt. 22 e 49, L.R. n. 24/2017)", di cui alla deliberazione della Giunta regionale 29 aprile 2019, n. 630, fornisce, per il calcolo della risposta sismica locale nelle analisi di terzo livello, gli accelerogrammi di riferimento rappresentativi dello scuotimento atteso, per un periodo di ritorno di 475 anni (vista la classe d'uso: 10% di probabilità di superamento in 50 anni), sul suolo di riferimento relativo alla categoria di sottosuolo A definita nella tabella 3.2.II delle Norme Tecniche per le Costruzioni del 2018, ovvero con V_s30 superiore a 800 m/s. I segnali di riferimento sono disponibili nella piattaforma WebGIS: <http://egeos-test.eucentre.it/rer/home.html>. Dalla piattaforma è possibile scaricare l'input sismico selezionato per ciascun nodo del reticolo di riferimento per il territorio dell'Emilia-Romagna considerato dalle NTC08 (D.M. 14.01.2008) e NTC18 (D.M. 17.01.2018).

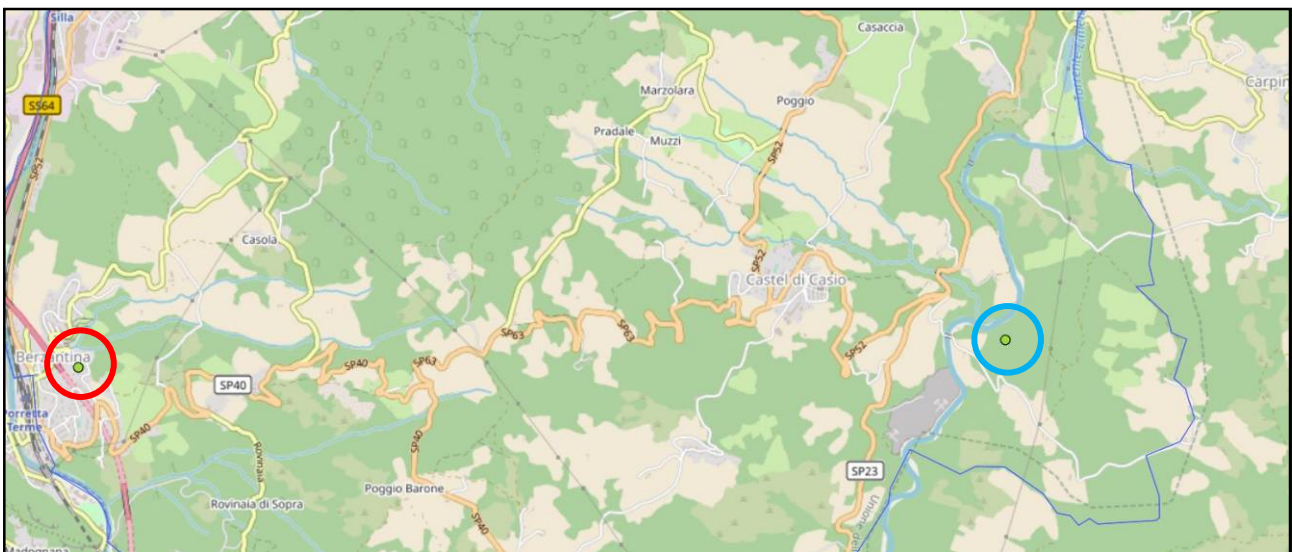


Figura 32. Immagine tratta da piattaforma WebGIS: <http://egeos-test.eucentre.it/rer/home.html>. Il cerchio rosso individua l'area il nodo utilizzato per lo scarico dell'input sismico relativo ai comparti Berzantina, Buvolone, Salmaore Prati 21 e Prati 24; il cerchio blu è relativo ai comparti Castel di Casio Nord e Sud.

Sismostratigrafia di input

L'analisi sismica passiva realizzata, unitamente e coerentemente a tutti i dati raccolti e il contesto geologico-morfologico, ha consentito di definire adeguatamente la stratigrafia sismica utilizzata nella modellazione con il software STRATA.

Castel di Casio Nord

	Depth (m)	Thickness (m)	Soil Type	Vs (m/s)
1	0.00	1.10	Coltre1	142.00
2	1.10	13.00	coltre2	300.00
3	14.10	50.00	Substrato	550.00
4	64.10	Half-Space	Bedrock	750.00

Castel di Casio Sud

	Depth (m)	Thickness (m)	Soil Type	Vs (m/s)
1	0.00	2.00	Coltre1	150.00
2	2.00	13.00	coltre2	360.00
3	15.00	50.00	Substrato	550.00
4	65.00	0.00	Substrato	680.00
5	65.00	Half-Space	Bedrock	850.00

Berzantina

	Depth (m)	Thickness (m)	Soil Type	Vs (m/s)
1	0.00	6.10	coltre	210.00
2	6.10	22.00	substrato alterato superficiale	410.00
3	28.10	50.00	substrato	590.00
4	78.10	Half-Space	Bedrock	760.00

Buolone

	Depth (m)	Thickness (m)	Soil Type	Vs (m/s)
1	0.00	0.70	Coltre1	130.00
2	0.70	6.00	coltre2	270.00
3	6.70	23.00	Substrato	510.00
4	29.70	Half-Space	Bedrock	760.00

Salmaore

	Depth (m)	Thickness (m)	Soil Type	Vs (m/s)
1	0.00	0.50	Coltre1	120.00
2	0.50	4.50	coltre2	200.00
3	5.00	27.00	Substrato	340.00
4	32.00	Half-Space	Bedrock	750.00

Prati 21

	Depth (m)	Thickness (m)	Soil Type	Vs (m/s)
1	0.00	2.50	Coltre1	160.00
2	2.50	13.00	coltre2	340.00
3	15.50	40.00	Substrato	510.00
4	55.50	Half-Space	Bedrock	830.00

Prati 24

	Depth (m)	Thickness (m)	Soil Type	Vs (m/s)
1	0.00	8.00	Coltre1	240.00
2	8.00	28.00	coltre2	440.00
3	36.00	80.00	Substrato	680.00
4	116.00	Half-Space	Bedrock	900.00

Per le curve di degrado dei terreni (selezionabili direttamente dal programma STRATA) si è fatto riferimento a dati bibliografici. In particolare quella ritenuta meglio rappresentativa del comportamento del terreno è di seguito riportata.

Castel di Casio Nord

	Name	Unit Weight (kN/m ³)	G/G_max Model	Damping Model	Notes	Varied
1	Coltre1	18.60	Vucetic & Dobry, PI = 15	Vucetic & Dobry, PI = 15		<input checked="" type="checkbox"/>
2	coltre2	19.60	Vucetic & Dobry, PI = 15	Vucetic & Dobry, PI = 15		<input checked="" type="checkbox"/>
3	Substrato	20.60	Fly. marnoso-argilloso	Fly. marnoso-argilloso		<input checked="" type="checkbox"/>

Castel di Casio Sud

	Name	Unit Weight (kN/m ³)	G/G_max Model	Damping Model	Notes	Varied
1	Coltre1	18.60	Vucetic & Dobry, PI = 15	Vucetic & Dobry, PI = 15		<input checked="" type="checkbox"/>
2	coltre2	19.60	Vucetic & Dobry, PI = 15	Vucetic & Dobry, PI = 15		<input checked="" type="checkbox"/>
3	Substrato	20.60	Fly. marnoso-argilloso	Fly. marnoso-argilloso		<input checked="" type="checkbox"/>

Buvolone

	Name	Unit Weight (kN/m ³)	G/G_max Model	Damping Model	Notes
1	Coltre1	18.60	Idriss (1990), Clay	Idriss (1990), Clay	
2	coltre2	19.60	Idriss (1990), Clay	Idriss (1990), Clay	
3	Substrato	20.60	Argilliti Alterate (Garfagnana)	Argilliti Alterate (Garfagnana)	

Salmaore

	Name	Unit Weight (kN/m ³)	G/G_max Model	Damping Model	Notes
1	Coltre1	18.60	Vucetic & Dobry, PI = 15	Vucetic & Dobry, PI = 15	
2	coltre2	19.60	Vucetic & Dobry, PI = 15	Vucetic & Dobry, PI = 15	
3	Substrato	20.60	Argilliti Alterate (Garfagnana)	Argilliti Alterate (Garfagnana)	

Berzantina

	Name	Unit Weight (kN/m ³)	G/G_max Model	Damping Model	Notes	Varied
1	coltre	18.60	Vucetic & Dobry, PI = 15	Vucetic & Dobry, PI = 15		<input checked="" type="checkbox"/>
2	substrato alterato superficiale	19.60	Argilliti Alterate (Garfagnana)	Argilliti Alterate (Garfagnana)		<input checked="" type="checkbox"/>
3	substrato	20.60	Argilliti (Garfagnana)	Argilliti (Garfagnana)		<input checked="" type="checkbox"/>

Prati 21

	Name	Unit Weight (kN/m ³)	G/G_max Model	Damping Model	Notes
1	Coltre1	18.60	Vucetic & Dobry, PI = 15	Vucetic & Dobry, PI = 15	
2	coltre2	19.60	Vucetic & Dobry, PI = 15	Vucetic & Dobry, PI = 15	
3	Substrato	20.60	Argilliti Alterate (Garfagnana)	Argilliti Alterate (Garfagnana)	

Prati 24

	Name	Unit Weight (kN/m ³)	G/G_max Model	Damping Model	Notes
1	Coltre1	18.60	Vucetic & Dobry, PI = 15	Vucetic & Dobry, PI = 15	
2	coltre2	19.60	Vucetic & Dobry, PI = 15	Vucetic & Dobry, PI = 15	
3	Substrato	20.60	Argilliti Alterate (Garfagnana)	Argilliti Alterate (Garfagnana)	

Al fine di valutare l'incertezza e la dispersione che generalmente caratterizzano le curve di degrado è stata attivata l'opzione "Varied". In tal modo il programma utilizza differenti curve generate attraverso la funzione proposta da Darendeli.

Nonlinear Curve Variation Parameters

Standard deviation model ([more information](#)): Darendeli ▾

Normalized shear modulus (G/G_max):

Function: Min: 0.100 ▾ Max: 1.000 ▾

Damping:

Function: Min: 0.20 % ▾ Max: 15.00 % ▾

G/G_max, Damping Correlation Coefficient (ρ): ▾

Figura 29. Parametri relativi alle curve di degrado del software STRATA.

Risposta sismica locale

Di seguito si riporta il grafico con il confronto tra gli spettri di risposta semplificati delle NTC18 e quello medio ottenuto dall'elaborazione con Strata.

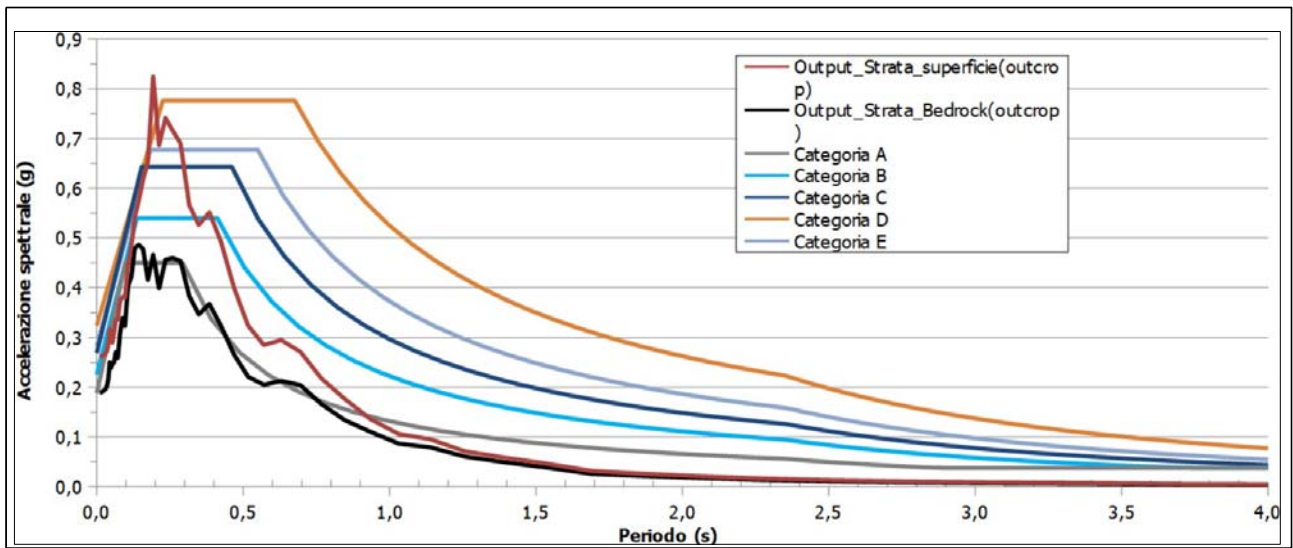


Figura 32. **Castel di Casio Nord** - Confronto tra spettri di risposta delle NTC18 e quello simulato con Strata

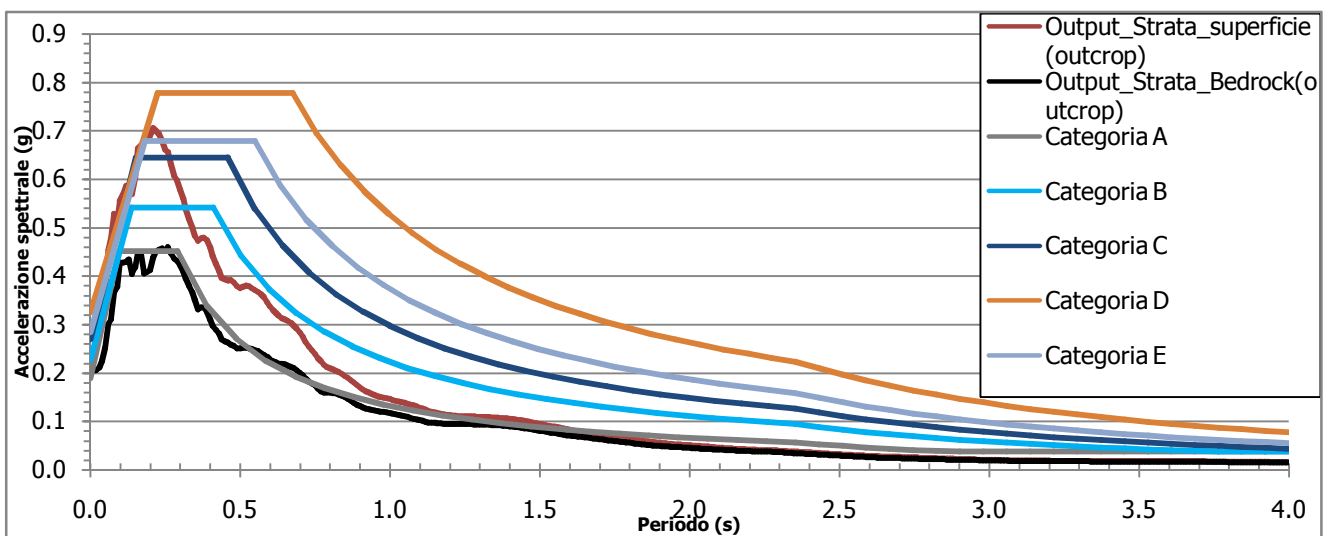


Figura 32. **Castel di Casio Sud** - Confronto tra spettri di risposta delle NTC18 e quello simulato con Strata

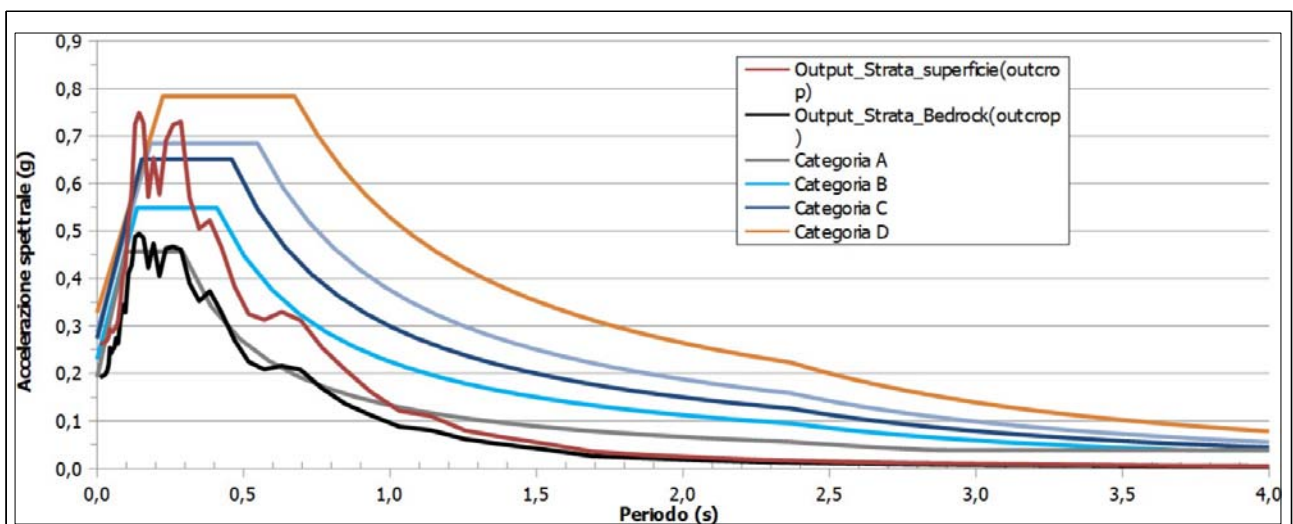


Figura 33. **Berzantina** - Confronto tra spettri di risposta delle NTC18 e quello simulato con Strata

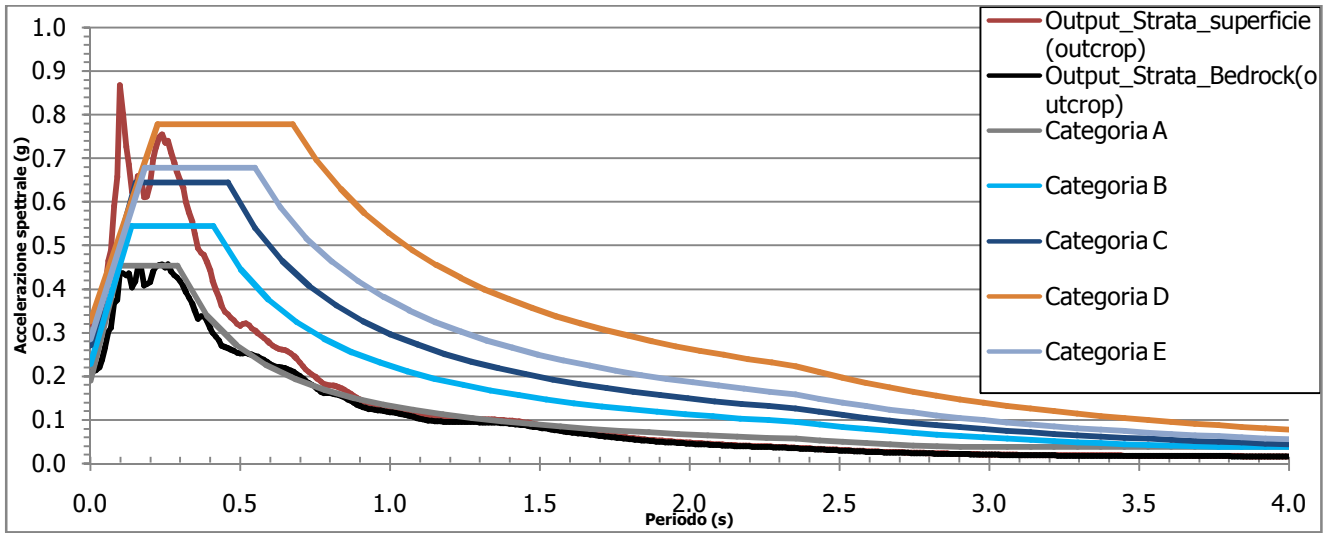


Figura 33. **Buolone**- Confronto tra spettri di risposta delle NTC18 e quello simulato con Strata

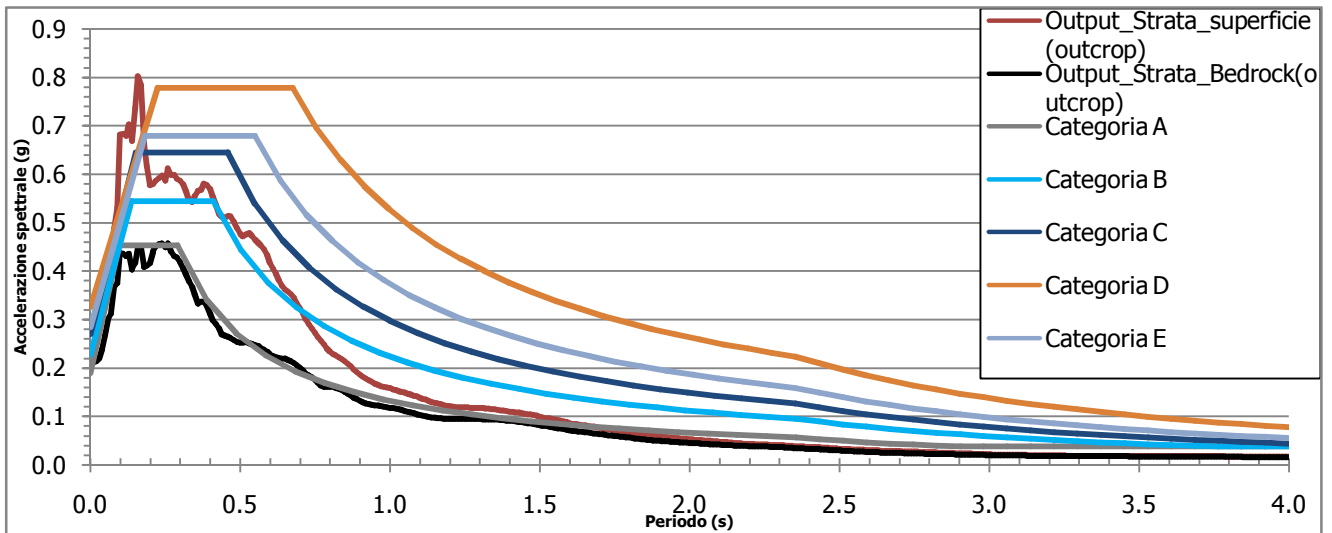


Figura 33. **Salmaore**- Confronto tra spettri di risposta delle NTC18 e quello simulato con Strata

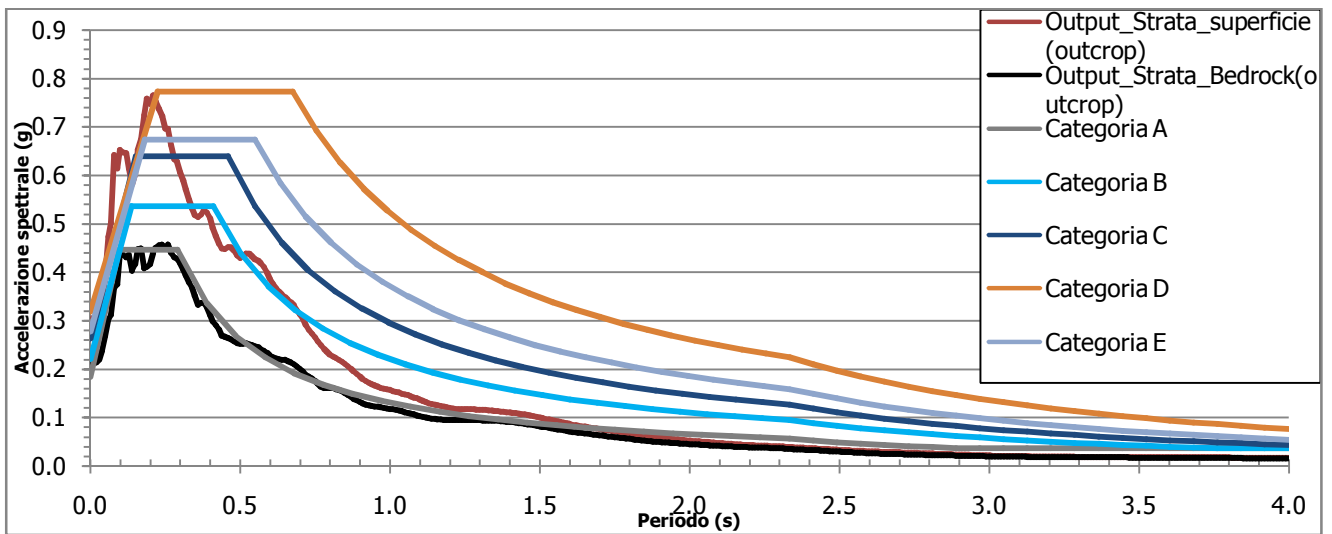


Figura 33. **Prati 21**- Confronto tra spettri di risposta delle NTC18 e quello simulato con Strata

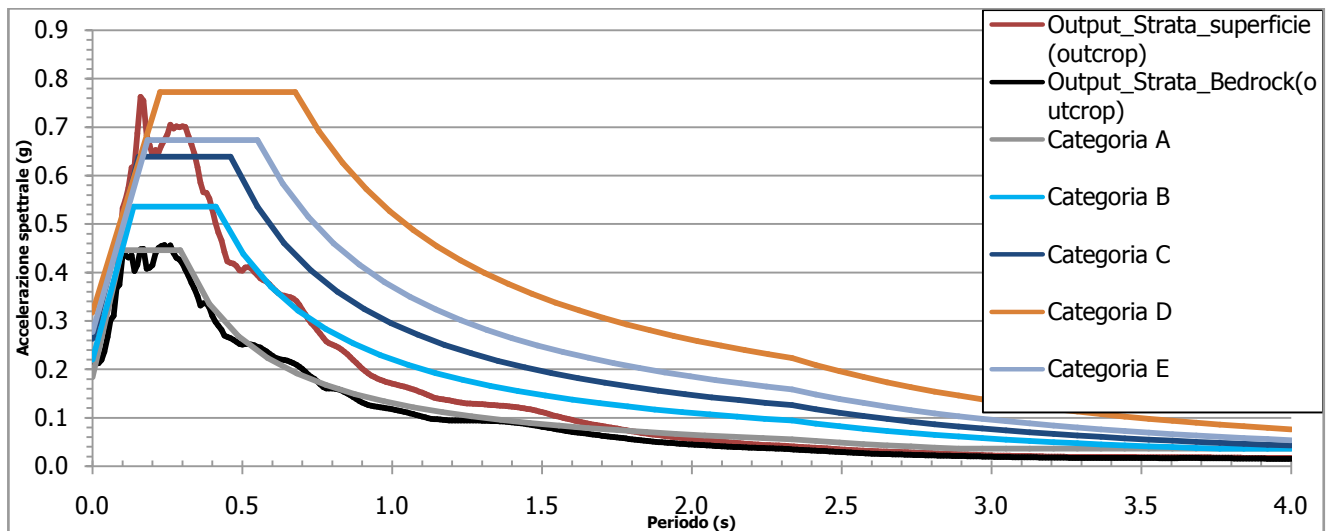


Figura 33. Prati 24- Confronto tra spettri di risposta delle NTC18 e quello simulato con Strata

Il software SRATA non fornisce in output lo spettro di risposta in velocità necessario per il calcolo del rapporto di Intensità di Housner (SI/SI_0) come definito nella DAL 112/2007. Pertanto per prima cosa sono stati ricavati gli spettri di risposta in velocità partendo dallo spettro di risposta in accelerazione sia in superficie sia al suolo di riferimento (bedrock_outcrop in STRATA) tramite la relazione:

$$PSV(t) = PSA(t) \cdot T / (2)$$

dove:

- $PSA(t)$ è lo spettro di risposta in accelerazione
- T = tempo in secondi

Quindi sono stati calcolati i rapporti di intensità di Housner (SI/SI_0) per i due intervalli di periodo ($0,1 \div 0,5$ sec e $0,5 \div 1,0$ sec). L'intensità di Housner è definita come l'integrale dello spettro di risposta in velocità, nei periodi di tempo considerati.

$$SI = \int PSV(t) dt$$

I valori di amplificazione calcolati sono riportati di seguito sia in forma tabellare che grafica.

Fattori di Amplificazione derivati dalla simulazione con STRATA									
Area	PGA	SA1	SA2	SA3	SI1	SI2	HSM	H(0.4-0.8)	H(0.7-1.1)
Castel di Casio Nord	1.3	1.5	1.4	1.2	1.5	1.3	550	307	142
Castel di Casio Sud	1.4	1.5	1.5	1.3	1.5	1.4	536	324	178
Berzantina	1.2	1.4	1.4	1.4	1.4	1.4	527	320	162
Buvolone	1.5	1.5	1.2	1.1	1.5	1.2	559	275	153
Salmaore	1.4	1.6	1.8	1.4	1.6	1.6	581	397	197
Prati 21	1.4	1.6	1.6	1.4	1.6	1.5	577	367	194
Prati 24	1.4	1.6	1.6	1.5	1.6	1.6	587	360	210

Figura 34. Fattori di amplificazione desunti dallo studio di RSL attraverso il software STRATA

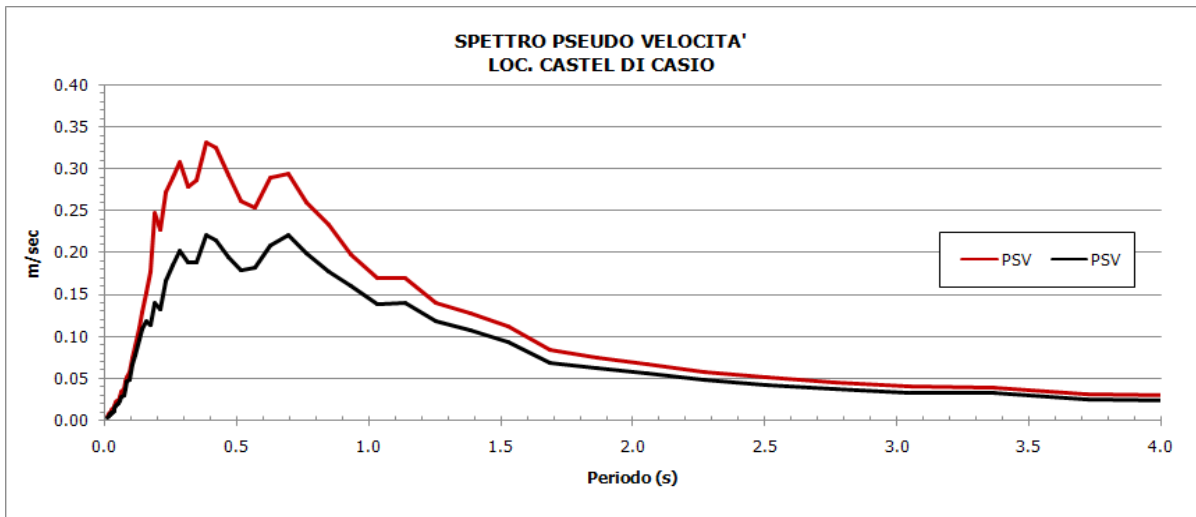


Figura 35. PSV spettro di risposta in velocità per la località Castel di Casio Nord

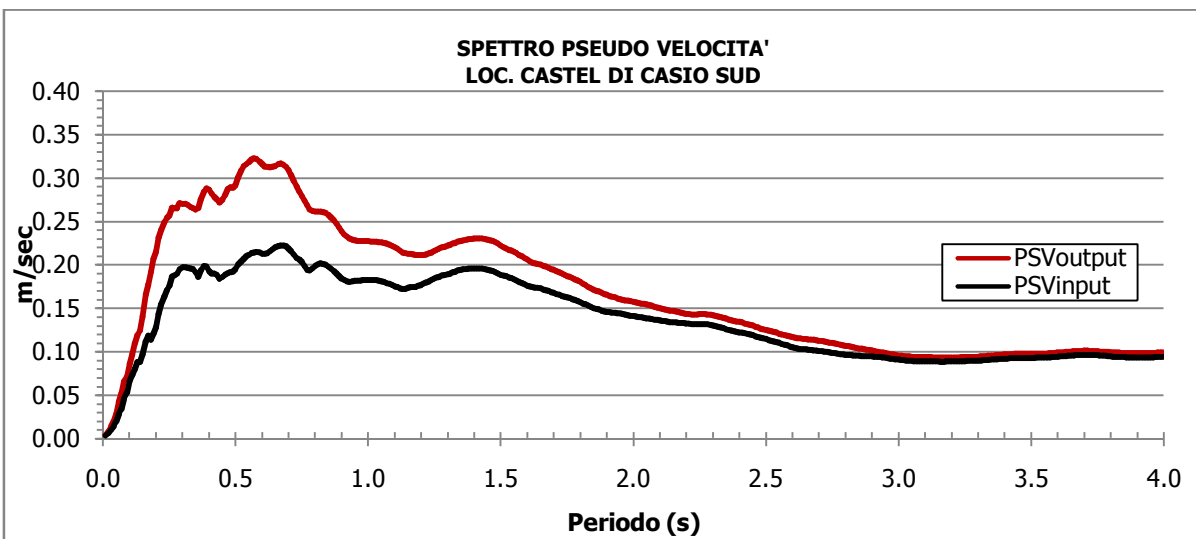


Figura 36. PSV spettro di risposta in velocità per la località Castel di Casio Sud

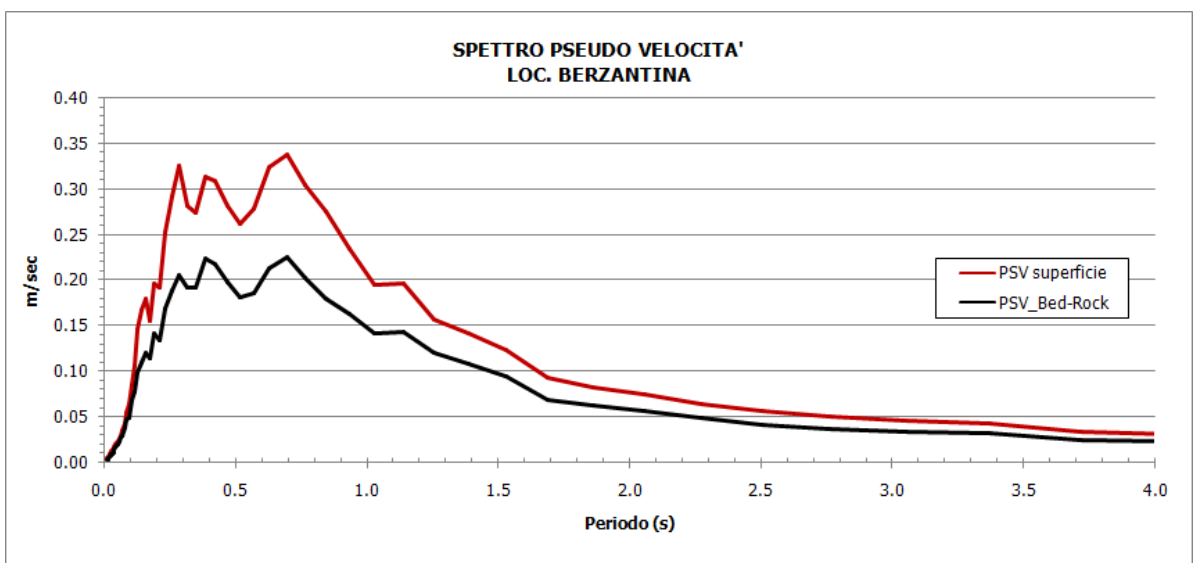


Figura 37. PSV spettro di risposta in velocità per la località Berzantina

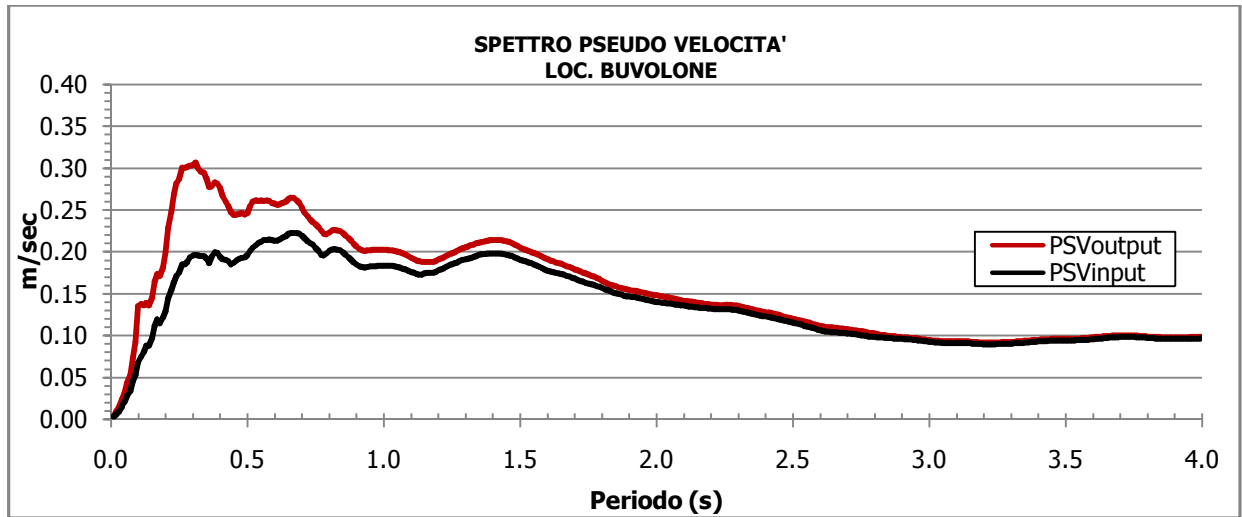


Figura 38. PSV spettro di risposta in velocità per la località Buvolone

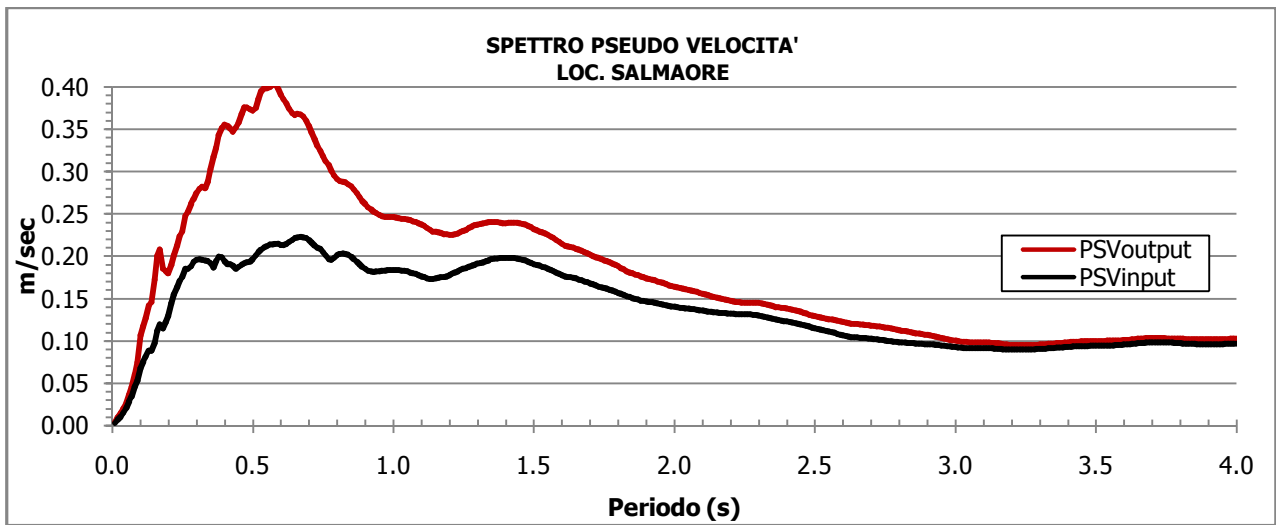


Figura 39. PSV spettro di risposta in velocità per la località Salmaore

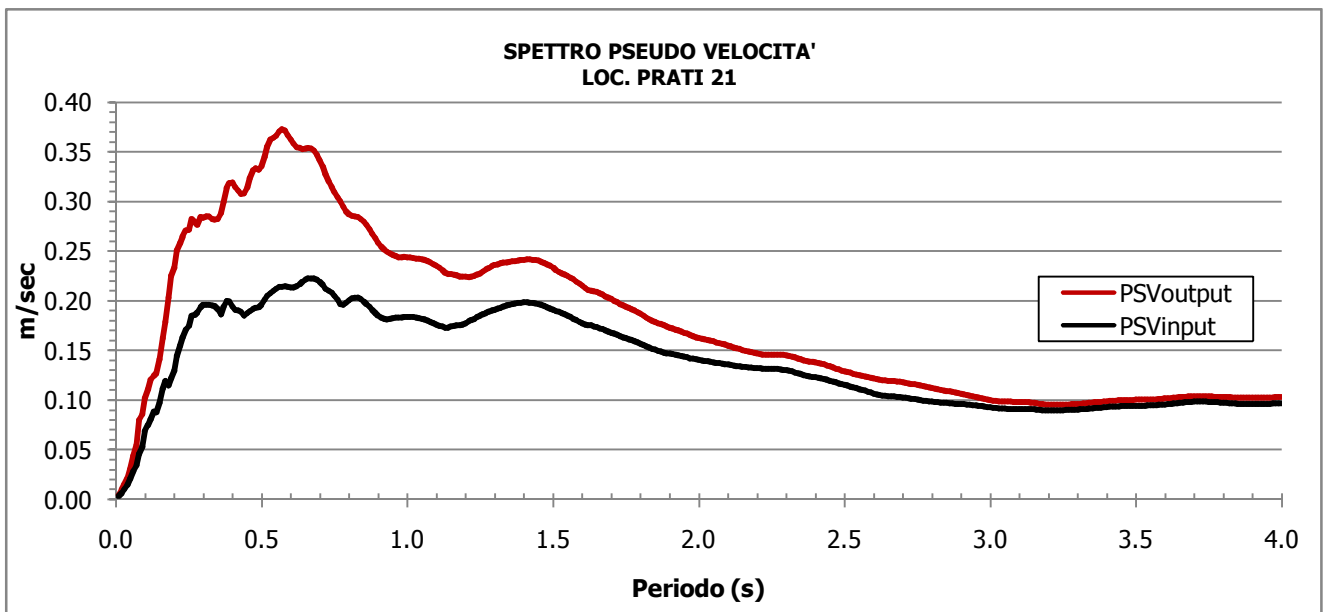


Figura 40. PSV spettro di risposta in velocità per la località Prati 21

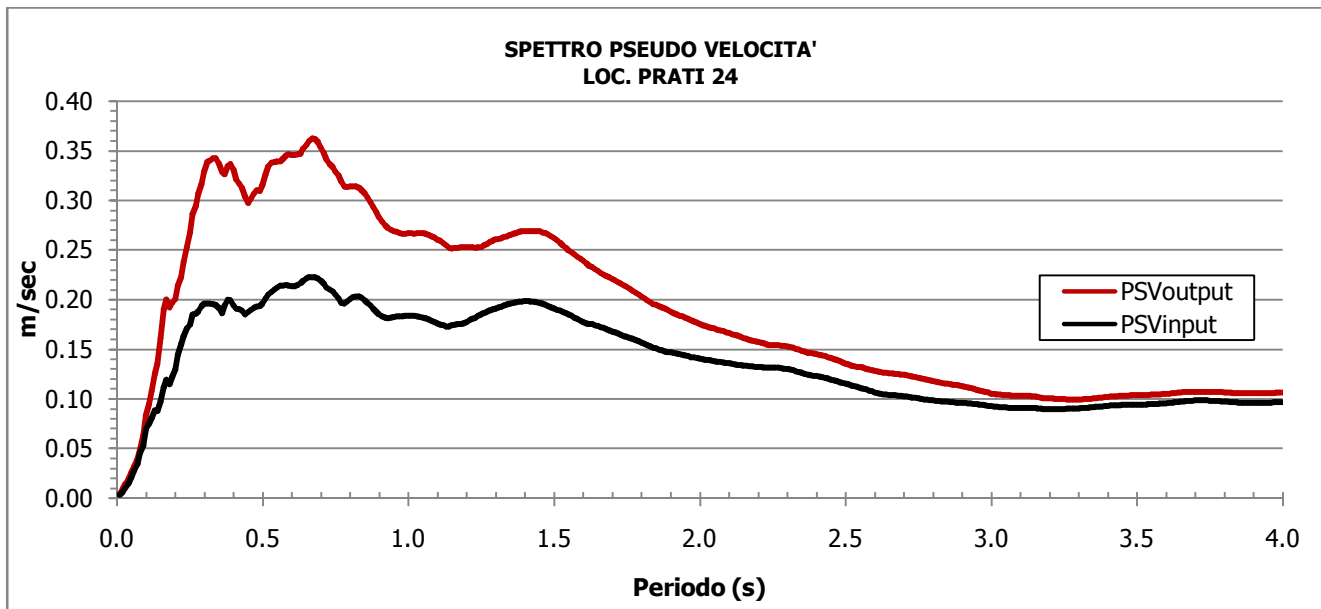


Figura 41. PSV spettro di risposta in velocità per la località Prati 24

VERIFICHE ANALITICHE DI STABILIA'

Per i comparti in esame sono state eseguite delle verifiche analitiche di stabilità globale del versante attraverso il programma di calcolo "Slope" della Geostru Software, che consentedi determinare il coefficiente di sicurezza relativo ad ipotetiche superfici di rottura, pari al rapporto tra la resistenza al taglio disponibile e la resistenza al taglio mobilitata. Le verifiche sono state effettuate sulle sezioni litostratigrafiche ricostruite sulla base dai dati geognostici egeofisici disponibili, ricostruendo così in modo sufficientemente dettagliato il modello geologico del sottosuolo. Nelle analisi analitiche di stabilità sono state definite delle superfici di scivolamento cinematicamente ammissibili e compatibili con l'assetto geologico e morfologico dell'area e in coerenza con i dati inclinometricidove disponibili. I metodi di calcolo hanno previsto la suddivisione della porzione di pendio in oggetto in un numero determinato di conci di uguale ampiezza. Ipotizzando che la base di ciascun concio sia piana e che lungo la superficie di scorrimento valga il criterio di rottura di Mohr-Coulomb, che correla tra loro le reazioni tangenziali e normali, le incognite risultano essere le reazioni laterali, i loro punti di applicazione e le reazioninormali alla base. La risoluzione del calcolo analitico si ottiene introducendo ulteriori condizioni sugli sforzi agenti sui conci, che risultano differenti a seconda del metodo di calcolo utilizzato (Bell, Bishop, ecc). Facendo riferimento alle norme Tecniche per le Costruzioni del 2018 le analisi sono state eseguite in condizioni sismiche, applicando coefficienti parziali unitari, sia per i parametri geotecnici sia per le resistenze. Le verifiche sono state eseguite considerando una situazione a lungo termine con parametri geotecnici efficaci essendo tale condizione la più gravosa nei confronti della stabilità. Nella seguente tabella si riportano i parametri geotecnici utilizzati desunti in modo ragionato e cautelativo sulla base di di tutti i dati geognostici raccolti e consultati.

PARAMETRI GEOTECNICI CARATTERISTICI -CASTEL DI CASIO NORD			
Unità litotecnica	γ_k [t/m ³]	ϕ'_k [°]	c'_k [KPa]
A: Coltre eluvio-colluviale argilloso limosa	1,8	15	5
B: Substrato coesivo sovraconsolidato	2,0	28	40

PARAMETRI GEOTECNICI CARATTERISTICI -CASTEL DI CASIO			
SUD			
Unità litotecnica	γ_k [t/m ³]	ϕ'_k [°]	c'_k [KPa]
A: Coltre eluvio-colluviale argilloso limosa	1,8	15	5
B: Substrato coesivo sovraconsolidato	2,0	28	40
PARAMETRI GEOTECNICI CARATTERISTICI -BERZANTINA			
Unità litotecnica	γ_k [t/m ³]	ϕ'_k [°]	c'_k [KPa]
A: Coltre eluvio-colluviale argilloso limosa	1,9	15	5
B: Substrato coesivo sovraconsolidato	2,0	28	40
PARAMETRI GEOTECNICI CARATTERISTICI -BUVOLONE-SALMAORE			
Unità litotecnica	γ_k [t/m ³]	ϕ'_k [°]	c'_k [KPa]
A: Coltre eluvio-colluviale argilloso limosa	1,9	16	6
B: Coltre eluvio-colluviale argilloso limosa	1.9	18	10
C: Ghiaie fluviali	1.7	34	
D: Substrato coesivo sovraconsolidato	2.0	28	20
PARAMETRI GEOTECNICI CARATTERISTICI -PRATI 21			
Unità litotecnica	γ_k [t/m ³]	ϕ'_k [°]	c'_k [KPa]
A: Coltre eluvio-colluviale argilloso limosa	1,9	16	6
B: Coltre eluvio-colluviale argilloso limosa	1.9	18	10
C: Substrato coesivo sovraconsolidato	2.0	28	20
PARAMETRI GEOTECNICI CARATTERISTICI - PRATI 24			
Unità litotecnica	γ_k [t/m ³]	ϕ'_k [°]	c'_k [KPa]
A: Coltre eluvio-colluviale argilloso limosa	1,9	16	6
B: Coltre eluvio-colluviale argilloso limosa	1.9	18	10
C: Substrato coesivo sovraconsolidato	2.0	28	20

Parametri geotecnici caratteristici. γ_k = peso di volume; ϕ'_k = angolo d'attrito interno c'_k = coesione.

Di seguito si riassumono i dati principali di input:

1. accelerazione massia attesa ag_{max} desunta sulla base delle rispettive RSL;
2. coefficiente di riduzione dell'accelerazione massima attesa al sito $\square_s= 0,24$;
3. coefficiente azione sismica orizzontale $Kh= ag_{max} * \square_s$;
4. coefficiente azione sismica verticale $Kv= Kh/2$;
5. tipo di opera: 2-Opere ordinarie;
6. classe d'uso: Classe II;
7. stato limite: Salvaguardia della vita (SLV; TR = 475 anni);
8. Categoria Topografica T1: $S_T= 1,0$

VERIFICA ANALITICA DI STABILITÀ IN CONDIZIONI SISMICHE METODO DI CALCOLO DI BELL	
Descrizione	Coefficiente di sicurezza
Castel di Casio Nord Superficie 1	1.50
Castel di Casio Sud Superficie 1	2.43
Berzantina Superficie 1	1.38
Buvolone-Salmaore Superficie 1	1.71
Prati 21 Superficie 1	2.31
Prati 24 Superficie 1	1.86

Come si può osservare tutte le analisi risultano ampiamente verificate mostrando un fattore di sicurezza maggiore di 1. Non si prevedono pertanto spostamenti lungo il pendio, i comparti analizzati risultano stabili anche in condizioni sismiche.

Ciascuna sezione è stata inoltre verificata lungo il pendio ogni 100 m come riportato negli elaborati allegati. Anche queste verifiche confermano la stabilità in condizioni sismiche delle aree in studio.

7 ELABORATI CARTOGRAFICI

Carta delle Indagini

Tutte le prove utilizzate sono rappresentate nella Carta delle Indagini, riportata in allegato ad archiviate nel database associato

Carta geologico-tecnica per la microzonazione sismica

La denominazione delle litologie descritte nella carta geologico-tecnica è stata resa armonica con la legenda della Carta Geologica Regionale dell'Emilia-Romagna, che è stata utilizzata come cartografia di base per le successive elaborazioni. I risultati riportati nelle cartografie derivano dai rilevamenti diretti effettuati nel corso del rilevamento geologico e morfologico e dalla interpretazione e interpretazione del dataset geognostico e geofisico.

Secondo gli standard di rappresentazione di riferimento i terreni di copertura e il substrato geologico sono stati catalogati come segue:

Terreni di copertura

CL-ec: Argille inorganiche di medio-bassa plasticità di ambiente eluvio colluviale;

GW-tf: Ghiaie pulite con granulometria ben assortita miscela di ghiaie e sabbie di terrazzo fluviale

Substrato geologico

SFCO: Substrato coesivo sovraconsolidato fratturato e alterato

E' stata identificata una categoria di instabilità di versante

Scorrimento

Le aree interessate da instabilità di versante sono state differenziate in base al loro stato di attività o di quiescenza.

Come descritto negli standard, nella carta sono state inserite le tracce di sezione geologica rappresentative del modello di sottosuolo. Inoltre sono presenti i sondaggi che hanno raggiunto il substrato geologico con relativa indicazione della quota.

Carta delle microzone omogenee in prospettiva sismica

Come descritto precedentemente, sono state individuate 4 **zone stabili suscettibili di amplificazioni locali**:

Zona 1: Argille inorganiche e limi argillosi (3 – 15 m) – Substrato coesivo sovraconsolidato

Zona 2: Argille inorganiche e limi argillosi (15 – 30 m) – Substrato coesivo sovraconsolidato

Zona 3: Ghiaie sabbiose (15 m) – Substrato coesivo sovraconsolidato

Zona 4: Substrato geologico coesivo sovraconsolidato fratturato con $V_s < 800$ m/s. Nella carta sono stati inseriti i punti di misura di rumore ambientale con indicazione di f_0 .

Le **zone di attenzione per instabilità** di versante sono state suddivise come segue:

30122004: ZAfr – Zona di attenzione per instabilità di versante - Scorrimento attiva.
Argille inorganiche e limi argillosi (3 – 10 m) – Substrato coesivo sovraconsolidato

30222005: ZAfr – Zona di attenzione per instabilità di versante – Scorrimento quiescente.
Argille inorganiche e limi argillosi (15 – 30 m) – Substrato coesivo sovraconsolidato

30242006: ZAfr – Zona di attenzione per instabilità di versante – Complessa quiescente.
Argille inorganiche e limi argillosi (3 – 15 m) – Substrato coesivo sovra consolidato

30242007: ZAfr – Zona di attenzione per instabilità di versante – Complessa quiescente.
Argille inorganiche e limi argillosi (15 – 30 m) – Substrato coesivo sovra consolidato

Carta di microzonazione sismica (Livello 3) - [FPGA] – [FH 01-0.5 s] – [FH 0.5-1 s] – [FA 0.1-0.5 s]

Sono state prodotte nove distinte carte, ognuna delle quali associata ad uno specifico fattore di amplificazione. Alle aree stabili perimetrate nella carta delle microzone omogenee in prospettiva sismica sono associati, nelle carte di microzonazione sismica di Livello 3, i fattori di amplificazione e di scuotimento atteso valutati con metodi semplificati decritti precedentemente.

- FPGA
- FH 0.1_0.5 s
- FH 0.5_1.0 s
- FA 0.1_0.5 s
- FA 0.4_0.8 s
- FA 0.7_1.1 s
- Hsm
- H (0.4_0.8) (solo per III Livello)
- H (0.7_1.1) (solo per III Livello)

I valori di Hsm, per le aree non sottoposte a III livello di approfondimento sono stati ricavati in relazione ai valori di ASIuhs/▲T, calcolati per il rispettivo punto della griglia INGV.

In relazione ai risultati ottenuti nello studio di III livello, le zone di attenzione per instabilità di versante analizzate sono state denominate come Zsfr zone di suscettibilità per frana in terra o crollo e classificate secondo il parametro di movimento FRT e ai loro relativi fattori di amplificazione stimati sulla base dello studio di RSL effettuato. Queste aree presentano quindi in carta due retini sovrapposti, come indicato dagli standard di rappresentazione.

dott. Luca Monti
GEOLOGO



ALLEGATO A

VERIFICHE ANALITICHE DI STABILITÀ

Relazione di calcolo

Definizione

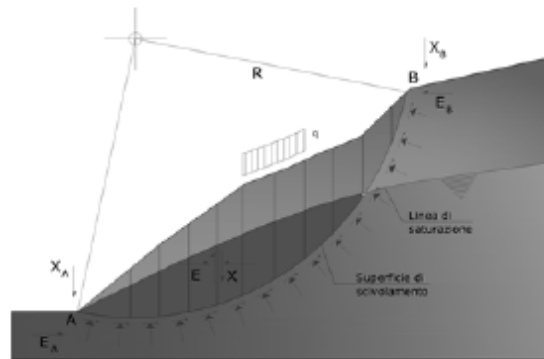
Per pendio s'intende una porzione di versante naturale il cui profilo originario è stato modificato da interventi artificiali rilevanti rispetto alla stabilità. Per frana s'intende una situazione di instabilità che interessa versanti naturali e coinvolgono volumi considerevoli di terreno.

Metodo equilibrio limite (LEM)

Il metodo dell'equilibrio limite consiste nello studiare l'equilibrio di un corpo rigido, costituito dal pendio e da una superficie di scorrimento di forma qualsiasi (linea retta, arco di cerchio, spirale logaritmica); da tale equilibrio vengono calcolate le tensioni da taglio (τ) e confrontate con la resistenza disponibile (τ_f), valutata secondo il criterio di rottura di Coulomb, da tale confronto ne scaturisce la prima indicazione sulla stabilità attraverso il coefficiente di sicurezza:

$$F = \tau_f / \tau$$

Tra i metodi dell'equilibrio limite alcuni considerano l'equilibrio globale del corpo rigido (Culman), altri a causa della non omogeneità dividono il corpo in concio considerando l'equilibrio di ciascuno (Fellenius, Bishop, Janbu ecc.). Di seguito vengono discussi i metodi dell'equilibrio limite dei concio.



Metodo dei concio

La massa interessata dallo scivolamento viene suddivisa in un numero conveniente di concio. Se il numero dei concio è pari a n , il problema presenta le seguenti incognite:

- n valori delle forze normali N_i agenti sulla base di ciascun concio;
- n valori delle forze di taglio alla base del concio T_i ;
- $(n-1)$ forze normali E_i agenti sull'interfaccia dei concio;
- $(n-1)$ forze tangenziali X_i agenti sull'interfaccia dei concio;
- n valori della coordinata a che individua il punto di applicazione delle E_i ;
- $(n-1)$ valori della coordinata che individua il punto di applicazione delle X_i ;
- una incognita costituita dal fattore di sicurezza F .

Complessivamente le incognite sono $(6n-2)$.

Mentre le equazioni a disposizione sono:

- equazioni di equilibrio dei momenti n ;
- equazioni di equilibrio alla traslazione verticale n ;
- equazioni di equilibrio alla traslazione orizzontale n ;
- equazioni relative al criterio di rottura n .

Totale numero di equazioni $4n$.

Il problema è staticamente indeterminato ed il grado di indeterminazione è pari a :

$$i = (6n - 2) - (4n) = 2n - 2$$

Il grado di indeterminazione si riduce ulteriormente a $(n-2)$ in quanto si fa l'assunzione che N_i sia applicato nel punto medio della striscia. Ciò equivale ad ipotizzare che le tensioni normali totali siano uniformemente distribuite. I diversi metodi che si basano sulla teoria dell'equilibrio limite si differenziano per il modo in cui vengono eliminate le $(n-2)$ indeterminazioni.

Metodo di Bell (1968)

Le forze agenti sul corpo che scivola includono il peso effettivo del terreno, W , le forze sismiche pseudostatiche orizzontali e verticali $K_x W$ e $K_z W$, le forze orizzontali e verticali X e Z applicate esternamente al profilo del pendio, infine, la risultante degli sforzi totali normali e di taglio σ e τ agenti sulla superficie potenziale di scivolamento. Lo sforzo totale normale può includere un eccesso di pressione dei pori u che deve essere specificata con l'introduzione dei parametri di forza efficace.

In pratica questo metodo può essere considerato come un'estensione del metodo del cerchio di attrito per sezioni omogenee precedentemente descritto da Taylor.

In accordo con la legge della resistenza di Mohr-Coulomb in termini di tensione efficace, la forza di taglio agente sulla base dell' i -esimo concio è data da:

$$T_i = \frac{c_i L_i + (N_i - u_{ci} L_i) \tan \phi_i}{F}$$

in cui:

F = il fattore di sicurezza;

c_i = la coesione efficace (o totale) alla base dell' i -esimo concio;

ϕ_i = l'angolo di attrito efficace (= 0 con la coesione totale) alla base dell' i -esimo concio;

L_i = la lunghezza della base dell' i -esimo concio;

u_{ci} = la pressione dei pori al centro della base dell' i -esimo concio.

L'equilibrio risulta uguagliando a zero la somma delle forze orizzontali, la somma delle forze verticali e la somma dei momenti rispetto all'origine.

Viene adottata la seguente assunzione sulla variazione della tensione normale agente sulla potenziale superficie di scorrimento:

$$\sigma_{ci} = \left[C_1 (1 - K_z) \frac{W_i \cos \alpha_i}{L_i} \right] + C_2 f(x_{ci}, y_{ci}, z_{ci})$$

in cui il primo termine dell'equazione include l'espressione:

$$W_i \cos \alpha_i / L_i = \text{valore dello sforzo normale totale associato con il metodo ordinario dei concii}$$

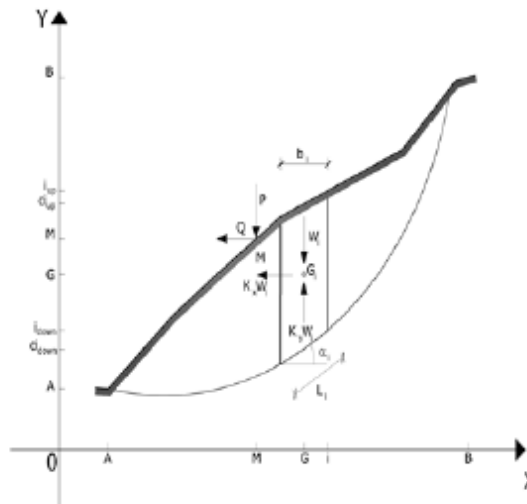
Il secondo termine dell'equazione include la funzione:

$$f = \sin 2\pi \left(\frac{x_n - x_{ci}}{x_n - x_0} \right)$$

dove x_0 ed x_n sono rispettivamente le ascisse del primo e dell'ultimo punto della superficie di scorrimento, mentre x_{ci} rappresenta l'ascissa del punto medio della base del concio i -esimo.

Una parte sensibile di riduzione del peso associata con una accelerazione verticale del terreno $K_z g$ può essere trasmessa direttamente alla base e ciò è incluso nel fattore $(1 - K_z)$.

Lo sforzo normale totale alla base di un concio è dato da:

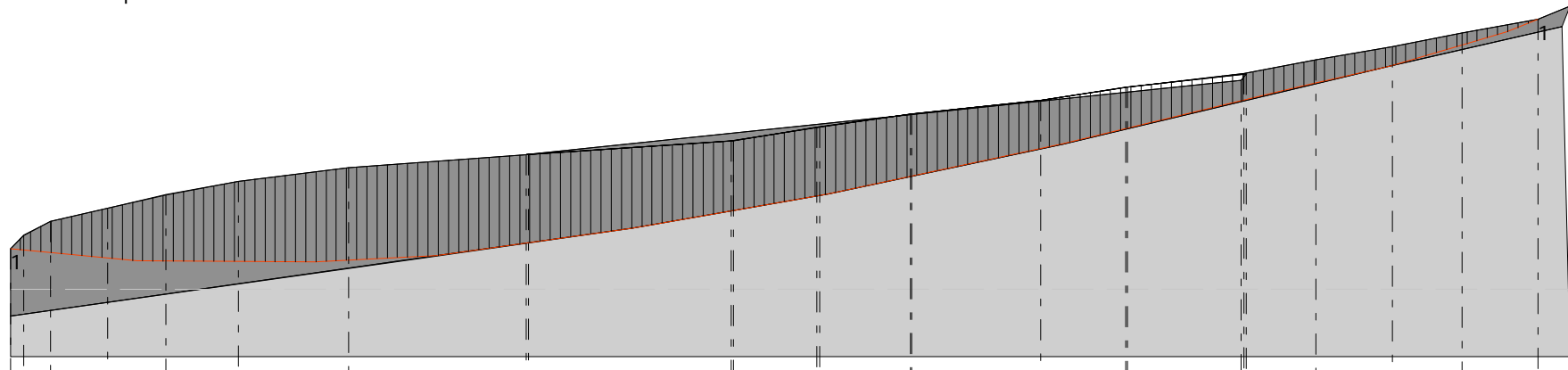


CASTEL DI CASIO NORD

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 SUPERFICIE 1
 IN CONDIZIONI STATICHE

Fs=2.30 Sup...1

- Coltre**
 g=1.8t/m³
 Fi=15°
 c=5 kN/m²
- Substato**
 g=2.0t/m³
 Fi=28°
 c=40 kN/m²



Quote	75.66	80.66	85.79	90.66	95.66	100.66	105.66	110.66	115.66	120.66	125.66	130.66	135.66	140.66	145.66	150.66	155.66	160.66	165.66
Distanze Parziali	0.00	5.06	9.94	21.06	21.54	26.96	40.94	65.80	78.64	80.84	84.64	97.94	106.64	120.69	126.00	145.66	155.66	160.66	165.66
Distanze Progressive	0.00	5.06	15.00	36.06	57.60	84.56	125.50	192.00	268.00	268.00	333.00	382.00	413.00	456.00	484.06	512.30	538.06	566.40	578.06

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.163329/11.035002
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	150.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma generica	

Vertici profilo

Nr	X (m)	y (m)
1	21.94	75.66
2	27.0	80.66
3	36.94	85.79
4	58.0	90.66
5	79.54	95.66
6	106.5	100.66
7	147.44	105.66
8	214.0	110.66
9	289.14	115.66
10	322.0	120.66
11	355.54	125.66
12	404.0	130.66
13	435.34	135.66
14	480.0	140.54
15	478.19	138.14
16	213.24	110.66
17	290.0	115.66
18	320.94	120.66
19	356.0	125.66
20	403.94	130.66
21	436.0	135.66
22	479.24	140.66
23	506.0	145.66
24	534.24	150.66
25	560.0	155.66
26	588.34	160.66
27	600.0	165.66

Vertici strato1

N	X (m)	y (m)
1	21.94	50.71
2	179.95	73.03
3	252.61	83.29
4	325.26	95.91
5	412.16	114.45
6	533.34	143.31
7	597.04	157.94

Vertici superficie Nr...1

N	X m	y m
1	21.94	75.66
2	68.74	71.16
3	134.9	70.84
4	179.94	73.13
5	252.59	83.38
6	325.24	96.01
7	412.14	114.55
8	499.04	135.54
9	533.31	143.41
10	561.02	151.42
11	576.68	156.04
12	588.34	160.66

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.8		Coltre
2	40		28	2.0		Substato

Superficie Nr...1 Fattore di sicurezza=2.30

Nr.	B m	Alfa (°)	Li m	Wi (t)	Kh•Wi (t)	Kv•Wi (t)	c (kN/m ²)	Fi (°)	Ui (t)	N'i (t)	Ti (t)
1	3.78	-5.5	3.79	13.91	0.0	0.0	5.0	15.0	0.0	-1.5	0.7
2	3.78	-5.5	3.79	39.8	0.0	0.0	5.0	15.0	0.0	-10.9	-0.4
3	3.78	-5.5	3.79	55.54	0.0	0.0	5.0	15.0	0.0	-16.7	-1.1
4	3.78	-5.5	3.79	71.29	0.0	0.0	5.0	15.0	0.0	-22.4	-1.8
5	3.78	-5.5	3.79	83.15	0.0	0.0	5.0	15.0	0.0	-26.7	-2.3
6	3.78	-5.5	3.79	91.55	0.0	0.0	5.0	15.0	0.0	-29.8	-2.6
7	3.78	-5.5	3.79	99.94	0.0	0.0	5.0	15.0	0.0	-32.9	-3.0
8	3.78	-5.4	3.79	108.32	0.0	0.0	5.0	15.0	0.0	-35.3	-3.3
9	3.78	-5.5	3.79	116.69	0.0	0.0	5.0	15.0	0.0	-39.0	-3.7
10	3.78	-5.5	3.79	125.09	0.0	0.0	5.0	15.0	0.0	-42.1	-4.1
11	3.78	-5.5	3.79	133.51	0.0	0.0	5.0	15.0	0.0	-45.1	-4.4
12	3.78	-5.5	3.79	141.94	0.0	0.0	5.0	15.0	0.0	-48.2	-4.8

13	3.78	-2.3	3.78	149.66	0.0	0.0	5.0	15.0	0.0	-19.9	-1.5
14	3.78	-0.3	3.78	156.21	0.0	0.0	5.0	15.0	0.0	0.4	0.9
15	3.78	-0.3	3.78	162.29	0.0	0.0	5.0	15.0	0.0	0.3	0.9
16	3.78	-0.3	3.78	168.07	0.0	0.0	5.0	15.0	0.0	0.1	0.9
17	3.78	-0.3	3.78	172.95	0.0	0.0	5.0	15.0	0.0	0.0	0.8
18	3.78	-0.3	3.78	177.83	0.0	0.0	5.0	15.0	0.0	-0.1	0.8
19	3.78	-0.3	3.78	182.71	0.0	0.0	5.0	15.0	0.0	-0.2	0.8
20	3.78	-0.3	3.78	187.6	0.0	0.0	5.0	15.0	0.0	-0.3	0.8
21	3.78	-0.3	3.78	192.48	0.0	0.0	5.0	15.0	0.0	-0.4	0.8
22	3.78	-0.3	3.78	197.36	0.0	0.0	5.0	15.0	0.0	-0.5	0.8
23	3.78	-0.3	3.78	202.07	0.0	0.0	5.0	15.0	0.0	-0.6	0.8
24	3.78	-0.3	3.78	205.32	0.0	0.0	5.0	15.0	0.0	-0.7	0.8
25	3.78	-0.3	3.78	208.58	0.0	0.0	5.0	15.0	0.0	-0.8	0.7
26	3.78	-0.3	3.78	211.84	0.0	0.0	5.0	15.0	0.0	-0.9	0.7
27	3.78	-0.3	3.78	215.09	0.0	0.0	5.0	15.0	0.0	-1.0	0.7
28	3.78	-0.3	3.78	218.35	0.0	0.0	5.0	15.0	0.0	-1.0	0.7
29	3.78	-0.3	3.78	221.6	0.0	0.0	5.0	15.0	0.0	-1.1	0.7
30	3.78	0.0	3.78	224.81	0.0	0.0	5.0	15.0	0.0	2.2	1.1
31	3.78	2.9	3.78	227.3	0.0	0.0	5.0	15.0	0.0	46.0	6.2
32	3.78	2.9	3.78	229.14	0.0	0.0	5.0	15.0	0.0	46.3	6.2
33	3.78	2.9	3.78	230.98	0.0	0.0	5.0	15.0	0.0	46.7	6.3
34	3.78	3.1	3.78	232.46	0.0	0.0	5.0	15.0	0.0	49.7	6.6
35	3.78	2.9	3.78	233.05	0.0	0.0	5.0	15.0	0.0	47.0	6.3
36	3.78	2.9	3.78	233.68	0.0	0.0	5.0	15.0	0.0	47.1	6.3
37	3.78	2.9	3.78	234.31	0.0	0.0	5.0	15.0	0.0	47.2	6.3
38	3.78	2.9	3.78	234.94	0.0	0.0	5.0	15.0	0.0	47.3	6.4
39	3.78	2.9	3.78	235.58	0.0	0.0	5.0	15.0	0.0	47.4	6.4
40	3.78	2.9	3.78	236.21	0.0	0.0	5.0	15.0	0.0	47.5	6.4
41	3.78	2.9	3.78	236.84	0.0	0.0	5.0	15.0	0.0	47.6	6.4
42	3.78	3.7	3.78	237.29	0.0	0.0	5.0	15.0	0.0	60.0	7.8
43	3.78	8.1	3.81	236.57	0.0	0.0	5.0	15.0	0.0	129.1	15.9
44	3.78	7.9	3.81	234.9	0.0	0.0	5.0	15.0	0.0	125.3	15.5
45	3.78	8.1	3.81	233.22	0.0	0.0	5.0	15.0	0.0	127.2	15.7
46	3.78	8.1	3.81	231.5	0.0	0.0	5.0	15.0	0.0	126.3	15.6
47	3.78	8.1	3.81	229.78	0.0	0.0	5.0	15.0	0.0	125.3	15.5
48	3.78	7.9	3.81	228.1	0.0	0.0	5.0	15.0	0.0	121.7	15.0
49	3.78	8.1	3.81	226.43	0.0	0.0	5.0	15.0	0.0	123.5	15.2
50	3.78	8.1	3.81	224.71	0.0	0.0	5.0	15.0	0.0	122.5	15.1
51	3.78	8.1	3.81	222.99	0.0	0.0	5.0	15.0	0.0	121.6	15.0
52	3.78	7.9	3.81	221.49	0.0	0.0	5.0	15.0	0.0	118.1	14.6
53	3.78	8.1	3.81	219.55	0.0	0.0	5.0	15.0	0.0	119.7	14.8
54	3.78	8.1	3.81	217.58	0.0	0.0	5.0	15.0	0.0	118.6	14.7
55	3.78	8.1	3.81	215.6	0.0	0.0	5.0	15.0	0.0	117.6	14.5
56	3.78	7.9	3.81	213.67	0.0	0.0	5.0	15.0	0.0	114.0	14.1
57	3.78	8.1	3.81	211.74	0.0	0.0	5.0	15.0	0.0	115.4	14.3
58	3.78	8.1	3.81	209.76	0.0	0.0	5.0	15.0	0.0	114.4	14.2
59	3.78	7.9	3.81	207.83	0.0	0.0	5.0	15.0	0.0	110.8	13.8
60	3.78	8.1	3.81	205.89	0.0	0.0	5.0	15.0	0.0	112.2	13.9
61	3.78	8.1	3.81	203.92	0.0	0.0	5.0	15.0	0.0	111.2	13.8
62	3.78	9.8	3.83	201.56	0.0	0.0	5.0	15.0	0.0	132.6	16.3
63	3.78	9.9	3.83	198.8	0.0	0.0	5.0	15.0	0.0	132.0	16.2
64	3.78	9.9	3.83	196.01	0.0	0.0	5.0	15.0	0.0	130.2	16.0
65	3.78	9.9	3.83	193.23	0.0	0.0	5.0	15.0	0.0	128.3	15.8
66	3.78	9.9	3.83	190.44	0.0	0.0	5.0	15.0	0.0	126.5	15.6
67	3.78	9.9	3.83	187.66	0.0	0.0	5.0	15.0	0.0	124.6	15.4
68	3.78	9.9	3.83	184.87	0.0	0.0	5.0	15.0	0.0	122.8	15.2
69	3.78	9.9	3.83	182.09	0.0	0.0	5.0	15.0	0.0	121.0	14.9
70	3.78	9.9	3.83	179.3	0.0	0.0	5.0	15.0	0.0	119.1	14.7
71	3.78	9.9	3.83	176.52	0.0	0.0	5.0	15.0	0.0	117.3	14.5

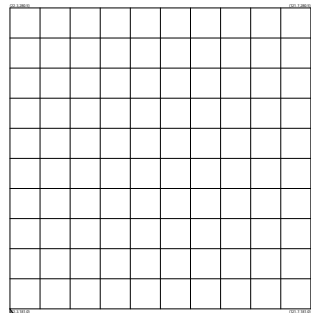
72	3.78	9.9	3.83	175.0	0.0	0.0	5.0	15.0	0.0	116.2	14.4
73	3.78	9.9	3.83	174.69	0.0	0.0	5.0	15.0	0.0	116.0	14.4
74	3.78	9.9	3.83	174.38	0.0	0.0	5.0	15.0	0.0	115.8	14.3
75	3.78	9.9	3.83	174.07	0.0	0.0	5.0	15.0	0.0	115.6	14.3
76	3.78	9.9	3.83	173.76	0.0	0.0	5.0	15.0	0.0	115.3	14.3
77	3.78	9.9	3.83	173.45	0.0	0.0	5.0	15.0	0.0	115.1	14.3
78	3.78	9.9	3.83	173.14	0.0	0.0	5.0	15.0	0.0	114.9	14.2
79	3.78	9.9	3.83	172.84	0.0	0.0	5.0	15.0	0.0	114.7	14.2
80	3.78	10.0	3.83	172.33	0.0	0.0	5.0	15.0	0.0	116.4	14.4
81	3.78	11.3	3.85	171.17	0.0	0.0	5.0	15.0	0.0	129.9	16.0
82	3.78	12.1	3.86	169.52	0.0	0.0	5.0	15.0	0.0	138.6	17.0
83	3.78	11.9	3.86	167.71	0.0	0.0	5.0	15.0	0.0	135.2	16.6
84	3.78	12.1	3.86	165.9	0.0	0.0	5.0	15.0	0.0	135.7	16.7
85	3.78	11.9	3.86	164.09	0.0	0.0	5.0	15.0	0.0	132.2	16.3
86	3.78	12.1	3.86	162.28	0.0	0.0	5.0	15.0	0.0	132.7	16.3
87	3.78	11.9	3.86	160.47	0.0	0.0	5.0	15.0	0.0	129.3	15.9
88	3.78	12.1	3.86	158.66	0.0	0.0	5.0	15.0	0.0	129.7	16.0
89	3.78	11.9	3.86	156.82	0.0	0.0	5.0	15.0	0.0	126.3	15.6
90	3.78	12.1	3.86	154.03	0.0	0.0	5.0	15.0	0.0	125.9	15.5
91	3.78	12.1	3.86	151.2	0.0	0.0	5.0	15.0	0.0	123.6	15.3
92	3.78	11.9	3.86	148.41	0.0	0.0	5.0	15.0	0.0	119.6	14.8
93	3.78	12.1	3.86	145.62	0.0	0.0	5.0	15.0	0.0	119.1	14.7
94	3.78	11.9	3.86	142.82	0.0	0.0	5.0	15.0	0.0	115.1	14.3
95	3.78	12.1	3.86	140.03	0.0	0.0	5.0	15.0	0.0	114.5	14.2
96	3.78	11.9	3.86	137.24	0.0	0.0	5.0	15.0	0.0	110.6	13.7
97	3.78	12.1	3.86	134.45	0.0	0.0	5.0	15.0	0.0	109.9	13.7
98	3.78	12.1	3.86	131.61	0.0	0.0	5.0	15.0	0.0	107.6	13.4
99	3.78	11.9	3.86	128.82	0.0	0.0	5.0	15.0	0.0	103.8	12.9
100	3.78	12.1	3.86	126.03	0.0	0.0	5.0	15.0	0.0	103.1	12.9
101	3.78	11.9	3.86	123.24	0.0	0.0	5.0	15.0	0.0	99.3	12.4
102	3.78	12.1	3.86	120.89	0.0	0.0	5.0	15.0	0.0	98.9	12.4
103	3.78	11.9	3.86	119.42	0.0	0.0	5.0	15.0	0.0	96.2	12.1
104	3.78	13.2	3.88	117.7	0.0	0.0	5.0	15.0	0.0	104.9	13.1
105	3.78	13.5	3.88	115.62	0.0	0.0	5.0	15.0	0.0	105.5	13.1
106	3.78	13.7	3.89	113.43	0.0	0.0	5.0	15.0	0.0	104.9	13.1
107	3.78	13.5	3.88	111.23	0.0	0.0	5.0	15.0	0.0	101.5	12.7
108	3.78	13.7	3.89	109.04	0.0	0.0	5.0	15.0	0.0	100.8	12.6
109	3.78	13.5	3.88	106.84	0.0	0.0	5.0	15.0	0.0	97.5	12.2
110	3.78	13.7	3.89	104.64	0.0	0.0	5.0	15.0	0.0	96.7	12.1
111	3.78	13.5	3.88	101.57	0.0	0.0	5.0	15.0	0.0	92.7	11.6
112	3.78	13.7	3.89	98.34	0.0	0.0	5.0	15.0	0.0	90.9	11.4
113	3.78	13.5	3.88	95.11	0.0	0.0	5.0	15.0	0.0	86.8	11.0
114	3.78	13.7	3.89	91.88	0.0	0.0	5.0	15.0	0.0	85.0	10.7
115	3.78	13.5	3.88	88.65	0.0	0.0	5.0	15.0	0.0	80.9	10.3
116	3.78	13.7	3.89	85.42	0.0	0.0	5.0	15.0	0.0	79.0	10.1
117	3.78	13.5	3.88	82.19	0.0	0.0	5.0	15.0	0.0	75.0	9.6
118	3.78	13.7	3.89	78.96	0.0	0.0	5.0	15.0	0.0	73.0	9.4
119	3.78	13.5	3.88	75.73	0.0	0.0	5.0	15.0	0.0	69.2	8.9
120	3.78	13.7	3.89	72.5	0.0	0.0	5.0	15.0	0.0	67.1	8.7
121	3.78	13.5	3.88	69.27	0.0	0.0	5.0	15.0	0.0	63.3	8.2
122	3.78	13.7	3.89	66.76	0.0	0.0	5.0	15.0	0.0	61.8	8.0
123	3.78	13.5	3.88	65.35	0.0	0.0	5.0	15.0	0.0	59.7	7.8
124	3.78	13.7	3.89	63.95	0.0	0.0	5.0	15.0	0.0	59.2	7.7
125	3.78	13.7	3.89	62.51	0.0	0.0	5.0	15.0	0.0	57.8	7.6
126	3.78	13.5	3.88	61.1	0.0	0.0	5.0	15.0	0.0	55.8	7.3
127	3.78	13.1	3.88	59.82	0.0	0.0	5.0	15.0	0.0	53.1	7.0
128	3.78	13.0	3.87	58.66	0.0	0.0	5.0	15.0	0.0	51.4	6.8
129	3.78	13.0	3.87	57.47	0.0	0.0	5.0	15.0	0.0	50.4	6.7
130	3.78	12.8	3.87	56.14	0.0	0.0	5.0	15.0	0.0	48.5	6.5

131	3.78	13.0	3.87	54.81	0.0	0.0	5.0	15.0	0.0	48.0	6.4
132	3.78	13.0	3.87	53.44	0.0	0.0	5.0	15.0	0.0	46.8	6.3
133	3.78	12.8	3.87	52.11	0.0	0.0	5.0	15.0	0.0	45.0	6.1
134	3.78	13.0	3.87	50.78	0.0	0.0	5.0	15.0	0.0	44.4	6.0
135	3.78	13.0	3.87	49.41	0.0	0.0	5.0	15.0	0.0	43.2	5.9
136	3.78	14.8	3.91	47.59	0.0	0.0	5.0	15.0	0.0	47.8	6.4
137	3.78	16.0	3.93	45.41	0.0	0.0	5.0	15.0	0.0	49.4	6.6
138	3.78	16.2	3.93	42.98	0.0	0.0	5.0	15.0	0.0	47.3	6.4
139	3.78	16.0	3.93	40.55	0.0	0.0	5.0	15.0	0.0	44.1	6.0
140	3.78	16.2	3.93	38.11	0.0	0.0	5.0	15.0	0.0	41.9	5.7
141	3.78	16.2	3.93	35.64	0.0	0.0	5.0	15.0	0.0	39.2	5.4
142	3.78	16.0	3.93	33.21	0.0	0.0	5.0	15.0	0.0	36.1	5.1
143	3.78	16.3	3.93	30.76	0.0	0.0	5.0	15.0	0.0	34.0	4.8
144	3.78	16.4	3.94	27.78	0.0	0.0	5.0	15.0	0.0	30.9	4.4
145	3.78	16.5	3.94	24.73	0.0	0.0	5.0	15.0	0.0	27.8	4.1
146	3.78	16.4	3.94	21.68	0.0	0.0	5.0	15.0	0.0	24.1	3.6
147	3.78	16.9	3.95	18.54	0.0	0.0	5.0	15.0	0.0	21.3	3.3
148	3.78	21.5	4.06	14.1	0.0	0.0	5.0	15.0	0.0	21.0	3.3
149	3.78	21.7	4.06	8.46	0.0	0.0	5.0	15.0	0.0	12.7	2.3
150	3.78	21.6	4.06	2.81	0.0	0.0	5.0	15.0	0.0	4.2	1.3

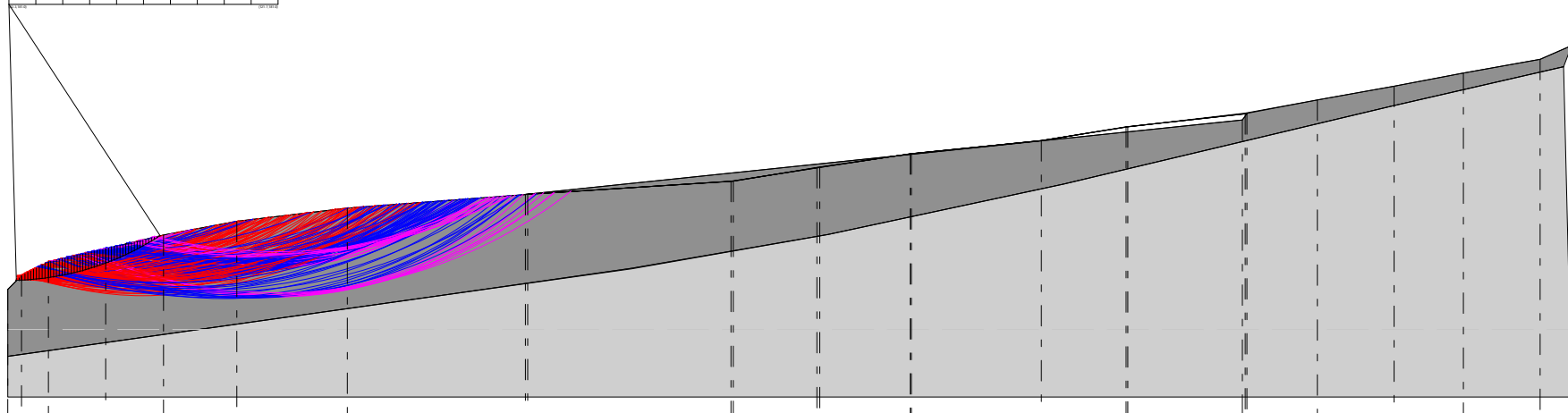
Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici superficie Nr...1	2
5.Coefficienti parziali azioni	2
6.Coefficienti parziali per i parametri geotecnici del terreno	2
7.Stratigrafia	3
Indice	6

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 0 A 100 m
 IN CONDIZIONI STATICHE



$x_c=22.31$ $y_c=180.98$ $R_c=102.26$ $F_s=1.22$



- Coltre**
 $g=1.8t/m^3$
 $F_i=15^\circ$
 $c=5 \text{ kN/m}^2$
- Substato**
 $g=2.0t/m^3$
 $F_i=28^\circ$
 $c=40 \text{ kN/m}^2$

Quote	75.66	80.66	85.79	90.66	95.66	100.66	105.66	110.66	115.66	120.66	125.66	130.66	135.66	140.66	145.66	150.66	155.66	160.66	165.66
Distanze Parziali	0.00	5.06	9.94	21.06	21.54	26.96	40.94	65.80	95.84	100.84	131.84	147.94	166.84	178.89	26.00	28.24	25.76	28.34	11.66
Distanze Progressive	0.00	5.06	15.00	36.06	57.60	84.56	125.50	191.30	267.14	268.00	333.00	382.00	413.00	450.00	484.06	512.30	538.06	566.40	578.06

Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	22.31 m
Ordinata vertice sinistro inferiore yi	180.98 m
Ascissa vertice destro superiore xs	121.73 m
Ordinata vertice destro superiore ys	280.52 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	21.94	75.66
2	27.0	80.66
3	36.94	85.79
4	58.0	90.66
5	79.54	95.66
6	106.5	100.66
7	147.44	105.66
8	214.0	110.66
9	289.14	115.66
10	322.0	120.66
11	355.54	125.66
12	404.0	130.66
13	435.34	135.66
14	480.0	140.54
15	478.19	138.14
16	213.24	110.66
17	290.0	115.66
18	320.94	120.66
19	356.0	125.66
20	403.94	130.66
21	436.0	135.66
22	479.24	140.66
23	506.0	145.66
24	534.24	150.66
25	560.0	155.66
26	588.34	160.66
27	600.0	165.66

Vertici strato1

N	X (m)	y (m)
---	----------	----------

1	21.94	50.71
2	179.95	73.03
3	252.61	83.29
4	325.26	95.91
5	412.16	114.45
6	533.34	143.31
7	597.04	157.94

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.8		Coltre
2	40		28	2.0		Substato

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.22
Ascissa centro superficie	22.31 m
Ordinata centro superficie	180.98 m
Raggio superficie	102.26 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	22.3	181.0	102.3	1.22
2	27.3	186.0	106.9	1.27
3	32.2	181.0	102.0	1.29
4	37.2	186.0	107.0	1.34
5	42.2	181.0	102.6	1.38
6	47.2	186.0	102.7	1.55
7	52.1	181.0	104.0	1.48
8	57.1	186.0	109.6	1.55
9	62.1	181.0	106.1	1.62
10	67.0	186.0	111.9	1.70
11	72.0	181.0	101.3	1.78
12	77.0	186.0	106.6	1.85
13	82.0	181.0	102.8	1.93
14	86.9	186.0	106.8	2.00
15	91.9	181.0	101.4	2.09
16	96.9	186.0	105.4	2.19

17	101.8	181.0	100.0	2.30
18	106.8	186.0	104.0	2.41
19	111.8	181.0	98.6	2.54
20	116.8	186.0	102.6	2.66
21	121.7	181.0	97.2	2.82
22	22.3	190.9	108.6	1.64
23	27.3	195.9	116.5	1.30
24	32.2	190.9	111.6	1.32
25	37.2	195.9	111.9	1.59
26	42.2	190.9	112.1	1.39
27	47.2	195.9	117.4	1.45
28	52.1	190.9	107.5	1.58
29	57.1	195.9	112.4	1.63
30	62.1	190.9	108.4	1.66
31	67.0	195.9	121.0	1.70
32	72.0	190.9	117.8	1.77
33	77.0	195.9	115.2	1.85
34	82.0	190.9	111.9	1.92
35	86.9	195.9	116.2	2.00
36	91.9	190.9	110.8	2.09
37	96.9	195.9	114.8	2.18
38	101.8	190.9	109.4	2.29
39	106.8	195.9	113.4	2.40
40	111.8	190.9	108.0	2.53
41	116.8	195.9	112.0	2.65
42	121.7	190.9	106.6	2.79
43	22.3	200.9	118.0	1.76
44	27.3	205.9	122.0	1.75
45	32.2	200.9	116.9	1.65
46	37.2	205.9	121.3	1.65
47	42.2	200.9	121.7	1.41
48	47.2	205.9	121.1	1.62
49	52.1	200.9	116.6	1.61
50	57.1	205.9	128.2	1.58
51	62.1	200.9	117.4	1.68
52	67.0	205.9	130.1	1.71
53	72.0	200.9	126.8	1.78
54	77.0	205.9	123.9	1.86
55	82.0	200.9	120.5	1.92
56	86.9	205.9	125.6	2.01
57	91.9	200.9	120.2	2.09
58	96.9	205.9	124.2	2.19
59	101.8	200.9	118.8	2.29
60	106.8	205.9	122.8	2.40
61	111.8	200.9	117.4	2.52
62	116.8	205.9	133.3	2.63
63	121.7	200.9	128.1	2.76
64	22.3	210.8	131.3	1.31
65	27.3	215.8	135.8	1.35
66	32.2	210.8	126.3	1.72
67	37.2	215.8	135.8	1.40
68	42.2	210.8	131.2	1.43
69	47.2	215.8	130.3	1.65
70	52.1	210.8	132.2	1.53
71	57.1	215.8	137.6	1.59
72	62.1	210.8	133.7	1.65
73	67.0	215.8	139.3	1.71
74	72.0	210.8	127.5	1.80
75	77.0	215.8	132.7	1.87

76	82.0	210.8	129.1	1.93
77	86.9	215.8	134.4	2.01
78	91.9	210.8	129.6	2.10
79	96.9	215.8	133.5	2.19
80	101.8	210.8	128.2	2.29
81	106.8	215.8	132.1	2.40
82	111.8	210.8	138.5	2.51
83	116.8	215.8	130.8	2.64
84	121.7	210.8	137.8	2.73
85	22.3	220.8	140.9	1.34
86	27.3	225.8	145.5	1.37
87	32.2	220.8	140.6	1.39
88	37.2	225.8	145.4	1.42
89	42.2	220.8	140.8	1.45
90	47.2	225.8	145.9	1.51
91	52.1	220.8	141.6	1.55
92	57.1	225.8	147.0	1.61
93	62.1	220.8	143.0	1.66
94	67.0	225.8	148.6	1.73
95	72.0	220.8	145.0	1.79
96	77.0	225.8	150.7	1.87
97	82.0	220.8	137.9	1.94
98	86.9	225.8	143.1	2.03
99	91.9	220.8	138.9	2.11
100	96.9	225.8	142.9	2.20
101	101.8	220.8	137.5	2.30
102	106.8	225.8	153.3	2.40
103	111.8	220.8	148.1	2.50
104	116.8	225.8	152.6	2.60
105	121.7	220.8	147.4	2.71
106	22.3	230.8	146.1	2.33
107	27.3	235.7	155.2	1.40
108	32.2	230.8	150.2	1.41
109	37.2	235.7	149.3	1.85
110	42.2	230.8	144.4	1.75
111	47.2	235.7	148.9	1.73
112	52.1	230.8	151.1	1.56
113	57.1	235.7	156.4	1.63
114	62.1	230.8	144.6	1.75
115	67.0	235.7	157.9	1.74
116	72.0	230.8	145.4	1.84
117	77.0	235.7	150.5	1.91
118	82.0	230.8	156.5	1.95
119	86.9	235.7	151.9	2.04
120	91.9	230.8	148.3	2.12
121	96.9	235.7	152.3	2.21
122	101.8	230.8	158.5	2.31
123	106.8	235.7	163.0	2.39
124	111.8	230.8	145.5	2.53
125	116.8	235.7	149.5	2.65
126	121.7	230.8	157.1	2.70
127	22.3	240.7	155.5	2.69
128	27.3	245.7	164.8	1.42
129	32.2	240.7	154.3	2.02
130	37.2	245.7	158.6	1.93
131	42.2	240.7	160.0	1.49
132	47.2	245.7	165.0	1.55
133	52.1	240.7	153.5	1.75
134	57.1	245.7	158.2	1.78

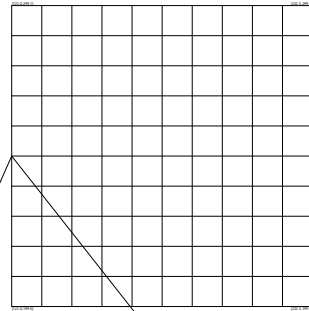
135	62.1	240.7	161.8	1.69
136	67.0	245.7	167.2	1.76
137	72.0	240.7	163.5	1.81
138	77.0	245.7	169.1	1.89
139	82.0	240.7	155.6	1.98
140	86.9	245.7	160.7	2.06
141	91.9	240.7	157.1	2.13
142	96.9	245.7	161.7	2.23
143	101.8	240.7	156.3	2.32
144	106.8	245.7	160.3	2.43
145	111.8	240.7	167.5	2.48
146	116.8	245.7	172.0	2.58
147	121.7	240.7	153.5	2.78
148	22.3	250.7	169.9	1.41
149	27.3	255.6	174.5	1.44
150	32.2	250.7	163.7	2.16
151	37.2	255.6	174.3	1.49
152	42.2	250.7	169.6	1.52
153	47.2	255.6	174.6	1.57
154	52.1	250.7	162.7	1.79
155	57.1	255.6	175.4	1.66
156	62.1	250.7	162.9	1.83
157	67.0	255.6	176.6	1.77
158	72.0	250.7	172.8	1.83
159	77.0	255.6	168.4	1.96
160	82.0	250.7	174.7	1.97
161	86.9	255.6	180.5	2.06
162	91.9	250.7	177.2	2.13
163	96.9	255.6	183.0	2.22
164	101.8	250.7	165.7	2.34
165	106.8	255.6	169.7	2.45
166	111.8	250.7	164.3	2.55
167	116.8	255.6	168.3	2.68
168	121.7	250.7	176.4	2.68
169	22.3	260.6	174.2	4.27
170	27.3	265.6	178.3	3.16
171	32.2	260.6	179.2	1.47
172	37.2	265.6	177.3	2.19
173	42.2	260.6	172.3	1.97
174	47.2	265.6	176.8	1.92
175	52.1	260.6	179.7	1.62
176	57.1	265.6	184.9	1.68
177	62.1	260.6	172.1	1.87
178	67.0	265.6	186.0	1.79
179	72.0	260.6	172.6	1.93
180	77.0	265.6	187.6	1.92
181	82.0	260.6	173.4	2.04
182	86.9	265.6	189.6	2.07
183	91.9	260.6	174.7	2.18
184	96.9	265.6	179.8	2.27
185	101.8	260.6	175.1	2.35
186	106.8	265.6	179.0	2.47
187	111.8	260.6	173.7	2.57
188	116.8	265.6	177.6	2.69
189	121.7	260.6	172.3	2.81
190	22.3	270.6	189.3	1.46
191	27.3	275.5	193.8	1.49
192	32.2	270.6	188.8	1.50
193	37.2	275.5	193.6	1.54

194	42.2	270.6	181.7	2.08
195	47.2	275.5	186.1	2.01
196	52.1	270.6	189.3	1.64
197	57.1	275.5	194.4	1.70
198	62.1	270.6	190.1	1.74
199	67.0	275.5	195.5	1.81
200	72.0	270.6	191.5	1.86
201	77.0	275.5	186.6	2.03
202	82.0	270.6	182.5	2.07
203	86.9	275.5	198.8	2.08
204	91.9	270.6	195.3	2.15
205	96.9	275.5	201.1	2.23
206	101.8	270.6	184.4	2.37
207	106.8	275.5	188.4	2.49
208	111.8	270.6	183.0	2.59
209	116.8	275.5	187.0	2.71
210	121.7	270.6	181.6	2.82
211	22.3	280.5	198.9	1.49
212	32.2	280.5	191.8	3.15
213	42.2	280.5	198.4	1.59
214	52.1	280.5	198.8	1.67
215	62.1	280.5	190.5	1.98
216	72.0	280.5	200.9	1.88
217	82.0	280.5	202.5	2.01
218	91.9	280.5	192.5	2.24
219	101.8	280.5	193.8	2.39
220	111.8	280.5	192.4	2.61
221	121.7	280.5	191.0	2.84

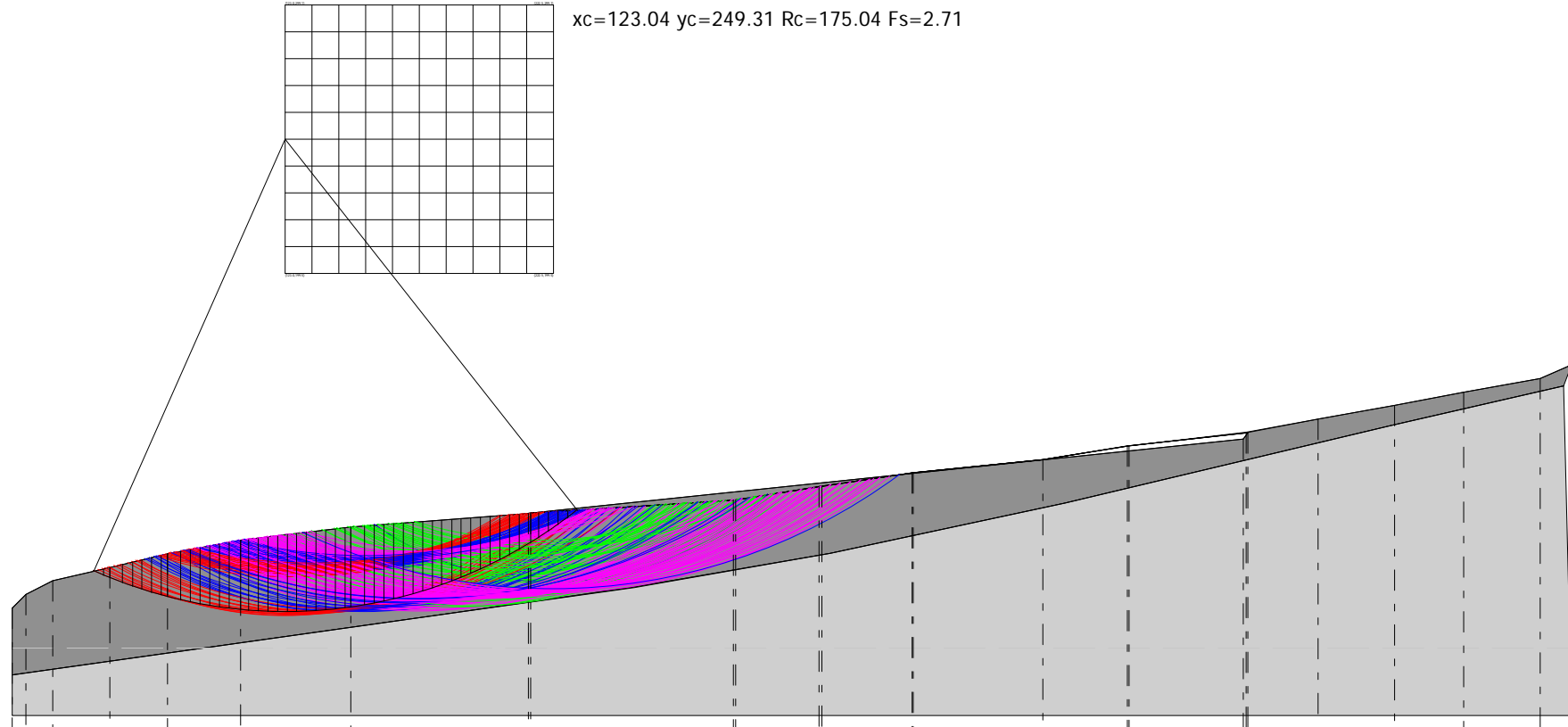
Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	1
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	2
7.Risultati analisi pendio [A2+M2+R2]	2
Indice	7

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 100 A 200 m
 IN CONDIZIONI STATICHE



$x_c=123.04$ $y_c=249.31$ $R_c=175.04$ $F_s=2.71$



- Coltre**
 $g=1.8t/m^3$
 $F_i=15^\circ$
 $c=5 \text{ kN/m}^2$
- Substato**
 $g=2.0t/m^3$
 $F_i=28^\circ$
 $c=40 \text{ kN/m}^2$

Quote	75.66	80.66	85.79	90.66	95.66	100.66	105.66	110.66	115.66	120.66	125.66	130.66	135.66	140.66	145.66	150.66	155.66	160.66	165.66
Distanze Parziali	0.00	5.06	9.94	21.06	21.54	26.96	40.94	67.80	75.84	80.84	83.84	87.94	91.84	97.89	102.00	108.24	115.76	124.34	11.66
Distanze Progressive	0.00	5.06	15.00	36.06	57.60	84.56	125.50	192.00	267.80	300.00	333.00	382.00	413.00	450.00	484.06	512.30	538.06	566.40	578.06

Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	123.04 m
Ordinata vertice sinistro inferiore yi	199.54 m
Ascissa vertice destro superiore xs	222.47 m
Ordinata vertice destro superiore ys	299.08 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	21.94	75.66
2	27.0	80.66
3	36.94	85.79
4	58.0	90.66
5	79.54	95.66
6	106.5	100.66
7	147.44	105.66
8	214.0	110.66
9	289.14	115.66
10	322.0	120.66
11	355.54	125.66
12	404.0	130.66
13	435.34	135.66
14	480.0	140.54
15	478.19	138.14
16	213.24	110.66
17	290.0	115.66
18	320.94	120.66
19	356.0	125.66
20	403.94	130.66
21	436.0	135.66
22	479.24	140.66
23	506.0	145.66
24	534.24	150.66
25	560.0	155.66
26	588.34	160.66
27	600.0	165.66

Vertici strato1

N	X (m)	y (m)
---	----------	----------

1	21.94	50.71
2	179.95	73.03
3	252.61	83.29
4	325.26	95.91
5	412.16	114.45
6	533.34	143.31
7	597.04	157.94

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.8		Coltre
2	40		28	2.0		Substato

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.71
Ascissa centro superficie	123.04 m
Ordinata centro superficie	249.31 m
Raggio superficie	175.04 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	123.0	199.5	126.7	2.80
2	128.0	204.5	131.2	2.91
3	133.0	199.5	126.0	3.06
4	138.0	204.5	130.5	3.17
5	142.9	199.5	125.3	3.33
6	147.9	204.5	129.8	3.44
7	152.9	199.5	125.4	3.61
8	157.8	204.5	129.9	3.71
9	162.8	199.5	113.3	3.90
10	167.8	204.5	117.2	4.00
11	172.8	199.5	114.7	4.14
12	177.7	204.5	118.6	4.22
13	182.7	199.5	116.1	4.37
14	187.7	204.5	120.0	4.43
15	192.6	199.5	117.0	4.58
16	197.6	204.5	110.2	4.61

17	202.6	199.5	104.7	4.67
18	207.6	204.5	108.8	4.68
19	212.5	199.5	103.3	4.75
20	217.5	204.5	107.5	4.77
21	222.5	199.5	114.3	4.82
22	123.0	209.5	136.4	2.77
23	128.0	214.5	140.9	2.88
24	133.0	209.5	135.7	3.02
25	138.0	214.5	140.2	3.13
26	142.9	209.5	135.0	3.28
27	147.9	214.5	139.5	3.39
28	152.9	209.5	119.7	3.64
29	157.8	214.5	138.8	3.65
30	162.8	209.5	134.3	3.81
31	167.8	214.5	138.8	3.91
32	172.8	209.5	135.0	4.07
33	177.7	214.5	139.5	4.15
34	182.7	209.5	122.6	4.30
35	187.7	214.5	126.6	4.38
36	192.6	209.5	124.0	4.50
37	197.6	214.5	128.0	4.55
38	202.6	209.5	113.7	4.62
39	207.6	214.5	117.2	4.65
40	212.5	209.5	113.0	4.70
41	217.5	214.5	129.3	4.68
42	222.5	209.5	124.0	4.67
43	123.0	219.4	146.0	2.75
44	128.0	224.4	137.3	2.94
45	133.0	219.4	131.9	3.07
46	138.0	224.4	149.8	3.09
47	142.9	219.4	144.6	3.24
48	147.9	224.4	149.1	3.35
49	152.9	219.4	129.1	3.62
50	157.8	224.4	148.4	3.60
51	162.8	219.4	127.7	3.87
52	167.8	224.4	131.7	3.98
53	172.8	219.4	143.3	4.00
54	177.7	224.4	147.8	4.09
55	182.7	219.4	144.0	4.23
56	187.7	224.4	148.5	4.30
57	192.6	219.4	130.6	4.45
58	197.6	224.4	134.5	4.51
59	202.6	219.4	132.0	4.60
60	207.6	224.4	135.9	4.63
61	212.5	219.4	133.4	4.67
62	217.5	224.4	137.3	4.59
63	222.5	219.4	133.7	4.54
64	123.0	229.4	155.7	2.73
65	128.0	234.4	160.2	2.83
66	133.0	229.4	155.0	2.96
67	138.0	234.4	145.3	3.20
68	142.9	229.4	139.9	3.34
69	147.9	234.4	143.9	3.48
70	152.9	229.4	138.5	3.61
71	157.8	234.4	142.5	3.73
72	162.8	229.4	152.9	3.70
73	167.8	234.4	157.4	3.80
74	172.8	229.4	152.2	3.95
75	177.7	234.4	156.7	4.04

76	182.7	229.4	152.2	4.17
77	187.7	234.4	156.7	4.24
78	192.6	229.4	152.9	4.34
79	197.6	234.4	141.1	4.49
80	202.6	229.4	138.5	4.55
81	207.6	234.4	142.5	4.58
82	212.5	229.4	139.9	4.62
83	217.5	234.4	143.9	4.56
84	222.5	229.4	141.3	4.47
85	123.0	239.4	152.0	2.81
86	128.0	244.3	156.0	2.94
87	133.0	239.4	150.6	3.07
88	138.0	244.3	154.6	3.21
89	142.9	239.4	164.0	3.18
90	147.9	244.3	168.5	3.29
91	152.9	239.4	147.9	3.61
92	157.8	244.3	151.8	3.73
93	162.8	239.4	146.5	3.85
94	167.8	244.3	150.4	3.97
95	172.8	239.4	145.1	4.09
96	177.7	244.3	166.4	3.99
97	182.7	239.4	161.2	4.12
98	187.7	244.3	165.7	4.18
99	192.6	239.4	161.2	4.27
100	197.6	244.3	165.7	4.28
101	202.6	239.4	145.1	4.53
102	207.6	244.3	149.0	4.56
103	212.5	239.4	146.5	4.59
104	217.5	244.3	150.4	4.57
105	222.5	239.4	147.8	4.46
106	123.0	249.3	175.0	2.71
107	128.0	254.3	165.4	2.95
108	133.0	249.3	160.0	3.08
109	138.0	254.3	164.0	3.21
110	142.9	249.3	158.6	3.34
111	147.9	254.3	162.6	3.48
112	152.9	249.3	172.9	3.39
113	157.8	254.3	161.2	3.73
114	162.8	249.3	155.8	3.85
115	167.8	254.3	176.7	3.72
116	172.8	249.3	171.5	3.85
117	177.7	254.3	176.0	3.94
118	182.7	249.3	170.8	4.07
119	187.7	254.3	175.3	4.13
120	192.6	249.3	170.1	4.21
121	197.6	254.3	174.6	4.21
122	202.6	249.3	151.6	4.55
123	207.6	254.3	174.6	4.18
124	212.5	249.3	153.0	4.59
125	217.5	254.3	157.0	4.61
126	222.5	249.3	154.4	4.50
127	123.0	259.3	170.8	2.84
128	128.0	264.2	174.8	2.97
129	133.0	259.3	169.4	3.09
130	138.0	264.2	173.4	3.22
131	142.9	259.3	168.0	3.35
132	147.9	264.2	172.0	3.49
133	152.9	259.3	166.6	3.61
134	157.8	264.2	170.6	3.74

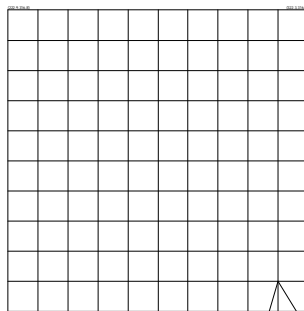
135	162.8	259.3	165.2	3.85
136	167.8	264.2	186.4	3.69
137	172.8	259.3	181.2	3.82
138	177.7	264.2	185.7	3.91
139	182.7	259.3	180.5	4.02
140	187.7	264.2	185.0	4.07
141	192.6	259.3	179.8	4.15
142	197.6	264.2	184.3	4.13
143	202.6	259.3	179.1	4.17
144	207.6	264.2	183.6	4.11
145	212.5	259.3	159.5	4.64
146	217.5	264.2	163.5	4.69
147	222.5	259.3	160.9	4.60
148	123.0	269.2	180.2	2.85
149	128.0	274.2	184.2	2.98
150	133.0	269.2	178.8	3.10
151	138.0	274.2	182.8	3.24
152	142.9	269.2	177.4	3.36
153	147.9	274.2	181.4	3.50
154	152.9	269.2	176.0	3.62
155	157.8	274.2	180.0	3.75
156	162.8	269.2	191.6	3.57
157	167.8	274.2	178.6	3.99
158	172.8	269.2	190.9	3.79
159	177.7	274.2	195.4	3.87
160	182.7	269.2	190.2	3.98
161	187.7	274.2	194.7	4.02
162	192.6	269.2	189.5	4.08
163	197.6	274.2	194.0	4.06
164	202.6	269.2	188.8	4.09
165	207.6	274.2	193.3	4.03
166	212.5	269.2	188.1	4.03
167	217.5	274.2	192.6	3.93
168	222.5	269.2	188.0	3.90
169	123.0	279.2	189.6	2.87
170	128.0	284.1	193.6	3.00
171	133.0	279.2	188.2	3.12
172	138.0	284.1	192.2	3.26
173	142.9	279.2	186.8	3.38
174	147.9	284.1	190.8	3.52
175	152.9	279.2	185.4	3.64
176	157.8	284.1	189.4	3.76
177	162.8	279.2	184.0	3.87
178	167.8	284.1	188.0	4.00
179	172.8	279.2	182.6	4.12
180	177.7	284.1	186.6	4.24
181	182.7	279.2	199.8	3.93
182	187.7	284.1	204.3	3.96
183	192.6	279.2	199.1	4.02
184	197.6	284.1	203.6	4.00
185	202.6	279.2	198.4	4.02
186	207.6	284.1	202.9	3.95
187	212.5	279.2	197.7	3.95
188	217.5	284.1	202.2	3.86
189	222.5	279.2	197.1	3.83
190	123.0	289.1	198.9	2.89
191	128.0	294.1	202.9	3.02
192	133.0	289.1	197.5	3.14
193	138.0	294.1	201.5	3.28

194	142.9	289.1	196.1	3.40
195	147.9	294.1	200.1	3.54
196	152.9	289.1	194.7	3.66
197	157.8	294.1	198.7	3.78
198	162.8	289.1	193.4	3.89
199	167.8	294.1	197.3	4.03
200	172.8	289.1	210.2	3.73
201	177.7	294.1	214.7	3.80
202	182.7	289.1	209.5	3.89
203	187.7	294.1	214.0	3.91
204	192.6	289.1	208.8	3.96
205	197.6	294.1	213.3	3.93
206	202.6	289.1	208.1	3.95
207	207.6	294.1	212.6	3.88
208	212.5	289.1	207.4	3.88
209	217.5	294.1	211.9	3.79
210	222.5	289.1	206.7	3.76
211	123.0	299.1	208.3	2.92
212	133.0	299.1	206.9	3.16
213	142.9	299.1	205.5	3.42
214	152.9	299.1	204.1	3.68
215	162.8	299.1	202.7	3.92
216	172.8	299.1	219.9	3.70
217	182.7	299.1	219.2	3.84
218	192.6	299.1	218.5	3.90
219	202.6	299.1	217.8	3.88
220	212.5	299.1	217.1	3.81
221	222.5	299.1	216.4	3.69

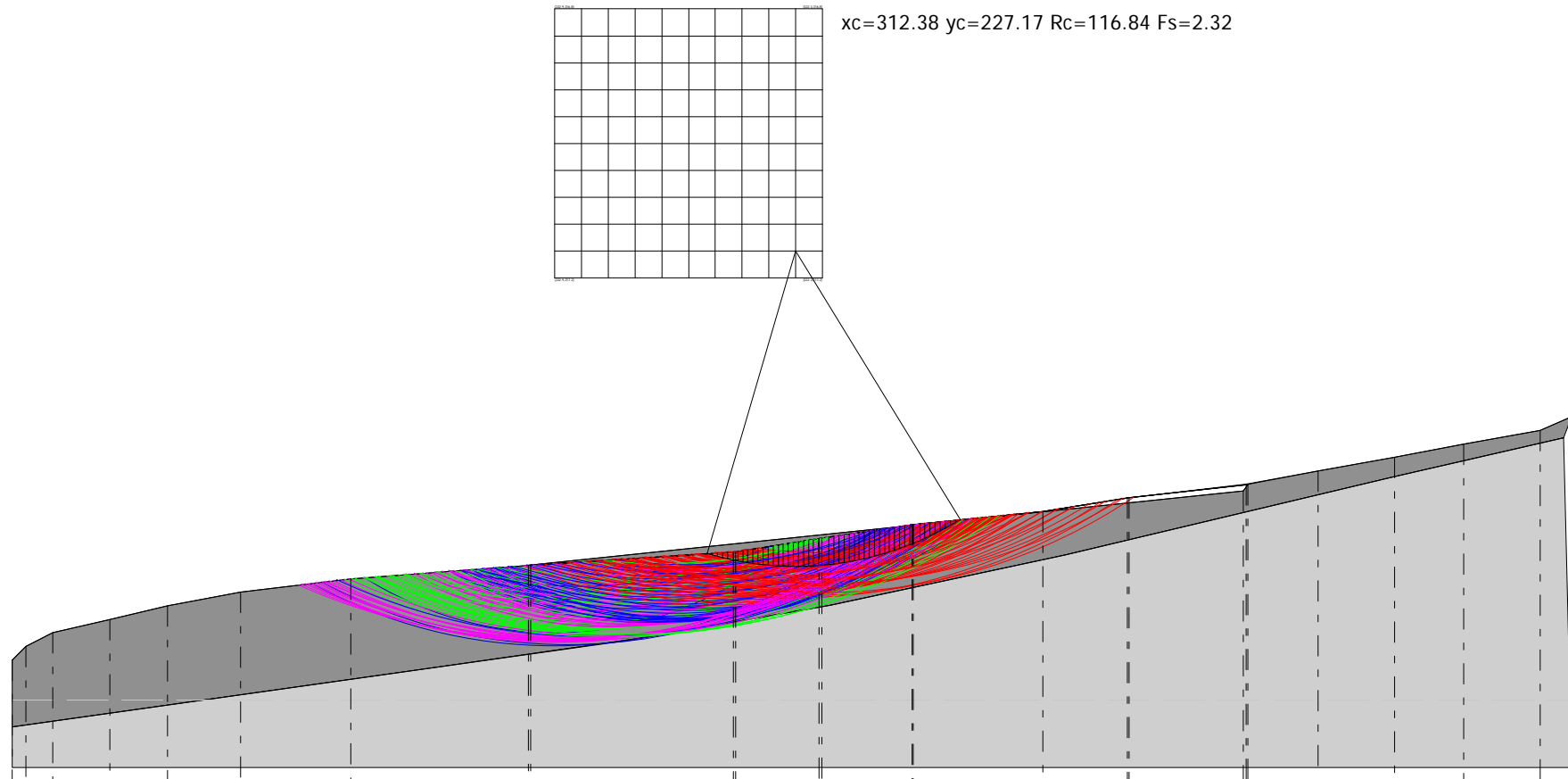
Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	1
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	2
7.Risultati analisi pendio [A2+M2+R2]	2
Indice	7

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 200 A 300 m
 IN CONDIZIONI STATICHE



$x_c=312.38$ $y_c=227.17$ $R_c=116.84$ $F_s=2.32$



- Coltre**
 $g=1.8t/m^3$
 $F_i=15^\circ$
 $c=5 \text{ kN/m}^2$
- Substato**
 $g=2.0t/m^3$
 $F_i=28^\circ$
 $c=40 \text{ kN/m}^2$

Quote	75.66	80.66	85.79	90.66	95.66	100.66	105.66	110.66	115.66	120.66	125.66	130.66	135.66	140.66	145.66	150.66	155.66	160.66	165.66
Distanze Parziali	0.00	5.06	9.94	21.06	21.54	26.96	40.94	65.80	75.84	90.84	105.84	120.84	135.84	150.89	26.00	28.24	25.76	28.34	11.66
Distanze Progressive	0.00	5.06	15.00	36.06	57.60	84.56	125.50	191.30	267.14	357.98	463.82	584.66	720.50	871.39	897.39	925.63	951.39	979.73	991.39

Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	222.89 m
Ordinata vertice sinistro inferiore yi	217.21 m
Ascissa vertice destro superiore xs	322.32 m
Ordinata vertice destro superiore ys	316.75 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	21.94	75.66
2	27.0	80.66
3	36.94	85.79
4	58.0	90.66
5	79.54	95.66
6	106.5	100.66
7	147.44	105.66
8	214.0	110.66
9	289.14	115.66
10	322.0	120.66
11	355.54	125.66
12	404.0	130.66
13	435.34	135.66
14	480.0	140.54
15	478.19	138.14
16	213.24	110.66
17	290.0	115.66
18	320.94	120.66
19	356.0	125.66
20	403.94	130.66
21	436.0	135.66
22	479.24	140.66
23	506.0	145.66
24	534.24	150.66
25	560.0	155.66
26	588.34	160.66
27	600.0	165.66

Vertici strato1

N	X (m)	y (m)
---	----------	----------

1	21.94	50.71
2	179.95	73.03
3	252.61	83.29
4	325.26	95.91
5	412.16	114.45
6	533.34	143.31
7	597.04	157.94

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.8		Coltre
2	40		28	2.0		Substato

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.32
Ascissa centro superficie	312.38 m
Ordinata centro superficie	227.17 m
Raggio superficie	116.84 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	222.9	217.2	131.5	4.56
2	227.9	222.2	135.9	4.40
3	232.8	217.2	130.6	4.35
4	237.8	222.2	135.0	4.16
5	242.8	217.2	129.7	4.09
6	247.7	222.2	134.1	3.88
7	252.7	217.2	128.8	3.80
8	257.7	222.2	133.2	3.61
9	262.7	217.2	127.9	3.52
10	267.6	222.2	132.3	3.34
11	272.6	217.2	126.9	3.26
12	277.6	222.2	116.3	3.08
13	282.5	217.2	110.8	2.92
14	287.5	222.2	114.9	2.73
15	292.5	217.2	109.8	2.61
16	297.5	222.2	113.5	2.47

17	302.4	217.2	111.2	2.45
18	307.4	222.2	114.0	2.37
19	312.4	217.2	112.5	2.43
20	317.3	222.2	115.4	2.38
21	322.3	217.2	113.9	2.47
22	222.9	227.2	139.9	4.47
23	227.9	232.1	143.9	4.32
24	232.8	227.2	140.3	4.22
25	237.8	232.1	144.7	4.04
26	242.8	227.2	139.4	3.96
27	247.7	232.1	143.8	3.78
28	252.7	227.2	138.5	3.69
29	257.7	232.1	142.9	3.51
30	262.7	227.2	137.6	3.43
31	267.6	232.1	142.0	3.27
32	272.6	227.2	136.7	3.20
33	277.6	232.1	125.9	3.03
34	282.5	227.2	120.4	2.88
35	287.5	232.1	124.5	2.70
36	292.5	227.2	119.0	2.58
37	297.5	232.1	123.1	2.46
38	302.4	227.2	117.6	2.38
39	307.4	232.1	121.8	2.34
40	312.4	227.2	116.8	2.32
41	317.3	232.1	120.4	2.34
42	322.3	227.2	118.2	2.38
43	222.9	237.1	146.4	4.45
44	227.9	242.1	150.4	4.31
45	232.8	237.1	147.8	4.16
46	237.8	242.1	151.8	3.99
47	242.8	237.1	149.1	3.86
48	247.7	242.1	153.2	3.69
49	252.7	237.1	148.2	3.60
50	257.7	242.1	152.6	3.43
51	262.7	237.1	147.3	3.35
52	267.6	242.1	151.7	3.22
53	272.6	237.1	146.4	3.15
54	277.6	242.1	135.5	2.99
55	282.5	237.1	130.0	2.84
56	287.5	242.1	134.1	2.67
57	292.5	237.1	128.6	2.55
58	297.5	242.1	132.8	2.45
59	302.4	237.1	127.3	2.38
60	307.4	242.1	131.4	2.34
61	312.4	237.1	125.9	2.33
62	317.3	242.1	130.0	2.35
63	322.3	237.1	124.5	2.39
64	222.9	247.1	153.0	4.47
65	227.9	252.0	157.0	4.36
66	232.8	247.1	154.4	4.16
67	237.8	252.0	158.4	3.99
68	242.8	247.1	155.8	3.82
69	247.7	252.0	159.8	3.65
70	252.7	247.1	157.2	3.52
71	257.7	252.0	161.1	3.37
72	262.7	247.1	157.0	3.29
73	267.6	252.0	161.5	3.17
74	272.6	247.1	156.1	3.10
75	277.6	252.0	145.1	2.95

76	282.5	247.1	139.6	2.80
77	287.5	252.0	143.7	2.65
78	292.5	247.1	138.3	2.54
79	297.5	252.0	142.4	2.44
80	302.4	247.1	136.9	2.38
81	307.4	252.0	141.0	2.35
82	312.4	247.1	135.5	2.33
83	317.3	252.0	139.6	2.36
84	322.3	247.1	134.1	2.40
85	222.9	257.0	159.5	4.56
86	227.9	262.0	163.5	4.48
87	232.8	257.0	160.9	4.21
88	237.8	262.0	164.9	4.05
89	242.8	257.0	162.3	3.82
90	247.7	262.0	166.3	3.65
91	252.7	257.0	163.7	3.49
92	257.7	262.0	167.7	3.33
93	262.7	257.0	165.1	3.23
94	267.6	262.0	169.1	3.11
95	272.6	257.0	165.9	3.07
96	277.6	262.0	154.7	2.91
97	282.5	257.0	149.2	2.77
98	287.5	262.0	153.4	2.62
99	292.5	257.0	147.9	2.52
100	297.5	262.0	152.0	2.44
101	302.4	257.0	146.5	2.38
102	307.4	262.0	150.6	2.36
103	312.4	257.0	145.1	2.35
104	317.3	262.0	149.3	2.38
105	322.3	257.0	143.8	2.42
106	222.9	267.0	186.2	4.56
107	227.9	272.0	190.7	4.68
108	232.8	267.0	167.5	4.36
109	237.8	272.0	171.4	4.21
110	242.8	267.0	168.9	3.88
111	247.7	272.0	172.8	3.70
112	252.7	267.0	170.3	3.48
113	257.7	272.0	174.2	3.32
114	262.7	267.0	171.7	3.19
115	267.6	272.0	175.6	3.06
116	272.6	267.0	173.1	3.01
117	277.6	272.0	177.0	2.92
118	282.5	267.0	158.5	2.75
119	287.5	272.0	162.0	2.62
120	292.5	267.0	157.5	2.51
121	297.5	272.0	161.6	2.44
122	302.4	267.0	156.1	2.39
123	307.4	272.0	160.2	2.36
124	312.4	267.0	154.8	2.36
125	317.3	272.0	158.9	2.39
126	322.3	267.0	153.4	2.44
127	222.9	276.9	194.9	3.84
128	227.9	281.9	199.3	3.73
129	232.8	276.9	174.0	4.65
130	237.8	281.9	178.0	4.54
131	242.8	276.9	175.4	4.03
132	247.7	281.9	179.4	3.85
133	252.7	276.9	176.8	3.53
134	257.7	281.9	180.8	3.35

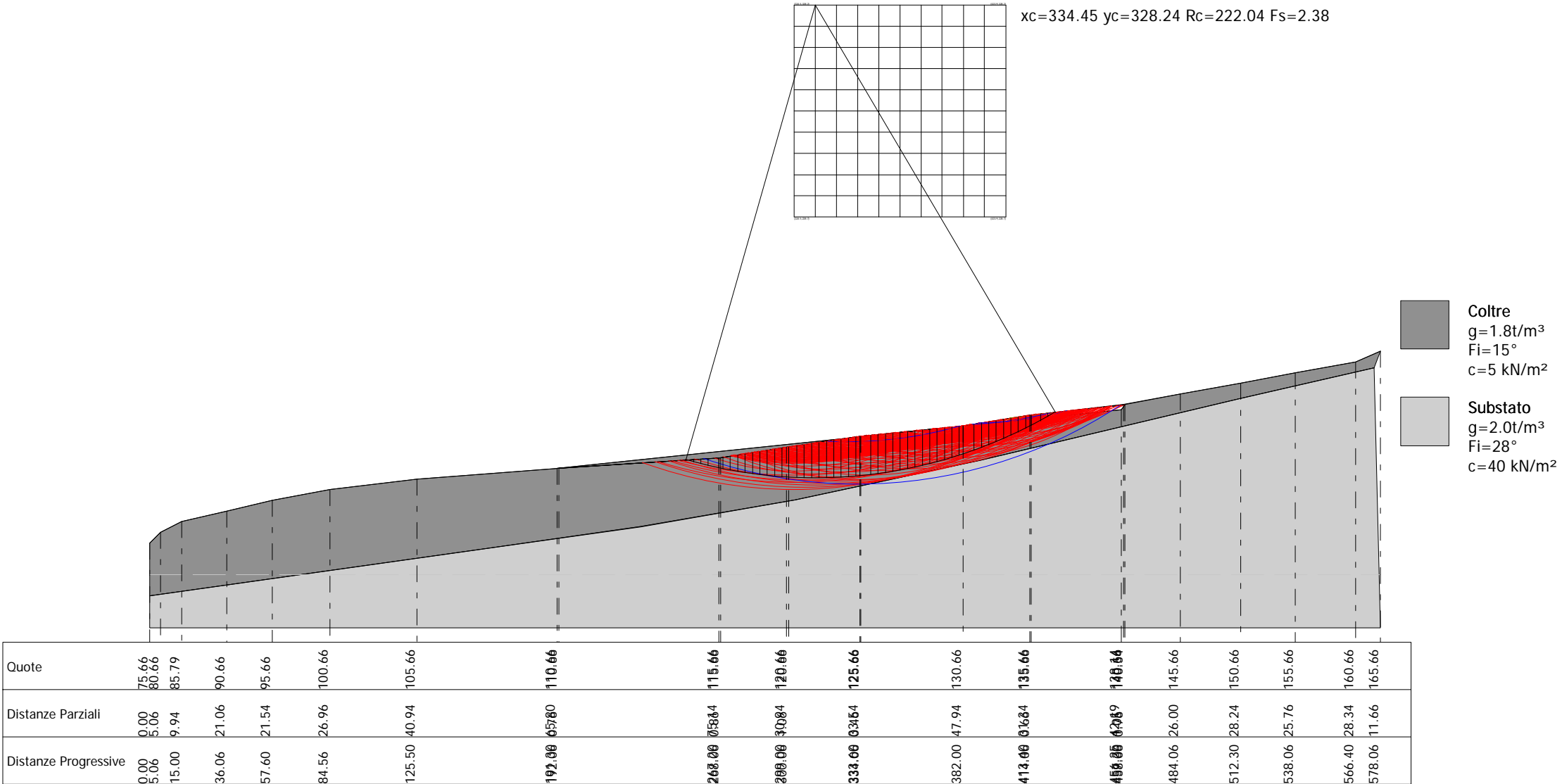
135	262.7	276.9	178.2	3.17
136	267.6	281.9	182.2	3.03
137	272.6	276.9	179.6	2.95
138	277.6	281.9	183.6	2.86
139	282.5	276.9	181.0	2.84
140	287.5	281.9	185.0	2.76
141	292.5	276.9	165.5	2.52
142	297.5	281.9	168.9	2.45
143	302.4	276.9	165.7	2.39
144	307.4	281.9	169.9	2.37
145	312.4	276.9	164.4	2.37
146	317.3	281.9	168.5	2.41
147	322.3	276.9	163.0	2.45
148	222.9	286.9	204.5	3.77
149	227.9	291.9	209.0	3.66
150	232.8	286.9	203.8	3.61
151	237.8	291.9	208.3	4.08
152	242.8	286.9	182.0	4.39
153	247.7	291.9	185.9	4.20
154	252.7	286.9	183.4	3.65
155	257.7	291.9	187.3	3.46
156	262.7	286.9	184.8	3.19
157	267.6	291.9	188.7	3.03
158	272.6	286.9	186.2	2.91
159	277.6	291.9	190.1	2.80
160	282.5	286.9	187.6	2.77
161	287.5	291.9	191.5	2.70
162	292.5	286.9	189.0	2.70
163	297.5	291.9	192.9	2.65
164	302.4	286.9	172.4	2.45
165	307.4	291.9	175.9	2.55
166	312.4	286.9	174.0	2.39
167	317.3	291.9	178.0	2.43
168	322.3	286.9	172.6	2.47
169	222.9	296.8	214.2	3.70
170	227.9	301.8	218.7	3.60
171	232.8	296.8	213.5	3.55
172	237.8	301.8	218.0	3.80
173	242.8	296.8	212.8	4.30
174	247.7	301.8	217.3	4.40
175	252.7	296.8	189.9	3.98
176	257.7	301.8	193.9	3.75
177	262.7	296.8	191.3	3.27
178	267.6	301.8	195.3	3.09
179	272.6	296.8	192.7	2.89
180	277.6	301.8	196.7	2.77
181	282.5	296.8	194.1	2.71
182	287.5	301.8	198.1	2.64
183	292.5	296.8	195.5	2.64
184	297.5	301.8	199.5	2.58
185	302.4	296.8	196.9	2.60
186	307.4	301.8	200.9	2.56
187	312.4	296.8	198.3	2.56
188	317.3	301.8	202.3	2.51
189	322.3	296.8	181.4	2.53
190	222.9	306.8	223.9	3.64
191	227.9	311.8	228.3	3.54
192	232.8	306.8	223.2	3.50
193	237.8	311.8	227.6	3.41

194	242.8	306.8	222.5	4.14
195	247.7	311.8	226.9	4.25
196	252.7	306.8	221.8	4.39
197	257.7	311.8	201.4	4.40
198	262.7	306.8	197.9	3.53
199	267.6	311.8	201.8	3.32
200	272.6	306.8	199.3	2.92
201	277.6	311.8	203.2	2.78
202	282.5	306.8	200.6	2.67
203	287.5	311.8	204.6	2.59
204	292.5	306.8	202.0	2.57
205	297.5	311.8	206.0	2.52
206	302.4	306.8	203.4	2.54
207	307.4	311.8	207.4	2.51
208	312.4	306.8	204.8	2.51
209	317.3	311.8	208.8	2.47
210	322.3	306.8	206.2	2.47
211	222.9	316.8	233.5	3.58
212	232.8	316.8	232.8	3.45
213	242.8	316.8	232.1	3.99
214	252.7	316.8	231.4	4.36
215	262.7	316.8	205.4	4.17
216	272.6	316.8	205.8	3.12
217	282.5	316.8	207.2	2.66
218	292.5	316.8	208.6	2.52
219	302.4	316.8	210.0	2.49
220	312.4	316.8	211.4	2.48
221	322.3	316.8	212.8	2.44

Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	1
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	2
7.Risultati analisi pendio [A2+M2+R2]	2
Indice	7

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 300 A 400 m
 IN CONDIZIONI STATICHE



Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	324.51 m
Ordinata vertice sinistro inferiore yi	228.7 m
Ascissa vertice destro superiore xs	423.94 m
Ordinata vertice destro superiore ys	328.24 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	21.94	75.66
2	27.0	80.66
3	36.94	85.79
4	58.0	90.66
5	79.54	95.66
6	106.5	100.66
7	147.44	105.66
8	214.0	110.66
9	289.14	115.66
10	322.0	120.66
11	355.54	125.66
12	404.0	130.66
13	435.34	135.66
14	480.0	140.54
15	478.19	138.14
16	213.24	110.66
17	290.0	115.66
18	320.94	120.66
19	356.0	125.66
20	403.94	130.66
21	436.0	135.66
22	479.24	140.66
23	506.0	145.66
24	534.24	150.66
25	560.0	155.66
26	588.34	160.66
27	600.0	165.66

Vertici strato1

N	X (m)	y (m)
---	----------	----------

1	21.94	50.71
2	179.95	73.03
3	252.61	83.29
4	325.26	95.91
5	412.16	114.45
6	533.34	143.31
7	597.04	157.94

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.8		Coltre
2	40		28	2.0		Substato

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.38
Ascissa centro superficie	334.45 m
Ordinata centro superficie	328.24 m
Raggio superficie	222.04 m

Numero di superfici esaminate....(197)

N°	Xo	Yo	Ro	Fs
1	324.5	228.7	119.2	2.39
2	329.5	233.7	122.0	2.45
3	334.5	228.7	120.5	2.50
4	339.4	233.7	123.4	2.55
5	344.4	228.7	121.9	2.57
6	349.4	233.7	124.8	2.60
7	354.3	228.7	123.3	2.59
8	359.3	233.7	126.1	2.59
9	364.3	228.7	110.2	2.95
10	369.3	233.7	112.3	3.15
11	374.2	228.7	112.0	2.74
12	379.2	233.7	114.2	2.76
13	384.2	228.7	113.8	2.65
14	389.1	233.7	116.0	2.63
15	394.1	228.7	102.6	2.81
16	399.1	233.7	117.8	2.61

17	404.1	228.7	104.9	2.53
18	409.0	233.7	106.3	2.57
19	414.0	228.7	107.2	2.54
20	419.0	233.7	108.6	2.54
21	423.9	228.7	97.7	2.95
22	324.5	238.7	125.7	2.42
23	329.5	243.6	129.8	2.48
24	334.5	238.7	124.9	2.53
25	339.4	243.6	128.5	2.62
26	344.4	238.7	126.2	2.62
27	349.4	243.6	129.1	2.69
28	354.3	238.7	127.6	2.62
29	359.3	243.6	130.4	2.65
30	364.3	238.7	129.0	2.59
31	369.3	243.6	131.8	2.60
32	374.2	238.7	114.5	3.54
33	379.2	243.6	133.2	2.60
34	384.2	238.7	116.3	2.78
35	389.1	243.6	118.4	2.84
36	394.1	238.7	118.1	2.59
37	399.1	243.6	120.2	2.56
38	404.1	238.7	119.9	2.57
39	409.0	243.6	122.1	2.53
40	414.0	238.7	107.7	3.04
41	423.9	238.7	110.0	2.67
42	324.5	248.6	135.3	2.43
43	329.5	253.6	139.4	2.50
44	334.5	248.6	134.0	2.56
45	339.4	253.6	138.1	2.63
46	344.4	248.6	132.6	2.70
47	349.4	253.6	136.7	2.78
48	354.3	248.6	131.9	2.78
49	359.3	253.6	135.3	2.85
50	364.3	248.6	133.3	2.67
51	369.3	253.6	136.1	2.70
52	374.2	248.6	134.7	2.60
53	379.2	253.6	137.5	2.61
54	384.2	248.6	136.0	2.60
55	389.1	253.6	138.9	2.59
56	394.1	248.6	120.5	3.15
57	399.1	253.6	122.7	6.98
58	404.1	248.6	122.4	2.58
59	409.0	253.6	124.5	2.72
60	414.0	248.6	124.2	2.53
61	419.0	253.6	126.3	2.59
62	324.5	258.6	144.9	2.45
63	329.5	263.5	149.1	2.51
64	334.5	258.6	143.6	2.57
65	339.4	263.5	147.7	2.65
66	344.4	258.6	142.2	2.72
67	349.4	263.5	146.3	2.78
68	354.3	258.6	140.8	2.82
69	359.3	263.5	145.0	2.84
70	364.3	258.6	139.5	2.85
71	369.3	263.5	143.6	2.82
72	374.2	258.6	139.0	2.73
73	379.2	263.5	142.2	2.73
74	384.2	258.6	140.3	2.61
75	389.1	263.5	143.2	2.60

76	394.1	258.6	141.7	2.58
77	399.1	263.5	144.6	2.57
78	414.0	258.6	126.6	3.57
79	423.9	258.6	128.5	2.83
80	324.5	268.5	154.6	2.46
81	329.5	273.5	158.7	2.53
82	334.5	268.5	153.2	2.59
83	339.4	273.5	157.3	2.67
84	344.4	268.5	151.8	2.73
85	349.4	273.5	155.9	2.78
86	354.3	268.5	150.5	2.82
87	359.3	273.5	154.6	2.83
88	364.3	268.5	149.1	2.83
89	369.3	273.5	153.2	2.80
90	374.2	268.5	147.7	2.77
91	379.2	273.5	151.8	2.73
92	384.2	268.5	146.3	2.69
93	389.1	273.5	150.5	2.64
94	394.1	268.5	146.0	2.58
95	399.1	273.5	149.1	2.58
96	404.1	268.5	147.4	2.55
97	409.0	273.5	150.2	2.54
98	324.5	278.5	164.2	2.48
99	329.5	283.4	168.3	2.55
100	334.5	278.5	162.8	2.61
101	339.4	283.4	166.9	2.69
102	344.4	278.5	161.4	2.74
103	349.4	283.4	165.6	2.79
104	354.3	278.5	160.1	2.81
105	359.3	283.4	164.2	2.82
106	364.3	278.5	158.7	2.82
107	369.3	283.4	162.8	2.78
108	374.2	278.5	157.3	2.76
109	379.2	283.4	161.5	2.72
110	384.2	278.5	156.0	2.68
111	389.1	283.4	160.1	2.64
112	394.1	278.5	154.6	2.60
113	399.1	283.4	158.7	2.59
114	404.1	278.5	153.2	2.57
115	409.0	283.4	157.3	2.58
116	414.0	278.5	152.9	2.57
117	419.0	283.4	151.2	3.47
118	423.9	278.5	148.4	2.84
119	324.5	288.4	173.8	2.50
120	329.5	293.4	177.9	2.57
121	334.5	288.4	172.4	2.63
122	339.4	293.4	176.6	2.71
123	344.4	288.4	171.1	2.75
124	349.4	293.4	175.2	2.80
125	354.3	288.4	169.7	2.81
126	359.3	293.4	173.8	2.82
127	364.3	288.4	168.3	2.81
128	369.3	293.4	172.4	2.78
129	374.2	288.4	167.0	2.75
130	379.2	293.4	171.1	2.72
131	384.2	288.4	165.6	2.68
132	389.1	293.4	169.7	2.64
133	394.1	288.4	164.2	2.61
134	399.1	293.4	168.3	2.60

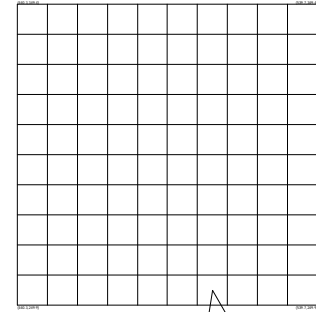
135	404.1	288.4	162.8	2.58
136	409.0	293.4	164.9	2.70
137	414.0	288.4	158.0	2.91
138	324.5	298.4	182.7	2.56
139	329.5	303.4	186.1	2.68
140	334.5	298.4	182.1	2.65
141	339.4	303.4	186.2	2.73
142	344.4	298.4	180.7	2.77
143	349.4	303.4	184.8	2.80
144	354.3	298.4	179.3	2.82
145	359.3	303.4	183.4	2.82
146	364.3	298.4	177.9	2.80
147	369.3	303.4	182.1	2.77
148	374.2	298.4	176.6	2.75
149	379.2	303.4	180.7	2.72
150	384.2	298.4	175.2	2.69
151	389.1	303.4	179.3	2.65
152	394.1	298.4	173.8	2.62
153	399.1	303.4	178.0	2.61
154	404.1	298.4	171.7	2.62
155	409.0	303.4	171.5	3.80
156	414.0	298.4	164.6	8.94
157	324.5	308.3	207.6	2.46
158	329.5	313.3	211.5	2.43
159	334.5	308.3	189.6	2.84
160	339.4	313.3	193.1	3.05
161	344.4	308.3	190.3	2.78
162	349.4	313.3	194.4	2.81
163	354.3	308.3	188.9	2.82
164	359.3	313.3	193.1	2.82
165	364.3	308.3	187.6	2.80
166	369.3	313.3	191.7	2.78
167	374.2	308.3	186.2	2.75
168	379.2	313.3	190.3	2.73
169	384.2	308.3	184.8	2.69
170	389.1	313.3	188.9	2.66
171	394.1	308.3	183.5	2.63
172	399.1	313.3	185.3	2.78
173	404.1	308.3	178.4	3.01
174	324.5	318.3	214.1	2.43
175	329.5	323.3	218.1	2.40
176	334.5	318.3	215.5	2.40
177	339.4	323.3	219.5	2.65
178	344.4	318.3	196.5	3.35
179	349.4	323.3	200.0	3.83
180	354.3	318.3	198.6	2.83
181	359.3	323.3	202.1	2.90
182	364.3	318.3	197.2	2.80
183	369.3	323.3	201.3	2.78
184	374.2	318.3	195.8	2.76
185	379.2	323.3	199.9	2.73
186	384.2	318.3	194.4	2.70
187	389.1	323.3	198.6	2.67
188	394.1	318.3	192.1	2.69
189	399.1	323.3	192.1	4.28
190	324.5	328.2	220.6	2.41
191	334.5	328.2	222.0	2.38
192	344.4	328.2	223.4	2.81
193	354.3	328.2	224.8	4.07

194	364.3	328.2	205.6	2.99
195	374.2	328.2	205.4	2.76
196	384.2	328.2	204.1	2.71
197	394.1	328.2	199.0	3.19

Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	1
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	2
7.Risultati analisi pendio [A2+M2+R2]	2
Indice	7

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 400 A 500 m
 IN CONDIZIONI STATICHE



$x_c=504.89$ $y_c=254.88$ $R_c=114.11$ $F_s=1.9$

- Coltre**
 $g=1.8t/m^3$
 $F_i=15^\circ$
 $c=5\text{ kN}/m^2$
- Substato**
 $g=2.0t/m^3$
 $F_i=28^\circ$
 $c=40\text{ kN}/m^2$

Quote	75.66	80.66	85.79	90.66	95.66	100.66	105.66	110.66	115.66	120.66	125.66	130.66	135.66	140.66	145.66	150.66	155.66	160.66	165.66
Distanze Parziali	0.00	5.06	9.94	21.06	21.54	26.96	40.94	65.80	75.84	80.84	83.64	47.94	81.64	120.89	26.00	28.24	25.76	28.34	11.66
Distanze Progressive	0.00	5.06	15.00	36.06	57.60	84.56	125.50	191.30	267.14	308.00	333.60	382.00	413.60	450.89	484.06	512.30	538.06	566.40	578.06

Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	440.27 m
Ordinata vertice sinistro inferiore yi	249.91 m
Ascissa vertice destro superiore xs	539.69 m
Ordinata vertice destro superiore ys	349.45 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	21.94	75.66
2	27.0	80.66
3	36.94	85.79
4	58.0	90.66
5	79.54	95.66
6	106.5	100.66
7	147.44	105.66
8	214.0	110.66
9	289.14	115.66
10	322.0	120.66
11	355.54	125.66
12	404.0	130.66
13	435.34	135.66
14	480.0	140.54
15	478.19	138.14
16	213.24	110.66
17	290.0	115.66
18	320.94	120.66
19	356.0	125.66
20	403.94	130.66
21	436.0	135.66
22	479.24	140.66
23	506.0	145.66
24	534.24	150.66
25	560.0	155.66
26	588.34	160.66
27	600.0	165.66

Vertici strato1

N	X (m)	y (m)
---	----------	----------

1	21.94	50.71
2	179.95	73.03
3	252.61	83.29
4	325.26	95.91
5	412.16	114.45
6	533.34	143.31
7	597.04	157.94

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.8		Coltre
2	40		28	2.0		Substato

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.91
Ascissa centro superficie	504.89 m
Ordinata centro superficie	254.88 m
Raggio superficie	114.11 m

Numero di superfici esaminate....(29)

N°	Xo	Yo	Ro	Fs
1	490.0	249.9	106.1	5.09
2	495.0	254.9	113.5	2.13
3	499.9	249.9	106.5	2.39
4	504.9	254.9	114.1	1.91
5	509.9	249.9	107.1	1.99
6	514.8	254.9	115.1	3.76
7	519.8	249.9	108.1	3.46
8	524.8	254.9	108.3	2.04
9	529.8	249.9	101.3	2.22
10	440.3	259.9	123.5	9.09
11	490.0	259.9	117.4	2.62
12	504.9	264.8	120.9	2.22
13	509.9	259.9	113.9	2.61
14	529.8	259.9	109.0	3.85
15	445.2	274.8	138.5	5.68
16	495.0	274.8	129.7	5.58

17	499.9	269.8	125.4	2.68
18	509.9	269.8	129.3	3.20
19	514.8	274.8	129.8	2.04
20	475.1	284.7	143.0	5.47
21	480.0	279.8	138.7	2.64
22	509.9	279.8	135.4	2.07
23	514.8	284.7	136.0	4.62
24	495.0	294.7	152.2	2.18
25	504.9	294.7	147.2	10.71
26	509.9	289.7	141.6	6.32
27	490.0	299.7	157.9	2.21
28	499.9	299.7	152.8	20.00
29	475.1	324.6	183.0	3.16

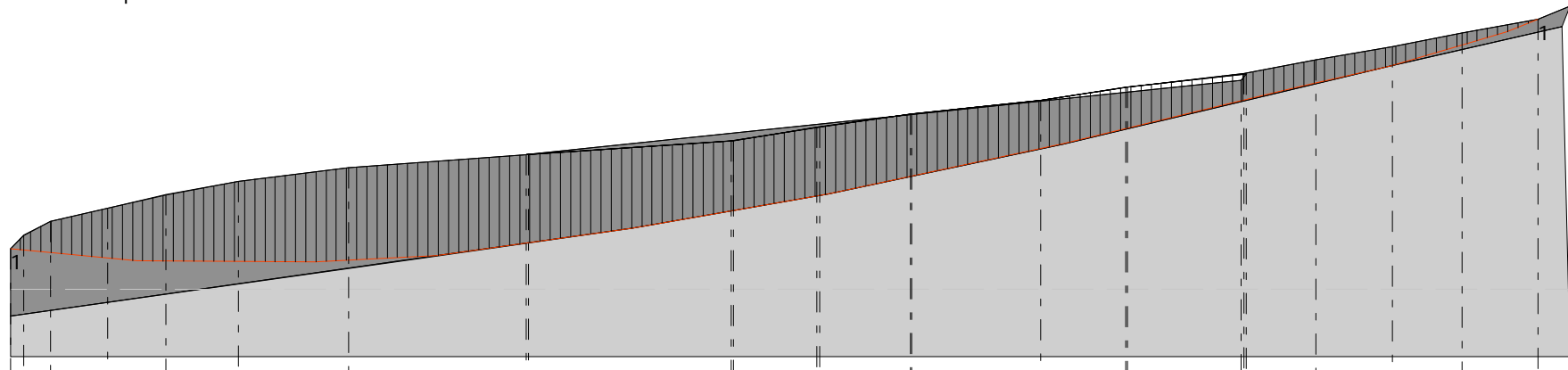
Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	1
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	2
7.Risultati analisi pendio [A2+M2+R2]	2
Indice	4

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 SUPERFICIE 1
 IN CONDIZIONI SISMICHE

Fs=1.50 Sup...1

- Coltre
 g=1.8 t/m³
 Fi=15°
 c=5 kN/m²
- Substato
 g=2.0 t/m³
 Fi=28°
 c=40 kN/m²



Quote	75.66	80.66	85.79	90.66	95.66	100.66	105.66	110.66	115.66	120.66	125.66	130.66	135.66	140.66	145.66	150.66	155.66	160.66	165.66
Distanze Parziali	0.00	5.06	9.94	21.06	21.54	26.96	40.94	65.80	78.64	80.84	84.64	97.94	106.84	120.69	126.00	145.66	155.66	160.66	165.66
Distanze Progressive	0.00	5.06	15.00	36.06	57.60	84.56	125.50	192.00	268.00	280.00	333.00	382.00	413.00	456.00	484.06	512.30	538.06	566.40	578.06

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.163329/11.035002
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	150.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma generica	

Coefficiente azione sismica orizzontale	0.064
Coefficiente azione sismica verticale	0.032

Vertici profilo

Nr	X (m)	y (m)
1	21.94	75.66
2	27.0	80.66
3	36.94	85.79
4	58.0	90.66
5	79.54	95.66
6	106.5	100.66
7	147.44	105.66
8	214.0	110.66
9	289.14	115.66
10	322.0	120.66
11	355.54	125.66
12	404.0	130.66
13	435.34	135.66
14	480.0	140.54
15	478.19	138.14
16	213.24	110.66
17	290.0	115.66
18	320.94	120.66
19	356.0	125.66
20	403.94	130.66
21	436.0	135.66
22	479.24	140.66
23	506.0	145.66
24	534.24	150.66
25	560.0	155.66
26	588.34	160.66
27	600.0	165.66

Vertici strato1

N	X (m)	y (m)
1	21.94	50.71
2	179.95	73.03
3	252.61	83.29
4	325.26	95.91
5	412.16	114.45

6	533.34	143.31
7	597.04	157.94

Vertici superficie Nr...1

N	X m	y m
1	21.94	75.66
2	68.74	71.16
3	134.9	70.84
4	179.94	73.13
5	252.59	83.38
6	325.24	96.01
7	412.14	114.55
8	499.04	135.54
9	533.31	143.41
10	561.02	151.42
11	576.68	156.04
12	588.34	160.66

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.8		Coltre
2	40		28	2.0		Substato

Superficie Nr...1 Fattore di sicurezza=1.50

Nr.	B m	Alfa (°)	Li m	Wi (t)	Kh•Wi (t)	Kv•Wi (t)	c (kN/m ²)	Fi (°)	Ui (t)	N'i (t)	Ti (t)
1	3.78	-5.5	3.79	13.91	0.89	0.45	5.0	15.0	0.0	10.2	3.1
2	3.78	-5.5	3.79	39.8	2.55	1.27	5.0	15.0	0.0	1.5	1.6
3	3.78	-5.5	3.79	55.54	3.55	1.78	5.0	15.0	0.0	-3.8	0.6
4	3.78	-5.5	3.79	71.29	4.56	2.28	5.0	15.0	0.0	-9.2	-0.4
5	3.78	-5.5	3.79	83.15	5.32	2.66	5.0	15.0	0.0	-13.2	-1.1
6	3.78	-5.5	3.79	91.55	5.86	2.93	5.0	15.0	0.0	-16.1	-1.6
7	3.78	-5.5	3.79	99.94	6.4	3.2	5.0	15.0	0.0	-19.0	-2.1
8	3.78	-5.4	3.79	108.32	6.93	3.47	5.0	15.0	0.0	-21.3	-2.5
9	3.78	-5.5	3.79	116.69	7.47	3.73	5.0	15.0	0.0	-24.8	-3.2
10	3.78	-5.5	3.79	125.09	8.01	4.0	5.0	15.0	0.0	-27.7	-3.7

11	3.78	-5.5	3.79	133.51	8.54	4.27	5.0	15.0	0.0	-30.6	-4.2
12	3.78	-5.5	3.79	141.94	9.08	4.54	5.0	15.0	0.0	-33.5	-4.7
13	3.78	-2.3	3.78	149.66	9.58	4.79	5.0	15.0	0.0	-7.6	-0.1
14	3.78	-0.3	3.78	156.21	10.0	5.0	5.0	15.0	0.0	11.0	3.2
15	3.78	-0.3	3.78	162.29	10.39	5.19	5.0	15.0	0.0	10.8	3.2
16	3.78	-0.3	3.78	168.07	10.76	5.38	5.0	15.0	0.0	10.6	3.2
17	3.78	-0.3	3.78	172.95	11.07	5.53	5.0	15.0	0.0	10.4	3.1
18	3.78	-0.3	3.78	177.83	11.38	5.69	5.0	15.0	0.0	10.2	3.1
19	3.78	-0.3	3.78	182.71	11.69	5.85	5.0	15.0	0.0	10.0	3.1
20	3.78	-0.3	3.78	187.6	12.01	6.0	5.0	15.0	0.0	9.8	3.1
21	3.78	-0.3	3.78	192.48	12.32	6.16	5.0	15.0	0.0	9.7	3.0
22	3.78	-0.3	3.78	197.36	12.63	6.32	5.0	15.0	0.0	9.5	3.0
23	3.78	-0.3	3.78	202.07	12.93	6.47	5.0	15.0	0.0	9.3	3.0
24	3.78	-0.3	3.78	205.32	13.14	6.57	5.0	15.0	0.0	9.2	2.9
25	3.78	-0.3	3.78	208.58	13.35	6.67	5.0	15.0	0.0	9.0	2.9
26	3.78	-0.3	3.78	211.84	13.56	6.78	5.0	15.0	0.0	8.9	2.9
27	3.78	-0.3	3.78	215.09	13.77	6.88	5.0	15.0	0.0	8.7	2.8
28	3.78	-0.3	3.78	218.35	13.97	6.99	5.0	15.0	0.0	8.6	2.8
29	3.78	-0.3	3.78	221.6	14.18	7.09	5.0	15.0	0.0	8.4	2.8
30	3.78	0.0	3.78	224.81	14.39	7.19	5.0	15.0	0.0	11.4	3.3
31	3.78	2.9	3.78	227.3	14.55	7.27	5.0	15.0	0.0	51.6	10.5
32	3.78	2.9	3.78	229.14	14.67	7.33	5.0	15.0	0.0	51.8	10.6
33	3.78	2.9	3.78	230.98	14.78	7.39	5.0	15.0	0.0	52.0	10.6
34	3.78	3.1	3.78	232.46	14.88	7.44	5.0	15.0	0.0	54.7	11.1
35	3.78	2.9	3.78	233.05	14.92	7.46	5.0	15.0	0.0	52.2	10.6
36	3.78	2.9	3.78	233.68	14.96	7.48	5.0	15.0	0.0	52.2	10.6
37	3.78	2.9	3.78	234.31	15.0	7.5	5.0	15.0	0.0	52.2	10.6
38	3.78	2.9	3.78	234.94	15.04	7.52	5.0	15.0	0.0	52.2	10.6
39	3.78	2.9	3.78	235.58	15.08	7.54	5.0	15.0	0.0	52.2	10.6
40	3.78	2.9	3.78	236.21	15.12	7.56	5.0	15.0	0.0	52.2	10.6
41	3.78	2.9	3.78	236.84	15.16	7.58	5.0	15.0	0.0	52.2	10.6
42	3.78	3.7	3.78	237.29	15.19	7.59	5.0	15.0	0.0	63.5	12.7
43	3.78	8.1	3.81	236.57	15.14	7.57	5.0	15.0	0.0	127.0	24.0
44	3.78	7.9	3.81	234.9	15.03	7.52	5.0	15.0	0.0	123.5	23.4
45	3.78	8.1	3.81	233.22	14.93	7.46	5.0	15.0	0.0	125.2	23.7
46	3.78	8.1	3.81	231.5	14.82	7.41	5.0	15.0	0.0	124.2	23.5
47	3.78	8.1	3.81	229.78	14.71	7.35	5.0	15.0	0.0	123.3	23.4
48	3.78	7.9	3.81	228.1	14.6	7.3	5.0	15.0	0.0	119.9	22.8
49	3.78	8.1	3.81	226.43	14.49	7.25	5.0	15.0	0.0	121.4	23.0
50	3.78	8.1	3.81	224.71	14.38	7.19	5.0	15.0	0.0	120.5	22.9
51	3.78	8.1	3.81	222.99	14.27	7.14	5.0	15.0	0.0	119.5	22.7
52	3.78	7.9	3.81	221.49	14.18	7.09	5.0	15.0	0.0	116.3	22.1
53	3.78	8.1	3.81	219.55	14.05	7.03	5.0	15.0	0.0	117.7	22.4
54	3.78	8.1	3.81	217.58	13.93	6.96	5.0	15.0	0.0	116.6	22.2
55	3.78	8.1	3.81	215.6	13.8	6.9	5.0	15.0	0.0	115.5	22.0
56	3.78	7.9	3.81	213.67	13.67	6.84	5.0	15.0	0.0	112.1	21.4
57	3.78	8.1	3.81	211.74	13.55	6.78	5.0	15.0	0.0	113.4	21.6
58	3.78	8.1	3.81	209.76	13.42	6.71	5.0	15.0	0.0	112.3	21.4
59	3.78	7.9	3.81	207.83	13.3	6.65	5.0	15.0	0.0	109.0	20.8
60	3.78	8.1	3.81	205.89	13.18	6.59	5.0	15.0	0.0	110.2	21.0
61	3.78	8.1	3.81	203.92	13.05	6.53	5.0	15.0	0.0	109.2	20.8
62	3.78	9.8	3.83	201.56	12.9	6.45	5.0	15.0	0.0	128.8	24.4
63	3.78	9.9	3.83	198.8	12.72	6.36	5.0	15.0	0.0	128.2	24.2
64	3.78	9.9	3.83	196.01	12.54	6.27	5.0	15.0	0.0	126.4	23.9
65	3.78	9.9	3.83	193.23	12.37	6.18	5.0	15.0	0.0	124.7	23.6
66	3.78	9.9	3.83	190.44	12.19	6.09	5.0	15.0	0.0	122.9	23.3
67	3.78	9.9	3.83	187.66	12.01	6.01	5.0	15.0	0.0	121.1	23.0
68	3.78	9.9	3.83	184.87	11.83	5.92	5.0	15.0	0.0	119.3	22.7
69	3.78	9.9	3.83	182.09	11.65	5.83	5.0	15.0	0.0	117.6	22.3

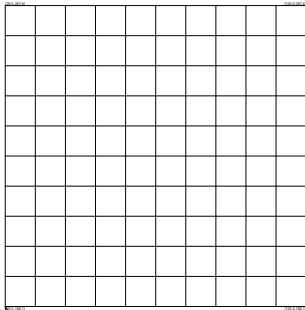
70	3.78	9.9	3.83	179.3	11.48	5.74	5.0	15.0	0.0	115.8	22.0
71	3.78	9.9	3.83	176.52	11.3	5.65	5.0	15.0	0.0	114.0	21.7
72	3.78	9.9	3.83	175.0	11.2	5.6	5.0	15.0	0.0	113.0	21.5
73	3.78	9.9	3.83	174.69	11.18	5.59	5.0	15.0	0.0	112.7	21.5
74	3.78	9.9	3.83	174.38	11.16	5.58	5.0	15.0	0.0	112.4	21.4
75	3.78	9.9	3.83	174.07	11.14	5.57	5.0	15.0	0.0	112.1	21.4
76	3.78	9.9	3.83	173.76	11.12	5.56	5.0	15.0	0.0	111.9	21.3
77	3.78	9.9	3.83	173.45	11.1	5.55	5.0	15.0	0.0	111.6	21.3
78	3.78	9.9	3.83	173.14	11.08	5.54	5.0	15.0	0.0	111.3	21.2
79	3.78	9.9	3.83	172.84	11.06	5.53	5.0	15.0	0.0	111.0	21.2
80	3.78	10.0	3.83	172.33	11.03	5.51	5.0	15.0	0.0	112.5	21.4
81	3.78	11.3	3.85	171.17	10.95	5.48	5.0	15.0	0.0	124.9	23.7
82	3.78	12.1	3.86	169.52	10.85	5.42	5.0	15.0	0.0	132.8	25.1
83	3.78	11.9	3.86	167.71	10.73	5.37	5.0	15.0	0.0	129.6	24.5
84	3.78	12.1	3.86	165.9	10.62	5.31	5.0	15.0	0.0	129.9	24.6
85	3.78	11.9	3.86	164.09	10.5	5.25	5.0	15.0	0.0	126.7	24.0
86	3.78	12.1	3.86	162.28	10.39	5.19	5.0	15.0	0.0	127.1	24.0
87	3.78	11.9	3.86	160.47	10.27	5.14	5.0	15.0	0.0	123.9	23.5
88	3.78	12.1	3.86	158.66	10.15	5.08	5.0	15.0	0.0	124.2	23.5
89	3.78	11.9	3.86	156.82	10.04	5.02	5.0	15.0	0.0	121.0	23.0
90	3.78	12.1	3.86	154.03	9.86	4.93	5.0	15.0	0.0	120.5	22.9
91	3.78	12.1	3.86	151.2	9.68	4.84	5.0	15.0	0.0	118.3	22.5
92	3.78	11.9	3.86	148.41	9.5	4.75	5.0	15.0	0.0	114.5	21.8
93	3.78	12.1	3.86	145.62	9.32	4.66	5.0	15.0	0.0	114.0	21.7
94	3.78	11.9	3.86	142.82	9.14	4.57	5.0	15.0	0.0	110.2	21.0
95	3.78	12.1	3.86	140.03	8.96	4.48	5.0	15.0	0.0	109.6	20.9
96	3.78	11.9	3.86	137.24	8.78	4.39	5.0	15.0	0.0	105.9	20.3
97	3.78	12.1	3.86	134.45	8.6	4.3	5.0	15.0	0.0	105.3	20.1
98	3.78	12.1	3.86	131.61	8.42	4.21	5.0	15.0	0.0	103.1	19.7
99	3.78	11.9	3.86	128.82	8.24	4.12	5.0	15.0	0.0	99.5	19.1
100	3.78	12.1	3.86	126.03	8.07	4.03	5.0	15.0	0.0	98.7	19.0
101	3.78	11.9	3.86	123.24	7.89	3.94	5.0	15.0	0.0	95.2	18.3
102	3.78	12.1	3.86	120.89	7.74	3.87	5.0	15.0	0.0	94.7	18.2
103	3.78	11.9	3.86	119.42	7.64	3.82	5.0	15.0	0.0	92.2	17.8
104	3.78	13.2	3.88	117.7	7.53	3.77	5.0	15.0	0.0	100.1	19.2
105	3.78	13.5	3.88	115.62	7.4	3.7	5.0	15.0	0.0	100.6	19.3
106	3.78	13.7	3.89	113.43	7.26	3.63	5.0	15.0	0.0	99.9	19.2
107	3.78	13.5	3.88	111.23	7.12	3.56	5.0	15.0	0.0	96.8	18.6
108	3.78	13.7	3.89	109.04	6.98	3.49	5.0	15.0	0.0	96.0	18.5
109	3.78	13.5	3.88	106.84	6.84	3.42	5.0	15.0	0.0	92.9	17.9
110	3.78	13.7	3.89	104.64	6.7	3.35	5.0	15.0	0.0	92.1	17.8
111	3.78	13.5	3.88	101.57	6.5	3.25	5.0	15.0	0.0	88.3	17.1
112	3.78	13.7	3.89	98.34	6.29	3.15	5.0	15.0	0.0	86.6	16.8
113	3.78	13.5	3.88	95.11	6.09	3.04	5.0	15.0	0.0	82.8	16.1
114	3.78	13.7	3.89	91.88	5.88	2.94	5.0	15.0	0.0	81.0	15.8
115	3.78	13.5	3.88	88.65	5.67	2.84	5.0	15.0	0.0	77.2	15.1
116	3.78	13.7	3.89	85.42	5.47	2.73	5.0	15.0	0.0	75.4	14.8
117	3.78	13.5	3.88	82.19	5.26	2.63	5.0	15.0	0.0	71.6	14.1
118	3.78	13.7	3.89	78.96	5.05	2.53	5.0	15.0	0.0	69.7	13.8
119	3.78	13.5	3.88	75.73	4.85	2.42	5.0	15.0	0.0	66.1	13.1
120	3.78	13.7	3.89	72.5	4.64	2.32	5.0	15.0	0.0	64.1	12.8
121	3.78	13.5	3.88	69.27	4.43	2.22	5.0	15.0	0.0	60.5	12.1
122	3.78	13.7	3.89	66.76	4.27	2.14	5.0	15.0	0.0	59.0	11.9
123	3.78	13.5	3.88	65.35	4.18	2.09	5.0	15.0	0.0	57.0	11.5
124	3.78	13.7	3.89	63.95	4.09	2.05	5.0	15.0	0.0	56.5	11.4
125	3.78	13.7	3.89	62.51	4.0	2.0	5.0	15.0	0.0	55.2	11.2
126	3.78	13.5	3.88	61.1	3.91	1.96	5.0	15.0	0.0	53.2	10.8
127	3.78	13.1	3.88	59.82	3.83	1.91	5.0	15.0	0.0	50.7	10.4
128	3.78	13.0	3.87	58.66	3.75	1.88	5.0	15.0	0.0	49.1	10.1

129	3.78	13.0	3.87	57.47	3.68	1.84	5.0	15.0	0.0	48.0	9.9
130	3.78	12.8	3.87	56.14	3.59	1.8	5.0	15.0	0.0	46.2	9.6
131	3.78	13.0	3.87	54.81	3.51	1.75	5.0	15.0	0.0	45.7	9.5
132	3.78	13.0	3.87	53.44	3.42	1.71	5.0	15.0	0.0	44.5	9.3
133	3.78	12.8	3.87	52.11	3.33	1.67	5.0	15.0	0.0	42.8	8.9
134	3.78	13.0	3.87	50.78	3.25	1.62	5.0	15.0	0.0	42.2	8.8
135	3.78	13.0	3.87	49.41	3.16	1.58	5.0	15.0	0.0	41.0	8.6
136	3.78	14.8	3.91	47.59	3.05	1.52	5.0	15.0	0.0	45.1	9.4
137	3.78	16.0	3.93	45.41	2.91	1.45	5.0	15.0	0.0	46.5	9.6
138	3.78	16.2	3.93	42.98	2.75	1.38	5.0	15.0	0.0	44.5	9.3
139	3.78	16.0	3.93	40.55	2.6	1.3	5.0	15.0	0.0	41.5	8.7
140	3.78	16.2	3.93	38.11	2.44	1.22	5.0	15.0	0.0	39.4	8.3
141	3.78	16.2	3.93	35.64	2.28	1.14	5.0	15.0	0.0	36.8	7.9
142	3.78	16.0	3.93	33.21	2.13	1.06	5.0	15.0	0.0	33.9	7.4
143	3.78	16.3	3.93	30.76	1.97	0.98	5.0	15.0	0.0	31.8	7.0
144	3.78	16.4	3.94	27.78	1.78	0.89	5.0	15.0	0.0	28.9	6.5
145	3.78	16.5	3.94	24.73	1.58	0.79	5.0	15.0	0.0	26.0	5.9
146	3.78	16.4	3.94	21.68	1.39	0.69	5.0	15.0	0.0	22.5	5.3
147	3.78	16.9	3.95	18.54	1.19	0.59	5.0	15.0	0.0	19.9	4.8
148	3.78	21.5	4.06	14.1	0.9	0.45	5.0	15.0	0.0	19.5	4.8
149	3.78	21.7	4.06	8.46	0.54	0.27	5.0	15.0	0.0	11.8	3.4
150	3.78	21.6	4.06	2.81	0.18	0.09	5.0	15.0	0.0	3.9	2.0

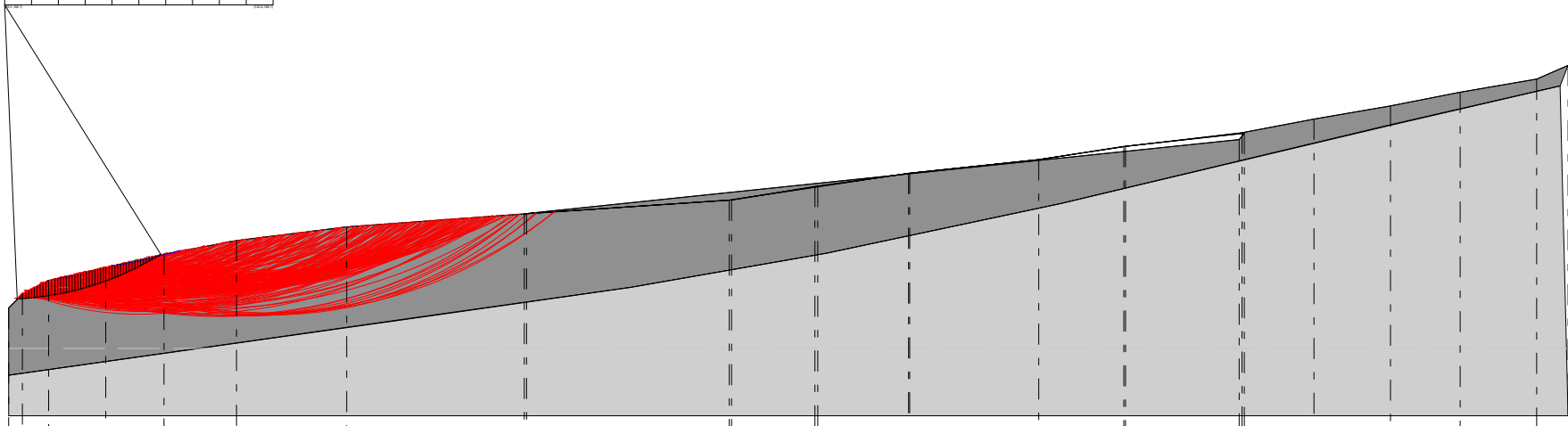
Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici superficie Nr...1	2
5.Coefficienti parziali azioni	2
6.Coefficienti parziali per i parametri geotecnici del terreno	2
7.Stratigrafia	3
Indice	6

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 0 A 100 m
 IN CONDIZIONI SISMICHE



$x_c=20.54$ $y_c=188.05$ $R_c=109.26$ $F_s=1.00$



- Coltre**
 $g=1.8t/m^3$
 $F_i=15^\circ$
 $c=5$ kN/m²
- Substato**
 $g=2.0t/m^3$
 $F_i=28^\circ$
 $c=40$ kN/m²

Quote	75.66	80.66	85.79	90.66	95.66	100.66	105.66	110.66	115.66	120.66	125.66	130.66	135.66	140.66	145.66	150.66	155.66	160.66	165.66
Distanze Parziali	0.00	5.06	9.94	21.06	21.54	26.96	40.94	65.80	78.64	108.4	134.64	166.94	206.64	254.69	26.00	28.24	25.76	28.34	11.66
Distanze Progressive	0.00	5.06	15.00	36.06	57.60	84.56	125.50	191.30	269.94	388.34	523.00	689.94	896.58	1151.27	1484.06	1866.30	2121.06	2404.40	2520.06

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.163329/11.035002
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	20.54 m
Ordinata vertice sinistro inferiore yi	188.05 m
Ascissa vertice destro superiore xs	119.97 m
Ordinata vertice destro superiore ys	287.59 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficienti sismici [N.T.C.]

Dati generali

Tipo opera:	2 - Opere ordinarie
Classe d'uso:	Classe II
Vita nominale:	50.0 [anni]
Vita di riferimento:	50.0 [anni]

Parametri sismici su sito di riferimento

Categoria sottosuolo:	C
Categoria topografica:	T1

S.L. Stato limite	TR Tempo ritorno [anni]	ag [m/s ²]	F0 [-]	TC* [sec]
S.L.O.	30.0	0.59	2.47	0.26
S.L.D.	50.0	0.76	2.45	0.26
S.L.V.	475.0	1.81	2.41	0.29
S.L.C.	975.0	2.27	2.45	0.3

Coefficienti sismici orizzontali e verticali

Opera: Stabilità dei pendii e Fondazioni

S.L. Stato limite	amax [m/s ²]	beta [-]	kh [-]	kv [sec]
S.L.O.	0.885	0.2	0.0181	0.009
S.L.D.	1.14	0.2	0.0233	0.0116
S.L.V.	2.5939	0.24	0.0635	0.0317
S.L.C.	3.0865	0.28	0.0881	0.0441

Coefficiente azione sismica orizzontale	0.0635
Coefficiente azione sismica verticale	0.0317

Vertici profilo

Nr	X (m)	y (m)
1	21.94	75.66
2	27.0	80.66
3	36.94	85.79
4	58.0	90.66
5	79.54	95.66
6	106.5	100.66
7	147.44	105.66
8	214.0	110.66
9	289.14	115.66
10	322.0	120.66
11	355.54	125.66
12	404.0	130.66
13	435.34	135.66
14	480.0	140.54
15	478.19	138.14
16	213.24	110.66
17	290.0	115.66
18	320.94	120.66
19	356.0	125.66
20	403.94	130.66
21	436.0	135.66
22	479.24	140.66
23	506.0	145.66
24	534.24	150.66
25	560.0	155.66
26	588.34	160.66
27	600.0	165.66

Vertici strato1

N	X (m)	y (m)
1	21.94	50.71
2	179.95	73.03
3	252.61	83.29
4	325.26	95.91
5	412.16	114.45
6	533.34	143.31
7	597.04	157.94

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata	Angolo resistenza al	Peso unità di volume	Peso saturo (t/m ³)	Litologia
--------	----------------------------------	-------------------------	-------------------------	-------------------------	------------------------------------	-----------

		(kN/m ²)	taglio (°)	(t/m ³)
1	5		15	1.8
2	40		28	2.0

Coltre
Substato

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.0
Ascissa centro superficie	20.54 m
Ordinata centro superficie	188.05 m
Raggio superficie	109.26 m

Numero di superfici esaminate....(220)

N°	Xo	Yo	Ro	Fs
1	20.5	188.1	109.3	1.00
2	25.5	193.0	113.8	1.02
3	30.5	188.1	105.0	1.24
4	35.5	193.0	109.3	1.23
5	40.4	188.1	109.2	1.07
6	45.4	193.0	114.4	1.10
7	50.4	188.1	104.7	1.20
8	55.3	193.0	109.6	1.22
9	60.3	188.1	105.6	1.23
10	65.3	193.0	110.7	1.27
11	70.3	188.1	114.7	1.29
12	75.2	193.0	112.3	1.33
13	80.2	188.1	109.1	1.37
14	85.2	193.0	113.7	1.41
15	90.1	188.1	108.3	1.46
16	95.1	193.0	112.3	1.50
17	100.1	188.1	106.9	1.56
18	105.1	193.0	110.9	1.61
19	110.0	188.1	105.5	1.67
20	115.0	193.0	109.5	1.72
21	120.0	188.1	104.1	1.79
22	20.5	198.0	118.9	1.02
23	25.5	203.0	119.5	1.38
24	30.5	198.0	118.5	1.04
25	35.5	203.0	118.7	1.27
26	40.4	198.0	113.8	1.23
27	45.4	203.0	123.9	1.11
28	50.4	198.0	113.9	1.22
29	55.3	203.0	125.2	1.17
30	60.3	198.0	121.4	1.21
31	65.3	203.0	119.6	1.27
32	70.3	198.0	123.7	1.29
33	75.2	203.0	121.1	1.33
34	80.2	198.0	117.6	1.37
35	85.2	203.0	123.0	1.41
36	90.1	198.0	117.7	1.45
37	95.1	203.0	121.7	1.50
38	100.1	198.0	116.3	1.55
39	105.1	203.0	120.3	1.60
40	110.0	198.0	114.9	1.66
41	115.0	203.0	118.9	1.71

42	120.0	198.0	113.5	1.77
43	20.5	208.0	128.6	1.03
44	25.5	212.9	133.1	1.05
45	30.5	208.0	123.7	1.35
46	35.5	212.9	128.0	1.32
47	40.4	208.0	128.3	1.09
48	45.4	212.9	133.5	1.12
49	50.4	208.0	129.2	1.14
50	55.3	212.9	134.6	1.18
51	60.3	208.0	123.6	1.26
52	65.3	212.9	128.6	1.28
53	70.3	208.0	132.8	1.29
54	75.2	212.9	138.6	1.33
55	80.2	208.0	126.3	1.37
56	85.2	212.9	131.6	1.41
57	90.1	208.0	127.1	1.45
58	95.1	212.9	131.1	1.50
59	100.1	208.0	125.7	1.54
60	105.1	212.9	129.7	1.59
61	110.0	208.0	124.3	1.65
62	115.0	212.9	128.3	1.70
63	120.0	208.0	122.9	1.76
64	20.5	217.9	138.3	1.05
65	25.5	222.9	142.8	1.07
66	30.5	217.9	137.8	1.07
67	35.5	222.9	142.6	1.09
68	40.4	217.9	137.9	1.10
69	45.4	222.9	143.0	1.13
70	50.4	217.9	138.7	1.15
71	55.3	222.9	144.0	1.19
72	60.3	217.9	140.0	1.22
73	65.3	222.9	137.6	1.30
74	70.3	217.9	141.9	1.29
75	75.2	222.9	147.7	1.33
76	80.2	217.9	135.0	1.37
77	85.2	222.9	140.3	1.41
78	90.1	217.9	136.5	1.45
79	95.1	222.9	140.5	1.50
80	100.1	217.9	135.1	1.54
81	105.1	222.9	139.1	1.59
82	110.0	217.9	133.7	1.64
83	115.0	222.9	149.9	1.69
84	120.0	217.9	144.8	1.75
85	20.5	227.9	143.6	1.84
86	25.5	232.8	147.6	1.73
87	30.5	227.9	147.4	1.09
88	35.5	232.8	152.2	1.10
89	40.4	227.9	141.7	1.35
90	45.4	232.8	152.6	1.14
91	50.4	227.9	148.2	1.16
92	55.3	232.8	153.5	1.20
93	60.3	227.9	149.4	1.22
94	65.3	232.8	154.9	1.26
95	70.3	227.9	151.2	1.29
96	75.2	232.8	156.8	1.33
97	80.2	227.9	153.4	1.37
98	85.2	232.8	149.0	1.42
99	90.1	227.9	145.5	1.45
100	95.1	232.8	149.8	1.50

101	100.1	227.9	144.4	1.54
102	105.1	232.8	148.4	1.59
103	110.0	227.9	155.1	1.64
104	115.0	232.8	159.6	1.68
105	120.0	227.9	141.7	1.75
106	20.5	237.8	157.6	1.09
107	25.5	242.8	157.0	1.92
108	30.5	237.8	151.8	1.60
109	35.5	242.8	156.0	1.51
110	40.4	237.8	151.0	1.39
111	45.4	242.8	155.5	1.36
112	50.4	237.8	157.7	1.18
113	55.3	242.8	155.4	1.32
114	60.3	237.8	151.0	1.31
115	65.3	242.8	164.2	1.27
116	70.3	237.8	151.7	1.34
117	75.2	242.8	166.0	1.34
118	80.2	237.8	162.5	1.38
119	85.2	242.8	157.9	1.43
120	90.1	237.8	154.2	1.46
121	95.1	242.8	159.2	1.50
122	100.1	237.8	153.8	1.55
123	105.1	242.8	170.0	1.59
124	110.0	237.8	152.4	1.64
125	115.0	242.8	156.4	1.70
126	120.0	237.8	164.1	1.72
127	20.5	247.8	162.4	2.64
128	25.5	252.8	166.4	2.19
129	30.5	247.8	166.7	1.11
130	35.5	252.8	171.5	1.13
131	40.4	247.8	166.7	1.14
132	45.4	252.8	171.7	1.17
133	50.4	247.8	160.1	1.34
134	55.3	252.8	172.4	1.22
135	60.3	247.8	168.3	1.24
136	65.3	252.8	165.0	1.36
137	70.3	247.8	160.7	1.36
138	75.2	252.8	175.3	1.34
139	80.2	247.8	171.7	1.38
140	85.2	252.8	177.4	1.42
141	90.1	247.8	174.1	1.46
142	95.1	252.8	168.2	1.51
143	100.1	247.8	175.2	1.55
144	105.1	252.8	167.2	1.60
145	110.0	247.8	161.8	1.65
146	115.0	252.8	178.9	1.67
147	120.0	247.8	160.4	1.75
148	20.5	257.7	176.9	1.12
149	25.5	262.7	181.4	1.13
150	30.5	257.7	170.5	1.89
151	35.5	262.7	181.1	1.15
152	40.4	257.7	176.4	1.15
153	45.4	262.7	174.1	1.46
154	50.4	257.7	169.3	1.38
155	55.3	262.7	173.9	1.39
156	60.3	257.7	177.7	1.25
157	65.3	262.7	183.1	1.28
158	70.3	257.7	179.1	1.31
159	75.2	262.7	184.6	1.35

160	80.2	257.7	180.9	1.38
161	85.2	262.7	175.7	1.45
162	90.1	257.7	183.1	1.46
163	95.1	262.7	177.0	1.52
164	100.1	257.7	184.8	1.54
165	105.1	262.7	176.6	1.61
166	110.0	257.7	171.2	1.65
167	115.0	262.7	175.2	1.70
168	120.0	257.7	169.8	1.75
169	20.5	267.7	186.6	1.13
170	25.5	272.7	191.1	1.14
171	30.5	267.7	179.9	2.15
172	35.5	272.7	190.8	1.16
173	40.4	267.7	179.1	1.61
174	45.4	272.7	190.9	1.19
175	50.4	267.7	178.6	1.43
176	55.3	272.7	191.5	1.24
177	60.3	267.7	187.2	1.26
178	65.3	272.7	192.5	1.29
179	70.3	267.7	188.5	1.32
180	75.2	272.7	183.8	1.43
181	80.2	267.7	179.7	1.44
182	85.2	272.7	195.8	1.43
183	90.1	267.7	180.8	1.49
184	95.1	272.7	185.9	1.53
185	100.1	267.7	182.0	1.56
186	105.1	272.7	186.0	1.61
187	110.0	267.7	180.6	1.66
188	115.0	272.7	184.6	1.71
189	120.0	267.7	179.2	1.76
190	25.5	282.6	194.5	8.24
191	30.5	277.6	195.7	1.15
192	35.5	282.6	193.5	2.16
193	40.4	277.6	195.6	1.18
194	45.4	282.6	200.5	1.21
195	50.4	277.6	195.9	1.22
196	55.3	282.6	192.5	1.48
197	60.3	277.6	196.7	1.27
198	65.3	282.6	192.5	1.45
199	70.3	277.6	188.1	1.43
200	75.2	282.6	192.9	1.45
201	80.2	277.6	199.5	1.39
202	85.2	282.6	193.7	1.49
203	90.1	277.6	201.4	1.46
204	95.1	282.6	207.1	1.50
205	100.1	277.6	191.0	1.57
206	105.1	282.6	195.3	1.62
207	110.0	277.6	189.9	1.67
208	115.0	282.6	193.9	1.72
209	120.0	277.6	188.5	1.76
210	20.5	287.6	205.9	1.16
211	30.5	287.6	198.6	3.54
212	40.4	287.6	197.8	1.92
213	50.4	287.6	205.5	1.23
214	60.3	287.6	197.1	1.48
215	70.3	287.6	197.3	1.47
216	80.2	287.6	197.8	1.48
217	90.1	287.6	210.7	1.47
218	100.1	287.6	199.9	1.59

219	110.0	287.6	199.3	1.67
220	120.0	287.6	197.9	1.77

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	2
7.Risultati analisi pendio [A2+M2+R2]	3
Indice	8

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.163329/11.035002
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	124.81 m
Ordinata vertice sinistro inferiore yi	198.65 m
Ascissa vertice destro superiore xs	224.24 m
Ordinata vertice destro superiore ys	298.19 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficienti sismici [N.T.C.]

Dati generali

Tipo opera:	2 - Opere ordinarie
Classe d'uso:	Classe II
Vita nominale:	50.0 [anni]
Vita di riferimento:	50.0 [anni]

Parametri sismici su sito di riferimento

Categoria sottosuolo:	C
Categoria topografica:	T1

S.L. Stato limite	TR Tempo ritorno [anni]	ag [m/s ²]	F0 [-]	TC* [sec]
S.L.O.	30.0	0.59	2.47	0.26
S.L.D.	50.0	0.76	2.45	0.26
S.L.V.	475.0	1.81	2.41	0.29
S.L.C.	975.0	2.27	2.45	0.3

Coefficienti sismici orizzontali e verticali

Opera: Stabilità dei pendii e Fondazioni

S.L. Stato limite	amax [m/s ²]	beta [-]	kh [-]	kv [sec]
S.L.O.	0.885	0.2	0.0181	0.009
S.L.D.	1.14	0.2	0.0233	0.0116
S.L.V.	2.5939	0.24	0.0635	0.0317
S.L.C.	3.0865	0.28	0.0881	0.0441

Coefficiente azione sismica orizzontale	0.0635
Coefficiente azione sismica verticale	0.0317

Vertici profilo

Nr	X (m)	y (m)
1	21.94	75.66
2	27.0	80.66
3	36.94	85.79
4	58.0	90.66
5	79.54	95.66
6	106.5	100.66
7	147.44	105.66
8	214.0	110.66
9	289.14	115.66
10	322.0	120.66
11	355.54	125.66
12	404.0	130.66
13	435.34	135.66
14	480.0	140.54
15	478.19	138.14
16	213.24	110.66
17	290.0	115.66
18	320.94	120.66
19	356.0	125.66
20	403.94	130.66
21	436.0	135.66
22	479.24	140.66
23	506.0	145.66
24	534.24	150.66
25	560.0	155.66
26	588.34	160.66
27	600.0	165.66

Vertici strato1

N	X (m)	y (m)
1	21.94	50.71
2	179.95	73.03
3	252.61	83.29
4	325.26	95.91
5	412.16	114.45
6	533.34	143.31
7	597.04	157.94

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata	Angolo resistenza al	Peso unità di volume	Peso saturo (t/m ³)	Litologia
--------	----------------------------------	-------------------------	-------------------------	-------------------------	------------------------------------	-----------

		(kN/m ²)	taglio (°)	(t/m ³)
1	5		15	1.8
2	40		28	2.0

Coltre
Substato

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.73
Ascissa centro superficie	124.81 m
Ordinata centro superficie	298.19 m
Raggio superficie	222.39 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	124.8	198.7	113.4	1.82
2	129.8	203.6	117.4	1.87
3	134.7	198.7	112.0	1.94
4	139.7	203.6	116.0	1.98
5	144.7	198.7	110.6	2.05
6	149.7	203.6	114.6	2.09
7	154.6	198.7	111.5	2.14
8	159.6	203.6	115.5	2.17
9	164.6	198.7	112.9	2.23
10	169.5	203.6	116.9	2.25
11	174.5	198.7	114.3	2.31
12	179.5	203.6	118.3	2.33
13	184.5	198.7	104.6	2.38
14	189.4	203.6	108.1	2.39
15	194.4	198.7	105.0	2.42
16	199.4	203.6	109.1	2.42
17	204.3	198.7	103.6	2.44
18	209.3	203.6	107.7	2.44
19	214.3	198.7	102.2	2.46
20	219.3	203.6	106.4	2.46
21	224.2	198.7	100.9	2.49
22	124.8	208.6	122.8	1.81
23	129.8	213.6	139.9	1.86
24	134.7	208.6	121.4	1.92
25	139.7	213.6	125.4	1.97
26	144.7	208.6	120.0	2.03
27	149.7	213.6	124.0	2.07
28	154.6	208.6	133.3	2.12
29	159.6	213.6	122.6	2.16
30	164.6	208.6	119.5	2.20
31	169.5	213.6	123.5	2.23
32	174.5	208.6	120.9	2.27
33	179.5	213.6	124.9	2.29
34	184.5	208.6	122.3	2.34
35	189.4	213.6	126.3	2.35
36	194.4	208.6	111.5	2.40
37	199.4	213.6	127.7	2.41
38	204.3	208.6	113.2	2.42
39	209.3	213.6	117.1	2.42
40	214.3	208.6	111.9	2.44
41	219.3	213.6	116.0	2.44

42	224.2	208.6	123.0	2.45
43	124.8	218.6	145.1	1.79
44	129.8	223.5	136.2	1.85
45	134.7	218.6	130.8	1.91
46	139.7	223.5	148.8	1.93
47	144.7	218.6	129.4	2.01
48	149.7	223.5	148.1	2.03
49	154.6	218.6	128.0	2.11
50	159.6	223.5	147.4	2.12
51	164.6	218.6	142.3	2.18
52	169.5	223.5	146.7	2.21
53	174.5	218.6	127.4	2.25
54	179.5	223.5	131.4	2.28
55	184.5	218.6	128.8	2.31
56	189.4	223.5	132.8	2.33
57	194.4	218.6	130.2	2.37
58	199.4	223.5	134.2	2.37
59	204.3	218.6	131.6	2.41
60	209.3	223.5	135.6	2.41
61	214.3	218.6	120.6	2.43
62	219.3	223.5	137.0	2.40
63	224.2	218.6	132.7	2.40
64	124.8	228.5	141.6	1.80
65	129.8	233.5	145.6	1.85
66	134.7	228.5	140.2	1.90
67	139.7	233.5	158.5	1.92
68	144.7	228.5	153.3	1.97
69	149.7	233.5	157.8	2.01
70	154.6	228.5	152.6	2.07
71	159.6	233.5	157.1	2.10
72	164.6	228.5	151.9	2.15
73	169.5	233.5	156.4	2.18
74	174.5	228.5	151.2	2.23
75	179.5	233.5	155.7	2.25
76	184.5	228.5	151.6	2.30
77	189.4	233.5	156.1	2.32
78	194.4	228.5	136.8	2.34
79	199.4	233.5	140.7	2.36
80	204.3	228.5	138.2	2.38
81	209.3	233.5	142.1	2.38
82	214.3	228.5	139.6	2.40
83	219.3	233.5	143.5	2.37
84	224.2	228.5	141.0	2.35
85	124.8	238.5	151.0	1.80
86	129.8	243.4	168.9	1.81
87	134.7	238.5	149.6	1.90
88	139.7	243.4	168.2	1.90
89	144.7	238.5	163.0	1.95
90	149.7	243.4	167.5	1.99
91	154.6	238.5	162.3	2.04
92	159.6	243.4	166.8	2.07
93	164.6	238.5	161.6	2.13
94	169.5	243.4	166.1	2.15
95	174.5	238.5	160.9	2.20
96	179.5	243.4	165.4	2.23
97	184.5	238.5	160.2	2.27
98	189.4	243.4	146.6	2.34
99	194.4	238.5	160.6	2.32
100	199.4	243.4	147.3	2.36

101	204.3	238.5	144.7	2.36
102	209.3	243.4	148.7	2.37
103	214.3	238.5	146.1	2.38
104	219.3	243.4	150.1	2.36
105	224.2	238.5	147.5	2.33
106	124.8	248.4	174.1	1.76
107	129.8	253.4	164.3	1.85
108	134.7	248.4	173.4	1.85
109	139.7	253.4	177.8	1.88
110	144.7	248.4	172.7	1.94
111	149.7	253.4	177.1	1.97
112	154.6	248.4	172.0	2.02
113	159.6	253.4	176.4	2.06
114	164.6	248.4	171.3	2.10
115	169.5	253.4	175.7	2.13
116	174.5	248.4	170.6	2.18
117	179.5	253.4	175.0	2.20
118	184.5	248.4	152.0	2.31
119	189.4	253.4	174.3	2.26
120	194.4	248.4	169.2	2.29
121	199.4	253.4	154.6	2.37
122	204.3	248.4	169.5	2.29
123	209.3	253.4	174.0	2.27
124	214.3	248.4	152.7	2.37
125	219.3	253.4	156.6	2.37
126	224.2	248.4	154.1	2.33
127	124.8	258.4	169.7	1.80
128	129.8	263.4	188.2	1.79
129	134.7	258.4	183.0	1.83
130	139.7	263.4	187.5	1.87
131	144.7	258.4	182.3	1.92
132	149.7	263.4	186.8	1.96
133	154.6	258.4	181.6	2.01
134	159.6	263.4	186.1	2.04
135	164.6	258.4	180.9	2.09
136	169.5	263.4	185.4	2.11
137	174.5	258.4	180.2	2.16
138	179.5	263.4	184.7	2.18
139	184.5	258.4	179.5	2.22
140	189.4	263.4	165.3	2.34
141	194.4	258.4	159.9	2.36
142	199.4	263.4	163.9	2.38
143	204.3	258.4	158.5	2.39
144	209.3	263.4	162.5	2.41
145	214.3	258.4	159.2	2.39
146	219.3	263.4	163.2	2.40
147	224.2	258.4	160.6	2.36
148	124.8	268.3	179.1	1.80
149	129.8	273.3	197.9	1.78
150	134.7	268.3	192.7	1.82
151	139.7	273.3	197.2	1.86
152	144.7	268.3	192.0	1.91
153	149.7	273.3	196.5	1.95
154	154.6	268.3	191.3	1.99
155	159.6	273.3	195.8	2.03
156	164.6	268.3	190.6	2.07
157	169.5	273.3	195.1	2.10
158	174.5	268.3	189.9	2.14
159	179.5	273.3	176.1	2.28

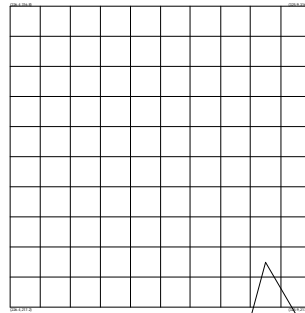
160	184.5	268.3	170.7	2.31
161	189.4	273.3	174.7	2.34
162	194.4	268.3	188.5	2.23
163	199.4	273.3	173.3	2.38
164	204.3	268.3	167.9	2.40
165	209.3	273.3	171.9	2.42
166	214.3	268.3	166.5	2.44
167	219.3	273.3	191.6	2.18
168	224.2	268.3	167.2	2.42
169	124.8	278.3	203.1	1.73
170	129.8	283.3	207.5	1.77
171	134.7	278.3	202.4	1.82
172	139.7	283.3	206.8	1.85
173	144.7	278.3	201.7	1.90
174	149.7	283.3	206.1	1.94
175	154.6	278.3	201.0	1.98
176	159.6	283.3	205.4	2.01
177	164.6	278.3	200.3	2.06
178	169.5	283.3	186.9	2.21
179	174.5	278.3	181.5	2.25
180	179.5	283.3	185.5	2.29
181	184.5	278.3	180.1	2.32
182	189.4	283.3	184.1	2.35
183	194.4	278.3	178.7	2.37
184	199.4	283.3	182.7	2.39
185	204.3	278.3	177.3	2.41
186	209.3	283.3	181.3	2.43
187	214.3	278.3	175.9	2.45
188	219.3	283.3	179.9	2.48
189	224.2	278.3	174.5	2.50
190	124.8	288.2	212.7	1.73
191	129.8	293.2	217.2	1.77
192	134.7	288.2	212.0	1.81
193	139.7	293.2	216.5	1.85
194	144.7	288.2	211.3	1.89
195	149.7	293.2	215.8	1.93
196	154.6	288.2	210.6	1.97
197	159.6	293.2	197.7	2.14
198	164.6	288.2	209.9	2.04
199	169.5	293.2	196.3	2.22
200	174.5	288.2	190.9	2.25
201	179.5	293.2	194.9	2.30
202	184.5	288.2	189.5	2.33
203	189.4	293.2	193.5	2.36
204	194.4	288.2	188.1	2.38
205	199.4	293.2	192.1	2.40
206	204.3	288.2	186.7	2.42
207	209.3	293.2	211.6	2.15
208	214.3	288.2	185.3	2.47
209	219.3	293.2	210.9	2.12
210	224.2	288.2	183.9	2.52
211	124.8	298.2	222.4	1.73
212	134.7	298.2	221.7	1.80
213	144.7	298.2	221.0	1.88
214	154.6	298.2	220.3	1.96
215	164.6	298.2	219.6	2.03
216	174.5	298.2	200.3	2.27
217	184.5	298.2	218.2	2.14
218	194.4	298.2	197.5	2.39

219	204.3	298.2	196.1	2.44
220	214.3	298.2	194.7	2.49
221	224.2	298.2	193.3	2.55

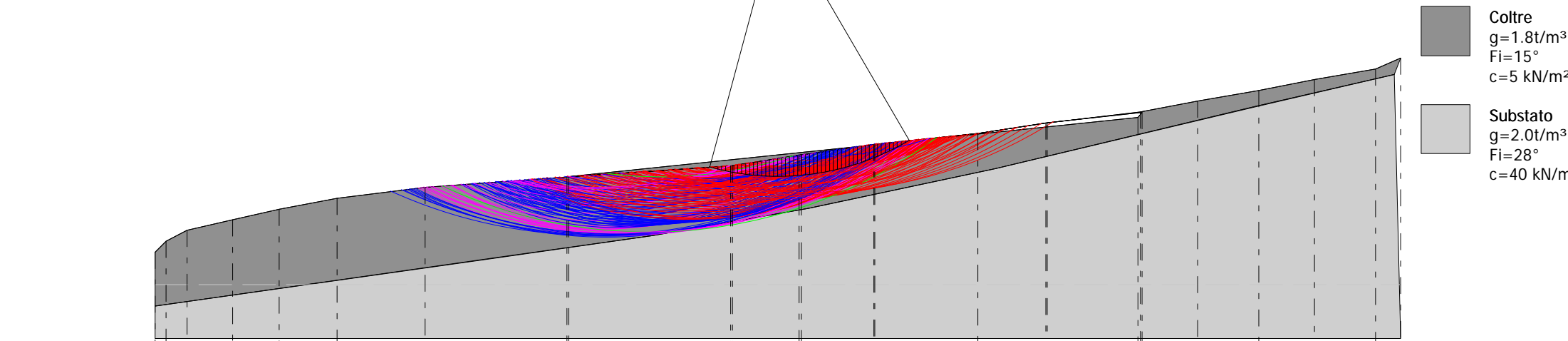
Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	2
7.Risultati analisi pendio [A2+M2+R2]	3
Indice	8

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 200 A 300 m
 IN CONDIZIONI SISMICHE



$x_c=310.94$ $y_c=232.14$ $R_c=121.28$ $F_s=1.59$



- Coltre**
 $g=1.8t/m^3$
 $F_i=15^\circ$
 $c=5 \text{ kN/m}^2$
- Substato**
 $g=2.0t/m^3$
 $F_i=28^\circ$
 $c=40 \text{ kN/m}^2$

Quote	75.66	80.66	85.79	90.66	95.66	100.66	105.66	110.66	115.66	120.66	125.66	130.66	135.66	140.66	145.66	150.66	155.66	160.66	165.66
Distanze Parziali	0.00	5.06	9.94	21.06	21.54	26.96	40.94	65.80	78.64	108.4	134.6	166.4	206.4	256.4	306.4	356.4	406.4	456.4	506.4
Distanze Progressive	0.00	5.06	15.00	36.06	57.60	84.56	125.50	191.30	269.94	358.34	456.94	566.60	687.26	818.92	961.58	1116.24	1281.90	1458.56	1646.22

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.163329/11.035002
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	226.43 m
Ordinata vertice sinistro inferiore yi	217.21 m
Ascissa vertice destro superiore xs	325.85 m
Ordinata vertice destro superiore ys	316.75 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficienti sismici [N.T.C.]

Dati generali

Tipo opera:	2 - Opere ordinarie
Classe d'uso:	Classe II
Vita nominale:	50.0 [anni]
Vita di riferimento:	50.0 [anni]

Parametri sismici su sito di riferimento

Categoria sottosuolo:	C
Categoria topografica:	T1

S.L. Stato limite	TR Tempo ritorno [anni]	ag [m/s ²]	F0 [-]	TC* [sec]
S.L.O.	30.0	0.59	2.47	0.26
S.L.D.	50.0	0.76	2.45	0.26
S.L.V.	475.0	1.81	2.41	0.29
S.L.C.	975.0	2.27	2.45	0.3

Coefficienti sismici orizzontali e verticali

Opera: Stabilità dei pendii e Fondazioni

S.L. Stato limite	amax [m/s ²]	beta [-]	kh [-]	kv [sec]
S.L.O.	0.885	0.2	0.0181	0.009
S.L.D.	1.14	0.2	0.0233	0.0116
S.L.V.	2.5939	0.24	0.0635	0.0317
S.L.C.	3.0865	0.28	0.0881	0.0441

Coefficiente azione sismica orizzontale	0.0635
Coefficiente azione sismica verticale	0.0317

Vertici profilo

Nr	X (m)	y (m)
1	21.94	75.66
2	27.0	80.66
3	36.94	85.79
4	58.0	90.66
5	79.54	95.66
6	106.5	100.66
7	147.44	105.66
8	214.0	110.66
9	289.14	115.66
10	322.0	120.66
11	355.54	125.66
12	404.0	130.66
13	435.34	135.66
14	480.0	140.54
15	478.19	138.14
16	213.24	110.66
17	290.0	115.66
18	320.94	120.66
19	356.0	125.66
20	403.94	130.66
21	436.0	135.66
22	479.24	140.66
23	506.0	145.66
24	534.24	150.66
25	560.0	155.66
26	588.34	160.66
27	600.0	165.66

Vertici strato1

N	X (m)	y (m)
1	21.94	50.71
2	179.95	73.03
3	252.61	83.29
4	325.26	95.91
5	412.16	114.45
6	533.34	143.31
7	597.04	157.94

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata	Angolo resistenza al	Peso unità di volume	Peso saturo (t/m ³)	Litologia
--------	----------------------------------	-------------------------	-------------------------	-------------------------	------------------------------------	-----------

		(kN/m ²)	taglio (°)	(t/m ³)
1	5		15	1.8
2	40		28	2.0

Coltre
Substato

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.59
Ascissa centro superficie	310.94 m
Ordinata centro superficie	232.14 m
Raggio superficie	121.28 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	226.4	217.2	131.2	2.39
2	231.4	222.2	135.6	2.34
3	236.4	217.2	130.3	2.33
4	241.3	222.2	134.7	2.26
5	246.3	217.2	129.4	2.24
6	251.3	222.2	133.8	2.17
7	256.3	217.2	128.4	2.15
8	261.2	222.2	132.9	2.08
9	266.2	217.2	127.5	2.06
10	271.2	222.2	131.9	1.99
11	276.1	217.2	111.6	1.96
12	281.1	222.2	115.8	1.87
13	286.1	217.2	110.3	1.81
14	291.1	222.2	114.4	1.74
15	296.0	217.2	110.3	1.69
16	301.0	222.2	113.1	1.64
17	306.0	217.2	111.6	1.64
18	310.9	222.2	114.5	1.61
19	315.9	217.2	113.0	1.64
20	320.9	222.2	115.9	1.62
21	325.9	217.2	114.4	1.67
22	226.4	227.2	140.4	2.34
23	231.4	232.1	144.4	2.29
24	236.4	227.2	140.0	2.27
25	241.3	232.1	144.4	2.21
26	246.3	227.2	139.1	2.19
27	251.3	232.1	143.5	2.13
28	256.3	227.2	138.2	2.10
29	261.2	232.1	142.6	2.04
30	266.2	227.2	137.3	2.02
31	271.2	232.1	141.7	1.96
32	276.1	227.2	121.3	1.94
33	281.1	232.1	125.4	1.85
34	286.1	227.2	119.9	1.79
35	291.1	232.1	124.0	1.72
36	296.0	227.2	118.5	1.68
37	301.0	232.1	122.7	1.63
38	306.0	227.2	117.2	1.61
39	310.9	232.1	121.3	1.59
40	315.9	227.2	117.3	1.59
41	320.9	232.1	120.2	1.61

42	325.9	227.2	118.7	1.62
43	226.4	237.1	146.9	2.32
44	231.4	242.1	150.9	2.27
45	236.4	237.1	148.3	2.23
46	241.3	242.1	152.3	2.18
47	246.3	237.1	148.8	2.15
48	251.3	242.1	153.2	2.09
49	256.3	237.1	147.9	2.06
50	261.2	242.1	152.3	2.01
51	266.2	237.1	147.0	1.98
52	271.2	242.1	151.4	1.93
53	276.1	237.1	146.1	1.91
54	281.1	242.1	135.0	1.83
55	286.1	237.1	129.5	1.78
56	291.1	242.1	133.6	1.71
57	296.0	237.1	128.1	1.67
58	301.0	242.1	132.3	1.63
59	306.0	237.1	126.8	1.61
60	310.9	242.1	130.9	1.60
61	315.9	237.1	125.4	1.60
62	320.9	242.1	129.5	1.62
63	325.9	237.1	124.0	1.64
64	226.4	247.1	153.5	2.31
65	231.4	252.0	157.5	2.27
66	236.4	247.1	154.9	2.22
67	241.3	252.0	158.8	2.16
68	246.3	247.1	156.3	2.12
69	251.3	252.0	160.2	2.06
70	256.3	247.1	157.6	2.03
71	261.2	252.0	161.6	1.98
72	266.2	247.1	156.7	1.95
73	271.2	252.0	161.1	1.91
74	276.1	247.1	155.8	1.89
75	281.1	252.0	144.6	1.82
76	286.1	247.1	139.1	1.76
77	291.1	252.0	143.3	1.70
78	296.0	247.1	137.8	1.66
79	301.0	252.0	141.9	1.63
80	306.0	247.1	136.4	1.61
81	310.9	252.0	140.5	1.60
82	315.9	247.1	135.0	1.60
83	320.9	252.0	139.2	1.62
84	325.9	247.1	133.7	1.65
85	226.4	257.0	160.0	2.33
86	231.4	262.0	164.0	2.30
87	236.4	257.0	161.4	2.22
88	241.3	262.0	165.4	2.17
89	246.3	257.0	162.8	2.10
90	251.3	262.0	166.8	2.05
91	256.3	257.0	164.2	2.00
92	261.2	262.0	168.2	1.95
93	266.2	257.0	165.6	1.93
94	271.2	262.0	169.6	1.88
95	276.1	257.0	165.5	1.87
96	281.1	262.0	154.3	1.81
97	286.1	257.0	148.8	1.75
98	291.1	262.0	152.9	1.70
99	296.0	257.0	147.4	1.66
100	301.0	262.0	151.5	1.63

101	306.0	257.0	146.0	1.61
102	310.9	262.0	150.1	1.60
103	315.9	257.0	144.6	1.61
104	320.9	262.0	148.8	1.63
105	325.9	257.0	143.3	1.65
106	226.4	267.0	166.6	2.39
107	231.4	272.0	170.5	2.37
108	236.4	267.0	168.0	2.26
109	241.3	272.0	171.9	2.21
110	246.3	267.0	169.4	2.11
111	251.3	272.0	173.3	2.05
112	256.3	267.0	170.8	1.99
113	261.2	272.0	174.7	1.93
114	266.2	267.0	172.2	1.90
115	271.2	272.0	176.1	1.85
116	276.1	267.0	173.6	1.84
117	281.1	272.0	177.5	1.81
118	286.1	267.0	158.4	1.74
119	291.1	272.0	162.5	1.69
120	296.0	267.0	157.0	1.66
121	301.0	272.0	161.1	1.63
122	306.0	267.0	155.6	1.61
123	310.9	272.0	159.8	1.61
124	315.9	267.0	154.3	1.61
125	320.9	272.0	158.4	1.64
126	325.9	267.0	152.9	1.66
127	226.4	276.9	173.1	2.50
128	231.4	281.9	199.2	2.09
129	236.4	276.9	174.5	2.35
130	241.3	281.9	178.5	2.31
131	246.3	276.9	175.9	2.15
132	251.3	281.9	179.9	2.09
133	256.3	276.9	177.3	2.00
134	261.2	281.9	181.3	1.94
135	266.2	276.9	178.7	1.88
136	271.2	281.9	182.7	1.83
137	276.1	276.9	180.1	1.81
138	281.1	281.9	184.1	1.78
139	286.1	276.9	181.5	1.78
140	291.1	281.9	185.5	1.75
141	296.0	276.9	166.2	1.66
142	301.0	281.9	169.7	1.64
143	306.0	276.9	165.3	1.62
144	310.9	281.9	169.4	1.62
145	315.9	276.9	163.9	1.62
146	320.9	281.9	168.0	1.65
147	325.9	276.9	162.5	1.67
148	226.4	286.9	182.3	2.53
149	231.4	291.9	208.8	2.06
150	236.4	286.9	203.6	2.39
151	241.3	291.9	208.1	2.54
152	246.3	286.9	182.5	2.26
153	251.3	291.9	186.4	2.21
154	256.3	286.9	183.9	2.03
155	261.2	291.9	187.8	1.97
156	266.2	286.9	185.3	1.88
157	271.2	291.9	189.2	1.83
158	276.1	286.9	186.7	1.79
159	281.1	291.9	190.6	1.75

160	286.1	286.9	188.1	1.74
161	291.1	291.9	192.0	1.72
162	296.0	286.9	189.4	1.72
163	301.0	291.9	193.4	1.70
164	306.0	286.9	173.2	1.65
165	310.9	291.9	176.6	1.69
166	315.9	286.9	173.5	1.63
167	320.9	291.9	177.6	1.66
168	325.9	286.9	172.1	1.68
169	226.4	296.8	191.7	2.56
170	231.4	301.8	218.4	2.04
171	236.4	296.8	213.2	2.16
172	241.3	301.8	217.7	2.45
173	246.3	296.8	189.0	2.56
174	251.3	301.8	193.0	2.54
175	256.3	296.8	190.4	2.14
176	261.2	301.8	194.4	2.08
177	266.2	296.8	191.8	1.91
178	271.2	301.8	195.8	1.85
179	276.1	296.8	193.2	1.78
180	281.1	301.8	197.2	1.74
181	286.1	296.8	194.6	1.72
182	291.1	301.8	198.6	1.69
183	296.0	296.8	196.0	1.69
184	301.0	301.8	200.0	1.67
185	306.0	296.8	197.4	1.68
186	310.9	301.8	201.4	1.66
187	315.9	296.8	180.1	1.77
188	320.9	301.8	183.6	1.87
189	325.9	296.8	181.8	1.69
190	226.4	306.8	201.1	2.60
191	231.4	311.8	228.1	2.02
192	236.4	306.8	222.9	2.01
193	241.3	311.8	227.4	2.30
194	246.3	306.8	222.2	2.53
195	251.3	311.8	226.7	2.62
196	256.3	306.8	197.0	2.51
197	261.2	311.8	200.9	2.48
198	266.2	306.8	198.4	2.01
199	271.2	311.8	202.3	1.95
200	276.1	306.8	199.7	1.79
201	281.1	311.8	203.7	1.75
202	286.1	306.8	201.1	1.70
203	291.1	311.8	205.1	1.67
204	296.0	306.8	202.5	1.67
205	301.0	311.8	206.5	1.65
206	306.0	306.8	203.9	1.65
207	310.9	311.8	207.9	1.64
208	315.9	306.8	205.3	1.64
209	320.9	311.8	209.3	1.62
210	325.9	306.8	187.0	2.03
211	226.4	316.8	233.3	2.03
212	236.4	316.8	232.6	1.99
213	246.3	316.8	231.9	2.45
214	256.3	316.8	206.3	2.64
215	266.2	316.8	204.9	2.45
216	276.1	316.8	206.3	1.89
217	286.1	316.8	207.7	1.71
218	296.0	316.8	209.1	1.65

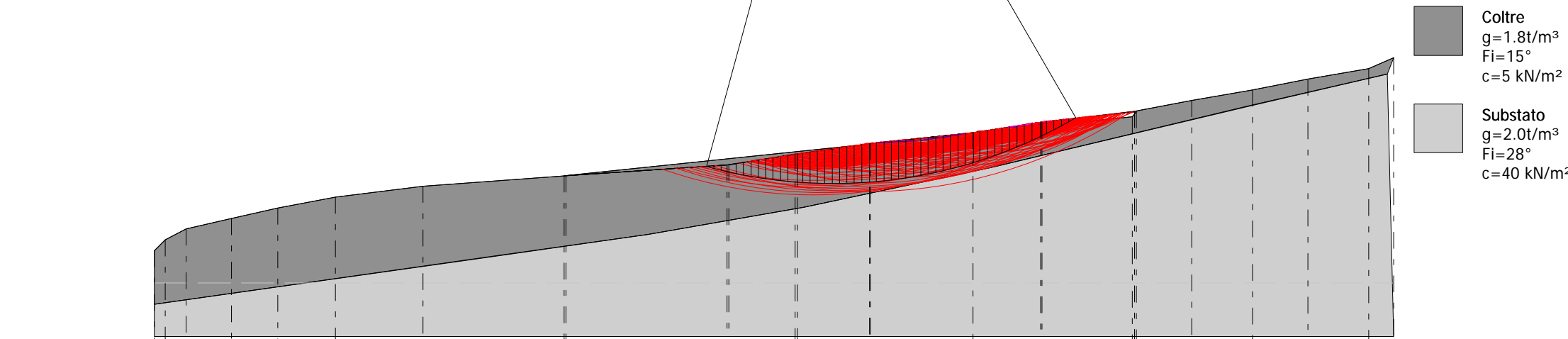
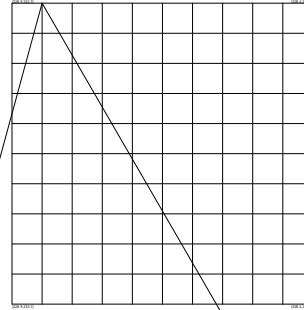
219	306.0	316.8	210.5	1.63
220	315.9	316.8	211.9	1.62
221	325.9	316.8	213.3	1.60

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	2
7.Risultati analisi pendio [A2+M2+R2]	3
Indice	8

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 300 A 400 m
 IN CONDIZIONI SISMICHE

$x_c=338.87$ $y_c=332.66$ $R_c=225.57$ $F_s=1.58$



- Coltre**
 $g=1.8t/m^3$
 $F_i=15^\circ$
 $c=5 \text{ kN/m}^2$
- Substato**
 $g=2.0t/m^3$
 $F_i=28^\circ$
 $c=40 \text{ kN/m}^2$

Quote	75.66	80.66	85.79	90.66	95.66	100.66	105.66	110.66	115.66	120.66	125.66	130.66	135.66	140.66	145.66	150.66	155.66	160.66	165.66
Distanze Parziali	0.00	5.06	9.94	21.06	21.54	26.96	40.94	65.80	78.64	108.84	134.64	179.94	216.64	260.69	26.00	28.24	25.76	28.34	11.66
Distanze Progressive	0.00	5.06	15.00	36.06	57.60	84.56	125.50	191.00	269.64	388.48	523.12	703.06	919.70	1180.39	1484.06	1512.30	1538.06	1566.40	1578.06

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.163329/11.035002
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	328.93 m
Ordinata vertice sinistro inferiore yi	233.12 m
Ascissa vertice destro superiore xs	428.36 m
Ordinata vertice destro superiore ys	332.66 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficienti sismici [N.T.C.]

Dati generali

Tipo opera:	2 - Opere ordinarie
Classe d'uso:	Classe II
Vita nominale:	50.0 [anni]
Vita di riferimento:	50.0 [anni]

Parametri sismici su sito di riferimento

Categoria sottosuolo:	C
Categoria topografica:	T1

S.L. Stato limite	TR Tempo ritorno [anni]	ag [m/s ²]	F0 [-]	TC* [sec]
S.L.O.	30.0	0.59	2.47	0.26
S.L.D.	50.0	0.76	2.45	0.26
S.L.V.	475.0	1.81	2.41	0.29
S.L.C.	975.0	2.27	2.45	0.3

Coefficienti sismici orizzontali e verticali

Opera: Stabilità dei pendii e Fondazioni

S.L. Stato limite	amax [m/s ²]	beta [-]	kh [-]	kv [sec]
S.L.O.	0.885	0.2	0.0181	0.009
S.L.D.	1.14	0.2	0.0233	0.0116
S.L.V.	2.5939	0.24	0.0635	0.0317
S.L.C.	3.0865	0.28	0.0881	0.0441

Coefficiente azione sismica orizzontale	0.0635
Coefficiente azione sismica verticale	0.0317

Vertici profilo

Nr	X (m)	y (m)
1	21.94	75.66
2	27.0	80.66
3	36.94	85.79
4	58.0	90.66
5	79.54	95.66
6	106.5	100.66
7	147.44	105.66
8	214.0	110.66
9	289.14	115.66
10	322.0	120.66
11	355.54	125.66
12	404.0	130.66
13	435.34	135.66
14	480.0	140.54
15	478.19	138.14
16	213.24	110.66
17	290.0	115.66
18	320.94	120.66
19	356.0	125.66
20	403.94	130.66
21	436.0	135.66
22	479.24	140.66
23	506.0	145.66
24	534.24	150.66
25	560.0	155.66
26	588.34	160.66
27	600.0	165.66

Vertici strato1

N	X (m)	y (m)
1	21.94	50.71
2	179.95	73.03
3	252.61	83.29
4	325.26	95.91
5	412.16	114.45
6	533.34	143.31
7	597.04	157.94

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata	Angolo resistenza al	Peso unità di volume	Peso saturo (t/m ³)	Litologia
--------	----------------------------------	-------------------------	-------------------------	-------------------------	------------------------------------	-----------

		(kN/m ²)	taglio (°)	(t/m ³)
1	5		15	1.8
2	40		28	2.0

Coltre
Substato

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.58
Ascissa centro superficie	338.87 m
Ordinata centro superficie	332.66 m
Raggio superficie	225.57 m

Numero di superfici esaminate....(186)

N°	Xo	Yo	Ro	Fs
1	328.9	233.1	121.7	1.64
2	333.9	238.1	124.5	1.68
3	338.9	233.1	123.1	1.68
4	343.8	238.1	125.9	1.71
5	348.8	233.1	124.4	1.70
6	353.8	238.1	127.3	1.71
7	358.8	233.1	125.8	1.70
8	363.7	238.1	128.7	1.70
9	368.7	233.1	112.1	1.97
10	373.7	238.1	114.2	2.19
11	378.6	233.1	113.9	1.79
12	383.6	238.1	116.0	1.82
13	388.6	233.1	115.7	1.73
14	393.6	238.1	117.9	1.72
15	398.5	233.1	117.6	1.72
16	403.5	238.1	119.7	1.70
17	408.5	233.1	106.1	1.75
18	413.4	238.1	107.5	2.02
19	418.4	233.1	108.4	1.69
20	423.4	238.1	109.8	1.77
21	428.4	233.1	98.3	4.85
22	328.9	243.1	129.4	1.66
23	333.9	248.0	133.5	1.69
24	338.9	243.1	128.0	1.72
25	343.8	248.0	132.1	1.76
26	348.8	243.1	128.8	1.74
27	353.8	248.0	131.6	1.79
28	358.8	243.1	130.1	1.72
29	363.7	248.0	133.0	1.74
30	368.7	243.1	131.5	1.70
31	373.7	248.0	134.3	1.70
32	378.6	243.1	132.9	1.95
33	383.6	248.0	135.7	1.70
34	388.6	243.1	118.2	1.88
35	393.6	248.0	120.3	2.11
36	398.5	243.1	120.0	1.71
37	403.5	248.0	122.1	1.74
38	408.5	243.1	121.8	1.68
39	413.4	248.0	124.0	1.69
40	418.4	243.1	109.0	11.20
41	428.4	243.1	111.3	2.08

42	328.9	253.0	139.0	1.67
43	333.9	258.0	143.1	1.70
44	338.9	253.0	137.6	1.73
45	343.8	258.0	141.7	1.76
46	348.8	253.0	136.2	1.79
47	353.8	258.0	140.4	1.81
48	358.8	253.0	134.9	1.83
49	363.7	258.0	139.0	1.83
50	368.7	253.0	135.8	1.75
51	373.7	258.0	138.7	1.77
52	378.6	253.0	137.2	1.70
53	383.6	258.0	140.0	1.71
54	388.6	253.0	138.6	1.70
55	393.6	258.0	141.4	1.69
56	398.5	253.0	122.4	3.87
57	408.5	253.0	124.3	1.85
58	413.4	258.0	126.4	2.33
59	418.4	253.0	126.1	1.73
60	423.4	258.0	128.2	1.85
61	328.9	263.0	148.6	1.67
62	333.9	268.0	152.7	1.71
63	338.9	263.0	147.2	1.74
64	343.8	268.0	151.4	1.77
65	348.8	263.0	145.9	1.79
66	353.8	268.0	150.0	1.81
67	358.8	263.0	144.5	1.82
68	363.7	268.0	148.6	1.82
69	368.7	263.0	143.1	1.82
70	373.7	268.0	147.2	1.80
71	378.6	263.0	141.8	1.79
72	383.6	268.0	145.9	1.77
73	388.6	263.0	142.9	1.71
74	393.6	268.0	145.7	1.71
75	398.5	263.0	144.2	1.69
76	403.5	268.0	147.1	1.68
77	328.9	272.9	158.2	1.68
78	333.9	277.9	162.4	1.72
79	338.9	272.9	156.9	1.74
80	343.8	277.9	161.0	1.78
81	348.8	272.9	155.5	1.80
82	353.8	277.9	159.6	1.81
83	358.8	272.9	154.1	1.82
84	363.7	277.9	158.2	1.82
85	368.7	272.9	152.7	1.81
86	373.7	277.9	156.9	1.80
87	378.6	272.9	151.4	1.79
88	383.6	277.9	155.5	1.77
89	388.6	272.9	150.0	1.75
90	393.6	277.9	154.1	1.74
91	398.5	272.9	148.6	1.72
92	403.5	277.9	152.8	1.72
93	408.5	272.9	149.9	1.68
94	423.4	277.9	148.5	1.82
95	328.9	282.9	167.8	1.69
96	333.9	287.9	172.0	1.73
97	338.9	282.9	166.5	1.75
98	343.8	287.9	170.6	1.78
99	348.8	282.9	165.1	1.80
100	353.8	287.9	169.2	1.82

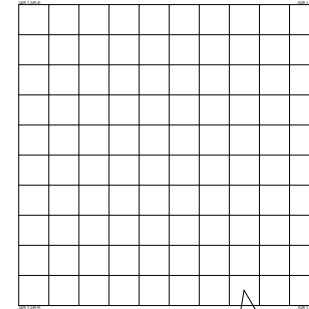
101	358.8	282.9	163.7	1.82
102	363.7	287.9	167.9	1.82
103	368.7	282.9	162.4	1.81
104	373.7	287.9	166.5	1.80
105	378.6	282.9	161.0	1.78
106	383.6	287.9	165.1	1.77
107	388.6	282.9	159.6	1.75
108	393.6	287.9	163.7	1.74
109	398.5	282.9	158.3	1.73
110	403.5	287.9	162.4	1.73
111	408.5	282.9	156.9	1.72
112	413.4	287.9	158.1	1.90
113	418.4	282.9	151.3	2.13
114	328.9	292.8	177.5	1.70
115	333.9	297.8	181.6	1.74
116	338.9	292.8	176.1	1.76
117	343.8	297.8	180.2	1.79
118	348.8	292.8	174.7	1.81
119	353.8	297.8	178.9	1.82
120	358.8	292.8	173.4	1.82
121	363.7	297.8	177.5	1.82
122	368.7	292.8	172.0	1.81
123	373.7	297.8	176.1	1.80
124	378.6	292.8	170.6	1.79
125	383.6	297.8	174.7	1.77
126	388.6	292.8	169.2	1.76
127	393.6	297.8	173.4	1.75
128	398.5	292.8	167.9	1.73
129	403.5	297.8	171.8	1.74
130	408.5	292.8	164.9	1.80
131	413.4	297.8	164.7	3.72
132	328.9	302.8	185.7	1.77
133	333.9	307.8	189.2	1.85
134	338.9	302.8	185.7	1.77
135	343.8	307.8	189.8	1.80
136	348.8	302.8	184.3	1.81
137	353.8	307.8	188.5	1.82
138	358.8	302.8	183.0	1.82
139	363.7	307.8	187.1	1.82
140	368.7	302.8	181.6	1.81
141	373.7	307.8	185.7	1.80
142	378.6	302.8	180.2	1.79
143	383.6	307.8	184.4	1.78
144	388.6	302.8	178.9	1.76
145	393.6	307.8	183.0	1.75
146	398.5	302.8	177.5	1.74
147	403.5	307.8	178.4	1.98
148	408.5	302.8	171.5	2.33
149	328.9	312.7	211.1	1.60
150	333.9	317.7	215.1	1.59
151	338.9	312.7	192.7	1.96
152	343.8	317.7	196.1	2.13
153	348.8	312.7	194.0	1.82
154	353.8	317.7	198.1	1.83
155	358.8	312.7	192.6	1.83
156	363.7	317.7	196.7	1.82
157	368.7	312.7	191.2	1.81
158	373.7	317.7	195.4	1.81
159	378.6	312.7	189.9	1.79

160	383.6	317.7	194.0	1.79
161	388.6	312.7	188.5	1.77
162	393.6	317.7	192.1	1.78
163	398.5	312.7	185.3	1.85
164	403.5	317.7	185.2	6.25
165	328.9	322.7	217.6	1.59
166	333.9	327.7	221.6	1.58
167	338.9	322.7	219.0	1.75
168	343.8	327.7	223.0	1.86
169	348.8	322.7	199.6	2.38
170	353.8	327.7	224.4	2.69
171	358.8	322.7	201.7	1.87
172	363.7	327.7	205.2	1.94
173	368.7	322.7	200.8	1.82
174	373.7	327.7	205.0	1.82
175	378.6	322.7	199.5	1.80
176	383.6	327.7	203.6	1.79
177	388.6	322.7	198.1	1.78
178	393.6	327.7	199.0	2.09
179	398.5	322.7	192.1	2.54
180	328.9	332.7	224.2	1.59
181	338.9	332.7	225.6	1.58
182	348.8	332.7	227.0	1.97
183	358.8	332.7	206.5	4.28
184	368.7	332.7	208.6	2.01
185	378.6	332.7	209.1	1.81
186	388.6	332.7	205.9	1.91

Indice

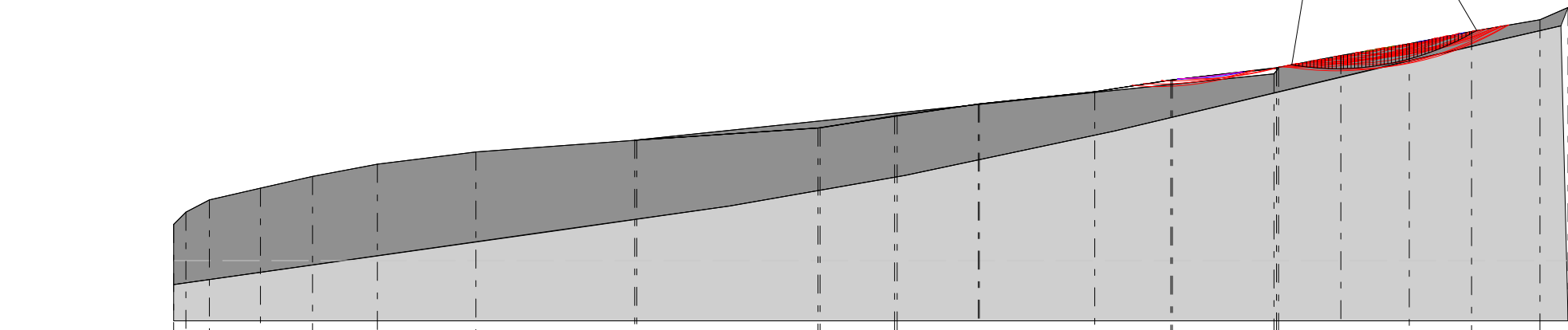
1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	2
7.Risultati analisi pendio [A2+M2+R2]	3
Indice	7

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 400 A 500 m
 IN CONDIZIONI SISMICHE



$x_c=504.23$ $y_c=254.88$ $R_c=114.60$ $F_s=1.39$

- Coltre**
 $g=1.8t/m^3$
 $F_i=15^\circ$
 $c=5$ kN/m²
- Substato**
 $g=2.0t/m^3$
 $F_i=28^\circ$
 $c=40$ kN/m²



Quote	75.66	80.66	85.79	90.66	95.66	100.66	105.66	110.66	115.66	120.66	125.66	130.66	135.66	140.66	145.66	150.66	155.66	160.66	165.66
Distanze Parziali	0.00	5.06	9.94	21.06	21.54	26.96	40.94	65.80	78.64	100.84	134.64	179.94	236.64	304.69	384.06	474.24	575.76	688.34	811.66
Distanze Progressive	0.00	5.06	15.00	36.06	57.60	84.56	125.50	191.00	268.00	368.00	492.60	642.54	828.18	1049.87	1307.93	1602.17	1933.93	2302.27	2707.93

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.163329/11.035002
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	429.66 m
Ordinata vertice sinistro inferiore yi	249.91 m
Ascissa vertice destro superiore xs	529.09 m
Ordinata vertice destro superiore ys	349.45 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficienti sismici [N.T.C.]

Dati generali

Tipo opera:	2 - Opere ordinarie
Classe d'uso:	Classe II
Vita nominale:	50.0 [anni]
Vita di riferimento:	50.0 [anni]

Parametri sismici su sito di riferimento

Categoria sottosuolo:	C
Categoria topografica:	T1

S.L. Stato limite	TR Tempo ritorno [anni]	ag [m/s ²]	F0 [-]	TC* [sec]
S.L.O.	30.0	0.59	2.47	0.26
S.L.D.	50.0	0.76	2.45	0.26
S.L.V.	475.0	1.81	2.41	0.29
S.L.C.	975.0	2.27	2.45	0.3

Coefficienti sismici orizzontali e verticali

Opera: Stabilità dei pendii e Fondazioni

S.L. Stato limite	amax [m/s ²]	beta [-]	kh [-]	kv [sec]
S.L.O.	0.885	0.2	0.0181	0.009
S.L.D.	1.14	0.2	0.0233	0.0116
S.L.V.	2.5939	0.24	0.0635	0.0317
S.L.C.	3.0865	0.28	0.0881	0.0441

Coefficiente azione sismica orizzontale	0.0635
Coefficiente azione sismica verticale	0.0317

Vertici profilo

Nr	X (m)	y (m)
1	21.94	75.66
2	27.0	80.66
3	36.94	85.79
4	58.0	90.66
5	79.54	95.66
6	106.5	100.66
7	147.44	105.66
8	214.0	110.66
9	289.14	115.66
10	322.0	120.66
11	355.54	125.66
12	404.0	130.66
13	435.34	135.66
14	480.0	140.54
15	478.19	138.14
16	213.24	110.66
17	290.0	115.66
18	320.94	120.66
19	356.0	125.66
20	403.94	130.66
21	436.0	135.66
22	479.24	140.66
23	506.0	145.66
24	534.24	150.66
25	560.0	155.66
26	588.34	160.66
27	600.0	165.66

Vertici strato1

N	X (m)	y (m)
1	21.94	50.71
2	179.95	73.03
3	252.61	83.29
4	325.26	95.91
5	412.16	114.45
6	533.34	143.31
7	597.04	157.94

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata	Angolo resistenza al	Peso unità di volume	Peso saturo (t/m ³)	Litologia
--------	----------------------------------	-------------------------	-------------------------	-------------------------	------------------------------------	-----------

		(kN/m ²)	taglio (°)	(t/m ³)
1	5		15	1.8
2	40		28	2.0

Coltre
Substato

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.39
Ascissa centro superficie	504.23 m
Ordinata centro superficie	254.88 m
Raggio superficie	114.6 m

Numero di superfici esaminate....(37)

N°	Xo	Yo	Ro	Fs
1	489.3	249.9	106.5	3.05
2	494.3	254.9	114.0	1.53
3	499.3	249.9	107.1	1.68
4	504.2	254.9	114.6	1.39
5	509.2	249.9	107.6	1.45
6	514.2	254.9	107.3	2.52
7	524.1	254.9	108.8	1.49
8	529.1	249.9	101.8	1.61
9	429.7	259.9	127.1	2.25
10	439.6	259.9	123.7	4.96
11	489.3	259.9	117.7	1.89
12	504.2	264.8	121.4	1.59
13	509.2	259.9	114.4	1.82
14	514.2	264.8	122.8	1.65
15	529.1	259.9	109.4	2.49
16	444.6	274.8	138.7	3.30
17	494.3	274.8	130.0	3.41
18	499.3	269.8	125.7	1.91
19	504.2	274.8	135.4	2.23
20	509.2	269.8	129.7	2.46
21	514.2	274.8	130.1	1.49
22	519.1	269.8	123.3	1.59
23	524.1	274.8	124.2	5.39
24	429.7	279.8	145.9	2.63
25	474.4	284.7	143.3	3.34
26	504.2	284.7	141.3	1.53
27	509.2	279.8	135.7	1.51
28	514.2	284.7	136.4	2.99
29	519.1	279.8	130.8	2.55
30	494.3	294.7	152.6	1.57
31	509.2	289.7	141.9	3.68
32	484.3	304.7	163.8	1.62
33	489.3	299.7	158.2	1.60
34	494.3	304.7	158.7	15.33
35	434.6	324.6	189.4	3.19
36	429.7	339.5	203.7	7.15
37	469.4	339.5	198.3	2.77

Indice

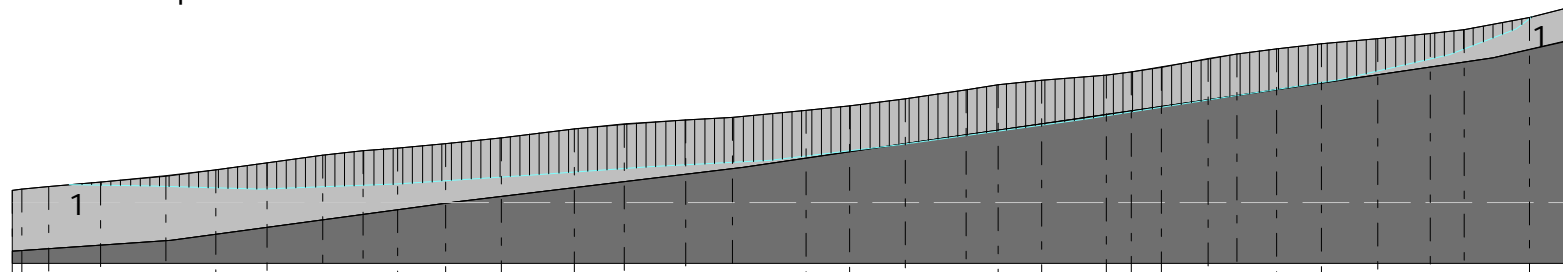
1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	2
7.Risultati analisi pendio [A2+M2+R2]	3
Indice	4

CASTEL DI CASIO SUD

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE SUPERFICIE 1
 IN CONDIZIONI STATICHE

Fs=3.85 Sup...1

- Strato...1
 g=1.80t/m³
 Fi=15°
 c=5 kN/m²
- Strato...2
 g=2.0t/m³
 Fi=28°
 c=40 kN/m²



Quote	9.99	24.66	25.92	27.26	29.32	31.43	33.57	36.10	37.72	38.58	39.93	41.96	44.92	46.47	47.93	48.61	51.05	52.48	54.85	57.88	59.44	60.89	62.63	63.71	65.30	68.05	69.68	71.33	72.95	74.63	76.46	77.70	81.63	85.15
Distanze Parziali	9.99	8.88	17.13	21.57	16.49	17.13	18.40	13.32	11.42	15.86	18.40	24.11	16.49	20.30	15.55	24.34	14.29	18.52	20.11	10.57	14.29	21.51	8.12	10.06	15.34	9.52	13.23	14.82	18.52	17.46	11.11	21.69	13.23	
Distanze Progressive	9.99	12.05	29.18	50.75	67.25	84.37	102.77	116.09	127.51	143.37	161.77	185.88	202.37	222.67	238.22	262.56	276.85	295.36	315.47	326.04	340.34	361.84	369.97	380.03	395.37	404.89	418.12	432.93	451.45	468.91	480.02	501.72	514.94	

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.161667/11.033263
Calcolo eseguito secondo	NTC 2018
Numero di strati	2.0
Numero dei conci	150.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma generica	

Vertici profilo

Nr	X (m)	y (m)
1	28.79	24.46
2	31.96	25.03
3	40.84	25.92
4	57.97	27.26
5	79.54	29.32
6	96.03	31.43
7	113.16	33.57
8	131.56	36.1
9	144.88	37.72
10	156.3	38.58
11	172.16	39.93
12	190.56	41.96
13	214.66	44.92
14	231.16	46.47
15	251.46	47.93
16	267.01	48.61
17	291.35	51.05
18	305.63	52.48
19	324.15	54.85
20	344.26	57.88
21	354.83	59.44
22	369.12	60.89
23	390.63	62.63
24	398.76	63.71
25	408.81	65.3
26	424.15	68.05
27	433.68	69.68
28	446.9	71.33
29	461.72	72.95
30	480.24	74.63
31	497.7	76.46
32	508.81	77.7
33	530.5	81.63
34	543.73	85.15

Vertici strato1

N	X (m)	y (m)
---	----------	----------

1	28.79	4.46
2	81.35	7.97
3	175.47	20.67
4	270.51	32.26
5	329.89	40.87
6	424.93	54.65
7	467.98	61.0
8	518.41	68.45
9	543.73	74.19

Vertici superficie Nr...1

N	X m	y m
1	47.62	26.55
2	73.79	26.06
3	110.95	25.01
4	155.95	26.58
5	200.96	29.72
6	239.68	32.34
7	279.46	34.43
8	321.85	39.66
9	383.07	48.04
10	430.7	55.36
11	467.85	61.12
12	503.96	69.49
13	525.94	77.86
14	531.29	81.87



Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.80		
2	40		28	2.0		

Superficie Nr...1 Fattore di sicurezza=3.85

Nr.	B m	Alfa (°)	Li m	Wi (kN)	Kh•Wi (kN)	Kv•Wi (kN)	c (kN/m ²)	Fi (°)	Ui (kN)	N'i (kN)	Ti (kN)
1	3.22	-1.1	3.22	8.83	0.0	0.0	5.0	15.0	0.0	-5.0	3.8

2	3.22	-1.1	3.22	26.51	0.0	0.0	5.0	15.0	0.0	-6.0	3.8
3	3.22	-1.1	3.22	44.18	0.0	0.0	5.0	15.0	0.0	-7.1	3.7
4	3.22	-1.2	3.22	63.92	0.0	0.0	5.0	15.0	0.0	-8.6	3.6
5	3.22	-1.1	3.22	84.96	0.0	0.0	5.0	15.0	0.0	-9.4	3.5
6	3.22	-1.1	3.22	105.82	0.0	0.0	5.0	15.0	0.0	-10.7	3.4
7	3.22	-1.1	3.22	126.69	0.0	0.0	5.0	15.0	0.0	-11.9	3.3
8	3.22	-1.1	3.22	147.65	0.0	0.0	5.0	15.0	0.0	-13.6	3.2
9	3.22	-1.7	3.22	169.63	0.0	0.0	5.0	15.0	0.0	-20.5	2.7
10	3.22	-1.6	3.22	192.36	0.0	0.0	5.0	15.0	0.0	-21.5	2.7
11	3.22	-1.6	3.22	220.15	0.0	0.0	5.0	15.0	0.0	-24.0	2.5
12	3.22	-1.6	3.22	248.59	0.0	0.0	5.0	15.0	0.0	-26.5	2.3
13	3.22	-1.6	3.22	277.02	0.0	0.0	5.0	15.0	0.0	-29.1	2.2
14	3.22	-1.7	3.22	305.63	0.0	0.0	5.0	15.0	0.0	-33.4	1.9
15	3.22	-1.6	3.22	334.24	0.0	0.0	5.0	15.0	0.0	-34.1	1.8
16	3.22	-1.6	3.22	362.25	0.0	0.0	5.0	15.0	0.0	-36.6	1.6
17	3.22	-1.6	3.22	390.13	0.0	0.0	5.0	15.0	0.0	-39.1	1.5
18	3.22	-1.6	3.22	418.02	0.0	0.0	5.0	15.0	0.0	-41.6	1.3
19	3.22	-1.7	3.22	446.07	0.0	0.0	5.0	15.0	0.0	-46.8	0.9
20	3.22	0.7	3.22	470.51	0.0	0.0	5.0	15.0	0.0	14.1	5.2
21	3.22	1.9	3.22	490.2	0.0	0.0	5.0	15.0	0.0	49.1	7.6
22	3.22	2.1	3.22	508.86	0.0	0.0	5.0	15.0	0.0	57.3	8.2
23	3.22	1.9	3.22	527.53	0.0	0.0	5.0	15.0	0.0	53.2	7.9
24	3.22	2.1	3.22	546.2	0.0	0.0	5.0	15.0	0.0	61.8	8.5
25	3.22	1.9	3.22	564.86	0.0	0.0	5.0	15.0	0.0	57.3	8.2
26	3.22	2.1	3.22	583.53	0.0	0.0	5.0	15.0	0.0	66.3	8.8
27	3.22	1.9	3.22	600.14	0.0	0.0	5.0	15.0	0.0	61.2	8.4
28	3.22	1.9	3.22	616.32	0.0	0.0	5.0	15.0	0.0	62.9	8.6
29	3.22	2.1	3.22	632.15	0.0	0.0	5.0	15.0	0.0	72.3	9.2
30	3.22	1.9	3.22	647.98	0.0	0.0	5.0	15.0	0.0	66.4	8.8
31	3.22	2.1	3.22	658.86	0.0	0.0	5.0	15.0	0.0	75.5	9.4
32	3.22	1.9	3.22	666.18	0.0	0.0	5.0	15.0	0.0	68.4	8.9
33	3.22	1.9	3.22	673.84	0.0	0.0	5.0	15.0	0.0	69.3	9.0
34	3.22	3.3	3.22	679.28	0.0	0.0	5.0	15.0	0.0	124.8	12.9
35	3.22	4.0	3.23	683.06	0.0	0.0	5.0	15.0	0.0	152.4	14.8
36	3.22	4.0	3.23	685.72	0.0	0.0	5.0	15.0	0.0	153.0	14.8
37	3.22	4.0	3.23	688.38	0.0	0.0	5.0	15.0	0.0	153.6	14.9
38	3.22	4.0	3.23	691.05	0.0	0.0	5.0	15.0	0.0	154.3	14.9
39	3.22	3.8	3.22	694.53	0.0	0.0	5.0	15.0	0.0	146.8	14.4
40	3.22	4.0	3.23	702.18	0.0	0.0	5.0	15.0	0.0	156.9	15.1
41	3.22	4.0	3.23	709.49	0.0	0.0	5.0	15.0	0.0	158.6	15.2
42	3.22	4.0	3.23	716.8	0.0	0.0	5.0	15.0	0.0	160.3	15.3
43	3.22	4.0	3.23	724.11	0.0	0.0	5.0	15.0	0.0	162.0	15.4
44	3.22	3.8	3.22	731.76	0.0	0.0	5.0	15.0	0.0	155.0	15.0
45	3.22	4.0	3.23	740.28	0.0	0.0	5.0	15.0	0.0	165.7	15.7
46	3.22	4.0	3.23	749.83	0.0	0.0	5.0	15.0	0.0	167.9	15.9
47	3.22	4.0	3.23	759.39	0.0	0.0	5.0	15.0	0.0	170.1	16.0
48	3.22	3.9	3.22	769.12	0.0	0.0	5.0	15.0	0.0	167.4	15.8
49	3.22	3.8	3.22	779.2	0.0	0.0	5.0	15.0	0.0	165.4	15.7
50	3.22	3.8	3.22	789.43	0.0	0.0	5.0	15.0	0.0	167.6	15.8
51	3.22	4.0	3.23	799.33	0.0	0.0	5.0	15.0	0.0	179.4	16.7
52	3.22	3.8	3.22	809.22	0.0	0.0	5.0	15.0	0.0	171.9	16.1
53	3.22	3.8	3.22	814.81	0.0	0.0	5.0	15.0	0.0	173.2	16.2
54	3.22	3.8	3.22	819.83	0.0	0.0	5.0	15.0	0.0	174.3	16.3
55	3.22	4.0	3.23	824.52	0.0	0.0	5.0	15.0	0.0	185.2	17.1
56	3.22	3.8	3.22	829.21	0.0	0.0	5.0	15.0	0.0	176.4	16.4
57	3.22	3.8	3.22	834.24	0.0	0.0	5.0	15.0	0.0	177.5	16.5
58	3.22	3.8	3.22	836.15	0.0	0.0	5.0	15.0	0.0	177.9	16.6
59	3.22	4.0	3.23	836.77	0.0	0.0	5.0	15.0	0.0	188.2	17.3
60	3.22	3.3	3.22	838.21	0.0	0.0	5.0	15.0	0.0	153.8	14.9

61	3.22	3.0	3.22	841.36	0.0	0.0	5.0	15.0	0.0	138.8	13.8
62	3.22	3.0	3.22	845.02	0.0	0.0	5.0	15.0	0.0	139.4	13.9
63	3.22	3.0	3.22	848.69	0.0	0.0	5.0	15.0	0.0	140.0	13.9
64	3.22	3.2	3.22	849.68	0.0	0.0	5.0	15.0	0.0	150.4	14.6
65	3.22	3.0	3.22	847.88	0.0	0.0	5.0	15.0	0.0	140.0	13.9
66	3.22	3.0	3.22	846.42	0.0	0.0	5.0	15.0	0.0	139.8	13.9
67	3.22	3.0	3.22	844.96	0.0	0.0	5.0	15.0	0.0	139.5	13.9
68	3.22	3.0	3.22	843.5	0.0	0.0	5.0	15.0	0.0	139.3	13.9
69	3.22	3.2	3.22	848.09	0.0	0.0	5.0	15.0	0.0	150.3	14.6
70	3.22	3.0	3.22	856.55	0.0	0.0	5.0	15.0	0.0	141.6	14.0
71	3.22	3.0	3.22	865.36	0.0	0.0	5.0	15.0	0.0	143.1	14.1
72	3.22	4.0	3.22	872.59	0.0	0.0	5.0	15.0	0.0	192.9	17.6
73	3.22	7.2	3.24	873.05	0.0	0.0	5.0	15.0	0.0	354.1	28.8
74	3.22	7.0	3.24	868.66	0.0	0.0	5.0	15.0	0.0	341.9	28.0
75	3.22	7.0	3.24	864.6	0.0	0.0	5.0	15.0	0.0	340.3	27.9
76	3.22	7.2	3.24	860.2	0.0	0.0	5.0	15.0	0.0	348.9	28.5
77	3.22	7.0	3.24	855.86	0.0	0.0	5.0	15.0	0.0	336.9	27.6
78	3.22	7.0	3.24	851.86	0.0	0.0	5.0	15.0	0.0	335.4	27.5
79	3.22	7.2	3.24	847.53	0.0	0.0	5.0	15.0	0.0	343.9	28.1
80	3.22	7.0	3.24	843.19	0.0	0.0	5.0	15.0	0.0	332.0	27.3
81	3.22	7.0	3.24	842.27	0.0	0.0	5.0	15.0	0.0	331.7	27.2
82	3.22	7.2	3.24	842.93	0.0	0.0	5.0	15.0	0.0	342.1	28.0
83	3.22	7.0	3.24	843.59	0.0	0.0	5.0	15.0	0.0	332.2	27.3
84	3.22	7.0	3.24	844.59	0.0	0.0	5.0	15.0	0.0	332.7	27.3
85	3.22	7.2	3.24	845.26	0.0	0.0	40.0	28.0	0.0	344.0	80.9
86	3.22	7.8	3.25	844.81	0.0	0.0	40.0	28.0	0.0	373.4	85.0
87	3.22	7.8	3.25	846.87	0.0	0.0	40.0	28.0	0.0	374.3	85.1
88	3.22	7.6	3.25	849.9	0.0	0.0	40.0	28.0	0.0	365.5	83.9
89	3.22	7.8	3.25	852.92	0.0	0.0	40.0	28.0	0.0	377.1	85.5
90	3.22	7.8	3.25	855.57	0.0	0.0	40.0	28.0	0.0	378.3	85.6
91	3.22	7.8	3.25	858.22	0.0	0.0	40.0	28.0	0.0	379.5	85.8
92	3.22	7.8	3.25	860.87	0.0	0.0	40.0	28.0	0.0	380.7	86.0
93	3.22	7.8	3.25	863.14	0.0	0.0	40.0	28.0	0.0	381.7	86.1
94	3.22	7.8	3.25	865.19	0.0	0.0	40.0	28.0	0.0	382.7	86.2
95	3.22	7.8	3.25	867.23	0.0	0.0	40.0	28.0	0.0	383.6	86.4
96	3.22	7.8	3.25	866.55	0.0	0.0	40.0	28.0	0.0	383.3	86.3
97	3.22	7.8	3.25	860.2	0.0	0.0	40.0	28.0	0.0	380.6	85.9
98	3.22	7.8	3.25	853.86	0.0	0.0	40.0	28.0	0.0	377.8	85.6
99	3.22	7.6	3.25	847.89	0.0	0.0	40.0	28.0	0.0	365.0	83.8
100	3.22	7.8	3.25	841.93	0.0	0.0	40.0	28.0	0.0	372.5	84.8
101	3.22	7.8	3.25	832.32	0.0	0.0	40.0	28.0	0.0	368.3	84.3
102	3.22	7.8	3.25	822.28	0.0	0.0	40.0	28.0	0.0	363.9	83.6
103	3.22	7.8	3.25	812.24	0.0	0.0	40.0	28.0	0.0	359.4	83.0
104	3.22	7.9	3.25	802.0	0.0	0.0	40.0	28.0	0.0	360.2	83.1
105	3.22	8.6	3.25	790.26	0.0	0.0	40.0	28.0	0.0	387.7	86.9
106	3.22	8.8	3.26	776.83	0.0	0.0	40.0	28.0	0.0	390.4	87.3
107	3.22	8.6	3.25	765.26	0.0	0.0	40.0	28.0	0.0	375.4	85.2
108	3.22	8.8	3.26	761.17	0.0	0.0	40.0	28.0	0.0	382.6	86.2
109	3.22	8.6	3.25	757.08	0.0	0.0	40.0	28.0	0.0	371.5	84.7
110	3.22	8.8	3.26	756.2	0.0	0.0	40.0	28.0	0.0	380.1	85.9
111	3.22	8.6	3.25	756.88	0.0	0.0	40.0	28.0	0.0	371.4	84.7
112	3.22	8.8	3.26	757.56	0.0	0.0	40.0	28.0	0.0	380.9	86.0
113	3.22	8.6	3.25	760.28	0.0	0.0	40.0	28.0	0.0	373.2	84.9
114	3.22	8.8	3.26	764.71	0.0	0.0	40.0	28.0	0.0	384.5	86.5
115	3.22	8.6	3.25	769.14	0.0	0.0	40.0	28.0	0.0	377.6	85.5
116	3.22	8.8	3.26	773.57	0.0	0.0	40.0	28.0	0.0	389.1	87.1
117	3.22	8.6	3.25	777.99	0.0	0.0	40.0	28.0	0.0	382.0	86.1
118	3.22	8.8	3.26	781.41	0.0	0.0	40.0	28.0	0.0	393.1	87.7
119	3.22	8.7	3.25	784.54	0.0	0.0	40.0	28.0	0.0	386.0	86.7

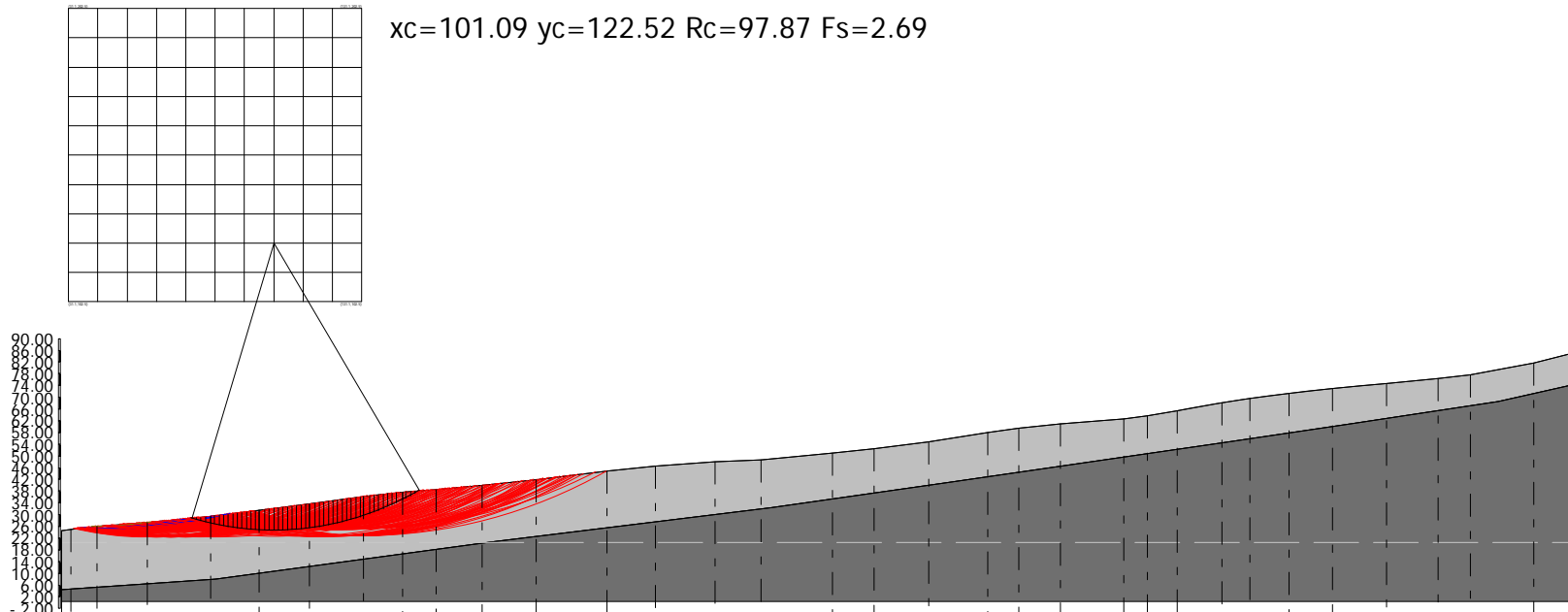
120	3.22	8.8	3.26	787.66	0.0	0.0	40.0	28.0	0.0	396.3	88.1
121	3.22	8.8	3.26	783.36	0.0	0.0	40.0	28.0	0.0	394.2	87.8
122	3.22	8.8	3.26	777.5	0.0	0.0	40.0	28.0	0.0	391.2	87.4
123	3.22	8.8	3.26	771.64	0.0	0.0	40.0	28.0	0.0	388.3	87.0
124	3.22	8.8	3.26	765.78	0.0	0.0	40.0	28.0	0.0	385.4	86.6
125	3.22	8.6	3.25	758.37	0.0	0.0	40.0	28.0	0.0	372.6	84.8
126	3.22	8.8	3.26	750.28	0.0	0.0	5.0	15.0	0.0	377.6	30.4
127	3.22	8.8	3.26	741.86	0.0	0.0	5.0	15.0	0.0	373.4	30.2
128	3.22	8.8	3.26	733.44	0.0	0.0	5.0	15.0	0.0	369.2	29.9
129	3.22	8.8	3.26	724.66	0.0	0.0	5.0	15.0	0.0	364.8	29.6
130	3.22	8.6	3.25	713.08	0.0	0.0	5.0	15.0	0.0	350.4	28.6
131	3.22	11.9	3.29	696.41	0.0	0.0	5.0	15.0	0.0	476.0	37.3
132	3.22	12.9	3.3	672.64	0.0	0.0	5.0	15.0	0.0	500.2	39.0
133	3.22	13.1	3.3	646.84	0.0	0.0	5.0	15.0	0.0	488.8	38.2
134	3.22	12.9	3.3	621.03	0.0	0.0	5.0	15.0	0.0	461.8	36.3
135	3.22	13.1	3.3	596.14	0.0	0.0	5.0	15.0	0.0	450.5	35.5
136	3.22	13.1	3.3	572.64	0.0	0.0	5.0	15.0	0.0	432.7	34.3
137	3.22	12.9	3.3	549.47	0.0	0.0	5.0	15.0	0.0	408.6	32.6
138	3.22	13.1	3.3	526.3	0.0	0.0	5.0	15.0	0.0	397.7	31.8
139	3.22	12.9	3.3	503.13	0.0	0.0	5.0	15.0	0.0	374.2	30.2
140	3.22	13.1	3.3	479.96	0.0	0.0	5.0	15.0	0.0	362.8	29.4
141	3.22	13.1	3.3	457.67	0.0	0.0	5.0	15.0	0.0	345.9	28.2
142	3.22	16.8	3.36	429.2	0.0	0.0	5.0	15.0	0.0	420.0	33.4
143	3.22	20.7	3.44	387.53	0.0	0.0	5.0	15.0	0.0	474.4	37.2
144	3.22	20.9	3.44	344.47	0.0	0.0	5.0	15.0	0.0	425.8	33.8
145	3.22	20.9	3.44	307.81	0.0	0.0	5.0	15.0	0.0	380.5	30.6
146	3.22	20.9	3.44	271.15	0.0	0.0	5.0	15.0	0.0	335.2	27.5
147	3.22	20.9	3.44	234.48	0.0	0.0	5.0	15.0	0.0	289.9	24.3
148	3.22	20.9	3.44	197.82	0.0	0.0	5.0	15.0	0.0	244.6	21.2
149	3.22	31.5	3.77	139.98	0.0	0.0	5.0	15.0	0.0	278.2	23.5
150	3.22	36.9	4.02	48.51	0.0	0.0	5.0	15.0	0.0	117.9	12.4

Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici superficie Nr...1	2
5.Coefficienti parziali azioni	3
6.Coefficienti parziali per i parametri geotecnici del terreno	3
7.Stratigrafia	3
Indice	7

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE DA 0 A 100 m
 IN CONDIZIONI STATICHE

$x_c=101.09$ $y_c=122.52$ $R_c=97.87$ $F_s=2.69$



- Strato...1
 $g=1.80t/m^3$
 $F_i=15^\circ$
 $c=5$ kN/m²
- Strato...2
 $g=2.0t/m^3$
 $F_i=28^\circ$
 $c=40$ kN/m²

Quote	9.09	24.66	25.92	27.26	29.32	31.43	33.57	36.10	37.72	38.58	39.93	41.96	44.92	46.47	47.93	48.61	51.05	52.48	54.85	57.88	59.44	60.89	62.63	63.71	65.30	68.05	69.68	71.33	72.95	74.63	76.46	77.70	81.63	85.15
Distanze Parziali	9.09	8.88	17.13	21.57	16.49	17.13	18.40	13.32	11.42	15.86	18.40	24.11	16.49	20.30	15.55	24.34	14.29	18.52	20.11	10.57	14.29	21.51	8.12	10.06	15.34	9.52	13.23	14.82	18.52	17.46	11.11	21.69	13.23	
Distanze Progressive	9.09	12.05	29.18	50.75	67.25	84.37	102.77	116.09	127.51	143.37	161.77	185.88	202.37	222.67	238.22	262.56	276.85	295.36	315.47	326.04	340.34	361.84	369.97	380.03	395.37	404.89	418.12	432.93	451.45	468.91	480.02	501.72	514.94	

Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2018
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	31.09 m
Ordinata vertice sinistro inferiore yi	102.52 m
Ascissa vertice destro superiore xs	131.09 m
Ordinata vertice destro superiore ys	202.52 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	28.79	24.46
2	31.96	25.03
3	40.84	25.92
4	57.97	27.26
5	79.54	29.32
6	96.03	31.43
7	113.16	33.57
8	131.56	36.1
9	144.88	37.72
10	156.3	38.58
11	172.16	39.93
12	190.56	41.96
13	214.66	44.92
14	231.16	46.47
15	251.46	47.93
16	267.01	48.61
17	291.35	51.05
18	305.63	52.48
19	324.15	54.85
20	344.26	57.88
21	354.83	59.44
22	369.12	60.89
23	390.63	62.63
24	398.76	63.71
25	408.81	65.3
26	424.15	68.05
27	433.68	69.68
28	446.9	71.33
29	461.72	72.95
30	480.24	74.63
31	497.7	76.46

32	508.81	77.7
33	530.5	81.63
34	543.73	85.15

Vertici strato1

N	X (m)	y (m)
1	28.79	4.46
2	81.35	7.97
3	175.47	20.67
4	270.51	32.26
5	329.89	40.87
6	424.93	54.65
7	467.98	61.0
8	518.41	68.45
9	543.73	74.19

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.80		
2	40		28	2.0		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.69
Ascissa centro superficie	101.09 m
Ordinata centro superficie	122.52 m
Raggio superficie	97.87 m

Numero di superfici esaminate....(193)

N°	Xo	Yo	Ro	Fs
1	41.1	102.5	77.5	7.86
2	46.1	107.5	83.2	5.42
3	51.1	102.5	79.4	4.44
4	56.1	107.5	85.2	3.91
5	61.1	102.5	80.1	3.70
6	66.1	107.5	85.1	3.43
7	71.1	102.5	80.1	3.26

8	76.1	107.5	83.1	3.21
9	81.1	102.5	78.1	3.07
10	86.1	107.5	83.0	2.92
11	91.1	102.5	78.0	2.83
12	96.1	107.5	82.9	2.74
13	101.1	102.5	77.9	2.71
14	106.1	107.5	82.8	2.70
15	111.1	102.5	77.8	2.74
16	116.1	107.5	82.7	2.81
17	121.1	102.5	77.7	2.90
18	126.1	107.5	82.6	2.99
19	131.1	102.5	77.4	3.10
20	46.1	117.5	91.4	13.51
21	51.1	112.5	89.1	4.47
22	56.1	117.5	93.2	4.43
23	61.1	112.5	90.1	3.62
24	66.1	117.5	95.1	3.37
25	71.1	112.5	88.1	3.39
26	76.1	117.5	93.1	3.17
27	81.1	112.5	88.0	3.03
28	86.1	117.5	93.0	2.88
29	91.1	112.5	88.0	2.80
30	96.1	117.5	92.9	2.72
31	101.1	112.5	90.0	2.69
32	106.1	117.5	92.8	2.70
33	111.1	112.5	87.8	2.75
34	116.1	117.5	92.7	2.82
35	121.1	112.5	87.7	2.90
36	126.1	117.5	92.5	2.98
37	131.1	112.5	89.7	3.06
38	41.1	122.5	97.3	8.34
39	46.1	127.5	102.9	5.58
40	51.1	122.5	98.8	4.49
41	56.1	127.5	102.9	4.48
42	61.1	122.5	100.1	3.55
43	66.1	127.5	105.1	3.32
44	71.1	122.5	98.1	3.34
45	76.1	127.5	103.1	3.13
46	81.1	122.5	98.0	2.99
47	86.1	127.5	103.0	2.85
48	91.1	122.5	98.0	2.78
49	96.1	127.5	102.9	2.71
50	101.1	122.5	97.9	2.69
51	106.1	127.5	102.8	2.71
52	111.1	122.5	97.8	2.76
53	116.1	127.5	102.7	2.83
54	121.1	122.5	99.9	2.90
55	126.1	127.5	102.5	2.98
56	131.1	122.5	99.7	3.03
57	46.1	137.5	112.8	5.64
58	51.1	132.5	108.6	4.50
59	56.1	137.5	114.5	3.80
60	61.1	132.5	110.1	3.49
61	66.1	137.5	115.1	3.28
62	71.1	132.5	108.1	3.30
63	76.1	137.5	113.1	3.09
64	81.1	132.5	108.0	2.96
65	86.1	137.5	113.0	2.83
66	91.1	132.5	108.0	2.76

67	96.1	137.5	112.9	2.70
68	101.1	132.5	107.9	2.69
69	106.1	137.5	112.8	2.72
70	111.1	132.5	107.8	2.77
71	116.1	137.5	114.9	2.83
72	121.1	132.5	107.6	2.90
73	126.1	137.5	114.8	2.94
74	131.1	132.5	109.7	3.00
75	41.1	142.5	117.2	8.53
76	51.1	142.5	118.5	4.49
77	56.1	147.5	122.5	4.55
78	61.1	142.5	120.1	3.43
79	66.1	147.5	125.1	3.23
80	71.1	142.5	118.1	3.26
81	76.1	147.5	123.1	3.06
82	81.1	142.5	118.0	2.93
83	86.1	147.5	123.0	2.81
84	91.1	142.5	118.0	2.74
85	96.1	147.5	122.9	2.70
86	101.1	142.5	117.9	2.70
87	106.1	147.5	122.8	2.74
88	111.1	142.5	117.8	2.78
89	116.1	147.5	122.7	2.85
90	121.1	142.5	117.6	2.91
91	126.1	147.5	124.8	2.92
92	131.1	142.5	117.3	3.02
93	46.1	157.5	132.6	5.71
94	51.1	152.5	128.3	4.48
95	56.1	157.5	134.1	3.77
96	61.1	152.5	130.1	3.38
97	66.1	157.5	135.1	3.19
98	71.1	152.5	130.1	3.06
99	76.1	157.5	133.1	3.03
100	81.1	152.5	128.0	2.90
101	86.1	157.5	133.0	2.79
102	91.1	152.5	128.0	2.73
103	96.1	157.5	132.9	2.71
104	101.1	152.5	127.9	2.71
105	106.1	157.5	132.8	2.75
106	111.1	152.5	129.9	2.79
107	116.1	157.5	134.9	2.83
108	121.1	152.5	129.8	2.87
109	126.1	157.5	134.7	2.91
110	131.1	152.5	127.3	3.00
111	41.1	162.5	137.1	8.50
112	51.1	162.5	138.2	4.46
113	56.1	167.5	143.9	3.75
114	61.1	162.5	139.9	3.37
115	66.1	167.5	145.1	3.15
116	71.1	162.5	140.1	3.02
117	76.1	167.5	145.1	2.89
118	81.1	162.5	138.0	2.88
119	86.1	167.5	143.0	2.78
120	91.1	162.5	138.0	2.73
121	96.1	167.5	142.9	2.72
122	101.1	162.5	137.9	2.73
123	106.1	167.5	142.8	2.76
124	111.1	162.5	137.8	2.80
125	116.1	167.5	144.9	2.83

126	121.1	162.5	139.8	2.87
127	126.1	167.5	144.7	2.90
128	131.1	162.5	139.6	2.93
129	41.1	172.5	147.1	8.42
130	51.1	172.5	146.4	6.95
131	56.1	177.5	153.7	3.73
132	61.1	172.5	149.7	3.35
133	66.1	177.5	155.1	3.12
134	71.1	172.5	150.1	2.99
135	76.1	177.5	153.1	2.97
136	81.1	172.5	148.0	2.86
137	86.1	177.5	153.0	2.77
138	91.1	172.5	147.9	2.73
139	96.1	177.5	152.9	2.73
140	101.1	172.5	147.9	2.74
141	106.1	177.5	152.8	2.78
142	111.1	172.5	147.8	2.81
143	116.1	177.5	154.9	2.83
144	121.1	172.5	147.5	2.90
145	126.1	177.5	152.4	2.93
146	131.1	172.5	147.2	2.97
147	41.1	182.5	157.1	8.33
148	46.1	187.5	162.4	5.67
149	51.1	182.5	156.4	7.00
150	56.1	187.5	161.9	4.56
151	61.1	182.5	159.5	3.33
152	66.1	187.5	165.1	3.08
153	71.1	182.5	158.1	3.11
154	76.1	187.5	163.1	2.94
155	81.1	182.5	158.0	2.84
156	86.1	187.5	163.0	2.77
157	91.1	182.5	157.9	2.74
158	96.1	187.5	162.9	2.74
159	101.1	182.5	157.9	2.75
160	106.1	187.5	162.8	2.79
161	111.1	182.5	157.8	2.82
162	116.1	187.5	164.9	2.83
163	121.1	182.5	157.5	2.90
164	126.1	187.5	164.7	2.87
165	131.1	182.5	157.2	2.95
166	36.1	197.5	171.8	19.55
167	46.1	197.5	172.4	5.61
168	51.1	192.5	167.9	4.35
169	56.1	197.5	171.8	4.54
170	61.1	192.5	167.5	3.70
171	66.1	197.5	175.1	3.05
172	71.1	192.5	168.1	3.08
173	76.1	197.5	173.1	2.92
174	81.1	192.5	168.0	2.83
175	86.1	197.5	173.0	2.77
176	91.1	192.5	167.9	2.75
177	96.1	197.5	172.9	2.76
178	101.1	192.5	167.9	2.77
179	106.1	197.5	172.8	2.80
180	111.1	192.5	167.8	2.83
181	116.1	197.5	174.9	2.82
182	121.1	192.5	169.8	2.84
183	126.1	197.5	172.3	2.92
184	131.1	192.5	169.6	2.87

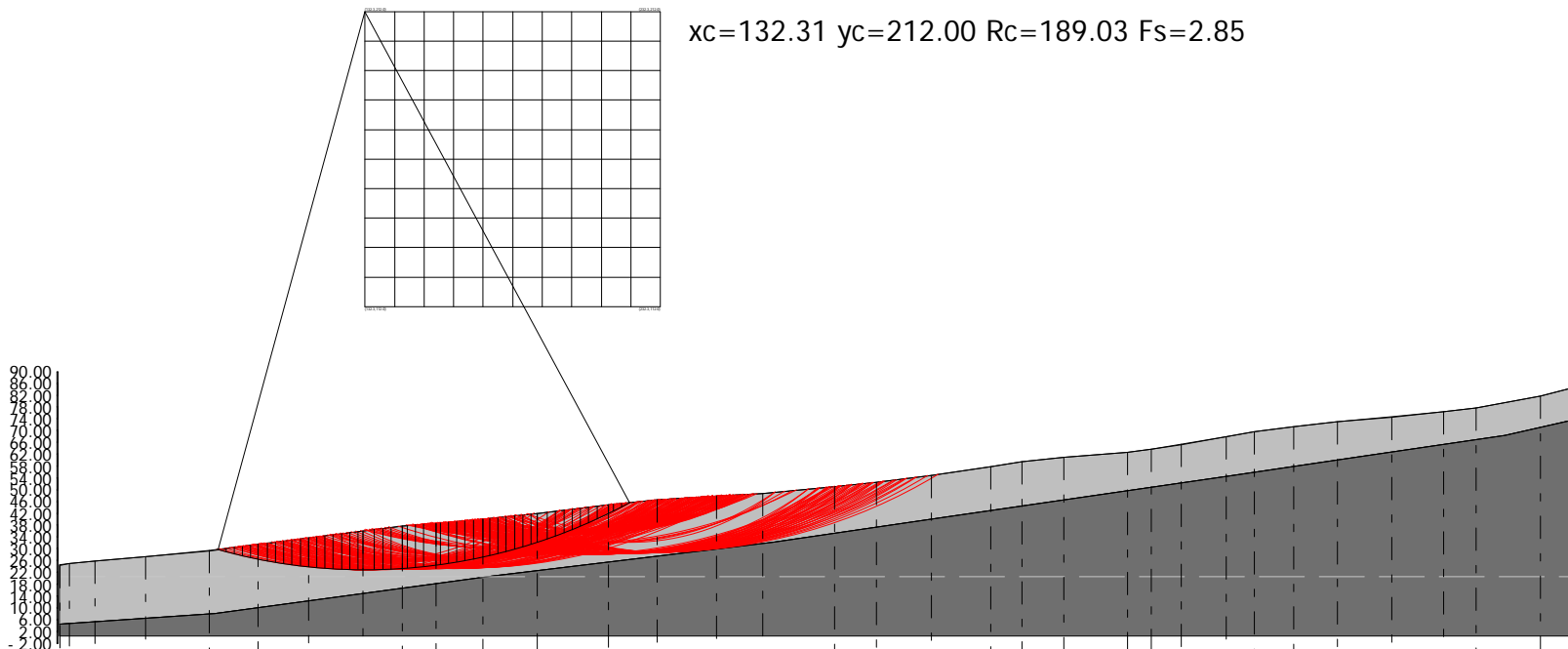
185	51.1	202.5	177.8	4.31
186	61.1	202.5	177.3	3.69
187	71.1	202.5	180.1	2.92
188	81.1	202.5	180.0	2.78
189	91.1	202.5	177.9	2.76
190	101.1	202.5	177.9	2.78
191	111.1	202.5	177.8	2.83
192	121.1	202.5	177.5	2.89
193	131.1	202.5	177.1	2.93

Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	2
7.Risultati analisi pendio [A2+M2+R2]	2
Indice	7

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE DA 100 A 200 m
 IN CONDIZIONI STATICHE

$x_c=132.31$ $y_c=212.00$ $R_c=189.03$ $F_s=2.85$



- Strato...1
 $g=1.80t/m^3$
 $F_i=15^\circ$
 $c=5$ kN/m²
- Strato...2
 $g=2.0t/m^3$
 $F_i=28^\circ$
 $c=40$ kN/m²

Quote	9.99	24.66	25.92	27.26	29.32	31.43	33.57	36.10	37.72	38.58	39.93	41.96	44.92	46.47	47.93	48.61	51.05	52.48	54.85	57.88	59.44	60.89	62.63	63.71	65.30	68.05	69.68	71.33	72.95	74.63	76.46	77.70	81.63	85.15
Distanze Parziali	9.99	3.77	8.88	17.13	21.57	16.49	17.13	18.40	13.32	11.42	15.86	18.40	24.11	16.49	20.30	15.55	24.34	14.29	18.52	20.11	10.57	14.29	21.51	8.12	10.06	15.34	9.52	13.23	14.82	18.52	17.46	11.11	21.69	13.23
Distanze Progressive	9.99	12.05	29.18	50.75	67.25	84.37	102.77	116.09	127.51	143.37	161.77	185.88	202.37	222.67	238.22	262.56	276.85	295.36	315.47	326.04	340.34	361.84	369.97	380.03	395.37	404.89	418.12	432.93	451.45	468.91	480.02	501.72	514.94	

Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2018
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	132.31 m
Ordinata vertice sinistro inferiore yi	112.0 m
Ascissa vertice destro superiore xs	232.31 m
Ordinata vertice destro superiore ys	212.0 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	28.79	24.46
2	31.96	25.03
3	40.84	25.92
4	57.97	27.26
5	79.54	29.32
6	96.03	31.43
7	113.16	33.57
8	131.56	36.1
9	144.88	37.72
10	156.3	38.58
11	172.16	39.93
12	190.56	41.96
13	214.66	44.92
14	231.16	46.47
15	251.46	47.93
16	267.01	48.61
17	291.35	51.05
18	305.63	52.48
19	324.15	54.85
20	344.26	57.88
21	354.83	59.44
22	369.12	60.89
23	390.63	62.63
24	398.76	63.71
25	408.81	65.3
26	424.15	68.05
27	433.68	69.68
28	446.9	71.33
29	461.72	72.95
30	480.24	74.63
31	497.7	76.46

32	508.81	77.7
33	530.5	81.63
34	543.73	85.15

Vertici strato1

N	X (m)	y (m)
1	28.79	4.46
2	81.35	7.97
3	175.47	20.67
4	270.51	32.26
5	329.89	40.87
6	424.93	54.65
7	467.98	61.0
8	518.41	68.45
9	543.73	74.19

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.80		
2	40		28	2.0		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.85
Ascissa centro superficie	132.31 m
Ordinata centro superficie	212.0 m
Raggio superficie	189.03 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	132.3	112.0	89.2	3.08
2	137.3	117.0	91.6	3.15
3	142.3	112.0	89.0	3.19
4	147.3	117.0	91.3	3.26
5	152.3	112.0	86.1	3.32
6	157.3	117.0	93.7	3.23
7	162.3	112.0	85.8	3.33

8	167.3	117.0	93.6	3.26
9	172.3	112.0	85.4	3.29
10	177.3	117.0	83.9	3.22
11	182.3	112.0	78.6	3.15
12	187.3	117.0	83.2	3.11
13	192.3	112.0	77.9	3.10
14	197.3	117.0	82.5	3.14
15	202.3	112.0	77.2	3.22
16	207.3	117.0	81.8	3.33
17	212.3	112.0	76.5	3.47
18	217.3	117.0	81.1	3.65
19	222.3	112.0	79.7	3.88
20	227.3	117.0	88.5	3.97
21	232.3	112.0	83.3	4.14
22	132.3	122.0	96.8	3.07
23	137.3	127.0	104.1	3.07
24	142.3	122.0	99.0	3.13
25	147.3	127.0	103.9	3.13
26	152.3	122.0	98.8	3.18
27	157.3	127.0	100.9	3.22
28	162.3	122.0	98.6	3.21
29	167.3	127.0	103.5	3.20
30	172.3	122.0	95.4	3.24
31	177.3	127.0	97.0	3.19
32	182.3	122.0	88.5	3.14
33	187.3	127.0	93.1	3.10
34	192.3	122.0	87.8	3.11
35	197.3	127.0	92.4	3.15
36	202.3	122.0	87.1	3.23
37	207.3	127.0	91.7	3.34
38	212.3	122.0	86.4	3.47
39	217.3	127.0	94.9	3.67
40	222.3	122.0	93.6	3.81
41	227.3	127.0	98.4	3.88
42	232.3	122.0	93.3	4.02
43	132.3	132.0	109.2	3.01
44	137.3	137.0	114.1	3.03
45	142.3	132.0	106.4	3.14
46	147.3	137.0	113.9	3.08
47	152.3	132.0	108.8	3.12
48	157.3	137.0	110.9	3.16
49	162.3	132.0	108.6	3.16
50	167.3	137.0	110.5	3.17
51	172.3	132.0	105.4	3.19
52	177.3	137.0	107.0	3.17
53	182.3	132.0	98.5	3.13
54	187.3	137.0	103.1	3.11
55	192.3	132.0	97.8	3.12
56	197.3	137.0	102.4	3.17
57	202.3	132.0	97.0	3.24
58	207.3	137.0	101.7	3.36
59	212.3	132.0	96.3	3.49
60	217.3	137.0	108.8	3.64
61	222.3	132.0	103.6	3.75
62	227.3	137.0	108.4	3.81
63	232.3	132.0	103.2	3.92
64	132.3	142.0	119.1	2.99
65	137.3	147.0	121.5	3.06
66	142.3	142.0	116.4	3.10

67	147.3	147.0	123.9	3.03
68	152.3	142.0	116.0	3.13
69	157.3	147.0	123.7	3.07
70	162.3	142.0	118.6	3.11
71	167.3	147.0	123.5	3.13
72	172.3	142.0	115.3	3.17
73	177.3	147.0	116.9	3.16
74	182.3	142.0	108.4	3.13
75	187.3	147.0	113.0	3.12
76	192.3	142.0	107.7	3.13
77	197.3	147.0	112.3	3.19
78	202.3	142.0	107.0	3.25
79	207.3	147.0	111.6	3.38
80	212.3	142.0	106.3	3.52
81	217.3	147.0	118.7	3.61
82	222.3	142.0	113.6	3.70
83	227.3	147.0	118.4	3.75
84	232.3	142.0	113.2	3.84
85	132.3	152.0	129.1	2.96
86	137.3	157.0	134.0	2.97
87	142.3	152.0	128.9	3.00
88	147.3	157.0	133.8	3.00
89	152.3	152.0	128.8	3.03
90	157.3	157.0	133.7	3.04
91	162.3	152.0	128.6	3.08
92	167.3	157.0	133.5	3.10
93	172.3	152.0	125.3	3.15
94	177.3	157.0	126.9	3.16
95	182.3	152.0	118.3	3.14
96	187.3	157.0	122.9	3.13
97	192.3	152.0	117.6	3.15
98	197.3	157.0	122.2	3.20
99	202.3	152.0	116.9	3.27
100	207.3	157.0	121.5	3.40
101	212.3	152.0	120.0	3.52
102	217.3	157.0	128.7	3.58
103	222.3	152.0	123.5	3.66
104	227.3	157.0	128.3	3.70
105	232.3	152.0	123.2	3.78
106	132.3	162.0	139.1	2.94
107	137.3	167.0	141.5	3.01
108	142.3	162.0	138.9	2.97
109	147.3	167.0	141.1	3.03
110	152.3	162.0	136.0	3.05
111	157.3	167.0	140.8	3.06
112	162.3	162.0	135.6	3.09
113	167.3	167.0	143.5	3.09
114	172.3	162.0	135.3	3.13
115	177.3	167.0	136.8	3.15
116	182.3	162.0	128.3	3.14
117	187.3	167.0	132.9	3.15
118	192.3	162.0	127.6	3.17
119	197.3	167.0	132.2	3.23
120	202.3	162.0	126.9	3.30
121	207.3	167.0	131.5	3.43
122	212.3	162.0	133.8	3.51
123	217.3	167.0	138.7	3.55
124	222.3	162.0	133.5	3.62
125	227.3	167.0	138.3	3.65

126	232.3	162.0	133.1	3.72
127	132.3	172.0	146.6	2.98
128	137.3	177.0	154.0	2.92
129	142.3	172.0	148.9	2.95
130	147.3	177.0	153.8	2.95
131	152.3	172.0	148.7	2.98
132	157.3	177.0	153.6	3.00
133	162.3	172.0	148.6	3.04
134	167.3	177.0	153.5	3.08
135	172.3	172.0	145.2	3.12
136	177.3	177.0	146.8	3.15
137	182.3	172.0	138.2	3.15
138	187.3	177.0	142.8	3.17
139	192.3	172.0	137.5	3.18
140	197.3	177.0	142.1	3.25
141	202.3	172.0	136.8	3.32
142	207.3	177.0	145.2	3.44
143	212.3	172.0	143.8	3.50
144	217.3	177.0	148.6	3.53
145	222.3	172.0	143.5	3.59
146	227.3	177.0	148.3	3.61
147	232.3	172.0	143.1	3.66
148	132.3	182.0	159.1	2.90
149	137.3	187.0	164.0	2.90
150	142.3	182.0	158.9	2.92
151	147.3	187.0	161.1	2.98
152	152.3	182.0	155.9	3.01
153	157.3	187.0	160.7	3.02
154	162.3	182.0	155.5	3.05
155	167.3	187.0	160.4	3.08
156	172.3	182.0	155.2	3.12
157	177.3	187.0	156.7	3.16
158	182.3	182.0	148.1	3.17
159	187.3	187.0	152.8	3.18
160	192.3	182.0	147.4	3.20
161	197.3	187.0	152.1	3.28
162	202.3	182.0	146.7	3.35
163	207.3	187.0	158.9	3.44
164	212.3	182.0	153.8	3.48
165	217.3	187.0	158.6	3.51
166	222.3	182.0	153.4	3.56
167	227.3	187.0	158.2	3.57
168	232.3	182.0	153.1	3.61
169	132.3	192.0	166.6	2.94
170	137.3	197.0	171.4	2.95
171	142.3	192.0	166.2	2.96
172	147.3	197.0	173.8	2.92
173	152.3	192.0	165.9	2.99
174	157.3	197.0	173.6	2.98
175	162.3	192.0	165.5	3.04
176	167.3	197.0	173.4	3.06
177	172.3	192.0	165.2	3.11
178	177.3	197.0	166.7	3.16
179	182.3	192.0	158.1	3.18
180	187.3	197.0	162.7	3.20
181	192.3	192.0	157.4	3.22
182	197.3	197.0	162.0	3.30
183	202.3	192.0	156.7	3.38
184	207.3	197.0	168.9	3.43

185	212.3	192.0	163.8	3.47
186	217.3	197.0	168.6	3.49
187	222.3	192.0	163.4	3.53
188	227.3	197.0	168.2	3.53
189	232.3	192.0	163.1	3.56
190	132.3	202.0	179.0	2.86
191	137.3	207.0	183.9	2.87
192	142.3	202.0	178.9	2.90
193	147.3	207.0	183.8	2.91
194	152.3	202.0	178.7	2.94
195	157.3	207.0	180.6	3.00
196	162.3	202.0	178.5	3.02
197	167.3	207.0	180.3	3.07
198	172.3	202.0	175.1	3.11
199	177.3	207.0	176.6	3.17
200	182.3	202.0	168.0	3.20
201	187.3	207.0	172.6	3.22
202	192.3	202.0	167.3	3.25
203	197.3	207.0	171.9	3.33
204	202.3	202.0	170.3	3.40
205	207.3	207.0	178.9	3.43
206	212.3	202.0	173.7	3.45
207	217.3	207.0	178.5	3.47
208	222.3	202.0	173.4	3.50
209	227.3	207.0	178.2	3.50
210	232.3	202.0	173.0	3.52
211	132.3	212.0	189.0	2.85
212	142.3	212.0	188.9	2.88
213	152.3	212.0	185.8	2.97
214	162.3	212.0	185.5	3.03
215	172.3	212.0	185.1	3.12
216	182.3	212.0	181.4	3.21
217	192.3	212.0	177.3	3.27
218	202.3	212.0	184.0	3.40
219	212.3	212.0	183.7	3.44
220	222.3	212.0	183.3	3.48
221	232.3	212.0	183.0	3.48

Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	2
7.Risultati analisi pendio [A2+M2+R2]	2
Indice	7

Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2018
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	232.19 m
Ordinata vertice sinistro inferiore yi	130.78 m
Ascissa vertice destro superiore xs	332.19 m
Ordinata vertice destro superiore ys	230.78 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	28.79	24.46
2	31.96	25.03
3	40.84	25.92
4	57.97	27.26
5	79.54	29.32
6	96.03	31.43
7	113.16	33.57
8	131.56	36.1
9	144.88	37.72
10	156.3	38.58
11	172.16	39.93
12	190.56	41.96
13	214.66	44.92
14	231.16	46.47
15	251.46	47.93
16	267.01	48.61
17	291.35	51.05
18	305.63	52.48
19	324.15	54.85
20	344.26	57.88
21	354.83	59.44
22	369.12	60.89
23	390.63	62.63
24	398.76	63.71
25	408.81	65.3
26	424.15	68.05
27	433.68	69.68
28	446.9	71.33
29	461.72	72.95
30	480.24	74.63
31	497.7	76.46

32	508.81	77.7
33	530.5	81.63
34	543.73	85.15

Vertici strato1

N	X (m)	y (m)
1	28.79	4.46
2	81.35	7.97
3	175.47	20.67
4	270.51	32.26
5	329.89	40.87
6	424.93	54.65
7	467.98	61.0
8	518.41	68.45
9	543.73	74.19

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.80		
2	40		28	2.0		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.56
Ascissa centro superficie	322.19 m
Ordinata centro superficie	130.78 m
Raggio superficie	81.65 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	232.2	130.8	102.0	3.93
2	237.2	135.8	102.6	4.10
3	242.2	130.8	97.3	4.21
4	247.2	135.8	102.1	4.19
5	252.2	130.8	96.8	4.23
6	257.2	135.8	101.5	4.10
7	262.2	130.8	96.3	4.05

8	267.2	135.8	101.0	3.85
9	272.2	130.8	95.8	3.74
10	277.2	135.8	100.5	3.51
11	282.2	130.8	95.2	3.38
12	287.2	135.8	99.9	3.17
13	292.2	130.8	89.5	3.02
14	297.2	135.8	94.1	2.85
15	302.2	130.8	88.8	2.77
16	307.2	135.8	93.4	2.67
17	312.2	130.8	88.1	2.63
18	317.2	135.8	92.7	2.59
19	322.2	130.8	81.7	2.56
20	327.2	135.8	86.2	2.56
21	332.2	130.8	80.8	2.59
22	232.2	140.8	112.0	3.85
23	237.2	145.8	112.5	4.01
24	242.2	140.8	107.3	4.11
25	247.2	145.8	112.0	4.08
26	252.2	140.8	106.8	4.11
27	257.2	145.8	111.5	3.99
28	262.2	140.8	106.2	3.93
29	267.2	145.8	111.0	3.74
30	272.2	140.8	105.7	3.63
31	277.2	145.8	110.4	3.42
32	282.2	140.8	105.2	3.29
33	287.2	145.8	109.9	3.10
34	292.2	140.8	99.4	2.97
35	297.2	145.8	104.1	2.80
36	302.2	140.8	98.7	2.72
37	307.2	145.8	103.3	2.65
38	312.2	140.8	98.0	2.61
39	317.2	145.8	102.6	2.59
40	322.2	140.8	91.6	2.56
41	327.2	145.8	96.1	2.58
42	332.2	140.8	90.7	2.61
43	232.2	150.8	122.0	3.78
44	237.2	155.8	122.5	3.94
45	242.2	150.8	117.3	4.02
46	247.2	155.8	122.0	3.99
47	252.2	150.8	116.7	4.00
48	257.2	155.8	121.4	3.89
49	262.2	150.8	116.2	3.83
50	267.2	155.8	120.9	3.64
51	272.2	150.8	115.7	3.54
52	277.2	155.8	120.4	3.34
53	282.2	150.8	115.1	3.22
54	287.2	155.8	114.7	3.06
55	292.2	150.8	109.4	2.92
56	297.2	155.8	114.0	2.77
57	302.2	150.8	108.7	2.69
58	307.2	155.8	113.3	2.63
59	312.2	150.8	108.0	2.60
60	317.2	155.8	106.9	2.59
61	322.2	150.8	101.5	2.57
62	327.2	155.8	106.0	2.59
63	332.2	150.8	100.6	2.64
64	232.2	160.8	131.9	3.72
65	237.2	165.8	132.4	3.88
66	242.2	160.8	127.2	3.94

67	247.2	165.8	131.9	3.90
68	252.2	160.8	126.7	3.91
69	257.2	165.8	131.4	3.79
70	262.2	160.8	126.1	3.73
71	267.2	165.8	130.9	3.56
72	272.2	160.8	125.6	3.45
73	277.2	165.8	130.3	3.27
74	282.2	160.8	125.1	3.15
75	287.2	165.8	124.6	3.01
76	292.2	160.8	119.3	2.88
77	297.2	165.8	123.9	2.74
78	302.2	160.8	118.6	2.67
79	307.2	165.8	123.2	2.62
80	312.2	160.8	117.9	2.60
81	317.2	165.8	116.8	2.60
82	322.2	160.8	111.4	2.58
83	327.2	165.8	115.9	2.61
84	332.2	160.8	110.5	2.66
85	232.2	170.8	141.9	3.67
86	237.2	175.8	142.4	3.82
87	242.2	170.8	137.2	3.87
88	247.2	175.8	141.9	3.83
89	252.2	170.8	136.6	3.82
90	257.2	175.8	141.3	3.71
91	262.2	170.8	136.1	3.65
92	267.2	175.8	140.8	3.48
93	272.2	170.8	135.6	3.38
94	277.2	175.8	140.3	3.20
95	282.2	170.8	135.0	3.10
96	287.2	175.8	134.6	2.97
97	292.2	170.8	129.2	2.84
98	297.2	175.8	133.9	2.72
99	302.2	170.8	128.5	2.66
100	307.2	175.8	133.2	2.62
101	312.2	170.8	127.8	2.60
102	317.2	175.8	126.7	2.61
103	322.2	170.8	121.3	2.60
104	327.2	175.8	125.9	2.64
105	332.2	170.8	126.4	2.67
106	232.2	180.8	151.9	3.62
107	237.2	185.8	152.3	3.77
108	242.2	180.8	147.1	3.81
109	247.2	185.8	151.8	3.76
110	252.2	180.8	146.6	3.74
111	257.2	185.8	151.3	3.63
112	262.2	180.8	146.1	3.56
113	267.2	185.8	150.8	3.41
114	272.2	180.8	145.5	3.31
115	277.2	185.8	150.2	3.15
116	282.2	180.8	145.0	3.06
117	287.2	185.8	144.5	2.93
118	292.2	180.8	139.2	2.82
119	297.2	185.8	143.8	2.71
120	302.2	180.8	138.5	2.65
121	307.2	185.8	143.1	2.62
122	312.2	180.8	137.8	2.61
123	317.2	185.8	136.7	2.62
124	322.2	180.8	131.3	2.61
125	327.2	185.8	141.7	2.65

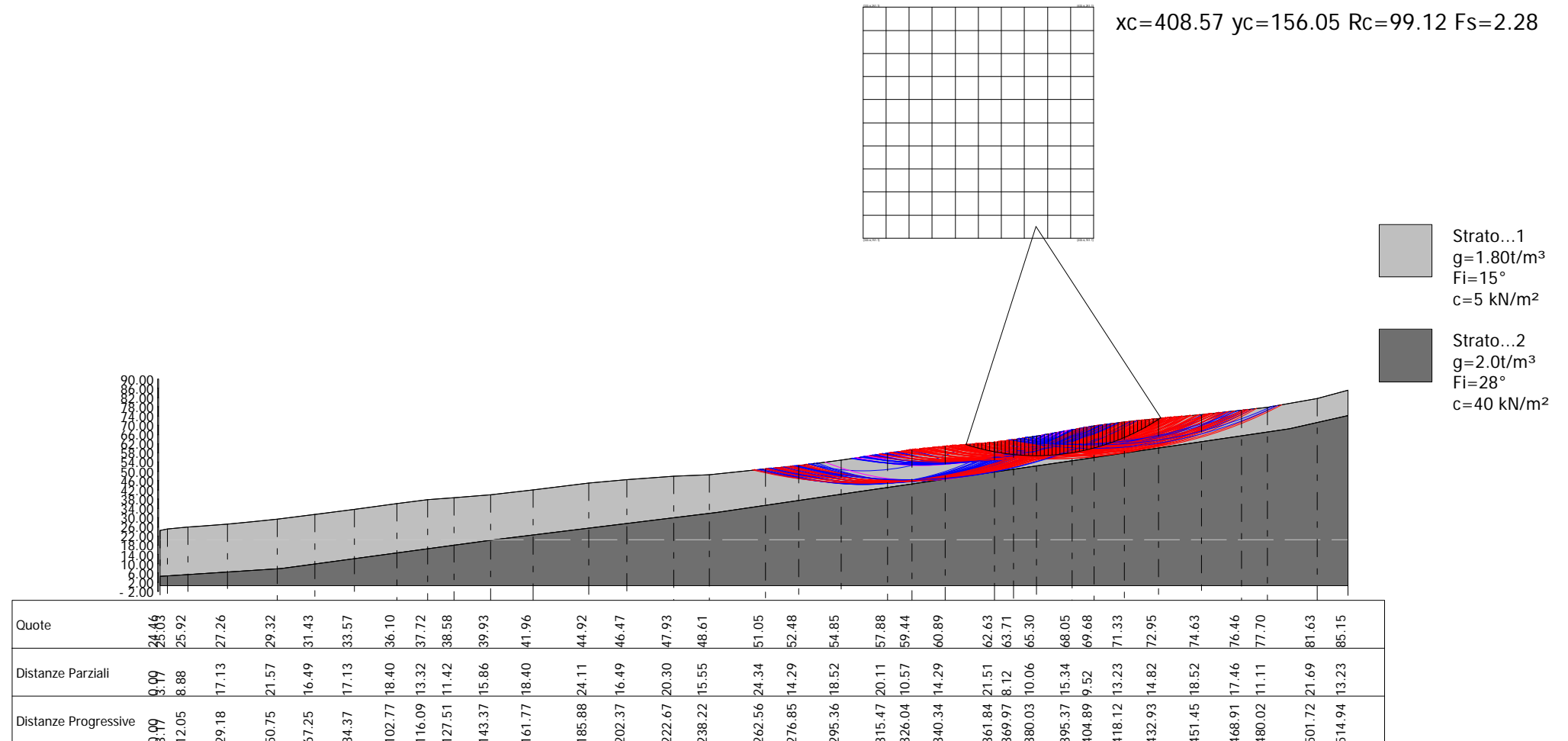
126	332.2	180.8	136.4	2.67
127	232.2	190.8	161.8	3.57
128	237.2	195.8	162.3	3.72
129	242.2	190.8	157.1	3.75
130	247.2	195.8	161.8	3.69
131	252.2	190.8	156.5	3.67
132	257.2	195.8	161.2	3.55
133	262.2	190.8	156.0	3.49
134	267.2	195.8	160.7	3.34
135	272.2	190.8	155.5	3.25
136	277.2	195.8	160.2	3.11
137	282.2	190.8	154.9	3.03
138	287.2	195.8	154.4	2.90
139	292.2	190.8	149.1	2.80
140	297.2	195.8	153.7	2.71
141	302.2	190.8	148.4	2.65
142	307.2	195.8	153.0	2.62
143	312.2	190.8	147.7	2.62
144	317.2	195.8	152.3	2.63
145	322.2	190.8	141.2	2.63
146	327.2	195.8	151.6	2.65
147	332.2	190.8	146.3	2.66
148	232.2	200.8	171.8	3.53
149	237.2	205.8	172.3	3.67
150	242.2	200.8	167.0	3.69
151	247.2	205.8	171.7	3.63
152	252.2	200.8	166.5	3.60
153	257.2	205.8	171.2	3.49
154	262.2	200.8	166.0	3.42
155	267.2	205.8	170.7	3.28
156	272.2	200.8	165.4	3.19
157	277.2	205.8	170.1	3.07
158	282.2	200.8	164.9	3.00
159	287.2	205.8	164.4	2.88
160	292.2	200.8	159.1	2.79
161	297.2	205.8	163.7	2.70
162	302.2	200.8	158.4	2.65
163	307.2	205.8	163.0	2.63
164	312.2	200.8	157.6	2.62
165	317.2	205.8	162.3	2.64
166	322.2	200.8	156.9	2.65
167	327.2	205.8	161.6	2.65
168	332.2	200.8	156.2	2.65
169	232.2	210.8	181.8	3.48
170	237.2	215.8	182.2	3.63
171	242.2	210.8	177.0	3.64
172	247.2	215.8	181.7	3.57
173	252.2	210.8	176.4	3.54
174	257.2	215.8	181.2	3.42
175	262.2	210.8	175.9	3.36
176	267.2	215.8	180.6	3.23
177	272.2	210.8	175.4	3.15
178	277.2	215.8	180.1	3.04
179	282.2	210.8	174.9	2.98
180	287.2	215.8	174.3	2.86
181	292.2	210.8	169.0	2.78
182	297.2	215.8	173.6	2.70
183	302.2	210.8	168.3	2.66
184	307.2	215.8	172.9	2.64

185	312.2	210.8	167.6	2.63
186	317.2	215.8	172.2	2.65
187	322.2	210.8	166.9	2.65
188	327.2	215.8	171.5	2.65
189	332.2	210.8	166.2	2.64
190	232.2	220.8	191.7	3.44
191	237.2	225.8	192.2	3.59
192	242.2	220.8	186.9	3.59
193	247.2	225.8	191.6	3.51
194	252.2	220.8	186.4	3.48
195	257.2	225.8	191.1	3.36
196	262.2	220.8	185.9	3.30
197	267.2	225.8	190.6	3.18
198	272.2	220.8	185.3	3.11
199	277.2	225.8	190.0	3.02
200	282.2	220.8	184.8	2.96
201	287.2	225.8	184.3	2.85
202	292.2	220.8	178.9	2.77
203	297.2	225.8	183.6	2.71
204	302.2	220.8	178.2	2.66
205	307.2	225.8	182.8	2.65
206	312.2	220.8	177.5	2.64
207	317.2	225.8	182.1	2.65
208	322.2	220.8	176.8	2.65
209	327.2	225.8	181.4	2.64
210	332.2	220.8	176.1	2.62
211	232.2	230.8	201.7	3.53
212	242.2	230.8	196.9	3.54
213	252.2	230.8	196.3	3.42
214	262.2	230.8	195.8	3.25
215	272.2	230.8	195.3	3.08
216	282.2	230.8	189.6	2.94
217	292.2	230.8	188.9	2.77
218	302.2	230.8	188.2	2.67
219	312.2	230.8	187.5	2.65
220	322.2	230.8	186.8	2.64
221	332.2	230.8	186.1	2.60

Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	2
7.Risultati analisi pendio [A2+M2+R2]	2
Indice	7

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE DA 300 A 400 m
 IN CONDIZIONI STATICHE



Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2018
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	333.57 m
Ordinata vertice sinistro inferiore yi	151.05 m
Ascissa vertice destro superiore xs	433.57 m
Ordinata vertice destro superiore ys	251.05 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	28.79	24.46
2	31.96	25.03
3	40.84	25.92
4	57.97	27.26
5	79.54	29.32
6	96.03	31.43
7	113.16	33.57
8	131.56	36.1
9	144.88	37.72
10	156.3	38.58
11	172.16	39.93
12	190.56	41.96
13	214.66	44.92
14	231.16	46.47
15	251.46	47.93
16	267.01	48.61
17	291.35	51.05
18	305.63	52.48
19	324.15	54.85
20	344.26	57.88
21	354.83	59.44
22	369.12	60.89
23	390.63	62.63
24	398.76	63.71
25	408.81	65.3
26	424.15	68.05
27	433.68	69.68
28	446.9	71.33
29	461.72	72.95
30	480.24	74.63
31	497.7	76.46

32	508.81	77.7
33	530.5	81.63
34	543.73	85.15

Vertici strato1

N	X (m)	y (m)
1	28.79	4.46
2	81.35	7.97
3	175.47	20.67
4	270.51	32.26
5	329.89	40.87
6	424.93	54.65
7	467.98	61.0
8	518.41	68.45
9	543.73	74.19

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.80		
2	40		28	2.0		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.28
Ascissa centro superficie	408.57 m
Ordinata centro superficie	156.05 m
Raggio superficie	99.12 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	333.6	151.1	100.8	2.66
2	338.6	156.1	111.3	2.71
3	343.6	151.1	106.0	2.75
4	348.6	156.1	110.6	2.76
5	353.6	151.1	105.3	2.79
6	358.6	156.1	109.9	3.08
7	363.6	151.1	98.1	3.18

8	368.6	156.1	102.6	3.07
9	373.6	151.1	97.2	3.01
10	378.6	156.1	101.8	2.81
11	383.6	151.1	96.4	2.69
12	388.6	156.1	100.9	2.53
13	393.6	151.1	95.5	2.43
14	398.6	156.1	100.0	2.35
15	403.6	151.1	94.6	2.30
16	408.6	156.1	99.1	2.28
17	413.6	151.1	93.7	2.28
18	418.6	156.1	98.2	2.33
19	423.6	151.1	92.8	2.39
20	428.6	156.1	97.2	2.49
21	433.6	151.1	90.8	2.61
22	333.6	161.1	116.7	2.68
23	338.6	166.1	121.3	2.70
24	343.6	161.1	116.0	2.73
25	348.6	166.1	120.6	2.72
26	353.6	161.1	115.3	2.73
27	358.6	166.1	113.4	3.09
28	363.6	161.1	108.0	3.10
29	368.6	166.1	112.6	2.98
30	373.6	161.1	107.2	2.91
31	378.6	166.1	111.7	2.73
32	383.6	161.1	106.3	2.63
33	388.6	166.1	110.8	2.50
34	393.6	161.1	105.4	2.42
35	398.6	166.1	109.9	2.35
36	403.6	161.1	104.5	2.30
37	408.6	166.1	109.0	2.29
38	413.6	161.1	103.6	2.30
39	418.6	166.1	108.2	2.34
40	423.6	161.1	102.8	2.40
41	428.6	166.1	104.9	2.54
42	433.6	161.1	98.5	2.69
43	333.6	171.1	126.6	2.68
44	338.6	176.1	131.2	2.69
45	343.6	171.1	125.9	2.70
46	348.6	176.1	130.5	2.68
47	353.6	171.1	125.2	2.68
48	358.6	176.1	123.4	3.03
49	363.6	171.1	118.0	3.02
50	368.6	176.1	122.5	2.90
51	373.6	171.1	117.1	2.83
52	378.6	176.1	121.6	2.67
53	383.6	171.1	116.2	2.59
54	388.6	176.1	120.7	2.48
55	393.6	171.1	115.3	2.41
56	398.6	176.1	119.8	2.35
57	403.6	171.1	114.4	2.31
58	408.6	176.1	119.0	2.31
59	413.6	171.1	113.6	2.31
60	418.6	176.1	117.6	2.36
61	423.6	171.1	111.2	2.43
62	428.6	176.1	119.6	2.49
63	433.6	171.1	113.0	2.58
64	333.6	181.1	136.5	2.67
65	338.6	186.1	141.2	2.67
66	343.6	181.1	135.8	2.67

67	348.6	186.1	140.5	2.64
68	353.6	181.1	135.1	2.63
69	358.6	186.1	133.3	2.98
70	363.6	181.1	127.9	2.95
71	368.6	186.1	132.4	2.83
72	373.6	181.1	127.0	2.76
73	378.6	186.1	131.5	2.63
74	383.6	181.1	126.1	2.56
75	388.6	186.1	130.6	2.46
76	393.6	181.1	125.2	2.40
77	398.6	186.1	129.8	2.36
78	403.6	181.1	124.4	2.32
79	408.6	186.1	128.9	2.32
80	413.6	181.1	123.5	2.33
81	418.6	186.1	125.6	2.39
82	423.6	181.1	119.2	2.50
83	428.6	186.1	127.3	2.51
84	433.6	181.1	120.8	2.62
85	333.6	191.1	146.5	2.66
86	338.6	196.1	151.1	2.65
87	343.6	191.1	145.8	2.64
88	348.6	196.1	150.4	2.60
89	353.6	191.1	145.1	2.59
90	358.6	196.1	143.2	2.93
91	363.6	191.1	137.8	2.89
92	368.6	196.1	142.3	2.77
93	373.6	191.1	136.9	2.70
94	378.6	196.1	141.5	2.59
95	383.6	191.1	136.0	2.53
96	388.6	196.1	140.6	2.45
97	393.6	191.1	135.2	2.40
98	398.6	196.1	139.7	2.36
99	403.6	191.1	134.3	2.34
100	408.6	196.1	138.4	2.34
101	413.6	191.1	132.0	2.34
102	418.6	196.1	140.4	2.42
103	423.6	191.1	133.9	2.44
104	428.6	196.1	135.3	2.56
105	433.6	191.1	128.8	2.70
106	333.6	201.1	156.4	2.65
107	338.6	206.1	161.0	2.62
108	343.6	201.1	155.7	2.61
109	348.6	206.1	160.3	2.56
110	353.6	201.1	155.0	2.55
111	358.6	206.1	153.1	2.87
112	363.6	201.1	147.7	2.83
113	368.6	206.1	152.3	2.72
114	373.6	201.1	146.9	2.66
115	378.6	206.1	151.4	2.57
116	383.6	201.1	146.0	2.51
117	388.6	206.1	150.5	2.45
118	393.6	201.1	145.1	2.40
119	398.6	206.1	149.6	2.37
120	403.6	201.1	144.2	2.35
121	408.6	206.1	146.6	2.34
122	413.6	201.1	140.2	2.38
123	418.6	206.1	148.5	2.42
124	423.6	201.1	141.9	2.47
125	428.6	206.1	143.5	2.65

126	433.6	201.1	142.7	2.58
127	333.6	211.1	166.4	2.63
128	338.6	216.1	171.0	2.60
129	343.6	211.1	165.7	2.58
130	348.6	216.1	170.3	2.53
131	353.6	211.1	164.9	2.52
132	358.6	216.1	163.1	2.82
133	363.6	211.1	157.7	2.77
134	368.6	216.1	162.2	2.67
135	373.6	211.1	156.8	2.62
136	378.6	216.1	161.3	2.54
137	383.6	211.1	155.9	2.50
138	388.6	216.1	160.4	2.44
139	393.6	211.1	155.0	2.40
140	398.6	216.1	159.5	2.38
141	403.6	211.1	153.0	2.35
142	408.6	216.1	154.9	2.38
143	413.6	211.1	155.0	2.41
144	418.6	216.1	156.6	2.44
145	423.6	211.1	150.1	2.52
146	428.6	216.1	157.5	2.53
147	433.6	211.1	150.8	2.63
148	333.6	221.1	176.3	2.62
149	338.6	226.1	180.9	2.57
150	343.6	221.1	175.6	2.55
151	348.6	226.1	180.2	2.50
152	353.6	221.1	174.9	2.49
153	358.6	226.1	173.0	2.78
154	363.6	221.1	167.6	2.73
155	368.6	226.1	172.1	2.64
156	373.6	221.1	166.7	2.59
157	378.6	226.1	171.2	2.53
158	383.6	221.1	165.8	2.49
159	388.6	226.1	170.3	2.44
160	393.6	221.1	164.9	2.41
161	398.6	226.1	167.8	2.38
162	403.6	221.1	161.4	2.36
163	408.6	226.1	169.8	2.41
164	413.6	221.1	163.2	2.40
165	418.6	226.1	165.0	2.49
166	423.6	221.1	164.2	2.48
167	428.6	226.1	165.8	2.58
168	433.6	221.1	159.1	2.70
169	333.6	231.1	186.2	2.60
170	338.6	236.1	190.8	2.55
171	343.6	231.1	185.5	2.52
172	348.6	236.1	190.1	2.48
173	353.6	231.1	184.8	2.57
174	358.6	236.1	182.9	2.73
175	363.6	231.1	177.5	2.69
176	368.6	236.1	182.0	2.61
177	373.6	231.1	176.6	2.57
178	378.6	236.1	181.1	2.51
179	383.6	231.1	175.7	2.48
180	388.6	236.1	180.3	2.44
181	393.6	231.1	174.2	2.41
182	398.6	236.1	176.3	2.39
183	403.6	231.1	169.8	2.40
184	408.6	236.1	178.1	2.40

185	413.6	231.1	171.6	2.42
186	418.6	236.1	179.1	2.46
187	423.6	231.1	172.5	2.49
188	428.6	236.1	174.2	2.65
189	433.6	231.1	172.7	2.58
190	333.6	241.1	196.2	2.57
191	338.6	246.1	200.8	2.53
192	343.6	241.1	195.5	2.50
193	348.6	246.1	200.1	2.46
194	353.6	241.1	194.8	2.74
195	358.6	246.1	192.8	2.70
196	363.6	241.1	187.4	2.65
197	368.6	246.1	191.9	2.59
198	373.6	241.1	186.5	2.55
199	378.6	246.1	191.1	2.50
200	383.6	241.1	185.7	2.47
201	388.6	246.1	189.1	2.45
202	393.6	241.1	182.7	2.42
203	398.6	246.1	191.2	2.43
204	403.6	241.1	184.7	2.42
205	408.6	246.1	186.6	2.42
206	413.6	241.1	185.8	2.46
207	418.6	246.1	187.5	2.47
208	423.6	241.1	180.9	2.53
209	428.6	246.1	187.8	2.54
210	433.6	241.1	181.1	2.63
211	333.6	251.1	206.1	2.55
212	343.6	251.1	205.4	2.48
213	353.6	251.1	204.7	2.73
214	363.6	251.1	197.3	2.63
215	373.6	251.1	196.5	2.54
216	383.6	251.1	195.6	2.47
217	393.6	251.1	191.3	2.44
218	403.6	251.1	193.1	2.42
219	413.6	251.1	194.2	2.45
220	423.6	251.1	189.5	2.60
221	433.6	251.1	189.7	2.69

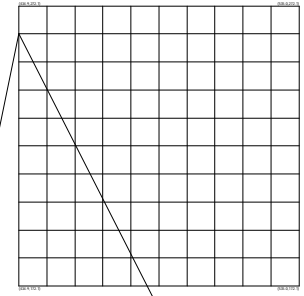
Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	2
7.Risultati analisi pendio [A2+M2+R2]	2
Indice	7

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE DA 400 A 500 m
 IN CONDIZIONI STATICHE

$x_c=434.95$ $y_c=262.08$ $R_c=203.17$ $F_s=2.56$

90
88
86
84
82
80
78
76
74
72
70
68
66
64
62
60
58
56
54
52
50
48
46
44
42
40
38
36
34
32
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-22
-24
-26
-28
-30
-32
-34
-36
-38
-40
-42
-44
-46
-48
-50
-52
-54
-56
-58
-60
-62
-64
-66
-68
-70
-72
-74
-76
-78
-80
-82
-84
-86
-88
-90



- Strato...1
 $g=1.80t/m^3$
 $F_i=15^\circ$
 $c=5$ kN/m²
- Strato...2
 $g=2.0t/m^3$
 $F_i=28^\circ$
 $c=40$ kN/m²

Quote		9.99	24.66	25.92	27.26	29.32	31.43	33.57	36.10	37.72	38.58	39.93	41.96	44.92	46.47	47.93	48.61	51.05	52.48	54.85	57.88	59.44	60.89	62.63	63.71	65.30	68.05	69.68	71.33	72.95	74.63	76.46	77.70	81.63	85.15
Distanze Parziali		9.99	8.88	17.13	21.57	16.49	17.13	18.40	13.32	11.42	15.86	18.40	24.11	16.49	20.30	15.55	24.34	14.29	18.52	20.11	10.57	8.12	10.06	15.34	9.52	13.23	14.82	18.52	17.46	11.11	21.69	13.23			
Distanze Progressive		9.99	12.05	29.18	50.75	67.25	84.37	102.77	116.09	127.51	143.37	161.77	185.88	202.37	222.67	238.22	262.56	276.85	295.36	315.47	326.04	340.34	361.84	369.97	380.03	395.37	404.89	418.12	432.93	451.45	468.91	480.02	501.72	514.94	

Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2018
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	434.95 m
Ordinata vertice sinistro inferiore yi	172.08 m
Ascissa vertice destro superiore xs	534.95 m
Ordinata vertice destro superiore ys	272.08 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	28.79	24.46
2	31.96	25.03
3	40.84	25.92
4	57.97	27.26
5	79.54	29.32
6	96.03	31.43
7	113.16	33.57
8	131.56	36.1
9	144.88	37.72
10	156.3	38.58
11	172.16	39.93
12	190.56	41.96
13	214.66	44.92
14	231.16	46.47
15	251.46	47.93
16	267.01	48.61
17	291.35	51.05
18	305.63	52.48
19	324.15	54.85
20	344.26	57.88
21	354.83	59.44
22	369.12	60.89
23	390.63	62.63
24	398.76	63.71
25	408.81	65.3
26	424.15	68.05
27	433.68	69.68
28	446.9	71.33
29	461.72	72.95
30	480.24	74.63
31	497.7	76.46

32	508.81	77.7
33	530.5	81.63
34	543.73	85.15

Vertici strato1

N	X (m)	y (m)
1	28.79	4.46
2	81.35	7.97
3	175.47	20.67
4	270.51	32.26
5	329.89	40.87
6	424.93	54.65
7	467.98	61.0
8	518.41	68.45
9	543.73	74.19

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.80		
2	40		28	2.0		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.56
Ascissa centro superficie	434.95 m
Ordinata centro superficie	262.08 m
Raggio superficie	203.17 m

Numero di superfici esaminate....(96)

N°	Xo	Yo	Ro	Fs
1	434.9	172.1	113.1	2.62
2	439.9	177.1	114.3	2.84
3	444.9	172.1	107.8	3.05
4	449.9	177.1	114.7	2.99
5	454.9	172.1	108.1	3.17
6	459.9	177.1	114.4	3.06
7	464.9	172.1	107.6	3.17

8	469.9	177.1	113.3	2.95
9	474.9	172.1	102.0	3.61
10	479.9	177.1	107.8	3.07
11	484.9	172.1	100.9	3.10
12	489.9	177.1	102.8	3.82
13	494.9	172.1	96.0	5.73
14	434.9	182.1	120.9	2.68
15	439.9	187.1	128.1	2.69
16	444.9	182.1	121.4	2.83
17	449.9	187.1	122.7	3.10
18	454.9	182.1	121.2	2.93
19	459.9	187.1	122.4	3.15
20	464.9	182.1	115.6	3.29
21	469.9	187.1	117.1	3.73
22	474.9	182.1	110.4	4.13
23	479.9	187.1	116.3	3.25
24	484.9	182.1	109.5	3.39
25	489.9	187.1	111.6	6.12
26	434.9	192.1	128.9	2.78
27	439.9	197.1	136.1	2.75
28	444.9	192.1	129.4	2.91
29	449.9	197.1	136.0	2.86
30	454.9	192.1	129.2	3.00
31	459.9	197.1	135.2	2.86
32	464.9	192.1	128.4	2.94
33	469.9	197.1	125.7	4.25
34	474.9	192.1	119.0	5.26
35	484.9	192.1	118.3	4.03
36	434.9	202.1	142.8	2.62
37	439.9	207.1	144.3	2.84
38	444.9	202.1	142.8	2.73
39	449.9	207.1	144.2	2.94
40	454.9	202.1	137.4	3.11
41	459.9	207.1	143.5	2.92
42	464.9	202.1	132.4	3.78
43	469.9	207.1	134.4	5.37
44	474.9	202.1	131.7	3.35
45	479.9	207.1	133.9	4.16
46	484.9	202.1	127.2	6.00
47	434.9	212.1	151.0	2.68
48	439.9	217.1	157.7	2.67
49	444.9	212.1	151.0	2.79
50	449.9	217.1	152.6	3.06
51	454.9	212.1	145.8	3.26
52	459.9	217.1	147.8	3.77
53	464.9	212.1	141.1	4.26
54	469.9	217.1	147.2	3.40
55	474.9	212.1	140.5	3.66
56	479.9	217.1	142.9	5.70
57	434.9	222.1	159.3	2.77
58	439.9	227.1	166.1	2.73
59	444.9	222.1	159.3	2.88
60	449.9	227.1	161.1	3.20
61	454.9	222.1	158.8	2.87
62	459.9	227.1	160.7	3.10
63	464.9	222.1	149.9	5.28
64	479.9	227.1	152.0	12.53
65	434.9	232.1	172.8	2.62
66	439.9	237.1	174.6	2.81

67	444.9	232.1	172.5	2.65
68	449.9	237.1	174.2	2.82
69	454.9	232.1	167.4	2.96
70	459.9	237.1	169.5	3.23
71	464.9	232.1	162.8	3.42
72	474.9	232.1	158.6	5.38
73	434.9	242.1	181.3	2.67
74	439.9	247.1	183.2	2.91
75	444.9	242.1	176.5	3.12
76	449.9	247.1	182.9	2.90
77	454.9	242.1	172.1	4.12
78	459.9	247.1	174.5	7.56
79	464.9	242.1	171.8	3.69
80	474.9	242.1	167.8	8.52
81	434.9	252.1	189.9	2.74
82	439.9	257.1	196.4	2.65
83	444.9	252.1	185.3	3.29
84	449.9	257.1	187.6	4.00
85	454.9	252.1	181.1	4.86
86	464.9	252.1	180.9	4.10
87	434.9	262.1	203.2	2.56
88	439.9	267.1	205.1	2.71
89	444.9	262.1	198.4	2.84
90	449.9	267.1	200.7	3.13
91	454.9	262.1	190.1	6.56
92	464.9	262.1	190.0	4.79
93	469.9	267.1	192.8	15.29
94	434.9	272.1	211.9	2.60
95	444.9	272.1	207.3	2.94
96	454.9	272.1	203.1	3.58

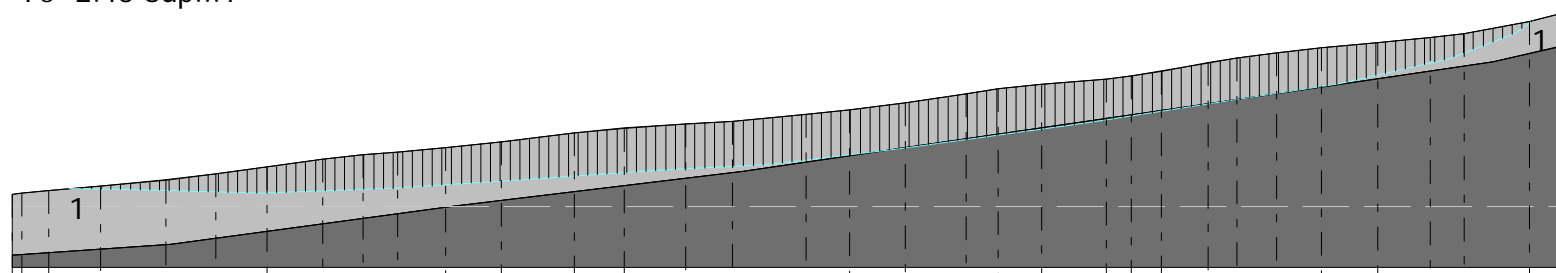
Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	2
7.Risultati analisi pendio [A2+M2+R2]	2
Indice	5

VERIFICA ANALITICA DI STABILITA' DI
VERSANTE SUPERFICIE 1
IN CONDIZIONI SISMICHE

Fs=2.43 Sup...1

- Strato...1
 g=1.80t/m³
 Fi=15°
 c=5 kN/m²
- Strato...2
 g=2.0t/m³
 Fi=28°
 c=40 kN/m²



Quote	9.99	24.66	25.92	27.26	29.32	31.43	33.57	36.10	37.72	38.58	39.93	41.96	44.92	46.47	47.93	48.61	51.05	52.48	54.85	57.88	59.44	60.89	62.63	63.71	65.30	68.05	69.68	71.33	72.95	74.63	76.46	77.70	81.63	85.15
Distanze Parziali	9.99	8.88	17.13	21.57	16.49	17.13	18.40	13.32	11.42	15.86	18.40	24.11	16.49	20.30	15.55	24.34	14.29	18.52	20.11	10.57	14.29	21.51	8.12	10.06	15.34	9.52	13.23	14.82	18.52	17.46	11.11	21.69	13.23	
Distanze Progressive	9.99	12.05	29.18	50.75	67.25	84.37	102.77	116.09	127.51	143.37	161.77	185.88	202.37	222.67	238.22	262.56	276.85	295.36	315.47	326.04	340.34	361.84	369.97	380.03	395.37	404.89	418.12	432.93	451.45	468.91	480.02	501.72	514.94	

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.161667/11.033263
Calcolo eseguito secondo	NTC 2018
Numero di strati	2.0
Numero dei conci	150.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma generica	

Coefficiente azione sismica orizzontale	0.063
Coefficiente azione sismica verticale	0.032

Vertici profilo

Nr	X (m)	y (m)
1	28.79	24.46
2	31.96	25.03
3	40.84	25.92
4	57.97	27.26
5	79.54	29.32
6	96.03	31.43
7	113.16	33.57
8	131.56	36.1
9	144.88	37.72
10	156.3	38.58
11	172.16	39.93
12	190.56	41.96
13	214.66	44.92
14	231.16	46.47
15	251.46	47.93
16	267.01	48.61
17	291.35	51.05
18	305.63	52.48
19	324.15	54.85
20	344.26	57.88
21	354.83	59.44
22	369.12	60.89
23	390.63	62.63
24	398.76	63.71
25	408.81	65.3
26	424.15	68.05
27	433.68	69.68
28	446.9	71.33
29	461.72	72.95
30	480.24	74.63
31	497.7	76.46
32	508.81	77.7
33	530.5	81.63
34	543.73	85.15

Vertici strato1

N	X (m)	y (m)
1	28.79	4.46
2	81.35	7.97
3	175.47	20.67
4	270.51	32.26
5	329.89	40.87
6	424.93	54.65
7	467.98	61.0
8	518.41	68.45
9	543.73	74.19

Vertici superficie Nr...1

N	X m	y m
1	47.62	26.55
2	73.79	26.06
3	110.95	25.01
4	155.95	26.58
5	200.96	29.72
6	239.68	32.34
7	279.46	34.43
8	321.85	39.66
9	383.07	48.04
10	430.7	55.36
11	467.85	61.12
12	503.96	69.49
13	525.94	77.86
14	531.29	81.87

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.80		
2	40		28	2.0		

B: Larghezza del concio; Alfa: Angolo di inclinazione della base del concio; Li: Lunghezza della base del concio; Wi: Peso del concio; Ui: Forze derivanti dalle pressioni neutre; Ni: forze agenti normalmente alla direzione di scivolamento; Ti: forze agenti parallelamente alla superficie di scivolamento; Fi: Angolo di attrito; c: coesione.

Superficie Nr...1 Fattore di sicurezza=2.43

Nr.	B m	Alfa (°)	Li m	Wi (kN)	Kh•Wi (kN)	Kv•Wi (kN)	c (kN/m ²)	Fi (°)	Ui (kN)	N'i (kN)	Ti (kN)
1	3.22	-1.1	3.22	8.83	0.56	0.28	5.0	15.0	0.0	6.9	7.4
2	3.22	-1.1	3.22	26.51	1.67	0.85	5.0	15.0	0.0	5.8	7.3
3	3.22	-1.1	3.22	44.18	2.78	1.41	5.0	15.0	0.0	4.8	7.1
4	3.22	-1.2	3.22	63.92	4.03	2.05	5.0	15.0	0.0	3.2	7.0
5	3.22	-1.1	3.22	84.96	5.35	2.72	5.0	15.0	0.0	2.4	6.9
6	3.22	-1.1	3.22	105.82	6.67	3.39	5.0	15.0	0.0	1.1	6.7
7	3.22	-1.1	3.22	126.69	7.98	4.05	5.0	15.0	0.0	-0.1	6.6
8	3.22	-1.1	3.22	147.65	9.3	4.72	5.0	15.0	0.0	-1.9	6.4
9	3.22	-1.7	3.22	169.63	10.69	5.43	5.0	15.0	0.0	-8.5	5.7
10	3.22	-1.6	3.22	192.36	12.12	6.16	5.0	15.0	0.0	-9.5	5.6
11	3.22	-1.6	3.22	220.15	13.87	7.04	5.0	15.0	0.0	-11.9	5.3
12	3.22	-1.6	3.22	248.59	15.66	7.95	5.0	15.0	0.0	-14.4	5.0
13	3.22	-1.6	3.22	277.02	17.45	8.86	5.0	15.0	0.0	-16.9	4.8
14	3.22	-1.7	3.22	305.63	19.25	9.78	5.0	15.0	0.0	-21.2	4.3
15	3.22	-1.6	3.22	334.24	21.06	10.7	5.0	15.0	0.0	-21.9	4.2
16	3.22	-1.6	3.22	362.25	22.82	11.59	5.0	15.0	0.0	-24.4	3.9
17	3.22	-1.6	3.22	390.13	24.58	12.48	5.0	15.0	0.0	-26.8	3.7
18	3.22	-1.6	3.22	418.02	26.34	13.38	5.0	15.0	0.0	-29.2	3.4
19	3.22	-1.7	3.22	446.07	28.1	14.27	5.0	15.0	0.0	-34.2	2.8
20	3.22	0.7	3.22	470.51	29.64	15.06	5.0	15.0	0.0	23.6	9.2
21	3.22	1.9	3.22	490.2	30.88	15.69	5.0	15.0	0.0	56.8	12.9
22	3.22	2.1	3.22	508.86	32.06	16.28	5.0	15.0	0.0	64.5	13.7
23	3.22	1.9	3.22	527.53	33.23	16.88	5.0	15.0	0.0	60.6	13.3
24	3.22	2.1	3.22	546.2	34.41	17.48	5.0	15.0	0.0	68.7	14.2
25	3.22	1.9	3.22	564.86	35.59	18.08	5.0	15.0	0.0	64.3	13.7
26	3.22	2.1	3.22	583.53	36.76	18.67	5.0	15.0	0.0	72.8	14.6
27	3.22	1.9	3.22	600.14	37.81	19.2	5.0	15.0	0.0	67.8	14.1
28	3.22	1.9	3.22	616.32	38.83	19.72	5.0	15.0	0.0	69.4	14.3
29	3.22	2.1	3.22	632.15	39.83	20.23	5.0	15.0	0.0	78.2	15.2
30	3.22	1.9	3.22	647.98	40.82	20.74	5.0	15.0	0.0	72.6	14.6
31	3.22	2.1	3.22	658.86	41.51	21.08	5.0	15.0	0.0	81.2	15.6
32	3.22	1.9	3.22	666.18	41.97	21.32	5.0	15.0	0.0	74.4	14.8
33	3.22	1.9	3.22	673.84	42.45	21.56	5.0	15.0	0.0	75.1	14.9
34	3.22	3.3	3.22	679.28	42.79	21.74	5.0	15.0	0.0	127.8	20.7
35	3.22	4.0	3.23	683.06	43.03	21.86	5.0	15.0	0.0	154.0	23.6
36	3.22	4.0	3.23	685.72	43.2	21.94	5.0	15.0	0.0	154.5	23.6
37	3.22	4.0	3.23	688.38	43.37	22.03	5.0	15.0	0.0	155.1	23.7
38	3.22	4.0	3.23	691.05	43.54	22.11	5.0	15.0	0.0	155.6	23.8
39	3.22	3.8	3.22	694.53	43.76	22.22	5.0	15.0	0.0	148.4	23.0
40	3.22	4.0	3.23	702.18	44.24	22.47	5.0	15.0	0.0	157.9	24.0
41	3.22	4.0	3.23	709.49	44.7	22.7	5.0	15.0	0.0	159.4	24.2
42	3.22	4.0	3.23	716.8	45.16	22.94	5.0	15.0	0.0	161.0	24.3
43	3.22	4.0	3.23	724.11	45.62	23.17	5.0	15.0	0.0	162.5	24.5
44	3.22	3.8	3.22	731.76	46.1	23.42	5.0	15.0	0.0	155.8	23.8
45	3.22	4.0	3.23	740.28	46.64	23.69	5.0	15.0	0.0	165.9	24.9
46	3.22	4.0	3.23	749.83	47.24	23.99	5.0	15.0	0.0	167.9	25.1
47	3.22	4.0	3.23	759.39	47.84	24.3	5.0	15.0	0.0	170.0	25.3
48	3.22	3.9	3.22	769.12	48.45	24.61	5.0	15.0	0.0	167.2	25.0
49	3.22	3.8	3.22	779.2	49.09	24.93	5.0	15.0	0.0	165.3	24.8
50	3.22	3.8	3.22	789.43	49.73	25.26	5.0	15.0	0.0	167.3	25.0
51	3.22	4.0	3.23	799.33	50.36	25.58	5.0	15.0	0.0	178.4	26.3
52	3.22	3.8	3.22	809.22	50.98	25.89	5.0	15.0	0.0	171.3	25.5
53	3.22	3.8	3.22	814.81	51.33	26.07	5.0	15.0	0.0	172.4	25.6

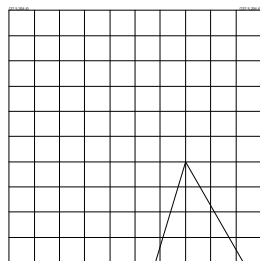
54	3.22	3.8	3.22	819.83	51.65	26.23	5.0	15.0	0.0	173.4	25.7
55	3.22	4.0	3.23	824.52	51.94	26.38	5.0	15.0	0.0	183.7	26.9
56	3.22	3.8	3.22	829.21	52.24	26.53	5.0	15.0	0.0	175.2	25.9
57	3.22	3.8	3.22	834.24	52.56	26.7	5.0	15.0	0.0	176.2	26.0
58	3.22	3.8	3.22	836.15	52.68	26.76	5.0	15.0	0.0	176.5	26.1
59	3.22	4.0	3.23	836.77	52.72	26.78	5.0	15.0	0.0	186.2	27.1
60	3.22	3.3	3.22	838.21	52.81	26.82	5.0	15.0	0.0	153.3	23.5
61	3.22	3.0	3.22	841.36	53.01	26.92	5.0	15.0	0.0	139.0	21.9
62	3.22	3.0	3.22	845.02	53.24	27.04	5.0	15.0	0.0	139.5	22.0
63	3.22	3.0	3.22	848.69	53.47	27.16	5.0	15.0	0.0	140.1	22.0
64	3.22	3.2	3.22	849.68	53.53	27.19	5.0	15.0	0.0	149.9	23.1
65	3.22	3.0	3.22	847.88	53.42	27.13	5.0	15.0	0.0	139.8	22.0
66	3.22	3.0	3.22	846.42	53.32	27.09	5.0	15.0	0.0	139.6	22.0
67	3.22	3.0	3.22	844.96	53.23	27.04	5.0	15.0	0.0	139.3	22.0
68	3.22	3.0	3.22	843.5	53.14	26.99	5.0	15.0	0.0	139.0	21.9
69	3.22	3.2	3.22	848.09	53.43	27.14	5.0	15.0	0.0	149.4	23.1
70	3.22	3.0	3.22	856.55	53.96	27.41	5.0	15.0	0.0	141.0	22.1
71	3.22	3.0	3.22	865.36	54.52	27.69	5.0	15.0	0.0	142.3	22.3
72	3.22	4.0	3.22	872.59	54.97	27.92	5.0	15.0	0.0	189.7	27.5
73	3.22	7.2	3.24	873.05	55.0	27.94	5.0	15.0	0.0	343.0	44.4
74	3.22	7.0	3.24	868.66	54.73	27.8	5.0	15.0	0.0	331.3	43.1
75	3.22	7.0	3.24	864.6	54.47	27.67	5.0	15.0	0.0	329.7	42.9
76	3.22	7.2	3.24	860.2	54.19	27.53	5.0	15.0	0.0	337.8	43.8
77	3.22	7.0	3.24	855.86	53.92	27.39	5.0	15.0	0.0	326.3	42.6
78	3.22	7.0	3.24	851.86	53.67	27.26	5.0	15.0	0.0	324.8	42.4
79	3.22	7.2	3.24	847.53	53.39	27.12	5.0	15.0	0.0	332.8	43.3
80	3.22	7.0	3.24	843.19	53.12	26.98	5.0	15.0	0.0	321.4	42.0
81	3.22	7.0	3.24	842.27	53.06	26.95	5.0	15.0	0.0	321.0	42.0
82	3.22	7.2	3.24	842.93	53.1	26.97	5.0	15.0	0.0	330.8	43.1
83	3.22	7.0	3.24	843.59	53.15	26.99	5.0	15.0	0.0	321.4	42.0
84	3.22	7.0	3.24	844.59	53.21	27.03	5.0	15.0	0.0	321.7	42.1
85	3.22	7.2	3.24	845.26	53.25	27.05	40.0	28.0	0.0	332.5	125.6
86	3.22	7.8	3.25	844.81	53.22	27.03	40.0	28.0	0.0	360.3	131.7
87	3.22	7.8	3.25	846.87	53.35	27.1	40.0	28.0	0.0	361.1	131.9
88	3.22	7.6	3.25	849.9	53.54	27.2	40.0	28.0	0.0	352.6	130.0
89	3.22	7.8	3.25	852.92	53.73	27.29	40.0	28.0	0.0	363.6	132.4
90	3.22	7.8	3.25	855.57	53.9	27.38	40.0	28.0	0.0	364.7	132.6
91	3.22	7.8	3.25	858.22	54.07	27.46	40.0	28.0	0.0	365.7	132.9
92	3.22	7.8	3.25	860.87	54.23	27.55	40.0	28.0	0.0	366.8	133.1
93	3.22	7.8	3.25	863.14	54.38	27.62	40.0	28.0	0.0	367.7	133.3
94	3.22	7.8	3.25	865.19	54.51	27.69	40.0	28.0	0.0	368.5	133.5
95	3.22	7.8	3.25	867.23	54.64	27.75	40.0	28.0	0.0	369.3	133.7
96	3.22	7.8	3.25	866.55	54.59	27.73	40.0	28.0	0.0	369.0	133.6
97	3.22	7.8	3.25	860.2	54.19	27.53	40.0	28.0	0.0	366.3	133.0
98	3.22	7.8	3.25	853.86	53.79	27.32	40.0	28.0	0.0	363.5	132.4
99	3.22	7.6	3.25	847.89	53.42	27.13	40.0	28.0	0.0	351.3	129.7
100	3.22	7.8	3.25	841.93	53.04	26.94	40.0	28.0	0.0	358.4	131.3
101	3.22	7.8	3.25	832.32	52.44	26.63	40.0	28.0	0.0	354.3	130.4
102	3.22	7.8	3.25	822.28	51.8	26.31	40.0	28.0	0.0	350.0	129.4
103	3.22	7.8	3.25	812.24	51.17	25.99	40.0	28.0	0.0	345.7	128.5
104	3.22	7.9	3.25	802.0	50.53	25.66	40.0	28.0	0.0	346.3	128.6
105	3.22	8.6	3.25	790.26	49.79	25.29	40.0	28.0	0.0	372.4	134.3
106	3.22	8.8	3.26	776.83	48.94	24.86	40.0	28.0	0.0	374.9	134.9
107	3.22	8.6	3.25	765.26	48.21	24.49	40.0	28.0	0.0	360.6	131.8
108	3.22	8.8	3.26	761.17	47.95	24.36	40.0	28.0	0.0	367.3	133.2
109	3.22	8.6	3.25	757.08	47.7	24.23	40.0	28.0	0.0	356.7	130.9
110	3.22	8.8	3.26	756.2	47.64	24.2	40.0	28.0	0.0	364.8	132.7
111	3.22	8.6	3.25	756.88	47.68	24.22	40.0	28.0	0.0	356.5	130.9
112	3.22	8.8	3.26	757.56	47.73	24.24	40.0	28.0	0.0	365.4	132.8

113	3.22	8.6	3.25	760.28	47.9	24.33	40.0	28.0	0.0	358.0	131.2
114	3.22	8.8	3.26	764.71	48.18	24.47	40.0	28.0	0.0	368.7	133.5
115	3.22	8.6	3.25	769.14	48.46	24.61	40.0	28.0	0.0	362.0	132.1
116	3.22	8.8	3.26	773.57	48.73	24.75	40.0	28.0	0.0	372.9	134.4
117	3.22	8.6	3.25	777.99	49.01	24.9	40.0	28.0	0.0	366.1	132.9
118	3.22	8.8	3.26	781.41	49.23	25.01	40.0	28.0	0.0	376.5	135.2
119	3.22	8.7	3.25	784.54	49.43	25.11	40.0	28.0	0.0	369.7	133.7
120	3.22	8.8	3.26	787.66	49.62	25.21	40.0	28.0	0.0	379.4	135.9
121	3.22	8.8	3.26	783.36	49.35	25.07	40.0	28.0	0.0	377.3	135.4
122	3.22	8.8	3.26	777.5	48.98	24.88	40.0	28.0	0.0	374.5	134.8
123	3.22	8.8	3.26	771.64	48.61	24.69	40.0	28.0	0.0	371.6	134.2
124	3.22	8.8	3.26	765.78	48.24	24.5	40.0	28.0	0.0	368.7	133.5
125	3.22	8.6	3.25	758.37	47.78	24.27	40.0	28.0	0.0	356.5	130.9
126	3.22	8.8	3.26	750.28	47.27	24.01	5.0	15.0	0.0	361.2	46.4
127	3.22	8.8	3.26	741.86	46.74	23.74	5.0	15.0	0.0	357.1	46.0
128	3.22	8.8	3.26	733.44	46.21	23.47	5.0	15.0	0.0	353.0	45.5
129	3.22	8.8	3.26	724.66	45.65	23.19	5.0	15.0	0.0	348.8	45.0
130	3.22	8.6	3.25	713.08	44.92	22.82	5.0	15.0	0.0	335.0	43.5
131	3.22	11.9	3.29	696.41	43.87	22.29	5.0	15.0	0.0	454.5	56.7
132	3.22	12.9	3.3	672.64	42.38	21.52	5.0	15.0	0.0	477.3	59.2
133	3.22	13.1	3.3	646.84	40.75	20.7	5.0	15.0	0.0	466.4	58.0
134	3.22	12.9	3.3	621.03	39.13	19.87	5.0	15.0	0.0	440.7	55.2
135	3.22	13.1	3.3	596.14	37.56	19.08	5.0	15.0	0.0	429.8	54.0
136	3.22	13.1	3.3	572.64	36.08	18.32	5.0	15.0	0.0	412.9	52.1
137	3.22	12.9	3.3	549.47	34.62	17.58	5.0	15.0	0.0	389.9	49.6
138	3.22	13.1	3.3	526.3	33.16	16.84	5.0	15.0	0.0	379.4	48.4
139	3.22	12.9	3.3	503.13	31.7	16.1	5.0	15.0	0.0	356.9	45.9
140	3.22	13.1	3.3	479.96	30.24	15.36	5.0	15.0	0.0	346.0	44.7
141	3.22	13.1	3.3	457.67	28.83	14.65	5.0	15.0	0.0	329.9	43.0
142	3.22	16.8	3.36	429.2	27.04	13.73	5.0	15.0	0.0	400.3	50.7
143	3.22	20.7	3.44	387.53	24.41	12.4	5.0	15.0	0.0	452.0	56.4
144	3.22	20.9	3.44	344.47	21.7	11.02	5.0	15.0	0.0	405.7	51.3
145	3.22	20.9	3.44	307.81	19.39	9.85	5.0	15.0	0.0	362.5	46.6
146	3.22	20.9	3.44	271.15	17.08	8.68	5.0	15.0	0.0	319.3	41.8
147	3.22	20.9	3.44	234.48	14.77	7.5	5.0	15.0	0.0	276.1	37.0
148	3.22	20.9	3.44	197.82	12.46	6.33	5.0	15.0	0.0	232.9	32.3
149	3.22	31.5	3.77	139.98	8.82	4.48	5.0	15.0	0.0	264.8	35.8
150	3.22	36.9	4.02	48.51	3.06	1.55	5.0	15.0	0.0	112.2	19.0

Indice

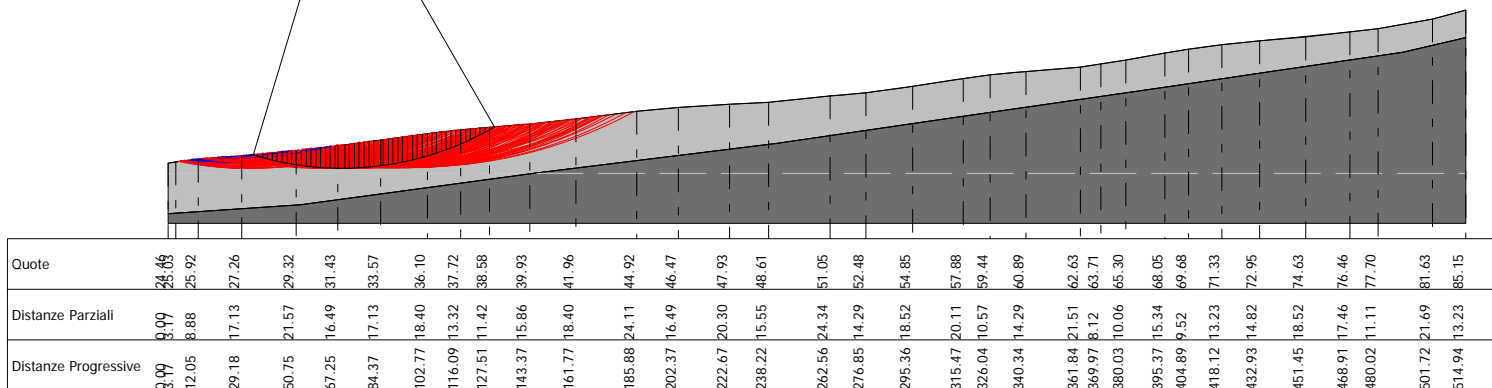
1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici superficie Nr...1	2
5.Coefficienti parziali azioni	3
6.Coefficienti parziali per i parametri geotecnici del terreno	3
7.Stratigrafia	3
Indice	7

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE DA 0 A 100 m
 IN CONDIZIONI SISMICA



$x_c=97.53$ $y_c=144.41$ $R_c=121.87$ $F_s=1.76$

- Strato...1
 $g=1.80t/m^3$
 $F_i=15^\circ$
 $c=5$ kN/m²
- Strato...2
 $g=2.0t/m^3$
 $F_i=28^\circ$
 $c=40$ kN/m²



Quote	9.09	24.66	25.92	27.26	29.32	31.43	33.57	36.10	37.72	38.58	39.93	41.96	44.92	46.47	47.93	48.61	51.05	52.48	54.85	57.88	59.44	60.89	62.63	63.71	65.30	68.05	69.68	71.33	72.95	74.63	76.46	77.70	81.63	85.15
Distanze Parziali	9.09	8.88	17.13	21.57	16.49	17.13	18.40	13.32	11.42	15.86	18.40	24.11	16.49	20.30	15.55	24.34	14.29	18.52	20.11	10.57	14.29	21.51	8.12	10.06	15.34	9.52	13.23	14.82	18.52	17.46	11.11	21.69	13.23	
Distanze Progressive	9.09	12.05	29.18	50.75	67.25	84.37	102.77	116.09	127.51	143.37	161.77	185.88	202.37	222.67	238.22	262.56	276.85	295.36	315.47	326.04	340.34	361.84	369.97	380.03	395.37	404.89	418.12	432.93	451.45	468.91	480.02	501.72	514.94	

Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2018
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	27.53 m
Ordinata vertice sinistro inferiore yi	104.41 m
Ascissa vertice destro superiore xs	127.53 m
Ordinata vertice destro superiore ys	204.41 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.063
Coefficiente azione sismica verticale	0.032

Vertici profilo

Nr	X (m)	y (m)
1	28.79	24.46
2	31.96	25.03
3	40.84	25.92
4	57.97	27.26
5	79.54	29.32
6	96.03	31.43
7	113.16	33.57
8	131.56	36.1
9	144.88	37.72
10	156.3	38.58
11	172.16	39.93
12	190.56	41.96
13	214.66	44.92
14	231.16	46.47
15	251.46	47.93
16	267.01	48.61
17	291.35	51.05
18	305.63	52.48
19	324.15	54.85
20	344.26	57.88
21	354.83	59.44
22	369.12	60.89
23	390.63	62.63
24	398.76	63.71
25	408.81	65.3
26	424.15	68.05
27	433.68	69.68
28	446.9	71.33
29	461.72	72.95

30	480.24	74.63
31	497.7	76.46
32	508.81	77.7
33	530.5	81.63
34	543.73	85.15

Vertici strato1

N	X (m)	y (m)
1	28.79	4.46
2	81.35	7.97
3	175.47	20.67
4	270.51	32.26
5	329.89	40.87
6	424.93	54.65
7	467.98	61.0
8	518.41	68.45
9	543.73	74.19

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.80		
2	40		28	2.0		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.76
Ascissa centro superficie	97.53 m
Ordinata centro superficie	144.41 m
Raggio superficie	121.87 m

Numero di superfici esaminate....(190)

N°	Xo	Yo	Ro	Fs
1	42.5	109.4	84.5	3.97
2	47.5	104.4	78.8	4.71
3	52.5	109.4	86.4	2.49
4	57.5	104.4	82.1	2.31
5	62.5	109.4	85.1	2.40

6	67.5	104.4	80.1	2.26
7	72.5	109.4	85.0	2.12
8	77.5	104.4	80.0	2.04
9	82.5	109.4	84.9	1.95
10	87.5	104.4	79.9	1.90
11	92.5	109.4	84.8	1.84
12	97.5	104.4	81.9	1.79
13	102.5	109.4	86.9	1.78
14	107.5	104.4	81.8	1.79
15	112.5	109.4	86.8	1.81
16	117.5	104.4	79.6	1.84
17	122.5	109.4	84.5	1.88
18	127.5	104.4	79.4	1.92
19	42.5	119.4	94.4	4.07
20	47.5	114.4	90.2	2.95
21	52.5	119.4	96.1	2.51
22	57.5	114.4	92.1	2.27
23	62.5	119.4	95.1	2.36
24	67.5	114.4	90.1	2.23
25	72.5	119.4	95.0	2.10
26	77.5	114.4	90.0	2.02
27	82.5	119.4	94.9	1.93
28	87.5	114.4	89.9	1.88
29	92.5	119.4	94.8	1.82
30	97.5	114.4	91.9	1.78
31	102.5	119.4	96.9	1.77
32	107.5	114.4	91.8	1.79
33	112.5	119.4	96.8	1.80
34	117.5	114.4	91.8	1.84
35	122.5	119.4	96.7	1.86
36	127.5	114.4	91.7	1.90
37	42.5	129.4	104.3	4.14
38	47.5	124.4	98.4	5.67
39	52.5	129.4	105.9	2.52
40	57.5	124.4	100.1	2.53
41	62.5	129.4	105.1	2.33
42	67.5	124.4	100.1	2.20
43	72.5	129.4	105.0	2.08
44	77.5	124.4	100.0	2.00
45	82.5	129.4	104.9	1.91
46	87.5	124.4	99.9	1.86
47	92.5	129.4	106.9	1.78
48	97.5	124.4	101.9	1.77
49	102.5	129.4	106.9	1.77
50	107.5	124.4	101.8	1.78
51	112.5	129.4	106.8	1.80
52	117.5	124.4	101.8	1.83
53	122.5	129.4	106.7	1.85
54	127.5	124.4	99.4	1.89
55	47.5	134.4	108.3	6.14
56	52.5	139.4	115.7	2.53
57	57.5	134.4	109.9	2.55
58	62.5	139.4	115.1	2.30
59	67.5	134.4	110.1	2.17
60	72.5	139.4	115.0	2.06
61	77.5	134.4	110.0	1.98
62	82.5	139.4	114.9	1.89
63	87.5	134.4	109.9	1.85
64	92.5	139.4	116.9	1.77

65	97.5	134.4	111.9	1.76
66	102.5	139.4	116.9	1.77
67	107.5	134.4	111.8	1.78
68	112.5	139.4	116.8	1.80
69	117.5	134.4	111.8	1.82
70	122.5	139.4	116.7	1.84
71	127.5	134.4	109.3	1.88
72	42.5	149.4	124.2	4.22
73	47.5	144.4	118.2	6.60
74	52.5	149.4	123.8	3.45
75	57.5	144.4	119.7	2.58
76	62.5	149.4	125.1	2.27
77	67.5	144.4	120.1	2.15
78	72.5	149.4	125.0	2.04
79	77.5	144.4	120.0	1.96
80	82.5	149.4	124.9	1.88
81	87.5	144.4	119.9	1.83
82	92.5	149.4	126.9	1.77
83	97.5	144.4	121.9	1.76
84	102.5	149.4	126.8	1.77
85	107.5	144.4	121.8	1.78
86	112.5	149.4	126.8	1.80
87	117.5	144.4	121.8	1.82
88	122.5	149.4	124.5	1.85
89	127.5	144.4	121.6	1.85
90	42.5	159.4	134.1	4.23
91	47.5	154.4	129.7	3.09
92	52.5	159.4	133.6	3.53
93	57.5	154.4	131.3	2.23
94	62.5	159.4	137.0	2.05
95	67.5	154.4	130.1	2.13
96	72.5	159.4	135.0	2.02
97	77.5	154.4	130.0	1.94
98	82.5	159.4	134.9	1.87
99	87.5	154.4	131.9	1.78
100	92.5	159.4	134.8	1.79
101	97.5	154.4	131.9	1.76
102	102.5	159.4	134.7	1.78
103	107.5	154.4	131.8	1.78
104	112.5	159.4	134.7	1.81
105	117.5	154.4	131.8	1.81
106	122.5	159.4	134.4	1.85
107	127.5	154.4	131.6	1.84
108	37.5	164.4	138.8	8.59
109	42.5	169.4	144.1	4.23
110	47.5	164.4	139.6	3.10
111	52.5	169.4	145.2	2.53
112	57.5	164.4	141.1	2.22
113	62.5	169.4	146.9	2.04
114	67.5	164.4	140.0	2.11
115	72.5	169.4	145.0	2.00
116	77.5	164.4	140.0	1.92
117	82.5	169.4	144.9	1.86
118	87.5	164.4	139.9	1.81
119	92.5	169.4	144.8	1.79
120	97.5	164.4	139.8	1.78
121	102.5	169.4	144.7	1.78
122	107.5	164.4	139.7	1.79
123	112.5	169.4	144.7	1.81

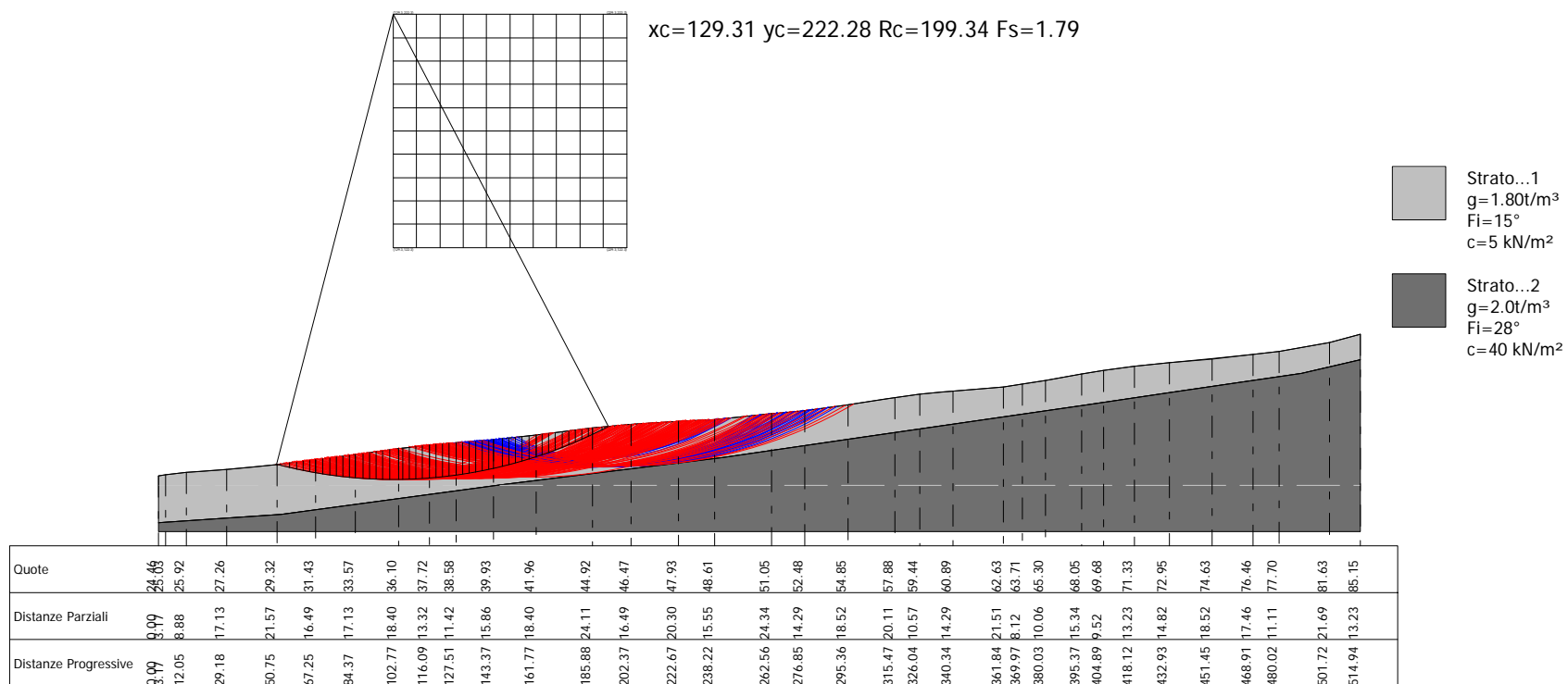
124	117.5	164.4	141.8	1.81
125	122.5	169.4	146.7	1.82
126	127.5	164.4	141.6	1.83
127	37.5	174.4	148.8	8.42
128	47.5	174.4	148.0	7.64
129	52.5	179.4	153.4	3.62
130	57.5	174.4	150.9	2.22
131	62.5	179.4	156.7	2.04
132	67.5	174.4	150.0	2.09
133	72.5	179.4	155.0	1.98
134	77.5	174.4	150.0	1.91
135	82.5	179.4	154.9	1.85
136	87.5	174.4	149.9	1.81
137	92.5	179.4	154.8	1.79
138	97.5	174.4	149.8	1.78
139	102.5	179.4	154.7	1.79
140	107.5	174.4	149.7	1.80
141	112.5	179.4	154.7	1.81
142	117.5	174.4	151.8	1.80
143	122.5	179.4	156.7	1.81
144	127.5	174.4	151.6	1.82
145	37.5	184.4	158.7	8.19
146	42.5	189.4	164.0	4.19
147	47.5	184.4	157.9	7.83
148	52.5	189.4	165.0	2.52
149	57.5	184.4	159.0	2.64
150	62.5	189.4	164.6	2.24
151	67.5	184.4	160.0	2.07
152	72.5	189.4	165.0	1.96
153	77.5	184.4	160.0	1.90
154	82.5	189.4	164.9	1.84
155	87.5	184.4	159.9	1.81
156	92.5	189.4	164.8	1.79
157	97.5	184.4	159.8	1.79
158	102.5	189.4	164.7	1.79
159	107.5	184.4	159.7	1.80
160	112.5	189.4	166.8	1.79
161	117.5	184.4	159.5	1.82
162	122.5	189.4	164.3	1.83
163	127.5	184.4	159.2	1.85
164	37.5	194.4	168.7	7.91
165	47.5	194.4	167.8	7.94
166	52.5	199.4	173.3	3.64
167	57.5	194.4	170.6	2.21
168	62.5	199.4	176.3	2.03
169	67.5	194.4	170.0	2.05
170	72.5	199.4	175.0	1.95
171	77.5	194.4	170.0	1.89
172	82.5	199.4	174.9	1.83
173	87.5	194.4	169.9	1.80
174	92.5	199.4	174.8	1.79
175	97.5	194.4	169.8	1.79
176	102.5	199.4	174.7	1.79
177	107.5	194.4	169.7	1.80
178	112.5	199.4	176.8	1.79
179	117.5	194.4	171.7	1.79
180	122.5	199.4	176.6	1.80
181	127.5	194.4	171.5	1.80
182	47.5	204.4	177.8	7.97

183	57.5	204.4	178.8	2.64
184	67.5	204.4	180.0	2.03
185	77.5	204.4	180.0	1.88
186	87.5	204.4	179.9	1.80
187	97.5	204.4	179.8	1.79
188	107.5	204.4	181.8	1.78
189	117.5	204.4	181.7	1.79
190	127.5	204.4	181.5	1.80

Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	2
7.Risultati analisi pendio [A2+M2+R2]	2
Indice	7

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE DA 100 A 200 m
 IN CONDIZIONI SISMICA



Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2018
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	129.31 m
Ordinata vertice sinistro inferiore yi	122.28 m
Ascissa vertice destro superiore xs	229.31 m
Ordinata vertice destro superiore ys	222.28 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.063
Coefficiente azione sismica verticale	0.032

Vertici profilo

Nr	X (m)	y (m)
1	28.79	24.46
2	31.96	25.03
3	40.84	25.92
4	57.97	27.26
5	79.54	29.32
6	96.03	31.43
7	113.16	33.57
8	131.56	36.1
9	144.88	37.72
10	156.3	38.58
11	172.16	39.93
12	190.56	41.96
13	214.66	44.92
14	231.16	46.47
15	251.46	47.93
16	267.01	48.61
17	291.35	51.05
18	305.63	52.48
19	324.15	54.85
20	344.26	57.88
21	354.83	59.44
22	369.12	60.89
23	390.63	62.63
24	398.76	63.71
25	408.81	65.3
26	424.15	68.05
27	433.68	69.68
28	446.9	71.33
29	461.72	72.95

30	480.24	74.63
31	497.7	76.46
32	508.81	77.7
33	530.5	81.63
34	543.73	85.15

Vertici strato1

N	X (m)	y (m)
1	28.79	4.46
2	81.35	7.97
3	175.47	20.67
4	270.51	32.26
5	329.89	40.87
6	424.93	54.65
7	467.98	61.0
8	518.41	68.45
9	543.73	74.19

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.80		
2	40		28	2.0		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.79
Ascissa centro superficie	129.31 m
Ordinata centro superficie	222.28 m
Raggio superficie	199.34 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	129.3	122.3	97.2	1.91
2	134.3	127.3	104.4	1.91
3	139.3	122.3	96.8	1.96
4	144.3	127.3	104.2	1.94
5	149.3	122.3	99.1	1.96

6	154.3	127.3	101.3	1.98
7	159.3	122.3	99.0	1.98
8	164.3	127.3	100.9	1.98
9	169.3	122.3	95.8	1.99
10	174.3	127.3	100.6	1.98
11	179.3	122.3	92.2	1.98
12	184.3	127.3	96.9	1.96
13	189.3	122.3	88.3	1.96
14	194.3	127.3	92.9	1.96
15	199.3	122.3	87.6	1.98
16	204.3	127.3	95.9	2.01
17	209.3	122.3	90.6	2.06
18	214.3	127.3	95.3	2.11
19	219.3	122.3	90.1	2.17
20	224.3	127.3	98.8	2.20
21	229.3	122.3	93.7	2.26
22	129.3	132.3	109.5	1.88
23	134.3	137.3	112.0	1.91
24	139.3	132.3	106.8	1.94
25	144.3	137.3	114.2	1.91
26	149.3	132.3	106.4	1.96
27	154.3	137.3	114.0	1.92
28	159.3	132.3	109.0	1.94
29	164.3	137.3	113.9	1.94
30	169.3	132.3	108.8	1.96
31	174.3	137.3	110.5	1.96
32	179.3	132.3	102.2	1.96
33	184.3	137.3	106.9	1.95
34	189.3	132.3	101.6	1.95
35	194.3	137.3	106.3	1.96
36	199.3	132.3	101.1	1.98
37	204.3	137.3	105.8	2.01
38	209.3	132.3	100.6	2.05
39	214.3	137.3	105.3	2.10
40	219.3	132.3	104.0	2.15
41	224.3	137.3	108.8	2.17
42	229.3	132.3	103.6	2.21
43	129.3	142.3	119.5	1.86
44	134.3	147.3	121.9	1.90
45	139.3	142.3	119.3	1.89
46	144.3	147.3	121.6	1.92
47	149.3	142.3	119.1	1.90
48	154.3	147.3	124.0	1.90
49	159.3	142.3	116.1	1.94
50	164.3	147.3	123.8	1.92
51	169.3	142.3	118.8	1.94
52	174.3	147.3	120.5	1.94
53	179.3	142.3	112.1	1.95
54	184.3	147.3	116.8	1.95
55	189.3	142.3	111.6	1.95
56	194.3	147.3	116.3	1.96
57	199.3	142.3	111.1	1.98
58	204.3	147.3	115.8	2.01
59	209.3	142.3	110.5	2.05
60	214.3	147.3	119.1	2.09
61	219.3	142.3	113.9	2.12
62	224.3	147.3	118.8	2.14
63	229.3	142.3	113.6	2.18
64	129.3	152.3	129.5	1.85

65	134.3	157.3	134.4	1.85
66	139.3	152.3	129.3	1.87
67	144.3	157.3	131.5	1.90
68	149.3	152.3	129.1	1.88
69	154.3	157.3	134.0	1.88
70	159.3	152.3	126.0	1.92
71	164.3	157.3	133.8	1.90
72	169.3	152.3	125.7	1.93
73	174.3	157.3	130.5	1.93
74	179.3	152.3	122.1	1.94
75	184.3	157.3	126.8	1.94
76	189.3	152.3	121.5	1.95
77	194.3	157.3	126.3	1.96
78	199.3	152.3	121.0	1.98
79	204.3	157.3	125.7	2.01
80	209.3	152.3	120.5	2.05
81	214.3	157.3	129.1	2.07
82	219.3	152.3	123.9	2.10
83	224.3	157.3	128.7	2.11
84	229.3	152.3	123.6	2.15
85	129.3	162.3	137.1	1.87
86	134.3	167.3	144.3	1.84
87	139.3	162.3	139.3	1.85
88	144.3	167.3	144.2	1.85
89	149.3	162.3	139.1	1.87
90	154.3	167.3	144.0	1.87
91	159.3	162.3	138.9	1.88
92	164.3	167.3	143.8	1.89
93	169.3	162.3	138.7	1.91
94	174.3	167.3	140.5	1.92
95	179.3	162.3	135.3	1.94
96	184.3	167.3	136.7	1.94
97	189.3	162.3	131.5	1.95
98	194.3	167.3	136.2	1.96
99	199.3	162.3	131.0	1.98
100	204.3	167.3	135.7	2.01
101	209.3	162.3	130.4	2.05
102	214.3	167.3	139.0	2.06
103	219.3	162.3	133.9	2.09
104	224.3	167.3	138.7	2.09
105	229.3	162.3	133.5	2.12
106	129.3	172.3	149.4	1.83
107	134.3	177.3	151.8	1.86
108	139.3	172.3	149.2	1.84
109	144.3	177.3	151.5	1.87
110	149.3	172.3	149.1	1.85
111	154.3	177.3	151.1	1.88
112	159.3	172.3	146.0	1.89
113	164.3	177.3	150.8	1.89
114	169.3	172.3	145.6	1.91
115	174.3	177.3	153.6	1.92
116	179.3	172.3	145.3	1.93
117	184.3	177.3	146.7	1.94
118	189.3	172.3	141.4	1.95
119	194.3	177.3	146.2	1.97
120	199.3	172.3	140.9	1.99
121	204.3	177.3	145.6	2.02
122	209.3	172.3	144.2	2.04
123	214.3	177.3	149.0	2.05

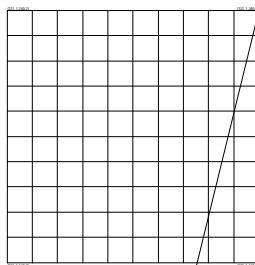
124	219.3	172.3	143.9	2.07
125	224.3	177.3	148.7	2.08
126	229.3	172.3	143.5	2.10
127	129.3	182.3	159.4	1.82
128	134.3	187.3	161.8	1.85
129	139.3	182.3	156.6	1.86
130	144.3	187.3	164.1	1.83
131	149.3	182.3	156.3	1.87
132	154.3	187.3	164.0	1.85
133	159.3	182.3	158.9	1.86
134	164.3	187.3	163.8	1.87
135	169.3	182.3	158.7	1.89
136	174.3	187.3	163.6	1.91
137	179.3	182.3	155.2	1.93
138	184.3	187.3	156.6	1.94
139	189.3	182.3	151.4	1.95
140	194.3	187.3	156.1	1.97
141	199.3	182.3	150.9	1.99
142	204.3	187.3	159.3	2.01
143	209.3	182.3	154.2	2.03
144	214.3	187.3	159.0	2.04
145	219.3	182.3	153.8	2.05
146	224.3	187.3	158.6	2.06
147	229.3	182.3	153.5	2.08
148	129.3	192.3	167.0	1.84
149	134.3	197.3	174.3	1.81
150	139.3	192.3	169.2	1.82
151	144.3	197.3	174.1	1.82
152	149.3	192.3	169.0	1.83
153	154.3	197.3	173.9	1.84
154	159.3	192.3	168.9	1.85
155	164.3	197.3	170.7	1.88
156	169.3	192.3	168.7	1.89
157	174.3	197.3	170.4	1.91
158	179.3	192.3	165.2	1.93
159	184.3	197.3	166.6	1.94
160	189.3	192.3	161.4	1.96
161	194.3	197.3	166.1	1.98
162	199.3	192.3	160.8	1.99
163	204.3	197.3	169.3	2.01
164	209.3	192.3	164.1	2.02
165	214.3	197.3	168.9	2.03
166	219.3	192.3	163.8	2.04
167	224.3	197.3	168.6	2.04
168	229.3	192.3	163.4	2.06
169	129.3	202.3	179.4	1.80
170	134.3	207.3	181.7	1.83
171	139.3	202.3	179.2	1.81
172	144.3	207.3	181.4	1.84
173	149.3	202.3	176.2	1.85
174	154.3	207.3	181.0	1.85
175	159.3	202.3	175.9	1.86
176	164.3	207.3	183.8	1.86
177	169.3	202.3	175.5	1.89
178	174.3	207.3	183.6	1.90
179	179.3	202.3	175.2	1.92
180	184.3	207.3	180.0	1.95
181	189.3	202.3	171.3	1.96
182	194.3	207.3	179.6	1.98

183	199.3	202.3	174.5	2.00
184	204.3	207.3	179.3	2.00
185	209.3	202.3	174.1	2.01
186	214.3	207.3	178.9	2.02
187	219.3	202.3	173.8	2.03
188	224.3	207.3	178.6	2.03
189	229.3	202.3	173.4	2.04
190	129.3	212.3	186.9	1.83
191	134.3	217.3	194.3	1.79
192	139.3	212.3	186.5	1.83
193	144.3	217.3	194.1	1.81
194	149.3	212.3	189.0	1.82
195	154.3	217.3	193.9	1.83
196	159.3	212.3	188.8	1.84
197	164.3	217.3	193.7	1.86
198	169.3	212.3	188.7	1.88
199	174.3	217.3	190.3	1.90
200	179.3	212.3	185.1	1.92
201	184.3	217.3	189.9	1.95
202	189.3	212.3	188.3	1.96
203	194.3	217.3	189.6	1.98
204	199.3	212.3	184.4	1.99
205	204.3	217.3	189.2	2.00
206	209.3	212.3	184.1	2.01
207	214.3	217.3	188.9	2.01
208	219.3	212.3	183.7	2.02
209	224.3	217.3	188.5	2.02
210	229.3	212.3	183.4	2.02
211	129.3	222.3	199.3	1.79
212	139.3	222.3	199.2	1.80
213	149.3	222.3	199.0	1.81
214	159.3	222.3	198.8	1.84
215	169.3	222.3	195.5	1.89
216	179.3	222.3	195.1	1.93
217	189.3	222.3	194.8	1.96
218	199.3	222.3	194.4	1.99
219	209.3	222.3	194.0	2.00
220	219.3	222.3	193.7	2.01
221	229.3	222.3	193.3	2.01

Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	2
7.Risultati analisi pendio [A2+M2+R2]	2
Indice	7

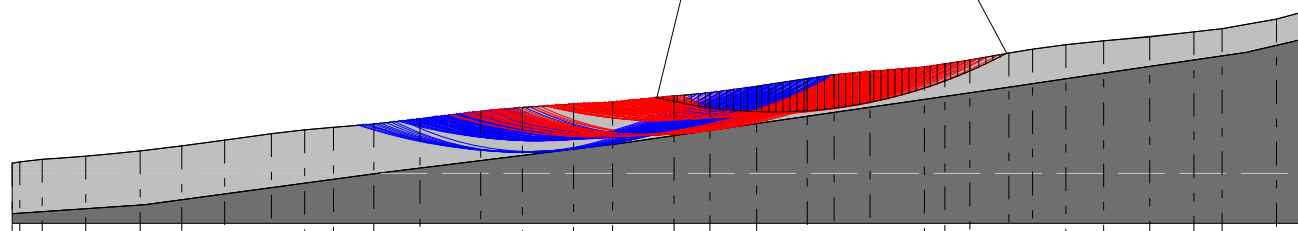
VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE DA 200 A 300 m
 IN CONDIZIONI SISMICA



$x_c=331.09$ $y_c=240.15$ $R_c=195.45$ $F_s=1.69$

- Strato...1
 $g=1.80t/m^3$
 $F_i=15^\circ$
 $c=5$ kN/m²

- Strato...2
 $g=2.0t/m^3$
 $F_i=28^\circ$
 $c=40$ kN/m²



Quote	9.09	24.66	25.92	27.26	29.32	31.43	33.57	36.10	37.72	38.58	39.93	41.96	44.92	46.47	47.93	48.61	51.05	52.48	54.85	57.88	59.44	60.89	62.63	63.71	65.30	68.05	69.68	71.33	72.95	74.63	76.46	77.70	81.63	85.15
Distanze Parziali	9.09	8.88	17.13	21.57	16.49	17.13	18.40	13.32	11.42	15.86	18.40	24.11	16.49	20.30	15.55	24.34	14.29	18.52	20.11	10.57	14.29	21.51	8.12	10.06	15.34	9.52	13.23	14.82	18.52	17.46	11.11	21.69	13.23	
Distanze Progressive	9.09	12.05	29.18	50.75	67.25	84.37	102.77	116.09	127.51	143.37	161.77	185.88	202.37	222.67	238.22	262.56	276.85	295.36	315.47	326.04	340.34	361.84	369.97	380.03	395.37	404.89	418.12	432.93	451.45	468.91	480.02	501.72	514.94	

Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2018
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	231.09 m
Ordinata vertice sinistro inferiore yi	140.15 m
Ascissa vertice destro superiore xs	331.09 m
Ordinata vertice destro superiore ys	240.15 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.063
Coefficiente azione sismica verticale	0.032

Vertici profilo

Nr	X (m)	y (m)
1	28.79	24.46
2	31.96	25.03
3	40.84	25.92
4	57.97	27.26
5	79.54	29.32
6	96.03	31.43
7	113.16	33.57
8	131.56	36.1
9	144.88	37.72
10	156.3	38.58
11	172.16	39.93
12	190.56	41.96
13	214.66	44.92
14	231.16	46.47
15	251.46	47.93
16	267.01	48.61
17	291.35	51.05
18	305.63	52.48
19	324.15	54.85
20	344.26	57.88
21	354.83	59.44
22	369.12	60.89
23	390.63	62.63
24	398.76	63.71
25	408.81	65.3
26	424.15	68.05
27	433.68	69.68
28	446.9	71.33
29	461.72	72.95

30	480.24	74.63
31	497.7	76.46
32	508.81	77.7
33	530.5	81.63
34	543.73	85.15

Vertici strato1

N	X (m)	y (m)
1	28.79	4.46
2	81.35	7.97
3	175.47	20.67
4	270.51	32.26
5	329.89	40.87
6	424.93	54.65
7	467.98	61.0
8	518.41	68.45
9	543.73	74.19

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.80		
2	40		28	2.0		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.69
Ascissa centro superficie	331.09 m
Ordinata centro superficie	240.15 m
Raggio superficie	195.45 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	231.1	140.2	111.4	2.19
2	236.1	145.2	116.2	2.19
3	241.1	140.2	106.7	2.28
4	246.1	145.2	111.4	2.27
5	251.1	140.2	106.2	2.28

6	256.1	145.2	110.9	2.25
7	261.1	140.2	105.7	2.24
8	266.1	145.2	110.4	2.17
9	271.1	140.2	105.1	2.14
10	276.1	145.2	109.9	2.07
11	281.1	140.2	104.6	2.02
12	286.1	145.2	109.3	1.95
13	291.1	140.2	98.9	1.91
14	296.1	145.2	103.5	1.83
15	301.1	140.2	98.2	1.79
16	306.1	145.2	102.8	1.75
17	311.1	140.2	97.5	1.74
18	316.1	145.2	102.1	1.72
19	321.1	140.2	96.8	1.72
20	326.1	145.2	101.4	1.73
21	331.1	140.2	96.1	1.74
22	231.1	150.2	121.4	2.16
23	236.1	155.2	121.9	2.21
24	241.1	150.2	116.7	2.24
25	246.1	155.2	121.4	2.23
26	251.1	150.2	116.2	2.24
27	256.1	155.2	120.9	2.20
28	261.1	150.2	115.6	2.19
29	266.1	155.2	120.3	2.13
30	271.1	150.2	115.1	2.10
31	276.1	155.2	119.8	2.03
32	281.1	150.2	114.6	1.99
33	286.1	155.2	119.3	1.91
34	291.1	150.2	108.8	1.88
35	296.1	155.2	113.4	1.81
36	301.1	150.2	108.1	1.77
37	306.1	155.2	112.7	1.74
38	311.1	150.2	107.4	1.73
39	316.1	155.2	112.0	1.72
40	321.1	150.2	106.7	1.72
41	326.1	155.2	111.3	1.73
42	331.1	150.2	106.0	1.74
43	231.1	160.2	131.3	2.13
44	236.1	165.2	131.9	2.18
45	241.1	160.2	126.6	2.21
46	246.1	165.2	131.4	2.20
47	251.1	160.2	126.1	2.20
48	256.1	165.2	130.8	2.17
49	261.1	160.2	125.6	2.15
50	266.1	165.2	130.3	2.09
51	271.1	160.2	125.1	2.06
52	276.1	165.2	129.8	1.99
53	281.1	160.2	124.5	1.96
54	286.1	165.2	129.2	1.89
55	291.1	160.2	118.8	1.86
56	296.1	165.2	123.4	1.79
57	301.1	160.2	118.1	1.76
58	306.1	165.2	122.7	1.73
59	311.1	160.2	117.4	1.72
60	316.1	165.2	122.0	1.71
61	321.1	160.2	116.7	1.72
62	326.1	165.2	121.3	1.73
63	331.1	160.2	115.9	1.74
64	231.1	170.2	141.3	2.11

65	236.1	175.2	141.8	2.16
66	241.1	170.2	136.6	2.18
67	246.1	175.2	141.3	2.17
68	251.1	170.2	136.1	2.17
69	256.1	175.2	140.8	2.13
70	261.1	170.2	135.5	2.12
71	266.1	175.2	140.2	2.06
72	271.1	170.2	135.0	2.03
73	276.1	175.2	139.7	1.96
74	281.1	170.2	134.5	1.93
75	286.1	175.2	134.0	1.89
76	291.1	170.2	128.7	1.84
77	296.1	175.2	133.3	1.78
78	301.1	170.2	128.0	1.75
79	306.1	175.2	132.6	1.72
80	311.1	170.2	127.3	1.72
81	316.1	175.2	131.9	1.71
82	321.1	170.2	126.6	1.72
83	326.1	175.2	131.2	1.73
84	331.1	170.2	125.9	1.74
85	231.1	180.2	151.3	2.09
86	236.1	185.2	151.8	2.14
87	241.1	180.2	146.5	2.15
88	246.1	185.2	151.3	2.14
89	251.1	180.2	146.0	2.14
90	256.1	185.2	150.7	2.10
91	261.1	180.2	145.5	2.09
92	266.1	185.2	150.2	2.03
93	271.1	180.2	145.0	2.00
94	276.1	185.2	149.7	1.94
95	281.1	180.2	144.4	1.90
96	286.1	185.2	144.0	1.87
97	291.1	180.2	138.6	1.82
98	296.1	185.2	143.3	1.77
99	301.1	180.2	137.9	1.74
100	306.1	185.2	142.6	1.72
101	311.1	180.2	137.2	1.71
102	316.1	185.2	141.8	1.71
103	321.1	180.2	136.5	1.72
104	326.1	185.2	141.1	1.73
105	331.1	180.2	135.8	1.74
106	231.1	190.2	161.3	2.06
107	236.1	195.2	161.7	2.12
108	241.1	190.2	156.5	2.13
109	246.1	195.2	161.2	2.11
110	251.1	190.2	156.0	2.11
111	256.1	195.2	160.7	2.07
112	261.1	190.2	155.4	2.05
113	266.1	195.2	160.2	2.00
114	271.1	190.2	154.9	1.97
115	276.1	195.2	159.6	1.92
116	281.1	190.2	154.4	1.89
117	286.1	195.2	153.9	1.86
118	291.1	190.2	148.6	1.81
119	296.1	195.2	153.2	1.76
120	301.1	190.2	147.9	1.74
121	306.1	195.2	152.5	1.72
122	311.1	190.2	147.2	1.71
123	316.1	195.2	151.8	1.72

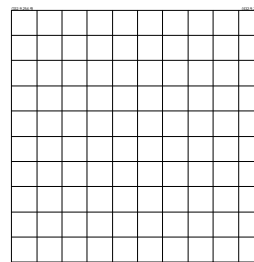
124	321.1	190.2	146.5	1.72
125	326.1	195.2	151.1	1.73
126	331.1	190.2	145.8	1.73
127	231.1	200.2	171.2	2.05
128	236.1	205.2	171.7	2.10
129	241.1	200.2	166.5	2.11
130	246.1	205.2	171.2	2.09
131	251.1	200.2	165.9	2.08
132	256.1	205.2	170.6	2.05
133	261.1	200.2	165.4	2.03
134	266.1	205.2	170.1	1.98
135	271.1	200.2	164.9	1.95
136	276.1	205.2	169.6	1.90
137	281.1	200.2	164.3	1.87
138	286.1	205.2	163.8	1.84
139	291.1	200.2	158.5	1.80
140	296.1	205.2	163.1	1.76
141	301.1	200.2	157.8	1.73
142	306.1	205.2	162.4	1.72
143	311.1	200.2	157.1	1.71
144	316.1	205.2	161.7	1.72
145	321.1	200.2	156.4	1.72
146	326.1	205.2	161.0	1.72
147	331.1	200.2	155.7	1.73
148	231.1	210.2	181.2	2.03
149	236.1	215.2	181.6	2.08
150	241.1	210.2	176.4	2.09
151	246.1	215.2	181.1	2.07
152	251.1	210.2	175.9	2.06
153	256.1	215.2	180.6	2.02
154	261.1	210.2	175.3	2.00
155	266.1	215.2	180.1	1.95
156	271.1	210.2	174.8	1.93
157	276.1	215.2	179.5	1.88
158	281.1	210.2	174.3	1.86
159	286.1	215.2	173.8	1.83
160	291.1	210.2	168.5	1.79
161	296.1	215.2	173.1	1.76
162	301.1	210.2	167.7	1.73
163	306.1	215.2	172.4	1.72
164	311.1	210.2	167.0	1.72
165	316.1	215.2	171.7	1.72
166	321.1	210.2	166.3	1.72
167	326.1	215.2	171.0	1.72
168	331.1	210.2	165.6	1.72
169	231.1	220.2	191.2	2.01
170	236.1	225.2	191.6	2.07
171	241.1	220.2	186.4	2.07
172	246.1	225.2	191.1	2.05
173	251.1	220.2	185.8	2.04
174	256.1	225.2	190.5	2.00
175	261.1	220.2	185.3	1.98
176	266.1	225.2	190.0	1.93
177	271.1	220.2	184.8	1.91
178	276.1	225.2	189.5	1.87
179	281.1	220.2	184.2	1.85
180	286.1	225.2	183.7	1.82
181	291.1	220.2	178.4	1.79
182	296.1	225.2	183.0	1.76

183	301.1	220.2	177.7	1.73
184	306.1	225.2	182.3	1.72
185	311.1	220.2	177.0	1.72
186	316.1	225.2	181.6	1.72
187	321.1	220.2	176.3	1.72
188	326.1	225.2	180.9	1.71
189	331.1	220.2	175.6	1.71
190	231.1	230.2	201.1	1.99
191	236.1	235.2	201.6	2.05
192	241.1	230.2	196.3	2.05
193	246.1	235.2	201.0	2.02
194	251.1	230.2	195.8	2.01
195	256.1	235.2	200.5	1.98
196	261.1	230.2	195.3	1.95
197	266.1	235.2	200.0	1.91
198	271.1	230.2	194.7	1.89
199	276.1	235.2	199.4	1.86
200	281.1	230.2	194.2	1.84
201	286.1	235.2	193.6	1.81
202	291.1	230.2	188.3	1.78
203	296.1	235.2	192.9	1.75
204	301.1	230.2	187.6	1.73
205	306.1	235.2	192.2	1.72
206	311.1	230.2	186.9	1.72
207	316.1	235.2	191.5	1.72
208	321.1	230.2	186.2	1.72
209	326.1	235.2	190.8	1.71
210	331.1	230.2	185.5	1.70
211	231.1	240.2	211.1	1.98
212	241.1	240.2	206.3	2.03
213	251.1	240.2	205.7	1.99
214	261.1	240.2	205.2	1.93
215	271.1	240.2	204.7	1.88
216	281.1	240.2	204.2	1.83
217	291.1	240.2	198.3	1.78
218	301.1	240.2	197.6	1.74
219	311.1	240.2	196.9	1.72
220	321.1	240.2	196.2	1.71
221	331.1	240.2	195.4	1.69

Indice

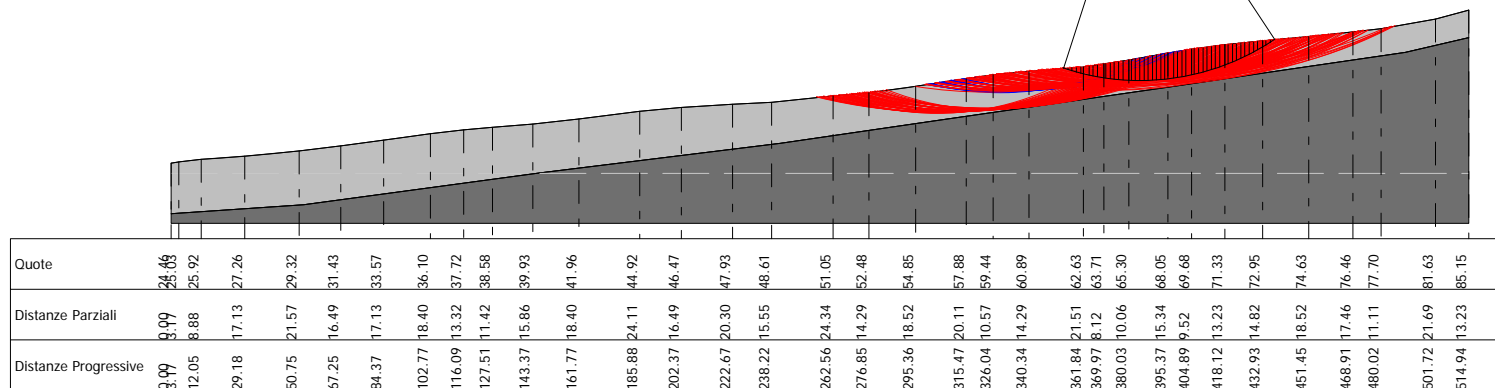
1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	2
7.Risultati analisi pendio [A2+M2+R2]	2
Indice	7

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE DA 300 A 400 m
 IN CONDIZIONI SISMICA



$x_c=412.88$ $y_c=154.92$ $R_c=97.61$ $F_s=1.58$

- Strato...1
 $g=1.80t/m^3$
 $F_i=15^\circ$
 $c=5$ kN/m²
- Strato...2
 $g=2.0t/m^3$
 $F_i=28^\circ$
 $c=40$ kN/m²



Quote	9.09	24.06	25.92	27.26	29.32	31.43	33.57	36.10	37.72	38.58	39.93	41.96	44.92	46.47	47.93	48.61	51.05	52.48	54.85	57.88	59.44	60.89	62.63	63.71	65.30	68.05	69.68	71.33	72.95	74.63	76.46	77.70	81.63	85.15
Distanze Parziali	9.09	8.88	17.13	21.57	16.49	17.13	18.40	13.32	11.42	15.86	18.40	24.11	16.49	20.30	15.55	24.34	14.29	18.52	20.11	10.57	14.29	21.51	8.12	10.06	15.34	9.52	13.23	14.82	18.52	17.46	11.11	21.69	13.23	
Distanze Progressive	9.09	12.05	29.18	50.75	67.25	84.37	102.77	116.09	127.51	143.37	161.77	185.88	202.37	222.67	238.22	262.56	276.85	295.36	315.47	326.04	340.34	361.84	369.97	380.03	395.37	404.89	418.12	432.93	451.45	468.91	480.02	501.72	514.94	

Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2018
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	332.88 m
Ordinata vertice sinistro inferiore yi	154.92 m
Ascissa vertice destro superiore xs	432.88 m
Ordinata vertice destro superiore ys	254.91 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.063
Coefficiente azione sismica verticale	0.032

Vertici profilo

Nr	X (m)	y (m)
1	28.79	24.46
2	31.96	25.03
3	40.84	25.92
4	57.97	27.26
5	79.54	29.32
6	96.03	31.43
7	113.16	33.57
8	131.56	36.1
9	144.88	37.72
10	156.3	38.58
11	172.16	39.93
12	190.56	41.96
13	214.66	44.92
14	231.16	46.47
15	251.46	47.93
16	267.01	48.61
17	291.35	51.05
18	305.63	52.48
19	324.15	54.85
20	344.26	57.88
21	354.83	59.44
22	369.12	60.89
23	390.63	62.63
24	398.76	63.71
25	408.81	65.3
26	424.15	68.05
27	433.68	69.68
28	446.9	71.33
29	461.72	72.95

30	480.24	74.63
31	497.7	76.46
32	508.81	77.7
33	530.5	81.63
34	543.73	85.15

Vertici strato1

N	X (m)	y (m)
1	28.79	4.46
2	81.35	7.97
3	175.47	20.67
4	270.51	32.26
5	329.89	40.87
6	424.93	54.65
7	467.98	61.0
8	518.41	68.45
9	543.73	74.19

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.80		
2	40		28	2.0		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.58
Ascissa centro superficie	412.88 m
Ordinata centro superficie	154.92 m
Raggio superficie	97.61 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	332.9	154.9	110.6	1.75
2	337.9	159.9	115.2	1.76
3	342.9	154.9	109.9	1.78
4	347.9	159.9	114.5	1.78
5	352.9	154.9	109.2	1.79

6	357.9	159.9	107.4	1.96
7	362.9	154.9	102.0	1.98
8	367.9	159.9	106.5	1.93
9	372.9	154.9	101.1	1.91
10	377.9	159.9	105.7	1.83
11	382.9	154.9	100.3	1.78
12	387.9	159.9	104.8	1.71
13	392.9	154.9	99.4	1.67
14	397.9	159.9	103.9	1.62
15	402.9	154.9	98.5	1.60
16	407.9	159.9	103.0	1.58
17	412.9	154.9	97.6	1.58
18	417.9	159.9	102.1	1.60
19	422.9	154.9	96.7	1.63
20	427.9	159.9	100.5	1.68
21	432.9	154.9	94.1	1.74
22	332.9	164.9	120.6	1.74
23	337.9	169.9	125.2	1.75
24	342.9	164.9	119.9	1.76
25	347.9	169.9	124.5	1.76
26	352.9	164.9	119.1	1.76
27	357.9	169.9	117.3	1.94
28	362.9	164.9	111.9	1.94
29	367.9	169.9	116.5	1.90
30	372.9	164.9	111.1	1.87
31	377.9	169.9	115.6	1.79
32	382.9	164.9	110.2	1.75
33	387.9	169.9	114.7	1.69
34	392.9	164.9	109.3	1.65
35	397.9	169.9	113.8	1.62
36	402.9	164.9	108.4	1.60
37	407.9	169.9	112.9	1.59
38	412.9	164.9	107.5	1.59
39	417.9	169.9	112.1	1.61
40	422.9	164.9	106.7	1.63
41	427.9	169.9	108.2	1.71
42	432.9	164.9	101.8	1.79
43	332.9	174.9	130.5	1.74
44	337.9	179.9	135.1	1.74
45	342.9	174.9	129.8	1.75
46	347.9	179.9	134.4	1.74
47	352.9	174.9	129.1	1.74
48	357.9	179.9	127.3	1.92
49	362.9	174.9	121.9	1.91
50	367.9	179.9	126.4	1.86
51	372.9	174.9	121.0	1.83
52	377.9	179.9	125.5	1.77
53	382.9	174.9	120.1	1.73
54	387.9	179.9	124.6	1.68
55	392.9	174.9	119.2	1.65
56	397.9	179.9	123.7	1.62
57	402.9	174.9	118.3	1.60
58	407.9	179.9	122.9	1.59
59	412.9	174.9	117.5	1.59
60	417.9	179.9	121.0	1.61
61	422.9	174.9	114.6	1.65
62	427.9	179.9	122.9	1.66
63	432.9	174.9	116.4	1.70
64	332.9	184.9	140.4	1.74

65	337.9	189.9	145.0	1.73
66	342.9	184.9	139.7	1.73
67	347.9	189.9	144.3	1.72
68	352.9	184.9	139.0	1.71
69	357.9	189.9	137.2	1.89
70	362.9	184.9	131.8	1.88
71	367.9	189.9	136.3	1.83
72	372.9	184.9	130.9	1.80
73	377.9	189.9	135.4	1.74
74	382.9	184.9	130.0	1.71
75	387.9	189.9	134.5	1.67
76	392.9	184.9	129.1	1.64
77	397.9	189.9	133.7	1.62
78	402.9	184.9	128.3	1.60
79	407.9	189.9	132.8	1.60
80	412.9	184.9	127.4	1.60
81	417.9	189.9	129.0	1.64
82	422.9	184.9	122.6	1.70
83	427.9	189.9	130.8	1.68
84	432.9	184.9	124.2	1.73
85	332.9	194.9	150.4	1.73
86	337.9	199.9	155.0	1.72
87	342.9	194.9	149.7	1.72
88	347.9	199.9	154.3	1.70
89	352.9	194.9	149.0	1.69
90	357.9	199.9	147.1	1.87
91	362.9	194.9	141.7	1.85
92	367.9	199.9	146.2	1.80
93	372.9	194.9	140.8	1.77
94	377.9	199.9	145.3	1.73
95	382.9	194.9	139.9	1.70
96	387.9	199.9	144.5	1.66
97	392.9	194.9	139.1	1.64
98	397.9	199.9	143.6	1.62
99	402.9	194.9	138.2	1.60
100	407.9	199.9	141.9	1.60
101	412.9	194.9	135.5	1.61
102	417.9	199.9	143.9	1.62
103	422.9	194.9	137.3	1.64
104	427.9	199.9	138.8	1.71
105	432.9	194.9	132.3	1.78
106	332.9	204.9	160.3	1.72
107	337.9	209.9	164.9	1.71
108	342.9	204.9	159.6	1.70
109	347.9	209.9	164.2	1.68
110	352.9	204.9	158.9	1.67
111	357.9	209.9	157.0	1.85
112	362.9	204.9	151.6	1.83
113	367.9	209.9	156.1	1.78
114	372.9	204.9	150.7	1.75
115	377.9	209.9	155.3	1.71
116	382.9	204.9	149.9	1.69
117	387.9	209.9	154.4	1.66
118	392.9	204.9	149.0	1.63
119	397.9	209.9	153.5	1.62
120	402.9	204.9	148.1	1.61
121	407.9	209.9	150.1	1.62
122	412.9	204.9	143.7	1.65
123	417.9	209.9	151.9	1.63

124	422.9	204.9	145.4	1.66
125	427.9	209.9	152.9	1.66
126	432.9	204.9	146.2	1.70
127	332.9	214.9	170.2	1.71
128	337.9	219.9	174.9	1.69
129	342.9	214.9	169.5	1.69
130	347.9	219.9	174.2	1.66
131	352.9	214.9	168.8	1.66
132	357.9	219.9	166.9	1.83
133	362.9	214.9	161.5	1.80
134	367.9	219.9	166.1	1.76
135	372.9	214.9	160.7	1.74
136	377.9	219.9	165.2	1.70
137	382.9	214.9	159.8	1.68
138	387.9	219.9	164.3	1.65
139	392.9	214.9	158.9	1.63
140	397.9	219.9	163.0	1.62
141	402.9	214.9	156.6	1.61
142	407.9	219.9	165.1	1.62
143	412.9	214.9	158.5	1.62
144	417.9	219.9	160.2	1.64
145	422.9	214.9	153.6	1.69
146	427.9	219.9	161.0	1.68
147	432.9	214.9	154.4	1.73
148	332.9	224.9	180.2	1.70
149	337.9	229.9	184.8	1.68
150	342.9	224.9	179.5	1.67
151	347.9	229.9	184.1	1.65
152	352.9	224.9	178.8	1.64
153	357.9	229.9	176.9	1.81
154	362.9	224.9	171.5	1.78
155	367.9	229.9	176.0	1.74
156	372.9	224.9	170.6	1.72
157	377.9	229.9	175.1	1.69
158	382.9	224.9	169.7	1.67
159	387.9	229.9	174.2	1.65
160	392.9	224.9	168.8	1.63
161	397.9	229.9	171.4	1.64
162	402.9	224.9	171.6	1.63
163	407.9	229.9	173.3	1.62
164	412.9	224.9	166.7	1.62
165	417.9	229.9	174.4	1.63
166	422.9	224.9	167.7	1.65
167	427.9	229.9	169.4	1.70
168	432.9	224.9	162.7	1.77
169	332.9	234.9	190.1	1.69
170	337.9	239.9	194.7	1.67
171	342.9	234.9	189.4	1.66
172	347.9	239.9	194.0	1.64
173	352.9	234.9	188.7	1.63
174	357.9	239.9	186.8	1.79
175	362.9	234.9	181.4	1.76
176	367.9	239.9	185.9	1.73
177	372.9	234.9	180.5	1.71
178	377.9	239.9	185.0	1.68
179	382.9	234.9	179.6	1.67
180	387.9	239.9	184.2	1.65
181	392.9	234.9	177.8	1.64
182	397.9	239.9	186.4	1.63

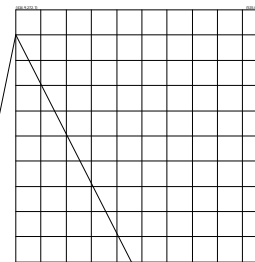
183	402.9	234.9	179.9	1.62
184	407.9	239.9	181.7	1.63
185	412.9	234.9	175.1	1.64
186	417.9	239.9	182.7	1.64
187	422.9	234.9	176.0	1.66
188	427.9	239.9	177.9	1.75
189	432.9	234.9	176.3	1.69
190	332.9	244.9	200.1	1.68
191	337.9	249.9	204.7	1.66
192	342.9	244.9	199.4	1.65
193	347.9	249.9	204.0	1.63
194	352.9	244.9	198.6	1.69
195	357.9	249.9	196.7	1.77
196	362.9	244.9	191.3	1.75
197	367.9	249.9	195.8	1.72
198	372.9	244.9	190.4	1.70
199	377.9	249.9	195.0	1.68
200	382.9	244.9	189.6	1.66
201	387.9	249.9	192.7	1.67
202	392.9	244.9	186.3	1.66
203	397.9	249.9	194.8	1.63
204	402.9	244.9	188.2	1.63
205	407.9	249.9	190.2	1.64
206	412.9	244.9	189.4	1.63
207	417.9	249.9	191.2	1.65
208	422.9	244.9	184.5	1.68
209	427.9	249.9	191.5	1.67
210	432.9	244.9	184.7	1.72
211	332.9	254.9	210.0	1.67
212	342.9	254.9	209.3	1.64
213	352.9	254.9	202.1	1.79
214	362.9	254.9	201.2	1.74
215	372.9	254.9	200.4	1.69
216	382.9	254.9	199.2	1.67
217	392.9	254.9	201.4	1.63
218	402.9	254.9	196.7	1.64
219	412.9	254.9	197.8	1.64
220	422.9	254.9	198.2	1.65
221	432.9	254.9	193.3	1.75

Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	2
7.Risultati analisi pendio [A2+M2+R2]	2
Indice	7

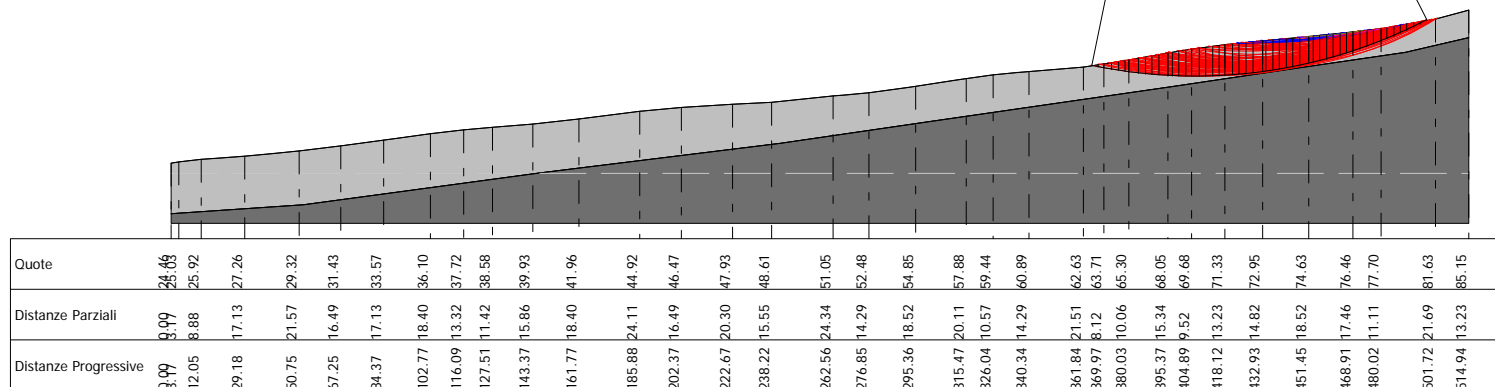
VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE DA 400 A 500 m
 IN CONDIZIONI SISMICA

xc=434.95 yc=262.08 Rc=203.17 Fs=1.68



- Strato...1
 g=1.80t/m³
 Fi=15°
 c=5 kN/m²

- Strato...2
 g=2.0t/m³
 Fi=28°
 c=40 kN/m²



Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2018
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	434.95 m
Ordinata vertice sinistro inferiore yi	172.08 m
Ascissa vertice destro superiore xs	534.95 m
Ordinata vertice destro superiore ys	272.08 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.063
Coefficiente azione sismica verticale	0.032

Vertici profilo

Nr	X (m)	y (m)
1	28.79	24.46
2	31.96	25.03
3	40.84	25.92
4	57.97	27.26
5	79.54	29.32
6	96.03	31.43
7	113.16	33.57
8	131.56	36.1
9	144.88	37.72
10	156.3	38.58
11	172.16	39.93
12	190.56	41.96
13	214.66	44.92
14	231.16	46.47
15	251.46	47.93
16	267.01	48.61
17	291.35	51.05
18	305.63	52.48
19	324.15	54.85
20	344.26	57.88
21	354.83	59.44
22	369.12	60.89
23	390.63	62.63
24	398.76	63.71
25	408.81	65.3
26	424.15	68.05
27	433.68	69.68
28	446.9	71.33
29	461.72	72.95

30	480.24	74.63
31	497.7	76.46
32	508.81	77.7
33	530.5	81.63
34	543.73	85.15

Vertici strato1

N	X (m)	y (m)
1	28.79	4.46
2	81.35	7.97
3	175.47	20.67
4	270.51	32.26
5	329.89	40.87
6	424.93	54.65
7	467.98	61.0
8	518.41	68.45
9	543.73	74.19

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.80		
2	40		28	2.0		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.68
Ascissa centro superficie	434.95 m
Ordinata centro superficie	262.08 m
Raggio superficie	203.17 m

Numero di superfici esaminate....(96)

N°	Xo	Yo	Ro	Fs
1	434.9	172.1	113.1	1.72
2	439.9	177.1	114.3	1.83
3	444.9	172.1	107.8	1.93
4	449.9	177.1	114.7	1.88
5	454.9	172.1	108.1	1.97

6	459.9	177.1	114.4	1.91
7	464.9	172.1	107.6	1.97
8	469.9	177.1	113.3	1.87
9	474.9	172.1	102.0	2.23
10	479.9	177.1	107.8	1.97
11	484.9	172.1	100.9	2.03
12	489.9	177.1	102.8	2.57
13	494.9	172.1	96.0	4.03
14	434.9	182.1	120.9	1.75
15	439.9	187.1	128.1	1.75
16	444.9	182.1	121.4	1.81
17	449.9	187.1	122.7	1.94
18	454.9	182.1	121.2	1.85
19	459.9	187.1	122.4	1.96
20	464.9	182.1	115.6	2.03
21	469.9	187.1	117.1	2.29
22	474.9	182.1	110.4	2.54
23	479.9	187.1	116.3	2.09
24	484.9	182.1	109.5	2.23
25	489.9	187.1	111.6	4.16
26	434.9	192.1	128.9	1.81
27	439.9	197.1	136.1	1.78
28	444.9	192.1	129.4	1.85
29	449.9	197.1	136.0	1.82
30	454.9	192.1	129.2	1.89
31	459.9	197.1	135.2	1.82
32	464.9	192.1	128.4	1.86
33	469.9	197.1	125.7	2.59
34	474.9	192.1	119.0	3.25
35	484.9	192.1	118.3	2.66
36	434.9	202.1	142.8	1.72
37	439.9	207.1	144.3	1.82
38	444.9	202.1	142.8	1.76
39	449.9	207.1	144.2	1.86
40	454.9	202.1	137.4	1.94
41	459.9	207.1	143.5	1.85
42	464.9	202.1	132.4	2.31
43	469.9	207.1	134.4	3.29
44	474.9	202.1	131.7	2.13
45	479.9	207.1	133.9	2.69
46	484.9	202.1	127.2	3.97
47	434.9	212.1	151.0	1.75
48	439.9	217.1	157.7	1.73
49	444.9	212.1	151.0	1.79
50	449.9	217.1	152.6	1.92
51	454.9	212.1	145.8	2.02
52	459.9	217.1	147.8	2.30
53	464.9	212.1	141.1	2.59
54	469.9	217.1	147.2	2.14
55	474.9	212.1	140.5	2.33
56	479.9	217.1	142.9	3.69
57	434.9	222.1	159.3	1.80
58	439.9	227.1	166.1	1.76
59	444.9	222.1	159.3	1.83
60	449.9	227.1	161.1	2.00
61	454.9	222.1	158.8	1.83
62	459.9	227.1	160.7	1.95
63	464.9	222.1	149.9	3.22
64	479.9	227.1	152.0	8.00

65	434.9	232.1	172.8	1.71
66	439.9	237.1	174.6	1.80
67	444.9	232.1	172.5	1.72
68	449.9	237.1	174.2	1.80
69	454.9	232.1	167.4	1.87
70	459.9	237.1	169.5	2.03
71	464.9	232.1	162.8	2.14
72	474.9	232.1	158.6	3.42
73	434.9	242.1	181.3	1.74
74	439.9	247.1	183.2	1.86
75	444.9	242.1	176.5	1.96
76	449.9	247.1	182.9	1.85
77	454.9	242.1	172.1	2.52
78	459.9	247.1	174.5	4.58
79	464.9	242.1	171.8	2.30
80	474.9	242.1	167.8	5.39
81	434.9	252.1	189.9	1.77
82	439.9	257.1	196.4	1.72
83	444.9	252.1	185.3	2.06
84	449.9	257.1	187.6	2.46
85	454.9	252.1	181.1	2.96
86	464.9	252.1	180.9	2.55
87	434.9	262.1	203.2	1.68
88	439.9	267.1	205.1	1.75
89	444.9	262.1	198.4	1.82
90	449.9	267.1	200.7	1.97
91	454.9	262.1	190.1	3.98
92	464.9	262.1	190.0	2.96
93	469.9	267.1	192.8	9.68
94	434.9	272.1	211.9	1.70
95	444.9	272.1	207.3	1.87
96	454.9	272.1	203.1	2.22

Indice

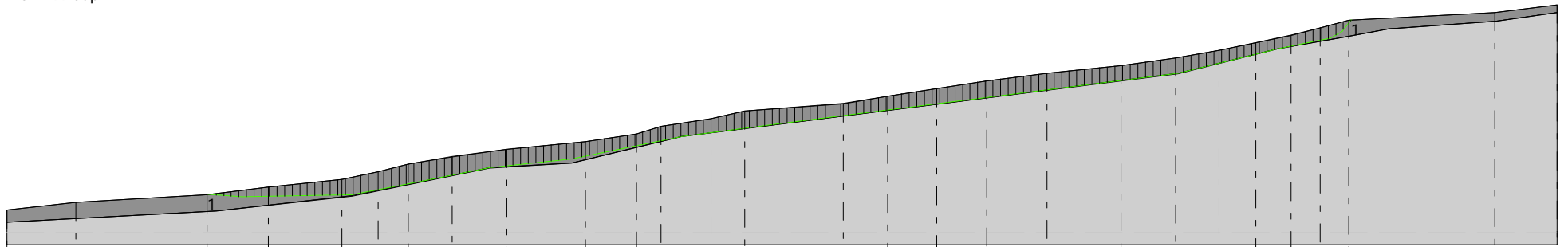
1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	2
7.Risultati analisi pendio [A2+M2+R2]	2
Indice	5

BERZANTINA

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 SUPERFICIE 1
 IN CONDIZIONI STATICHE

Coltre
 $g=1.9t/m^3$ $Fs=1.99$ Sup...1
 $gs=1.9t/m^3$
 $Fi=15^\circ$
 $c=5$ kN/m²

Substato
 $g=2t/m^3$
 $gs=2t/m^3$
 $Fi=28^\circ$
 $c=40$ kN/m²



Quote	99.51	104.51	109.51	114.51	119.51	124.51	129.51	134.51	139.51	144.51	149.51	154.51	159.51	164.51	169.51	174.51	179.51	184.51	189.51	194.51	199.51	204.51	209.51	214.51	219.51	224.51	229.51	234.51
Distanze Parziali	0.00	45.30	86.30	40.30	48.40	24.00	19.80	29.00	35.90	51.60	33.70	16.10	32.90	22.00	65.20	29.20	32.10	33.00	39.70	48.50	36.20	28.40	24.30	23.00	19.30	19.00	96.00	40.80
Distanze Progressive	0.00	45.30	131.60	171.90	220.30	244.30	264.10	293.10	329.00	380.60	414.30	430.40	463.30	485.30	550.50	579.70	611.80	644.80	684.50	733.00	769.20	797.60	821.90	844.90	864.20	883.20	979.20	1020.00

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.155077/10.984918
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	150.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma generica	

Vertici profilo

Nr	X (m)	y (m)
1	27.2	99.51
2	72.5	104.51
3	158.8	109.51
4	199.1	114.51
5	247.5	119.51
6	271.5	124.51
7	291.3	129.51
8	320.3	134.51
9	356.2	139.51
10	407.8	144.51
11	441.5	149.51
12	457.6	154.51
13	490.5	159.51
14	512.5	164.51
15	577.7	169.51
16	606.9	174.51
17	639.0	179.51
18	672.0	184.51
19	711.7	189.51
20	760.2	194.51
21	796.4	199.51
22	824.8	204.51
23	849.1	209.51
24	872.1	214.51
25	891.4	219.51
26	910.4	224.51
27	1006.4	229.51
28	1047.2	234.51

Vertici strato1

N	X (m)	y (m)
1	27.2	91.51
2	164.87	98.82
3	254.11	108.66
4	344.79	127.14
5	398.95	130.22
6	471.04	147.83

7	529.88	155.31
8	579.79	161.65
9	651.88	170.81
10	744.65	182.59
11	798.08	189.32
12	863.53	205.44
13	911.31	213.89
14	936.44	218.7
15	1006.86	223.67
16	1047.2	229.51

Vertici superficie Nr...1

N	X m	y m
1	159.21	109.66
2	181.83	108.15
3	254.12	109.47
4	300.83	118.62
5	344.78	127.24
6	398.93	133.13
7	471.03	147.93
8	529.86	155.41
9	579.78	161.75
10	651.86	170.9
11	744.64	182.69
12	798.06	189.42
13	863.51	205.53
14	898.25	212.82
15	905.76	217.17
16	911.76	224.64

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.9	1.9	Coltre
2	40		28	2	2	Substato

Superficie Nr...1 Fattore di sicurezza=1.99

Nr.	B	Alfa	Li	Wi	Kh•Wi	Kv•Wi	c	Fi	Ui	N'i	Ti
-----	---	------	----	----	-------	-------	---	----	----	-----	----

	m	(°)	m	(kN)	(kN)	(kN)	(kN/m ²)	(°)	(kN)	(kN)	(kN)
1	5.01	-3.8	5.02	44.8	0.0	0.0	5.0	15.0	0.0	-20.3	9.8
2	5.01	-3.8	5.02	134.24	0.0	0.0	5.0	15.0	0.0	-50.3	5.8
3	5.01	-3.8	5.02	223.52	0.0	0.0	5.0	15.0	0.0	-80.3	1.8
4	5.01	-3.8	5.02	312.79	0.0	0.0	5.0	15.0	0.0	-110.3	-2.3
5	5.01	-1.0	5.01	390.74	0.0	0.0	5.0	15.0	0.0	-40.9	7.1
6	5.01	1.1	5.01	448.64	0.0	0.0	5.0	15.0	0.0	38.2	17.7
7	5.01	1.1	5.01	497.83	0.0	0.0	5.0	15.0	0.0	43.0	18.4
8	5.01	1.0	5.01	547.58	0.0	0.0	5.0	15.0	0.0	41.2	18.1
9	5.01	1.1	5.01	591.04	0.0	0.0	5.0	15.0	0.0	52.0	19.6
10	5.01	1.1	5.01	630.51	0.0	0.0	5.0	15.0	0.0	55.9	20.1
11	5.01	1.0	5.01	670.54	0.0	0.0	5.0	15.0	0.0	51.7	19.5
12	5.01	1.1	5.01	710.56	0.0	0.0	5.0	15.0	0.0	63.6	21.1
13	5.01	1.1	5.01	750.03	0.0	0.0	5.0	15.0	0.0	67.4	21.6
14	5.01	1.0	5.01	790.05	0.0	0.0	5.0	15.0	0.0	61.8	20.9
15	5.01	1.1	5.01	830.08	0.0	0.0	5.0	15.0	0.0	75.2	22.7
16	5.01	1.1	5.01	869.55	0.0	0.0	5.0	15.0	0.0	79.0	23.2
17	5.01	1.0	5.01	909.57	0.0	0.0	5.0	15.0	0.0	72.0	22.3
18	5.01	1.1	5.01	949.6	0.0	0.0	5.0	15.0	0.0	86.8	24.2
19	5.01	2.8	5.02	1030.72	0.0	0.0	5.0	15.0	0.0	252.7	46.5
20	5.01	11.0	5.11	1071.07	0.0	0.0	5.0	15.0	0.0	1051.4	153.9
21	5.01	11.2	5.11	1076.76	0.0	0.0	5.0	15.0	0.0	1070.0	156.4
22	5.01	11.0	5.11	1082.46	0.0	0.0	5.0	15.0	0.0	1062.7	155.4
23	5.01	11.0	5.11	1092.93	0.0	0.0	5.0	15.0	0.0	1073.1	156.8
24	5.01	11.2	5.11	1119.31	0.0	0.0	5.0	15.0	0.0	1112.6	162.1
25	5.01	11.0	5.11	1145.7	0.0	0.0	5.0	15.0	0.0	1125.2	163.8
26	5.01	11.2	5.11	1172.09	0.0	0.0	5.0	15.0	0.0	1165.3	169.2
27	5.01	11.0	5.11	1188.93	0.0	0.0	5.0	15.0	0.0	1167.9	169.6
28	5.01	11.0	5.11	1178.36	0.0	0.0	5.0	15.0	0.0	1157.5	168.2
29	5.01	11.2	5.11	1166.99	0.0	0.0	5.0	15.0	0.0	1166.3	169.4
30	5.01	11.0	5.11	1155.62	0.0	0.0	5.0	15.0	0.0	1135.1	165.2
31	5.01	11.2	5.11	1144.49	0.0	0.0	5.0	15.0	0.0	1138.0	165.5
32	5.01	11.0	5.11	1133.37	0.0	0.0	5.0	15.0	0.0	1113.3	162.2
33	5.01	11.2	5.11	1114.95	0.0	0.0	5.0	15.0	0.0	1108.6	161.6
34	5.01	11.0	5.11	1088.3	0.0	0.0	5.0	15.0	0.0	1068.9	156.3
35	5.01	11.2	5.11	1061.65	0.0	0.0	5.0	15.0	0.0	1055.4	154.4
36	5.01	11.0	5.11	1035.01	0.0	0.0	5.0	15.0	0.0	1016.4	149.2
37	5.01	10.7	5.1	1010.3	0.0	0.0	5.0	15.0	0.0	962.0	141.9
38	5.01	6.2	5.04	1005.64	0.0	0.0	5.0	15.0	0.0	552.3	86.8
39	5.01	6.2	5.04	1019.64	0.0	0.0	5.0	15.0	0.0	560.1	87.9
40	5.01	6.1	5.04	1028.07	0.0	0.0	5.0	15.0	0.0	552.4	86.8
41	5.01	6.2	5.04	1022.78	0.0	0.0	5.0	15.0	0.0	561.9	88.1
42	5.01	6.2	5.04	1016.93	0.0	0.0	5.0	15.0	0.0	558.7	87.7
43	5.01	6.1	5.04	1011.64	0.0	0.0	5.0	15.0	0.0	543.7	85.7
44	5.01	6.2	5.04	1006.35	0.0	0.0	5.0	15.0	0.0	552.9	86.9
45	5.01	6.2	5.04	1000.5	0.0	0.0	5.0	15.0	0.0	549.7	86.5
46	5.01	6.2	5.04	994.66	0.0	0.0	5.0	15.0	0.0	546.5	86.0
47	5.01	6.1	5.04	989.37	0.0	0.0	5.0	15.0	0.0	531.7	84.1
48	5.01	7.7	5.06	977.87	0.0	0.0	5.0	15.0	0.0	668.3	102.4
49	5.01	11.7	5.12	943.0	0.0	0.0	5.0	15.0	0.0	982.9	144.7
50	5.01	11.6	5.12	892.43	0.0	0.0	5.0	15.0	0.0	919.3	136.1
51	5.01	11.6	5.12	866.15	0.0	0.0	5.0	15.0	0.0	892.1	132.5
52	5.01	11.7	5.12	839.3	0.0	0.0	5.0	15.0	0.0	874.5	130.1
53	5.01	11.6	5.12	812.46	0.0	0.0	5.0	15.0	0.0	836.7	125.0
54	5.01	11.6	5.12	786.18	0.0	0.0	5.0	15.0	0.0	809.6	121.4
55	5.01	11.7	5.12	759.33	0.0	0.0	5.0	15.0	0.0	790.9	118.9
56	5.01	11.6	5.12	732.49	0.0	0.0	5.0	15.0	0.0	754.1	113.9
57	5.01	11.6	5.12	728.49	0.0	0.0	5.0	15.0	0.0	750.0	113.4

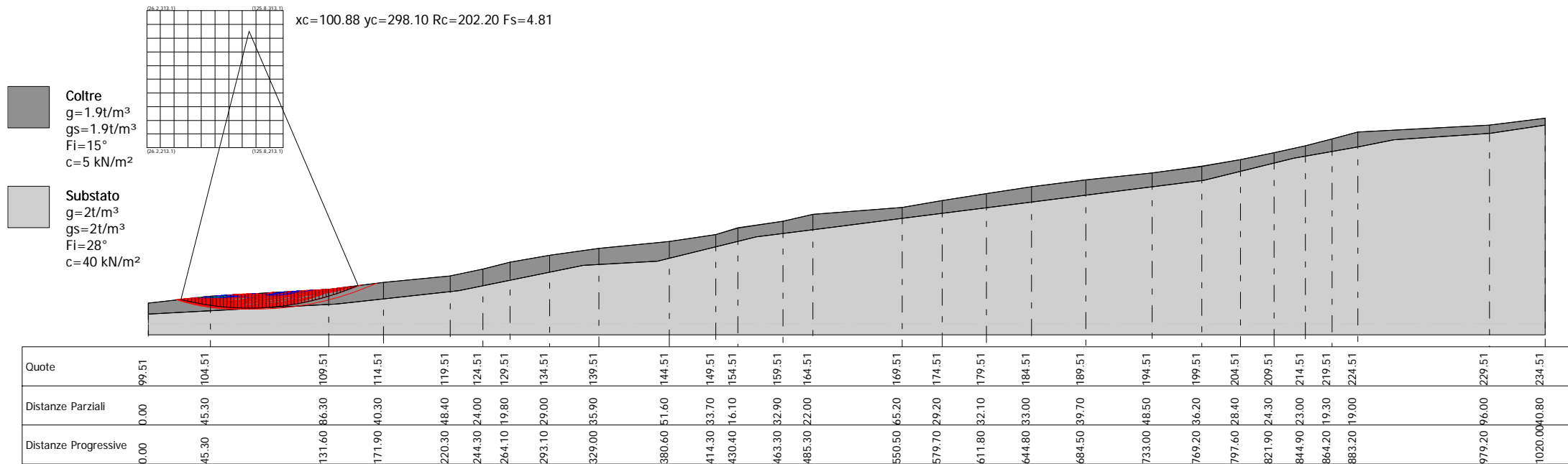
58	5.01	11.7	5.12	777.6	0.0	0.0	5.0	15.0	0.0	810.2	121.5
59	5.01	11.6	5.12	826.71	0.0	0.0	5.0	15.0	0.0	851.6	127.1
60	5.01	11.6	5.12	870.29	0.0	0.0	5.0	15.0	0.0	896.7	133.1
61	5.01	11.7	5.12	845.14	0.0	0.0	5.0	15.0	0.0	880.9	131.0
62	5.01	11.6	5.12	819.98	0.0	0.0	5.0	15.0	0.0	844.8	126.1
63	5.01	7.6	5.06	811.95	0.0	0.0	5.0	15.0	0.0	546.1	86.0
64	5.01	7.3	5.05	821.73	0.0	0.0	5.0	15.0	0.0	530.5	83.9
65	5.01	7.2	5.05	833.33	0.0	0.0	5.0	15.0	0.0	528.1	83.6
66	5.01	7.3	5.05	844.92	0.0	0.0	5.0	15.0	0.0	545.7	85.9
67	5.01	7.2	5.05	874.82	0.0	0.0	5.0	15.0	0.0	554.6	87.1
68	5.01	7.3	5.05	921.68	0.0	0.0	5.0	15.0	0.0	595.6	92.6
69	5.01	7.2	5.05	968.53	0.0	0.0	5.0	15.0	0.0	614.4	95.2
70	5.01	7.2	5.05	1015.94	0.0	0.0	5.0	15.0	0.0	644.6	99.2
71	5.01	7.3	5.05	1053.57	0.0	0.0	5.0	15.0	0.0	681.3	104.2
72	5.01	7.2	5.05	1029.91	0.0	0.0	5.0	15.0	0.0	653.6	100.4
73	5.01	7.3	5.05	1006.24	0.0	0.0	5.0	15.0	0.0	650.7	100.0
74	5.01	7.2	5.05	982.48	0.0	0.0	5.0	15.0	0.0	625.6	96.7
75	5.01	7.2	5.05	959.27	0.0	0.0	5.0	15.0	0.0	608.7	94.4
76	5.01	7.3	5.05	935.61	0.0	0.0	5.0	15.0	0.0	604.9	93.9
77	5.01	7.2	5.05	911.95	0.0	0.0	5.0	15.0	0.0	578.6	90.3
78	5.01	7.3	5.05	888.28	0.0	0.0	5.0	15.0	0.0	574.2	89.8
79	5.01	7.2	5.05	864.62	0.0	0.0	5.0	15.0	0.0	548.5	86.3
80	5.01	7.2	5.05	841.51	0.0	0.0	5.0	15.0	0.0	533.8	84.3
81	5.01	7.3	5.05	817.85	0.0	0.0	5.0	15.0	0.0	528.6	83.6
82	5.01	7.2	5.05	794.19	0.0	0.0	5.0	15.0	0.0	503.7	80.3
83	5.01	7.3	5.05	770.53	0.0	0.0	5.0	15.0	0.0	497.9	79.5
84	5.01	7.2	5.05	752.32	0.0	0.0	5.0	15.0	0.0	478.5	76.9
85	5.01	7.2	5.05	773.4	0.0	0.0	5.0	15.0	0.0	490.6	78.5
86	5.01	7.3	5.05	794.01	0.0	0.0	5.0	15.0	0.0	513.3	81.6
87	5.01	7.2	5.05	814.62	0.0	0.0	5.0	15.0	0.0	516.9	82.1
88	5.01	7.3	5.05	835.23	0.0	0.0	5.0	15.0	0.0	540.1	85.2
89	5.01	7.2	5.05	855.85	0.0	0.0	5.0	15.0	0.0	543.3	85.6
90	5.01	7.3	5.05	874.28	0.0	0.0	5.0	15.0	0.0	565.5	88.6
91	5.01	7.2	5.05	887.65	0.0	0.0	5.0	15.0	0.0	563.6	88.3
92	5.01	7.2	5.05	901.57	0.0	0.0	5.0	15.0	0.0	572.5	89.5
93	5.01	7.3	5.05	914.94	0.0	0.0	5.0	15.0	0.0	592.0	92.2
94	5.01	7.2	5.05	928.3	0.0	0.0	5.0	15.0	0.0	589.6	91.8
95	5.01	7.3	5.05	941.67	0.0	0.0	5.0	15.0	0.0	609.5	94.5
96	5.01	7.2	5.05	955.04	0.0	0.0	5.0	15.0	0.0	606.7	94.1
97	5.01	7.3	5.05	966.62	0.0	0.0	5.0	15.0	0.0	625.7	96.7
98	5.01	7.2	5.05	978.0	0.0	0.0	5.0	15.0	0.0	621.4	96.1
99	5.01	7.2	5.05	989.89	0.0	0.0	5.0	15.0	0.0	630.0	97.3
100	5.01	7.3	5.05	1001.22	0.0	0.0	5.0	15.0	0.0	648.3	99.7
101	5.01	7.2	5.05	1012.6	0.0	0.0	5.0	15.0	0.0	643.6	99.1
102	5.01	7.3	5.05	1023.98	0.0	0.0	5.0	15.0	0.0	663.1	101.7
103	5.01	7.2	5.05	1031.58	0.0	0.0	5.0	15.0	0.0	655.7	100.7
104	5.01	7.2	5.05	1031.54	0.0	0.0	5.0	15.0	0.0	655.7	100.7
105	5.01	7.3	5.05	1030.95	0.0	0.0	5.0	15.0	0.0	667.8	102.3
106	5.01	7.2	5.05	1030.35	0.0	0.0	5.0	15.0	0.0	655.0	100.6
107	5.01	7.3	5.05	1029.76	0.0	0.0	5.0	15.0	0.0	667.1	102.2
108	5.01	7.2	5.05	1029.16	0.0	0.0	5.0	15.0	0.0	654.3	100.5
109	5.01	7.3	5.05	1028.56	0.0	0.0	5.0	15.0	0.0	666.4	102.2
110	5.01	7.2	5.05	1027.97	0.0	0.0	5.0	15.0	0.0	653.7	100.4
111	5.01	7.2	5.05	1023.69	0.0	0.0	5.0	15.0	0.0	651.0	100.1
112	5.01	7.3	5.05	1012.39	0.0	0.0	5.0	15.0	0.0	656.0	100.8
113	5.01	7.2	5.05	1001.1	0.0	0.0	5.0	15.0	0.0	636.6	98.2
114	5.01	7.3	5.05	989.8	0.0	0.0	5.0	15.0	0.0	641.4	98.8
115	5.01	7.2	5.05	978.5	0.0	0.0	5.0	15.0	0.0	622.3	96.2
116	5.01	7.2	5.05	967.76	0.0	0.0	5.0	15.0	0.0	615.5	95.3

117	5.01	7.2	5.05	956.86	0.0	0.0	5.0	15.0	0.0	611.8	94.8
118	5.01	7.2	5.05	945.96	0.0	0.0	5.0	15.0	0.0	601.7	93.5
119	5.01	7.2	5.05	935.22	0.0	0.0	5.0	15.0	0.0	594.9	92.5
120	5.01	7.2	5.05	924.48	0.0	0.0	5.0	15.0	0.0	588.1	91.6
121	5.01	7.2	5.05	925.57	0.0	0.0	5.0	15.0	0.0	588.8	91.7
122	5.01	7.3	5.05	930.67	0.0	0.0	5.0	15.0	0.0	603.3	93.7
123	5.01	7.2	5.05	935.78	0.0	0.0	5.0	15.0	0.0	595.4	92.6
124	5.01	7.2	5.05	941.44	0.0	0.0	5.0	15.0	0.0	599.0	93.1
125	5.01	7.2	5.05	947.11	0.0	0.0	5.0	15.0	0.0	602.6	93.6
126	5.01	7.2	5.05	952.77	0.0	0.0	5.0	15.0	0.0	606.3	94.1
127	5.01	7.2	5.05	958.43	0.0	0.0	5.0	15.0	0.0	609.9	94.6
128	5.01	11.5	5.12	954.65	0.0	0.0	5.0	15.0	0.0	985.4	145.0
129	5.01	13.9	5.16	931.35	0.0	0.0	5.0	15.0	0.0	1163.8	169.0
130	5.01	13.8	5.16	898.55	0.0	0.0	5.0	15.0	0.0	1112.0	162.1
131	5.01	13.9	5.16	865.74	0.0	0.0	5.0	15.0	0.0	1081.9	158.0
132	5.01	13.8	5.16	832.93	0.0	0.0	5.0	15.0	0.0	1030.9	151.1
133	5.01	13.9	5.16	800.12	0.0	0.0	5.0	15.0	0.0	999.9	147.0
134	5.01	13.8	5.16	778.93	0.0	0.0	5.0	15.0	0.0	964.0	142.2
135	5.01	13.9	5.16	760.04	0.0	0.0	5.0	15.0	0.0	949.8	140.3
136	5.01	13.8	5.16	741.14	0.0	0.0	5.0	15.0	0.0	917.3	135.9
137	5.01	13.9	5.16	722.24	0.0	0.0	5.0	15.0	0.0	902.6	133.9
138	5.01	13.8	5.16	703.35	0.0	0.0	5.0	15.0	0.0	870.6	129.6
139	5.01	13.9	5.16	689.83	0.0	0.0	5.0	15.0	0.0	862.2	128.5
140	5.01	13.9	5.16	675.82	0.0	0.0	5.0	15.0	0.0	844.7	126.1
141	5.01	12.5	5.14	667.74	0.0	0.0	5.0	15.0	0.0	749.1	113.3
142	5.01	11.8	5.12	668.57	0.0	0.0	5.0	15.0	0.0	707.1	107.6
143	5.01	11.9	5.12	679.63	0.0	0.0	5.0	15.0	0.0	727.0	110.3
144	5.01	11.8	5.12	702.4	0.0	0.0	5.0	15.0	0.0	742.9	112.4
145	5.01	11.8	5.12	725.73	0.0	0.0	5.0	15.0	0.0	767.7	115.8
146	5.01	11.8	5.12	749.05	0.0	0.0	5.0	15.0	0.0	792.4	119.1
147	5.01	11.8	5.12	773.43	0.0	0.0	5.0	15.0	0.0	818.2	122.6
148	5.01	24.9	5.52	739.21	0.0	0.0	5.0	15.0	0.0	1731.2	245.3
149	5.01	35.2	6.14	588.8	0.0	0.0	5.0	15.0	0.0	2100.3	294.9
150	5.01	51.2	8.0	255.47	0.0	0.0	5.0	15.0	0.0	1607.4	228.6

Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici superficie Nr...1	2
5.Coefficienti parziali azioni	3
6.Coefficienti parziali per i parametri geotecnici del terreno	3
7.Stratigrafia	3
Indice	7

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 0 A 100 m
 IN CONDIZIONI STATICHE



Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.266418/11.318641
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	26.16 m
Ordinata vertice sinistro inferiore yi	213.12 m
Ascissa vertice destro superiore xs	125.78 m
Ordinata vertice destro superiore ys	313.1 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	27.2	99.51
2	72.5	104.51
3	158.8	109.51
4	199.1	114.51
5	247.5	119.51
6	271.5	124.51
7	291.3	129.51
8	320.3	134.51
9	356.2	139.51
10	407.8	144.51
11	441.5	149.51
12	457.6	154.51
13	490.5	159.51
14	512.5	164.51
15	577.7	169.51
16	606.9	174.51
17	639.0	179.51
18	672.0	184.51
19	711.7	189.51
20	760.2	194.51
21	796.4	199.51
22	824.8	204.51
23	849.1	209.51
24	872.1	214.51
25	891.4	219.51
26	910.4	224.51
27	1006.4	229.51
28	1047.2	234.51

Vertici strato1

N	X (m)	y (m)
1	27.2	91.51
2	164.87	98.82
3	254.11	108.66
4	344.79	127.14
5	398.95	130.22
6	471.04	147.83
7	529.88	155.31
8	579.79	161.65
9	651.88	170.81
10	744.65	182.59
11	798.08	189.32
12	863.53	205.44
13	911.31	213.89
14	936.44	218.7
15	1006.86	223.67
16	1047.2	229.51

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.9	1.9	Coltre
2	40		28	2	2	Substato

Risultati analisi pendio [[A1+M1+R1]]

Fs minimo individuato	4.81
Ascissa centro superficie	100.88 m
Ordinata centro superficie	298.1 m
Raggio superficie	202.2 m

Numero di superfici esaminate....(117)

N°	Xo	Yo	Ro	Fs
1	61.0	218.1	114.8	11.25
2	66.0	213.1	111.3	5.55
3	85.9	213.1	108.6	11.91

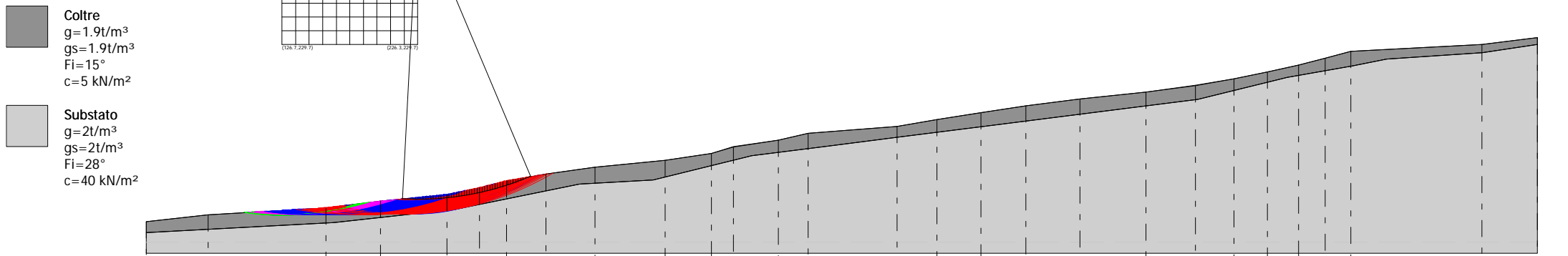
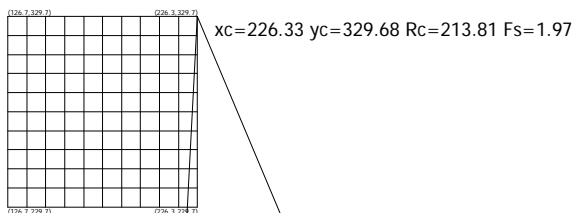
4	90.9	218.1	114.1	8.64
5	95.9	213.1	109.1	8.21
6	100.9	218.1	114.0	7.83
7	105.9	213.1	109.0	7.57
8	110.8	218.1	113.9	7.32
9	115.8	213.1	108.9	7.13
10	120.8	218.1	113.8	6.96
11	125.8	213.1	108.8	6.83
12	71.0	228.1	127.0	5.33
13	76.0	223.1	123.8	4.95
14	81.0	228.1	130.1	4.91
15	85.9	223.1	117.8	20.00
16	90.9	228.1	124.1	8.74
17	95.9	223.1	119.1	8.17
18	100.9	228.1	124.0	7.81
19	105.9	223.1	119.0	7.54
20	110.8	228.1	123.9	7.29
21	115.8	223.1	118.9	7.11
22	120.8	228.1	123.8	6.94
23	125.8	223.1	118.8	6.79
24	66.0	233.1	130.5	6.76
25	76.0	233.1	133.2	5.10
26	81.0	238.1	139.5	5.01
27	90.9	238.1	142.9	4.94
28	95.9	233.1	129.1	8.14
29	100.9	238.1	134.0	7.78
30	105.9	233.1	129.0	7.51
31	110.8	238.1	133.9	7.27
32	115.8	233.1	128.9	7.09
33	120.8	238.1	133.8	6.92
34	125.8	233.1	128.8	6.70
35	66.0	243.1	140.1	7.64
36	71.0	248.1	146.1	5.95
37	76.0	243.1	142.7	5.26
38	85.9	243.1	145.8	4.98
39	90.9	248.1	152.1	4.98
40	95.9	243.1	139.1	8.11
41	100.9	248.1	144.0	7.76
42	105.9	243.1	139.0	7.49
43	110.8	248.1	143.9	7.25
44	115.8	243.1	138.9	7.07
45	120.8	248.1	143.8	6.90
46	125.8	243.1	138.8	6.57
47	66.0	253.1	149.8	8.82
48	76.0	253.1	152.2	5.44
49	81.0	258.1	158.4	5.23
50	90.9	258.1	161.4	5.03
51	95.9	253.1	148.8	8.58
52	100.9	258.1	154.0	7.73
53	105.9	253.1	149.0	7.47
54	110.8	258.1	153.9	7.23
55	115.8	253.1	148.9	7.05
56	120.8	258.1	153.8	6.87
57	125.8	253.1	148.8	6.43
58	71.0	268.1	165.5	6.75
59	81.0	268.1	167.9	5.35
60	95.9	263.1	167.8	5.85
61	100.9	268.1	164.0	7.70
62	105.9	263.1	159.0	7.45

63	110.8	268.1	163.9	7.21
64	115.8	263.1	158.9	7.03
65	120.8	268.1	163.8	6.80
66	125.8	263.1	158.7	6.27
67	66.0	273.1	169.3	12.96
68	81.0	278.1	177.5	5.48
69	85.9	273.1	174.1	5.21
70	90.9	278.1	180.3	5.14
71	95.9	273.1	177.1	5.02
72	100.9	278.1	173.7	8.15
73	105.9	273.1	169.0	7.42
74	110.8	278.1	173.9	7.19
75	115.8	273.1	168.8	7.02
76	120.8	278.1	173.8	6.70
77	125.8	273.1	168.7	6.12
78	66.0	283.1	179.1	17.11
79	71.0	288.1	185.0	7.83
80	81.0	288.1	187.2	5.62
81	85.9	283.1	183.6	5.30
82	95.9	283.1	186.5	5.05
83	100.9	288.1	183.1	9.46
84	105.9	283.1	178.9	7.41
85	110.8	288.1	183.9	7.18
86	115.8	283.1	178.8	7.00
87	120.8	288.1	183.8	6.58
88	125.8	283.1	178.7	5.96
89	66.0	293.1	188.9	20.00
90	71.0	298.1	194.7	8.52
91	76.0	293.1	190.9	6.34
92	81.0	298.1	196.8	5.76
93	85.9	293.1	193.2	5.39
94	90.9	298.1	199.3	5.26
95	95.9	293.1	196.0	5.09
96	100.9	298.1	202.2	4.81
97	105.9	293.1	188.9	7.38
98	110.8	298.1	193.9	7.16
99	115.8	293.1	188.8	6.99
100	120.8	298.1	193.8	6.44
101	125.8	293.1	188.7	5.81
102	66.0	303.1	198.8	20.00
103	81.0	308.1	206.5	5.92
104	90.9	308.1	208.9	5.33
105	95.9	303.1	205.5	5.13
106	100.9	308.1	211.7	4.81
107	105.9	303.1	198.7	7.67
108	110.8	308.1	203.9	7.14
109	115.8	303.1	198.8	6.94
110	120.8	308.1	203.8	6.30
111	125.8	303.1	198.7	5.66
112	76.0	313.1	210.4	6.90
113	85.9	313.1	212.5	5.58
114	95.9	313.1	215.0	5.16
115	105.9	313.1	217.9	6.91
116	115.8	313.1	208.8	6.87
117	125.8	313.1	208.7	5.52

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	3
7.Risultati analisi pendio [[A1+M1+R1]]	3
Indice	6

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 100 A 200 m
 IN CONDIZIONI STATICHE



Quote	99.51	104.51	109.51	114.51	119.51	124.51	129.51	134.51	139.51	144.51	149.51	154.51	159.51	164.51	169.51	174.51	179.51	184.51	189.51	194.51	199.51	204.51	209.51	214.51	219.51	224.51	229.51	234.51
Distanze Parziali	0.00	45.30	86.30	114.30	148.40	184.00	219.80	259.00	299.00	344.60	393.70	446.10	499.50	550.50	599.50	644.80	684.50	723.00	769.20	811.60	858.40	904.20	949.50	994.00	1037.50	1080.00	1121.00	1160.00
Distanze Progressive	0.00	45.30	131.60	171.90	220.30	244.30	264.10	293.10	329.00	380.60	414.30	430.40	463.30	485.30	550.50	579.70	611.80	644.80	684.50	733.00	769.20	797.60	821.90	844.90	864.20	883.20	979.20	1020.00

Coltre
 $g = 1.9t/m^3$
 $g_s = 1.9t/m^3$
 $Fi = 15^\circ$
 $c = 5 \text{ kN/m}^2$

Substato
 $g = 2t/m^3$
 $g_s = 2t/m^3$
 $Fi = 28^\circ$
 $c = 40 \text{ kN/m}^2$

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.266418/11.318641
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	126.71 m
Ordinata vertice sinistro inferiore yi	229.7 m
Ascissa vertice destro superiore xs	226.33 m
Ordinata vertice destro superiore ys	329.68 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	27.2	99.51
2	72.5	104.51
3	158.8	109.51
4	199.1	114.51
5	247.5	119.51
6	271.5	124.51
7	291.3	129.51
8	320.3	134.51
9	356.2	139.51
10	407.8	144.51
11	441.5	149.51
12	457.6	154.51
13	490.5	159.51
14	512.5	164.51
15	577.7	169.51
16	606.9	174.51
17	639.0	179.51
18	672.0	184.51
19	711.7	189.51
20	760.2	194.51
21	796.4	199.51
22	824.8	204.51
23	849.1	209.51
24	872.1	214.51
25	891.4	219.51
26	910.4	224.51
27	1006.4	229.51
28	1047.2	234.51

Vertici strato1

N	X (m)	y (m)
1	27.2	91.51
2	164.87	98.82
3	254.11	108.66
4	344.79	127.14
5	398.95	130.22
6	471.04	147.83
7	529.88	155.31
8	579.79	161.65
9	651.88	170.81
10	744.65	182.59
11	798.08	189.32
12	863.53	205.44
13	911.31	213.89
14	936.44	218.7
15	1006.86	223.67
16	1047.2	229.51

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.9	1.9	Coltre
2	40		28	2	2	Substato

Risultati analisi pendio [[A1+M1+R1]]

Fs minimo individuato	1.97
Ascissa centro superficie	226.33 m
Ordinata centro superficie	329.68 m
Raggio superficie	213.81 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	126.7	229.7	125.3	6.65
2	131.7	234.7	130.3	5.91
3	136.7	229.7	125.2	5.27

4	141.7	234.7	130.2	4.57
5	146.6	229.7	125.1	4.13
6	151.6	234.7	130.1	3.71
7	156.6	229.7	125.0	3.45
8	161.6	234.7	130.0	3.26
9	166.6	229.7	124.9	3.13
10	171.5	234.7	129.9	3.04
11	176.5	229.7	124.8	2.98
12	181.5	234.7	129.8	2.95
13	186.5	229.7	124.7	2.94
14	191.5	234.7	129.7	2.94
15	196.4	229.7	124.6	2.91
16	201.4	234.7	129.6	2.77
17	206.4	229.7	124.5	2.68
18	211.4	234.7	129.5	2.48
19	216.4	229.7	124.4	2.37
20	221.4	234.7	129.4	2.97
21	226.3	229.7	124.3	3.25
22	126.7	239.7	135.3	6.51
23	131.7	244.7	140.3	5.73
24	136.7	239.7	135.2	5.11
25	141.7	244.7	140.2	4.46
26	146.6	239.7	135.1	4.04
27	151.6	244.7	140.1	3.66
28	156.6	239.7	135.0	3.43
29	161.6	244.7	140.0	3.25
30	166.6	239.7	134.9	3.13
31	171.5	244.7	139.9	3.04
32	176.5	239.7	134.8	2.98
33	181.5	244.7	139.8	2.96
34	186.5	239.7	134.7	2.94
35	191.5	244.7	139.7	2.90
36	196.4	239.7	134.6	2.85
37	201.4	244.7	139.6	2.70
38	206.4	239.7	134.5	2.59
39	211.4	244.7	139.5	2.39
40	216.4	239.7	134.4	2.37
41	221.4	244.7	139.4	2.95
42	226.3	239.7	123.9	3.17
43	126.7	249.7	145.3	6.36
44	131.7	254.7	150.3	5.56
45	136.7	249.7	145.2	4.97
46	141.7	254.7	150.2	4.36
47	146.6	249.7	145.1	3.96
48	151.6	254.7	150.1	3.62
49	156.6	249.7	145.0	3.41
50	161.6	254.7	150.0	3.24
51	166.6	249.7	144.9	3.13
52	171.5	254.7	149.9	3.05
53	176.5	249.7	144.8	2.99
54	181.5	254.7	149.8	2.96
55	186.5	249.7	144.7	2.94
56	191.5	254.7	149.7	2.85
57	196.4	249.7	144.6	2.78
58	201.4	254.7	149.6	2.62
59	206.4	249.7	144.5	2.51
60	211.4	254.7	149.4	2.31
61	216.4	249.7	144.4	2.57
62	221.4	254.7	149.3	2.90

63	226.3	249.7	133.9	2.95
64	126.7	259.7	155.3	6.20
65	131.7	264.7	160.3	5.40
66	136.7	259.7	155.2	4.84
67	141.7	264.7	160.2	4.26
68	146.6	259.7	155.1	3.90
69	151.6	264.7	160.1	3.58
70	156.6	259.7	155.0	3.39
71	161.6	264.7	160.0	3.23
72	166.6	259.7	154.9	3.12
73	171.5	264.7	159.9	3.05
74	176.5	259.7	154.8	2.99
75	181.5	264.7	159.8	2.96
76	186.5	259.7	154.7	2.92
77	191.5	264.7	159.7	2.80
78	196.4	259.7	154.6	2.72
79	201.4	264.7	159.5	2.54
80	206.4	259.7	154.5	2.42
81	211.4	264.7	159.4	2.24
82	216.4	259.7	154.4	2.59
83	221.4	264.7	159.3	2.84
84	226.3	259.7	143.8	2.73
85	126.7	269.7	165.3	6.04
86	131.7	274.7	170.3	5.26
87	136.7	269.7	165.2	4.72
88	141.7	274.7	170.2	4.18
89	146.6	269.7	165.1	3.84
90	151.6	274.7	170.1	3.55
91	156.6	269.7	165.0	3.37
92	161.6	274.7	170.0	3.23
93	166.6	269.7	164.9	3.12
94	171.5	274.7	169.9	3.05
95	176.5	269.7	164.8	3.00
96	181.5	274.7	169.8	2.96
97	186.5	269.7	164.7	2.89
98	191.5	274.7	169.6	2.75
99	196.4	269.7	164.6	2.65
100	201.4	274.7	169.5	2.46
101	206.4	269.7	164.5	2.34
102	211.4	274.7	169.4	2.19
103	216.4	269.7	164.4	2.62
104	221.4	274.7	169.3	3.10
105	226.3	269.7	153.8	2.54
106	126.7	279.7	175.3	5.88
107	131.7	284.7	180.3	5.12
108	136.7	279.7	175.2	4.60
109	141.7	284.7	180.2	4.10
110	146.6	279.7	175.1	3.79
111	151.6	284.7	180.1	3.53
112	156.6	279.7	175.0	3.36
113	161.6	284.7	180.0	3.22
114	166.6	279.7	174.9	3.12
115	171.5	284.7	179.9	3.05
116	176.5	279.7	174.8	3.00
117	181.5	284.7	179.7	2.94
118	186.5	279.7	174.7	2.85
119	191.5	284.7	179.6	2.69
120	196.4	279.7	174.6	2.58
121	201.4	284.7	179.5	2.38

122	206.4	279.7	174.5	2.28
123	211.4	284.7	179.4	2.14
124	216.4	279.7	174.4	2.57
125	221.4	284.7	168.9	2.99
126	226.3	279.7	163.8	2.37
127	126.7	289.7	185.3	5.73
128	131.7	294.7	190.3	4.99
129	136.7	289.7	185.2	4.50
130	141.7	294.7	190.2	4.03
131	146.6	289.7	185.1	3.75
132	151.6	294.7	190.1	3.51
133	156.6	289.7	185.0	3.35
134	161.6	294.7	190.0	3.22
135	166.6	289.7	184.9	3.12
136	171.5	294.7	189.8	3.05
137	176.5	289.7	184.8	3.00
138	181.5	294.7	189.7	2.91
139	186.5	289.7	184.7	2.80
140	191.5	294.7	189.6	2.63
141	196.4	289.7	184.6	2.51
142	201.4	294.7	189.5	2.32
143	206.4	289.7	184.5	2.22
144	211.4	294.7	189.4	2.10
145	216.4	289.7	184.4	2.66
146	221.4	294.7	178.9	2.75
147	226.3	289.7	173.8	2.24
148	126.7	299.7	195.3	5.58
149	131.7	304.7	200.3	4.88
150	136.7	299.7	195.2	4.41
151	141.7	304.7	200.2	3.98
152	146.6	299.7	195.1	3.71
153	151.6	304.7	200.0	3.49
154	156.6	299.7	195.0	3.34
155	161.6	304.7	199.9	3.21
156	166.6	299.7	194.9	3.12
157	171.5	304.7	199.8	3.05
158	176.5	299.7	194.8	3.00
159	181.5	304.7	199.7	2.87
160	186.5	299.7	194.7	2.75
161	191.5	304.7	199.6	2.57
162	196.4	299.7	194.6	2.44
163	201.4	304.7	199.5	2.26
164	206.4	299.7	194.5	2.18
165	211.4	304.7	199.4	2.07
166	216.4	299.7	194.4	2.64
167	221.4	304.7	188.9	2.54
168	226.3	299.7	183.8	2.14
169	126.7	309.7	205.3	5.44
170	131.7	314.7	210.3	4.77
171	136.7	309.7	205.2	4.32
172	141.7	314.7	210.1	3.92
173	146.6	309.7	205.1	3.68
174	151.6	314.7	210.0	3.47
175	156.6	309.7	205.0	3.33
176	161.6	314.7	209.9	3.21
177	166.6	309.7	204.9	3.12
178	171.5	314.7	209.8	3.06
179	176.5	309.7	204.8	2.98
180	181.5	314.7	209.7	2.83

181	186.5	309.7	204.7	2.70
182	191.5	314.7	209.6	2.50
183	196.4	309.7	204.6	2.37
184	201.4	314.7	209.5	2.21
185	206.4	309.7	204.5	2.14
186	211.4	314.7	209.4	2.04
187	216.4	309.7	204.4	2.69
188	221.4	314.7	198.9	2.37
189	226.3	309.7	193.8	2.07
190	126.7	319.7	215.3	5.31
191	131.7	324.7	220.2	4.67
192	136.7	319.7	215.2	4.25
193	141.7	324.7	220.1	3.88
194	146.6	319.7	215.1	3.65
195	151.6	324.7	220.0	3.45
196	156.6	319.7	215.0	3.32
197	161.6	324.7	219.9	3.20
198	166.6	319.7	214.9	3.12
199	171.5	324.7	219.8	3.05
200	176.5	319.7	214.8	2.95
201	181.5	324.7	219.7	2.78
202	186.5	319.7	214.7	2.64
203	191.5	324.7	219.6	2.43
204	196.4	319.7	214.6	2.31
205	201.4	324.7	219.5	2.17
206	206.4	319.7	214.5	2.10
207	211.4	324.7	219.4	2.10
208	216.4	319.7	214.4	2.88
209	221.4	324.7	208.9	2.26
210	226.3	319.7	203.8	2.02
211	126.7	329.7	225.3	5.18
212	136.7	329.7	225.2	4.18
213	146.6	329.7	225.1	3.62
214	156.6	329.7	225.0	3.31
215	166.6	329.7	224.9	3.12
216	176.5	329.7	224.8	2.91
217	186.5	329.7	224.7	2.58
218	196.4	329.7	224.6	2.26
219	206.4	329.7	224.5	2.07
220	216.4	329.7	214.0	2.78
221	226.3	329.7	213.8	1.97

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	3
7.Risultati analisi pendio [[A1+M1+R1]]	3
Indice	8

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.266418/11.318641
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	229.33 m
Ordinata vertice sinistro inferiore yi	240.07 m
Ascissa vertice destro superiore xs	328.95 m
Ordinata vertice destro superiore ys	340.05 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	27.2	99.51
2	72.5	104.51
3	158.8	109.51
4	199.1	114.51
5	247.5	119.51
6	271.5	124.51
7	291.3	129.51
8	320.3	134.51
9	356.2	139.51
10	407.8	144.51
11	441.5	149.51
12	457.6	154.51
13	490.5	159.51
14	512.5	164.51
15	577.7	169.51
16	606.9	174.51
17	639.0	179.51
18	672.0	184.51
19	711.7	189.51
20	760.2	194.51
21	796.4	199.51
22	824.8	204.51
23	849.1	209.51
24	872.1	214.51
25	891.4	219.51
26	910.4	224.51
27	1006.4	229.51
28	1047.2	234.51

Vertici strato1

N	X (m)	y (m)
1	27.2	91.51
2	164.87	98.82
3	254.11	108.66
4	344.79	127.14
5	398.95	130.22
6	471.04	147.83
7	529.88	155.31
8	579.79	161.65
9	651.88	170.81
10	744.65	182.59
11	798.08	189.32
12	863.53	205.44
13	911.31	213.89
14	936.44	218.7
15	1006.86	223.67
16	1047.2	229.51

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.9	1.9	Coltre
2	40		28	2	2	Substato

Risultati analisi pendio [[A1+M1+R1]]

Fs minimo individuato	1.62
Ascissa centro superficie	259.22 m
Ordinata centro superficie	240.07 m
Raggio superficie	123.71 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	229.3	240.1	124.2	2.71
2	234.3	245.1	129.1	2.13
3	239.3	240.1	124.0	1.90

4	244.3	245.1	128.9	1.75
5	249.3	240.1	123.9	1.68
6	254.2	245.1	128.8	1.64
7	259.2	240.1	123.7	1.62
8	264.2	245.1	128.6	1.63
9	269.2	240.1	123.6	1.64
10	274.2	245.1	128.5	1.68
11	279.1	240.1	123.4	1.72
12	284.1	245.1	117.6	2.43
13	289.1	240.1	112.5	2.33
14	294.1	245.1	117.4	2.29
15	299.1	240.1	112.3	2.29
16	304.0	245.1	117.2	2.29
17	309.0	240.1	112.1	2.31
18	314.0	245.1	117.0	2.34
19	319.0	240.1	111.9	2.39
20	324.0	245.1	116.7	2.46
21	329.0	240.1	111.6	2.53
22	229.3	250.1	134.2	2.52
23	234.3	255.1	139.1	2.03
24	239.3	250.1	134.0	1.85
25	244.3	255.1	138.9	1.73
26	249.3	250.1	133.9	1.68
27	254.2	255.1	138.8	1.64
28	259.2	250.1	133.7	1.63
29	264.2	255.1	138.6	1.64
30	269.2	250.1	133.5	1.66
31	274.2	255.1	138.5	1.69
32	279.1	250.1	133.4	1.73
33	284.1	255.1	127.6	2.41
34	289.1	250.1	122.5	2.32
35	294.1	255.1	127.4	2.29
36	299.1	250.1	122.3	2.29
37	304.0	255.1	127.2	2.29
38	309.0	250.1	122.1	2.31
39	314.0	255.1	126.9	2.35
40	319.0	250.1	121.8	2.40
41	324.0	255.1	126.7	2.47
42	329.0	250.1	121.6	2.54
43	229.3	260.1	144.2	2.36
44	234.3	265.1	149.1	1.97
45	239.3	260.1	144.0	1.82
46	244.3	265.1	148.9	1.72
47	249.3	260.1	143.9	1.67
48	254.2	265.1	148.8	1.65
49	259.2	260.1	143.7	1.64
50	264.2	265.1	148.6	1.65
51	269.2	260.1	143.5	1.67
52	274.2	265.1	148.5	1.70
53	279.1	260.1	143.4	1.95
54	284.1	265.1	137.6	2.39
55	289.1	260.1	132.5	2.32
56	294.1	265.1	137.4	2.29
57	299.1	260.1	132.3	2.29
58	304.0	265.1	137.1	2.29
59	309.0	260.1	132.0	2.32
60	314.0	265.1	136.9	2.37
61	319.0	260.1	131.8	2.41
62	324.0	265.1	136.7	2.49

63	329.0	260.1	131.6	2.55
64	229.3	270.1	154.2	2.22
65	234.3	275.1	159.1	1.92
66	239.3	270.1	154.0	1.80
67	244.3	275.1	158.9	1.72
68	249.3	270.1	153.8	1.67
69	254.2	275.1	158.8	1.66
70	259.2	270.1	153.7	1.65
71	264.2	275.1	158.6	1.67
72	269.2	270.1	153.5	1.68
73	274.2	275.1	158.5	1.71
74	279.1	270.1	153.4	2.25
75	284.1	275.1	147.6	2.38
76	289.1	270.1	142.5	2.32
77	294.1	275.1	147.3	2.30
78	299.1	270.1	142.2	2.29
79	304.0	275.1	147.1	2.30
80	309.0	270.1	142.0	2.33
81	314.0	275.1	146.9	2.38
82	319.0	270.1	141.8	2.43
83	324.0	275.1	146.7	2.50
84	329.0	270.1	141.6	2.56
85	229.3	280.1	164.2	2.12
86	234.3	285.1	169.1	1.88
87	239.3	280.1	164.0	1.78
88	244.3	285.1	168.9	1.71
89	249.3	280.1	163.8	1.67
90	254.2	285.1	168.8	1.66
91	259.2	280.1	163.7	1.66
92	264.2	285.1	168.6	1.68
93	269.2	280.1	163.5	1.69
94	274.2	285.1	168.5	1.72
95	279.1	280.1	152.7	2.53
96	284.1	285.1	157.5	2.38
97	289.1	280.1	152.4	2.32
98	294.1	285.1	157.3	2.30
99	299.1	280.1	152.2	2.29
100	304.0	285.1	157.1	2.31
101	309.0	280.1	152.0	2.34
102	314.0	285.1	156.9	2.39
103	319.0	280.1	151.8	2.44
104	324.0	285.1	156.7	2.51
105	329.0	280.1	151.6	2.57
106	229.3	290.1	174.1	2.05
107	234.3	295.1	179.1	1.85
108	239.3	290.1	174.0	1.77
109	244.3	295.1	178.9	1.71
110	249.3	290.1	173.8	1.68
111	254.2	295.1	178.8	1.67
112	259.2	290.1	173.7	1.67
113	264.2	295.1	178.6	1.69
114	269.2	290.1	173.5	1.70
115	274.2	295.1	178.4	1.74
116	279.1	290.1	162.6	2.50
117	284.1	295.1	167.5	2.37
118	289.1	290.1	162.4	2.32
119	294.1	295.1	167.3	2.30
120	299.1	290.1	162.2	2.29
121	304.0	295.1	167.1	2.32

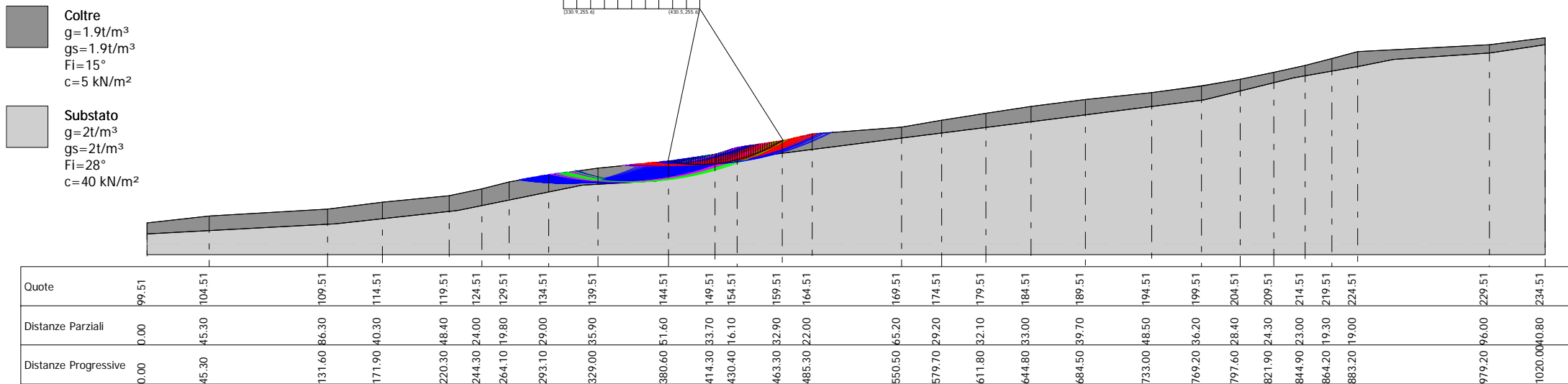
122	309.0	290.1	162.0	2.35
123	314.0	295.1	166.9	2.41
124	319.0	290.1	161.8	2.46
125	324.0	295.1	166.7	2.52
126	329.0	290.1	161.6	2.58
127	229.3	300.1	184.1	1.99
128	234.3	305.1	189.1	1.83
129	239.3	300.1	184.0	1.76
130	244.3	305.1	188.9	1.71
131	249.3	300.1	183.8	1.68
132	254.2	305.1	188.8	1.68
133	259.2	300.1	183.7	1.68
134	264.2	305.1	188.6	1.70
135	269.2	300.1	183.5	1.71
136	274.2	305.1	188.4	1.82
137	279.1	300.1	172.6	2.48
138	284.1	305.1	177.5	2.37
139	289.1	300.1	172.4	2.32
140	294.1	305.1	177.3	2.30
141	299.1	300.1	172.2	2.30
142	304.0	305.1	177.1	2.33
143	309.0	300.1	172.0	2.37
144	314.0	305.1	176.9	2.42
145	319.0	300.1	171.8	2.47
146	324.0	305.1	176.7	2.53
147	329.0	300.1	171.6	2.59
148	229.3	310.1	194.1	1.95
149	234.3	315.1	199.1	1.82
150	239.3	310.1	194.0	1.75
151	244.3	315.1	198.9	1.71
152	249.3	310.1	193.8	1.69
153	254.2	315.1	198.7	1.69
154	259.2	310.1	193.7	1.69
155	264.2	315.1	198.6	1.71
156	269.2	310.1	193.5	1.72
157	274.2	315.1	198.4	2.27
158	279.1	310.1	182.6	2.47
159	284.1	315.1	187.5	2.36
160	289.1	310.1	182.4	2.32
161	294.1	315.1	187.3	2.30
162	299.1	310.1	182.2	2.31
163	304.0	315.1	187.1	2.34
164	309.0	310.1	182.0	2.38
165	314.0	315.1	186.9	2.44
166	319.0	310.1	181.8	2.48
167	324.0	315.1	186.7	2.55
168	329.0	310.1	181.6	2.60
169	229.3	320.1	204.1	1.91
170	234.3	325.1	209.1	1.80
171	239.3	320.1	204.0	1.74
172	244.3	325.1	208.9	1.71
173	249.3	320.1	203.8	1.70
174	254.2	325.1	208.7	1.70
175	259.2	320.1	203.7	1.70
176	264.2	325.1	208.6	1.72
177	269.2	320.1	203.5	1.74
178	274.2	325.1	208.4	2.51
179	279.1	320.1	192.6	2.45
180	284.1	325.1	197.5	2.36

181	289.1	320.1	192.4	2.32
182	294.1	325.1	197.3	2.30
183	299.1	320.1	192.2	2.32
184	304.0	325.1	197.1	2.36
185	309.0	320.1	192.0	2.39
186	314.0	325.1	196.9	2.45
187	319.0	320.1	191.8	2.50
188	324.0	325.1	196.7	2.56
189	329.0	320.1	191.6	2.61
190	229.3	330.1	214.1	1.89
191	234.3	335.1	219.0	1.79
192	239.3	330.1	214.0	1.74
193	244.3	335.1	218.9	1.72
194	249.3	330.1	213.8	1.70
195	254.2	335.1	218.7	1.71
196	259.2	330.1	213.7	1.71
197	264.2	335.1	218.6	1.73
198	269.2	330.1	213.5	1.75
199	274.2	335.1	207.7	2.59
200	279.1	330.1	202.6	2.44
201	284.1	335.1	207.5	2.36
202	289.1	330.1	202.4	2.32
203	294.1	335.1	207.3	2.31
204	299.1	330.1	202.2	2.33
205	304.0	335.1	207.1	2.37
206	309.0	330.1	202.0	2.41
207	314.0	335.1	206.9	2.46
208	319.0	330.1	201.8	2.51
209	324.0	335.1	206.7	2.57
210	329.0	330.1	201.6	2.62
211	229.3	340.1	224.1	1.87
212	239.3	340.1	224.0	1.74
213	249.3	340.1	223.8	1.71
214	259.2	340.1	223.7	1.72
215	269.2	340.1	223.5	1.76
216	279.1	340.1	212.6	2.43
217	289.1	340.1	212.4	2.32
218	299.1	340.1	212.2	2.34
219	309.0	340.1	212.0	2.42
220	319.0	340.1	211.8	2.52
221	329.0	340.1	211.6	2.63

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	3
7.Risultati analisi pendio [[A1+M1+R1]]	3
Indice	8

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 300 A 400 m
 IN CONDIZIONI STATICHE



Coltre
 $g = 1.9t/m^3$
 $g_s = 1.9t/m^3$
 $F_i = 15^\circ$
 $c = 5 \text{ kN/m}^2$

Substato
 $g = 2t/m^3$
 $g_s = 2t/m^3$
 $F_i = 28^\circ$
 $c = 40 \text{ kN/m}^2$

$x_c = 430.54$ $y_c = 255.62$ $R_c = 113.56$ $F_s = 1.72$

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.266418/11.318641
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	330.92 m
Ordinata vertice sinistro inferiore yi	255.62 m
Ascissa vertice destro superiore xs	430.54 m
Ordinata vertice destro superiore ys	355.6 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	27.2	99.51
2	72.5	104.51
3	158.8	109.51
4	199.1	114.51
5	247.5	119.51
6	271.5	124.51
7	291.3	129.51
8	320.3	134.51
9	356.2	139.51
10	407.8	144.51
11	441.5	149.51
12	457.6	154.51
13	490.5	159.51
14	512.5	164.51
15	577.7	169.51
16	606.9	174.51
17	639.0	179.51
18	672.0	184.51
19	711.7	189.51
20	760.2	194.51
21	796.4	199.51
22	824.8	204.51
23	849.1	209.51
24	872.1	214.51
25	891.4	219.51
26	910.4	224.51
27	1006.4	229.51
28	1047.2	234.51

Vertici strato1

N	X (m)	y (m)
1	27.2	91.51
2	164.87	98.82
3	254.11	108.66
4	344.79	127.14
5	398.95	130.22
6	471.04	147.83
7	529.88	155.31
8	579.79	161.65
9	651.88	170.81
10	744.65	182.59
11	798.08	189.32
12	863.53	205.44
13	911.31	213.89
14	936.44	218.7
15	1006.86	223.67
16	1047.2	229.51

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.9	1.9	Coltre
2	40		28	2	2	Substato

Risultati analisi pendio [[A1+M1+R1]]

Fs minimo individuato	1.72
Ascissa centro superficie	430.54 m
Ordinata centro superficie	255.62 m
Raggio superficie	113.56 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	330.9	255.6	127.1	2.58
2	335.9	260.6	132.0	2.66
3	340.9	255.6	126.9	2.73

4	345.9	260.6	131.8	2.81
5	350.8	255.6	126.7	2.88
6	355.8	260.6	131.6	2.90
7	360.8	255.6	126.5	2.93
8	365.8	260.6	131.4	2.89
9	370.8	255.6	126.3	2.89
10	375.7	260.6	131.2	2.79
11	380.7	255.6	126.1	2.70
12	385.7	260.6	131.0	4.05
13	390.7	255.6	114.6	3.82
14	395.7	260.6	119.5	3.30
15	400.7	255.6	114.3	2.99
16	405.6	260.6	119.2	2.31
17	410.6	255.6	114.1	2.05
18	415.6	260.6	118.9	1.87
19	420.6	255.6	113.8	1.79
20	425.6	260.6	118.7	1.74
21	430.5	255.6	113.6	1.72
22	330.9	265.6	137.1	2.59
23	335.9	270.6	142.0	2.66
24	340.9	265.6	136.9	2.74
25	345.9	270.6	141.8	2.81
26	350.8	265.6	136.7	2.86
27	355.8	270.6	141.6	2.87
28	360.8	265.6	136.5	2.89
29	365.8	270.6	141.4	2.85
30	370.8	265.6	136.3	2.84
31	375.7	270.6	141.2	2.69
32	380.7	265.6	136.1	3.16
33	385.7	270.6	141.0	4.17
34	390.7	265.6	124.6	3.70
35	395.7	270.6	129.5	3.22
36	400.7	265.6	124.3	2.79
37	405.6	270.6	129.2	2.19
38	410.6	265.6	124.1	1.99
39	415.6	270.6	128.9	1.85
40	420.6	265.6	123.8	1.78
41	425.6	270.6	128.7	1.75
42	430.5	265.6	123.6	1.73
43	330.9	275.6	147.1	2.59
44	335.9	280.6	152.0	2.67
45	340.9	275.6	146.9	2.74
46	345.9	280.6	151.8	2.80
47	350.8	275.6	146.7	2.84
48	355.8	280.6	151.6	2.84
49	360.8	275.6	146.5	2.85
50	365.8	280.6	151.4	2.81
51	370.8	275.6	146.3	2.77
52	375.7	280.6	151.2	2.58
53	380.7	275.6	146.1	3.41
54	385.7	280.6	151.0	4.01
55	390.7	275.6	134.6	3.59
56	395.7	280.6	139.4	3.14
57	400.7	275.6	134.3	2.55
58	405.6	280.6	139.2	2.11
59	410.6	275.6	134.1	1.95
60	415.6	280.6	138.9	1.84
61	420.6	275.6	133.8	1.78
62	425.6	280.6	138.7	1.75

63	430.5	275.6	133.5	1.73
64	330.9	285.6	157.1	2.60
65	335.9	290.6	162.0	2.68
66	340.9	285.6	156.9	2.74
67	345.9	290.6	161.8	2.79
68	350.8	285.6	156.7	2.82
69	355.8	290.6	161.6	2.81
70	360.8	285.6	156.5	2.81
71	365.8	290.6	161.4	2.76
72	370.8	285.6	156.3	2.69
73	375.7	290.6	161.2	2.49
74	380.7	285.6	156.1	3.47
75	385.7	290.6	149.7	3.97
76	390.7	285.6	144.6	3.49
77	395.7	290.6	149.4	2.91
78	400.7	285.6	144.3	2.38
79	405.6	290.6	149.2	2.05
80	410.6	285.6	144.1	1.92
81	415.6	290.6	148.9	1.83
82	420.6	285.6	143.8	1.78
83	425.6	290.6	148.7	1.75
84	430.5	285.6	143.5	2.13
85	330.9	295.6	167.1	2.61
86	335.9	300.6	172.0	2.68
87	340.9	295.6	166.9	2.74
88	345.9	300.6	171.8	2.77
89	350.8	295.6	166.7	2.80
90	355.8	300.6	171.6	2.78
91	360.8	295.6	166.5	2.78
92	365.8	300.6	171.4	2.69
93	370.8	295.6	166.3	2.59
94	375.7	300.6	171.2	2.87
95	380.7	295.6	166.1	3.45
96	385.7	300.6	159.7	3.84
97	390.7	295.6	154.6	3.40
98	395.7	300.6	159.4	2.65
99	400.7	295.6	154.3	2.26
100	405.6	300.6	159.2	2.01
101	410.6	295.6	154.0	1.90
102	415.6	300.6	158.9	1.82
103	420.6	295.6	153.8	1.78
104	425.6	300.6	158.7	1.74
105	430.5	295.6	153.5	2.34
106	330.9	305.6	177.1	2.62
107	335.9	310.6	182.0	2.69
108	340.9	305.6	176.9	2.74
109	345.9	310.6	181.8	2.76
110	350.8	305.6	176.7	2.77
111	355.8	310.6	181.6	2.75
112	360.8	305.6	176.5	2.75
113	365.8	310.6	181.4	2.60
114	370.8	305.6	176.3	2.50
115	375.7	310.6	181.2	3.14
116	380.7	305.6	176.1	3.53
117	385.7	310.6	169.7	3.73
118	390.7	305.6	164.6	3.34
119	395.7	310.6	169.4	2.48
120	400.7	305.6	164.3	2.18
121	405.6	310.6	169.2	1.98

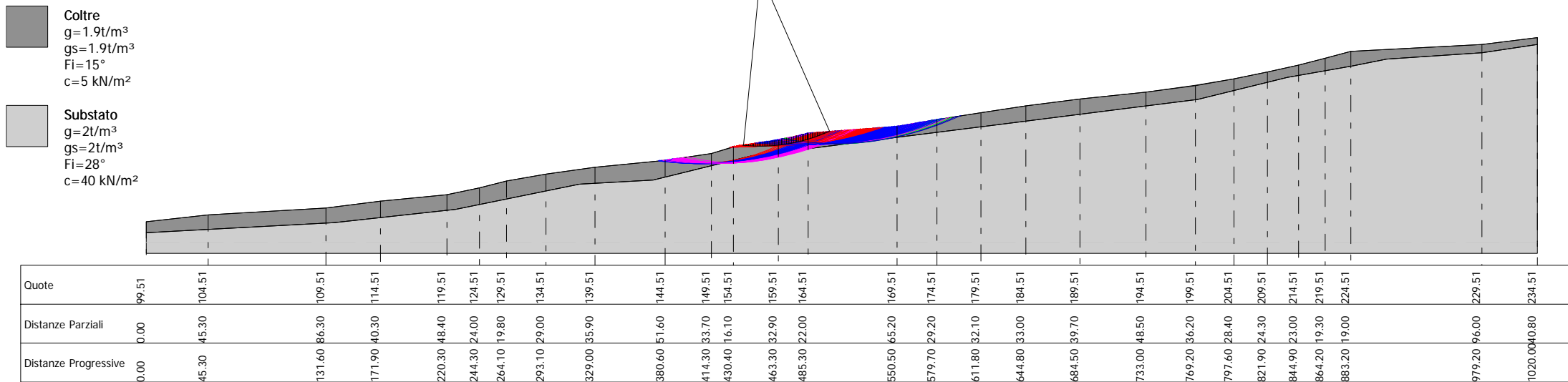
122	410.6	305.6	164.0	1.89
123	415.6	310.6	168.9	1.82
124	420.6	305.6	163.8	1.78
125	425.6	310.6	168.6	1.73
126	430.5	305.6	163.5	2.50
127	330.9	315.6	187.1	2.63
128	335.9	320.6	192.0	2.69
129	340.9	315.6	186.9	2.73
130	345.9	320.6	191.8	2.74
131	350.8	315.6	186.7	2.75
132	355.8	320.6	191.6	2.73
133	360.8	315.6	186.5	2.69
134	365.8	320.6	191.4	2.52
135	370.8	315.6	186.3	2.43
136	375.7	320.6	191.2	3.24
137	380.7	315.6	186.1	3.62
138	385.7	320.6	179.7	3.63
139	390.7	315.6	174.5	3.07
140	395.7	320.6	179.4	2.35
141	400.7	315.6	174.3	2.12
142	405.6	320.6	179.2	1.96
143	410.6	315.6	174.0	1.88
144	415.6	320.6	178.9	1.82
145	420.6	315.6	173.8	1.77
146	425.6	320.6	178.6	1.89
147	430.5	315.6	173.5	2.55
148	330.9	325.6	197.1	2.64
149	335.9	330.6	202.0	2.69
150	340.9	325.6	196.9	2.72
151	345.9	330.6	201.8	2.72
152	350.8	325.6	196.7	2.73
153	355.8	330.6	201.6	2.69
154	360.8	325.6	196.5	2.62
155	365.8	330.6	201.4	2.45
156	370.8	325.6	196.3	2.38
157	375.7	330.6	201.2	3.33
158	380.7	325.6	196.1	3.56
159	385.7	330.6	189.7	3.61
160	390.7	325.6	184.5	2.79
161	395.7	330.6	189.4	2.27
162	400.7	325.6	184.3	2.08
163	405.6	330.6	189.1	1.94
164	410.6	325.6	184.0	1.87
165	415.6	330.6	188.9	1.81
166	420.6	325.6	183.8	1.76
167	425.6	330.6	188.6	2.20
168	430.5	325.6	183.5	2.54
169	330.9	335.6	207.1	2.65
170	335.9	340.6	212.0	2.68
171	340.9	335.6	206.9	2.71
172	345.9	340.6	211.8	2.70
173	350.8	335.6	206.7	2.71
174	355.8	340.6	211.6	2.63
175	360.8	335.6	206.5	2.54
176	365.8	340.6	211.4	2.40
177	370.8	335.6	206.3	2.67
178	375.7	340.6	211.2	3.36
179	380.7	335.6	206.1	3.65
180	385.7	340.6	199.7	3.30

181	390.7	335.6	194.5	2.60
182	395.7	340.6	199.4	2.20
183	400.7	335.6	194.3	2.04
184	405.6	340.6	199.1	1.92
185	410.6	335.6	194.0	1.86
186	415.6	340.6	198.9	1.80
187	420.6	335.6	193.8	1.75
188	425.6	340.6	198.6	2.31
189	430.5	335.6	193.5	2.61
190	330.9	345.6	217.1	2.65
191	335.9	350.6	222.0	2.68
192	340.9	345.6	216.9	2.69
193	345.9	350.6	221.8	2.69
194	350.8	345.6	216.7	2.68
195	355.8	350.6	221.6	2.56
196	360.8	345.6	216.5	2.47
197	365.8	350.6	221.4	2.35
198	370.8	345.6	216.3	2.87
199	375.7	350.6	221.1	3.47
200	380.7	345.6	216.0	3.69
201	385.7	350.6	209.6	2.98
202	390.7	345.6	204.5	2.46
203	395.7	350.6	209.4	2.15
204	400.7	345.6	204.3	2.01
205	405.6	350.6	209.1	1.91
206	410.6	345.6	204.0	1.86
207	415.6	350.6	208.9	1.79
208	420.6	345.6	203.7	1.74
209	425.6	350.6	208.6	2.35
210	430.5	345.6	203.5	2.75
211	330.9	355.6	227.1	2.65
212	340.9	355.6	226.9	2.68
213	350.8	355.6	226.7	2.64
214	360.8	355.6	226.5	2.42
215	370.8	355.6	226.2	3.08
216	380.7	355.6	226.0	3.74
217	390.7	355.6	214.5	2.37
218	400.7	355.6	214.3	1.99
219	410.6	355.6	214.0	1.85
220	420.6	355.6	213.7	1.73
221	430.5	355.6	213.5	2.76

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	3
7.Risultati analisi pendio [[A1+M1+R1]]	3
Indice	8

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 400 A 500 m
 IN CONDIZIONI STATICHE



Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.266418/11.318641
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	432.51 m
Ordinata vertice sinistro inferiore yi	276.35 m
Ascissa vertice destro superiore xs	532.13 m
Ordinata vertice destro superiore ys	376.33 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	27.2	99.51
2	72.5	104.51
3	158.8	109.51
4	199.1	114.51
5	247.5	119.51
6	271.5	124.51
7	291.3	129.51
8	320.3	134.51
9	356.2	139.51
10	407.8	144.51
11	441.5	149.51
12	457.6	154.51
13	490.5	159.51
14	512.5	164.51
15	577.7	169.51
16	606.9	174.51
17	639.0	179.51
18	672.0	184.51
19	711.7	189.51
20	760.2	194.51
21	796.4	199.51
22	824.8	204.51
23	849.1	209.51
24	872.1	214.51
25	891.4	219.51
26	910.4	224.51
27	1006.4	229.51
28	1047.2	234.51

Vertici strato1

N	X (m)	y (m)
1	27.2	91.51
2	164.87	98.82
3	254.11	108.66
4	344.79	127.14
5	398.95	130.22
6	471.04	147.83
7	529.88	155.31
8	579.79	161.65
9	651.88	170.81
10	744.65	182.59
11	798.08	189.32
12	863.53	205.44
13	911.31	213.89
14	936.44	218.7
15	1006.86	223.67
16	1047.2	229.51

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.9	1.9	Coltre
2	40		28	2	2	Substato

Risultati analisi pendio [[A1+M1+R1]]

Fs minimo individuato	2.1
Ascissa centro superficie	477.33 m
Ordinata centro superficie	281.35 m
Raggio superficie	126.3 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	432.5	276.3	134.2	2.36
2	437.5	281.3	139.1	2.75
3	442.5	276.3	134.0	2.97

4	447.4	281.3	138.8	3.12
5	452.4	276.3	133.7	3.25
6	457.4	281.3	138.6	3.47
7	462.4	276.3	121.8	2.76
8	467.4	281.3	126.6	2.25
9	472.4	276.3	121.5	2.12
10	477.3	281.3	126.3	2.10
11	482.3	276.3	121.2	2.11
12	487.3	281.3	126.0	2.20
13	492.3	276.3	120.8	2.27
14	497.3	281.3	125.7	2.41
15	502.2	276.3	120.5	2.52
16	507.2	281.3	125.4	2.70
17	512.2	276.3	120.2	2.86
18	517.2	281.3	125.1	3.07
19	522.2	276.3	119.9	3.29
20	527.1	281.3	124.8	3.47
21	532.1	276.3	119.6	3.61
22	432.5	286.3	144.2	2.43
23	437.5	291.3	149.1	2.79
24	442.5	286.3	144.0	2.95
25	447.4	291.3	148.8	3.19
26	452.4	286.3	143.7	3.38
27	457.4	291.3	136.9	3.25
28	462.4	286.3	131.8	2.59
29	467.4	291.3	136.6	2.21
30	472.4	286.3	131.5	2.12
31	477.3	291.3	136.3	2.12
32	482.3	286.3	131.1	2.15
33	487.3	291.3	136.0	2.24
34	492.3	286.3	130.8	2.31
35	497.3	291.3	135.7	2.44
36	502.2	286.3	130.5	2.56
37	507.2	291.3	135.4	2.72
38	512.2	286.3	130.2	2.88
39	517.2	291.3	135.1	3.08
40	522.2	286.3	129.9	3.28
41	527.1	291.3	134.7	3.41
42	532.1	286.3	129.6	3.51
43	432.5	296.3	154.2	2.57
44	437.5	301.3	159.1	2.85
45	442.5	296.3	154.0	3.01
46	447.4	301.3	158.8	3.21
47	452.4	296.3	153.7	3.40
48	457.4	301.3	146.9	3.00
49	462.4	296.3	141.8	2.44
50	467.4	301.3	146.6	2.19
51	472.4	296.3	141.4	2.13
52	477.3	301.3	146.3	2.15
53	482.3	296.3	141.1	2.18
54	487.3	301.3	146.0	2.27
55	492.3	296.3	140.8	2.35
56	497.3	301.3	145.7	2.48
57	502.2	296.3	140.5	2.59
58	507.2	301.3	145.4	2.75
59	512.2	296.3	140.2	2.90
60	517.2	301.3	145.0	3.08
61	522.2	296.3	139.9	3.26
62	527.1	301.3	144.7	3.34

63	532.1	296.3	139.6	3.41
64	432.5	306.3	164.2	2.62
65	437.5	311.3	169.1	2.91
66	442.5	306.3	163.9	3.08
67	447.4	311.3	168.8	3.29
68	452.4	306.3	163.7	3.43
69	457.4	311.3	156.9	2.78
70	462.4	306.3	151.7	2.35
71	467.4	311.3	156.6	2.18
72	472.4	306.3	151.4	2.14
73	477.3	311.3	156.3	2.18
74	482.3	306.3	151.1	2.21
75	487.3	311.3	156.0	2.31
76	492.3	306.3	150.8	2.38
77	497.3	311.3	155.7	2.51
78	502.2	306.3	150.5	2.62
79	507.2	311.3	155.3	2.78
80	512.2	306.3	150.2	2.92
81	517.2	311.3	155.0	3.09
82	522.2	306.3	149.9	3.23
83	527.1	311.3	154.7	3.28
84	532.1	306.3	149.6	3.61
85	432.5	316.3	174.2	2.67
86	437.5	321.3	179.1	2.91
87	442.5	316.3	173.9	3.09
88	447.4	321.3	178.8	3.31
89	452.4	316.3	173.7	3.46
90	457.4	321.3	166.9	2.59
91	462.4	316.3	161.7	2.30
92	467.4	321.3	166.6	2.19
93	472.4	316.3	161.4	2.16
94	477.3	321.3	166.3	2.21
95	482.3	316.3	161.1	2.25
96	487.3	321.3	166.0	2.34
97	492.3	316.3	160.8	2.42
98	497.3	321.3	165.6	2.54
99	502.2	316.3	160.5	2.65
100	507.2	321.3	165.3	2.80
101	512.2	316.3	160.2	2.94
102	517.2	321.3	165.0	3.09
103	522.2	316.3	159.9	3.20
104	527.1	321.3	164.7	3.21
105	532.1	316.3	159.6	3.94
106	432.5	326.3	184.2	2.74
107	437.5	331.3	189.1	2.98
108	442.5	326.3	183.9	3.11
109	447.4	331.3	188.8	3.34
110	452.4	326.3	172.0	3.39
111	457.4	331.3	176.9	2.48
112	462.4	326.3	171.7	2.27
113	467.4	331.3	176.6	2.20
114	472.4	326.3	171.4	2.19
115	477.3	331.3	176.3	2.24
116	482.3	326.3	171.1	2.28
117	487.3	331.3	175.9	2.38
118	492.3	326.3	170.8	2.45
119	497.3	331.3	175.6	2.58
120	502.2	326.3	170.5	2.68
121	507.2	331.3	175.3	2.82

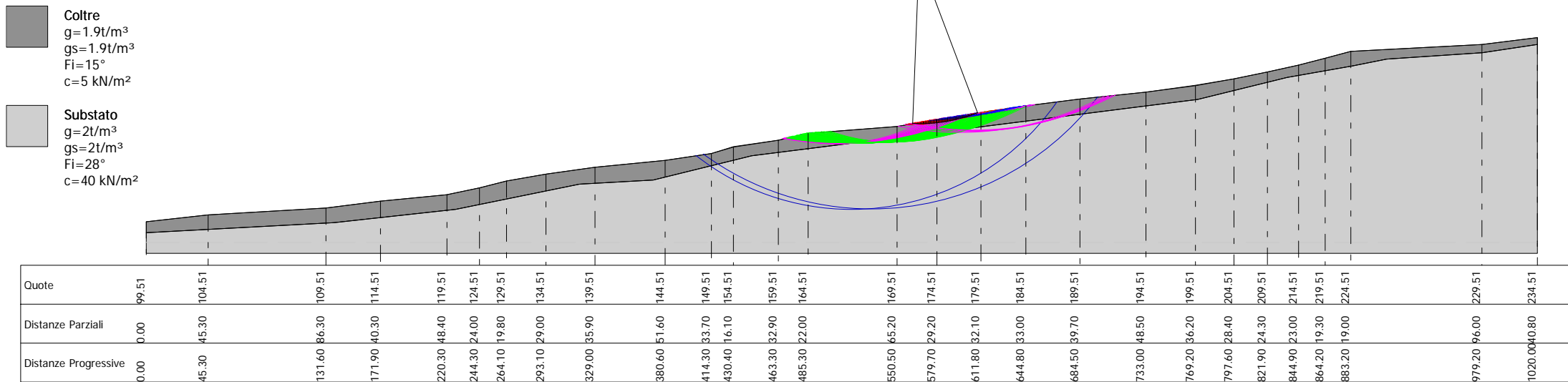
122	512.2	326.3	170.2	2.96
123	517.2	331.3	175.0	3.07
124	522.2	326.3	169.9	3.16
125	527.1	331.3	174.7	3.15
126	532.1	326.3	169.6	4.11
127	432.5	336.3	194.2	2.74
128	437.5	341.3	199.0	2.99
129	442.5	336.3	193.9	3.19
130	447.4	341.3	198.8	3.36
131	452.4	336.3	182.0	3.09
132	457.4	341.3	186.9	2.41
133	462.4	336.3	181.7	2.26
134	467.4	341.3	186.6	2.21
135	472.4	336.3	181.4	2.21
136	477.3	341.3	186.2	2.26
137	482.3	336.3	181.1	2.31
138	487.3	341.3	185.9	2.41
139	492.3	336.3	180.8	2.48
140	497.3	341.3	185.6	2.60
141	502.2	336.3	180.5	2.71
142	507.2	341.3	185.3	2.85
143	512.2	336.3	180.2	2.97
144	517.2	341.3	185.0	3.05
145	522.2	336.3	179.9	3.11
146	527.1	341.3	184.7	3.09
147	532.1	336.3	179.5	4.14
148	432.5	346.3	204.2	2.81
149	437.5	351.3	209.0	3.08
150	442.5	346.3	203.9	3.28
151	447.4	351.3	208.8	3.46
152	452.4	346.3	192.0	2.82
153	457.4	351.3	196.9	2.37
154	462.4	346.3	191.7	2.25
155	467.4	351.3	196.5	2.23
156	472.4	346.3	191.4	2.23
157	477.3	351.3	196.2	2.29
158	482.3	346.3	191.1	2.34
159	487.3	351.3	195.9	2.44
160	492.3	346.3	190.8	2.51
161	497.3	351.3	195.6	2.63
162	502.2	346.3	190.5	2.73
163	507.2	351.3	195.3	2.87
164	512.2	346.3	190.2	2.97
165	517.2	351.3	195.0	3.03
166	522.2	346.3	189.8	3.07
167	527.1	351.3	194.7	3.03
168	532.1	346.3	189.5	4.18
169	432.5	356.3	214.2	2.84
170	437.5	361.3	219.0	3.16
171	442.5	356.3	213.9	3.30
172	447.4	361.3	218.8	3.55
173	452.4	356.3	202.0	2.66
174	457.4	361.3	206.8	2.34
175	462.4	356.3	201.7	2.25
176	467.4	361.3	206.5	2.25
177	472.4	356.3	201.4	2.26
178	477.3	361.3	206.2	2.32
179	482.3	356.3	201.1	2.37
180	487.3	361.3	205.9	2.47

181	492.3	356.3	200.8	2.54
182	497.3	361.3	205.6	2.66
183	502.2	356.3	200.5	2.76
184	507.2	361.3	205.3	2.88
185	512.2	356.3	200.1	2.97
186	517.2	361.3	205.0	3.00
187	522.2	356.3	199.8	3.02
188	527.1	361.3	204.7	2.98
189	532.1	356.3	199.5	4.22
190	432.5	366.3	224.2	2.97
191	437.5	371.3	229.0	3.18
192	442.5	366.3	223.9	3.33
193	447.4	371.3	217.1	3.19
194	452.4	366.3	212.0	2.55
195	457.4	371.3	216.8	2.33
196	462.4	366.3	211.7	2.26
197	467.4	371.3	216.5	2.26
198	472.4	366.3	211.4	2.28
199	477.3	371.3	216.2	2.35
200	482.3	366.3	211.1	2.40
201	487.3	371.3	215.9	2.49
202	492.3	366.3	210.8	2.57
203	497.3	371.3	215.6	2.68
204	502.2	366.3	210.4	2.78
205	507.2	371.3	215.3	2.89
206	512.2	366.3	210.1	2.96
207	517.2	371.3	215.0	2.97
208	522.2	366.3	209.8	2.98
209	527.1	371.3	214.7	3.18
210	532.1	366.3	209.5	4.26
211	432.5	376.3	234.1	2.98
212	442.5	376.3	233.9	3.45
213	452.4	376.3	222.0	2.49
214	462.4	376.3	221.7	2.27
215	472.4	376.3	221.4	2.31
216	482.3	376.3	221.1	2.43
217	492.3	376.3	220.7	2.60
218	502.2	376.3	220.4	2.80
219	512.2	376.3	220.1	2.94
220	522.2	376.3	219.8	2.93
221	532.1	376.3	219.5	4.30

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	3
7.Risultati analisi pendio [[A1+M1+R1]]	3
Indice	8

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 500 A 600 m
 IN CONDIZIONI STATICHE



Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.266418/11.318641
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	534.09 m
Ordinata vertice sinistro inferiore yi	292.93 m
Ascissa vertice destro superiore xs	633.71 m
Ordinata vertice destro superiore ys	392.92 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	27.2	99.51
2	72.5	104.51
3	158.8	109.51
4	199.1	114.51
5	247.5	119.51
6	271.5	124.51
7	291.3	129.51
8	320.3	134.51
9	356.2	139.51
10	407.8	144.51
11	441.5	149.51
12	457.6	154.51
13	490.5	159.51
14	512.5	164.51
15	577.7	169.51
16	606.9	174.51
17	639.0	179.51
18	672.0	184.51
19	711.7	189.51
20	760.2	194.51
21	796.4	199.51
22	824.8	204.51
23	849.1	209.51
24	872.1	214.51
25	891.4	219.51
26	910.4	224.51
27	1006.4	229.51
28	1047.2	234.51

Vertici strato1

N	X (m)	y (m)
1	27.2	91.51
2	164.87	98.82
3	254.11	108.66
4	344.79	127.14
5	398.95	130.22
6	471.04	147.83
7	529.88	155.31
8	579.79	161.65
9	651.88	170.81
10	744.65	182.59
11	798.08	189.32
12	863.53	205.44
13	911.31	213.89
14	936.44	218.7
15	1006.86	223.67
16	1047.2	229.51

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.9	1.9	Coltre
2	40		28	2	2	Substato

Risultati analisi pendio [[A1+M1+R1]]

Fs minimo individuato	2.7
Ascissa centro superficie	593.86 m
Ordinata centro superficie	292.93 m
Raggio superficie	121.58 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	534.1	292.9	136.1	4.33
2	539.1	297.9	140.9	5.01
3	544.1	292.9	184.2	5.42

4	549.0	297.9	140.6	5.35
5	554.0	292.9	135.5	5.37
6	559.0	297.9	140.3	5.22
7	564.0	292.9	135.2	5.18
8	569.0	297.9	140.0	4.98
9	573.9	292.9	134.9	4.96
10	578.9	297.9	127.4	3.92
11	583.9	292.9	122.2	3.17
12	588.9	297.9	127.1	2.78
13	593.9	292.9	121.6	2.70
14	598.8	297.9	125.6	2.79
15	603.8	292.9	119.9	2.83
16	608.8	297.9	123.9	2.93
17	613.8	292.9	118.2	2.96
18	618.8	297.9	122.2	3.06
19	623.7	292.9	116.5	3.10
20	628.7	297.9	120.5	3.22
21	633.7	292.9	114.8	3.27
22	534.1	302.9	146.1	4.34
23	539.1	307.9	150.9	4.99
24	544.1	302.9	145.8	5.26
25	549.0	307.9	150.6	5.20
26	554.0	302.9	145.5	5.24
27	559.0	307.9	150.3	5.13
28	564.0	302.9	145.2	5.10
29	569.0	307.9	150.0	4.92
30	573.9	302.9	144.9	4.91
31	578.9	307.9	137.4	3.70
32	583.9	302.9	132.2	3.08
33	588.9	307.9	137.0	2.74
34	593.9	302.9	131.4	2.75
35	598.8	307.9	135.4	2.83
36	603.8	302.9	129.7	2.88
37	608.8	307.9	133.7	2.98
38	613.8	302.9	128.0	3.02
39	618.8	307.9	132.0	3.12
40	623.7	302.9	126.2	3.17
41	628.7	307.9	130.3	3.30
42	633.7	302.9	124.5	3.35
43	534.1	312.9	156.1	4.36
44	539.1	317.9	160.9	4.97
45	544.1	312.9	155.8	5.11
46	549.0	317.9	160.6	5.19
47	554.0	312.9	155.5	5.13
48	559.0	317.9	209.0	5.34
49	564.0	312.9	155.2	5.03
50	569.0	317.9	160.0	4.87
51	573.9	312.9	154.8	4.86
52	578.9	317.9	147.4	3.52
53	583.9	312.9	142.2	3.01
54	588.9	317.9	146.9	2.75
55	593.9	312.9	141.2	2.79
56	598.8	317.9	145.2	2.88
57	603.8	312.9	139.4	2.93
58	608.8	317.9	143.5	3.04
59	613.8	312.9	137.7	3.08
60	618.8	317.9	141.8	3.19
61	623.7	312.9	136.0	3.24
62	628.7	317.9	140.1	3.39

63	633.7	312.9	134.3	3.44
64	534.1	322.9	166.1	4.38
65	539.1	327.9	170.9	4.84
66	544.1	322.9	165.8	5.10
67	549.0	327.9	170.6	5.18
68	554.0	322.9	165.5	5.13
69	559.0	327.9	170.3	4.97
70	564.0	322.9	165.1	4.96
71	569.0	327.9	170.0	4.82
72	573.9	322.9	164.8	4.82
73	578.9	327.9	157.4	3.38
74	583.9	322.9	152.2	2.94
75	588.9	327.9	156.7	2.80
76	593.9	322.9	150.9	2.84
77	598.8	327.9	155.0	2.94
78	603.8	322.9	149.2	2.99
79	608.8	327.9	153.3	3.10
80	613.8	322.9	147.5	3.14
81	618.8	327.9	151.6	3.27
82	623.7	322.9	145.8	3.32
83	628.7	327.9	149.9	3.48
84	633.7	322.9	144.1	3.55
85	534.1	332.9	176.1	4.40
86	539.1	337.9	180.9	4.84
87	544.1	332.9	175.8	4.97
88	549.0	337.9	180.6	5.07
89	554.0	332.9	175.4	5.14
90	559.0	337.9	180.3	4.99
91	564.0	332.9	175.1	4.91
92	569.0	337.9	180.0	4.77
93	573.9	332.9	162.6	4.44
94	578.9	337.9	167.4	3.26
95	583.9	332.9	162.2	2.88
96	588.9	337.9	166.5	2.85
97	593.9	332.9	160.7	2.89
98	598.8	337.9	164.8	3.00
99	603.8	332.9	159.0	3.05
100	608.8	337.9	163.1	3.17
101	613.8	332.9	157.3	3.22
102	618.8	337.9	161.4	3.35
103	623.7	332.9	155.6	3.42
104	628.7	337.9	159.6	3.59
105	633.7	332.9	153.9	3.68
106	534.1	342.9	186.1	4.43
107	539.1	347.9	190.9	4.73
108	544.1	342.9	185.8	4.97
109	549.0	347.9	190.6	4.98
110	554.0	342.9	185.4	5.02
111	559.0	347.9	190.3	4.93
112	564.0	342.9	185.1	4.86
113	569.0	347.9	190.0	4.73
114	573.9	342.9	172.6	4.11
115	578.9	347.9	177.4	3.16
116	583.9	342.9	172.2	2.82
117	588.9	347.9	176.3	2.90
118	593.9	342.9	170.5	2.95
119	598.8	347.9	174.6	3.06
120	603.8	342.9	168.8	3.12
121	608.8	347.9	172.8	3.25

122	613.8	342.9	167.1	3.30
123	618.8	347.9	171.1	3.45
124	623.7	342.9	165.4	3.52
125	628.7	347.9	169.4	3.72
126	633.7	342.9	163.7	3.83
127	534.1	352.9	196.1	4.33
128	539.1	357.9	200.9	4.64
129	544.1	352.9	195.7	4.99
130	549.0	357.9	200.6	5.00
131	554.0	352.9	195.4	4.97
132	559.0	357.9	200.3	4.86
133	564.0	352.9	195.1	4.90
134	569.0	357.9	200.0	4.70
135	573.9	352.9	182.5	3.86
136	578.9	357.9	187.4	3.08
137	583.9	352.9	182.0	2.86
138	588.9	357.9	186.0	2.96
139	593.9	352.9	180.3	3.01
140	598.8	357.9	184.3	3.14
141	603.8	352.9	178.6	3.20
142	608.8	357.9	182.6	3.33
143	613.8	352.9	176.9	3.39
144	618.8	357.9	180.9	3.57
145	623.7	352.9	175.2	3.65
146	628.7	357.9	179.2	3.88
147	633.7	352.9	173.5	4.01
148	534.1	362.9	206.0	4.37
149	539.1	367.9	210.9	4.67
150	544.1	362.9	205.7	4.90
151	549.0	367.9	210.6	4.92
152	554.0	362.9	205.4	4.99
153	559.0	367.9	210.3	4.81
154	564.0	362.9	205.1	4.85
155	569.0	367.9	209.9	4.66
156	573.9	362.9	192.5	3.66
157	578.9	367.9	197.3	3.00
158	583.9	362.9	191.8	2.92
159	588.9	367.9	195.8	3.03
160	593.9	362.9	190.1	3.08
161	598.8	367.9	194.1	3.22
162	603.8	362.9	188.4	3.28
163	608.8	367.9	192.4	3.43
164	613.8	362.9	186.7	3.49
165	618.8	367.9	190.7	3.69
166	623.7	362.9	185.0	3.78
167	628.7	367.9	189.0	4.06
168	633.7	362.9	183.3	4.22
169	534.1	372.9	216.0	4.35
170	539.1	377.9	220.9	4.69
171	544.1	372.9	215.7	4.81
172	549.0	377.9	220.6	4.82
173	554.0	372.9	215.4	4.93
174	559.0	377.9	220.3	4.75
175	564.0	372.9	215.1	4.81
176	569.0	377.9	207.7	4.73
177	573.9	372.9	202.5	3.50
178	578.9	377.9	207.3	2.94
179	583.9	372.9	201.6	2.98
180	588.9	377.9	205.6	3.10

181	593.9	372.9	199.9	3.16
182	598.8	377.9	203.9	3.31
183	603.8	372.9	198.2	3.37
184	608.8	377.9	202.2	3.54
185	613.8	372.9	196.5	3.61
186	618.8	377.9	200.5	3.85
187	623.7	372.9	194.7	3.94
188	628.7	377.9	198.8	4.28
189	633.7	372.9	206.7	4.41
190	534.1	382.9	226.0	4.44
191	539.1	387.9	230.9	4.61
192	544.1	382.9	225.7	4.74
193	549.0	387.9	230.6	4.78
194	554.0	382.9	225.4	4.86
195	559.0	387.9	230.2	4.79
196	564.0	382.9	225.1	4.76
197	569.0	387.9	217.7	4.34
198	573.9	382.9	212.5	3.37
199	578.9	387.9	217.1	3.00
200	583.9	382.9	211.4	3.05
201	588.9	387.9	215.4	3.18
202	593.9	382.9	209.7	3.24
203	598.8	387.9	213.7	3.41
204	603.8	382.9	207.9	3.47
205	608.8	387.9	212.0	3.67
206	613.8	382.9	206.2	3.75
207	618.8	387.9	210.3	4.02
208	623.7	382.9	204.5	4.12
209	628.7	387.9	222.1	4.36
210	633.7	382.9	216.5	4.42
211	534.1	392.9	236.0	4.36
212	544.1	392.9	235.7	4.77
213	554.0	392.9	235.4	4.81
214	564.0	392.9	235.1	4.72
215	573.9	392.9	222.5	3.25
216	583.9	392.9	221.1	3.12
217	593.9	392.9	219.4	3.34
218	603.8	392.9	217.7	3.59
219	613.8	392.9	216.0	3.91
220	623.7	392.9	227.8	4.31
221	633.7	392.9	226.3	4.44

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	3
7.Risultati analisi pendio [[A1+M1+R1]]	3
Indice	8

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.266418/11.318641
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	634.64 m
Ordinata vertice sinistro inferiore yi	309.52 m
Ascissa vertice destro superiore xs	734.26 m
Ordinata vertice destro superiore ys	409.5 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	27.2	99.51
2	72.5	104.51
3	158.8	109.51
4	199.1	114.51
5	247.5	119.51
6	271.5	124.51
7	291.3	129.51
8	320.3	134.51
9	356.2	139.51
10	407.8	144.51
11	441.5	149.51
12	457.6	154.51
13	490.5	159.51
14	512.5	164.51
15	577.7	169.51
16	606.9	174.51
17	639.0	179.51
18	672.0	184.51
19	711.7	189.51
20	760.2	194.51
21	796.4	199.51
22	824.8	204.51
23	849.1	209.51
24	872.1	214.51
25	891.4	219.51
26	910.4	224.51
27	1006.4	229.51
28	1047.2	234.51

Vertici strato1

N	X (m)	y (m)
1	27.2	91.51
2	164.87	98.82
3	254.11	108.66
4	344.79	127.14
5	398.95	130.22
6	471.04	147.83
7	529.88	155.31
8	579.79	161.65
9	651.88	170.81
10	744.65	182.59
11	798.08	189.32
12	863.53	205.44
13	911.31	213.89
14	936.44	218.7
15	1006.86	223.67
16	1047.2	229.51

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.9	1.9	Coltre
2	40		28	2	2	Substato

Risultati analisi pendio [[A1+M1+R1]]

Fs minimo individuato	3.43
Ascissa centro superficie	634.64 m
Ordinata centro superficie	309.52 m
Raggio superficie	130.83 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	634.6	309.5	130.8	3.43
2	639.6	314.5	134.9	3.64
3	644.6	309.5	129.1	3.78

4	649.6	314.5	133.2	4.19
5	654.6	309.5	127.4	4.51
6	659.5	314.5	145.5	4.76
7	664.5	309.5	139.9	4.84
8	669.5	314.5	144.1	4.94
9	674.5	309.5	138.4	5.04
10	679.5	314.5	142.6	5.07
11	684.4	309.5	137.0	5.15
12	689.4	314.5	141.1	5.20
13	694.4	309.5	135.5	5.31
14	699.4	314.5	139.7	5.29
15	704.4	309.5	134.0	5.38
16	709.4	314.5	138.2	5.40
17	714.3	309.5	132.6	5.45
18	719.3	314.5	136.8	5.33
19	724.3	309.5	131.1	5.24
20	729.3	314.5	135.3	5.18
21	734.3	309.5	129.6	5.07
22	634.6	319.5	140.6	3.54
23	639.6	324.5	144.7	3.79
24	644.6	319.5	138.9	3.96
25	649.6	324.5	142.9	4.46
26	654.6	319.5	151.2	4.71
27	659.5	324.5	155.3	4.70
28	664.5	319.5	149.7	4.85
29	669.5	324.5	153.9	4.95
30	674.5	319.5	148.2	5.05
31	679.5	324.5	152.4	4.99
32	684.4	319.5	146.8	5.08
33	689.4	324.5	151.0	5.19
34	694.4	319.5	145.3	5.29
35	699.4	324.5	149.5	5.26
36	704.4	319.5	143.9	5.34
37	709.4	324.5	148.0	5.27
38	714.3	319.5	142.4	5.38
39	719.3	324.5	146.6	5.15
40	724.3	319.5	140.9	5.19
41	729.3	324.5	145.1	5.03
42	734.3	319.5	139.3	5.00
43	634.6	329.5	150.4	3.67
44	639.6	334.5	154.4	3.97
45	644.6	329.5	148.7	4.17
46	649.6	334.5	166.6	4.67
47	654.6	329.5	161.0	4.72
48	659.5	334.5	165.2	4.69
49	664.5	329.5	159.5	4.78
50	669.5	334.5	163.7	4.88
51	674.5	329.5	158.1	4.89
52	679.5	334.5	162.2	4.99
53	684.4	329.5	156.6	5.09
54	689.4	334.5	160.8	5.18
55	694.4	329.5	155.1	5.18
56	699.4	334.5	159.3	5.23
57	704.4	329.5	153.7	5.30
58	709.4	334.5	157.8	5.23
59	714.3	329.5	152.2	5.15
60	719.3	334.5	156.4	5.14
61	724.3	329.5	150.7	5.14
62	729.3	334.5	154.8	4.97

63	734.3	329.5	149.0	4.74
64	634.6	339.5	160.2	3.82
65	639.6	344.5	164.2	4.18
66	644.6	339.5	158.5	4.43
67	649.6	344.5	176.4	4.61
68	654.6	339.5	170.8	4.66
69	659.5	344.5	175.0	4.70
70	664.5	339.5	169.3	4.79
71	669.5	344.5	173.5	4.80
72	674.5	339.5	167.9	4.89
73	679.5	344.5	172.1	5.00
74	684.4	339.5	166.4	5.11
75	689.4	344.5	170.6	5.08
76	694.4	339.5	164.9	5.16
77	699.4	344.5	169.1	5.12
78	704.4	339.5	163.5	5.18
79	709.4	344.5	167.7	5.13
80	714.3	339.5	162.0	5.12
81	719.3	344.5	166.2	5.02
82	724.3	339.5	160.5	4.99
83	729.3	344.5	164.5	4.73
84	734.3	339.5	158.8	4.69
85	634.6	349.5	170.0	3.99
86	639.6	354.5	174.0	4.43
87	644.6	349.5	182.1	4.54
88	649.6	354.5	186.3	4.55
89	654.6	349.5	180.6	4.62
90	659.5	354.5	184.8	4.71
91	664.5	349.5	179.2	4.80
92	669.5	354.5	183.3	4.81
93	674.5	349.5	177.7	4.90
94	679.5	354.5	181.9	5.00
95	684.4	349.5	176.2	5.00
96	689.4	354.5	180.4	5.07
97	694.4	349.5	174.8	5.05
98	699.4	354.5	178.9	5.10
99	704.4	349.5	234.4	5.13
100	709.4	354.5	177.5	5.03
101	714.3	349.5	233.9	5.03
102	719.3	354.5	238.7	4.94
103	724.3	349.5	170.3	4.95
104	729.3	354.5	174.3	4.68
105	734.3	349.5	168.5	4.55
106	634.6	359.5	179.8	4.20
107	639.6	364.5	197.5	4.48
108	644.6	359.5	191.9	4.55
109	649.6	364.5	196.1	4.59
110	654.6	359.5	190.4	4.64
111	659.5	364.5	194.6	4.73
112	664.5	359.5	189.0	4.73
113	669.5	364.5	193.1	4.83
114	674.5	359.5	187.5	4.91
115	679.5	364.5	191.7	5.00
116	684.4	359.5	186.0	4.99
117	689.4	364.5	190.2	4.97
118	694.4	359.5	184.6	5.04
119	699.4	364.5	249.6	5.02
120	704.4	359.5	244.4	5.02
121	709.4	364.5	249.1	4.94

122	714.3	359.5	243.9	4.94
123	719.3	364.5	248.6	4.86
124	724.3	359.5	180.0	4.71
125	729.3	364.5	184.0	4.54
126	734.3	359.5	178.2	4.40
127	634.6	369.5	203.2	4.42
128	639.6	374.5	207.4	4.50
129	644.6	369.5	201.7	4.49
130	649.6	374.5	205.9	4.52
131	654.6	369.5	200.3	4.65
132	659.5	374.5	204.4	4.74
133	664.5	369.5	198.8	4.74
134	669.5	374.5	203.0	4.84
135	674.5	369.5	197.3	4.92
136	679.5	374.5	201.5	4.84
137	684.4	369.5	195.9	4.90
138	689.4	374.5	200.0	4.96
139	694.4	369.5	194.4	5.02
140	699.4	374.5	259.5	4.93
141	704.4	369.5	254.3	4.93
142	709.4	374.5	259.0	4.84
143	714.3	369.5	253.8	4.86
144	719.3	374.5	195.5	4.70
145	724.3	369.5	189.7	4.67
146	729.3	374.5	193.7	4.40
147	734.3	369.5	188.0	4.26
148	634.6	379.5	213.0	4.43
149	639.6	384.5	217.2	4.51
150	644.6	379.5	211.5	4.51
151	649.6	384.5	215.7	4.58
152	654.6	379.5	210.1	4.67
153	659.5	384.5	214.2	4.68
154	664.5	379.5	208.6	4.76
155	669.5	384.5	212.8	4.85
156	674.5	379.5	207.1	4.93
157	679.5	384.5	211.3	4.86
158	684.4	379.5	205.7	4.90
159	689.4	384.5	209.9	4.96
160	694.4	379.5	264.7	4.95
161	699.4	384.5	269.5	4.86
162	704.4	379.5	264.2	4.85
163	709.4	384.5	269.0	4.78
164	714.3	379.5	263.7	4.79
165	719.3	384.5	205.2	4.67
166	724.3	379.5	199.5	4.44
167	729.3	384.5	203.4	4.27
168	734.3	379.5	197.7	4.02
169	634.6	389.5	222.8	4.45
170	639.6	394.5	227.0	4.46
171	644.6	389.5	221.3	4.54
172	649.6	394.5	225.5	4.61
173	654.6	389.5	219.9	4.68
174	659.5	394.5	224.1	4.69
175	664.5	389.5	218.4	4.77
176	669.5	394.5	222.6	4.78
177	674.5	389.5	217.0	4.85
178	679.5	394.5	221.1	4.88
179	684.4	389.5	215.5	4.90
180	689.4	394.5	279.9	4.89

181	694.4	389.5	274.7	4.87
182	699.4	394.5	279.4	4.78
183	704.4	389.5	274.2	4.78
184	709.4	394.5	263.4	4.70
185	714.3	389.5	211.0	4.68
186	719.3	394.5	214.9	4.44
187	724.3	389.5	209.2	4.41
188	729.3	394.5	213.2	4.03
189	734.3	389.5	207.4	3.99
190	634.6	399.5	232.6	4.46
191	639.6	404.5	236.8	4.47
192	644.6	399.5	231.2	4.51
193	649.6	404.5	235.3	4.64
194	654.6	399.5	229.7	4.62
195	659.5	404.5	233.9	4.71
196	664.5	399.5	228.2	4.71
197	669.5	404.5	232.4	4.79
198	674.5	399.5	226.8	4.77
199	679.5	404.5	230.9	4.84
200	684.4	399.5	225.3	4.89
201	689.4	404.5	229.5	4.76
202	694.4	399.5	223.8	4.80
203	699.4	404.5	274.0	4.72
204	704.4	399.5	268.7	4.71
205	709.4	404.5	273.2	4.63
206	714.3	399.5	267.8	4.63
207	719.3	404.5	224.7	4.31
208	724.3	399.5	218.9	4.28
209	729.3	404.5	222.9	3.90
210	734.3	399.5	217.1	3.75
211	634.6	409.5	242.4	4.48
212	644.6	409.5	241.0	4.56
213	654.6	409.5	239.5	4.64
214	664.5	409.5	238.1	4.72
215	674.5	409.5	236.6	4.77
216	684.4	409.5	295.0	4.84
217	694.4	409.5	294.5	4.75
218	704.4	409.5	278.6	4.64
219	714.3	409.5	230.4	4.43
220	724.3	409.5	228.6	4.05
221	734.3	409.5	226.9	3.51

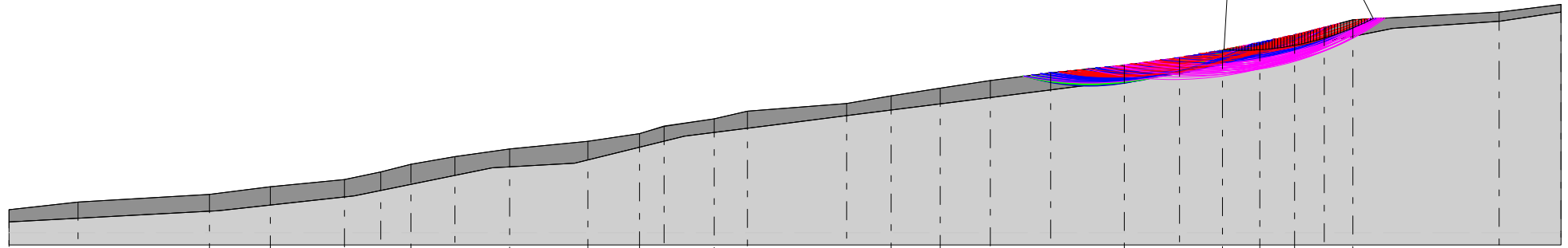
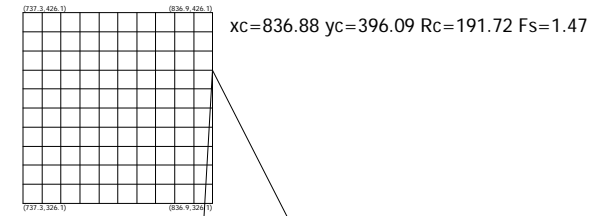
Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	3
7.Risultati analisi pendio [[A1+M1+R1]]	3
Indice	8

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 700 A 800 m
 IN CONDIZIONI STATICHE

Coltre
 $g = 1.9t/m^3$
 $g_s = 1.9t/m^3$
 $F_i = 15^\circ$
 $c = 5 \text{ kN/m}^2$

Substato
 $g = 2t/m^3$
 $g_s = 2t/m^3$
 $F_i = 28^\circ$
 $c = 40 \text{ kN/m}^2$



Quote	0.00	99.51	104.51	109.51	114.51	119.51	124.51	129.51	134.51	139.51	144.51	149.51	154.51	159.51	164.51	169.51	174.51	179.51	184.51	189.51	194.51	199.51	204.51	209.51	214.51	219.51	224.51	229.51	234.51	
Distanze Parziali	0.00	45.30	86.30	114.51	148.40	184.00	219.51	254.00	288.10	320.00	350.00	378.60	405.70	431.30	455.50	478.30	500.00	520.00	538.00	554.00	568.00	580.00	590.00	598.00	604.00	608.00	610.00	610.00	608.00	604.00
Distanze Progressive	0.00	45.30	131.60	171.90	220.30	244.30	264.10	293.10	329.00	380.60	414.30	430.40	463.30	485.30	550.50	579.70	611.80	644.80	684.50	733.00	769.20	797.60	821.90	844.90	864.20	883.20	979.20	1020.00	1020.00	

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.266418/11.318641
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	737.26 m
Ordinata vertice sinistro inferiore yi	326.1 m
Ascissa vertice destro superiore xs	836.88 m
Ordinata vertice destro superiore ys	426.09 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	27.2	99.51
2	72.5	104.51
3	158.8	109.51
4	199.1	114.51
5	247.5	119.51
6	271.5	124.51
7	291.3	129.51
8	320.3	134.51
9	356.2	139.51
10	407.8	144.51
11	441.5	149.51
12	457.6	154.51
13	490.5	159.51
14	512.5	164.51
15	577.7	169.51
16	606.9	174.51
17	639.0	179.51
18	672.0	184.51
19	711.7	189.51
20	760.2	194.51
21	796.4	199.51
22	824.8	204.51
23	849.1	209.51
24	872.1	214.51
25	891.4	219.51
26	910.4	224.51
27	1006.4	229.51
28	1047.2	234.51

Vertici strato1

N	X (m)	y (m)
1	27.2	91.51
2	164.87	98.82
3	254.11	108.66
4	344.79	127.14
5	398.95	130.22
6	471.04	147.83
7	529.88	155.31
8	579.79	161.65
9	651.88	170.81
10	744.65	182.59
11	798.08	189.32
12	863.53	205.44
13	911.31	213.89
14	936.44	218.7
15	1006.86	223.67
16	1047.2	229.51

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.9	1.9	Coltre
2	40		28	2	2	Substato

Risultati analisi pendio [[A1+M1+R1]]

Fs minimo individuato	1.47
Ascissa centro superficie	836.88 m
Ordinata centro superficie	396.09 m
Raggio superficie	191.72 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	737.3	326.1	145.2	4.72
2	742.2	331.1	149.2	4.41
3	747.2	326.1	143.4	4.34

4	752.2	331.1	147.4	3.91
5	757.2	326.1	141.6	3.76
6	762.2	331.1	145.6	3.28
7	767.1	326.1	139.9	2.99
8	772.1	331.1	143.9	2.12
9	777.1	326.1	138.1	2.75
10	782.1	331.1	142.1	2.88
11	787.1	326.1	136.3	3.05
12	792.1	331.1	140.3	3.08
13	797.0	326.1	134.6	3.17
14	802.0	331.1	138.5	3.20
15	807.0	326.1	132.8	3.26
16	812.0	331.1	136.8	3.14
17	817.0	326.1	131.0	3.13
18	821.9	331.1	134.4	3.00
19	826.9	326.1	128.0	2.92
20	831.9	331.1	129.0	1.55
21	836.9	326.1	122.6	1.54
22	737.3	336.1	154.9	4.67
23	742.2	341.1	158.9	4.36
24	747.2	336.1	153.2	4.19
25	752.2	341.1	157.1	3.76
26	757.2	336.1	151.4	3.57
27	762.2	341.1	155.4	2.94
28	767.1	336.1	149.6	2.67
29	772.1	341.1	153.6	2.18
30	777.1	336.1	147.8	2.71
31	782.1	341.1	151.8	2.85
32	787.1	336.1	146.1	3.01
33	792.1	341.1	150.0	3.05
34	797.0	336.1	144.3	3.20
35	802.0	341.1	148.3	3.16
36	807.0	336.1	142.5	3.15
37	812.0	341.1	146.5	3.10
38	817.0	336.1	140.7	3.08
39	821.9	341.1	141.8	2.03
40	826.9	336.1	135.4	1.56
41	831.9	341.1	136.4	1.67
42	836.9	336.1	130.0	1.69
43	737.3	346.1	164.7	4.41
44	742.2	351.1	168.6	4.21
45	747.2	346.1	162.9	3.94
46	752.2	351.1	166.9	3.51
47	757.2	346.1	161.1	3.23
48	762.2	351.1	165.1	2.61
49	767.1	346.1	159.3	2.16
50	772.1	351.1	163.3	2.24
51	777.1	346.1	157.6	2.70
52	782.1	351.1	161.5	2.89
53	787.1	346.1	155.8	2.97
54	792.1	351.1	159.8	3.02
55	797.0	346.1	154.0	3.16
56	802.0	351.1	158.0	3.12
57	807.0	346.1	152.2	3.11
58	812.0	351.1	154.6	2.71
59	817.0	346.1	148.2	2.41
60	821.9	351.1	149.3	1.66
61	826.9	346.1	142.8	1.66
62	831.9	351.1	144.0	2.15

63	836.9	346.1	137.5	2.39
64	737.3	356.1	174.4	4.27
65	742.2	361.1	178.4	3.97
66	747.2	356.1	172.6	3.69
67	752.2	361.1	176.6	3.27
68	757.2	356.1	170.8	2.99
69	762.2	361.1	174.8	2.19
70	767.1	356.1	169.1	2.13
71	772.1	361.1	173.0	2.29
72	777.1	356.1	167.3	2.64
73	782.1	361.1	171.3	2.85
74	787.1	356.1	165.5	3.01
75	792.1	361.1	169.5	3.06
76	797.0	356.1	163.7	3.12
77	802.0	361.1	167.5	2.96
78	807.0	356.1	161.0	2.89
79	812.0	361.1	162.2	1.66
80	817.0	356.1	155.7	1.66
81	821.9	361.1	156.9	1.89
82	826.9	356.1	150.4	1.99
83	831.9	361.1	168.0	3.28
84	836.9	356.1	161.5	3.29
85	737.3	366.1	184.1	4.13
86	742.2	371.1	188.1	3.72
87	747.2	366.1	182.3	3.55
88	752.2	371.1	186.3	3.03
89	757.2	366.1	180.6	2.65
90	762.2	371.1	184.5	2.16
91	767.1	366.1	178.8	2.10
92	772.1	371.1	182.8	2.26
93	777.1	366.1	177.0	2.61
94	782.1	371.1	181.0	2.83
95	787.1	366.1	175.2	2.91
96	792.1	371.1	179.2	3.02
97	797.0	366.1	173.5	3.08
98	802.0	371.1	175.1	1.70
99	807.0	366.1	168.6	1.68
100	812.0	371.1	169.8	1.80
101	817.0	366.1	163.4	1.84
102	821.9	371.1	181.1	3.25
103	826.9	366.1	174.6	3.25
104	831.9	371.1	175.4	3.15
105	836.9	366.1	168.8	3.16
106	737.3	376.1	193.8	3.99
107	742.2	381.1	197.8	3.58
108	747.2	376.1	192.1	3.31
109	752.2	381.1	196.0	2.60
110	757.2	376.1	190.3	2.23
111	762.2	381.1	194.3	2.14
112	767.1	376.1	188.5	2.07
113	772.1	381.1	192.5	2.41
114	777.1	376.1	186.7	2.66
115	782.1	381.1	190.7	2.80
116	787.1	376.1	185.0	2.90
117	792.1	381.1	188.0	2.54
118	797.0	376.1	181.5	1.72
119	802.0	381.1	182.8	1.77
120	807.0	376.1	176.3	1.78
121	812.0	381.1	177.6	2.23

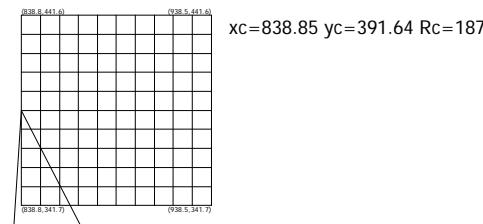
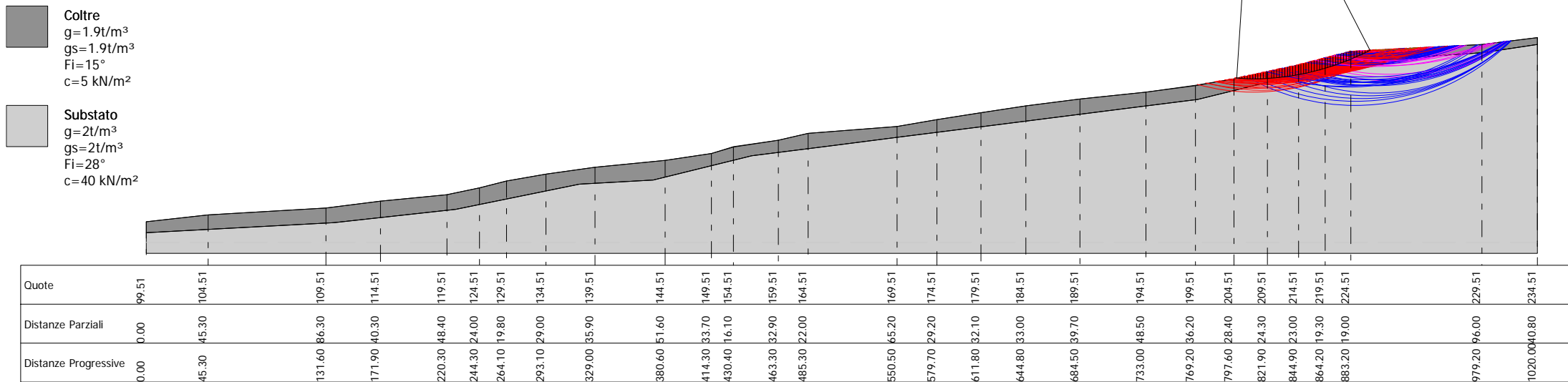
122	817.0	376.1	171.1	2.55
123	821.9	381.1	188.5	3.19
124	826.9	376.1	182.0	3.14
125	831.9	381.1	182.9	3.00
126	836.9	376.1	176.3	2.97
127	737.3	386.1	203.6	3.75
128	742.2	391.1	207.5	3.34
129	747.2	386.1	201.8	3.07
130	752.2	391.1	205.8	2.27
131	757.2	386.1	200.0	2.20
132	762.2	391.1	204.0	2.11
133	767.1	386.1	198.2	2.04
134	772.1	391.1	202.2	2.38
135	777.1	386.1	196.5	2.72
136	782.1	391.1	200.5	2.85
137	787.1	386.1	194.5	2.86
138	792.1	391.1	195.8	1.79
139	797.0	386.1	189.3	1.78
140	802.0	391.1	190.6	1.97
141	807.0	386.1	184.1	2.07
142	812.0	391.1	201.7	3.26
143	817.0	386.1	195.1	3.20
144	821.9	391.1	196.1	3.08
145	826.9	386.1	189.5	3.08
146	831.9	391.1	190.6	2.74
147	836.9	386.1	184.0	2.58
148	737.3	396.1	213.3	3.61
149	742.2	401.1	217.3	3.08
150	747.2	396.1	211.5	2.53
151	752.2	401.1	215.5	2.24
152	757.2	396.1	209.7	2.17
153	762.2	401.1	213.7	2.08
154	767.1	396.1	208.0	2.02
155	772.1	401.1	212.0	2.35
156	777.1	396.1	206.2	2.69
157	782.1	401.1	208.8	1.83
158	787.1	396.1	202.3	1.81
159	792.1	401.1	203.7	1.89
160	797.0	396.1	197.1	1.91
161	802.0	401.1	198.6	2.72
162	807.0	396.1	208.3	3.33
163	812.0	401.1	209.3	3.20
164	817.0	396.1	202.7	3.14
165	821.9	401.1	203.8	2.93
166	826.9	396.1	197.2	2.83
167	831.9	401.1	198.3	1.86
168	836.9	396.1	191.7	1.47
169	737.3	406.1	223.0	3.37
170	742.2	411.1	227.0	2.36
171	747.2	406.1	221.2	2.30
172	752.2	411.1	225.2	2.21
173	757.2	406.1	219.5	2.15
174	762.2	411.1	223.5	2.06
175	767.1	406.1	217.7	1.99
176	772.1	411.1	221.7	2.33
177	777.1	406.1	215.3	1.87
178	782.1	411.1	216.7	1.89
179	787.1	406.1	210.2	1.89
180	792.1	411.1	211.6	2.15

181	797.0	406.1	205.1	2.35
182	802.0	411.1	222.5	3.29
183	807.0	406.1	215.9	3.21
184	812.0	411.1	217.0	3.04
185	817.0	406.1	210.4	2.98
186	821.9	411.1	211.6	2.60
187	826.9	406.1	205.0	2.31
188	831.9	411.1	206.2	1.49
189	836.9	406.1	199.6	1.51
190	737.3	416.1	232.8	3.03
191	742.2	421.1	236.7	2.33
192	747.2	416.1	231.0	2.27
193	752.2	421.1	235.0	2.18
194	757.2	416.1	229.2	2.12
195	762.2	421.1	233.2	2.03
196	767.1	416.1	227.4	1.97
197	772.1	421.1	229.7	1.93
198	777.1	416.1	223.2	1.90
199	782.1	421.1	224.7	2.02
200	787.1	416.1	218.1	2.06
201	792.1	421.1	235.7	3.46
202	797.0	416.1	229.1	3.37
203	802.0	421.1	230.3	3.17
204	807.0	416.1	223.6	3.06
205	812.0	421.1	224.9	2.83
206	817.0	416.1	218.2	2.71
207	821.9	421.1	219.5	1.48
208	826.9	416.1	212.9	1.48
209	831.9	421.1	214.2	1.56
210	836.9	416.1	207.6	1.60
211	737.3	426.1	242.5	2.38
212	747.2	426.1	240.7	2.25
213	757.2	426.1	238.9	2.09
214	767.1	426.1	236.3	1.97
215	777.1	426.1	231.2	2.00
216	787.1	426.1	226.2	2.70
217	797.0	426.1	236.9	3.24
218	807.0	426.1	231.5	2.92
219	817.0	426.1	226.1	2.09
220	826.9	426.1	220.9	1.53
221	836.9	426.1	215.7	1.87

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	3
7.Risultati analisi pendio [[A1+M1+R1]]	3
Indice	8

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 800 A 900 m
 IN CONDIZIONI STATICHE



Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.266418/11.318641
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	838.85 m
Ordinata vertice sinistro inferiore yi	341.65 m
Ascissa vertice destro superiore xs	938.47 m
Ordinata vertice destro superiore ys	441.64 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	27.2	99.51
2	72.5	104.51
3	158.8	109.51
4	199.1	114.51
5	247.5	119.51
6	271.5	124.51
7	291.3	129.51
8	320.3	134.51
9	356.2	139.51
10	407.8	144.51
11	441.5	149.51
12	457.6	154.51
13	490.5	159.51
14	512.5	164.51
15	577.7	169.51
16	606.9	174.51
17	639.0	179.51
18	672.0	184.51
19	711.7	189.51
20	760.2	194.51
21	796.4	199.51
22	824.8	204.51
23	849.1	209.51
24	872.1	214.51
25	891.4	219.51
26	910.4	224.51
27	1006.4	229.51
28	1047.2	234.51

Vertici strato1

N	X (m)	y (m)
1	27.2	91.51
2	164.87	98.82
3	254.11	108.66
4	344.79	127.14
5	398.95	130.22
6	471.04	147.83
7	529.88	155.31
8	579.79	161.65
9	651.88	170.81
10	744.65	182.59
11	798.08	189.32
12	863.53	205.44
13	911.31	213.89
14	936.44	218.7
15	1006.86	223.67
16	1047.2	229.51

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.9	1.9	Coltre
2	40		28	2	2	Substato

Risultati analisi pendio [[A1+M1+R1]]

Fs minimo individuato	1.47
Ascissa centro superficie	838.85 m
Ordinata centro superficie	391.64 m
Raggio superficie	187.18 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	838.8	341.7	133.1	2.14
2	843.8	346.7	150.6	3.27
3	848.8	341.7	144.1	3.29

4	853.8	346.7	144.8	3.16
5	858.8	341.7	138.3	3.17
6	863.8	346.7	139.0	1.61
7	868.7	341.7	132.5	1.58
8	873.7	346.7	133.3	1.69
9	878.7	341.7	126.8	1.80
10	883.7	346.7	127.7	2.37
11	888.7	341.7	121.1	2.99
12	893.6	346.7	135.8	4.34
13	898.6	341.7	129.1	4.31
14	903.6	346.7	129.8	2.81
15	908.6	341.7	123.1	3.32
16	913.6	346.7	161.8	5.82
17	918.5	341.7	142.3	6.47
18	923.5	346.7	154.8	6.50
19	928.5	341.7	147.8	6.95
20	933.5	346.7	124.5	7.38
21	938.5	341.7	117.7	8.85
22	838.8	351.7	157.1	3.29
23	843.8	356.6	157.9	3.13
24	848.8	351.7	151.3	3.16
25	853.8	356.6	152.1	2.80
26	858.8	351.7	145.6	2.55
27	863.8	356.6	146.5	1.57
28	868.7	351.7	139.9	1.62
29	873.7	356.6	140.9	1.85
30	878.7	351.7	134.3	2.05
31	883.7	356.6	149.1	4.18
32	888.7	351.7	142.4	4.24
33	893.6	356.6	143.2	2.24
34	898.6	351.7	136.5	2.47
35	903.6	356.6	137.4	3.21
36	908.6	351.7	130.7	4.13
37	913.6	356.6	168.7	5.81
38	918.5	351.7	161.8	6.13
39	923.5	356.6	138.1	4.57
40	928.5	351.7	131.3	5.80
41	933.5	356.6	155.4	7.71
42	938.5	351.7	148.4	8.37
43	838.8	361.6	164.4	3.14
44	843.8	366.6	165.3	2.93
45	848.8	361.6	158.7	2.92
46	853.8	366.6	159.7	1.50
47	858.8	361.6	153.1	1.53
48	863.8	366.6	154.1	1.63
49	868.7	361.6	147.5	1.72
50	873.7	366.6	148.6	2.39
51	878.7	361.6	142.0	3.15
52	883.7	366.6	156.6	3.85
53	888.7	361.6	149.9	3.45
54	893.6	366.6	150.9	2.39
55	898.6	361.6	144.1	2.71
56	903.6	366.6	145.2	4.15
57	908.6	361.6	163.3	5.75
58	913.6	366.6	151.8	5.81
59	918.5	361.6	144.9	5.60
60	923.5	366.6	146.0	5.42
61	928.5	361.6	162.4	7.08
62	933.5	366.6	163.0	7.81

63	938.5	361.6	156.1	8.57
64	838.8	371.6	171.9	2.96
65	843.8	376.6	172.9	2.44
66	848.8	371.6	166.3	1.68
67	853.8	376.6	167.3	1.53
68	858.8	371.6	160.7	1.58
69	863.8	376.6	161.9	1.82
70	868.7	371.6	155.3	2.03
71	873.7	376.6	170.1	3.93
72	878.7	371.6	163.3	3.95
73	883.7	376.6	164.3	2.01
74	888.7	371.6	157.6	2.17
75	893.6	376.6	158.7	2.63
76	898.6	371.6	151.9	3.15
77	903.6	376.6	177.6	5.49
78	908.6	371.6	158.6	5.64
79	913.6	376.6	159.6	3.68
80	918.5	371.6	152.8	4.23
81	923.5	376.6	177.0	6.71
82	928.5	371.6	170.0	7.20
83	933.5	376.6	159.8	9.57
84	938.5	371.6	164.0	8.83
85	838.8	381.6	179.5	2.64
86	843.8	386.6	180.6	1.49
87	848.8	381.6	173.9	1.51
88	853.8	386.6	175.1	1.62
89	858.8	381.6	168.5	1.70
90	863.8	386.6	169.8	2.67
91	868.7	381.6	176.8	3.88
92	873.7	386.6	177.8	3.40
93	878.7	381.6	171.0	2.70
94	883.7	386.6	172.1	2.11
95	888.7	381.6	165.4	2.32
96	893.6	386.6	166.6	3.12
97	898.6	381.6	159.9	4.27
98	903.6	386.6	173.3	5.10
99	908.6	381.6	166.5	4.89
100	913.6	386.6	167.7	3.93
101	918.5	381.6	160.9	5.02
102	923.5	386.6	184.8	6.76
103	928.5	381.6	166.7	8.58
104	933.5	386.6	168.1	8.03
105	938.5	381.6	161.2	6.40
106	838.8	391.6	187.2	1.47
107	843.8	396.6	188.4	1.53
108	848.8	391.6	181.8	1.57
109	853.8	396.6	183.1	1.87
110	858.8	391.6	176.4	2.14
111	863.8	396.6	191.2	3.71
112	868.7	391.6	184.5	3.63
113	873.7	396.6	185.6	1.86
114	878.7	391.6	178.9	1.97
115	883.7	396.6	180.1	2.28
116	888.7	391.6	173.4	2.59
117	893.6	396.6	174.8	4.54
118	898.6	391.6	180.1	5.06
119	903.6	396.6	181.3	3.76
120	908.6	391.6	174.5	3.30
121	913.6	396.6	175.9	4.64

122	918.5	391.6	169.1	6.68
123	923.5	396.6	181.7	7.67
124	928.5	391.6	174.9	8.41
125	933.5	396.6	176.4	5.91
126	938.5	391.6	169.6	7.12
127	838.8	401.6	195.0	1.50
128	843.8	406.6	196.3	1.65
129	848.8	401.6	189.7	1.73
130	853.8	406.6	204.7	3.62
131	858.8	401.6	197.9	3.63
132	863.8	406.6	199.1	3.16
133	868.7	401.6	192.3	2.12
134	873.7	406.6	193.6	1.93
135	878.7	401.6	186.8	2.07
136	883.7	406.6	188.2	2.57
137	888.7	401.6	181.5	3.15
138	893.6	406.6	194.9	4.65
139	898.6	401.6	188.1	4.47
140	903.6	406.6	189.5	3.11
141	908.6	401.6	182.7	3.67
142	913.6	406.6	184.2	6.12
143	918.5	401.6	199.8	6.48
144	923.5	406.6	201.0	7.03
145	928.5	401.6	183.3	6.64
146	933.5	406.6	185.0	6.72
147	938.5	401.6	178.2	8.05
148	838.8	411.6	203.0	1.59
149	843.8	416.6	204.4	2.02
150	848.8	411.6	197.7	2.44
151	853.8	416.6	212.5	3.47
152	858.8	411.6	205.8	3.48
153	863.8	416.6	207.1	1.76
154	868.7	411.6	200.3	1.83
155	873.7	416.6	201.7	2.04
156	878.7	411.6	195.0	2.25
157	883.7	416.6	196.4	3.24
158	888.7	411.6	201.7	4.70
159	893.6	416.6	203.1	3.88
160	898.6	411.6	196.3	2.74
161	903.6	416.6	197.8	3.44
162	908.6	411.6	191.0	4.29
163	913.6	416.6	214.8	6.18
164	918.5	411.6	207.9	6.57
165	923.5	416.6	198.6	5.64
166	928.5	411.6	191.8	5.36
167	933.5	416.6	193.6	7.86
168	938.5	411.6	197.4	9.82
169	838.8	421.6	211.0	1.83
170	843.8	426.6	226.0	3.50
171	848.8	421.6	219.3	3.48
172	853.8	426.6	220.5	3.00
173	858.8	421.6	213.8	2.06
174	863.8	426.6	215.2	1.80
175	868.7	421.6	208.4	1.90
176	873.7	426.6	209.9	2.24
177	878.7	421.6	203.2	2.58
178	883.7	426.6	216.7	4.45
179	888.7	421.6	209.9	4.26
180	893.6	426.6	211.3	2.62

181	898.6	421.6	204.6	2.94
182	903.6	426.6	206.2	3.98
183	908.6	421.6	199.4	5.56
184	913.6	426.6	212.2	6.44
185	918.5	421.6	205.4	6.53
186	923.5	426.6	207.1	4.85
187	928.5	421.6	200.4	6.09
188	933.5	426.6	202.4	9.76
189	938.5	421.6	195.6	20.00
190	838.8	431.6	219.2	3.29
191	843.8	436.6	234.0	3.33
192	848.8	431.6	227.3	3.24
193	853.8	436.6	228.6	1.68
194	858.8	431.6	221.9	1.73
195	863.8	436.6	223.4	1.88
196	868.7	431.6	216.6	2.02
197	873.7	436.6	218.2	2.63
198	878.7	431.6	211.5	3.41
199	883.7	436.6	224.9	3.88
200	888.7	431.6	218.1	2.60
201	893.6	436.6	219.7	2.80
202	898.6	431.6	213.0	3.24
203	903.6	436.6	214.7	5.05
204	908.6	431.6	230.0	5.92
205	913.6	436.6	220.7	5.92
206	918.5	431.6	213.9	4.98
207	923.5	436.6	215.8	5.45
208	928.5	431.6	209.1	7.20
209	933.5	436.6	211.2	19.14
210	938.5	431.6	214.8	10.13
211	838.8	441.6	240.7	3.36
212	848.8	441.6	235.4	2.30
213	858.8	441.6	230.1	1.79
214	868.7	441.6	225.0	2.25
215	878.7	441.6	231.7	4.14
216	888.7	441.6	226.5	2.51
217	898.6	441.6	221.5	3.71
218	908.6	441.6	227.5	5.94
219	918.5	441.6	222.6	4.40
220	928.5	441.6	228.3	8.39
221	938.5	441.6	223.7	10.05

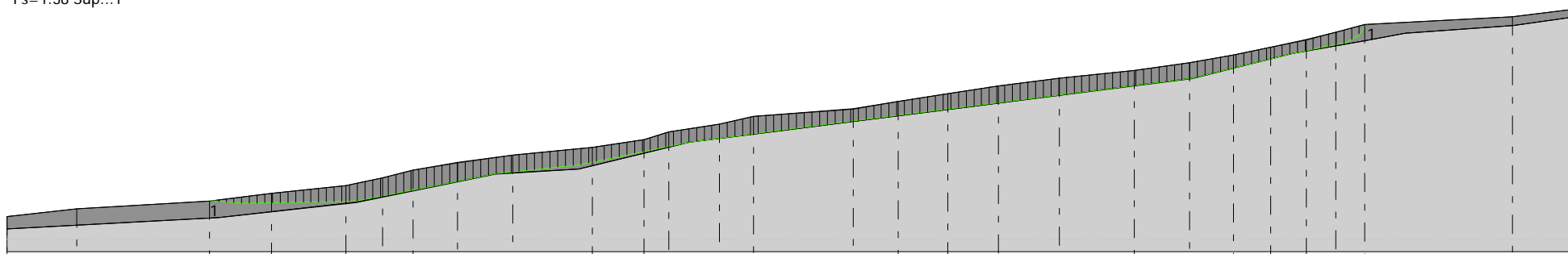
Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	2
6.Stratigrafia	3
7.Risultati analisi pendio [[A1+M1+R1]]	3
Indice	8

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 SUPERFICIE 1
 IN CONDIZIONI SISMICHE

Coltre
 $g=1.9 \text{ t/m}^3$ $F_s=1.38 \text{ Sup...1}$
 $g_s=1.9 \text{ t/m}^3$
 $F_i=15^\circ$
 $c=5 \text{ kN/m}^2$

Substato
 $g=2 \text{ t/m}^3$
 $g_s=2 \text{ t/m}^3$
 $F_i=28^\circ$
 $c=40 \text{ kN/m}^2$



Quote	99.51	104.51	109.51	114.51	119.51	124.51	129.51	134.51	139.51	144.51	149.51	154.51	159.51	164.51	169.51	174.51	179.51	184.51	189.51	194.51	199.51	204.51	209.51	214.51	219.51	224.51	229.51	234.51
Distanze Parziali	0.00	45.30	86.30	114.51	148.40	174.00	195.80	213.81	228.90	241.10	250.40	256.90	260.60	261.60	260.00	256.80	251.10	243.00	232.70	220.50	206.70	191.70	175.80	158.30	139.60	120.00	99.90	78.70
Distanze Progressive	0.00	45.30	131.60	171.90	220.30	244.30	264.10	293.10	329.00	380.60	414.30	430.40	463.30	485.30	550.50	579.70	611.80	644.80	684.50	733.00	769.20	797.60	821.90	844.90	864.20	883.20	979.20	1020.00

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.155077/10.984918
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	150.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma generica	

Coefficiente azione sismica orizzontale	0.063
Coefficiente azione sismica verticale	0.031

Vertici profilo

Nr	X (m)	y (m)
1	27.2	99.51
2	72.5	104.51
3	158.8	109.51
4	199.1	114.51
5	247.5	119.51
6	271.5	124.51
7	291.3	129.51
8	320.3	134.51
9	356.2	139.51
10	407.8	144.51
11	441.5	149.51
12	457.6	154.51
13	490.5	159.51
14	512.5	164.51
15	577.7	169.51
16	606.9	174.51
17	639.0	179.51
18	672.0	184.51
19	711.7	189.51
20	760.2	194.51
21	796.4	199.51
22	824.8	204.51
23	849.1	209.51
24	872.1	214.51
25	891.4	219.51
26	910.4	224.51
27	1006.4	229.51
28	1047.2	234.51

Vertici strato1

N	X (m)	y (m)
1	27.2	91.51
2	164.87	98.82
3	254.11	108.66
4	344.79	127.14

5	398.95	130.22
6	471.04	147.83
7	529.88	155.31
8	579.79	161.65
9	651.88	170.81
10	744.65	182.59
11	798.08	189.32
12	863.53	205.44
13	911.31	213.89
14	936.44	218.7
15	1006.86	223.67
16	1047.2	229.51

Vertici superficie Nr...1

N	X m	y m
1	159.21	109.66
2	181.83	108.15
3	254.12	109.47
4	300.83	118.62
5	344.78	127.24
6	398.93	133.13
7	471.03	147.93
8	529.86	155.41
9	579.78	161.75
10	651.86	170.9
11	744.64	182.69
12	798.06	189.42
13	863.51	205.53
14	898.25	212.82
15	905.76	217.17
16	911.76	224.64

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.9	1.9	Coltre
2	40		28	2	2	Substato

B: Larghezza del concio; Alfa: Angolo di inclinazione della base del concio; Li: Lunghezza della base del concio; Wi: Peso del concio; Ui: Forze derivanti dalle pressioni neutre; Ni: forze agenti normalmente alla direzione di scivolamento; Ti: forze agenti parallelamente alla superficie di scivolamento; Fi: Angolo di attrito; c: coesione.

Superficie Nr...1 Fattore di sicurezza=1.38

Nr.	B m	Alfa (°)	Li m	Wi (kN)	Kh•Wi (kN)	Kv•Wi (kN)	c (kN/m ²)	Fi (°)	Ui (kN)	N'i (kN)	Ti (kN)
1	5.01	-3.8	5.02	44.8	2.82	1.39	5.0	15.0	0.0	-9.7	16.3
2	5.01	-3.8	5.02	134.24	8.46	4.16	5.0	15.0	0.0	-38.3	10.7
3	5.01	-3.8	5.02	223.52	14.08	6.93	5.0	15.0	0.0	-67.0	5.1
4	5.01	-3.8	5.02	312.79	19.71	9.7	5.0	15.0	0.0	-95.7	-0.4
5	5.01	-1.0	5.01	390.74	24.62	12.11	5.0	15.0	0.0	-29.6	12.4
6	5.01	1.1	5.01	448.64	28.26	13.91	5.0	15.0	0.0	45.8	27.0
7	5.01	1.1	5.01	497.83	31.36	15.43	5.0	15.0	0.0	50.3	27.9
8	5.01	1.0	5.01	547.58	34.5	16.97	5.0	15.0	0.0	48.6	27.6
9	5.01	1.1	5.01	591.04	37.24	18.32	5.0	15.0	0.0	58.8	29.6
10	5.01	1.1	5.01	630.51	39.72	19.55	5.0	15.0	0.0	62.4	30.2
11	5.01	1.0	5.01	670.54	42.24	20.79	5.0	15.0	0.0	58.3	29.5
12	5.01	1.1	5.01	710.56	44.77	22.03	5.0	15.0	0.0	69.7	31.7
13	5.01	1.1	5.01	750.03	47.25	23.25	5.0	15.0	0.0	73.3	32.4
14	5.01	1.0	5.01	790.05	49.77	24.49	5.0	15.0	0.0	67.8	31.3
15	5.01	1.1	5.01	830.08	52.29	25.73	5.0	15.0	0.0	80.5	33.8
16	5.01	1.1	5.01	869.55	54.78	26.96	5.0	15.0	0.0	84.1	34.5
17	5.01	1.0	5.01	909.57	57.3	28.2	5.0	15.0	0.0	77.3	33.1
18	5.01	1.1	5.01	949.6	59.82	29.44	5.0	15.0	0.0	91.4	35.9
19	5.01	2.8	5.02	1030.72	64.94	31.95	5.0	15.0	0.0	249.6	66.6
20	5.01	11.0	5.11	1071.07	67.48	33.2	5.0	15.0	0.0	1011.7	214.4
21	5.01	11.2	5.11	1076.76	67.84	33.38	5.0	15.0	0.0	1029.3	217.8
22	5.01	11.0	5.11	1082.46	68.19	33.56	5.0	15.0	0.0	1022.3	216.5
23	5.01	11.0	5.11	1092.93	68.85	33.88	5.0	15.0	0.0	1032.1	218.4
24	5.01	11.2	5.11	1119.31	70.52	34.7	5.0	15.0	0.0	1069.7	225.7
25	5.01	11.0	5.11	1145.7	72.18	35.52	5.0	15.0	0.0	1081.7	228.0
26	5.01	11.2	5.11	1172.09	73.84	36.33	5.0	15.0	0.0	1119.9	235.4
27	5.01	11.0	5.11	1188.93	74.9	36.86	5.0	15.0	0.0	1122.3	235.8
28	5.01	11.0	5.11	1178.36	74.24	36.53	5.0	15.0	0.0	1112.3	233.9
29	5.01	11.2	5.11	1166.99	73.52	36.18	5.0	15.0	0.0	1120.7	235.5
30	5.01	11.0	5.11	1155.62	72.8	35.82	5.0	15.0	0.0	1090.8	229.8
31	5.01	11.2	5.11	1144.49	72.1	35.48	5.0	15.0	0.0	1093.5	230.3
32	5.01	11.0	5.11	1133.37	71.4	35.13	5.0	15.0	0.0	1069.9	225.7
33	5.01	11.2	5.11	1114.95	70.24	34.56	5.0	15.0	0.0	1065.3	224.8
34	5.01	11.0	5.11	1088.3	68.56	33.74	5.0	15.0	0.0	1027.4	217.4
35	5.01	11.2	5.11	1061.65	66.88	32.91	5.0	15.0	0.0	1014.5	214.9
36	5.01	11.0	5.11	1035.01	65.21	32.09	5.0	15.0	0.0	977.2	207.7
37	5.01	10.7	5.1	1010.3	63.65	31.32	5.0	15.0	0.0	925.2	197.6
38	5.01	6.2	5.04	1005.64	63.36	31.17	5.0	15.0	0.0	534.2	121.8
39	5.01	6.2	5.04	1019.64	64.24	31.61	5.0	15.0	0.0	541.6	123.2
40	5.01	6.1	5.04	1028.07	64.77	31.87	5.0	15.0	0.0	534.2	121.8
41	5.01	6.2	5.04	1022.78	64.43	31.71	5.0	15.0	0.0	543.2	123.5
42	5.01	6.2	5.04	1016.93	64.07	31.52	5.0	15.0	0.0	540.1	122.9
43	5.01	6.1	5.04	1011.64	63.73	31.36	5.0	15.0	0.0	525.6	120.1
44	5.01	6.2	5.04	1006.35	63.4	31.2	5.0	15.0	0.0	534.4	121.8
45	5.01	6.2	5.04	1000.5	63.03	31.02	5.0	15.0	0.0	531.3	121.2
46	5.01	6.2	5.04	994.66	62.66	30.83	5.0	15.0	0.0	528.2	120.6
47	5.01	6.1	5.04	989.37	62.33	30.67	5.0	15.0	0.0	514.0	117.9
48	5.01	7.7	5.06	977.87	61.61	30.31	5.0	15.0	0.0	644.2	143.1
49	5.01	11.7	5.12	943.0	59.41	29.23	5.0	15.0	0.0	944.3	201.3

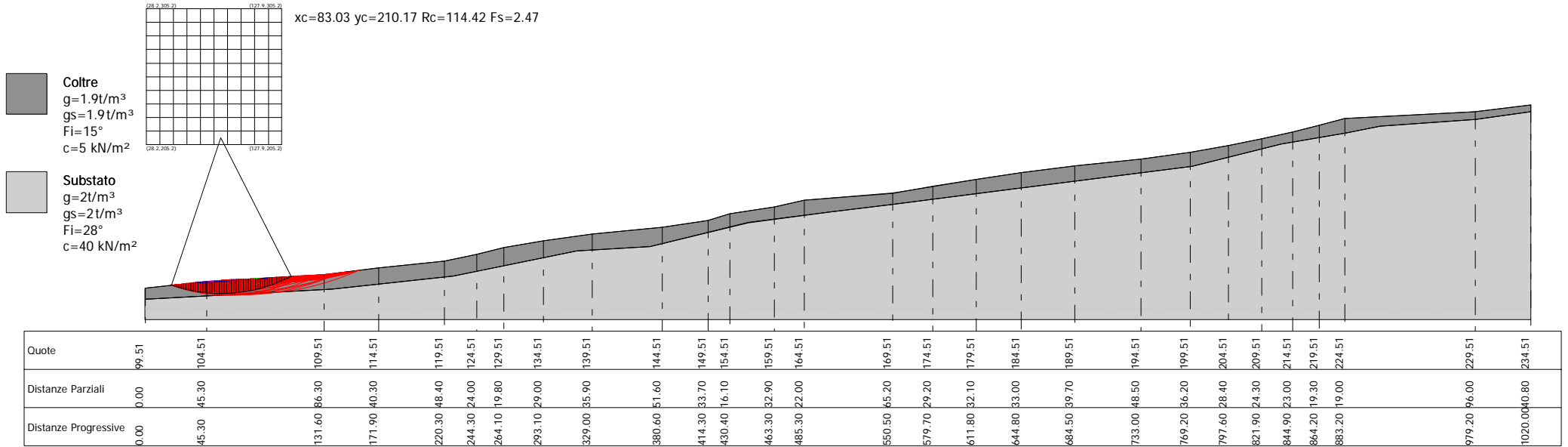
50	5.01	11.6	5.12	892.43	56.22	27.67	5.0	15.0	0.0	883.6	189.5
51	5.01	11.6	5.12	866.15	54.57	26.85	5.0	15.0	0.0	857.7	184.5
52	5.01	11.7	5.12	839.3	52.88	26.02	5.0	15.0	0.0	840.8	181.2
53	5.01	11.6	5.12	812.46	51.19	25.19	5.0	15.0	0.0	804.6	174.2
54	5.01	11.6	5.12	786.18	49.53	24.37	5.0	15.0	0.0	778.7	169.2
55	5.01	11.7	5.12	759.33	47.84	23.54	5.0	15.0	0.0	760.9	165.7
56	5.01	11.6	5.12	732.49	46.15	22.71	5.0	15.0	0.0	725.7	158.9
57	5.01	11.6	5.12	728.49	45.9	22.58	5.0	15.0	0.0	721.7	158.1
58	5.01	11.7	5.12	777.6	48.99	24.11	5.0	15.0	0.0	779.0	169.3
59	5.01	11.6	5.12	826.71	52.08	25.63	5.0	15.0	0.0	818.5	176.9
60	5.01	11.6	5.12	870.29	54.83	26.98	5.0	15.0	0.0	861.4	185.2
61	5.01	11.7	5.12	845.14	53.24	26.2	5.0	15.0	0.0	846.3	182.3
62	5.01	11.6	5.12	819.98	51.66	25.42	5.0	15.0	0.0	811.7	175.6
63	5.01	7.6	5.06	811.95	51.15	25.17	5.0	15.0	0.0	526.7	120.3
64	5.01	7.3	5.05	821.73	51.77	25.47	5.0	15.0	0.0	511.8	117.4
65	5.01	7.2	5.05	833.33	52.5	25.83	5.0	15.0	0.0	509.4	117.0
66	5.01	7.3	5.05	844.92	53.23	26.19	5.0	15.0	0.0	526.1	120.2
67	5.01	7.2	5.05	874.82	55.11	27.12	5.0	15.0	0.0	534.5	121.8
68	5.01	7.3	5.05	921.68	58.07	28.57	5.0	15.0	0.0	573.5	129.4
69	5.01	7.2	5.05	968.53	61.02	30.02	5.0	15.0	0.0	591.4	132.9
70	5.01	7.2	5.05	1015.94	64.0	31.49	5.0	15.0	0.0	620.2	138.5
71	5.01	7.3	5.05	1053.57	66.37	32.66	5.0	15.0	0.0	655.1	145.2
72	5.01	7.2	5.05	1029.91	64.88	31.93	5.0	15.0	0.0	628.6	140.1
73	5.01	7.3	5.05	1006.24	63.39	31.19	5.0	15.0	0.0	625.8	139.5
74	5.01	7.2	5.05	982.48	61.9	30.46	5.0	15.0	0.0	601.8	134.9
75	5.01	7.2	5.05	959.27	60.43	29.74	5.0	15.0	0.0	585.6	131.7
76	5.01	7.3	5.05	935.61	58.94	29.0	5.0	15.0	0.0	581.9	131.0
77	5.01	7.2	5.05	911.95	57.45	28.27	5.0	15.0	0.0	556.8	126.1
78	5.01	7.3	5.05	888.28	55.96	27.54	5.0	15.0	0.0	552.5	125.3
79	5.01	7.2	5.05	864.62	54.47	26.8	5.0	15.0	0.0	527.9	120.6
80	5.01	7.2	5.05	841.51	53.02	26.09	5.0	15.0	0.0	513.8	117.8
81	5.01	7.3	5.05	817.85	51.52	25.35	5.0	15.0	0.0	508.8	116.8
82	5.01	7.2	5.05	794.19	50.03	24.62	5.0	15.0	0.0	485.0	112.2
83	5.01	7.3	5.05	770.53	48.54	23.89	5.0	15.0	0.0	479.4	111.1
84	5.01	7.2	5.05	752.32	47.4	23.32	5.0	15.0	0.0	460.8	107.5
85	5.01	7.2	5.05	773.4	48.72	23.98	5.0	15.0	0.0	472.3	109.8
86	5.01	7.3	5.05	794.01	50.02	24.61	5.0	15.0	0.0	493.9	114.0
87	5.01	7.2	5.05	814.62	51.32	25.25	5.0	15.0	0.0	497.3	114.6
88	5.01	7.3	5.05	835.23	52.62	25.89	5.0	15.0	0.0	519.3	118.9
89	5.01	7.2	5.05	855.85	53.92	26.53	5.0	15.0	0.0	522.3	119.5
90	5.01	7.3	5.05	874.28	55.08	27.1	5.0	15.0	0.0	543.5	123.6
91	5.01	7.2	5.05	887.65	55.92	27.52	5.0	15.0	0.0	541.5	123.2
92	5.01	7.2	5.05	901.57	56.8	27.95	5.0	15.0	0.0	550.0	124.8
93	5.01	7.3	5.05	914.94	57.64	28.36	5.0	15.0	0.0	568.6	128.4
94	5.01	7.2	5.05	928.3	58.48	28.78	5.0	15.0	0.0	566.2	128.0
95	5.01	7.3	5.05	941.67	59.33	29.19	5.0	15.0	0.0	585.1	131.6
96	5.01	7.2	5.05	955.04	60.17	29.61	5.0	15.0	0.0	582.3	131.1
97	5.01	7.3	5.05	966.62	60.9	29.97	5.0	15.0	0.0	600.4	134.6
98	5.01	7.2	5.05	978.0	61.61	30.32	5.0	15.0	0.0	596.2	133.8
99	5.01	7.2	5.05	989.89	62.36	30.69	5.0	15.0	0.0	604.4	135.4
100	5.01	7.3	5.05	1001.22	63.08	31.04	5.0	15.0	0.0	621.8	138.8
101	5.01	7.2	5.05	1012.6	63.79	31.39	5.0	15.0	0.0	617.2	137.9
102	5.01	7.3	5.05	1023.98	64.51	31.74	5.0	15.0	0.0	635.8	141.5
103	5.01	7.2	5.05	1031.58	64.99	31.98	5.0	15.0	0.0	628.6	140.1
104	5.01	7.2	5.05	1031.54	64.99	31.98	5.0	15.0	0.0	628.6	140.1
105	5.01	7.3	5.05	1030.95	64.95	31.96	5.0	15.0	0.0	640.0	142.3
106	5.01	7.2	5.05	1030.35	64.91	31.94	5.0	15.0	0.0	627.8	139.9
107	5.01	7.3	5.05	1029.76	64.87	31.92	5.0	15.0	0.0	639.2	142.1
108	5.01	7.2	5.05	1029.16	64.84	31.9	5.0	15.0	0.0	627.0	139.8

109	5.01	7.3	5.05	1028.56	64.8	31.89	5.0	15.0	0.0	638.4	142.0
110	5.01	7.2	5.05	1027.97	64.76	31.87	5.0	15.0	0.0	626.2	139.6
111	5.01	7.2	5.05	1023.69	64.49	31.73	5.0	15.0	0.0	623.6	139.1
112	5.01	7.3	5.05	1012.39	63.78	31.38	5.0	15.0	0.0	628.3	140.0
113	5.01	7.2	5.05	1001.1	63.07	31.03	5.0	15.0	0.0	609.8	136.4
114	5.01	7.3	5.05	989.8	62.36	30.68	5.0	15.0	0.0	614.2	137.3
115	5.01	7.2	5.05	978.5	61.65	30.33	5.0	15.0	0.0	596.0	133.8
116	5.01	7.2	5.05	967.76	60.97	30.0	5.0	15.0	0.0	589.4	132.5
117	5.01	7.2	5.05	956.86	60.28	29.66	5.0	15.0	0.0	585.9	131.8
118	5.01	7.2	5.05	945.96	59.6	29.32	5.0	15.0	0.0	576.1	129.9
119	5.01	7.2	5.05	935.22	58.92	28.99	5.0	15.0	0.0	569.5	128.6
120	5.01	7.2	5.05	924.48	58.24	28.66	5.0	15.0	0.0	563.0	127.4
121	5.01	7.2	5.05	925.57	58.31	28.69	5.0	15.0	0.0	563.6	127.5
122	5.01	7.3	5.05	930.67	58.63	28.85	5.0	15.0	0.0	577.4	130.1
123	5.01	7.2	5.05	935.78	58.95	29.01	5.0	15.0	0.0	569.8	128.7
124	5.01	7.2	5.05	941.44	59.31	29.18	5.0	15.0	0.0	573.2	129.3
125	5.01	7.2	5.05	947.11	59.67	29.36	5.0	15.0	0.0	576.6	130.0
126	5.01	7.2	5.05	952.77	60.02	29.54	5.0	15.0	0.0	580.0	130.7
127	5.01	7.2	5.05	958.43	60.38	29.71	5.0	15.0	0.0	583.4	131.3
128	5.01	11.5	5.12	954.65	60.14	29.59	5.0	15.0	0.0	941.5	200.8
129	5.01	13.9	5.16	931.35	58.68	28.87	5.0	15.0	0.0	1111.7	233.8
130	5.01	13.8	5.16	898.55	56.61	27.85	5.0	15.0	0.0	1062.2	224.2
131	5.01	13.9	5.16	865.74	54.54	26.84	5.0	15.0	0.0	1033.4	218.6
132	5.01	13.8	5.16	832.93	52.47	25.82	5.0	15.0	0.0	984.6	209.1
133	5.01	13.9	5.16	800.12	50.41	24.8	5.0	15.0	0.0	955.0	203.4
134	5.01	13.8	5.16	778.93	49.07	24.15	5.0	15.0	0.0	920.8	196.8
135	5.01	13.9	5.16	760.04	47.88	23.56	5.0	15.0	0.0	907.1	194.1
136	5.01	13.8	5.16	741.14	46.69	22.98	5.0	15.0	0.0	876.1	188.1
137	5.01	13.9	5.16	722.24	45.5	22.39	5.0	15.0	0.0	862.0	185.4
138	5.01	13.8	5.16	703.35	44.31	21.8	5.0	15.0	0.0	831.4	179.4
139	5.01	13.9	5.16	689.83	43.46	21.38	5.0	15.0	0.0	823.3	177.8
140	5.01	13.9	5.16	675.82	42.58	20.95	5.0	15.0	0.0	806.5	174.6
141	5.01	12.5	5.14	667.74	42.07	20.7	5.0	15.0	0.0	715.3	156.9
142	5.01	11.8	5.12	668.57	42.12	20.73	5.0	15.0	0.0	675.1	149.1
143	5.01	11.9	5.12	679.63	42.82	21.07	5.0	15.0	0.0	694.0	152.8
144	5.01	11.8	5.12	702.4	44.25	21.77	5.0	15.0	0.0	709.2	155.7
145	5.01	11.8	5.12	725.73	45.72	22.5	5.0	15.0	0.0	732.7	160.3
146	5.01	11.8	5.12	749.05	47.19	23.22	5.0	15.0	0.0	756.2	164.8
147	5.01	11.8	5.12	773.43	48.73	23.98	5.0	15.0	0.0	780.8	169.6
148	5.01	24.9	5.52	739.21	46.57	22.92	5.0	15.0	0.0	1651.7	338.5
149	5.01	35.2	6.14	588.8	37.09	18.25	5.0	15.0	0.0	2003.7	406.8
150	5.01	51.2	8.0	255.47	16.09	7.92	5.0	15.0	0.0	1533.5	315.6

Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici superficie Nr...1	2
5.Coefficienti parziali azioni	3
6.Coefficienti parziali per i parametri geotecnici del terreno	3
7.Stratigrafia	3
Indice	7

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 100 A 200 m
 IN CONDIZIONI SISMICHE



Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.155077/10.984918
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	28.24 m
Ordinata vertice sinistro inferiore yi	205.17 m
Ascissa vertice destro superiore xs	127.86 m
Ordinata vertice destro superiore ys	305.16 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.063
Coefficiente azione sismica verticale	0.031

Vertici profilo

Nr	X (m)	y (m)
1	27.2	99.51
2	72.5	104.51
3	158.8	109.51
4	199.1	114.51
5	247.5	119.51
6	271.5	124.51
7	291.3	129.51
8	320.3	134.51
9	356.2	139.51
10	407.8	144.51
11	441.5	149.51
12	457.6	154.51
13	490.5	159.51
14	512.5	164.51
15	577.7	169.51
16	606.9	174.51
17	639.0	179.51
18	672.0	184.51
19	711.7	189.51
20	760.2	194.51
21	796.4	199.51
22	824.8	204.51
23	849.1	209.51
24	872.1	214.51
25	891.4	219.51
26	910.4	224.51

27	1006.4	229.51
28	1047.2	234.51

Vertici strato1

N	X (m)	y (m)
1	27.2	91.51
2	164.87	98.82
3	254.11	108.66
4	344.79	127.14
5	398.95	130.22
6	471.04	147.83
7	529.88	155.31
8	579.79	161.65
9	651.88	170.81
10	744.65	182.59
11	798.08	189.32
12	863.53	205.44
13	911.31	213.89
14	936.44	218.7
15	1006.86	223.67
16	1047.2	229.51

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.9	1.9	Coltre
2	40		28	2	2	Substato

Risultati analisi pendio [[A1+M1+R1]]

Fs minimo individuato	2.47
Ascissa centro superficie	83.03 m
Ordinata centro superficie	210.17 m
Raggio superficie	114.42 m

Numero di superfici esaminate....(125)

N°	Xo	Yo	Ro	Fs
1	63.1	210.2	107.7	3.66

2	68.1	205.2	104.4	2.74
3	73.1	210.2	110.7	2.58
4	78.0	205.2	107.9	2.48
5	83.0	210.2	114.4	2.47
6	88.0	205.2	101.2	4.31
7	93.0	210.2	106.2	4.04
8	98.0	205.2	101.1	3.85
9	103.0	210.2	106.1	3.68
10	107.9	205.2	101.0	3.56
11	112.9	210.2	106.0	3.45
12	117.9	205.2	100.9	3.36
13	122.9	210.2	105.9	3.28
14	127.9	205.2	100.8	3.23
15	63.1	220.2	117.3	4.29
16	73.1	220.2	120.1	2.66
17	83.0	220.2	123.5	2.49
18	88.0	215.2	120.9	3.81
19	93.0	220.2	116.2	4.02
20	98.0	215.2	111.1	3.83
21	103.0	220.2	116.1	3.67
22	107.9	215.2	111.0	3.55
23	112.9	220.2	116.0	3.44
24	117.9	215.2	110.9	3.35
25	122.9	220.2	115.9	3.27
26	127.9	215.2	110.8	3.21
27	73.1	230.2	129.5	2.75
28	78.0	225.2	126.4	2.56
29	83.0	230.2	132.7	2.52
30	88.0	225.2	130.0	2.48
31	93.0	230.2	126.2	4.00
32	98.0	225.2	121.1	3.82
33	103.0	230.2	126.1	3.65
34	107.9	225.2	121.0	3.53
35	112.9	230.2	126.0	3.42
36	117.9	225.2	120.9	3.34
37	122.9	230.2	125.8	3.26
38	127.9	225.2	120.8	3.18
39	63.1	240.2	136.6	6.84
40	68.1	235.2	133.0	3.29
41	83.0	240.2	142.1	2.55
42	88.0	235.2	129.6	20.00
43	93.0	240.2	145.6	3.72
44	98.0	235.2	131.1	3.80
45	103.0	240.2	136.1	3.64
46	107.9	235.2	131.0	3.52
47	112.9	240.2	135.9	3.41
48	117.9	235.2	130.9	3.33
49	122.9	240.2	135.8	3.26
50	127.9	235.2	130.8	3.14
51	63.1	250.2	146.4	10.07
52	68.1	245.2	142.6	3.55
53	73.1	250.2	148.6	2.96
54	78.0	245.2	145.2	2.67
55	83.0	250.2	151.5	2.58
56	88.0	245.2	148.4	2.51
57	93.0	250.2	145.1	5.90
58	98.0	245.2	141.1	3.79
59	103.0	250.2	146.0	3.63
60	107.9	245.2	141.0	3.51

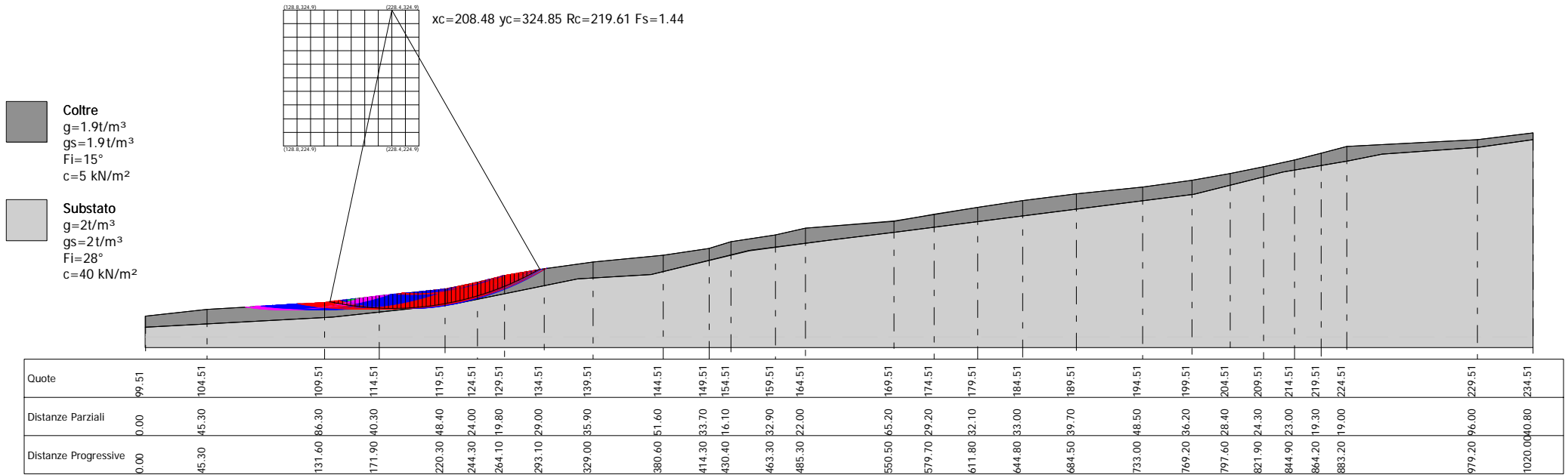
61	112.9	250.2	145.9	3.40
62	117.9	245.2	140.9	3.32
63	122.9	250.2	145.8	3.24
64	127.9	245.2	140.8	3.10
65	68.1	255.2	152.3	3.87
66	73.1	260.2	158.3	3.09
67	78.0	255.2	154.8	2.74
68	83.0	260.2	160.9	2.62
69	93.0	260.2	154.5	13.53
70	98.0	255.2	151.1	3.78
71	103.0	260.2	156.0	3.62
72	107.9	255.2	151.0	3.50
73	112.9	260.2	155.9	3.40
74	117.9	255.2	150.9	3.31
75	122.9	260.2	155.8	3.22
76	127.9	255.2	150.8	3.05
77	68.1	265.2	162.0	4.27
78	73.1	270.2	167.9	3.23
79	78.0	265.2	164.3	2.80
80	83.0	270.2	170.5	2.66
81	88.0	265.2	167.2	2.56
82	98.0	265.2	170.4	3.80
83	103.0	270.2	166.0	3.61
84	107.9	265.2	161.0	3.49
85	112.9	270.2	165.9	3.39
86	117.9	265.2	160.9	3.31
87	122.9	270.2	165.8	3.19
88	127.9	265.2	160.8	3.01
89	68.1	275.2	171.7	4.76
90	88.0	275.2	176.6	2.58
91	98.0	275.2	170.1	5.08
92	103.0	280.2	176.0	3.60
93	107.9	275.2	171.0	3.48
94	112.9	280.2	175.9	3.38
95	117.9	275.2	170.9	3.30
96	122.9	280.2	175.8	3.15
97	127.9	275.2	170.8	2.96
98	68.1	285.2	181.5	5.41
99	83.0	290.2	189.6	2.76
100	88.0	285.2	186.2	2.61
101	98.0	285.2	189.1	2.48
102	103.0	290.2	185.6	3.85
103	107.9	285.2	181.0	3.47
104	112.9	290.2	185.9	3.37
105	117.9	285.2	180.9	3.30
106	122.9	290.2	185.8	3.11
107	127.9	285.2	180.8	2.92
108	68.1	295.2	191.3	6.30
109	78.0	295.2	193.3	3.04
110	88.0	295.2	195.7	2.65
111	93.0	300.2	201.8	2.58
112	98.0	295.2	189.0	20.00
113	103.0	300.2	204.8	3.41
114	107.9	295.2	191.0	3.47
115	112.9	300.2	195.9	3.36
116	117.9	295.2	190.9	3.28
117	122.9	300.2	195.8	3.07
118	127.9	295.2	190.8	2.87
119	68.1	305.2	201.1	7.57

120	78.0	305.2	203.0	3.13
121	88.0	305.2	205.3	2.68
122	98.0	305.2	208.0	2.50
123	107.9	305.2	201.0	3.46
124	117.9	305.2	200.9	3.25
125	127.9	305.2	200.8	2.83

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	3
6.Stratigrafia	3
7.Risultati analisi pendio [[A1+M1+R1]]	3
Indice	6

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 100 A 200 m
 IN CONDIZIONI SISMICHE



Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.155077/10.984918
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	128.79 m
Ordinata vertice sinistro inferiore yi	224.87 m
Ascissa vertice destro superiore xs	228.41 m
Ordinata vertice destro superiore ys	324.85 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.063
Coefficiente azione sismica verticale	0.031

Vertici profilo

Nr	X (m)	y (m)
1	27.2	99.51
2	72.5	104.51
3	158.8	109.51
4	199.1	114.51
5	247.5	119.51
6	271.5	124.51
7	291.3	129.51
8	320.3	134.51
9	356.2	139.51
10	407.8	144.51
11	441.5	149.51
12	457.6	154.51
13	490.5	159.51
14	512.5	164.51
15	577.7	169.51
16	606.9	174.51
17	639.0	179.51
18	672.0	184.51
19	711.7	189.51
20	760.2	194.51
21	796.4	199.51
22	824.8	204.51
23	849.1	209.51
24	872.1	214.51
25	891.4	219.51
26	910.4	224.51

27	1006.4	229.51
28	1047.2	234.51

Vertici strato1

N	X (m)	y (m)
1	27.2	91.51
2	164.87	98.82
3	254.11	108.66
4	344.79	127.14
5	398.95	130.22
6	471.04	147.83
7	529.88	155.31
8	579.79	161.65
9	651.88	170.81
10	744.65	182.59
11	798.08	189.32
12	863.53	205.44
13	911.31	213.89
14	936.44	218.7
15	1006.86	223.67
16	1047.2	229.51

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.9	1.9	Coltre
2	40		28	2	2	Substato

Risultati analisi pendio [[A1+M1+R1]]

Fs minimo individuato	1.44
Ascissa centro superficie	208.48 m
Ordinata centro superficie	324.85 m
Raggio superficie	219.61 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	128.8	224.9	120.5	3.15

2	133.8	229.9	125.4	2.92
3	138.7	224.9	120.4	2.73
4	143.7	229.9	125.3	2.50
5	148.7	224.9	120.3	2.34
6	153.7	229.9	125.2	2.18
7	158.7	224.9	120.2	2.09
8	163.7	229.9	125.1	2.00
9	168.6	224.9	120.1	1.95
10	173.6	229.9	125.0	1.91
11	178.6	224.9	120.0	1.89
12	183.6	229.9	124.9	1.87
13	188.6	224.9	119.9	1.87
14	193.5	229.9	124.8	1.86
15	198.5	224.9	119.8	1.85
16	203.5	229.9	124.7	1.79
17	208.5	224.9	119.7	1.75
18	213.5	229.9	124.6	1.65
19	218.4	224.9	119.6	1.93
20	223.4	229.9	124.5	2.18
21	228.4	224.9	109.0	2.18
22	128.8	234.9	130.5	3.11
23	133.8	239.9	135.4	2.87
24	138.7	234.9	130.4	2.68
25	143.7	239.9	135.3	2.46
26	148.7	234.9	130.3	2.31
27	153.7	239.9	135.2	2.16
28	158.7	234.9	130.2	2.07
29	163.7	239.9	135.1	2.00
30	168.6	234.9	130.1	1.95
31	173.6	239.9	135.0	1.91
32	178.6	234.9	130.0	1.88
33	183.6	239.9	134.9	1.87
34	188.6	234.9	129.9	1.87
35	193.5	239.9	134.8	1.84
36	198.5	234.9	129.8	1.82
37	203.5	239.9	134.7	1.75
38	208.5	234.9	129.7	1.70
39	213.5	239.9	134.6	1.61
40	218.4	234.9	129.5	1.94
41	223.4	239.9	134.5	2.13
42	228.4	234.9	119.0	2.07
43	128.8	244.9	140.5	3.06
44	133.8	249.9	145.4	2.82
45	138.7	244.9	140.4	2.63
46	143.7	249.9	145.3	2.42
47	148.7	244.9	140.3	2.28
48	153.7	249.9	145.2	2.15
49	158.7	244.9	140.2	2.06
50	163.7	249.9	145.1	1.99
51	168.6	244.9	140.1	1.94
52	173.6	249.9	145.0	1.91
53	178.6	244.9	140.0	1.88
54	183.6	249.9	144.9	1.87
55	188.6	244.9	139.9	1.86
56	193.5	249.9	144.8	1.82
57	198.5	244.9	139.8	1.79
58	203.5	249.9	144.7	1.71
59	208.5	244.9	139.6	1.66
60	213.5	249.9	144.6	1.56

61	218.4	244.9	139.5	1.95
62	223.4	249.9	144.5	2.14
63	228.4	244.9	129.0	1.96
64	128.8	254.9	150.5	3.02
65	133.8	259.9	155.4	2.77
66	138.7	254.9	150.4	2.59
67	143.7	259.9	155.3	2.39
68	148.7	254.9	150.3	2.25
69	153.7	259.9	155.2	2.13
70	158.7	254.9	150.2	2.06
71	163.7	259.9	155.1	1.99
72	168.6	254.9	150.1	1.94
73	173.6	259.9	155.0	1.91
74	178.6	254.9	150.0	1.88
75	183.6	259.9	154.9	1.87
76	188.6	254.9	149.9	1.85
77	193.5	259.9	154.8	1.79
78	198.5	254.9	149.7	1.75
79	203.5	259.9	154.7	1.67
80	208.5	254.9	149.6	1.62
81	213.5	259.9	154.6	1.53
82	218.4	254.9	149.5	1.97
83	223.4	259.9	154.5	2.22
84	228.4	254.9	139.0	1.85
85	128.8	264.9	160.5	2.97
86	133.8	269.9	165.4	2.73
87	138.7	264.9	160.4	2.55
88	143.7	269.9	165.3	2.36
89	148.7	264.9	160.3	2.23
90	153.7	269.9	165.2	2.12
91	158.7	264.9	160.2	2.05
92	163.7	269.9	165.1	1.98
93	168.6	264.9	160.1	1.94
94	173.6	269.9	165.0	1.90
95	178.6	264.9	160.0	1.88
96	183.6	269.9	164.9	1.86
97	188.6	264.9	159.8	1.83
98	193.5	269.9	164.8	1.76
99	198.5	264.9	159.7	1.72
100	203.5	269.9	164.7	1.63
101	208.5	264.9	159.6	1.58
102	213.5	269.9	164.6	1.50
103	218.4	264.9	159.5	1.94
104	223.4	269.9	154.0	2.12
105	228.4	264.9	149.0	1.75
106	128.8	274.9	170.5	2.92
107	133.8	279.9	175.4	2.69
108	138.7	274.9	170.4	2.51
109	143.7	279.9	175.3	2.33
110	148.7	274.9	170.3	2.21
111	153.7	279.9	175.2	2.11
112	158.7	274.9	170.2	2.04
113	163.7	279.9	175.1	1.98
114	168.6	274.9	170.1	1.94
115	173.6	279.9	175.0	1.90
116	178.6	274.9	169.9	1.88
117	183.6	279.9	174.9	1.85
118	188.6	274.9	169.8	1.81
119	193.5	279.9	174.8	1.74

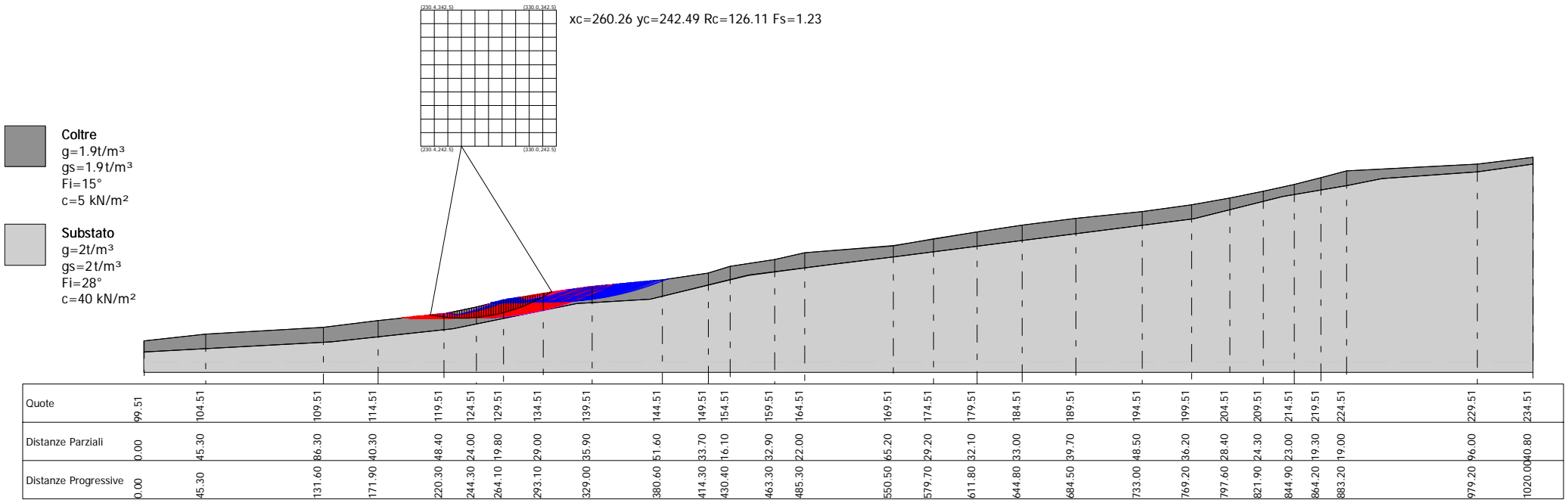
120	198.5	274.9	169.7	1.69
121	203.5	279.9	174.7	1.60
122	208.5	274.9	169.6	1.55
123	213.5	279.9	174.6	1.48
124	218.4	274.9	169.5	1.90
125	223.4	279.9	164.0	1.98
126	228.4	274.9	159.0	1.66
127	128.8	284.9	180.5	2.88
128	133.8	289.9	185.4	2.65
129	138.7	284.9	180.4	2.48
130	143.7	289.9	185.3	2.31
131	148.7	284.9	180.3	2.20
132	153.7	289.9	185.2	2.10
133	158.7	284.9	180.1	2.03
134	163.7	289.9	185.1	1.98
135	168.6	284.9	180.0	1.94
136	173.6	289.9	185.0	1.90
137	178.6	284.9	179.9	1.88
138	183.6	289.9	184.9	1.83
139	188.6	284.9	179.8	1.79
140	193.5	289.9	184.8	1.71
141	198.5	284.9	179.7	1.65
142	203.5	289.9	184.7	1.56
143	208.5	284.9	179.6	1.52
144	213.5	289.9	184.6	1.58
145	218.4	284.9	179.5	1.99
146	223.4	289.9	174.0	1.86
147	228.4	284.9	169.0	1.59
148	128.8	294.9	190.5	2.83
149	133.8	299.9	195.4	2.61
150	138.7	294.9	190.4	2.44
151	143.7	299.9	195.3	2.29
152	148.7	294.9	190.2	2.18
153	153.7	299.9	195.2	2.09
154	158.7	294.9	190.1	2.03
155	163.7	299.9	195.1	1.97
156	168.6	294.9	190.0	1.93
157	173.6	299.9	195.0	1.90
158	178.6	294.9	189.9	1.87
159	183.6	299.9	194.9	1.81
160	188.6	294.9	189.8	1.76
161	193.5	299.9	194.8	1.68
162	198.5	294.9	189.7	1.62
163	203.5	299.9	194.7	1.54
164	208.5	294.9	189.6	1.49
165	213.5	299.9	194.6	1.67
166	218.4	294.9	189.5	1.97
167	223.4	299.9	184.0	1.75
168	228.4	294.9	179.0	1.54
169	128.8	304.9	200.5	2.79
170	133.8	309.9	205.4	2.57
171	138.7	304.9	200.3	2.41
172	143.7	309.9	205.3	2.27
173	148.7	304.9	200.2	2.17
174	153.7	309.9	205.2	2.08
175	158.7	304.9	200.1	2.02
176	163.7	309.9	205.1	1.97
177	168.6	304.9	200.0	1.93
178	173.6	309.9	205.0	1.90

179	178.6	304.9	199.9	1.86
180	183.6	309.9	204.9	1.79
181	188.6	304.9	199.8	1.74
182	193.5	309.9	204.8	1.64
183	198.5	304.9	199.7	1.58
184	203.5	309.9	204.7	1.51
185	208.5	304.9	199.6	1.47
186	213.5	309.9	204.6	1.71
187	218.4	304.9	199.5	2.11
188	223.4	309.9	194.0	1.67
189	228.4	304.9	189.0	1.50
190	128.8	314.9	210.4	2.75
191	133.8	319.9	215.4	2.54
192	138.7	314.9	210.3	2.39
193	143.7	319.9	215.3	2.25
194	148.7	314.9	210.2	2.16
195	153.7	319.9	215.2	2.08
196	158.7	314.9	210.1	2.02
197	163.7	319.9	215.1	1.97
198	168.6	314.9	210.0	1.93
199	173.6	319.9	215.0	1.89
200	178.6	314.9	209.9	1.85
201	183.6	319.9	214.9	1.77
202	188.6	314.9	209.8	1.71
203	193.5	319.9	214.8	1.61
204	198.5	314.9	209.7	1.56
205	203.5	319.9	214.7	1.49
206	208.5	314.9	209.6	1.46
207	213.5	319.9	214.6	1.75
208	218.4	314.9	199.1	2.02
209	223.4	319.9	204.0	1.61
210	228.4	314.9	198.9	1.47
211	128.8	324.9	220.4	2.71
212	138.7	324.9	220.3	2.36
213	148.7	324.9	220.2	2.15
214	158.7	324.9	220.1	2.01
215	168.6	324.9	220.0	1.93
216	178.6	324.9	219.9	1.83
217	188.6	324.9	219.8	1.68
218	198.5	324.9	219.7	1.53
219	208.5	324.9	219.6	1.44
220	218.4	324.9	209.1	1.88
221	228.4	324.9	208.9	1.44

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	3
6.Stratigrafia	3
7.Risultati analisi pendio [[A1+M1+R1]]	3
Indice	8

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 200 A 300 m
 IN CONDIZIONI SISMICHE



Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.155077/10.984918
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	230.37 m
Ordinata vertice sinistro inferiore yi	242.49 m
Ascissa vertice destro superiore xs	329.99 m
Ordinata vertice destro superiore ys	342.47 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.063
Coefficiente azione sismica verticale	0.031

Vertici profilo

Nr	X (m)	y (m)
1	27.2	99.51
2	72.5	104.51
3	158.8	109.51
4	199.1	114.51
5	247.5	119.51
6	271.5	124.51
7	291.3	129.51
8	320.3	134.51
9	356.2	139.51
10	407.8	144.51
11	441.5	149.51
12	457.6	154.51
13	490.5	159.51
14	512.5	164.51
15	577.7	169.51
16	606.9	174.51
17	639.0	179.51
18	672.0	184.51
19	711.7	189.51
20	760.2	194.51
21	796.4	199.51
22	824.8	204.51
23	849.1	209.51
24	872.1	214.51
25	891.4	219.51
26	910.4	224.51

27	1006.4	229.51
28	1047.2	234.51

Vertici strato1

N	X (m)	y (m)
1	27.2	91.51
2	164.87	98.82
3	254.11	108.66
4	344.79	127.14
5	398.95	130.22
6	471.04	147.83
7	529.88	155.31
8	579.79	161.65
9	651.88	170.81
10	744.65	182.59
11	798.08	189.32
12	863.53	205.44
13	911.31	213.89
14	936.44	218.7
15	1006.86	223.67
16	1047.2	229.51

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.9	1.9	Coltre
2	40		28	2	2	Substato

Risultati analisi pendio [[A1+M1+R1]]

Fs minimo individuato	1.23
Ascissa centro superficie	260.26 m
Ordinata centro superficie	242.49 m
Raggio superficie	126.11 m

Numero di superfici esaminate...(221)

N°	Xo	Yo	Ro	Fs
1	230.4	242.5	126.6	1.83

2	235.4	247.5	131.5	1.52
3	240.3	242.5	126.4	1.39
4	245.3	247.5	131.3	1.31
5	250.3	242.5	126.3	1.27
6	255.3	247.5	131.2	1.24
7	260.3	242.5	126.1	1.23
8	265.2	247.5	131.0	1.23
9	270.2	242.5	126.0	1.24
10	275.2	247.5	130.9	1.26
11	280.2	242.5	125.8	1.28
12	285.2	247.5	120.0	1.76
13	290.1	242.5	114.9	1.68
14	295.1	247.5	119.8	1.64
15	300.1	242.5	114.7	1.63
16	305.1	247.5	119.6	1.62
17	310.1	242.5	114.5	1.62
18	315.0	247.5	119.4	1.63
19	320.0	242.5	114.3	1.65
20	325.0	247.5	119.1	1.67
21	330.0	242.5	114.0	1.70
22	230.4	252.5	136.6	1.74
23	235.4	257.5	141.5	1.47
24	240.3	252.5	136.4	1.37
25	245.3	257.5	141.3	1.30
26	250.3	252.5	136.3	1.26
27	255.3	257.5	141.2	1.24
28	260.3	252.5	136.1	1.23
29	265.2	257.5	141.0	1.24
30	270.2	252.5	136.0	1.24
31	275.2	257.5	140.9	1.26
32	280.2	252.5	135.8	1.49
33	285.2	257.5	130.0	1.74
34	290.1	252.5	124.9	1.67
35	295.1	257.5	129.8	1.64
36	300.1	252.5	124.7	1.62
37	305.1	257.5	129.6	1.61
38	310.1	252.5	124.5	1.62
39	315.0	257.5	129.3	1.63
40	320.0	252.5	124.2	1.65
41	325.0	257.5	129.1	1.68
42	330.0	252.5	124.0	1.70
43	230.4	262.5	146.6	1.65
44	235.4	267.5	151.5	1.44
45	240.3	262.5	146.4	1.35
46	245.3	267.5	151.3	1.29
47	250.3	262.5	146.3	1.26
48	255.3	267.5	151.2	1.24
49	260.3	262.5	146.1	1.23
50	265.2	267.5	151.0	1.24
51	270.2	262.5	145.9	1.25
52	275.2	267.5	150.9	1.27
53	280.2	262.5	145.8	1.71
54	285.2	267.5	140.0	1.73
55	290.1	262.5	134.9	1.67
56	295.1	267.5	139.8	1.63
57	300.1	262.5	134.7	1.62
58	305.1	267.5	139.5	1.61
59	310.1	262.5	134.4	1.62
60	315.0	267.5	139.3	1.63

61	320.0	262.5	134.2	1.65
62	325.0	267.5	139.1	1.68
63	330.0	262.5	134.0	1.71
64	230.4	272.5	156.6	1.58
65	235.4	277.5	161.5	1.41
66	240.3	272.5	156.4	1.34
67	245.3	277.5	161.3	1.29
68	250.3	272.5	156.3	1.26
69	255.3	277.5	161.2	1.24
70	260.3	272.5	156.1	1.24
71	265.2	277.5	161.0	1.25
72	270.2	272.5	155.9	1.25
73	275.2	277.5	160.9	1.27
74	280.2	272.5	145.1	1.85
75	285.2	277.5	150.0	1.72
76	290.1	272.5	144.9	1.66
77	295.1	277.5	149.7	1.63
78	300.1	272.5	144.6	1.61
79	305.1	277.5	149.5	1.61
80	310.1	272.5	144.4	1.62
81	315.0	277.5	149.3	1.64
82	320.0	272.5	144.2	1.65
83	325.0	277.5	149.1	1.68
84	330.0	272.5	144.0	1.71
85	230.4	282.5	166.6	1.53
86	235.4	287.5	171.5	1.39
87	240.3	282.5	166.4	1.33
88	245.3	287.5	171.3	1.28
89	250.3	282.5	166.2	1.26
90	255.3	287.5	171.2	1.25
91	260.3	282.5	166.1	1.24
92	265.2	287.5	171.0	1.25
93	270.2	282.5	165.9	1.26
94	275.2	287.5	170.9	1.27
95	280.2	282.5	155.1	1.82
96	285.2	287.5	159.9	1.71
97	290.1	282.5	154.8	1.66
98	295.1	287.5	159.7	1.63
99	300.1	282.5	154.6	1.61
100	305.1	287.5	159.5	1.61
101	310.1	282.5	154.4	1.62
102	315.0	287.5	159.3	1.64
103	320.0	282.5	154.2	1.66
104	325.0	287.5	159.1	1.68
105	330.0	282.5	154.0	1.71
106	230.4	292.5	176.6	1.49
107	235.4	297.5	181.5	1.37
108	240.3	292.5	176.4	1.32
109	245.3	297.5	181.3	1.28
110	250.3	292.5	176.2	1.26
111	255.3	297.5	181.2	1.25
112	260.3	292.5	176.1	1.25
113	265.2	297.5	181.0	1.26
114	270.2	292.5	175.9	1.26
115	275.2	297.5	180.9	1.44
116	280.2	292.5	165.0	1.80
117	285.2	297.5	169.9	1.70
118	290.1	292.5	164.8	1.65
119	295.1	297.5	169.7	1.62

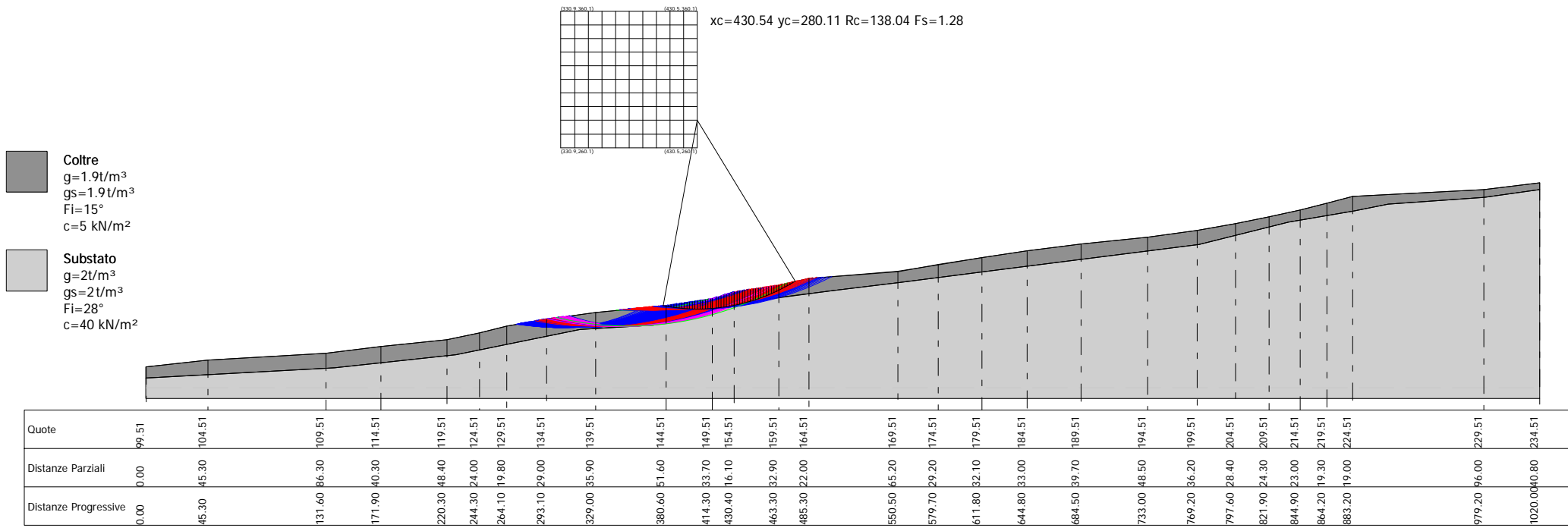
120	300.1	292.5	164.6	1.61
121	305.1	297.5	169.5	1.62
122	310.1	292.5	164.4	1.63
123	315.0	297.5	169.3	1.65
124	320.0	292.5	164.2	1.66
125	325.0	297.5	169.1	1.69
126	330.0	292.5	164.0	1.71
127	230.4	302.5	186.5	1.46
128	235.4	307.5	191.5	1.36
129	240.3	302.5	186.4	1.31
130	245.3	307.5	191.3	1.28
131	250.3	302.5	186.2	1.26
132	255.3	307.5	191.2	1.26
133	260.3	302.5	186.1	1.25
134	265.2	307.5	191.0	1.26
135	270.2	302.5	185.9	1.27
136	275.2	307.5	190.8	1.71
137	280.2	302.5	175.0	1.78
138	285.2	307.5	179.9	1.69
139	290.1	302.5	174.8	1.65
140	295.1	307.5	179.7	1.62
141	300.1	302.5	174.6	1.61
142	305.1	307.5	179.5	1.62
143	310.1	302.5	174.4	1.63
144	315.0	307.5	179.3	1.65
145	320.0	302.5	174.2	1.67
146	325.0	307.5	179.1	1.69
147	330.0	302.5	174.0	1.71
148	230.4	312.5	196.5	1.43
149	235.4	317.5	201.5	1.35
150	240.3	312.5	196.4	1.30
151	245.3	317.5	201.3	1.28
152	250.3	312.5	196.2	1.26
153	255.3	317.5	201.2	1.26
154	260.3	312.5	196.1	1.26
155	265.2	317.5	201.0	1.26
156	270.2	312.5	195.9	1.27
157	275.2	317.5	200.8	1.82
158	280.2	312.5	185.0	1.77
159	285.2	317.5	189.9	1.69
160	290.1	312.5	184.8	1.65
161	295.1	317.5	189.7	1.62
162	300.1	312.5	184.6	1.61
163	305.1	317.5	189.5	1.62
164	310.1	312.5	184.4	1.63
165	315.0	317.5	189.3	1.65
166	320.0	312.5	184.2	1.67
167	325.0	317.5	189.1	1.69
168	330.0	312.5	184.0	1.72
169	230.4	322.5	206.5	1.41
170	235.4	327.5	211.5	1.34
171	240.3	322.5	206.4	1.30
172	245.3	327.5	211.3	1.28
173	250.3	322.5	206.2	1.27
174	255.3	327.5	211.1	1.26
175	260.3	322.5	206.1	1.26
176	265.2	327.5	211.0	1.27
177	270.2	322.5	205.9	1.28
178	275.2	327.5	200.1	1.87

179	280.2	322.5	195.0	1.75
180	285.2	327.5	199.9	1.68
181	290.1	322.5	194.8	1.64
182	295.1	327.5	199.7	1.62
183	300.1	322.5	194.6	1.62
184	305.1	327.5	199.5	1.63
185	310.1	322.5	194.4	1.64
186	315.0	327.5	199.3	1.66
187	320.0	322.5	194.2	1.68
188	325.0	327.5	199.1	1.70
189	330.0	322.5	194.0	1.72
190	230.4	332.5	216.5	1.39
191	235.4	337.5	221.4	1.33
192	240.3	332.5	216.4	1.30
193	245.3	337.5	221.3	1.28
194	250.3	332.5	216.2	1.27
195	255.3	337.5	221.1	1.27
196	260.3	332.5	216.1	1.27
197	265.2	337.5	221.0	1.27
198	270.2	332.5	215.9	1.28
199	275.2	337.5	210.1	1.85
200	280.2	332.5	205.0	1.74
201	285.2	337.5	209.9	1.67
202	290.1	332.5	204.8	1.64
203	295.1	337.5	209.7	1.62
204	300.1	332.5	204.6	1.62
205	305.1	337.5	209.5	1.63
206	310.1	332.5	204.4	1.64
207	315.0	337.5	209.3	1.66
208	320.0	332.5	204.2	1.68
209	325.0	337.5	209.1	1.70
210	330.0	332.5	204.0	1.72
211	230.4	342.5	226.5	1.38
212	240.3	342.5	226.4	1.30
213	250.3	342.5	226.2	1.27
214	260.3	342.5	226.1	1.27
215	270.2	342.5	225.9	1.40
216	280.2	342.5	215.0	1.73
217	290.1	342.5	214.8	1.63
218	300.1	342.5	214.6	1.62
219	310.1	342.5	214.4	1.65
220	320.0	342.5	214.2	1.68
221	330.0	342.5	214.0	1.72

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	3
6.Stratigrafia	3
7.Risultati analisi pendio [[A1+M1+R1]]	3
Indice	8

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 300 A 400 m
 IN CONDIZIONI SISMICHE



Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.155077/10.984918
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	330.92 m
Ordinata vertice sinistro inferiore yi	260.11 m
Ascissa vertice destro superiore xs	430.54 m
Ordinata vertice destro superiore ys	360.09 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.063
Coefficiente azione sismica verticale	0.031

Vertici profilo

Nr	X (m)	y (m)
1	27.2	99.51
2	72.5	104.51
3	158.8	109.51
4	199.1	114.51
5	247.5	119.51
6	271.5	124.51
7	291.3	129.51
8	320.3	134.51
9	356.2	139.51
10	407.8	144.51
11	441.5	149.51
12	457.6	154.51
13	490.5	159.51
14	512.5	164.51
15	577.7	169.51
16	606.9	174.51
17	639.0	179.51
18	672.0	184.51
19	711.7	189.51
20	760.2	194.51
21	796.4	199.51
22	824.8	204.51
23	849.1	209.51
24	872.1	214.51
25	891.4	219.51
26	910.4	224.51

27	1006.4	229.51
28	1047.2	234.51

Vertici strato1

N	X (m)	y (m)
1	27.2	91.51
2	164.87	98.82
3	254.11	108.66
4	344.79	127.14
5	398.95	130.22
6	471.04	147.83
7	529.88	155.31
8	579.79	161.65
9	651.88	170.81
10	744.65	182.59
11	798.08	189.32
12	863.53	205.44
13	911.31	213.89
14	936.44	218.7
15	1006.86	223.67
16	1047.2	229.51

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.9	1.9	Coltre
2	40		28	2	2	Substato

Risultati analisi pendio [[A1+M1+R1]]

Fs minimo individuato	1.28
Ascissa centro superficie	430.54 m
Ordinata centro superficie	280.11 m
Raggio superficie	138.04 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	330.9	260.1	131.6	1.71

2	335.9	265.1	136.5	1.74
3	340.9	260.1	131.4	1.77
4	345.9	265.1	136.3	1.80
5	350.8	260.1	131.2	1.83
6	355.8	265.1	136.1	1.83
7	360.8	260.1	131.0	1.84
8	365.8	265.1	135.9	1.82
9	370.8	260.1	130.8	1.82
10	375.7	265.1	135.7	1.77
11	380.7	260.1	130.6	1.97
12	385.7	265.1	124.2	2.75
13	390.7	260.1	119.1	2.44
14	395.7	265.1	124.0	2.17
15	400.7	260.1	118.8	1.99
16	405.6	265.1	123.7	1.63
17	410.6	260.1	118.6	1.49
18	415.6	265.1	123.4	1.38
19	420.6	260.1	118.3	1.33
20	425.6	265.1	123.2	1.30
21	430.5	260.1	118.1	1.29
22	330.9	270.1	141.6	1.71
23	335.9	275.1	146.5	1.74
24	340.9	270.1	141.4	1.77
25	345.9	275.1	146.3	1.79
26	350.8	270.1	141.2	1.81
27	355.8	275.1	146.1	1.81
28	360.8	270.1	141.0	1.82
29	365.8	275.1	145.9	1.80
30	370.8	270.1	140.8	1.79
31	375.7	275.1	145.7	1.72
32	380.7	270.1	140.6	2.18
33	385.7	275.1	134.2	2.67
34	390.7	270.1	129.1	2.38
35	395.7	275.1	133.9	2.15
36	400.7	270.1	128.8	1.88
37	405.6	275.1	133.7	1.57
38	410.6	270.1	128.6	1.45
39	415.6	275.1	133.4	1.37
40	420.6	270.1	128.3	1.33
41	425.6	275.1	133.2	1.30
42	430.5	270.1	128.0	1.29
43	330.9	280.1	151.6	1.71
44	335.9	285.1	156.5	1.74
45	340.9	280.1	151.4	1.77
46	345.9	285.1	156.3	1.79
47	350.8	280.1	151.2	1.80
48	355.8	285.1	156.1	1.80
49	360.8	280.1	151.0	1.80
50	365.8	285.1	155.9	1.78
51	370.8	280.1	150.8	1.76
52	375.7	285.1	155.7	1.67
53	380.7	280.1	150.6	2.24
54	385.7	285.1	144.2	2.60
55	390.7	280.1	139.1	2.33
56	395.7	285.1	143.9	2.08
57	400.7	280.1	138.8	1.76
58	405.6	285.1	143.7	1.52
59	410.6	280.1	138.6	1.43
60	415.6	285.1	143.4	1.36

61	420.6	280.1	138.3	1.33
62	425.6	285.1	143.2	1.30
63	430.5	280.1	138.0	1.28
64	330.9	290.1	161.6	1.72
65	335.9	295.1	166.5	1.74
66	340.9	290.1	161.4	1.77
67	345.9	295.1	166.3	1.78
68	350.8	290.1	161.2	1.79
69	355.8	295.1	166.1	1.78
70	360.8	290.1	161.0	1.78
71	365.8	295.1	165.9	1.75
72	370.8	290.1	160.8	1.72
73	375.7	295.1	165.7	1.64
74	380.7	290.1	160.6	2.31
75	385.7	295.1	154.2	2.53
76	390.7	290.1	149.1	2.28
77	395.7	295.1	153.9	1.94
78	400.7	290.1	148.8	1.67
79	405.6	295.1	153.7	1.49
80	410.6	290.1	148.5	1.41
81	415.6	295.1	153.4	1.36
82	420.6	290.1	148.3	1.32
83	425.6	295.1	153.2	1.30
84	430.5	290.1	148.0	1.71
85	330.9	300.1	171.6	1.72
86	335.9	305.1	176.5	1.74
87	340.9	300.1	171.4	1.76
88	345.9	305.1	176.3	1.77
89	350.8	300.1	171.2	1.78
90	355.8	305.1	176.1	1.77
91	360.8	300.1	171.0	1.77
92	365.8	305.1	175.9	1.72
93	370.8	300.1	170.8	1.68
94	375.7	305.1	175.7	2.01
95	380.7	300.1	170.6	2.40
96	385.7	305.1	164.2	2.47
97	390.7	300.1	159.1	2.26
98	395.7	305.1	163.9	1.82
99	400.7	300.1	158.8	1.61
100	405.6	305.1	163.7	1.47
101	410.6	300.1	158.5	1.40
102	415.6	305.1	163.4	1.35
103	420.6	300.1	158.3	1.32
104	425.6	305.1	163.1	1.29
105	430.5	300.1	158.0	1.81
106	330.9	310.1	181.6	1.72
107	335.9	315.1	186.5	1.74
108	340.9	310.1	181.4	1.76
109	345.9	315.1	186.3	1.76
110	350.8	310.1	181.2	1.77
111	355.8	315.1	186.1	1.76
112	360.8	310.1	181.0	1.75
113	365.8	315.1	185.9	1.68
114	370.8	310.1	180.8	1.64
115	375.7	315.1	185.7	2.10
116	380.7	310.1	180.6	2.38
117	385.7	315.1	174.2	2.41
118	390.7	310.1	169.0	2.19
119	395.7	315.1	173.9	1.73

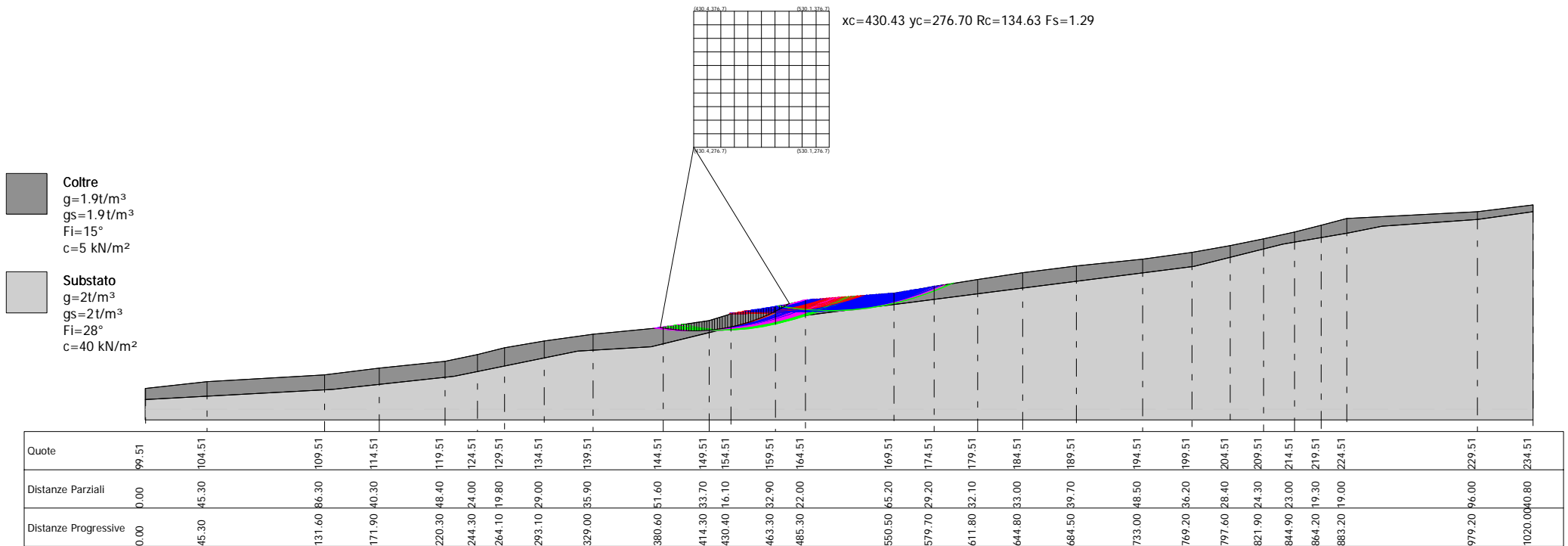
120	400.7	310.1	168.8	1.57
121	405.6	315.1	173.7	1.45
122	410.6	310.1	168.5	1.39
123	415.6	315.1	173.4	1.35
124	420.6	310.1	168.3	1.32
125	425.6	315.1	173.1	1.29
126	430.5	310.1	168.0	1.85
127	330.9	320.1	191.6	1.72
128	335.9	325.1	196.5	1.74
129	340.9	320.1	191.4	1.75
130	345.9	325.1	196.3	1.75
131	350.8	320.1	191.2	1.76
132	355.8	325.1	196.1	1.74
133	360.8	320.1	191.0	1.72
134	365.8	325.1	195.9	1.65
135	370.8	320.1	190.8	1.61
136	375.7	325.1	195.7	2.18
137	380.7	320.1	190.6	2.46
138	385.7	325.1	184.2	2.36
139	390.7	320.1	179.0	2.03
140	395.7	325.1	183.9	1.67
141	400.7	320.1	178.8	1.54
142	405.6	325.1	183.6	1.43
143	410.6	320.1	178.5	1.38
144	415.6	325.1	183.4	1.34
145	420.6	320.1	178.3	1.31
146	425.6	325.1	183.1	1.58
147	430.5	320.1	178.0	1.90
148	330.9	330.1	201.6	1.72
149	335.9	335.1	206.5	1.74
150	340.9	330.1	201.4	1.75
151	345.9	335.1	206.3	1.74
152	350.8	330.1	201.2	1.75
153	355.8	335.1	206.1	1.72
154	360.8	330.1	201.0	1.69
155	365.8	335.1	205.9	1.62
156	370.8	330.1	200.8	1.58
157	375.7	335.1	205.7	2.30
158	380.7	330.1	200.6	2.43
159	385.7	335.1	194.2	2.36
160	390.7	330.1	189.0	1.90
161	395.7	335.1	193.9	1.62
162	400.7	330.1	188.8	1.51
163	405.6	335.1	193.6	1.42
164	410.6	330.1	188.5	1.38
165	415.6	335.1	193.4	1.34
166	420.6	330.1	188.3	1.31
167	425.6	335.1	193.1	1.71
168	430.5	330.1	188.0	1.95
169	330.9	340.1	211.6	1.72
170	335.9	345.1	216.5	1.73
171	340.9	340.1	211.4	1.74
172	345.9	345.1	216.3	1.74
173	350.8	340.1	211.2	1.74
174	355.8	345.1	216.1	1.70
175	360.8	340.1	211.0	1.65
176	365.8	345.1	215.9	1.59
177	370.8	340.1	210.8	1.91
178	375.7	345.1	215.6	2.34

179	380.7	340.1	210.5	2.51
180	385.7	345.1	204.1	2.17
181	390.7	340.1	199.0	1.81
182	395.7	345.1	203.9	1.58
183	400.7	340.1	198.8	1.49
184	405.6	345.1	203.6	1.41
185	410.6	340.1	198.5	1.37
186	415.6	345.1	203.4	1.33
187	420.6	340.1	198.2	1.30
188	425.6	345.1	203.1	1.73
189	430.5	340.1	198.0	1.99
190	330.9	350.1	221.6	1.72
191	335.9	355.1	226.5	1.73
192	340.9	350.1	221.4	1.73
193	345.9	355.1	226.3	1.73
194	350.8	350.1	221.2	1.72
195	355.8	355.1	226.1	1.66
196	360.8	350.1	221.0	1.63
197	365.8	355.1	225.8	1.57
198	370.8	350.1	220.7	2.04
199	375.7	355.1	225.6	2.36
200	380.7	350.1	209.3	2.52
201	385.7	355.1	214.1	2.02
202	390.7	350.1	209.0	1.74
203	395.7	355.1	213.9	1.55
204	400.7	350.1	208.8	1.47
205	405.6	355.1	213.6	1.41
206	410.6	350.1	208.5	1.37
207	415.6	355.1	213.4	1.32
208	420.6	350.1	208.2	1.29
209	425.6	355.1	213.1	1.86
210	430.5	350.1	208.0	2.05
211	330.9	360.1	231.6	1.72
212	340.9	360.1	231.4	1.73
213	350.8	360.1	231.2	1.70
214	360.8	360.1	230.9	1.60
215	370.8	360.1	230.7	2.14
216	380.7	360.1	230.5	2.57
217	390.7	360.1	219.0	1.68
218	400.7	360.1	218.7	1.46
219	410.6	360.1	218.5	1.36
220	420.6	360.1	218.2	1.40
221	430.5	360.1	218.0	2.04

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	3
6.Stratigrafia	3
7.Risultati analisi pendio [[A1+M1+R1]]	3
Indice	8

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 400 A 500 m
 IN CONDIZIONI SISMICHE



Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.155077/10.984918
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	430.43 m
Ordinata vertice sinistro inferiore yi	276.7 m
Ascissa vertice destro superiore xs	530.05 m
Ordinata vertice destro superiore ys	376.68 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.063
Coefficiente azione sismica verticale	0.031

Vertici profilo

Nr	X (m)	y (m)
1	27.2	99.51
2	72.5	104.51
3	158.8	109.51
4	199.1	114.51
5	247.5	119.51
6	271.5	124.51
7	291.3	129.51
8	320.3	134.51
9	356.2	139.51
10	407.8	144.51
11	441.5	149.51
12	457.6	154.51
13	490.5	159.51
14	512.5	164.51
15	577.7	169.51
16	606.9	174.51
17	639.0	179.51
18	672.0	184.51
19	711.7	189.51
20	760.2	194.51
21	796.4	199.51
22	824.8	204.51
23	849.1	209.51
24	872.1	214.51
25	891.4	219.51
26	910.4	224.51

27	1006.4	229.51
28	1047.2	234.51

Vertici strato1

N	X (m)	y (m)
1	27.2	91.51
2	164.87	98.82
3	254.11	108.66
4	344.79	127.14
5	398.95	130.22
6	471.04	147.83
7	529.88	155.31
8	579.79	161.65
9	651.88	170.81
10	744.65	182.59
11	798.08	189.32
12	863.53	205.44
13	911.31	213.89
14	936.44	218.7
15	1006.86	223.67
16	1047.2	229.51

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.9	1.9	Coltre
2	40		28	2	2	Substato

Risultati analisi pendio [[A1+M1+R1]]

Fs minimo individuato	1.29
Ascissa centro superficie	430.43 m
Ordinata centro superficie	276.7 m
Raggio superficie	134.63 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	430.4	276.7	134.6	1.29

2	435.4	281.7	139.5	2.02
3	440.4	276.7	134.4	2.19
4	445.4	281.7	139.2	2.29
5	450.4	276.7	134.1	2.42
6	455.3	281.7	139.0	2.51
7	460.3	276.7	122.2	2.23
8	465.3	281.7	127.0	1.75
9	470.3	276.7	121.9	1.60
10	475.3	281.7	126.7	1.54
11	480.2	276.7	121.6	1.52
12	485.2	281.7	126.4	1.55
13	490.2	276.7	121.3	1.57
14	495.2	281.7	126.1	1.62
15	500.2	276.7	120.9	1.67
16	505.1	281.7	125.8	1.74
17	510.1	276.7	120.6	1.80
18	515.1	281.7	125.5	1.88
19	520.1	276.7	120.3	1.96
20	525.1	281.7	125.2	2.04
21	530.1	276.7	120.0	2.10
22	430.4	286.7	144.6	1.59
23	435.4	291.7	149.5	2.06
24	440.4	286.7	144.4	2.17
25	445.4	291.7	149.2	2.29
26	450.4	286.7	144.1	2.42
27	455.3	291.7	149.0	2.52
28	460.3	286.7	132.2	2.09
29	465.3	291.7	137.0	1.70
30	470.3	286.7	131.9	1.58
31	475.3	291.7	136.7	1.54
32	480.2	286.7	131.6	1.54
33	485.2	291.7	136.4	1.56
34	490.2	286.7	131.2	1.59
35	495.2	291.7	136.1	1.64
36	500.2	286.7	130.9	1.68
37	505.1	291.7	135.8	1.75
38	510.1	286.7	130.6	1.81
39	515.1	291.7	135.5	1.88
40	520.1	286.7	130.3	1.96
41	525.1	291.7	135.2	2.02
42	530.1	286.7	130.0	2.06
43	430.4	296.7	154.6	1.74
44	435.4	301.7	159.5	2.04
45	440.4	296.7	154.4	2.21
46	445.4	301.7	159.2	2.33
47	450.4	296.7	154.1	2.42
48	455.3	301.7	147.3	2.48
49	460.3	296.7	142.2	1.96
50	465.3	301.7	147.0	1.66
51	470.3	296.7	141.9	1.58
52	475.3	301.7	146.7	1.55
53	480.2	296.7	141.5	1.55
54	485.2	301.7	146.4	1.58
55	490.2	296.7	141.2	1.60
56	495.2	301.7	146.1	1.65
57	500.2	296.7	140.9	1.70
58	505.1	301.7	145.8	1.76
59	510.1	296.7	140.6	1.82
60	515.1	301.7	145.5	1.88

61	520.1	296.7	140.3	1.95
62	525.1	301.7	145.1	2.00
63	530.1	296.7	140.0	2.03
64	430.4	306.7	164.6	1.86
65	435.4	311.7	169.5	2.08
66	440.4	306.7	164.3	2.21
67	445.4	311.7	169.2	2.38
68	450.4	306.7	164.1	2.48
69	455.3	311.7	157.3	2.30
70	460.3	306.7	152.2	1.85
71	465.3	311.7	157.0	1.64
72	470.3	306.7	151.8	1.58
73	475.3	311.7	156.7	1.56
74	480.2	306.7	151.5	1.56
75	485.2	311.7	156.4	1.59
76	490.2	306.7	151.2	1.62
77	495.2	311.7	156.1	1.67
78	500.2	306.7	150.9	1.71
79	505.1	311.7	155.8	1.77
80	510.1	306.7	150.6	1.82
81	515.1	311.7	155.4	1.89
82	520.1	306.7	150.3	1.95
83	525.1	311.7	155.1	1.97
84	530.1	306.7	150.0	2.00
85	430.4	316.7	174.6	1.90
86	435.4	321.7	179.5	2.08
87	440.4	316.7	174.3	2.25
88	445.4	321.7	179.2	2.39
89	450.4	316.7	174.1	2.53
90	455.3	321.7	167.3	2.13
91	460.3	316.7	162.1	1.78
92	465.3	321.7	167.0	1.63
93	470.3	316.7	161.8	1.58
94	475.3	321.7	166.7	1.57
95	480.2	316.7	161.5	1.58
96	485.2	321.7	166.4	1.61
97	490.2	316.7	161.2	1.63
98	495.2	321.7	166.1	1.68
99	500.2	316.7	160.9	1.72
100	505.1	321.7	165.7	1.78
101	510.1	316.7	160.6	1.83
102	515.1	321.7	165.4	1.89
103	520.1	316.7	160.3	1.94
104	525.1	321.7	165.1	1.95
105	530.1	316.7	160.0	1.97
106	430.4	326.7	184.6	1.89
107	435.4	331.7	189.5	2.17
108	440.4	326.7	184.3	2.30
109	445.4	331.7	189.2	2.40
110	450.4	326.7	184.1	2.57
111	455.3	331.7	177.3	1.98
112	460.3	326.7	172.1	1.73
113	465.3	331.7	177.0	1.62
114	470.3	326.7	171.8	1.58
115	475.3	331.7	176.7	1.58
116	480.2	326.7	171.5	1.59
117	485.2	331.7	176.4	1.62
118	490.2	326.7	171.2	1.65
119	495.2	331.7	176.0	1.69

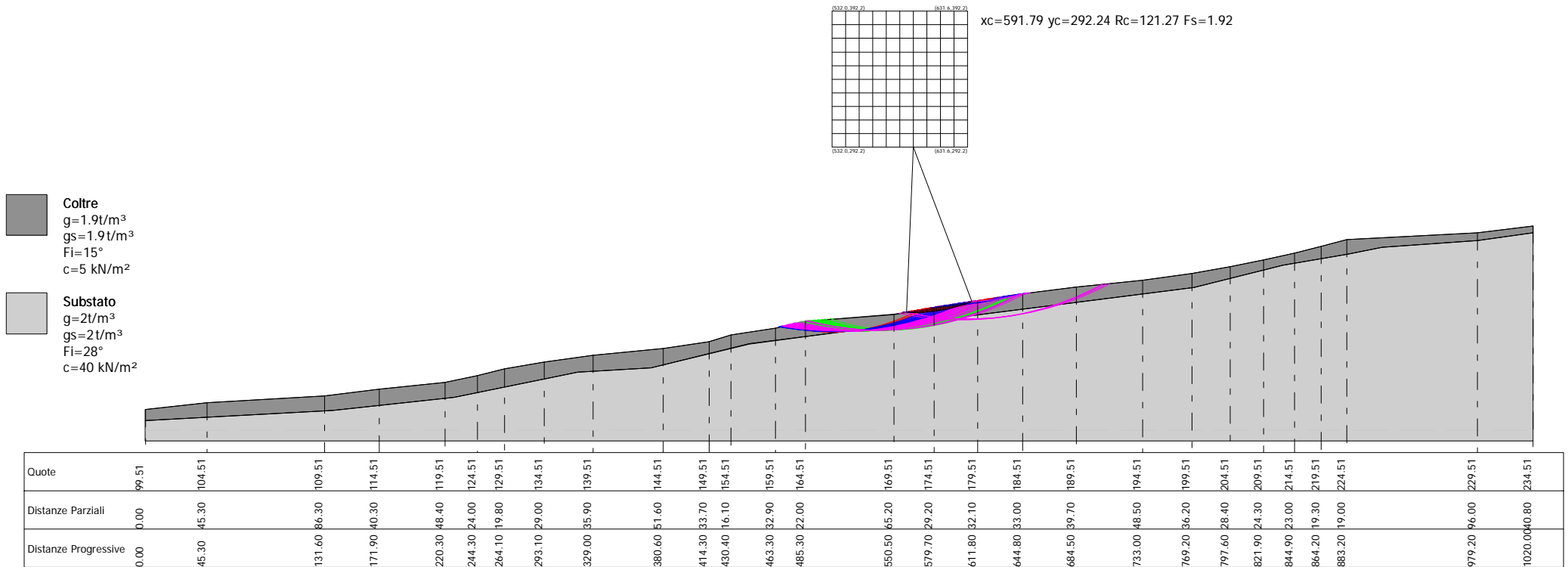
120	500.2	326.7	170.9	1.73
121	505.1	331.7	175.7	1.79
122	510.1	326.7	170.6	1.84
123	515.1	331.7	175.4	1.89
124	520.1	326.7	170.3	1.92
125	525.1	331.7	175.1	1.93
126	530.1	326.7	170.0	1.94
127	430.4	336.7	194.6	1.94
128	435.4	341.7	199.4	2.17
129	440.4	336.7	194.3	2.31
130	445.4	341.7	199.2	2.46
131	450.4	336.7	194.1	2.54
132	455.3	341.7	187.3	1.89
133	460.3	336.7	182.1	1.70
134	465.3	341.7	187.0	1.62
135	470.3	336.7	181.8	1.59
136	475.3	341.7	186.7	1.59
137	480.2	336.7	181.5	1.60
138	485.2	341.7	186.3	1.63
139	490.2	336.7	181.2	1.66
140	495.2	341.7	186.0	1.71
141	500.2	336.7	180.9	1.74
142	505.1	341.7	185.7	1.80
143	510.1	336.7	180.6	1.84
144	515.1	341.7	185.4	1.88
145	520.1	336.7	180.3	1.91
146	525.1	341.7	185.1	1.91
147	530.1	336.7	180.0	2.16
148	430.4	346.7	204.6	2.05
149	435.4	351.7	209.4	2.18
150	440.4	346.7	204.3	2.32
151	445.4	351.7	209.2	2.47
152	450.4	346.7	192.4	2.41
153	455.3	351.7	197.3	1.82
154	460.3	346.7	192.1	1.68
155	465.3	351.7	197.0	1.62
156	470.3	346.7	191.8	1.59
157	475.3	351.7	196.6	1.60
158	480.2	346.7	191.5	1.61
159	485.2	351.7	196.3	1.65
160	490.2	346.7	191.2	1.67
161	495.2	351.7	196.0	1.72
162	500.2	346.7	190.9	1.75
163	505.1	351.7	195.7	1.80
164	510.1	346.7	190.6	1.85
165	515.1	351.7	195.4	1.88
166	520.1	346.7	190.3	1.90
167	525.1	351.7	195.1	1.88
168	530.1	346.7	189.9	2.29
169	430.4	356.7	214.6	2.05
170	435.4	361.7	219.4	2.23
171	440.4	356.7	214.3	2.32
172	445.4	361.7	219.2	2.51
173	450.4	356.7	202.4	2.19
174	455.3	361.7	207.3	1.78
175	460.3	356.7	202.1	1.67
176	465.3	361.7	207.0	1.62
177	470.3	356.7	201.8	1.60
178	475.3	361.7	206.6	1.61

179	480.2	356.7	201.5	1.63
180	485.2	361.7	206.3	1.66
181	490.2	356.7	201.2	1.69
182	495.2	361.7	206.0	1.73
183	500.2	356.7	200.9	1.76
184	505.1	361.7	205.7	1.81
185	510.1	356.7	200.6	1.85
186	515.1	361.7	205.4	1.87
187	520.1	356.7	200.2	1.88
188	525.1	361.7	205.1	1.86
189	530.1	356.7	199.9	2.42
190	430.4	366.7	224.6	2.12
191	435.4	371.7	229.4	2.29
192	440.4	366.7	224.3	2.43
193	445.4	371.7	229.2	2.54
194	450.4	366.7	212.4	2.05
195	455.3	371.7	217.3	1.75
196	460.3	366.7	212.1	1.66
197	465.3	371.7	216.9	1.62
198	470.3	366.7	211.8	1.61
199	475.3	371.7	216.6	1.62
200	480.2	366.7	211.5	1.64
201	485.2	371.7	216.3	1.67
202	490.2	366.7	211.2	1.70
203	495.2	371.7	216.0	1.74
204	500.2	366.7	210.9	1.77
205	505.1	371.7	215.7	1.82
206	510.1	366.7	210.5	1.85
207	515.1	371.7	215.4	1.86
208	520.1	366.7	210.2	1.86
209	525.1	371.7	215.1	1.84
210	530.1	366.7	209.9	2.47
211	430.4	376.7	234.5	2.15
212	440.4	376.7	234.3	2.44
213	450.4	376.7	222.4	1.95
214	460.3	376.7	222.1	1.66
215	470.3	376.7	221.8	1.62
216	480.2	376.7	221.5	1.65
217	490.2	376.7	221.2	1.71
218	500.2	376.7	220.8	1.78
219	510.1	376.7	220.5	1.84
220	520.1	376.7	220.2	1.85
221	530.1	376.7	219.9	2.51

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	3
6.Stratigrafia	3
7.Risultati analisi pendio [[A1+M1+R1]]	3
Indice	8

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 500 A 600 m
 IN CONDIZIONI SISMICHE



Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.155077/10.984918
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	532.02 m
Ordinata vertice sinistro inferiore yi	292.24 m
Ascissa vertice destro superiore xs	631.64 m
Ordinata vertice destro superiore ys	392.23 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.063
Coefficiente azione sismica verticale	0.031

Vertici profilo

Nr	X (m)	y (m)
1	27.2	99.51
2	72.5	104.51
3	158.8	109.51
4	199.1	114.51
5	247.5	119.51
6	271.5	124.51
7	291.3	129.51
8	320.3	134.51
9	356.2	139.51
10	407.8	144.51
11	441.5	149.51
12	457.6	154.51
13	490.5	159.51
14	512.5	164.51
15	577.7	169.51
16	606.9	174.51
17	639.0	179.51
18	672.0	184.51
19	711.7	189.51
20	760.2	194.51
21	796.4	199.51
22	824.8	204.51
23	849.1	209.51
24	872.1	214.51
25	891.4	219.51
26	910.4	224.51

27	1006.4	229.51
28	1047.2	234.51

Vertici strato1

N	X (m)	y (m)
1	27.2	91.51
2	164.87	98.82
3	254.11	108.66
4	344.79	127.14
5	398.95	130.22
6	471.04	147.83
7	529.88	155.31
8	579.79	161.65
9	651.88	170.81
10	744.65	182.59
11	798.08	189.32
12	863.53	205.44
13	911.31	213.89
14	936.44	218.7
15	1006.86	223.67
16	1047.2	229.51

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.9	1.9	Coltre
2	40		28	2	2	Substato

Risultati analisi pendio [[A1+M1+R1]]

Fs minimo individuato	1.92
Ascissa centro superficie	591.79 m
Ordinata centro superficie	292.24 m
Raggio superficie	121.27 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	532.0	292.2	135.5	2.05

2	537.0	297.2	140.3	2.88
3	542.0	292.2	135.2	3.19
4	547.0	297.2	140.0	3.37
5	551.9	292.2	134.9	3.44
6	556.9	297.2	139.7	3.42
7	561.9	292.2	134.6	3.38
8	566.9	297.2	139.4	3.36
9	571.9	292.2	134.2	3.32
10	576.8	297.2	139.1	3.26
11	581.8	292.2	121.6	2.51
12	586.8	297.2	126.4	2.09
13	591.8	292.2	121.3	1.92
14	596.8	297.2	125.3	1.97
15	601.8	292.2	119.6	1.99
16	606.7	297.2	123.6	2.05
17	611.7	292.2	117.9	2.08
18	616.7	297.2	121.9	2.14
19	621.7	292.2	116.1	2.17
20	626.7	297.2	120.2	2.25
21	631.6	292.2	114.4	2.28
22	532.0	302.2	145.5	2.01
23	537.0	307.2	150.3	2.98
24	542.0	302.2	145.2	3.11
25	547.0	307.2	150.0	3.30
26	551.9	302.2	144.9	3.37
27	556.9	307.2	149.7	3.37
28	561.9	302.2	144.5	3.40
29	566.9	307.2	149.4	3.32
30	571.9	302.2	144.2	3.29
31	576.8	307.2	136.8	3.14
32	581.8	302.2	131.6	2.40
33	586.8	307.2	136.4	2.05
34	591.8	302.2	131.1	1.95
35	596.8	307.2	135.1	2.00
36	601.8	302.2	129.3	2.03
37	606.7	307.2	133.4	2.09
38	611.7	302.2	127.6	2.12
39	616.7	307.2	131.7	2.19
40	621.7	302.2	125.9	2.22
41	626.7	307.2	130.0	2.30
42	631.6	302.2	124.2	2.34
43	532.0	312.2	155.5	2.32
44	537.0	317.2	160.3	2.92
45	542.0	312.2	155.2	3.20
46	547.0	317.2	160.0	3.23
47	551.9	312.2	154.8	3.31
48	556.9	317.2	159.7	3.32
49	561.9	312.2	154.5	3.36
50	566.9	317.2	159.4	3.29
51	571.9	312.2	154.2	3.32
52	576.8	317.2	146.8	2.91
53	581.8	312.2	141.6	2.32
54	586.8	317.2	146.4	2.01
55	591.8	312.2	140.8	1.98
56	596.8	317.2	144.9	2.03
57	601.8	312.2	139.1	2.06
58	606.7	317.2	143.2	2.13
59	611.7	312.2	137.4	2.16
60	616.7	317.2	141.5	2.23

61	621.7	312.2	135.7	2.26
62	626.7	317.2	139.8	2.36
63	631.6	312.2	134.0	2.40
64	532.0	322.2	165.5	2.45
65	537.0	327.2	170.3	2.95
66	542.0	322.2	165.1	3.14
67	547.0	327.2	170.0	3.18
68	551.9	322.2	164.8	3.26
69	556.9	327.2	169.7	3.28
70	561.9	322.2	164.5	3.32
71	566.9	327.2	169.4	3.26
72	571.9	322.2	164.2	3.29
73	576.8	327.2	156.8	2.73
74	581.8	322.2	151.6	2.25
75	586.8	327.2	156.4	1.99
76	591.8	322.2	150.6	2.01
77	596.8	327.2	154.7	2.07
78	601.8	322.2	148.9	2.10
79	606.7	327.2	153.0	2.17
80	611.7	322.2	147.2	2.20
81	616.7	327.2	151.2	2.28
82	621.7	322.2	145.5	2.32
83	626.7	327.2	149.5	2.43
84	631.6	322.2	143.8	2.47
85	532.0	332.2	175.4	2.49
86	537.0	337.2	180.3	2.90
87	542.0	332.2	175.1	3.08
88	547.0	337.2	180.0	3.20
89	551.9	332.2	174.8	3.28
90	556.9	337.2	179.7	3.24
91	561.9	332.2	174.5	3.29
92	566.9	337.2	179.4	3.23
93	571.9	332.2	174.2	3.26
94	576.8	337.2	166.8	2.59
95	581.8	332.2	161.6	2.18
96	586.8	337.2	166.2	2.02
97	591.8	332.2	160.4	2.04
98	596.8	337.2	164.4	2.11
99	601.8	332.2	158.7	2.14
100	606.7	337.2	162.7	2.22
101	611.7	332.2	157.0	2.25
102	616.7	337.2	161.0	2.34
103	621.7	332.2	155.3	2.38
104	626.7	337.2	159.3	2.50
105	631.6	332.2	153.6	2.55
106	532.0	342.2	185.4	2.62
107	537.0	347.2	190.3	2.88
108	542.0	342.2	185.1	3.11
109	547.0	347.2	190.0	3.16
110	551.9	342.2	184.8	3.24
111	556.9	347.2	189.7	3.27
112	561.9	342.2	184.5	3.26
113	566.9	347.2	189.3	3.21
114	571.9	342.2	184.2	3.24
115	576.8	347.2	176.8	2.48
116	581.8	342.2	171.6	2.13
117	586.8	347.2	175.9	2.06
118	591.8	342.2	170.2	2.08
119	596.8	347.2	174.2	2.15

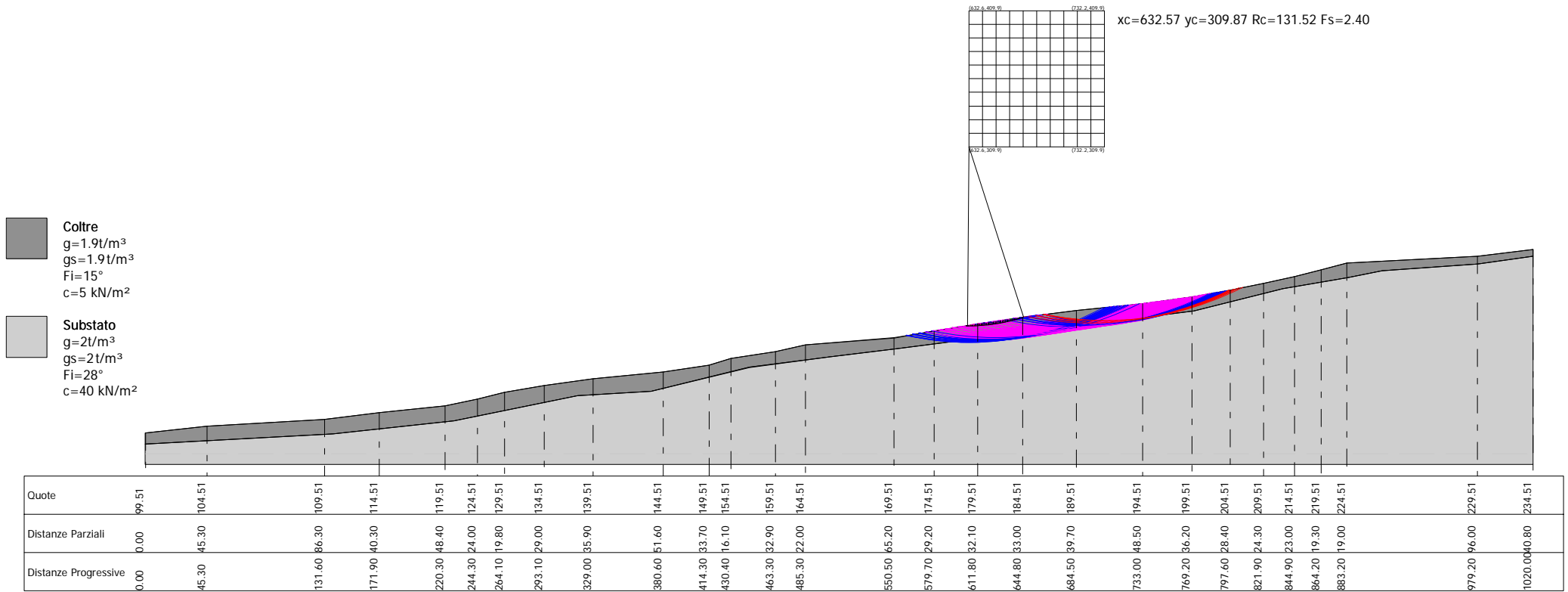
120	601.8	342.2	168.5	2.19
121	606.7	347.2	172.5	2.28
122	611.7	342.2	166.8	2.31
123	616.7	347.2	170.8	2.41
124	621.7	342.2	165.1	2.45
125	626.7	347.2	169.1	2.59
126	631.6	342.2	163.4	2.65
127	532.0	352.2	195.4	2.58
128	537.0	357.2	200.3	2.96
129	542.0	352.2	195.1	3.06
130	547.0	357.2	200.0	3.11
131	551.9	352.2	194.8	3.20
132	556.9	357.2	199.6	3.23
133	561.9	352.2	194.5	3.23
134	566.9	357.2	199.3	3.19
135	571.9	352.2	194.2	3.22
136	576.8	357.2	186.7	2.39
137	581.8	352.2	181.6	2.08
138	586.8	357.2	185.7	2.09
139	591.8	352.2	180.0	2.12
140	596.8	357.2	184.0	2.20
141	601.8	352.2	178.3	2.24
142	606.7	357.2	182.3	2.33
143	611.7	352.2	176.6	2.37
144	616.7	357.2	180.6	2.49
145	621.7	352.2	174.9	2.54
146	626.7	357.2	178.9	2.68
147	631.6	352.2	173.1	2.76
148	532.0	362.2	205.4	2.62
149	537.0	367.2	210.3	2.92
150	542.0	362.2	205.1	3.02
151	547.0	367.2	209.9	3.07
152	551.9	362.2	204.8	3.15
153	556.9	367.2	209.6	3.20
154	561.9	362.2	204.5	3.20
155	566.9	367.2	209.3	3.16
156	571.9	362.2	191.9	3.05
157	576.8	367.2	196.7	2.31
158	581.8	362.2	191.5	2.07
159	586.8	367.2	195.5	2.14
160	591.8	362.2	189.8	2.17
161	596.8	367.2	193.8	2.26
162	601.8	362.2	188.1	2.30
163	606.7	367.2	192.1	2.40
164	611.7	362.2	186.3	2.44
165	616.7	367.2	190.4	2.57
166	621.7	362.2	184.6	2.63
167	626.7	367.2	188.7	2.80
168	631.6	362.2	182.9	2.89
169	532.0	372.2	215.4	2.66
170	537.0	377.2	220.2	2.88
171	542.0	372.2	215.1	3.05
172	547.0	377.2	219.9	3.11
173	551.9	372.2	214.8	3.12
174	556.9	377.2	219.6	3.17
175	561.9	372.2	214.5	3.23
176	566.9	377.2	219.3	3.15
177	571.9	372.2	201.9	2.85
178	576.8	377.2	206.7	2.24

179	581.8	372.2	201.3	2.11
180	586.8	377.2	205.3	2.19
181	591.8	372.2	199.5	2.22
182	596.8	377.2	203.6	2.32
183	601.8	372.2	197.8	2.36
184	606.7	377.2	201.9	2.47
185	611.7	372.2	196.1	2.52
186	616.7	377.2	200.2	2.67
187	621.7	372.2	194.4	2.73
188	626.7	377.2	198.5	2.94
189	631.6	372.2	206.3	3.01
190	532.0	382.2	225.4	2.70
191	537.0	387.2	230.2	2.92
192	542.0	382.2	225.1	3.02
193	547.0	387.2	229.9	3.13
194	551.9	382.2	224.8	3.16
195	556.9	387.2	229.6	3.14
196	561.9	382.2	224.5	3.20
197	566.9	387.2	229.3	3.13
198	571.9	382.2	211.9	2.70
199	576.8	387.2	216.7	2.18
200	581.8	382.2	211.0	2.16
201	586.8	387.2	215.1	2.24
202	591.8	382.2	209.3	2.28
203	596.8	387.2	213.4	2.38
204	601.8	382.2	207.6	2.43
205	606.7	387.2	211.7	2.56
206	611.7	382.2	205.9	2.61
207	616.7	387.2	210.0	2.79
208	621.7	382.2	204.2	2.85
209	626.7	387.2	221.7	2.98
210	631.6	382.2	216.1	3.01
211	532.0	392.2	235.4	2.67
212	542.0	392.2	235.1	2.98
213	551.9	392.2	234.8	3.13
214	561.9	392.2	234.5	3.18
215	571.9	392.2	221.9	2.57
216	581.8	392.2	220.8	2.21
217	591.8	392.2	219.1	2.34
218	601.8	392.2	217.4	2.51
219	611.7	392.2	215.7	2.72
220	621.7	392.2	214.0	3.00
221	631.6	392.2	225.9	3.02

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	3
6.Stratigrafia	3
7.Risultati analisi pendio [[A1+M1+R1]]	3
Indice	8

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 600 A 700 m
 IN CONDIZIONI SISMICHE



Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.155077/10.984918
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	632.57 m
Ordinata vertice sinistro inferiore yi	309.87 m
Ascissa vertice destro superiore xs	732.19 m
Ordinata vertice destro superiore ys	409.85 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.063
Coefficiente azione sismica verticale	0.031

Vertici profilo

Nr	X (m)	y (m)
1	27.2	99.51
2	72.5	104.51
3	158.8	109.51
4	199.1	114.51
5	247.5	119.51
6	271.5	124.51
7	291.3	129.51
8	320.3	134.51
9	356.2	139.51
10	407.8	144.51
11	441.5	149.51
12	457.6	154.51
13	490.5	159.51
14	512.5	164.51
15	577.7	169.51
16	606.9	174.51
17	639.0	179.51
18	672.0	184.51
19	711.7	189.51
20	760.2	194.51
21	796.4	199.51
22	824.8	204.51
23	849.1	209.51
24	872.1	214.51
25	891.4	219.51
26	910.4	224.51

27	1006.4	229.51
28	1047.2	234.51

Vertici strato1

N	X (m)	y (m)
1	27.2	91.51
2	164.87	98.82
3	254.11	108.66
4	344.79	127.14
5	398.95	130.22
6	471.04	147.83
7	529.88	155.31
8	579.79	161.65
9	651.88	170.81
10	744.65	182.59
11	798.08	189.32
12	863.53	205.44
13	911.31	213.89
14	936.44	218.7
15	1006.86	223.67
16	1047.2	229.51

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.9	1.9	Coltre
2	40		28	2	2	Substato

Risultati analisi pendio [[A1+M1+R1]]

Fs minimo individuato	2.4
Ascissa centro superficie	632.57 m
Ordinata centro superficie	309.87 m
Raggio superficie	131.52 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	632.6	309.9	131.5	2.40

2	637.5	314.9	135.6	2.52
3	642.5	309.9	129.8	2.60
4	647.5	314.9	133.9	2.83
5	652.5	309.9	128.1	3.00
6	657.5	314.9	146.2	3.18
7	662.5	309.9	140.5	3.22
8	667.4	314.9	144.7	3.27
9	672.4	309.9	139.1	3.32
10	677.4	314.9	143.3	3.30
11	682.4	309.9	137.6	3.36
12	687.4	314.9	141.8	3.35
13	692.3	309.9	136.1	3.40
14	697.3	314.9	140.3	3.37
15	702.3	309.9	134.7	3.42
16	707.3	314.9	138.9	3.43
17	712.3	309.9	133.2	3.47
18	717.2	314.9	137.4	3.40
19	722.2	309.9	131.8	3.40
20	727.2	314.9	135.9	3.33
21	732.2	309.9	130.3	3.33
22	632.6	319.9	141.3	2.47
23	637.5	324.9	145.3	2.62
24	642.5	319.9	139.6	2.71
25	647.5	324.9	143.6	2.99
26	652.5	319.9	151.8	3.19
27	657.5	324.9	156.0	3.18
28	662.5	319.9	150.4	3.22
29	667.4	324.9	154.5	3.26
30	672.4	319.9	148.9	3.31
31	677.4	324.9	153.1	3.25
32	682.4	319.9	147.4	3.30
33	687.4	324.9	151.6	3.34
34	692.3	319.9	146.0	3.39
35	697.3	324.9	150.1	3.36
36	702.3	319.9	144.5	3.40
37	707.3	324.9	148.7	3.41
38	712.3	319.9	143.0	3.38
39	717.2	324.9	147.2	3.31
40	722.2	319.9	141.6	3.32
41	727.2	324.9	145.7	3.30
42	732.2	319.9	140.0	3.24
43	632.6	329.9	151.1	2.55
44	637.5	334.9	155.1	2.73
45	642.5	329.9	149.4	2.84
46	647.5	334.9	167.3	3.15
47	652.5	329.9	161.6	3.19
48	657.5	334.9	165.8	3.13
49	662.5	329.9	160.2	3.22
50	667.4	334.9	164.3	3.21
51	672.4	329.9	158.7	3.26
52	677.4	334.9	162.9	3.25
53	682.4	329.9	157.2	3.30
54	687.4	334.9	161.4	3.34
55	692.3	329.9	155.8	3.38
56	697.3	334.9	160.0	3.35
57	702.3	329.9	154.3	3.38
58	707.3	334.9	158.5	3.34
59	712.3	329.9	152.9	3.36
60	717.2	334.9	157.0	3.29

61	722.2	329.9	151.4	3.30
62	727.2	334.9	155.5	3.21
63	732.2	329.9	149.8	3.21
64	632.6	339.9	160.9	2.64
65	637.5	344.9	164.9	2.86
66	642.5	339.9	159.2	2.99
67	647.5	344.9	177.1	3.11
68	652.5	339.9	171.4	3.09
69	657.5	344.9	175.6	3.13
70	662.5	339.9	170.0	3.17
71	667.4	344.9	174.2	3.22
72	672.4	339.9	168.5	3.20
73	677.4	344.9	172.7	3.25
74	682.4	339.9	167.1	3.29
75	687.4	344.9	171.2	3.33
76	692.3	339.9	165.6	3.31
77	697.3	344.9	169.8	3.28
78	702.3	339.9	164.1	3.31
79	707.3	344.9	168.3	3.32
80	712.3	339.9	162.7	3.26
81	717.2	344.9	166.8	3.27
82	722.2	339.9	161.2	3.21
83	727.2	344.9	165.2	3.19
84	732.2	339.9	159.5	3.06
85	632.6	349.9	170.7	2.76
86	637.5	354.9	174.7	3.02
87	642.5	349.9	182.7	3.07
88	647.5	354.9	186.9	3.11
89	652.5	349.9	181.3	3.13
90	657.5	354.9	185.4	3.14
91	662.5	349.9	179.8	3.18
92	667.4	354.9	184.0	3.16
93	672.4	349.9	178.3	3.20
94	677.4	354.9	182.5	3.25
95	682.4	349.9	176.9	3.27
96	687.4	354.9	181.1	3.27
97	692.3	349.9	175.4	3.30
98	697.3	354.9	179.6	3.27
99	702.3	349.9	173.9	3.30
100	707.3	354.9	178.1	3.26
101	712.3	349.9	172.5	3.26
102	717.2	354.9	176.7	3.17
103	722.2	349.9	171.0	3.20
104	727.2	354.9	175.0	3.05
105	732.2	349.9	169.2	3.04
106	632.6	359.9	180.5	2.89
107	637.5	364.9	198.2	3.04
108	642.5	359.9	192.5	3.07
109	647.5	364.9	196.7	3.06
110	652.5	359.9	191.1	3.11
111	657.5	364.9	195.3	3.14
112	662.5	359.9	189.6	3.18
113	667.4	364.9	193.8	3.17
114	672.4	359.9	188.2	3.21
115	677.4	364.9	192.3	3.25
116	682.4	359.9	186.7	3.28
117	687.4	364.9	190.9	3.21
118	692.3	359.9	185.2	3.24
119	697.3	364.9	189.4	3.26

120	702.3	359.9	183.8	3.28
121	707.3	364.9	187.9	3.20
122	712.3	359.9	182.3	3.19
123	717.2	364.9	186.5	3.17
124	722.2	359.9	180.7	3.11
125	727.2	364.9	184.7	3.03
126	732.2	359.9	178.9	2.89
127	632.6	369.9	203.8	3.01
128	637.5	374.9	208.0	3.05
129	642.5	369.9	202.4	3.08
130	647.5	374.9	206.5	3.09
131	652.5	369.9	200.9	3.13
132	657.5	374.9	205.1	3.15
133	662.5	369.9	199.4	3.13
134	667.4	374.9	203.6	3.17
135	672.4	369.9	198.0	3.21
136	677.4	374.9	202.1	3.25
137	682.4	369.9	196.5	3.17
138	687.4	374.9	200.7	3.20
139	692.3	369.9	195.0	3.23
140	697.3	374.9	199.2	3.25
141	702.3	369.9	193.6	3.21
142	707.3	374.9	197.8	3.15
143	712.3	369.9	192.1	3.17
144	717.2	374.9	196.2	3.04
145	722.2	369.9	190.4	3.04
146	727.2	374.9	194.4	2.88
147	732.2	369.9	188.7	2.81
148	632.6	379.9	213.6	3.02
149	637.5	384.9	217.8	3.05
150	642.5	379.9	212.2	3.04
151	647.5	384.9	216.4	3.06
152	652.5	379.9	210.7	3.11
153	657.5	384.9	214.9	3.10
154	662.5	379.9	209.2	3.13
155	667.4	384.9	213.4	3.18
156	672.4	379.9	207.8	3.22
157	677.4	384.9	212.0	3.20
158	682.4	379.9	206.3	3.17
159	687.4	384.9	210.5	3.20
160	692.3	379.9	204.9	3.23
161	697.3	384.9	209.0	3.18
162	702.3	379.9	203.4	3.14
163	707.3	384.9	207.6	3.15
164	712.3	379.9	201.9	3.16
165	717.2	384.9	205.9	3.03
166	722.2	379.9	200.2	2.96
167	727.2	384.9	204.1	2.81
168	732.2	379.9	198.4	2.72
169	632.6	389.9	223.5	3.02
170	637.5	394.9	227.6	3.06
171	642.5	389.9	222.0	3.04
172	647.5	394.9	226.2	3.08
173	652.5	389.9	220.5	3.12
174	657.5	394.9	224.7	3.11
175	662.5	389.9	219.1	3.14
176	667.4	394.9	223.2	3.13
177	672.4	389.9	217.6	3.17
178	677.4	394.9	221.8	3.13

179	682.4	389.9	216.1	3.17
180	687.4	394.9	220.3	3.20
181	692.3	389.9	214.7	3.22
182	697.3	394.9	218.9	3.12
183	702.3	389.9	213.2	3.16
184	707.3	394.9	217.4	3.14
185	712.3	389.9	211.7	3.09
186	717.2	394.9	215.6	2.96
187	722.2	389.9	209.9	2.88
188	727.2	394.9	213.9	2.72
189	732.2	389.9	208.1	2.64
190	632.6	399.9	233.3	3.03
191	637.5	404.9	237.4	3.02
192	642.5	399.9	231.8	3.06
193	647.5	404.9	236.0	3.09
194	652.5	399.9	230.3	3.13
195	657.5	404.9	234.5	3.11
196	662.5	399.9	228.9	3.15
197	667.4	404.9	233.1	3.14
198	672.4	399.9	227.4	3.11
199	677.4	404.9	231.6	3.14
200	682.4	399.9	226.0	3.17
201	687.4	404.9	230.1	3.19
202	692.3	399.9	224.5	3.10
203	697.3	404.9	228.7	3.11
204	702.3	399.9	223.0	3.11
205	707.3	404.9	227.2	3.01
206	712.3	399.9	221.4	3.03
207	717.2	404.9	225.4	2.88
208	722.2	399.9	219.6	2.81
209	727.2	404.9	223.6	2.65
210	732.2	399.9	217.9	2.50
211	632.6	409.9	243.1	3.04
212	642.5	409.9	241.6	3.03
213	652.5	409.9	240.2	3.08
214	662.5	409.9	238.7	3.10
215	672.4	409.9	237.2	3.11
216	682.4	409.9	235.8	3.17
217	692.3	409.9	234.3	3.09
218	702.3	409.9	232.8	3.12
219	712.3	409.9	231.1	2.95
220	722.2	409.9	229.4	2.73
221	732.2	409.9	227.6	2.42

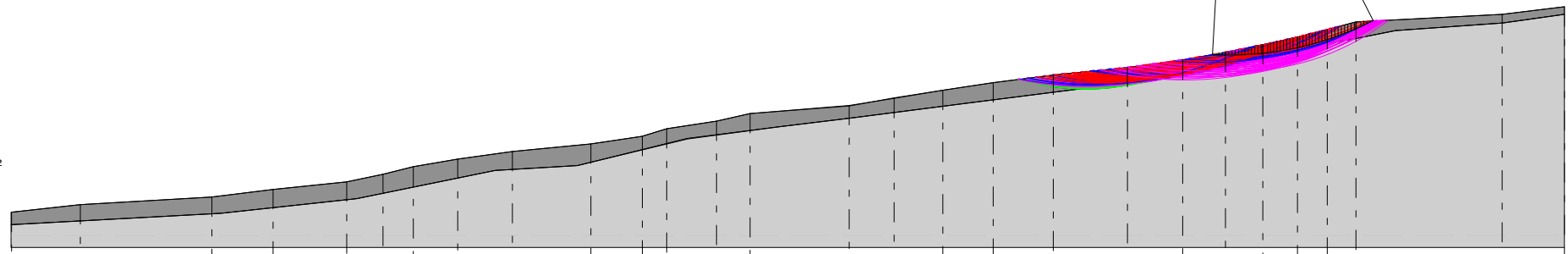
Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	3
6.Stratigrafia	3
7.Risultati analisi pendio [[A1+M1+R1]]	3
Indice	8

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 700 A 800 m
 IN CONDIZIONI SISMICHE

- Coltre**
 $g=1.9t/m^3$
 $gs=1.9t/m^3$
 $Fi=15^\circ$
 $c=5\text{ kN}/m^2$

- Substato**
 $g=2t/m^3$
 $gs=2t/m^3$
 $Fi=28^\circ$
 $c=40\text{ kN}/m^2$



Quote	99.51	104.51	109.51	114.51	119.51	124.51	129.51	134.51	139.51	144.51	149.51	154.51	159.51	164.51	169.51	174.51	179.51	184.51	189.51	194.51	199.51	204.51	209.51	214.51	219.51	224.51	229.51	234.51
Distanze Parziali	0.00	45.30	86.30	114.51	148.40	24.00	19.80	29.00	35.90	51.60	33.70	16.10	32.90	22.00	65.20	29.20	32.10	33.00	39.70	48.50	36.20	28.40	24.30	23.00	19.30	19.00	96.00	229.51
Distanze Progressive	0.00	45.30	131.60	171.90	220.30	244.30	264.10	293.10	329.00	380.60	414.30	430.40	463.30	485.30	550.50	579.70	611.80	644.80	684.50	733.00	769.20	797.60	821.90	844.90	864.20	883.20	979.20	1020.00

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.155077/10.984918
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	733.12 m
Ordinata vertice sinistro inferiore yi	326.45 m
Ascissa vertice destro superiore xs	832.73 m
Ordinata vertice destro superiore ys	426.44 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.063
Coefficiente azione sismica verticale	0.031

Vertici profilo

Nr	X (m)	y (m)
1	27.2	99.51
2	72.5	104.51
3	158.8	109.51
4	199.1	114.51
5	247.5	119.51
6	271.5	124.51
7	291.3	129.51
8	320.3	134.51
9	356.2	139.51
10	407.8	144.51
11	441.5	149.51
12	457.6	154.51
13	490.5	159.51
14	512.5	164.51
15	577.7	169.51
16	606.9	174.51
17	639.0	179.51
18	672.0	184.51
19	711.7	189.51
20	760.2	194.51
21	796.4	199.51
22	824.8	204.51
23	849.1	209.51
24	872.1	214.51
25	891.4	219.51
26	910.4	224.51

27	1006.4	229.51
28	1047.2	234.51

Vertici strato1

N	X (m)	y (m)
1	27.2	91.51
2	164.87	98.82
3	254.11	108.66
4	344.79	127.14
5	398.95	130.22
6	471.04	147.83
7	529.88	155.31
8	579.79	161.65
9	651.88	170.81
10	744.65	182.59
11	798.08	189.32
12	863.53	205.44
13	911.31	213.89
14	936.44	218.7
15	1006.86	223.67
16	1047.2	229.51

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.9	1.9	Coltre
2	40		28	2	2	Substato

Risultati analisi pendio [[A1+M1+R1]]

Fs minimo individuato	1.14
Ascissa centro superficie	827.75 m
Ordinata centro superficie	411.44 m
Raggio superficie	208.74 m

Numero di superfici esaminate...(221)

N°	Xo	Yo	Ro	Fs
1	733.1	326.5	146.3	3.22

2	738.1	331.5	150.2	3.05
3	743.1	326.5	144.5	2.97
4	748.1	331.5	148.5	2.78
5	753.0	326.5	142.7	2.62
6	758.0	331.5	146.7	2.42
7	763.0	326.5	141.0	2.32
8	768.0	331.5	144.9	1.92
9	773.0	326.5	139.2	1.62
10	777.9	331.5	143.2	1.93
11	782.9	326.5	137.4	2.07
12	787.9	331.5	141.4	2.18
13	792.9	326.5	135.6	2.25
14	797.9	331.5	139.6	2.36
15	802.8	326.5	133.9	2.38
16	807.8	331.5	137.8	2.41
17	812.8	326.5	132.1	2.37
18	817.8	331.5	136.1	2.35
19	822.8	326.5	130.3	2.35
20	827.8	331.5	131.5	1.80
21	832.7	326.5	125.1	1.58
22	733.1	336.5	156.0	3.06
23	738.1	341.4	160.0	2.89
24	743.1	336.5	154.2	2.87
25	748.1	341.4	158.2	2.63
26	753.0	336.5	152.5	2.60
27	758.0	341.4	156.4	2.27
28	763.0	336.5	150.7	2.16
29	768.0	341.4	154.7	1.51
30	773.0	336.5	148.9	1.66
31	777.9	341.4	152.9	1.93
32	782.9	336.5	147.1	2.10
33	787.9	341.4	151.1	2.21
34	792.9	336.5	145.4	2.23
35	797.9	341.4	149.3	2.34
36	802.8	336.5	143.6	2.35
37	807.8	341.4	147.6	2.34
38	812.8	336.5	141.8	2.34
39	817.8	341.4	144.3	2.12
40	822.8	336.5	137.9	1.96
41	827.8	341.4	138.9	1.24
42	832.7	336.5	132.5	1.24
43	733.1	346.4	165.7	3.04
44	738.1	351.4	169.7	2.87
45	743.1	346.4	164.0	2.79
46	748.1	351.4	167.9	2.61
47	753.0	346.4	162.2	2.44
48	758.0	351.4	166.2	2.18
49	763.0	346.4	160.4	1.87
50	768.0	351.4	164.4	1.49
51	773.0	346.4	158.6	1.70
52	777.9	351.4	162.6	1.95
53	782.9	346.4	156.9	2.08
54	787.9	351.4	160.8	2.20
55	792.9	346.4	155.1	2.29
56	797.9	351.4	159.1	2.32
57	802.8	346.4	153.3	2.33
58	807.8	351.4	157.1	2.28
59	812.8	346.4	150.7	2.17
60	817.8	351.4	151.7	1.24

61	822.8	346.4	145.3	1.24
62	827.8	351.4	146.4	1.41
63	832.7	346.4	140.0	1.47
64	733.1	356.4	175.5	2.89
65	738.1	361.4	179.4	2.79
66	743.1	356.4	173.7	2.63
67	748.1	361.4	177.7	2.45
68	753.0	356.4	171.9	2.28
69	758.0	361.4	175.9	1.89
70	763.0	356.4	170.1	1.52
71	768.0	361.4	174.1	1.47
72	773.0	356.4	168.4	1.69
73	777.9	361.4	172.3	1.99
74	782.9	356.4	166.6	2.07
75	787.9	361.4	170.6	2.18
76	792.9	356.4	164.8	2.25
77	797.9	361.4	168.8	2.30
78	802.8	356.4	163.0	2.31
79	807.8	361.4	164.6	1.25
80	812.8	356.4	158.2	1.24
81	817.8	361.4	159.4	1.34
82	822.8	356.4	152.9	1.37
83	827.8	361.4	154.1	2.33
84	832.7	356.4	164.1	2.49
85	733.1	366.4	185.2	2.81
86	738.1	371.4	189.2	2.64
87	743.1	366.4	183.4	2.55
88	748.1	371.4	187.4	2.27
89	753.0	366.4	181.6	2.06
90	758.0	371.4	185.6	1.54
91	763.0	366.4	179.9	1.51
92	768.0	371.4	183.8	1.46
93	773.0	366.4	178.1	1.73
94	777.9	371.4	182.1	1.98
95	782.9	366.4	176.3	2.11
96	787.9	371.4	180.3	2.14
97	792.9	366.4	174.5	2.23
98	797.9	371.4	177.5	2.02
99	802.8	366.4	171.1	1.73
100	807.8	371.4	172.3	1.31
101	812.8	366.4	165.8	1.32
102	817.8	371.4	167.1	1.66
103	822.8	366.4	160.6	1.89
104	827.8	371.4	178.0	2.46
105	832.7	366.4	171.5	2.44
106	733.1	376.4	194.9	2.72
107	738.1	381.4	198.9	2.49
108	743.1	376.4	193.1	2.40
109	748.1	381.4	197.1	2.08
110	753.0	376.4	191.4	1.91
111	758.0	381.4	195.3	1.52
112	763.0	376.4	189.6	1.49
113	768.0	381.4	193.6	1.45
114	773.0	376.4	187.8	1.72
115	777.9	381.4	191.8	1.96
116	782.9	376.4	186.0	2.10
117	787.9	381.4	190.0	2.20
118	792.9	376.4	184.0	2.12
119	797.9	381.4	185.2	1.31

120	802.8	376.4	178.8	1.30
121	807.8	381.4	180.1	1.47
122	812.8	376.4	173.6	1.55
123	817.8	381.4	191.2	2.49
124	822.8	376.4	184.6	2.47
125	827.8	381.4	185.5	2.36
126	832.7	376.4	178.9	2.36
127	733.1	386.4	204.6	2.64
128	738.1	391.4	208.6	2.41
129	743.1	386.4	202.9	2.24
130	748.1	391.4	206.8	1.79
131	753.0	386.4	201.1	1.55
132	758.0	391.4	205.1	1.51
133	763.0	386.4	199.3	1.48
134	768.0	391.4	203.3	1.43
135	773.0	386.4	197.6	1.70
136	777.9	391.4	201.5	1.95
137	782.9	386.4	195.8	2.08
138	787.9	391.4	198.2	1.32
139	792.9	386.4	191.7	1.31
140	797.9	391.4	193.1	1.39
141	802.8	386.4	186.6	1.42
142	807.8	391.4	187.9	2.06
143	812.8	386.4	197.7	2.49
144	817.8	391.4	198.7	2.41
145	822.8	386.4	192.1	2.37
146	827.8	391.4	193.1	2.24
147	832.7	386.4	186.5	2.22
148	733.1	396.4	214.4	2.50
149	738.1	401.4	218.3	2.25
150	743.1	396.4	212.6	2.08
151	748.1	401.4	216.6	1.57
152	753.0	396.4	210.8	1.54
153	758.0	401.4	214.8	1.49
154	763.0	396.4	209.1	1.46
155	768.0	401.4	213.0	1.42
156	773.0	396.4	207.3	1.75
157	777.9	401.4	211.2	1.94
158	782.9	396.4	204.7	1.33
159	787.9	401.4	206.1	1.37
160	792.9	396.4	199.6	1.38
161	797.9	401.4	201.0	1.62
162	802.8	396.4	194.4	1.77
163	807.8	401.4	211.9	2.41
164	812.8	396.4	205.3	2.41
165	817.8	401.4	206.4	2.34
166	822.8	396.4	199.7	2.31
167	827.8	401.4	200.9	1.95
168	832.7	396.4	194.3	1.78
169	733.1	406.4	224.1	2.42
170	738.1	411.4	228.1	2.10
171	743.1	406.4	222.3	1.80
172	748.1	411.4	226.3	1.55
173	753.0	406.4	220.6	1.53
174	758.0	411.4	224.5	1.48
175	763.0	406.4	218.8	1.45
176	768.0	411.4	222.8	1.41
177	773.0	406.4	217.0	1.79
178	777.9	411.4	219.1	1.37

179	782.9	406.4	212.6	1.37
180	787.9	411.4	214.0	1.48
181	792.9	406.4	207.5	1.52
182	797.9	411.4	225.1	2.54
183	802.8	406.4	218.5	2.49
184	807.8	411.4	219.6	2.38
185	812.8	406.4	213.0	2.34
186	817.8	411.4	214.1	2.18
187	822.8	406.4	207.5	2.07
188	827.8	411.4	208.7	1.14
189	832.7	406.4	202.1	1.14
190	733.1	416.4	233.8	2.26
191	738.1	421.4	237.8	1.74
192	743.1	416.4	232.1	1.58
193	748.1	421.4	236.0	1.54
194	753.0	416.4	230.3	1.51
195	758.0	421.4	234.3	1.47
196	763.0	416.4	228.5	1.44
197	768.0	421.4	232.1	1.40
198	773.0	416.4	225.6	1.39
199	777.9	421.4	227.1	1.43
200	782.9	416.4	220.5	1.45
201	787.9	421.4	222.0	1.79
202	792.9	416.4	215.5	2.10
203	797.9	421.4	232.8	2.46
204	802.8	416.4	226.2	2.41
205	807.8	421.4	227.4	2.27
206	812.8	416.4	220.7	2.22
207	817.8	421.4	222.0	1.84
208	822.8	416.4	215.4	1.55
209	827.8	421.4	216.7	1.17
210	832.7	416.4	210.1	1.19
211	733.1	426.4	243.6	2.11
212	743.1	426.4	241.8	1.57
213	753.0	426.4	240.0	1.50
214	763.0	426.4	238.2	1.43
215	773.0	426.4	233.6	1.43
216	782.9	426.4	228.6	1.65
217	792.9	426.4	239.4	2.52
218	802.8	426.4	234.0	2.35
219	812.8	426.4	228.6	1.97
220	822.8	426.4	223.3	1.16
221	832.7	426.4	218.1	1.31

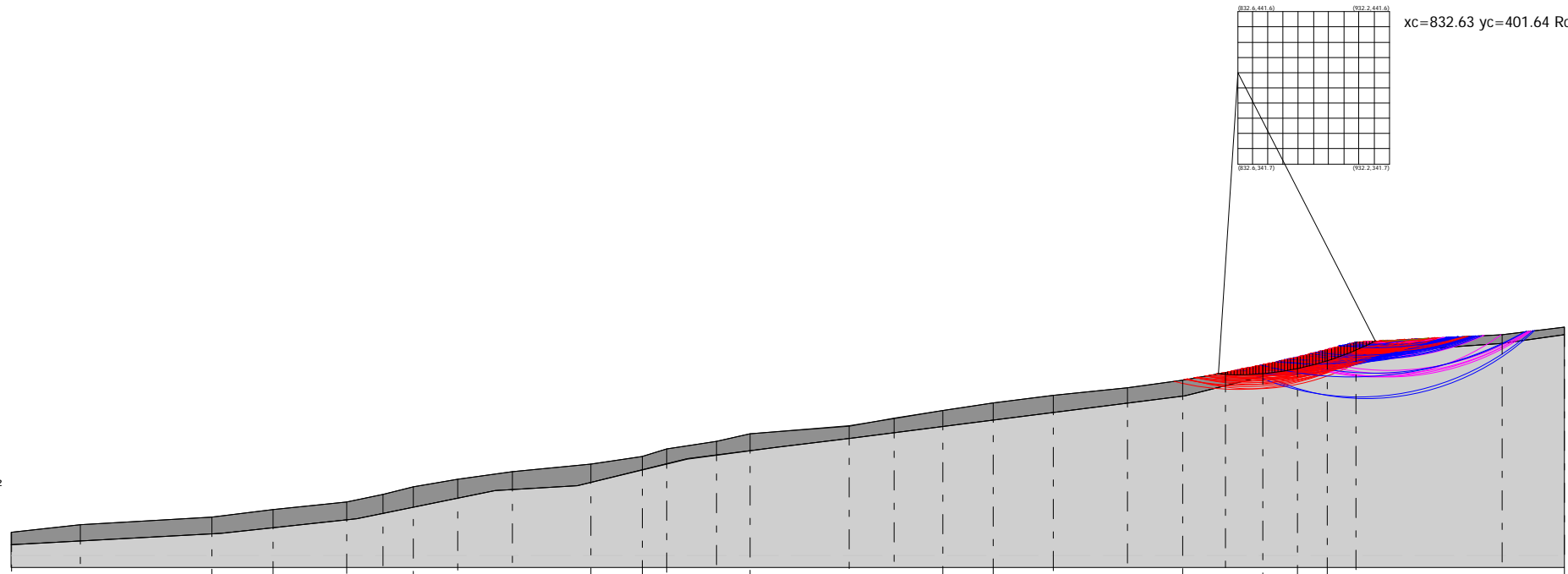
Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	3
6.Stratigrafia	3
7.Risultati analisi pendio [[A1+M1+R1]]	3
Indice	8

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 800 A 900 m
 IN CONDIZIONI SISMICHE

- Coltre**
 $g=1.9t/m^3$
 $gs=1.9t/m^3$
 $Fi=15^\circ$
 $c=5\text{ kN}/m^2$

- Substato**
 $g=2t/m^3$
 $gs=2t/m^3$
 $Fi=28^\circ$
 $c=40\text{ kN}/m^2$



Quote	99.51	104.51	109.51	114.51	119.51	124.51	129.51	134.51	139.51	144.51	149.51	154.51	159.51	164.51	169.51	174.51	179.51	184.51	189.51	194.51	199.51	204.51	209.51	214.51	219.51	224.51	229.51	234.51
Distanze Parziali	0.00	45.30	86.30	114.51	148.40	184.00	219.80	255.00	290.00	325.60	361.00	396.10	431.00	465.70	500.20	534.50	568.60	602.50	636.20	669.70	703.00	736.10	769.00	801.70	834.20	866.50	898.60	930.50
Distanze Progressive	0.00	45.30	131.60	171.90	220.30	244.30	264.10	293.10	329.00	380.60	414.30	430.40	463.30	485.30	550.50	579.70	611.80	644.80	684.50	733.00	769.20	797.60	821.90	844.90	864.20	883.20	979.20	1020.00

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.155077/10.984918
Calcolo eseguito secondo	NTC 2008 & Circ.
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	832.63 m
Ordinata vertice sinistro inferiore yi	341.65 m
Ascissa vertice destro superiore xs	932.25 m
Ordinata vertice destro superiore ys	441.64 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.063
Coefficiente azione sismica verticale	0.031

Vertici profilo

Nr	X (m)	y (m)
1	27.2	99.51
2	72.5	104.51
3	158.8	109.51
4	199.1	114.51
5	247.5	119.51
6	271.5	124.51
7	291.3	129.51
8	320.3	134.51
9	356.2	139.51
10	407.8	144.51
11	441.5	149.51
12	457.6	154.51
13	490.5	159.51
14	512.5	164.51
15	577.7	169.51
16	606.9	174.51
17	639.0	179.51
18	672.0	184.51
19	711.7	189.51
20	760.2	194.51
21	796.4	199.51
22	824.8	204.51
23	849.1	209.51
24	872.1	214.51
25	891.4	219.51
26	910.4	224.51

27	1006.4	229.51
28	1047.2	234.51

Vertici strato1

N	X (m)	y (m)
1	27.2	91.51
2	164.87	98.82
3	254.11	108.66
4	344.79	127.14
5	398.95	130.22
6	471.04	147.83
7	529.88	155.31
8	579.79	161.65
9	651.88	170.81
10	744.65	182.59
11	798.08	189.32
12	863.53	205.44
13	911.31	213.89
14	936.44	218.7
15	1006.86	223.67
16	1047.2	229.51

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	5		15	1.9	1.9	Coltre
2	40		28	2	2	Substato

Risultati analisi pendio [[A1+M1+R1]]

Fs minimo individuato	1.13
Ascissa centro superficie	832.63 m
Ordinata centro superficie	401.64 m
Raggio superficie	198.38 m

Numero di superfici esaminate...(221)

N°	Xo	Yo	Ro	Fs
1	832.6	341.7	136.4	1.33

2	837.6	346.7	137.6	2.18
3	842.6	341.7	147.8	2.54
4	847.6	346.7	148.4	2.46
5	852.6	341.7	141.9	2.49
6	857.5	346.7	142.6	2.36
7	862.5	341.7	136.1	2.28
8	867.5	346.7	136.9	1.20
9	872.5	341.7	130.3	1.24
10	877.5	346.7	131.2	1.38
11	882.4	341.7	124.6	1.50
12	887.4	346.7	125.6	2.70
13	892.4	341.7	132.9	3.18
14	897.4	346.7	133.5	2.56
15	902.4	341.7	126.8	1.71
16	907.3	346.7	127.6	2.09
17	912.3	341.7	120.9	2.49
18	917.3	346.7	159.2	3.91
19	922.3	341.7	139.8	4.26
20	927.3	346.7	128.2	2.54
21	932.2	341.7	121.4	2.91
22	832.6	351.7	144.0	1.84
23	837.6	356.6	161.5	2.46
24	842.6	351.7	154.9	2.47
25	847.6	356.6	155.7	2.36
26	852.6	351.7	149.2	2.36
27	857.5	356.6	150.0	1.42
28	862.5	351.7	143.4	1.18
29	867.5	356.6	144.4	1.25
30	872.5	351.7	137.8	1.30
31	877.5	356.6	138.8	1.66
32	882.4	351.7	132.2	1.97
33	887.4	356.6	146.9	2.97
34	892.4	351.7	140.2	2.87
35	897.4	356.6	141.0	1.67
36	902.4	351.7	134.3	1.84
37	907.3	356.6	135.3	2.57
38	912.3	351.7	128.5	3.77
39	917.3	356.6	141.8	3.88
40	922.3	351.7	135.0	3.71
41	927.3	356.6	135.9	2.85
42	932.2	351.7	129.1	3.43
43	832.6	361.6	168.0	2.47
44	837.6	366.6	168.8	2.39
45	842.6	361.6	162.3	2.37
46	847.6	366.6	163.2	2.09
47	852.6	361.6	156.6	1.93
48	857.5	366.6	157.6	1.18
49	862.5	361.6	151.0	1.21
50	867.5	366.6	152.0	1.36
51	872.5	361.6	145.4	1.48
52	877.5	366.6	160.3	2.96
53	882.4	361.6	153.6	2.97
54	887.4	366.6	154.5	1.46
55	892.4	361.6	147.7	1.55
56	897.4	366.6	148.7	1.82
57	902.4	361.6	142.0	2.08
58	907.3	366.6	155.4	3.68
59	912.3	361.6	173.1	3.77
60	917.3	366.6	149.6	2.75

61	922.3	361.6	142.8	2.45
62	927.3	366.6	143.9	3.51
63	932.2	361.6	160.0	4.50
64	832.6	371.6	175.4	2.41
65	837.6	376.6	176.3	2.25
66	842.6	371.6	169.8	2.21
67	847.6	376.6	170.8	1.14
68	852.6	371.6	164.2	1.16
69	857.5	376.6	165.3	1.24
70	862.5	371.6	158.7	1.29
71	867.5	376.6	159.8	1.74
72	872.5	371.6	153.2	2.19
73	877.5	376.6	167.9	2.69
74	882.4	371.6	161.2	2.56
75	887.4	376.6	162.2	1.52
76	892.4	371.6	155.5	1.64
77	897.4	376.6	156.6	2.11
78	902.4	371.6	149.9	2.70
79	907.3	376.6	163.2	3.50
80	912.3	371.6	156.4	3.38
81	917.3	376.6	157.5	2.36
82	922.3	371.6	150.7	2.78
83	927.3	376.6	174.7	4.27
84	932.2	371.6	167.7	4.52
85	832.6	381.6	182.9	2.27
86	837.6	386.6	184.0	1.87
87	842.6	381.6	177.4	1.59
88	847.6	386.6	178.5	1.18
89	852.6	381.6	171.9	1.20
90	857.5	386.6	173.1	1.38
91	862.5	381.6	166.5	1.51
92	867.5	386.6	181.3	2.79
93	872.5	381.6	174.6	2.81
94	877.5	386.6	175.6	1.37
95	882.4	381.6	168.9	1.44
96	887.4	386.6	170.1	1.63
97	892.4	381.6	163.3	1.81
98	897.4	386.6	164.6	2.94
99	902.4	381.6	170.0	3.49
100	907.3	386.6	171.1	2.80
101	912.3	381.6	164.3	2.08
102	917.3	386.6	165.6	2.69
103	922.3	381.6	158.8	3.51
104	927.3	386.6	171.5	4.49
105	932.2	381.6	175.7	4.54
106	832.6	391.6	190.6	2.01
107	837.6	396.6	191.8	1.14
108	842.6	391.6	185.1	1.16
109	847.6	396.6	186.4	1.25
110	852.6	391.6	179.7	1.31
111	857.5	396.6	181.1	1.99
112	862.5	391.6	188.0	2.78
113	867.5	396.6	189.1	2.54
114	872.5	391.6	182.4	2.22
115	877.5	396.6	183.5	1.42
116	882.4	391.6	176.8	1.51
117	887.4	396.6	178.1	1.82
118	892.4	391.6	171.4	2.16
119	897.4	396.6	184.8	3.25

120	902.4	391.6	178.0	3.16
121	907.3	396.6	179.2	2.01
122	912.3	391.6	172.4	2.27
123	917.3	396.6	173.9	3.43
124	922.3	391.6	178.3	4.36
125	927.3	396.6	179.7	4.26
126	932.2	391.6	172.9	3.34
127	832.6	401.6	198.4	1.13
128	837.6	406.6	199.6	1.19
129	842.6	401.6	193.0	1.21
130	847.6	406.6	194.4	1.45
131	852.6	401.6	187.7	1.62
132	857.5	406.6	202.5	2.67
133	862.5	401.6	195.8	2.67
134	867.5	406.6	197.0	1.31
135	872.5	401.6	190.3	1.36
136	877.5	406.6	191.6	1.50
137	882.4	401.6	184.8	1.63
138	887.4	406.6	186.2	2.26
139	892.4	401.6	191.6	3.32
140	897.4	406.6	192.8	2.80
141	902.4	401.6	186.0	1.83
142	907.3	406.6	187.5	2.19
143	912.3	401.6	180.7	2.60
144	917.3	406.6	193.4	4.20
145	922.3	401.6	197.6	4.20
146	927.3	406.6	188.1	2.71
147	932.2	401.6	181.3	2.80
148	832.6	411.6	206.3	1.17
149	837.6	416.6	207.6	1.28
150	842.6	411.6	201.0	1.35
151	847.6	416.6	216.0	2.66
152	852.6	411.6	209.3	2.64
153	857.5	416.6	210.5	2.41
154	862.5	411.6	203.7	2.08
155	867.5	416.6	205.0	1.34
156	872.5	411.6	198.3	1.41
157	877.5	416.6	199.7	1.63
158	882.4	411.6	193.0	1.85
159	887.4	416.6	206.5	3.12
160	892.4	411.6	199.7	3.01
161	897.4	416.6	201.1	1.77
162	902.4	411.6	194.3	1.94
163	907.3	416.6	195.8	2.50
164	912.3	411.6	189.1	3.30
165	917.3	416.6	201.8	3.98
166	922.3	411.6	194.9	3.88
167	927.3	416.6	196.7	2.66
168	932.2	411.6	189.9	3.09
169	832.6	421.6	214.3	1.24
170	837.6	426.6	215.8	1.59
171	842.6	421.6	209.1	1.86
172	847.6	426.6	223.9	2.58
173	852.6	421.6	217.2	2.52
174	857.5	426.6	218.5	1.26
175	862.5	421.6	211.8	1.30
176	867.5	426.6	213.2	1.40
177	872.5	421.6	206.4	1.50
178	877.5	426.6	208.0	1.90

179	882.4	421.6	201.2	2.40
180	887.4	426.6	214.6	2.84
181	892.4	421.6	207.8	2.29
182	897.4	426.6	209.4	1.88
183	902.4	421.6	202.6	2.11
184	907.3	426.6	204.3	3.13
185	912.3	421.6	208.6	3.93
186	917.3	426.6	210.2	3.62
187	922.3	421.6	203.5	2.58
188	927.3	426.6	205.3	2.92
189	932.2	421.6	198.6	3.57
190	832.6	431.6	222.4	1.43
191	837.6	436.6	237.4	2.59
192	842.6	431.6	230.7	2.56
193	847.6	436.6	232.0	2.39
194	852.6	431.6	225.2	2.06
195	857.5	436.6	226.6	1.29
196	862.5	431.6	219.9	1.34
197	867.5	436.6	221.4	1.50
198	872.5	431.6	214.7	1.65
199	877.5	436.6	216.3	2.64
200	882.4	431.6	221.4	3.03
201	887.4	436.6	222.9	1.61
202	892.4	431.6	216.2	1.72
203	897.4	436.6	217.8	2.04
204	902.4	431.6	211.1	2.40
205	907.3	436.6	234.8	3.78
206	912.3	431.6	217.0	3.75
207	917.3	436.6	218.8	2.45
208	922.3	431.6	212.1	2.52
209	927.3	436.6	214.1	3.33
210	932.2	431.6	207.3	4.51
211	832.6	441.6	230.6	2.40
212	842.6	441.6	238.7	2.47
213	852.6	441.6	233.4	1.25
214	862.5	441.6	228.2	1.40
215	872.5	441.6	223.1	1.98
216	882.4	441.6	229.7	2.54
217	892.4	441.6	224.6	1.83
218	902.4	441.6	219.6	2.97
219	912.3	441.6	225.6	3.39
220	922.3	441.6	220.8	2.74
221	932.2	441.6	216.2	9.41

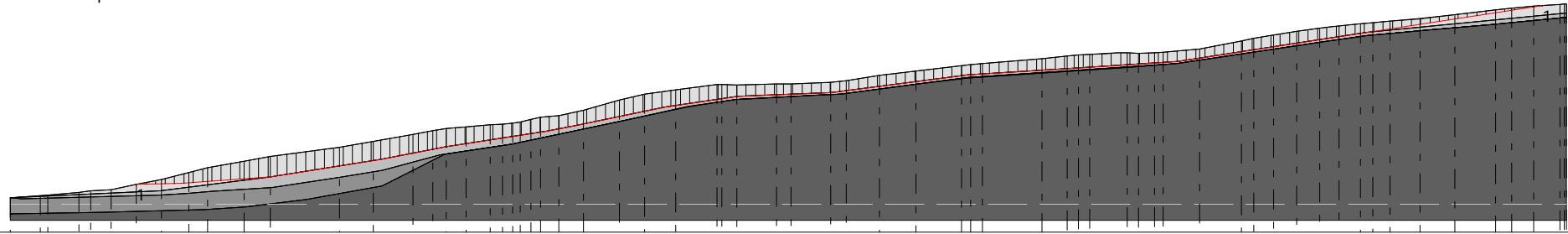
Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Coefficienti parziali azioni	2
5.Coefficienti parziali per i parametri geotecnici del terreno	3
6.Stratigrafia	3
7.Risultati analisi pendio [[A1+M1+R1]]	3
Indice	8

BUVOLONE-SALMAORE

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE
 SUPERFICIE 1
 IN CONDIZIONI STATICHE

Fs=2.75 Sup...1



- Strato...1
 $g=1.9t/m^3$
 $Fi=16^\circ$
 $c=6\text{ kN/m}^2$
- Strato...2
 $g=1.9t/m^3$
 $Fi=18^\circ$
 $c=10\text{ kN/m}^2$
- Strato...3
 $g=1.7t/m^3$
 $Fi=34^\circ$
 $c=\text{ kN/m}^2$
- Strato...4
 $g=2.0t/m^3$
 $Fi=28^\circ$
 $c=20\text{ kN/m}^2$

Quote	0.00	32.21	19.02	43.57	50.93	63.82	79.77	95.44	112.91	124.57	147.89	164.46	208.02	229.50	254.42	266.93	275.53	287.80	303.14	311.32	322.76	328.91	335.05	346.71	362.05	384.96	400.86	420.34	446.47	483.92	493.15	518.27	528.02	549.04	572.11	600.83	606.47	614.16	651.59	667.48	674.66	681.84	705.42	712.60	722.86	751.37	777.51	785.35	797.90	812.54	827.17	839.20	852.79	860.63	871.61	890.43	912.39	938.01	948.46	962.11	982.48
Distanze Parziali	0.00	19.02	43.57	50.93	63.82	79.77	95.44	112.91	124.57	147.89	164.46	208.02	229.50	254.42	266.93	275.53	287.80	303.14	311.32	322.76	328.91	335.05	346.71	362.05	384.96	400.86	420.34	446.47	483.92	493.15	518.27	528.02	549.04	572.11	600.83	606.47	614.16	651.59	667.48	674.66	681.84	705.42	712.60	722.86	751.37	777.51	785.35	797.90	812.54	827.17	839.20	852.79	860.63	871.61	890.43	912.39	938.01	948.46	962.11	982.48	
Distanze Progressive	0.00	19.02	43.57	50.93	63.82	79.77	95.44	112.91	124.57	147.89	164.46	208.02	229.50	254.42	266.93	275.53	287.80	303.14	311.32	322.76	328.91	335.05	346.71	362.05	384.96	400.86	420.34	446.47	483.92	493.15	518.27	528.02	549.04	572.11	600.83	606.47	614.16	651.59	667.48	674.66	681.84	705.42	712.60	722.86	751.37	777.51	785.35	797.90	812.54	827.17	839.20	852.79	860.63	871.61	890.43	912.39	938.01	948.46	962.11	982.48	

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.160679/10.980336
Calcolo eseguito secondo	NTC 2018
Numero di strati	4.0
Numero dei conci	150.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma generica	

Vertici profilo

Nr	X (m)	y (m)
1	31.79	32.21
2	50.82	33.71
3	55.54	33.97
4	75.36	35.8
5	82.73	36.64
6	95.61	37.49
7	111.57	40.72
8	127.24	43.89
9	144.7	48.26
10	156.36	51.28
11	179.68	55.43
12	196.25	58.43
13	239.82	64.09
14	261.3	67.83
15	286.22	72.22
16	298.73	74.74
17	307.32	76.0
18	319.59	77.14
19	334.93	78.48
20	342.91	78.68
21	349.05	79.54
22	353.96	80.2
23	360.71	81.68
24	366.84	82.98
25	378.5	84.23
26	393.84	87.48
27	416.76	93.83
28	432.65	97.75
29	452.14	100.32
30	478.29	103.66
31	481.36	103.84
32	490.59	103.62
33	515.72	104.02
34	524.95	104.03
35	550.07	105.16
36	559.81	106.26
37	580.83	109.44
38	603.91	112.23

39	632.62	115.81
40	638.26	116.5
41	645.95	117.05
42	683.38	120.06
43	699.28	121.7
44	706.45	122.29
45	713.63	122.71
46	723.37	123.3
47	731.07	123.72
48	737.22	123.66
49	744.4	123.52
50	754.65	123.93
51	760.05	124.14
52	783.16	126.28
53	809.3	131.32
54	817.15	132.81
55	829.69	134.93
56	844.33	137.23
57	858.97	139.45
58	870.99	140.7
59	884.59	142.13
60	892.43	142.86
61	903.41	143.76
62	922.23	145.3
63	944.18	147.81
64	969.8	150.83
65	980.26	151.96
66	993.91	153.2
67	1005.87	154.0
68	1010.58	154.3
69	1013.19	154.68
70	1014.76	154.71

Vertici strato1

N	X (m)	y (m)
1	31.79	32.21
2	126.69	36.78
3	196.43	45.54
4	266.76	56.77
5	306.96	64.47
6	370.57	74.33
7	389.75	78.13
8	445.45	89.49
9	491.31	96.28
10	550.88	98.78
11	636.67	109.79
12	701.93	114.06
13	769.59	118.49
14	888.47	136.63
15	1014.76	148.71

Vertici strato2

N	X (m)	y (m)
1	31.79	32.21
2	39.47	31.68
3	126.69	33.96
4	143.38	34.9
5	159.34	36.39

6	197.2	38.81
7	239.84	45.32
8	266.76	49.77
9	303.56	59.28
10	348.75	66.1
11	421.3	81.57
12	459.64	89.74
13	490.15	94.18
14	505.11	95.0
15	540.62	96.92
16	556.59	97.79
17	607.97	104.35
18	636.66	108.04
19	739.0	114.83
20	768.76	117.04
21	864.7	131.09
22	888.65	134.6
23	929.62	138.23
24	969.35	141.74
25	1014.76	145.99

Vertici strato3

N	X (m)	y (m)
1	31.79	22.16
2	91.15	23.31
3	154.98	24.99
4	180.8	26.53
5	219.34	31.19
6	266.76	39.77
7	306.25	59.69
8	348.75	66.1
9	421.3	81.57
10	459.64	89.74
11	490.15	94.18
12	540.62	96.92
13	556.59	97.79
14	607.97	104.35
15	636.66	108.04
16	739.0	114.83
17	768.76	117.04
18	864.7	131.09
19	888.65	134.6
20	929.62	138.23
21	969.35	141.74
22	1014.76	145.99

Vertici superficie Nr...1

N	X m	y m
1	111.32	40.77
2	140.13	41.42
3	196.43	45.54
4	266.76	56.77
5	306.96	64.47
6	370.57	74.33
7	389.75	78.13
8	445.45	89.49
9	491.31	96.28
10	550.88	98.78

11	636.67	109.79
12	701.93	114.06
13	769.59	118.49
14	999.62	153.59

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coazione efficace	1.0
Coazione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coazione (kN/m ²)	Coazione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3			34	1.7		
4	20		28	2.0		



Superficie Nr...1 Fattore di sicurezza=2.75

Nr.	B m	Alfa (°)	Li m	Wi (kN)	Kh•Wi (kN)	Kv•Wi (kN)	c (kN/m ²)	Fi (°)	Ui (kN)	N'i (kN)	Ti (kN)
1	5.92	1.3	5.92	58.63	0.0	0.0	6.0	16.0	0.0	9.4	13.9
2	5.92	1.3	5.92	176.0	0.0	0.0	6.0	16.0	0.0	24.7	15.5
3	5.92	1.3	5.92	293.5	0.0	0.0	6.0	16.0	0.0	40.1	17.1
4	5.92	1.3	5.92	439.54	0.0	0.0	6.0	16.0	0.0	59.3	19.1
5	5.92	2.0	5.92	584.35	0.0	0.0	6.0	16.0	0.0	122.9	25.8
6	5.92	4.1	5.93	712.72	0.0	0.0	6.0	16.0	0.0	307.9	45.1
7	5.92	4.3	5.93	833.46	0.0	0.0	6.0	16.0	0.0	369.8	51.5
8	5.92	4.1	5.93	954.45	0.0	0.0	6.0	16.0	0.0	411.8	55.9
9	5.92	4.1	5.93	1024.1	0.0	0.0	6.0	16.0	0.0	441.7	59.1
10	5.92	4.3	5.93	1092.24	0.0	0.0	6.0	16.0	0.0	484.1	63.5
11	5.92	4.1	5.93	1160.38	0.0	0.0	6.0	16.0	0.0	500.3	65.2
12	5.92	4.1	5.93	1229.26	0.0	0.0	6.0	16.0	0.0	529.9	68.3
13	5.92	4.3	5.93	1299.14	0.0	0.0	6.0	16.0	0.0	575.4	73.0
14	5.92	4.1	5.93	1369.01	0.0	0.0	6.0	16.0	0.0	589.9	74.5
15	5.92	7.6	5.97	1411.53	0.0	0.0	6.0	16.0	0.0	1120.2	129.9
16	5.92	9.2	5.99	1400.13	0.0	0.0	10.0	18.0	0.0	1338.9	180.0
17	5.92	9.0	5.99	1380.42	0.0	0.0	6.0	16.0	0.0	1303.6	149.1
18	5.92	9.0	5.99	1361.38	0.0	0.0	10.0	18.0	0.0	1285.6	173.7
19	5.92	9.2	5.99	1341.68	0.0	0.0	6.0	16.0	0.0	1283.0	146.9
20	5.92	9.0	5.99	1321.97	0.0	0.0	6.0	16.0	0.0	1248.4	143.3
21	5.92	9.0	5.99	1302.93	0.0	0.0	6.0	16.0	0.0	1230.4	141.4
22	5.92	9.0	5.99	1283.88	0.0	0.0	10.0	18.0	0.0	1212.5	165.0

23	5.92	9.2	5.99	1289.68	0.0	0.0	6.0	16.0	0.0	1233.3	141.7
24	5.92	9.0	5.99	1298.92	0.0	0.0	6.0	16.0	0.0	1226.6	141.0
25	5.92	9.0	5.99	1308.82	0.0	0.0	6.0	16.0	0.0	1236.0	142.0
26	5.92	9.0	5.99	1319.0	0.0	0.0	10.0	18.0	0.0	1245.6	168.9
27	5.92	10.6	6.02	1321.0	0.0	0.0	6.0	16.0	0.0	1464.4	165.8
28	5.92	10.8	6.02	1312.48	0.0	0.0	10.0	18.0	0.0	1490.1	197.9
29	5.92	10.8	6.02	1302.49	0.0	0.0	10.0	18.0	0.0	1478.8	196.5
30	5.92	10.8	6.02	1293.16	0.0	0.0	10.0	18.0	0.0	1468.2	195.3
31	5.92	10.8	6.02	1299.59	0.0	0.0	10.0	18.0	0.0	1475.5	196.1
32	5.92	10.8	6.02	1306.02	0.0	0.0	10.0	18.0	0.0	1482.8	197.0
33	5.92	10.9	6.03	1279.88	0.0	0.0	10.0	18.0	0.0	1455.9	193.8
34	5.92	8.8	5.99	1245.98	0.0	0.0	6.0	16.0	0.0	1146.8	132.7
35	5.92	8.8	5.99	1205.21	0.0	0.0	6.0	16.0	0.0	1109.3	128.8
36	5.92	8.8	5.99	1163.06	0.0	0.0	6.0	16.0	0.0	1070.6	124.7
37	5.92	8.8	5.99	1118.85	0.0	0.0	6.0	16.0	0.0	1029.9	120.5
38	5.92	8.7	5.99	1075.3	0.0	0.0	6.0	16.0	0.0	977.0	115.0
39	5.92	8.8	5.99	998.85	0.0	0.0	10.0	18.0	0.0	919.6	130.4
40	5.92	8.8	5.99	948.37	0.0	0.0	10.0	18.0	0.0	873.1	124.9
41	5.92	8.8	5.99	937.15	0.0	0.0	10.0	18.0	0.0	862.8	123.6
42	5.92	8.8	5.99	956.51	0.0	0.0	10.0	18.0	0.0	880.6	125.8
43	5.92	8.8	5.99	995.95	0.0	0.0	10.0	18.0	0.0	916.8	130.0
44	5.92	9.5	6.0	1000.61	0.0	0.0	6.0	16.0	0.0	993.6	116.7
45	5.92	11.3	6.03	950.99	0.0	0.0	6.0	16.0	0.0	1125.3	130.4
46	5.92	11.2	6.03	921.86	0.0	0.0	6.0	16.0	0.0	1079.9	125.7
47	5.92	11.3	6.03	930.39	0.0	0.0	6.0	16.0	0.0	1102.7	128.1
48	5.92	11.5	6.04	936.94	0.0	0.0	6.0	16.0	0.0	1131.1	131.0
49	5.92	11.5	6.04	978.76	0.0	0.0	10.0	18.0	0.0	1181.5	161.4
50	5.92	11.5	6.04	1026.86	0.0	0.0	10.0	18.0	0.0	1239.5	168.2
51	5.92	11.6	6.04	1074.31	0.0	0.0	6.0	16.0	0.0	1309.5	149.7
52	5.92	11.5	6.04	1121.75	0.0	0.0	6.0	16.0	0.0	1353.9	154.3
53	5.92	11.5	6.04	1150.55	0.0	0.0	6.0	16.0	0.0	1388.6	157.9
54	5.92	11.5	6.04	1178.96	0.0	0.0	10.0	18.0	0.0	1422.9	189.9
55	5.92	11.5	6.04	1185.22	0.0	0.0	10.0	18.0	0.0	1430.4	190.8
56	5.92	11.6	6.04	1137.79	0.0	0.0	10.0	18.0	0.0	1386.8	185.6
57	5.92	9.6	6.0	1101.6	0.0	0.0	10.0	18.0	0.0	1104.5	152.2
58	5.92	8.4	5.98	1084.46	0.0	0.0	6.0	16.0	0.0	946.3	111.7
59	5.92	8.4	5.98	1071.84	0.0	0.0	10.0	18.0	0.0	935.3	132.2
60	5.92	8.5	5.98	1058.55	0.0	0.0	10.0	18.0	0.0	936.3	132.3
61	5.92	8.4	5.98	1045.27	0.0	0.0	10.0	18.0	0.0	912.1	129.5
62	5.92	8.5	5.98	1031.98	0.0	0.0	6.0	16.0	0.0	912.8	108.3
63	5.92	8.4	5.98	988.56	0.0	0.0	6.0	16.0	0.0	862.6	103.0
64	5.92	8.5	5.98	876.67	0.0	0.0	6.0	16.0	0.0	775.5	93.9
65	5.92	3.1	5.93	808.26	0.0	0.0	10.0	18.0	0.0	256.7	51.9
66	5.92	2.4	5.92	787.44	0.0	0.0	10.0	18.0	0.0	198.4	45.0
67	5.92	2.4	5.92	770.23	0.0	0.0	6.0	16.0	0.0	194.0	33.2
68	5.92	2.4	5.92	753.03	0.0	0.0	6.0	16.0	0.0	189.7	32.7
69	5.92	2.4	5.92	733.29	0.0	0.0	6.0	16.0	0.0	184.7	32.2
70	5.92	2.3	5.92	706.91	0.0	0.0	10.0	18.0	0.0	169.7	41.6
71	5.92	2.4	5.92	700.59	0.0	0.0	10.0	18.0	0.0	176.5	42.4
72	5.92	2.4	5.92	702.29	0.0	0.0	10.0	18.0	0.0	176.9	42.5
73	5.92	2.4	5.92	703.99	0.0	0.0	10.0	18.0	0.0	177.4	42.5
74	5.92	2.4	5.92	705.68	0.0	0.0	6.0	16.0	0.0	177.8	31.5
75	5.92	6.4	5.95	704.69	0.0	0.0	6.0	16.0	0.0	469.6	62.0
76	5.92	7.3	5.97	699.76	0.0	0.0	6.0	16.0	0.0	535.6	68.9
77	5.92	7.2	5.97	710.11	0.0	0.0	10.0	18.0	0.0	535.0	84.9
78	5.92	7.3	5.97	725.27	0.0	0.0	10.0	18.0	0.0	555.0	87.2
79	5.92	7.3	5.97	739.77	0.0	0.0	6.0	16.0	0.0	566.1	72.0
80	5.92	7.2	5.97	749.92	0.0	0.0	10.0	18.0	0.0	564.9	88.4
81	5.92	7.3	5.97	745.36	0.0	0.0	10.0	18.0	0.0	570.3	89.0

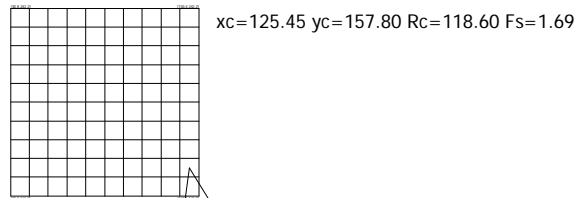
82	5.92	7.3	5.97	740.14	0.0	0.0	10.0	18.0	0.0	566.3	88.6
83	5.92	7.3	5.97	734.92	0.0	0.0	6.0	16.0	0.0	562.3	71.7
84	5.92	7.2	5.97	731.28	0.0	0.0	6.0	16.0	0.0	550.8	70.5
85	5.92	7.3	5.97	729.33	0.0	0.0	10.0	18.0	0.0	558.0	87.6
86	5.92	7.3	5.97	726.71	0.0	0.0	6.0	16.0	0.0	556.0	71.0
87	5.92	7.2	5.97	724.75	0.0	0.0	10.0	18.0	0.0	545.9	86.1
88	5.92	7.3	5.97	722.79	0.0	0.0	10.0	18.0	0.0	553.0	87.0
89	5.92	6.1	5.95	726.04	0.0	0.0	10.0	18.0	0.0	463.6	76.4
90	5.92	3.8	5.93	730.68	0.0	0.0	10.0	18.0	0.0	288.6	55.7
91	5.92	3.7	5.93	736.16	0.0	0.0	10.0	18.0	0.0	281.9	54.9
92	5.92	3.8	5.93	745.97	0.0	0.0	10.0	18.0	0.0	294.6	56.4
93	5.92	3.7	5.93	755.78	0.0	0.0	10.0	18.0	0.0	289.4	55.8
94	5.92	3.8	5.93	765.59	0.0	0.0	10.0	18.0	0.0	302.3	57.3
95	5.92	3.7	5.93	775.4	0.0	0.0	10.0	18.0	0.0	296.9	56.7
96	5.92	3.8	5.93	785.21	0.0	0.0	10.0	18.0	0.0	310.0	58.2
97	5.92	3.7	5.93	795.01	0.0	0.0	10.0	18.0	0.0	304.3	57.6
98	5.92	3.8	5.93	818.32	0.0	0.0	10.0	18.0	0.0	323.0	59.8
99	5.92	3.7	5.93	842.72	0.0	0.0	10.0	18.0	0.0	322.5	59.7
100	5.92	3.7	5.93	864.3	0.0	0.0	10.0	18.0	0.0	335.8	61.3
101	5.92	3.8	5.93	874.75	0.0	0.0	10.0	18.0	0.0	345.2	62.4
102	5.92	3.7	5.93	870.17	0.0	0.0	10.0	18.0	0.0	333.0	61.0
103	5.92	3.8	5.93	866.91	0.0	0.0	10.0	18.0	0.0	342.1	62.0
104	5.92	3.7	5.93	863.18	0.0	0.0	10.0	18.0	0.0	330.3	60.6
105	5.92	3.8	5.93	855.58	0.0	0.0	10.0	18.0	0.0	337.6	61.5
106	5.92	3.7	5.93	811.85	0.0	0.0	10.0	18.0	0.0	310.7	58.3
107	5.92	3.8	5.93	757.47	0.0	0.0	10.0	18.0	0.0	298.9	56.9
108	5.92	3.7	5.93	726.17	0.0	0.0	10.0	18.0	0.0	277.9	54.4
109	5.92	3.8	5.93	710.07	0.0	0.0	10.0	18.0	0.0	280.2	54.7
110	5.92	3.7	5.93	692.03	0.0	0.0	10.0	18.0	0.0	264.9	52.9
111	5.92	3.8	5.93	708.8	0.0	0.0	10.0	18.0	0.0	279.7	54.6
112	5.92	8.0	5.98	702.02	0.0	0.0	6.0	16.0	0.0	583.7	73.9
113	5.92	8.7	5.99	666.98	0.0	0.0	6.0	16.0	0.0	605.7	76.2
114	5.92	8.6	5.98	632.45	0.0	0.0	6.0	16.0	0.0	566.8	72.1
115	5.92	8.7	5.99	658.79	0.0	0.0	10.0	18.0	0.0	598.2	92.3
116	5.92	8.7	5.99	684.48	0.0	0.0	6.0	16.0	0.0	621.5	77.8
117	5.92	8.7	5.99	710.17	0.0	0.0	6.0	16.0	0.0	644.8	80.3
118	5.92	8.6	5.98	736.52	0.0	0.0	6.0	16.0	0.0	659.9	81.8
119	5.92	8.7	5.99	762.08	0.0	0.0	10.0	18.0	0.0	691.9	103.4
120	5.92	8.7	5.99	781.94	0.0	0.0	6.0	16.0	0.0	709.9	87.1
121	5.92	8.6	5.98	792.68	0.0	0.0	10.0	18.0	0.0	710.2	105.6
122	5.92	8.7	5.99	801.96	0.0	0.0	10.0	18.0	0.0	728.1	107.7
123	5.92	8.7	5.99	804.77	0.0	0.0	10.0	18.0	0.0	730.6	108.0
124	5.92	8.7	5.99	807.57	0.0	0.0	6.0	16.0	0.0	733.1	89.5
125	5.92	8.6	5.98	808.19	0.0	0.0	10.0	18.0	0.0	724.0	107.2
126	5.92	8.7	5.99	807.73	0.0	0.0	10.0	18.0	0.0	733.3	108.3
127	5.92	8.7	5.99	798.79	0.0	0.0	10.0	18.0	0.0	725.1	107.4
128	5.92	8.7	5.99	766.71	0.0	0.0	6.0	16.0	0.0	696.0	85.6
129	5.92	8.6	5.98	735.56	0.0	0.0	6.0	16.0	0.0	659.0	81.7
130	5.92	8.7	5.99	705.42	0.0	0.0	10.0	18.0	0.0	640.4	97.3
131	5.92	8.7	5.99	674.62	0.0	0.0	6.0	16.0	0.0	612.4	76.9
132	5.92	8.7	5.99	635.94	0.0	0.0	6.0	16.0	0.0	577.3	73.2
133	5.92	8.6	5.98	593.0	0.0	0.0	6.0	16.0	0.0	531.2	68.4
134	5.92	8.7	5.99	547.19	0.0	0.0	6.0	16.0	0.0	496.7	64.8
135	5.92	8.7	5.99	500.69	0.0	0.0	6.0	16.0	0.0	454.5	60.4
136	5.92	8.6	5.98	454.83	0.0	0.0	6.0	16.0	0.0	407.5	55.5
137	5.92	8.7	5.99	408.98	0.0	0.0	6.0	16.0	0.0	371.3	51.7
138	5.92	8.7	5.99	374.45	0.0	0.0	6.0	16.0	0.0	339.9	48.4
139	5.92	8.7	5.99	349.23	0.0	0.0	6.0	16.0	0.0	317.1	46.0
140	5.92	8.6	5.98	324.68	0.0	0.0	6.0	16.0	0.0	290.9	43.3

141	5.92	8.7	5.99	300.12	0.0	0.0	6.0	16.0	0.0	272.5	41.4
142	5.92	8.7	5.99	276.74	0.0	0.0	6.0	16.0	0.0	251.2	39.2
143	5.92	8.7	5.99	253.69	0.0	0.0	6.0	16.0	0.0	230.3	37.0
144	5.92	8.6	5.98	231.29	0.0	0.0	6.0	16.0	0.0	207.2	34.6
145	5.92	8.7	5.99	208.89	0.0	0.0	6.0	16.0	0.0	189.6	32.7
146	5.92	8.7	5.99	182.34	0.0	0.0	6.0	16.0	0.0	165.5	30.2
147	5.92	8.7	5.99	152.6	0.0	0.0	6.0	16.0	0.0	138.5	27.4
148	5.92	8.6	5.98	115.28	0.0	0.0	6.0	16.0	0.0	103.3	23.7
149	5.92	8.7	5.99	75.3	0.0	0.0	6.0	16.0	0.0	68.3	20.1
150	5.92	8.7	5.99	27.88	0.0	0.0	6.0	16.0	0.0	25.2	15.6

Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	3
4.Vertici strato2	3
5.Vertici strato3	3
6.Vertici superficie Nr...1	4
7.Coefficienti parziali azioni	4
8.Coefficienti parziali per i parametri geotecnici del terreno	4
9.Stratigrafia	4
Indice	8

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE
 DA 0 A 100 m
 IN CONDIZIONI STATICHE



- Strato...1
g=1.9t/m³
Fi=16°
c=6 kN/m²
- Strato...2
g=1.9t/m³
Fi=18°
c=10 kN/m²
- Strato...3
g=1.7t/m³
Fi=34°
c= kN/m²
- Strato...4
g=2.0t/m³
Fi=28°
c=20 kN/m²

Quote	0.00	32.21	33.97	35.80	36.64	37.49	40.72	43.89	48.26	51.28	55.43	58.43	64.09	67.83	72.22	74.74	76.00	77.14	78.48	79.69	80.30	81.68	82.98	84.23	87.48	93.83	97.75	100.32	103.62	104.02	104.03	105.16	106.26	109.44	112.23	115.87	117.05	120.06	121.70	122.71	123.66	123.52	123.93	124.14	126.28	131.32	132.81	134.93	137.23	139.45	140.70	142.13	142.86	143.76	145.30	147.81	150.83	151.96	153.20	154.69				
Distanze Parziali	0.00	19.02	4.72	19.83	7.36	36.64	12.89	15.95	17.47	11.66	23.32	16.57	43.57	21.48	24.92	12.51	8.59	12.27	15.34	7.98	8.91	6.75	6.14	11.66	15.34	22.91	15.89	19.48	100.32	440.59	80.85	168.84	103.62	104.02	104.03	105.16	106.26	109.44	112.23	115.87	117.05	120.06	121.70	122.71	123.66	123.52	123.93	124.14	126.28	131.32	132.81	134.93	137.23	139.45	140.70	142.13	142.86	143.76	145.30	147.81	150.83	151.96	153.20	154.69
Distanze Progressive	0.00	19.02	23.74	43.57	50.93	63.82	79.77	95.44	112.91	124.57	147.89	164.46	208.02	229.50	254.42	266.93	275.53	287.80	303.14	311.12	320.03	326.78	333.46	339.60	346.71	362.05	384.96	400.86	420.34	440.59	458.80	483.92	493.15	518.27	528.02	549.04	572.11	600.83	614.16	651.59	667.48	681.84	705.42	712.60	722.86	728.26	751.37	777.51	785.35	797.90	812.54	827.17	839.20	852.79	860.63	871.61	890.43	912.39	938.01	948.46	962.11	983.98		

Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2018
Numero di strati	4.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	30.8 m
Ordinata vertice sinistro inferiore yi	142.92 m
Ascissa vertice destro superiore xs	130.44 m
Ordinata vertice destro superiore ys	242.16 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	31.79	32.21
2	50.82	33.71
3	55.54	33.97
4	75.36	35.8
5	82.73	36.64
6	95.61	37.49
7	111.57	40.72
8	127.24	43.89
9	144.7	48.26
10	156.36	51.28
11	179.68	55.43
12	196.25	58.43
13	239.82	64.09
14	261.3	67.83
15	286.22	72.22
16	298.73	74.74
17	307.32	76.0
18	319.59	77.14
19	334.93	78.48
20	342.91	78.68
21	349.05	79.54
22	353.96	80.2
23	360.71	81.68
24	366.84	82.98
25	378.5	84.23
26	393.84	87.48
27	416.76	93.83
28	432.65	97.75
29	452.14	100.32
30	478.29	103.66
31	481.36	103.84

32	490.59	103.62
33	515.72	104.02
34	524.95	104.03
35	550.07	105.16
36	559.81	106.26
37	580.83	109.44
38	603.91	112.23
39	632.62	115.81
40	638.26	116.5
41	645.95	117.05
42	683.38	120.06
43	699.28	121.7
44	706.45	122.29
45	713.63	122.71
46	723.37	123.3
47	731.07	123.72
48	737.22	123.66
49	744.4	123.52
50	754.65	123.93
51	760.05	124.14
52	783.16	126.28
53	809.3	131.32
54	817.15	132.81
55	829.69	134.93
56	844.33	137.23
57	858.97	139.45
58	870.99	140.7
59	884.59	142.13
60	892.43	142.86
61	903.41	143.76
62	922.23	145.3
63	944.18	147.81
64	969.8	150.83
65	980.26	151.96
66	993.91	153.2
67	1005.87	154.0
68	1010.58	154.3
69	1013.19	154.68
70	1014.76	154.71

Vertici strato1

N	X (m)	y (m)
1	31.79	32.21
2	126.69	36.78
3	196.43	45.54
4	266.76	56.77
5	306.96	64.47
6	370.57	74.33
7	389.75	78.13
8	445.45	89.49
9	491.31	96.28
10	550.88	98.78
11	636.67	109.79
12	701.93	114.06
13	769.59	118.49
14	888.47	136.63
15	1014.76	148.71

Vertici strato2

N	X (m)	y (m)
1	31.79	32.21
2	39.47	31.68
3	126.69	33.96
4	143.38	34.9
5	159.34	36.39
6	197.2	38.81
7	239.84	45.32
8	266.76	49.77
9	303.56	59.28
10	348.75	66.1
11	421.3	81.57
12	459.64	89.74
13	490.15	94.18
14	505.11	95.0
15	540.62	96.92
16	556.59	97.79
17	607.97	104.35
18	636.66	108.04
19	739.0	114.83
20	768.76	117.04
21	864.7	131.09
22	888.65	134.6
23	929.62	138.23
24	969.35	141.74
25	1014.76	145.99

Vertici strato3

N	X (m)	y (m)
1	31.79	22.16
2	91.15	23.31
3	154.98	24.99
4	180.8	26.53
5	219.34	31.19
6	266.76	39.77
7	306.25	59.69
8	348.75	66.1
9	421.3	81.57
10	459.64	89.74
11	490.15	94.18
12	540.62	96.92
13	556.59	97.79
14	607.97	104.35
15	636.66	108.04
16	739.0	114.83
17	768.76	117.04
18	864.7	131.09
19	888.65	134.6
20	929.62	138.23
21	969.35	141.74
22	1014.76	145.99

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3			34	1.7		
4	20		28	2.0		



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.69
Ascissa centro superficie	125.45 m
Ordinata centro superficie	157.8 m
Raggio superficie	118.6 m

Numero di superfici esaminate....(59)

N°	Xo	Yo	Ro	Fs
1	100.5	142.9	103.8	2.99
2	105.5	147.9	108.7	2.11
3	115.5	147.9	108.7	1.73
4	120.5	142.9	103.7	1.69
5	95.6	157.8	118.7	4.83
6	100.5	152.8	113.7	2.68
7	110.5	152.8	113.7	1.81
8	115.5	157.8	118.6	1.72
9	125.5	157.8	118.6	1.69
10	130.4	152.8	113.6	1.69
11	105.5	167.7	128.6	1.92
12	110.5	162.8	123.6	1.79
13	115.5	167.7	128.5	1.72
14	120.5	162.8	123.6	1.70
15	125.5	167.7	128.5	1.69
16	100.5	172.7	133.5	2.27
17	115.5	177.7	138.5	1.72
18	120.5	172.7	133.5	1.70
19	125.5	177.7	138.4	1.70
20	130.4	172.7	133.5	1.70
21	95.6	187.6	148.4	2.82
22	100.5	182.6	143.5	2.12
23	105.5	187.6	148.4	1.84
24	110.5	182.6	143.4	1.76
25	125.5	187.6	148.4	1.70
26	130.4	182.6	143.4	1.71
27	90.6	192.5	153.4	6.91
28	95.6	197.5	158.3	2.52

29	100.5	192.5	153.4	2.02
30	110.5	192.5	153.4	1.76
31	115.5	197.5	158.3	1.72
32	120.5	192.5	153.3	1.71
33	125.5	197.5	158.3	1.71
34	130.4	192.5	153.3	1.72
35	90.6	202.5	163.3	4.62
36	100.5	202.5	163.3	1.96
37	110.5	202.5	163.3	1.75
38	115.5	207.4	168.2	1.72
39	120.5	202.5	163.3	1.71
40	125.5	207.4	168.2	1.72
41	90.6	212.4	173.2	3.59
42	105.5	217.3	178.2	1.80
43	110.5	212.4	173.2	1.75
44	115.5	217.3	178.2	1.73
45	120.5	212.4	173.2	1.72
46	100.5	222.3	183.1	1.89
47	105.5	227.3	188.1	1.79
48	110.5	222.3	183.1	1.75
49	130.4	222.3	183.1	1.76
50	95.6	237.2	198.0	2.02
51	100.5	232.2	193.1	1.87
52	105.5	237.2	198.0	1.79
53	110.5	232.2	193.1	1.75
54	125.5	237.2	198.0	1.75
55	130.4	232.2	193.0	1.77
56	90.6	242.2	203.0	2.38
57	100.5	242.2	203.0	1.85
58	120.5	242.2	203.0	1.74
59	130.4	242.2	202.9	1.78

Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici strato2	3
5.Vertici strato3	3
6.Coefficienti parziali azioni	3
7.Coefficienti parziali per i parametri geotecnici del terreno	4
8.Stratigrafia	4
9.Risultati analisi pendio [A2+M2+R2]	4
Indice	6

Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2018
Numero di strati	4.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	132.07 m
Ordinata vertice sinistro inferiore yi	159.53 m
Ascissa vertice destro superiore xs	231.71 m
Ordinata vertice destro superiore ys	258.77 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	31.79	32.21
2	50.82	33.71
3	55.54	33.97
4	75.36	35.8
5	82.73	36.64
6	95.61	37.49
7	111.57	40.72
8	127.24	43.89
9	144.7	48.26
10	156.36	51.28
11	179.68	55.43
12	196.25	58.43
13	239.82	64.09
14	261.3	67.83
15	286.22	72.22
16	298.73	74.74
17	307.32	76.0
18	319.59	77.14
19	334.93	78.48
20	342.91	78.68
21	349.05	79.54
22	353.96	80.2
23	360.71	81.68
24	366.84	82.98
25	378.5	84.23
26	393.84	87.48
27	416.76	93.83
28	432.65	97.75
29	452.14	100.32
30	478.29	103.66
31	481.36	103.84

32	490.59	103.62
33	515.72	104.02
34	524.95	104.03
35	550.07	105.16
36	559.81	106.26
37	580.83	109.44
38	603.91	112.23
39	632.62	115.81
40	638.26	116.5
41	645.95	117.05
42	683.38	120.06
43	699.28	121.7
44	706.45	122.29
45	713.63	122.71
46	723.37	123.3
47	731.07	123.72
48	737.22	123.66
49	744.4	123.52
50	754.65	123.93
51	760.05	124.14
52	783.16	126.28
53	809.3	131.32
54	817.15	132.81
55	829.69	134.93
56	844.33	137.23
57	858.97	139.45
58	870.99	140.7
59	884.59	142.13
60	892.43	142.86
61	903.41	143.76
62	922.23	145.3
63	944.18	147.81
64	969.8	150.83
65	980.26	151.96
66	993.91	153.2
67	1005.87	154.0
68	1010.58	154.3
69	1013.19	154.68
70	1014.76	154.71

Vertici strato1

N	X (m)	y (m)
1	31.79	32.21
2	126.69	36.78
3	196.43	45.54
4	266.76	56.77
5	306.96	64.47
6	370.57	74.33
7	389.75	78.13
8	445.45	89.49
9	491.31	96.28
10	550.88	98.78
11	636.67	109.79
12	701.93	114.06
13	769.59	118.49
14	888.47	136.63
15	1014.76	148.71

Vertici strato2

N	X (m)	y (m)
1	31.79	32.21
2	39.47	31.68
3	126.69	33.96
4	143.38	34.9
5	159.34	36.39
6	197.2	38.81
7	239.84	45.32
8	266.76	49.77
9	303.56	59.28
10	348.75	66.1
11	421.3	81.57
12	459.64	89.74
13	490.15	94.18
14	505.11	95.0
15	540.62	96.92
16	556.59	97.79
17	607.97	104.35
18	636.66	108.04
19	739.0	114.83
20	768.76	117.04
21	864.7	131.09
22	888.65	134.6
23	929.62	138.23
24	969.35	141.74
25	1014.76	145.99

Vertici strato3

N	X (m)	y (m)
1	31.79	22.16
2	91.15	23.31
3	154.98	24.99
4	180.8	26.53
5	219.34	31.19
6	266.76	39.77
7	306.25	59.69
8	348.75	66.1
9	421.3	81.57
10	459.64	89.74
11	490.15	94.18
12	540.62	96.92
13	556.59	97.79
14	607.97	104.35
15	636.66	108.04
16	739.0	114.83
17	768.76	117.04
18	864.7	131.09
19	888.65	134.6
20	929.62	138.23
21	969.35	141.74
22	1014.76	145.99

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3			34	1.7		
4	20		28	2.0		



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.7
Ascissa centro superficie	132.07 m
Ordinata centro superficie	159.53 m
Raggio superficie	120.31 m

Numero di superfici esaminate....(215)

N°	Xo	Yo	Ro	Fs
1	132.1	159.5	120.3	1.70
2	142.0	159.5	120.3	1.86
3	147.0	164.5	125.2	1.95
4	152.0	159.5	109.2	3.02
5	157.0	164.5	125.2	2.12
6	162.0	159.5	120.3	2.20
7	166.9	164.5	114.1	2.42
8	171.9	159.5	109.1	2.41
9	176.9	164.5	125.2	2.43
10	181.9	159.5	109.1	2.45
11	186.9	164.5	114.1	2.49
12	191.9	159.5	109.1	2.52
13	196.8	164.5	114.0	2.50
14	201.8	159.5	109.0	2.50
15	206.8	164.5	114.0	2.46
16	211.8	159.5	109.0	2.45
17	216.8	164.5	113.9	2.39
18	221.7	159.5	109.0	2.48
19	226.7	164.5	113.9	2.48
20	231.7	159.5	108.9	2.47
21	137.1	174.4	135.2	1.74
22	142.0	169.5	130.2	1.87
23	147.0	174.4	135.2	1.96
24	152.0	169.5	130.2	2.04
25	157.0	174.4	124.1	2.56
26	162.0	169.5	119.1	2.46
27	166.9	174.4	135.1	2.28
28	171.9	169.5	130.2	2.35

29	176.9	174.4	135.1	2.41
30	181.9	169.5	119.0	2.46
31	186.9	174.4	124.0	2.48
32	191.9	169.5	119.0	2.50
33	196.8	174.4	123.9	2.47
34	201.8	169.5	119.0	2.47
35	206.8	174.4	123.9	2.42
36	211.8	169.5	118.9	2.40
37	216.8	174.4	123.9	2.35
38	221.7	169.5	118.9	2.44
39	226.7	174.4	123.8	2.44
40	231.7	169.5	118.9	2.45
41	132.1	179.4	140.2	1.72
42	137.1	184.3	145.1	1.75
43	142.0	179.4	140.1	1.90
44	147.0	184.3	145.1	1.98
45	152.0	179.4	140.1	2.05
46	157.0	184.3	145.1	2.14
47	162.0	179.4	140.1	2.22
48	166.9	184.3	145.1	2.28
49	171.9	179.4	140.1	2.35
50	176.9	184.3	133.9	2.44
51	181.9	179.4	140.1	2.44
52	186.9	184.3	145.0	2.47
53	191.9	179.4	128.9	2.48
54	196.8	184.3	133.9	2.45
55	201.8	179.4	128.9	2.43
56	206.8	184.3	133.8	2.39
57	211.8	179.4	128.8	2.37
58	216.8	184.3	133.8	2.31
59	221.7	179.4	128.8	2.41
60	226.7	184.3	133.8	2.40
61	231.7	179.4	128.8	2.42
62	132.1	189.3	150.1	1.73
63	137.1	194.3	155.0	1.80
64	142.0	189.3	139.0	5.76
65	147.0	194.3	144.0	3.30
66	152.0	189.3	139.0	2.75
67	157.0	194.3	155.0	2.16
68	162.0	189.3	150.0	2.22
69	166.9	194.3	155.0	2.28
70	171.9	189.3	138.9	2.44
71	176.9	194.3	143.9	2.45
72	181.9	189.3	138.9	2.47
73	186.9	194.3	154.9	2.45
74	191.9	189.3	138.8	2.46
75	196.8	194.3	143.8	2.42
76	201.8	189.3	138.8	2.40
77	206.8	194.3	143.8	2.35
78	211.8	189.3	138.8	2.33
79	216.8	194.3	143.7	2.31
80	221.7	189.3	138.7	2.39
81	226.7	194.3	143.7	2.39
82	231.7	189.3	138.7	2.40
83	132.1	199.2	160.0	1.74
84	142.0	199.2	149.0	4.97
85	147.0	204.2	164.9	2.02
86	152.0	199.2	160.0	2.08
87	157.0	204.2	164.9	2.17

88	162.0	199.2	159.9	2.22
89	166.9	204.2	164.9	2.28
90	171.9	199.2	159.9	2.33
91	176.9	204.2	164.9	2.36
92	181.9	199.2	159.9	2.41
93	186.9	204.2	164.9	2.42
94	191.9	199.2	148.8	2.43
95	196.8	204.2	153.7	2.39
96	201.8	199.2	148.7	2.37
97	206.8	204.2	153.7	2.33
98	211.8	199.2	148.7	2.30
99	216.8	204.2	153.6	2.31
100	221.7	199.2	148.7	2.37
101	226.7	204.2	153.6	2.37
102	231.7	199.2	148.6	2.39
103	142.0	209.2	169.9	1.95
104	147.0	214.1	174.9	2.04
105	152.0	209.2	169.9	2.10
106	157.0	214.1	174.8	2.18
107	162.0	209.2	158.8	2.47
108	166.9	214.1	163.7	2.45
109	171.9	209.2	158.8	2.45
110	176.9	214.1	174.8	2.35
111	181.9	209.2	169.8	2.39
112	186.9	214.1	174.8	2.40
113	191.9	209.2	158.7	2.41
114	196.8	214.1	163.6	2.37
115	201.8	209.2	158.7	2.35
116	206.8	214.1	163.6	2.30
117	211.8	209.2	158.6	2.27
118	216.8	214.1	163.6	2.31
119	221.7	209.2	158.6	2.35
120	226.7	214.1	163.5	2.37
121	231.7	209.2	158.5	2.40
122	137.1	224.0	184.8	1.89
123	142.0	219.1	179.8	1.97
124	147.0	224.0	184.8	2.05
125	152.0	219.1	179.8	2.11
126	157.0	224.0	173.7	2.52
127	162.0	219.1	168.7	2.47
128	166.9	224.0	184.7	2.27
129	171.9	219.1	179.8	2.32
130	176.9	224.0	184.7	2.33
131	181.9	219.1	179.8	2.37
132	186.9	224.0	173.6	2.41
133	191.9	219.1	168.6	2.39
134	196.8	224.0	173.6	2.35
135	201.8	219.1	168.6	2.32
136	206.8	224.0	173.5	2.27
137	211.8	219.1	168.5	2.25
138	216.8	224.0	173.5	2.29
139	221.7	219.1	168.5	2.34
140	226.7	224.0	173.4	2.37
141	231.7	219.1	168.5	2.40
142	132.1	229.0	189.8	1.78
143	137.1	234.0	194.7	1.91
144	142.0	229.0	189.8	1.98
145	147.0	234.0	183.7	2.86
146	152.0	229.0	178.7	2.62

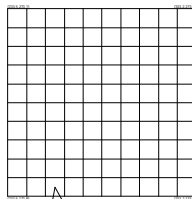
147	157.0	234.0	183.6	2.52
148	162.0	229.0	189.7	2.24
149	166.9	234.0	194.7	2.27
150	171.9	229.0	189.7	2.31
151	176.9	234.0	183.6	2.45
152	181.9	229.0	178.6	2.43
153	186.9	234.0	183.5	2.40
154	191.9	229.0	178.5	2.37
155	196.8	234.0	183.5	2.32
156	201.8	229.0	178.5	2.30
157	206.8	234.0	183.4	2.25
158	211.8	229.0	178.5	2.22
159	216.8	234.0	183.4	2.30
160	221.7	229.0	178.4	2.33
161	226.7	234.0	183.4	2.37
162	231.7	229.0	178.4	2.41
163	132.1	238.9	199.7	1.79
164	137.1	243.9	204.7	1.93
165	142.0	238.9	188.6	3.49
166	147.0	243.9	193.6	2.81
167	152.0	238.9	188.6	2.61
168	157.0	243.9	204.6	2.19
169	162.0	238.9	199.6	2.23
170	166.9	243.9	204.6	2.26
171	171.9	238.9	188.5	2.47
172	176.9	243.9	193.5	2.45
173	181.9	238.9	188.5	2.42
174	186.9	243.9	193.4	2.38
175	191.9	238.9	188.5	2.35
176	196.8	243.9	193.4	2.30
177	201.8	238.9	188.4	2.28
178	206.8	243.9	193.4	2.22
179	211.8	238.9	188.4	2.20
180	216.8	243.9	193.3	2.29
181	221.7	238.9	188.4	2.34
182	226.7	243.9	193.3	2.38
183	231.7	238.9	188.3	2.41
184	132.1	248.8	209.6	1.80
185	137.1	253.8	203.6	5.11
186	142.0	248.8	198.6	3.30
187	147.0	253.8	203.5	2.77
188	152.0	248.8	209.6	2.14
189	157.0	253.8	214.5	2.19
190	162.0	248.8	209.6	2.23
191	166.9	253.8	203.4	2.48
192	171.9	248.8	198.5	2.46
193	176.9	253.8	214.5	2.30
194	181.9	248.8	209.5	2.32
195	186.9	253.8	203.4	2.36
196	191.9	248.8	198.4	2.33
197	196.8	253.8	203.3	2.28
198	201.8	248.8	198.4	2.25
199	206.8	253.8	203.3	2.20
200	211.8	248.8	198.3	2.18
201	216.8	253.8	203.3	2.28
202	221.7	248.8	198.3	2.34
203	226.7	253.8	203.2	2.38
204	231.7	248.8	198.2	2.42
205	132.1	258.8	219.5	1.81

206	142.0	258.8	208.5	3.17
207	152.0	258.8	219.5	2.15
208	162.0	258.8	219.5	2.23
209	171.9	258.8	208.4	2.46
210	181.9	258.8	219.5	2.31
211	191.9	258.8	208.3	2.31
212	201.8	258.8	208.3	2.23
213	211.8	258.8	208.2	2.21
214	221.7	258.8	208.2	2.35
215	231.7	258.8	208.2	2.43

Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici strato2	3
5.Vertici strato3	3
6.Coefficienti parziali azioni	3
7.Coefficienti parziali per i parametri geotecnici del terreno	4
8.Stratigrafia	4
9.Risultati analisi pendio [A2+M2+R2]	4
Indice	9

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE
 DA 200 A 300 m
 IN CONDIZIONI STATICHE



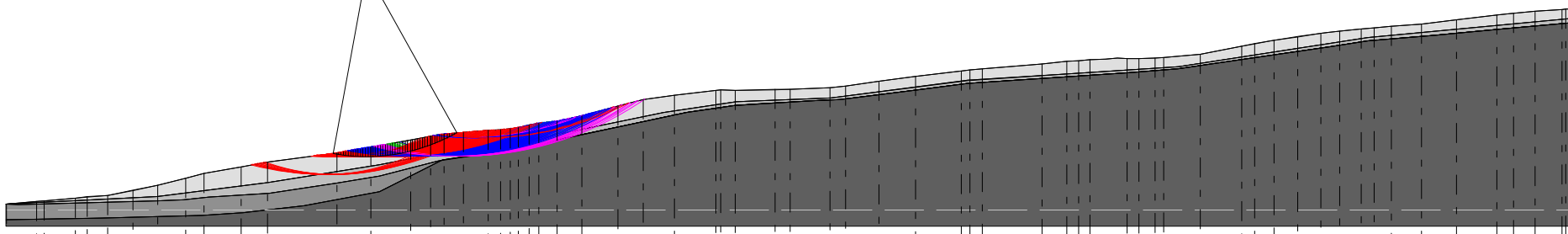
$x_c=258.46$ $y_c=178.83$ $R_c=116.88$ $F_s=2.13$

- Strato...1
 $g=1.9t/m^3$
 $Fi=16^\circ$
 $c=6$ kN/m²

- Strato...2
 $g=1.9t/m^3$
 $Fi=18^\circ$
 $c=10$ kN/m²

- Strato...3
 $g=1.7t/m^3$
 $Fi=34^\circ$
 $c=$ kN/m²

- Strato...4
 $g=2.0t/m^3$
 $Fi=28^\circ$
 $c=20$ kN/m²



Quote	0.00	32.21	64.42	96.63	128.84	161.05	193.26	225.47	257.68	289.89	322.10	354.31	386.52	418.73	450.94	483.15	515.36	547.57	579.78	611.99	644.20	676.41	708.62	740.83	773.04	805.25	837.46	869.67	901.88	934.09	966.30	998.51	1030.72	1062.93	1095.14	1127.35	1159.56	1191.77	1223.98	1256.19	1288.40	1320.61	1352.82	1385.03	1417.24	1449.45	1481.66	1513.87	1546.08	1578.29	1610.50	1642.71	1674.92	1707.13	1739.34	1771.55	1803.76	1835.97	1868.18	1900.39	1932.60	1964.81	1997.02	2029.23	2061.44	2093.65	2125.86	2158.07	2190.28	2222.49	2254.70	2286.91	2319.12	2351.33	2383.54	2415.75	2447.96	2480.17	2512.38	2544.59	2576.80	2609.01	2641.22	2673.43	2705.64	2737.85	2770.06	2802.27	2834.48	2866.69	2898.90	2931.11	2963.32	2995.53	3027.74	3060.05	3092.26	3124.47	3156.68	3188.89	3221.10	3253.31	3285.52	3317.73	3350.04	3382.25	3414.46	3446.67	3478.88	3511.09	3543.30	3575.51	3607.72	3640.03	3672.24	3704.45	3736.66	3768.87	3801.08	3833.29	3865.50	3897.71	3930.02	3962.23	3994.44	4026.65	4058.86	4091.07	4123.28	4155.49	4187.70	4220.01	4252.22	4284.43	4316.64	4348.85	4381.06	4413.27	4445.48	4477.69	4510.00	4542.21	4574.42	4606.63	4638.84	4671.05	4703.26	4735.47	4767.68	4800.09	4832.30	4864.51	4896.72	4929.03	4961.24	4993.45	5025.66	5057.87	5090.08	5122.29	5154.50	5186.71	5219.02	5251.23	5283.44	5315.65	5347.86	5380.07	5412.28	5444.49	5476.70	5509.01	5541.22	5573.43	5605.64	5637.85	5670.06	5702.27	5734.48	5766.69	5799.00	5831.21	5863.42	5895.63	5927.84	5960.05	5992.26	6024.47	6056.68	6088.89	6121.10	6153.31	6185.52	6217.73	6250.04	6282.25	6314.46	6346.67	6378.88	6411.09	6443.30	6475.51	6507.72	6540.03	6572.24	6604.45	6636.66	6668.87	6701.08	6733.29	6765.50	6797.71	6830.02	6862.23	6894.44	6926.65	6958.86	6991.07	7023.28	7055.49	7087.70	7120.01	7152.22	7184.43	7216.64	7248.85	7281.06	7313.27	7345.48	7377.69	7410.00	7442.21	7474.42	7506.63	7538.84	7571.05	7603.26	7635.47	7667.68	7700.09	7732.30	7764.51	7796.72	7829.03	7861.24	7893.45	7925.66	7957.87	7990.08	8022.29	8054.50	8086.71	8119.02	8151.23	8183.44	8215.65	8247.86	8280.07	8312.28	8344.49	8376.70	8409.01	8441.22	8473.43	8505.64	8537.85	8570.06	8602.27	8634.48	8666.69	8699.00	8731.21	8763.42	8795.63	8827.84	8860.05	8892.26	8924.47	8956.68	8989.09	9021.30	9053.51	9085.72	9117.93	9150.14	9182.35	9214.56	9246.77	9279.08	9311.29	9343.50	9375.71	9408.02	9440.23	9472.44	9504.65	9536.86	9569.07	9601.28	9633.49	9665.70	9697.91	9730.12	9762.33	9794.54	9826.75	9859.06	9891.27	9923.48	9955.69	9987.90	10020.11	10052.32	10084.53	10116.74	10149.05	10181.26	10213.47	10245.68	10277.89	10310.10	10342.31	10374.52	10406.73	10439.04	10471.25	10503.46	10535.67	10567.88	10600.09	10632.30	10664.51	10696.72	10729.03	10761.24	10793.45	10825.66	10857.87	10890.08	10922.29	10954.50	10986.71	11019.02	11051.23	11083.44	11115.65	11147.86	11180.07	11212.28	11244.49	11276.70	11309.01	11341.22	11373.43	11405.64	11437.85	11470.06	11502.27	11534.48	11566.69	11599.00	11631.21	11663.42	11695.63	11727.84	11760.05	11792.26	11824.47	11856.68	11889.09	11921.30	11953.51	11985.72	12017.93	12050.14	12082.35	12114.56	12146.77	12179.08	12211.29	12243.50	12275.71	12308.02	12340.23	12372.44	12404.65	12436.86	12469.07	12501.28	12533.49	12565.70	12597.91	12630.12	12662.33	12694.54	12726.75	12759.06	12791.27	12823.48	12855.69	12887.90	12920.11	12952.32	12984.53	13016.74	13049.05	13081.26	13113.47	13145.68	13177.89	13210.10	13242.31	13274.52	13306.73	13339.04	13371.25	13403.46	13435.67	13467.88	13500.09	13532.30	13564.51	13596.72	13629.03	13661.24	13693.45	13725.66	13757.87	13790.08	13822.29	13854.50	13886.71	13919.02	13951.23	13983.44	14015.65	14047.86	14080.07	14112.28	14144.49	14176.70	14209.01	14241.22	14273.43	14305.64	14337.85	14370.06	14402.27	14434.48	14466.69	14499.00	14531.21	14563.42	14595.63	14627.84	14660.05	14692.26	14724.47	14756.68	14789.09	14821.30	14853.51	14885.72	14917.93	14950.14	14982.35	15014.56	15046.77	15079.08	15111.29	15143.50	15175.71	15208.02	15240.23	15272.44	15304.65	15336.86	15369.07	15401.28	15433.49	15465.70	15498.01	15530.22	15562.43	15594.64	15626.85	15659.06	15691.27	15723.48	15755.69	15787.90	15820.11	15852.32	15884.53	15916.74	15949.05	15981.26	16013.47	16045.68	16077.89	16110.10	16142.31	16174.52	16206.73	16239.04	16271.25	16303.46	16335.67	16367.88	16400.09	16432.30	16464.51	16496.72	16529.03	16561.24	16593.45	16625.66	16657.87	16690.08	16722.29	16754.50	16786.71	16819.02	16851.23	16883.44	16915.65	16947.86	16980.07	17012.28	17044.49	17076.70	17109.01	17141.22	17173.43	17205.64	17237.85	17270.06	17302.27	17334.48	17366.69	17399.00	17431.21	17463.42	17495.63	17527.84	17560.05	17592.26	17624.47	17656.68	17689.09	17721.30	17753.51	17785.72	17817.93	17850.14	17882.35	17914.56	17946.77	17979.08	18011.29	18043.50	18075.71	18108.02	18140.23	18172.44	18204.65	18236.86	18269.07	18301.28	18333.49	18365.70	18398.01	18430.22	18462.43	18494.64	18526.85	18559.06	18591.27	18623.48	18655.69	18687.90	18720.11	18752.32	18784.53	18816.74	18849.05	18881.26	18913.47	18945.68	18977.89	19010.10	19042.31	19074.52	19106.73	19139.04	19171.25	19203.46	19235.67	19267.88	19300.09	19332.30	19364.51	19396.72	19429.03	19461.24	19493.45	19525.66	19557.87	19590.08	19622.29	19654.50	19686.71	19719.02	19751.23	19783.44	19815.65	19847.86	19880.07	19912.28	19944.49	19976.70	20009.01	20041.22	20073.43	20105.64	20137.85	20170.06	20202.27	20234.48	20266.69	20299.00	20331.21	20363.42	20395.63	20427.84	20460.05	20492.26	20524.47	20556.68	20589.09	20621.30	20653.51	20685.72	20717.93	20750.14	20782.35	20814.56	20846.77	20879.08	20911.29	20943.50	20975.71	21008.02	21040.23	21072.44	21104.65	21136.86	21169.07	21201.28	21233.49	21265.70	21298.01	21330.22	21362.43	21394.64	21426.85	21459.06	21491.27	21523.48	21555.69	21587.90	21620.11	21652.32	21684.53	21716.74	21749.05	21781.26	21813.47	21845.68	21877.89	21910.10	21942.31	21974.52	22006.73	22039.04	22071.25	22103.46	22135.67	22167.88	22200.09	22232.30	22264.51	22296.72	22329.03	22361.24	22393.45	22425.66	22457.87	22490.08	22522.29	22554.50	22586.71	22619.02	22651.23	22683.44	22715.65	22747.86	22780.07	22812.28	22844.49	22876.70	22909.01	22941.22	22973.43	23005.64	23037.85	23070.06	23102.27	23134.48	23166.69	23199.00	23231.21	23263.42	23295.63	23327.84	23360.05	23392.26	23424.47	23456.68	23489.09	23521.30	23553.51	23585.72	23618.03	23650.24	23682.45	23714.66	23746.87	23779.08	23811.29	23843.50	23875.71	23908.02	23940.23	23972.44	24004.65	24036.86	24069.07	24101.28	24133.49	24165.70	24198.01	24230.22	24262.43	24294.64	24326.85	24359.06	24391.27	24423.48	24455.69	24487.90	24520.11	24552.32	24584.53	24616.74	24649.05	24681.26	24713.47	24745.68	24777.89	24810.10	24842.31	24874.52	24906.73	24939.04	24971.25	25003.46	25035.67	25067.88	25100.09	25132.30	25164.51	25196.72	25229.03	25261.24	25293.45	25325.66	25357.87	25390.08	25422.29	25454.50	25486.71	25519.02	25551.23	25583.44	25615.65	25647.86	25680.07	25712.28	25744.49	25776.70	25809.01	25841.22	25873.43	25905.64	25937.85	25970.06	26002.27	26034.48	26066.69	26099.00	26131.21	26163.42	26195.63	26227.84	26260.05	26292.26	26324.47	26356.68	26389.09	26421.30	26453.51	26485.72	26518.03	26550.24	26582.45	26614.66	26646.87	26679.08	26711.29	26743.50	26775.71	26808.02	26840.23	26872.44	26904.65	26936.86	26969.07	27001.28	27033.49	27065.70	27098.01	27130.22	27162.43	27194
-------	------	-------	-------	-------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	-------

Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2018
Numero di strati	4.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	233.55 m
Ordinata vertice sinistro inferiore yi	173.87 m
Ascissa vertice destro superiore xs	333.19 m
Ordinata vertice destro superiore ys	273.11 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	31.79	32.21
2	50.82	33.71
3	55.54	33.97
4	75.36	35.8
5	82.73	36.64
6	95.61	37.49
7	111.57	40.72
8	127.24	43.89
9	144.7	48.26
10	156.36	51.28
11	179.68	55.43
12	196.25	58.43
13	239.82	64.09
14	261.3	67.83
15	286.22	72.22
16	298.73	74.74
17	307.32	76.0
18	319.59	77.14
19	334.93	78.48
20	342.91	78.68
21	349.05	79.54
22	353.96	80.2
23	360.71	81.68
24	366.84	82.98
25	378.5	84.23
26	393.84	87.48
27	416.76	93.83
28	432.65	97.75
29	452.14	100.32
30	478.29	103.66
31	481.36	103.84

32	490.59	103.62
33	515.72	104.02
34	524.95	104.03
35	550.07	105.16
36	559.81	106.26
37	580.83	109.44
38	603.91	112.23
39	632.62	115.81
40	638.26	116.5
41	645.95	117.05
42	683.38	120.06
43	699.28	121.7
44	706.45	122.29
45	713.63	122.71
46	723.37	123.3
47	731.07	123.72
48	737.22	123.66
49	744.4	123.52
50	754.65	123.93
51	760.05	124.14
52	783.16	126.28
53	809.3	131.32
54	817.15	132.81
55	829.69	134.93
56	844.33	137.23
57	858.97	139.45
58	870.99	140.7
59	884.59	142.13
60	892.43	142.86
61	903.41	143.76
62	922.23	145.3
63	944.18	147.81
64	969.8	150.83
65	980.26	151.96
66	993.91	153.2
67	1005.87	154.0
68	1010.58	154.3
69	1013.19	154.68
70	1014.76	154.71

Vertici strato1

N	X (m)	y (m)
1	31.79	32.21
2	126.69	36.78
3	196.43	45.54
4	266.76	56.77
5	306.96	64.47
6	370.57	74.33
7	389.75	78.13
8	445.45	89.49
9	491.31	96.28
10	550.88	98.78
11	636.67	109.79
12	701.93	114.06
13	769.59	118.49
14	888.47	136.63
15	1014.76	148.71

Vertici strato2

N	X (m)	y (m)
1	31.79	32.21
2	39.47	31.68
3	126.69	33.96
4	143.38	34.9
5	159.34	36.39
6	197.2	38.81
7	239.84	45.32
8	266.76	49.77
9	303.56	59.28
10	348.75	66.1
11	421.3	81.57
12	459.64	89.74
13	490.15	94.18
14	505.11	95.0
15	540.62	96.92
16	556.59	97.79
17	607.97	104.35
18	636.66	108.04
19	739.0	114.83
20	768.76	117.04
21	864.7	131.09
22	888.65	134.6
23	929.62	138.23
24	969.35	141.74
25	1014.76	145.99

Vertici strato3

N	X (m)	y (m)
1	31.79	22.16
2	91.15	23.31
3	154.98	24.99
4	180.8	26.53
5	219.34	31.19
6	266.76	39.77
7	306.25	59.69
8	348.75	66.1
9	421.3	81.57
10	459.64	89.74
11	490.15	94.18
12	540.62	96.92
13	556.59	97.79
14	607.97	104.35
15	636.66	108.04
16	739.0	114.83
17	768.76	117.04
18	864.7	131.09
19	888.65	134.6
20	929.62	138.23
21	969.35	141.74
22	1014.76	145.99

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3			34	1.7		
4	20		28	2.0		



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.13
Ascissa centro superficie	258.46 m
Ordinata centro superficie	178.83 m
Raggio superficie	116.88 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	233.5	173.9	123.3	2.43
2	238.5	178.8	128.2	2.43
3	243.5	173.9	112.0	2.38
4	248.5	178.8	116.9	2.22
5	253.5	173.9	111.9	2.15
6	258.5	178.8	116.9	2.13
7	263.4	173.9	111.9	2.14
8	268.4	178.8	116.8	2.20
9	273.4	173.9	111.8	2.25
10	278.4	178.8	116.8	2.35
11	283.4	173.9	111.8	2.44
12	288.3	178.8	116.7	2.75
13	293.3	173.9	111.7	2.91
14	298.3	178.8	116.7	3.05
15	303.3	173.9	111.7	3.12
16	308.3	178.8	116.6	3.13
17	313.3	173.9	111.6	3.23
18	318.2	178.8	116.5	3.75
19	323.2	173.9	111.6	4.20
20	328.2	178.8	105.1	3.72
21	333.2	173.9	100.1	3.39
22	233.5	183.8	133.2	2.42
23	238.5	188.8	138.1	2.42
24	243.5	183.8	121.9	2.34
25	248.5	188.8	126.9	2.20
26	253.5	183.8	121.9	2.15
27	258.5	188.8	126.8	2.14
28	263.4	183.8	121.8	2.16

29	268.4	188.8	126.7	2.22
30	273.4	183.8	121.8	2.28
31	278.4	188.8	126.7	2.38
32	283.4	183.8	121.7	2.51
33	288.3	188.8	126.6	2.78
34	293.3	183.8	121.6	2.93
35	298.3	188.8	126.6	3.00
36	303.3	183.8	121.6	3.07
37	308.3	188.8	126.5	3.10
38	313.3	183.8	121.5	3.16
39	318.2	188.8	126.5	3.77
40	323.2	183.8	121.5	4.03
41	328.2	188.8	115.0	3.60
42	333.2	183.8	110.0	3.32
43	233.5	193.7	143.1	2.41
44	238.5	198.7	148.0	2.42
45	243.5	193.7	131.8	2.30
46	248.5	198.7	136.8	2.18
47	253.5	193.7	131.8	2.15
48	258.5	198.7	136.7	2.15
49	263.4	193.7	131.7	2.18
50	268.4	198.7	136.7	2.24
51	273.4	193.7	131.7	2.30
52	278.4	198.7	136.6	2.41
53	283.4	193.7	131.6	2.58
54	288.3	198.7	136.6	2.80
55	293.3	193.7	131.6	2.91
56	298.3	198.7	136.5	2.96
57	303.3	193.7	131.5	3.03
58	308.3	198.7	136.5	3.05
59	313.3	193.7	131.5	3.09
60	318.2	198.7	136.4	3.77
61	323.2	193.7	120.0	3.98
62	328.2	198.7	125.0	3.50
63	333.2	193.7	120.0	3.24
64	233.5	203.6	153.0	2.40
65	238.5	208.6	146.8	2.40
66	243.5	203.6	141.8	2.26
67	248.5	208.6	146.7	2.18
68	253.5	203.6	141.7	2.15
69	258.5	208.6	146.7	2.17
70	263.4	203.6	141.7	2.20
71	268.4	208.6	146.6	2.27
72	273.4	203.6	141.6	2.33
73	278.4	208.6	146.5	2.44
74	283.4	203.6	141.6	2.63
75	288.3	208.6	146.5	2.80
76	293.3	203.6	141.5	2.90
77	298.3	208.6	146.4	2.92
78	303.3	203.6	141.4	3.00
79	308.3	208.6	146.4	3.00
80	313.3	203.6	141.4	3.27
81	318.2	208.6	146.3	3.71
82	323.2	203.6	130.0	3.82
83	328.2	208.6	134.9	3.43
84	333.2	203.6	129.9	3.14
85	233.5	213.6	163.0	2.41
86	238.5	218.5	156.7	2.36
87	243.5	213.6	151.7	2.24

88	248.5	218.5	156.6	2.18
89	253.5	213.6	151.6	2.16
90	258.5	218.5	156.6	2.19
91	263.4	213.6	151.6	2.22
92	268.4	218.5	156.5	2.29
93	273.4	213.6	151.5	2.36
94	278.4	218.5	156.5	2.46
95	283.4	213.6	151.5	2.67
96	288.3	218.5	156.4	2.80
97	293.3	213.6	151.4	2.87
98	298.3	218.5	156.4	2.92
99	303.3	213.6	151.4	2.96
100	308.3	218.5	156.3	2.95
101	313.3	213.6	151.3	3.28
102	318.2	218.5	156.2	3.68
103	323.2	213.6	139.9	3.69
104	328.2	218.5	144.8	3.34
105	333.2	213.6	139.8	3.05
106	233.5	223.5	172.9	2.41
107	238.5	228.5	166.6	2.32
108	243.5	223.5	161.6	2.23
109	248.5	228.5	166.6	2.18
110	253.5	223.5	161.6	2.18
111	258.5	228.5	166.5	2.21
112	263.4	223.5	161.5	2.24
113	268.4	228.5	166.4	2.32
114	273.4	223.5	161.5	2.39
115	278.4	228.5	166.4	2.48
116	283.4	223.5	161.4	2.69
117	288.3	228.5	166.3	2.78
118	293.3	223.5	161.3	2.85
119	298.3	228.5	166.3	2.90
120	303.3	223.5	161.3	2.93
121	308.3	228.5	166.2	2.91
122	313.3	223.5	161.2	3.29
123	318.2	228.5	166.2	3.58
124	323.2	223.5	149.8	3.60
125	328.2	228.5	154.7	3.24
126	333.2	223.5	149.7	2.95
127	233.5	233.4	182.8	2.42
128	238.5	238.4	176.5	2.30
129	243.5	233.4	171.5	2.22
130	248.5	238.4	176.5	2.19
131	253.5	233.4	171.5	2.19
132	258.5	238.4	176.4	2.23
133	263.4	233.4	171.4	2.26
134	268.4	238.4	176.4	2.35
135	273.4	233.4	171.4	2.42
136	278.4	238.4	176.3	2.54
137	283.4	233.4	171.3	2.70
138	288.3	238.4	176.3	2.78
139	293.3	233.4	171.3	2.84
140	298.3	238.4	176.2	2.87
141	303.3	233.4	171.2	2.90
142	308.3	238.4	176.1	2.85
143	313.3	233.4	171.2	3.33
144	318.2	238.4	176.1	3.54
145	323.2	233.4	159.7	3.53
146	328.2	238.4	164.7	3.14

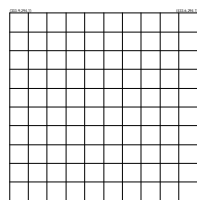
147	333.2	233.4	159.7	2.83
148	233.5	243.3	192.7	2.43
149	238.5	248.3	186.5	2.28
150	243.5	243.3	181.5	2.22
151	248.5	248.3	186.4	2.20
152	253.5	243.3	181.4	2.21
153	258.5	248.3	186.3	2.25
154	263.4	243.3	181.4	2.29
155	268.4	248.3	186.3	2.38
156	273.4	243.3	181.3	2.44
157	278.4	248.3	186.2	2.57
158	283.4	243.3	181.2	2.71
159	288.3	248.3	186.2	2.77
160	293.3	243.3	181.2	2.83
161	298.3	248.3	186.1	2.85
162	303.3	243.3	181.1	2.86
163	308.3	248.3	186.1	2.78
164	313.3	243.3	181.1	3.36
165	318.2	248.3	186.0	3.44
166	323.2	243.3	169.7	3.43
167	328.2	248.3	174.6	3.03
168	333.2	243.3	169.6	2.71
169	233.5	253.3	191.4	2.40
170	238.5	258.2	196.4	2.27
171	243.5	253.3	191.4	2.22
172	248.5	258.2	196.3	2.22
173	253.5	253.3	191.3	2.23
174	258.5	258.2	196.3	2.27
175	263.4	253.3	191.3	2.31
176	268.4	258.2	196.2	2.40
177	273.4	253.3	191.2	2.46
178	278.4	258.2	196.2	2.60
179	283.4	253.3	191.2	2.70
180	288.3	258.2	196.1	2.76
181	293.3	253.3	191.1	2.82
182	298.3	258.2	196.0	2.82
183	303.3	253.3	191.1	2.81
184	308.3	258.2	196.0	2.71
185	313.3	253.3	191.0	3.32
186	318.2	258.2	195.9	3.43
187	323.2	253.3	179.6	3.33
188	328.2	258.2	184.5	2.90
189	333.2	253.3	179.5	2.58
190	233.5	263.2	201.4	2.37
191	238.5	268.1	206.3	2.26
192	243.5	263.2	201.3	2.23
193	248.5	268.1	206.2	2.23
194	253.5	263.2	201.3	2.24
195	258.5	268.1	206.2	2.29
196	263.4	263.2	201.2	2.34
197	268.4	268.1	206.1	2.42
198	273.4	263.2	201.1	2.47
199	278.4	268.1	206.1	2.60
200	283.4	263.2	201.1	2.71
201	288.3	268.1	206.0	2.76
202	293.3	263.2	201.0	2.81
203	298.3	268.1	206.0	2.78
204	303.3	263.2	201.0	2.75
205	308.3	268.1	205.9	2.84

206	313.3	263.2	200.9	3.33
207	318.2	268.1	205.9	3.33
208	323.2	263.2	189.5	3.24
209	328.2	268.1	194.4	2.77
210	333.2	263.2	189.4	2.46
211	233.5	273.1	211.3	2.34
212	243.5	273.1	211.2	2.23
213	253.5	273.1	211.2	2.26
214	263.4	273.1	211.1	2.37
215	273.4	273.1	211.1	2.47
216	283.4	273.1	211.0	2.70
217	293.3	273.1	211.0	2.77
218	303.3	273.1	210.9	2.71
219	313.3	273.1	210.9	3.24
220	323.2	273.1	199.4	3.12
221	333.2	273.1	199.4	2.36

Indice

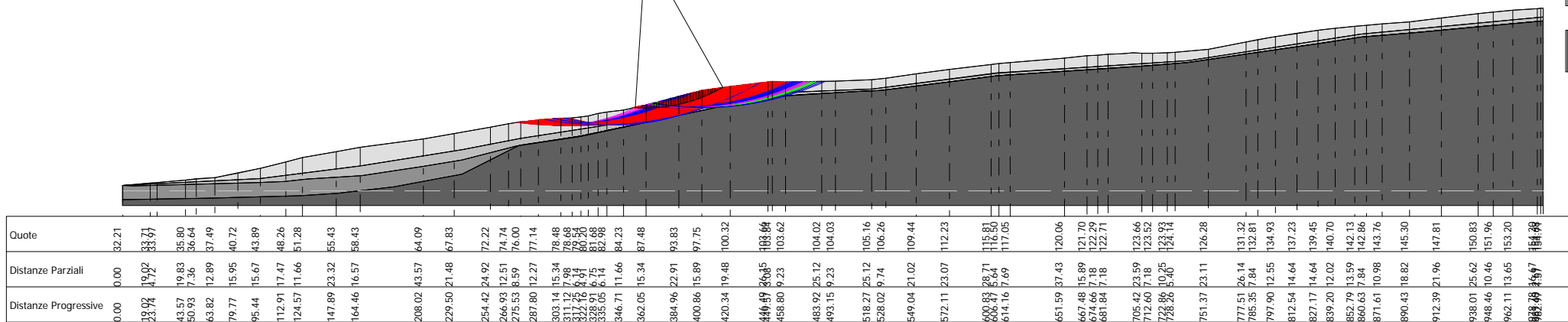
1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici strato2	3
5.Vertici strato3	3
6.Coefficienti parziali azioni	3
7.Coefficienti parziali per i parametri geotecnici del terreno	4
8.Stratigrafia	4
9.Risultati analisi pendio [A2+M2+R2]	4
Indice	9

VERIFICA ANALITICA DI STABILITA' DI VERSANTE DA 300 A 400 m IN CONDIZIONI STATICHE



$x_c = 393.70$ $y_c = 194.83$ $R_c = 109.12$ $F_s = 1.63$

- Strato...1
 $g = 1.9t/m^3$
 $F_i = 16^\circ$
 $c = 6 \text{ kN/m}^2$
- Strato...2
 $g = 1.9t/m^3$
 $F_i = 18^\circ$
 $c = 10 \text{ kN/m}^2$
- Strato...3
 $g = 1.7t/m^3$
 $F_i = 34^\circ$
 $c = \text{kN/m}^2$
- Strato...4
 $g = 2.0t/m^3$
 $F_i = 28^\circ$
 $c = 20 \text{ kN/m}^2$



Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2018
Numero di strati	4.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	333.92 m
Ordinata vertice sinistro inferiore yi	194.83 m
Ascissa vertice destro superiore xs	433.56 m
Ordinata vertice destro superiore ys	294.07 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	31.79	32.21
2	50.82	33.71
3	55.54	33.97
4	75.36	35.8
5	82.73	36.64
6	95.61	37.49
7	111.57	40.72
8	127.24	43.89
9	144.7	48.26
10	156.36	51.28
11	179.68	55.43
12	196.25	58.43
13	239.82	64.09
14	261.3	67.83
15	286.22	72.22
16	298.73	74.74
17	307.32	76.0
18	319.59	77.14
19	334.93	78.48
20	342.91	78.68
21	349.05	79.54
22	353.96	80.2
23	360.71	81.68
24	366.84	82.98
25	378.5	84.23
26	393.84	87.48
27	416.76	93.83
28	432.65	97.75
29	452.14	100.32
30	478.29	103.66
31	481.36	103.84

32	490.59	103.62
33	515.72	104.02
34	524.95	104.03
35	550.07	105.16
36	559.81	106.26
37	580.83	109.44
38	603.91	112.23
39	632.62	115.81
40	638.26	116.5
41	645.95	117.05
42	683.38	120.06
43	699.28	121.7
44	706.45	122.29
45	713.63	122.71
46	723.37	123.3
47	731.07	123.72
48	737.22	123.66
49	744.4	123.52
50	754.65	123.93
51	760.05	124.14
52	783.16	126.28
53	809.3	131.32
54	817.15	132.81
55	829.69	134.93
56	844.33	137.23
57	858.97	139.45
58	870.99	140.7
59	884.59	142.13
60	892.43	142.86
61	903.41	143.76
62	922.23	145.3
63	944.18	147.81
64	969.8	150.83
65	980.26	151.96
66	993.91	153.2
67	1005.87	154.0
68	1010.58	154.3
69	1013.19	154.68
70	1014.76	154.71

Vertici strato1

N	X (m)	y (m)
1	31.79	32.21
2	126.69	36.78
3	196.43	45.54
4	266.76	56.77
5	306.96	64.47
6	370.57	74.33
7	389.75	78.13
8	445.45	89.49
9	491.31	96.28
10	550.88	98.78
11	636.67	109.79
12	701.93	114.06
13	769.59	118.49
14	888.47	136.63
15	1014.76	148.71

Vertici strato2

N	X (m)	y (m)
1	31.79	32.21
2	39.47	31.68
3	126.69	33.96
4	143.38	34.9
5	159.34	36.39
6	197.2	38.81
7	239.84	45.32
8	266.76	49.77
9	303.56	59.28
10	348.75	66.1
11	421.3	81.57
12	459.64	89.74
13	490.15	94.18
14	505.11	95.0
15	540.62	96.92
16	556.59	97.79
17	607.97	104.35
18	636.66	108.04
19	739.0	114.83
20	768.76	117.04
21	864.7	131.09
22	888.65	134.6
23	929.62	138.23
24	969.35	141.74
25	1014.76	145.99

Vertici strato3

N	X (m)	y (m)
1	31.79	22.16
2	91.15	23.31
3	154.98	24.99
4	180.8	26.53
5	219.34	31.19
6	266.76	39.77
7	306.25	59.69
8	348.75	66.1
9	421.3	81.57
10	459.64	89.74
11	490.15	94.18
12	540.62	96.92
13	556.59	97.79
14	607.97	104.35
15	636.66	108.04
16	739.0	114.83
17	768.76	117.04
18	864.7	131.09
19	888.65	134.6
20	929.62	138.23
21	969.35	141.74
22	1014.76	145.99

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3			34	1.7		
4	20		28	2.0		



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.63
Ascissa centro superficie	393.7 m
Ordinata centro superficie	194.83 m
Raggio superficie	109.12 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	333.9	194.8	121.1	3.18
2	338.9	199.8	126.0	2.81
3	343.9	194.8	121.0	2.54
4	348.9	199.8	125.9	2.20
5	353.8	194.8	120.9	2.02
6	358.8	199.8	125.8	1.94
7	363.8	194.8	120.8	1.90
8	368.8	199.8	125.8	1.86
9	373.8	194.8	120.8	2.02
10	378.8	199.8	114.2	2.09
11	383.7	194.8	109.2	1.77
12	388.7	199.8	114.1	1.65
13	393.7	194.8	109.1	1.63
14	398.7	199.8	114.0	1.68
15	403.7	194.8	109.0	1.71
16	408.6	199.8	113.9	1.79
17	413.6	194.8	108.9	1.86
18	418.6	199.8	113.9	2.05
19	423.6	194.8	108.8	2.21
20	428.6	199.8	113.8	2.41
21	433.6	194.8	108.8	3.17
22	333.9	204.8	131.0	3.08
23	338.9	209.7	135.9	2.70
24	343.9	204.8	130.9	2.43
25	348.9	209.7	135.8	2.12
26	353.8	204.8	130.8	1.96
27	358.8	209.7	135.8	1.91
28	363.8	204.8	130.8	1.89

29	368.8	209.7	135.7	1.87
30	373.8	204.8	130.7	2.15
31	378.8	209.7	124.1	1.96
32	383.7	204.8	119.1	1.72
33	388.7	209.7	124.1	1.66
34	393.7	204.8	119.0	1.66
35	398.7	209.7	124.0	1.70
36	403.7	204.8	119.0	1.74
37	408.6	209.7	123.9	1.82
38	413.6	204.8	118.9	1.88
39	418.6	209.7	123.8	2.10
40	423.6	204.8	118.8	2.25
41	428.6	209.7	123.7	2.47
42	433.6	204.8	118.7	3.23
43	333.9	214.7	140.9	2.99
44	338.9	219.6	145.8	2.58
45	343.9	214.7	140.8	2.32
46	348.9	219.6	145.8	2.05
47	353.8	214.7	140.8	1.91
48	358.8	219.6	145.7	1.90
49	363.8	214.7	140.7	1.88
50	368.8	219.6	145.6	1.87
51	373.8	214.7	140.6	2.24
52	378.8	219.6	134.1	1.86
53	383.7	214.7	129.1	1.71
54	388.7	219.6	134.0	1.68
55	393.7	214.7	129.0	1.68
56	398.7	219.6	133.9	1.73
57	403.7	214.7	128.9	1.77
58	408.6	219.6	133.8	1.84
59	413.6	214.7	128.8	1.90
60	418.6	219.6	133.7	2.13
61	423.6	214.7	128.7	2.29
62	428.6	219.6	133.6	2.73
63	433.6	214.7	128.6	3.38
64	333.9	224.6	150.8	2.88
65	338.9	229.6	155.8	2.47
66	343.9	224.6	150.8	2.23
67	348.9	229.6	155.7	1.98
68	353.8	224.6	150.7	1.89
69	358.8	229.6	155.6	1.90
70	363.8	224.6	150.6	1.88
71	368.8	229.6	155.5	1.88
72	373.8	224.6	150.5	2.30
73	378.8	229.6	144.0	1.81
74	383.7	224.6	139.0	1.71
75	388.7	229.6	143.9	1.69
76	393.7	224.6	138.9	1.70
77	398.7	229.6	143.8	1.75
78	403.7	224.6	138.8	1.79
79	408.6	229.6	143.7	1.86
80	413.6	224.6	138.7	1.92
81	418.6	229.6	143.6	2.18
82	423.6	224.6	138.6	2.33
83	428.6	229.6	143.5	2.91
84	433.6	224.6	138.5	3.49
85	333.9	234.5	160.8	2.76
86	338.9	239.5	165.7	2.36
87	343.9	234.5	160.7	2.14

88	348.9	239.5	165.6	1.93
89	353.8	234.5	160.6	1.90
90	358.8	239.5	165.5	1.89
91	363.8	234.5	160.5	1.88
92	368.8	239.5	165.5	2.04
93	373.8	234.5	149.0	2.12
94	378.8	239.5	153.9	1.78
95	383.7	234.5	148.9	1.71
96	388.7	239.5	153.8	1.71
97	393.7	234.5	148.8	1.72
98	398.7	239.5	153.7	1.78
99	403.7	234.5	148.7	1.81
100	408.6	239.5	153.6	1.88
101	413.6	234.5	148.6	2.01
102	418.6	239.5	153.5	2.23
103	423.6	234.5	148.5	2.39
104	428.6	239.5	153.5	3.07
105	433.6	234.5	148.4	3.62
106	333.9	244.4	170.7	2.64
107	338.9	249.4	175.6	2.26
108	343.9	244.4	170.6	2.07
109	348.9	249.4	175.5	1.89
110	353.8	244.4	170.5	1.90
111	358.8	249.4	175.5	1.90
112	363.8	244.4	170.5	1.90
113	368.8	249.4	175.4	2.25
114	373.8	244.4	158.9	1.98
115	378.8	249.4	163.8	1.77
116	383.7	244.4	158.8	1.72
117	388.7	249.4	163.7	1.73
118	393.7	244.4	158.7	1.75
119	398.7	249.4	163.7	1.80
120	403.7	244.4	158.6	1.84
121	408.6	249.4	163.6	1.91
122	413.6	244.4	158.6	2.07
123	418.6	249.4	163.5	2.27
124	423.6	244.4	158.5	2.43
125	428.6	249.4	163.4	3.24
126	433.6	244.4	158.4	3.76
127	333.9	254.4	180.6	2.52
128	338.9	259.3	185.5	2.18
129	343.9	254.4	180.5	2.01
130	348.9	259.3	185.5	1.86
131	353.8	254.4	180.5	1.89
132	358.8	259.3	185.4	1.91
133	363.8	254.4	180.4	1.91
134	368.8	259.3	185.3	2.30
135	373.8	254.4	168.8	1.91
136	378.8	259.3	173.8	1.77
137	383.7	254.4	168.8	1.73
138	388.7	259.3	173.7	1.75
139	393.7	254.4	168.7	1.77
140	398.7	259.3	173.6	1.82
141	403.7	254.4	168.6	1.86
142	408.6	259.3	173.5	1.93
143	413.6	254.4	168.5	2.12
144	418.6	259.3	173.4	2.32
145	423.6	254.4	168.4	2.48
146	428.6	259.3	173.3	3.29

147	433.6	254.4	168.3	3.86
148	333.9	264.3	190.5	2.40
149	338.9	269.3	195.5	2.11
150	343.9	264.3	190.5	1.96
151	348.9	269.3	195.4	1.84
152	353.8	264.3	190.4	1.90
153	358.8	269.3	195.3	1.91
154	363.8	264.3	190.3	1.91
155	368.8	269.3	183.8	2.15
156	373.8	264.3	178.8	1.87
157	378.8	269.3	183.7	1.77
158	383.7	264.3	178.7	1.75
159	388.7	269.3	183.6	1.77
160	393.7	264.3	178.6	1.79
161	398.7	269.3	183.5	1.84
162	403.7	264.3	178.5	1.88
163	408.6	269.3	183.4	1.96
164	413.6	264.3	178.4	2.16
165	418.6	269.3	183.3	2.37
166	423.6	264.3	178.3	2.69
167	428.6	269.3	183.2	3.46
168	433.6	264.3	178.2	3.95
169	333.9	274.2	200.5	2.30
170	338.9	279.2	205.4	2.04
171	343.9	274.2	200.4	1.93
172	348.9	279.2	205.3	1.89
173	353.8	274.2	200.3	1.92
174	358.8	279.2	205.2	1.93
175	363.8	274.2	200.2	1.92
176	368.8	279.2	193.7	2.04
177	373.8	274.2	188.7	1.85
178	378.8	279.2	193.6	1.78
179	383.7	274.2	188.6	1.77
180	388.7	279.2	193.5	1.79
181	393.7	274.2	188.5	1.81
182	398.7	279.2	193.4	1.86
183	403.7	274.2	188.4	1.90
184	408.6	279.2	193.3	2.03
185	413.6	274.2	188.3	2.21
186	418.6	279.2	193.2	2.42
187	423.6	274.2	188.2	2.89
188	428.6	279.2	193.1	3.56
189	433.6	274.2	188.1	4.07
190	333.9	284.1	210.4	2.22
191	338.9	289.1	215.3	2.00
192	343.9	284.1	210.3	1.90
193	348.9	289.1	215.2	1.90
194	353.8	284.1	210.2	1.92
195	358.8	289.1	215.2	1.94
196	363.8	284.1	210.2	2.07
197	368.8	289.1	203.6	1.97
198	373.8	284.1	198.6	1.84
199	378.8	289.1	203.5	1.79
200	383.7	284.1	198.5	1.78
201	388.7	289.1	203.4	1.81
202	393.7	284.1	198.4	1.83
203	398.7	289.1	203.3	1.88
204	403.7	284.1	198.3	1.93
205	408.6	289.1	203.3	2.09

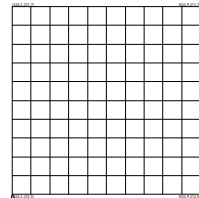
206	413.6	284.1	198.2	2.27
207	418.6	289.1	203.2	2.47
208	423.6	284.1	198.2	3.00
209	428.6	289.1	203.1	3.68
210	433.6	284.1	198.1	4.13
211	333.9	294.1	220.3	2.14
212	343.9	294.1	220.2	1.88
213	353.8	294.1	220.2	1.94
214	363.8	294.1	220.1	2.24
215	373.8	294.1	208.5	1.83
216	383.7	294.1	208.5	1.80
217	393.7	294.1	208.4	1.85
218	403.7	294.1	208.3	1.95
219	413.6	294.1	208.2	2.31
220	423.6	294.1	208.1	3.15
221	433.6	294.1	208.0	4.23

Indice

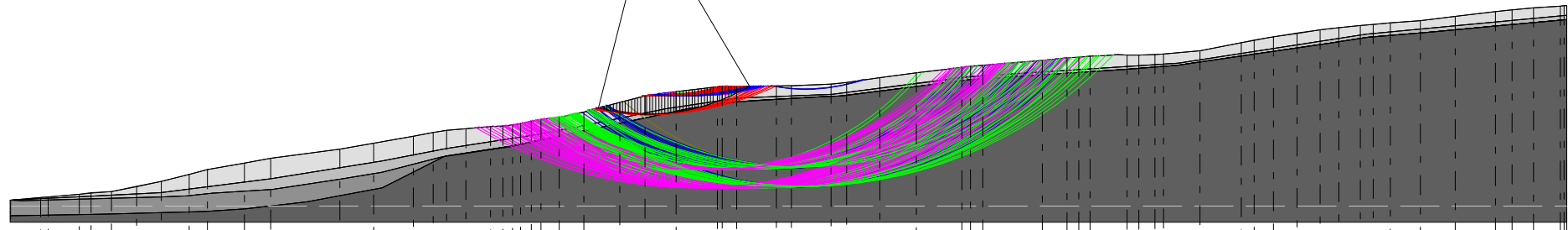
1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici strato2	3
5.Vertici strato3	3
6.Coefficienti parziali azioni	3
7.Coefficienti parziali per i parametri geotecnici del terreno	4
8.Stratigrafia	4
9.Risultati analisi pendio [A2+M2+R2]	4
Indice	9

VERIFICA ANALITICA DI STABILITA' DI VERSANTE DA 400 A 500 m IN CONDIZIONI STATICHE

xc=434.29 yc=212.47 Rc=126.40 Fs=3.41



- Strato...1
 g=1.9t/m³
 Fi=16°
 c=6 kN/m²
- Strato...2
 g=1.9t/m³
 Fi=18°
 c=10 kN/m²
- Strato...3
 g=1.7t/m³
 Fi=34°
 c= kN/m²
- Strato...4
 g=2.0t/m³
 Fi=28°
 c=20 kN/m²



Quote	0.00	32.21	19.02	33.91	43.57	19.83	35.80	50.93	7.36	36.64	63.82	12.89	37.49	79.77	15.95	40.72	95.44	15.67	43.89	112.91	17.47	48.26	124.57	11.66	51.28	147.89	23.32	55.43	164.46	16.57	58.43	208.02	43.57	64.09	229.50	21.48	67.83	254.42	24.92	72.22	266.93	12.51	74.74	275.53	8.59	76.00	287.80	12.27	77.14	303.14	15.34	78.48	311.12	7.98	78.69	322.18	8.91	80.30	328.91	6.75	81.68	335.05	6.14	82.98	346.71	11.66	84.23	362.05	15.34	87.48	384.96	22.91	93.83	400.86	15.89	97.75	420.34	19.48	100.32	444.59	30.85	103.62	458.80	9.23	104.02	483.92	25.12	104.03	493.15	9.23	105.16	518.27	25.12	106.26	528.02	9.74	109.44	549.04	21.02	112.23	572.11	23.07	115.81	600.83	28.71	117.05	614.16	7.69	120.06	651.59	37.43	121.70	667.48	15.89	122.71	705.42	23.59	123.66	712.60	7.18	123.93	722.86	10.25	124.14	751.37	23.11	131.32	777.51	26.14	132.81	797.90	12.55	134.93	812.54	14.64	137.23	827.17	14.64	139.45	839.20	12.02	142.13	859.79	13.59	142.86	860.63	7.84	143.76	871.61	10.98	145.30	890.43	18.82	147.81	912.39	21.96	150.83	938.01	25.62	151.96	948.46	10.46	153.20	962.11	13.65	154.88	983.98	14.67	154.88
Distanze Parziali	0.00	19.02	4.72	33.91	43.57	19.83	35.80	50.93	7.36	36.64	63.82	12.89	37.49	79.77	15.95	40.72	95.44	15.67	43.89	112.91	17.47	48.26	124.57	11.66	51.28	147.89	23.32	55.43	164.46	16.57	58.43	208.02	43.57	64.09	229.50	21.48	67.83	254.42	24.92	72.22	266.93	12.51	74.74	275.53	8.59	76.00	287.80	12.27	77.14	303.14	15.34	78.48	311.12	7.98	78.69	322.18	8.91	80.30	328.91	6.75	81.68	335.05	6.14	82.98	346.71	11.66	84.23	362.05	15.34	87.48	384.96	22.91	93.83	400.86	15.89	97.75	420.34	19.48	100.32	444.59	30.85	103.62	458.80	9.23	104.02	483.92	25.12	104.03	493.15	9.23	105.16	518.27	25.12	106.26	528.02	9.74	109.44	549.04	21.02	112.23	572.11	23.07	115.81	600.83	28.71	117.05	614.16	7.69	120.06	651.59	37.43	121.70	667.48	15.89	122.71	705.42	23.59	123.66	712.60	7.18	123.93	722.86	10.25	124.14	751.37	23.11	131.32	777.51	26.14	132.81	797.90	12.55	134.93	812.54	14.64	137.23	827.17	14.64	139.45	839.20	12.02	140.70	859.79	13.59	142.13	860.63	7.84	142.86	871.61	10.98	143.76	890.43	18.82	145.30	912.39	21.96	147.81	938.01	25.62	150.83	948.46	10.46	151.96	962.11	13.65	153.20	983.98	14.67	154.88
Distanze Progressive	0.00	19.02	23.74	33.91	43.57	19.83	35.80	50.93	7.36	36.64	63.82	12.89	37.49	79.77	15.95	40.72	95.44	15.67	43.89	112.91	17.47	48.26	124.57	11.66	51.28	147.89	23.32	55.43	164.46	16.57	58.43	208.02	43.57	64.09	229.50	21.48	67.83	254.42	24.92	72.22	266.93	12.51	74.74	275.53	8.59	76.00	287.80	12.27	77.14	303.14	15.34	78.48	311.12	7.98	78.69	322.18	8.91	80.30	328.91	6.75	81.68	335.05	6.14	82.98	346.71	11.66	84.23	362.05	15.34	87.48	384.96	22.91	93.83	400.86	15.89	97.75	420.34	19.48	100.32	444.59	30.85	103.62	458.80	9.23	104.02	483.92	25.12	104.03	493.15	9.23	105.16	518.27	25.12	106.26	528.02	9.74	109.44	549.04	21.02	112.23	572.11	23.07	115.81	600.83	28.71	117.05	614.16	7.69	120.06	651.59	37.43	121.70	667.48	15.89	122.71	705.42	23.59	123.66	712.60	7.18	123.93	722.86	10.25	124.14	751.37	23.11	131.32	777.51	26.14	132.81	797.90	12.55	134.93	812.54	14.64	137.23	827.17	14.64	139.45	839.20	12.02	140.70	859.79	13.59	142.13	860.63	7.84	142.86	871.61	10.98	143.76	890.43	18.82	145.30	912.39	21.96	147.81	938.01	25.62	150.83	948.46	10.46	151.96	962.11	13.65	153.20	983.98	14.67	154.88

Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2018
Numero di strati	4.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	434.29 m
Ordinata vertice sinistro inferiore yi	212.47 m
Ascissa vertice destro superiore xs	533.93 m
Ordinata vertice destro superiore ys	311.72 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	31.79	32.21
2	50.82	33.71
3	55.54	33.97
4	75.36	35.8
5	82.73	36.64
6	95.61	37.49
7	111.57	40.72
8	127.24	43.89
9	144.7	48.26
10	156.36	51.28
11	179.68	55.43
12	196.25	58.43
13	239.82	64.09
14	261.3	67.83
15	286.22	72.22
16	298.73	74.74
17	307.32	76.0
18	319.59	77.14
19	334.93	78.48
20	342.91	78.68
21	349.05	79.54
22	353.96	80.2
23	360.71	81.68
24	366.84	82.98
25	378.5	84.23
26	393.84	87.48
27	416.76	93.83
28	432.65	97.75
29	452.14	100.32
30	478.29	103.66
31	481.36	103.84

32	490.59	103.62
33	515.72	104.02
34	524.95	104.03
35	550.07	105.16
36	559.81	106.26
37	580.83	109.44
38	603.91	112.23
39	632.62	115.81
40	638.26	116.5
41	645.95	117.05
42	683.38	120.06
43	699.28	121.7
44	706.45	122.29
45	713.63	122.71
46	723.37	123.3
47	731.07	123.72
48	737.22	123.66
49	744.4	123.52
50	754.65	123.93
51	760.05	124.14
52	783.16	126.28
53	809.3	131.32
54	817.15	132.81
55	829.69	134.93
56	844.33	137.23
57	858.97	139.45
58	870.99	140.7
59	884.59	142.13
60	892.43	142.86
61	903.41	143.76
62	922.23	145.3
63	944.18	147.81
64	969.8	150.83
65	980.26	151.96
66	993.91	153.2
67	1005.87	154.0
68	1010.58	154.3
69	1013.19	154.68
70	1014.76	154.71

Vertici strato1

N	X (m)	y (m)
1	31.79	32.21
2	126.69	36.78
3	196.43	45.54
4	266.76	56.77
5	306.96	64.47
6	370.57	74.33
7	389.75	78.13
8	445.45	89.49
9	491.31	96.28
10	550.88	98.78
11	636.67	109.79
12	701.93	114.06
13	769.59	118.49
14	888.47	136.63
15	1014.76	148.71

Vertici strato2

N	X (m)	y (m)
1	31.79	32.21
2	39.47	31.68
3	126.69	33.96
4	143.38	34.9
5	159.34	36.39
6	197.2	38.81
7	239.84	45.32
8	266.76	49.77
9	303.56	59.28
10	348.75	66.1
11	421.3	81.57
12	459.64	89.74
13	490.15	94.18
14	505.11	95.0
15	540.62	96.92
16	556.59	97.79
17	607.97	104.35
18	636.66	108.04
19	739.0	114.83
20	768.76	117.04
21	864.7	131.09
22	888.65	134.6
23	929.62	138.23
24	969.35	141.74
25	1014.76	145.99

Vertici strato3

N	X (m)	y (m)
1	31.79	22.16
2	91.15	23.31
3	154.98	24.99
4	180.8	26.53
5	219.34	31.19
6	266.76	39.77
7	306.25	59.69
8	348.75	66.1
9	421.3	81.57
10	459.64	89.74
11	490.15	94.18
12	540.62	96.92
13	556.59	97.79
14	607.97	104.35
15	636.66	108.04
16	739.0	114.83
17	768.76	117.04
18	864.7	131.09
19	888.65	134.6
20	929.62	138.23
21	969.35	141.74
22	1014.76	145.99

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3			34	1.7		
4	20		28	2.0		



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	3.41
Ascissa centro superficie	434.29 m
Ordinata centro superficie	212.47 m
Raggio superficie	126.4 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	434.3	212.5	126.4	3.41
2	439.3	217.4	131.3	4.07
3	444.3	212.5	114.7	3.83
4	449.2	217.4	119.6	3.77
5	454.2	212.5	114.6	3.94
6	459.2	217.4	119.5	4.40
7	464.2	212.5	114.5	4.90
8	469.2	217.4	119.4	5.71
9	474.2	212.5	114.4	6.66
10	479.1	217.4	165.9	6.99
11	484.1	212.5	172.6	6.99
12	489.1	217.4	177.6	7.05
13	494.1	212.5	172.6	7.33
14	499.1	217.4	165.8	7.79
15	504.0	212.5	160.9	8.14
16	509.0	217.4	165.8	8.10
17	514.0	212.5	160.7	8.42
18	519.0	217.4	177.3	8.01
19	524.0	212.5	172.2	8.30
20	529.0	217.4	164.9	8.53
21	533.9	212.5	110.5	8.39
22	434.3	222.4	136.3	3.57
23	439.3	227.4	141.2	4.14
24	444.3	222.4	124.6	3.80
25	449.2	227.4	129.5	3.84
26	454.2	222.4	124.5	4.05
27	459.2	227.4	129.4	4.52
28	464.2	222.4	124.4	5.02

29	469.2	227.4	129.3	5.82
30	474.2	222.4	170.9	6.69
31	479.1	227.4	187.5	6.59
32	484.1	222.4	182.5	6.81
33	489.1	227.4	187.5	6.83
34	494.1	222.4	170.8	7.46
35	499.1	227.4	175.8	7.50
36	504.0	222.4	170.8	7.80
37	509.0	227.4	187.4	7.44
38	514.0	222.4	170.6	8.08
39	519.0	227.4	175.2	8.07
40	524.0	222.4	182.1	8.02
41	529.0	227.4	186.9	8.04
42	533.9	222.4	120.3	8.17
43	434.3	232.3	146.2	3.64
44	439.3	237.3	139.6	4.07
45	444.3	232.3	134.6	3.81
46	449.2	237.3	139.5	3.91
47	454.2	232.3	134.4	4.15
48	459.2	237.3	139.4	4.63
49	464.2	232.3	134.3	5.14
50	469.2	237.3	139.2	5.92
51	474.2	232.3	192.5	6.37
52	479.1	237.3	197.4	6.43
53	484.1	232.3	192.4	6.63
54	489.1	237.3	185.7	6.95
55	494.1	232.3	180.7	7.22
56	499.1	237.3	185.7	7.26
57	504.0	232.3	192.4	7.18
58	509.0	237.3	185.6	7.56
59	514.0	232.3	192.3	7.48
60	519.0	237.3	185.1	7.82
61	524.0	232.3	192.0	7.79
62	529.0	237.3	196.8	7.81
63	533.9	232.3	130.0	7.99
64	434.3	242.2	156.2	3.78
65	439.3	247.2	149.5	4.02
66	444.3	242.2	144.5	3.84
67	449.2	247.2	149.4	4.00
68	454.2	242.2	144.4	4.26
69	459.2	247.2	149.3	4.74
70	464.2	242.2	144.3	5.24
71	469.2	247.2	149.2	6.02
72	474.2	242.2	202.4	6.26
73	479.1	247.2	207.3	6.29
74	484.1	242.2	202.4	6.50
75	489.1	247.2	195.6	6.78
76	494.1	242.2	190.7	7.01
77	499.1	247.2	207.3	6.79
78	504.0	242.2	202.3	7.00
79	509.0	247.2	207.2	7.06
80	514.0	242.2	202.2	7.29
81	519.0	247.2	207.0	7.34
82	524.0	242.2	189.8	7.83
83	529.0	247.2	206.7	7.61
84	533.9	242.2	201.7	7.84
85	434.3	252.2	166.1	3.88
86	439.3	257.1	159.4	3.98
87	444.3	252.2	154.4	3.88

88	449.2	257.1	159.3	4.08
89	454.2	252.2	154.3	4.36
90	459.2	257.1	159.2	4.84
91	464.2	252.2	154.2	5.35
92	469.2	257.1	217.3	5.98
93	474.2	252.2	212.3	6.13
94	479.1	257.1	205.6	6.36
95	484.1	252.2	200.6	6.56
96	489.1	257.1	217.2	6.41
97	494.1	252.2	212.3	6.61
98	499.1	257.1	217.2	6.65
99	504.0	252.2	212.3	6.85
100	509.0	257.1	217.1	6.92
101	514.0	252.2	200.1	7.41
102	519.0	257.1	216.9	7.18
103	524.0	252.2	199.6	7.64
104	529.0	257.1	204.3	7.66
105	533.9	252.2	211.5	7.65
106	434.3	262.1	176.0	4.04
107	439.3	267.1	169.3	3.98
108	444.3	262.1	164.3	3.94
109	449.2	267.1	169.2	4.17
110	454.2	262.1	164.2	4.45
111	459.2	267.1	169.1	4.94
112	464.2	262.1	164.1	5.45
113	469.2	267.1	215.6	6.00
114	474.2	262.1	210.6	6.19
115	479.1	267.1	215.5	6.25
116	484.1	262.1	210.6	6.43
117	489.1	267.1	227.2	6.31
118	494.1	262.1	222.2	6.49
119	499.1	267.1	215.5	6.74
120	504.0	262.1	210.5	6.94
121	509.0	267.1	227.0	6.78
122	514.0	262.1	210.0	7.22
123	519.0	267.1	214.7	7.27
124	524.0	262.1	221.7	7.24
125	529.0	267.1	214.2	7.50
126	533.9	262.1	221.4	7.48
127	434.3	272.0	185.9	4.10
128	439.3	277.0	179.3	3.99
129	444.3	272.0	174.2	4.00
130	449.2	277.0	179.2	4.25
131	454.2	272.0	174.1	4.54
132	459.2	277.0	179.0	5.03
133	464.2	272.0	174.0	5.54
134	469.2	277.0	225.5	5.93
135	474.2	272.0	220.5	6.09
136	479.1	277.0	237.1	6.01
137	484.1	272.0	232.1	6.17
138	489.1	277.0	237.1	6.22
139	494.1	272.0	232.1	6.38
140	499.1	277.0	225.4	6.61
141	504.0	272.0	220.4	6.81
142	509.0	277.0	225.0	6.87
143	514.0	272.0	231.8	6.85
144	519.0	277.0	224.5	7.15
145	524.0	272.0	231.6	7.09
146	529.0	277.0	236.4	7.14

147	533.9	272.0	218.9	7.53
148	434.3	281.9	195.9	4.20
149	439.3	286.9	189.2	4.01
150	444.3	281.9	184.2	4.06
151	449.2	286.9	189.1	4.34
152	454.2	281.9	184.1	4.63
153	459.2	286.9	189.0	5.12
154	464.2	281.9	184.0	5.63
155	469.2	286.9	235.4	5.86
156	474.2	281.9	242.1	5.88
157	479.1	286.9	247.0	5.95
158	484.1	281.9	242.1	6.08
159	489.1	286.9	235.3	6.28
160	494.1	281.9	230.4	6.44
161	499.1	286.9	235.3	6.52
162	504.0	281.9	242.0	6.52
163	509.0	286.9	234.9	6.76
164	514.0	281.9	241.7	6.73
165	519.0	286.9	246.5	6.78
166	524.0	281.9	229.2	7.19
167	529.0	286.9	246.3	7.02
168	533.9	281.9	228.7	7.39
169	434.3	291.9	194.2	4.20
170	439.3	296.8	199.1	4.05
171	444.3	291.9	194.1	4.13
172	449.2	296.8	199.0	4.42
173	454.2	291.9	194.0	4.72
174	459.2	296.8	198.9	5.21
175	464.2	291.9	240.4	5.70
176	469.2	296.8	257.0	5.71
177	474.2	291.9	252.0	5.81
178	479.1	296.8	257.0	5.88
179	484.1	291.9	252.0	6.01
180	489.1	296.8	245.3	6.20
181	494.1	291.9	240.3	6.33
182	499.1	296.8	256.9	6.28
183	504.0	291.9	251.9	6.43
184	509.0	296.8	256.7	6.47
185	514.0	291.9	251.6	6.63
186	519.0	296.8	256.4	6.69
187	524.0	291.9	239.1	7.06
188	529.0	296.8	256.2	6.91
189	533.9	291.9	251.1	7.08
190	434.3	301.8	204.1	4.17
191	439.3	306.8	209.0	4.09
192	444.3	301.8	204.0	4.20
193	449.2	306.8	208.9	4.50
194	454.2	301.8	203.9	4.81
195	459.2	306.8	208.8	5.30
196	464.2	301.8	262.0	5.61
197	469.2	306.8	266.9	5.66
198	474.2	301.8	261.9	5.77
199	479.1	306.8	255.2	5.92
200	484.1	301.8	250.2	6.06
201	489.1	306.8	266.9	6.01
202	494.1	301.8	261.9	6.14
203	499.1	306.8	266.8	6.20
204	504.0	301.8	261.8	6.34
205	509.0	306.8	266.6	6.40

206	514.0	301.8	249.4	6.73
207	519.0	306.8	266.3	6.60
208	524.0	301.8	248.9	6.98
209	529.0	306.8	253.6	7.01
210	533.9	301.8	261.0	6.98
211	434.3	311.7	214.1	4.16
212	444.3	311.7	213.9	4.27
213	454.2	311.7	213.8	4.89
214	464.2	311.7	271.9	5.57
215	474.2	311.7	260.2	5.80
216	484.1	311.7	271.8	5.89
217	494.1	311.7	271.8	6.08
218	504.0	311.7	271.7	6.27
219	514.0	311.7	271.4	6.45
220	524.0	311.7	271.2	6.66
221	533.9	311.7	270.9	6.89

Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici strato2	3
5.Vertici strato3	3
6.Coefficienti parziali azioni	3
7.Coefficienti parziali per i parametri geotecnici del terreno	4
8.Stratigrafia	4
9.Risultati analisi pendio [A2+M2+R2]	4
Indice	9

Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2018
Numero di strati	4.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	534.67 m
Ordinata vertice sinistro inferiore yi	230.12 m
Ascissa vertice destro superiore xs	634.31 m
Ordinata vertice destro superiore ys	329.36 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	31.79	32.21
2	50.82	33.71
3	55.54	33.97
4	75.36	35.8
5	82.73	36.64
6	95.61	37.49
7	111.57	40.72
8	127.24	43.89
9	144.7	48.26
10	156.36	51.28
11	179.68	55.43
12	196.25	58.43
13	239.82	64.09
14	261.3	67.83
15	286.22	72.22
16	298.73	74.74
17	307.32	76.0
18	319.59	77.14
19	334.93	78.48
20	342.91	78.68
21	349.05	79.54
22	353.96	80.2
23	360.71	81.68
24	366.84	82.98
25	378.5	84.23
26	393.84	87.48
27	416.76	93.83
28	432.65	97.75
29	452.14	100.32
30	478.29	103.66
31	481.36	103.84

32	490.59	103.62
33	515.72	104.02
34	524.95	104.03
35	550.07	105.16
36	559.81	106.26
37	580.83	109.44
38	603.91	112.23
39	632.62	115.81
40	638.26	116.5
41	645.95	117.05
42	683.38	120.06
43	699.28	121.7
44	706.45	122.29
45	713.63	122.71
46	723.37	123.3
47	731.07	123.72
48	737.22	123.66
49	744.4	123.52
50	754.65	123.93
51	760.05	124.14
52	783.16	126.28
53	809.3	131.32
54	817.15	132.81
55	829.69	134.93
56	844.33	137.23
57	858.97	139.45
58	870.99	140.7
59	884.59	142.13
60	892.43	142.86
61	903.41	143.76
62	922.23	145.3
63	944.18	147.81
64	969.8	150.83
65	980.26	151.96
66	993.91	153.2
67	1005.87	154.0
68	1010.58	154.3
69	1013.19	154.68
70	1014.76	154.71

Vertici strato1

N	X (m)	y (m)
1	31.79	32.21
2	126.69	36.78
3	196.43	45.54
4	266.76	56.77
5	306.96	64.47
6	370.57	74.33
7	389.75	78.13
8	445.45	89.49
9	491.31	96.28
10	550.88	98.78
11	636.67	109.79
12	701.93	114.06
13	769.59	118.49
14	888.47	136.63
15	1014.76	148.71

Vertici strato2

N	X (m)	y (m)
1	31.79	32.21
2	39.47	31.68
3	126.69	33.96
4	143.38	34.9
5	159.34	36.39
6	197.2	38.81
7	239.84	45.32
8	266.76	49.77
9	303.56	59.28
10	348.75	66.1
11	421.3	81.57
12	459.64	89.74
13	490.15	94.18
14	505.11	95.0
15	540.62	96.92
16	556.59	97.79
17	607.97	104.35
18	636.66	108.04
19	739.0	114.83
20	768.76	117.04
21	864.7	131.09
22	888.65	134.6
23	929.62	138.23
24	969.35	141.74
25	1014.76	145.99

Vertici strato3

N	X (m)	y (m)
1	31.79	22.16
2	91.15	23.31
3	154.98	24.99
4	180.8	26.53
5	219.34	31.19
6	266.76	39.77
7	306.25	59.69
8	348.75	66.1
9	421.3	81.57
10	459.64	89.74
11	490.15	94.18
12	540.62	96.92
13	556.59	97.79
14	607.97	104.35
15	636.66	108.04
16	739.0	114.83
17	768.76	117.04
18	864.7	131.09
19	888.65	134.6
20	929.62	138.23
21	969.35	141.74
22	1014.76	145.99

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3			34	1.7		
4	20		28	2.0		



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	4.38
Ascissa centro superficie	554.6 m
Ordinata centro superficie	230.12 m
Raggio superficie	124.74 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	534.7	230.1	127.7	7.75
2	539.7	235.1	131.9	6.21
3	544.6	230.1	126.2	5.34
4	549.6	235.1	130.4	4.70
5	554.6	230.1	124.7	4.38
6	559.6	235.1	128.9	4.53
7	564.6	230.1	123.2	4.71
8	569.5	235.1	127.4	5.24
9	574.5	230.1	135.1	5.27
10	579.5	235.1	139.4	5.25
11	584.5	230.1	133.9	5.20
12	589.5	235.1	138.1	5.24
13	594.5	230.1	132.6	5.29
14	599.4	235.1	136.9	5.41
15	604.4	230.1	131.4	5.55
16	609.4	235.1	135.6	5.66
17	614.4	230.1	130.1	5.83
18	619.4	235.1	134.4	6.00
19	624.3	230.1	128.9	6.16
20	629.3	235.1	133.1	6.17
21	634.3	230.1	127.6	6.39
22	534.7	240.0	137.5	7.61
23	539.7	245.0	141.6	6.18
24	544.6	240.0	136.0	5.34
25	549.6	245.0	140.1	4.75
26	554.6	240.0	134.5	4.53
27	559.6	245.0	138.6	4.74
28	564.6	240.0	133.0	4.96

29	569.5	245.0	150.4	5.46
30	574.5	240.0	144.9	5.29
31	579.5	245.0	149.1	5.23
32	584.5	240.0	143.6	5.18
33	589.5	245.0	147.9	5.20
34	594.5	240.0	142.4	5.31
35	599.4	245.0	146.6	5.43
36	604.4	240.0	141.1	5.56
37	609.4	245.0	145.4	5.67
38	614.4	240.0	139.9	5.83
39	619.4	245.0	144.1	5.99
40	624.3	240.0	138.6	6.09
41	629.3	245.0	142.9	6.15
42	634.3	240.0	137.4	6.34
43	534.7	250.0	147.2	7.50
44	539.7	254.9	151.3	6.17
45	544.6	250.0	145.7	5.37
46	549.6	254.9	149.8	4.79
47	554.6	250.0	144.2	4.69
48	559.6	254.9	148.3	5.00
49	564.6	250.0	142.7	5.25
50	569.5	254.9	160.1	5.46
51	574.5	250.0	154.6	5.32
52	579.5	254.9	158.9	5.27
53	584.5	250.0	153.4	5.20
54	589.5	254.9	157.6	5.24
55	594.5	250.0	152.1	5.32
56	599.4	254.9	156.4	5.39
57	604.4	250.0	150.9	5.51
58	609.4	254.9	155.2	5.67
59	614.4	250.0	149.6	5.83
60	619.4	254.9	153.9	5.93
61	624.3	250.0	148.4	6.07
62	629.3	254.9	152.7	6.13
63	634.3	250.0	147.1	6.26
64	534.7	259.9	156.9	7.42
65	539.7	264.9	161.1	6.20
66	544.6	259.9	155.4	5.43
67	549.6	264.9	159.6	4.92
68	554.6	259.9	153.9	4.88
69	559.6	264.9	158.1	5.30
70	564.6	259.9	152.4	5.59
71	569.5	264.9	169.9	5.48
72	574.5	259.9	164.4	5.32
73	579.5	264.9	168.7	5.25
74	584.5	259.9	163.2	5.26
75	589.5	264.9	167.4	5.26
76	594.5	259.9	161.9	5.35
77	599.4	264.9	166.2	5.41
78	604.4	259.9	160.7	5.53
79	609.4	264.9	164.9	5.68
80	614.4	259.9	159.4	5.83
81	619.4	264.9	163.7	5.92
82	624.3	259.9	158.2	6.00
83	629.3	264.9	162.4	6.07
84	634.3	259.9	156.9	6.21
85	534.7	269.8	166.7	7.38
86	539.7	274.8	170.8	6.27
87	544.6	269.8	165.2	5.51

88	549.6	274.8	169.3	5.13
89	554.6	269.8	163.7	5.10
90	559.6	274.8	167.8	5.66
91	564.6	269.8	175.4	5.62
92	569.5	274.8	179.7	5.51
93	574.5	269.8	174.2	5.35
94	579.5	274.8	178.4	5.23
95	584.5	269.8	172.9	5.27
96	589.5	274.8	177.2	5.28
97	594.5	269.8	171.7	5.27
98	599.4	274.8	175.9	5.43
99	604.4	269.8	170.4	5.54
100	609.4	274.8	174.7	5.69
101	614.4	269.8	169.2	5.79
102	619.4	274.8	173.4	5.86
103	624.3	269.8	167.9	5.99
104	629.3	274.8	172.2	6.11
105	634.3	269.8	166.7	6.19
106	534.7	279.7	239.0	7.24
107	539.7	284.7	180.5	6.38
108	544.6	279.7	174.9	5.60
109	549.6	284.7	179.0	5.37
110	554.6	279.7	173.4	5.40
111	559.6	284.7	190.7	5.91
112	564.6	279.7	185.2	5.66
113	569.5	284.7	189.4	5.50
114	574.5	279.7	183.9	5.32
115	579.5	284.7	188.2	5.26
116	584.5	279.7	182.7	5.23
117	589.5	284.7	186.9	5.31
118	594.5	279.7	181.4	5.30
119	599.4	284.7	185.7	5.45
120	604.4	279.7	180.2	5.56
121	609.4	284.7	184.4	5.65
122	614.4	279.7	178.9	5.78
123	619.4	284.7	183.2	5.86
124	624.3	279.7	177.7	5.99
125	629.3	284.7	182.0	6.07
126	634.3	279.7	176.4	6.19
127	534.7	289.7	248.9	7.12
128	539.7	294.6	190.3	6.54
129	544.6	289.7	184.6	5.62
130	549.6	294.6	188.8	5.64
131	554.6	289.7	183.1	5.78
132	559.6	294.6	200.5	5.91
133	564.6	289.7	195.0	5.69
134	569.5	294.6	199.2	5.49
135	574.5	289.7	193.7	5.34
136	579.5	294.6	198.0	5.28
137	584.5	289.7	192.5	5.25
138	589.5	294.6	196.7	5.28
139	594.5	289.7	191.2	5.32
140	599.4	294.6	195.5	5.42
141	604.4	289.7	190.0	5.57
142	609.4	294.6	194.2	5.60
143	614.4	289.7	188.7	5.73
144	619.4	294.6	193.0	5.86
145	624.3	289.7	187.5	5.93
146	629.3	294.6	191.7	6.06

147	634.3	289.7	186.2	6.20
148	534.7	299.6	258.8	7.01
149	539.7	304.6	200.0	6.75
150	544.6	299.6	194.4	5.74
151	549.6	304.6	198.5	5.99
152	554.6	299.6	206.0	6.16
153	559.6	304.6	210.2	5.88
154	564.6	299.6	204.7	5.70
155	569.5	304.6	209.0	5.46
156	574.5	299.6	203.5	5.37
157	579.5	304.6	207.7	5.30
158	584.5	299.6	202.2	5.28
159	589.5	304.6	206.5	5.31
160	594.5	299.6	201.0	5.34
161	599.4	304.6	205.2	5.44
162	604.4	299.6	199.7	5.49
163	609.4	304.6	204.0	5.61
164	614.4	299.6	198.5	5.73
165	619.4	304.6	202.7	5.81
166	624.3	299.6	197.2	5.94
167	629.3	304.6	201.5	6.07
168	634.3	299.6	196.0	6.18
169	534.7	309.5	256.1	7.11
170	539.7	314.5	209.7	6.98
171	544.6	309.5	204.1	6.07
172	549.6	314.5	221.2	6.48
173	554.6	309.5	215.7	6.17
174	559.6	314.5	220.0	5.87
175	564.6	309.5	214.5	5.65
176	569.5	314.5	218.7	5.49
177	574.5	309.5	213.2	5.38
178	579.5	314.5	217.5	5.32
179	584.5	309.5	212.0	5.25
180	589.5	314.5	216.2	5.33
181	594.5	309.5	210.7	5.36
182	599.4	314.5	215.0	5.41
183	604.4	309.5	209.5	5.50
184	609.4	314.5	213.7	5.62
185	614.4	309.5	208.2	5.74
186	619.4	314.5	212.5	5.82
187	624.3	309.5	207.0	5.91
188	629.3	314.5	211.2	6.06
189	634.3	309.5	205.7	6.19
190	534.7	319.4	265.9	7.01
191	539.7	324.4	219.5	6.66
192	544.6	319.4	213.8	6.45
193	549.6	324.4	231.0	6.43
194	554.6	319.4	225.5	6.13
195	559.6	324.4	229.8	5.87
196	564.6	319.4	224.2	5.68
197	569.5	324.4	228.5	5.50
198	574.5	319.4	223.0	5.34
199	579.5	324.4	227.3	5.31
200	584.5	319.4	221.8	5.28
201	589.5	324.4	226.0	5.31
202	594.5	319.4	220.5	5.39
203	599.4	324.4	224.8	5.42
204	604.4	319.4	219.3	5.51
205	609.4	324.4	223.5	5.63

206	614.4	319.4	218.0	5.69
207	619.4	324.4	222.3	5.83
208	624.3	319.4	216.8	5.89
209	629.3	324.4	221.0	6.08
210	634.3	319.4	215.5	6.21
211	534.7	329.4	288.5	6.78
212	544.6	329.4	236.5	6.79
213	554.6	329.4	235.3	6.09
214	564.6	329.4	234.0	5.65
215	574.5	329.4	232.8	5.37
216	584.5	329.4	231.5	5.29
217	594.5	329.4	230.3	5.36
218	604.4	329.4	229.0	5.52
219	614.4	329.4	227.8	5.70
220	624.3	329.4	226.5	5.93
221	634.3	329.4	225.3	6.16

Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici strato2	3
5.Vertici strato3	3
6.Coefficienti parziali azioni	3
7.Coefficienti parziali per i parametri geotecnici del terreno	4
8.Stratigrafia	4
9.Risultati analisi pendio [A2+M2+R2]	4
Indice	9

Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2018
Numero di strati	4.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	635.04 m
Ordinata vertice sinistro inferiore yi	247.77 m
Ascissa vertice destro superiore xs	734.68 m
Ordinata vertice destro superiore ys	347.01 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	31.79	32.21
2	50.82	33.71
3	55.54	33.97
4	75.36	35.8
5	82.73	36.64
6	95.61	37.49
7	111.57	40.72
8	127.24	43.89
9	144.7	48.26
10	156.36	51.28
11	179.68	55.43
12	196.25	58.43
13	239.82	64.09
14	261.3	67.83
15	286.22	72.22
16	298.73	74.74
17	307.32	76.0
18	319.59	77.14
19	334.93	78.48
20	342.91	78.68
21	349.05	79.54
22	353.96	80.2
23	360.71	81.68
24	366.84	82.98
25	378.5	84.23
26	393.84	87.48
27	416.76	93.83
28	432.65	97.75
29	452.14	100.32
30	478.29	103.66
31	481.36	103.84

32	490.59	103.62
33	515.72	104.02
34	524.95	104.03
35	550.07	105.16
36	559.81	106.26
37	580.83	109.44
38	603.91	112.23
39	632.62	115.81
40	638.26	116.5
41	645.95	117.05
42	683.38	120.06
43	699.28	121.7
44	706.45	122.29
45	713.63	122.71
46	723.37	123.3
47	731.07	123.72
48	737.22	123.66
49	744.4	123.52
50	754.65	123.93
51	760.05	124.14
52	783.16	126.28
53	809.3	131.32
54	817.15	132.81
55	829.69	134.93
56	844.33	137.23
57	858.97	139.45
58	870.99	140.7
59	884.59	142.13
60	892.43	142.86
61	903.41	143.76
62	922.23	145.3
63	944.18	147.81
64	969.8	150.83
65	980.26	151.96
66	993.91	153.2
67	1005.87	154.0
68	1010.58	154.3
69	1013.19	154.68
70	1014.76	154.71

Vertici strato1

N	X (m)	y (m)
1	31.79	32.21
2	126.69	36.78
3	196.43	45.54
4	266.76	56.77
5	306.96	64.47
6	370.57	74.33
7	389.75	78.13
8	445.45	89.49
9	491.31	96.28
10	550.88	98.78
11	636.67	109.79
12	701.93	114.06
13	769.59	118.49
14	888.47	136.63
15	1014.76	148.71

Vertici strato2

N	X (m)	y (m)
1	31.79	32.21
2	39.47	31.68
3	126.69	33.96
4	143.38	34.9
5	159.34	36.39
6	197.2	38.81
7	239.84	45.32
8	266.76	49.77
9	303.56	59.28
10	348.75	66.1
11	421.3	81.57
12	459.64	89.74
13	490.15	94.18
14	505.11	95.0
15	540.62	96.92
16	556.59	97.79
17	607.97	104.35
18	636.66	108.04
19	739.0	114.83
20	768.76	117.04
21	864.7	131.09
22	888.65	134.6
23	929.62	138.23
24	969.35	141.74
25	1014.76	145.99

Vertici strato3

N	X (m)	y (m)
1	31.79	22.16
2	91.15	23.31
3	154.98	24.99
4	180.8	26.53
5	219.34	31.19
6	266.76	39.77
7	306.25	59.69
8	348.75	66.1
9	421.3	81.57
10	459.64	89.74
11	490.15	94.18
12	540.62	96.92
13	556.59	97.79
14	607.97	104.35
15	636.66	108.04
16	739.0	114.83
17	768.76	117.04
18	864.7	131.09
19	888.65	134.6
20	929.62	138.23
21	969.35	141.74
22	1014.76	145.99

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3			34	1.7		
4	20		28	2.0		



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	4.96
Ascissa centro superficie	734.68 m
Ordinata centro superficie	347.01 m
Raggio superficie	230.06 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	635.0	247.8	144.9	6.28
2	640.0	252.7	149.1	6.36
3	645.0	247.8	143.6	6.52
4	650.0	252.7	147.9	6.69
5	655.0	247.8	142.4	6.86
6	660.0	252.7	146.6	6.97
7	664.9	247.8	141.1	7.17
8	669.9	252.7	145.4	7.31
9	674.9	247.8	139.9	7.51
10	679.9	252.7	144.2	7.71
11	684.9	247.8	138.6	7.91
12	689.8	252.7	208.2	7.69
13	694.8	247.8	186.7	8.02
14	699.8	252.7	208.0	7.64
15	704.8	247.8	186.2	7.89
16	709.8	252.7	190.9	7.68
17	714.8	247.8	202.6	7.67
18	719.7	252.7	190.4	7.53
19	724.7	247.8	185.2	7.56
20	729.7	252.7	189.9	7.38
21	734.7	247.8	167.3	7.37
22	635.0	257.7	154.7	6.27
23	640.0	262.7	158.9	6.36
24	645.0	257.7	153.4	6.51
25	650.0	262.7	157.7	6.67
26	655.0	257.7	152.2	6.80
27	660.0	262.7	156.4	6.97
28	664.9	257.7	150.9	7.17

29	669.9	262.7	155.2	7.35
30	674.9	257.7	149.7	7.49
31	679.9	262.7	218.3	7.59
32	684.9	257.7	197.1	7.82
33	689.8	262.7	218.1	7.50
34	694.8	257.7	196.6	7.77
35	699.8	262.7	201.2	7.59
36	704.8	257.7	212.8	7.52
37	709.8	262.7	200.7	7.47
38	714.8	257.7	212.5	7.48
39	719.7	262.7	200.2	7.35
40	724.7	257.7	195.1	7.38
41	729.7	262.7	199.7	7.22
42	734.7	257.7	177.1	7.20
43	635.0	267.6	164.4	6.20
44	640.0	272.6	168.7	6.35
45	645.0	267.6	163.2	6.50
46	650.0	272.6	167.4	6.60
47	655.0	267.6	161.9	6.75
48	660.0	272.6	166.2	6.98
49	664.9	267.6	160.7	7.12
50	669.9	272.6	164.9	7.39
51	674.9	267.6	159.4	7.52
52	679.9	272.6	212.1	7.55
53	684.9	267.6	223.2	7.45
54	689.8	272.6	211.6	7.48
55	694.8	267.6	222.9	7.38
56	699.8	272.6	211.1	7.39
57	704.8	267.6	222.7	7.34
58	709.8	272.6	227.5	7.25
59	714.8	267.6	222.4	7.31
60	719.7	272.6	210.1	7.18
61	724.7	267.6	204.9	7.20
62	729.7	272.6	209.6	7.08
63	734.7	267.6	186.9	7.03
64	635.0	277.5	174.2	6.20
65	640.0	282.5	178.4	6.36
66	645.0	277.5	172.9	6.51
67	650.0	282.5	177.2	6.65
68	655.0	277.5	171.7	6.77
69	660.0	282.5	175.9	7.01
70	664.9	277.5	170.4	7.14
71	669.9	282.5	174.7	7.37
72	674.9	277.5	233.3	7.41
73	679.9	282.5	222.0	7.35
74	684.9	277.5	233.1	7.31
75	689.8	282.5	221.5	7.30
76	694.8	277.5	232.8	7.24
77	699.8	282.5	237.6	7.14
78	704.8	277.5	232.6	7.18
79	709.8	282.5	237.4	7.11
80	714.8	277.5	215.3	7.17
81	719.7	282.5	220.0	7.04
82	724.7	277.5	214.8	7.07
83	729.7	282.5	202.0	6.94
84	734.7	277.5	196.8	6.90
85	635.0	287.5	184.0	6.20
86	640.0	292.4	188.2	6.34
87	645.0	287.5	182.7	6.51

88	650.0	292.4	187.0	6.60
89	655.0	287.5	181.5	6.77
90	660.0	292.4	185.7	7.00
91	664.9	287.5	180.2	7.18
92	669.9	292.4	232.3	7.27
93	674.9	287.5	243.2	7.27
94	679.9	292.4	248.0	7.16
95	684.9	287.5	242.9	7.18
96	689.8	292.4	247.8	7.08
97	694.8	287.5	226.1	7.18
98	699.8	292.4	247.5	7.02
99	704.8	287.5	225.6	7.11
100	709.8	292.4	247.3	6.99
101	714.8	287.5	225.1	7.02
102	719.7	292.4	229.8	6.92
103	724.7	287.5	224.6	6.94
104	729.7	292.4	211.9	6.82
105	734.7	287.5	171.5	6.74
106	635.0	297.4	193.7	6.20
107	640.0	302.4	198.0	6.35
108	645.0	297.4	192.5	6.44
109	650.0	302.4	196.7	6.62
110	655.0	297.4	191.2	6.79
111	660.0	302.4	195.5	7.00
112	664.9	297.4	190.0	7.22
113	669.9	302.4	242.2	7.14
114	674.9	297.4	237.0	7.16
115	679.9	302.4	241.7	7.05
116	684.9	297.4	236.5	7.08
117	689.8	302.4	257.7	6.97
118	694.8	297.4	236.0	7.02
119	699.8	302.4	257.4	6.92
120	704.8	297.4	252.3	6.95
121	709.8	302.4	240.2	6.88
122	714.8	297.4	235.0	6.90
123	719.7	302.4	239.7	6.81
124	724.7	297.4	234.5	6.82
125	729.7	302.4	221.7	6.71
126	734.7	297.4	181.2	6.40
127	635.0	307.3	203.5	6.21
128	640.0	312.3	207.7	6.31
129	645.0	307.3	202.2	6.46
130	650.0	312.3	206.5	6.64
131	655.0	307.3	201.0	6.85
132	660.0	312.3	205.2	7.04
133	664.9	307.3	247.4	7.13
134	669.9	312.3	252.0	7.02
135	674.9	307.3	246.9	7.05
136	679.9	312.3	251.5	6.93
137	684.9	307.3	246.4	6.94
138	689.8	312.3	251.0	6.87
139	694.8	307.3	262.5	6.90
140	699.8	312.3	250.5	6.82
141	704.8	307.3	245.4	6.85
142	709.8	312.3	250.0	6.76
143	714.8	307.3	244.9	6.80
144	719.7	312.3	249.5	6.72
145	724.7	307.3	244.4	6.73
146	729.7	312.3	196.5	6.54

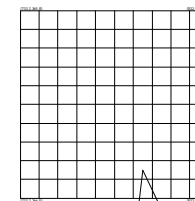
147	734.7	307.3	191.0	6.06
148	635.0	317.2	213.2	6.23
149	640.0	322.2	217.5	6.32
150	645.0	317.2	212.0	6.48
151	650.0	322.2	216.3	6.60
152	655.0	317.2	210.8	6.84
153	660.0	322.2	215.0	7.01
154	664.9	317.2	257.2	7.03
155	669.9	322.2	261.9	6.92
156	674.9	317.2	256.7	6.93
157	679.9	322.2	261.4	6.82
158	684.9	317.2	256.2	6.84
159	689.8	322.2	260.9	6.76
160	694.8	317.2	255.7	6.78
161	699.8	322.2	260.4	6.71
162	704.8	317.2	255.2	6.74
163	709.8	322.2	259.9	6.69
164	714.8	317.2	254.7	6.70
165	719.7	322.2	259.4	6.63
166	724.7	317.2	236.8	6.64
167	729.7	322.2	206.3	6.26
168	734.7	317.2	200.8	5.76
169	635.0	327.2	223.0	6.18
170	640.0	332.1	227.3	6.29
171	645.0	327.2	221.8	6.47
172	650.0	332.1	226.0	6.64
173	655.0	327.2	220.5	6.81
174	660.0	332.1	272.3	6.95
175	664.9	327.2	267.1	6.93
176	669.9	332.1	271.8	6.82
177	674.9	327.2	266.6	6.82
178	679.9	332.1	271.3	6.73
179	684.9	327.2	266.1	6.75
180	689.8	332.1	270.8	6.66
181	694.8	327.2	265.6	6.69
182	699.8	332.1	270.3	6.62
183	704.8	327.2	265.1	6.64
184	709.8	332.1	269.8	6.58
185	714.8	327.2	264.6	6.61
186	719.7	332.1	269.3	6.56
187	724.7	327.2	246.6	6.56
188	729.7	332.1	216.0	5.99
189	734.7	327.2	210.5	5.39
190	635.0	337.1	232.8	6.14
191	640.0	342.1	237.0	6.33
192	645.0	337.1	231.5	6.45
193	650.0	342.1	235.8	6.59
194	655.0	337.1	230.3	6.82
195	660.0	342.1	282.1	6.87
196	664.9	337.1	276.9	6.85
197	669.9	342.1	281.6	6.74
198	674.9	337.1	276.4	6.73
199	679.9	342.1	281.1	6.64
200	684.9	337.1	275.9	6.65
201	689.8	342.1	280.6	6.58
202	694.8	337.1	275.4	6.60
203	699.8	342.1	280.1	6.55
204	704.8	337.1	274.9	6.56
205	709.8	342.1	279.6	6.51

206	714.8	337.1	274.4	6.55
207	719.7	342.1	279.1	6.49
208	724.7	337.1	221.5	6.37
209	729.7	342.1	225.8	5.70
210	734.7	337.1	220.3	5.14
211	635.0	347.0	242.5	6.16
212	645.0	347.0	241.3	6.48
213	655.0	347.0	240.0	6.84
214	664.9	347.0	286.8	6.76
215	674.9	347.0	286.3	6.65
216	684.9	347.0	285.8	6.56
217	694.8	347.0	285.3	6.51
218	704.8	347.0	284.8	6.49
219	714.8	347.0	284.3	6.46
220	724.7	347.0	231.3	6.13
221	734.7	347.0	230.1	4.96

Indice

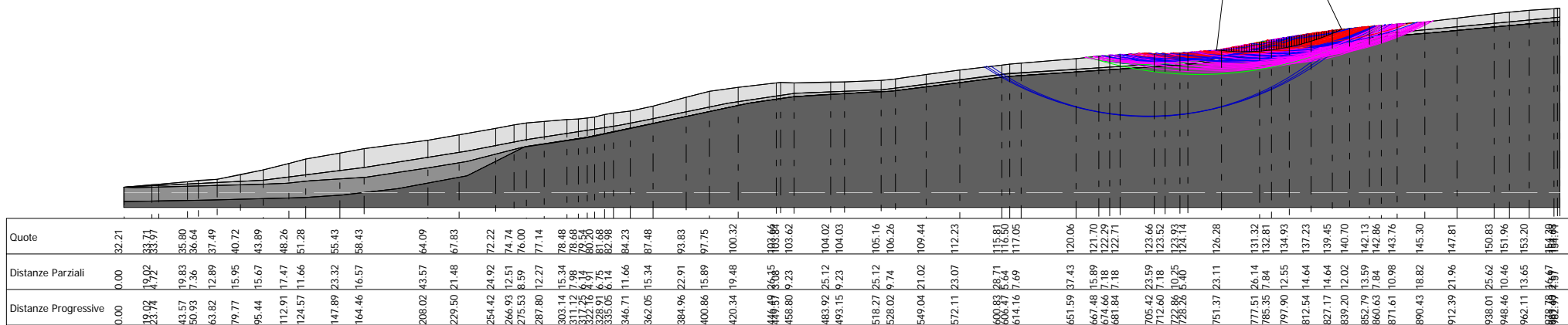
1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici strato2	3
5.Vertici strato3	3
6.Coefficienti parziali azioni	3
7.Coefficienti parziali per i parametri geotecnici del terreno	4
8.Stratigrafia	4
9.Risultati analisi pendio [A2+M2+R2]	4
Indice	9

VERIFICA ANALITICA DI STABILITA' DI VERSANTE DA 700 A 800 m IN CONDIZIONI STATICHE



xc=797.98 yc=281.41 Rc=156.51 Fs=2.17

- Strato...1
 g=1.9t/m³
 Fi=16°
 c=6 kN/m²
- Strato...2
 g=1.9t/m³
 Fi=18°
 c=10 kN/m²
- Strato...3
 g=1.7t/m³
 Fi=34°
 c= kN/m²
- Strato...4
 g=2.0t/m³
 Fi=28°
 c=20 kN/m²



Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2018
Numero di strati	4.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	733.21 m
Ordinata vertice sinistro inferiore yi	266.52 m
Ascissa vertice destro superiore xs	832.85 m
Ordinata vertice destro superiore ys	365.76 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	31.79	32.21
2	50.82	33.71
3	55.54	33.97
4	75.36	35.8
5	82.73	36.64
6	95.61	37.49
7	111.57	40.72
8	127.24	43.89
9	144.7	48.26
10	156.36	51.28
11	179.68	55.43
12	196.25	58.43
13	239.82	64.09
14	261.3	67.83
15	286.22	72.22
16	298.73	74.74
17	307.32	76.0
18	319.59	77.14
19	334.93	78.48
20	342.91	78.68
21	349.05	79.54
22	353.96	80.2
23	360.71	81.68
24	366.84	82.98
25	378.5	84.23
26	393.84	87.48
27	416.76	93.83
28	432.65	97.75
29	452.14	100.32
30	478.29	103.66
31	481.36	103.84

32	490.59	103.62
33	515.72	104.02
34	524.95	104.03
35	550.07	105.16
36	559.81	106.26
37	580.83	109.44
38	603.91	112.23
39	632.62	115.81
40	638.26	116.5
41	645.95	117.05
42	683.38	120.06
43	699.28	121.7
44	706.45	122.29
45	713.63	122.71
46	723.37	123.3
47	731.07	123.72
48	737.22	123.66
49	744.4	123.52
50	754.65	123.93
51	760.05	124.14
52	783.16	126.28
53	809.3	131.32
54	817.15	132.81
55	829.69	134.93
56	844.33	137.23
57	858.97	139.45
58	870.99	140.7
59	884.59	142.13
60	892.43	142.86
61	903.41	143.76
62	922.23	145.3
63	944.18	147.81
64	969.8	150.83
65	980.26	151.96
66	993.91	153.2
67	1005.87	154.0
68	1010.58	154.3
69	1013.19	154.68
70	1014.76	154.71

Vertici strato1

N	X (m)	y (m)
1	31.79	32.21
2	126.69	36.78
3	196.43	45.54
4	266.76	56.77
5	306.96	64.47
6	370.57	74.33
7	389.75	78.13
8	445.45	89.49
9	491.31	96.28
10	550.88	98.78
11	636.67	109.79
12	701.93	114.06
13	769.59	118.49
14	888.47	136.63
15	1014.76	148.71

Vertici strato2

N	X (m)	y (m)
1	31.79	32.21
2	39.47	31.68
3	126.69	33.96
4	143.38	34.9
5	159.34	36.39
6	197.2	38.81
7	239.84	45.32
8	266.76	49.77
9	303.56	59.28
10	348.75	66.1
11	421.3	81.57
12	459.64	89.74
13	490.15	94.18
14	505.11	95.0
15	540.62	96.92
16	556.59	97.79
17	607.97	104.35
18	636.66	108.04
19	739.0	114.83
20	768.76	117.04
21	864.7	131.09
22	888.65	134.6
23	929.62	138.23
24	969.35	141.74
25	1014.76	145.99

Vertici strato3

N	X (m)	y (m)
1	31.79	22.16
2	91.15	23.31
3	154.98	24.99
4	180.8	26.53
5	219.34	31.19
6	266.76	39.77
7	306.25	59.69
8	348.75	66.1
9	421.3	81.57
10	459.64	89.74
11	490.15	94.18
12	540.62	96.92
13	556.59	97.79
14	607.97	104.35
15	636.66	108.04
16	739.0	114.83
17	768.76	117.04
18	864.7	131.09
19	888.65	134.6
20	929.62	138.23
21	969.35	141.74
22	1014.76	145.99

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3			34	1.7		
4	20		28	2.0		



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.17
Ascissa centro superficie	797.98 m
Ordinata centro superficie	281.41 m
Raggio superficie	156.51 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	733.2	266.5	185.9	7.09
2	738.2	271.5	155.3	6.82
3	743.2	266.5	149.8	6.08
4	748.2	271.5	154.0	4.83
5	753.1	266.5	148.5	4.22
6	758.1	271.5	152.8	3.56
7	763.1	266.5	147.3	3.14
8	768.1	271.5	151.5	2.82
9	773.1	266.5	146.0	2.62
10	778.0	271.5	150.3	2.49
11	783.0	266.5	144.8	2.42
12	788.0	271.5	149.1	2.36
13	793.0	266.5	143.5	2.35
14	798.0	271.5	147.8	2.34
15	803.0	266.5	142.3	2.38
16	807.9	271.5	143.7	2.35
17	812.9	266.5	137.3	2.48
18	817.9	271.5	138.1	4.10
19	822.9	266.5	149.8	4.42
20	827.9	271.5	150.2	4.46
21	832.9	266.5	143.6	4.55
22	733.2	276.4	195.8	6.94
23	738.2	281.4	165.1	6.41
24	743.2	276.4	159.6	5.71
25	748.2	281.4	163.8	4.61
26	753.1	276.4	158.3	4.05
27	758.1	281.4	162.6	3.46
28	763.1	276.4	157.1	3.07

29	768.1	281.4	161.3	2.75
30	773.1	276.4	155.8	2.60
31	778.0	281.4	160.1	2.47
32	783.0	276.4	154.6	2.39
33	788.0	281.4	158.8	2.36
34	793.0	276.4	153.3	2.35
35	798.0	281.4	156.5	2.17
36	803.0	276.4	150.1	2.25
37	807.9	281.4	151.0	2.81
38	812.9	276.4	144.5	3.24
39	817.9	281.4	163.2	4.30
40	822.9	276.4	156.7	4.33
41	827.9	281.4	157.3	4.27
42	832.9	276.4	150.7	4.24
43	733.2	286.4	205.6	6.81
44	738.2	291.3	174.8	6.07
45	743.2	286.4	169.3	5.35
46	748.2	291.3	173.6	4.42
47	753.1	286.4	168.1	3.91
48	758.1	291.3	172.3	3.37
49	763.1	286.4	166.8	3.01
50	768.1	291.3	171.1	2.67
51	773.1	286.4	165.6	2.55
52	778.0	291.3	169.8	2.44
53	783.0	286.4	164.3	2.38
54	788.0	291.3	168.6	2.35
55	793.0	286.4	162.9	2.33
56	798.0	291.3	163.9	2.38
57	803.0	286.4	157.4	2.55
58	807.9	291.3	176.3	4.32
59	812.9	286.4	169.8	4.28
60	817.9	291.3	170.4	4.21
61	822.9	286.4	163.8	4.25
62	827.9	291.3	164.5	3.66
63	832.9	286.4	157.9	2.94
64	733.2	296.3	180.3	6.64
65	738.2	301.3	184.6	5.73
66	743.2	296.3	179.1	4.97
67	748.2	301.3	183.3	4.25
68	753.1	296.3	177.8	3.78
69	758.1	301.3	182.1	3.29
70	763.1	296.3	176.6	2.95
71	768.1	301.3	180.8	2.64
72	773.1	296.3	175.3	2.53
73	778.0	301.3	179.6	2.42
74	783.0	296.3	174.1	2.37
75	788.0	301.3	176.8	2.22
76	793.0	296.3	170.4	2.26
77	798.0	301.3	171.4	3.09
78	803.0	296.3	164.9	3.95
79	807.9	301.3	183.5	4.19
80	812.9	296.3	177.0	4.19
81	817.9	301.3	177.7	4.03
82	822.9	296.3	171.1	3.92
83	827.9	301.3	172.0	2.71
84	832.9	296.3	165.4	2.78
85	733.2	306.2	190.1	6.33
86	738.2	311.2	194.4	5.36
87	743.2	306.2	188.9	4.77

88	748.2	311.2	193.1	4.11
89	753.1	306.2	187.6	3.67
90	758.1	311.2	191.9	3.22
91	763.1	306.2	186.4	2.91
92	768.1	311.2	190.6	2.61
93	773.1	306.2	185.1	2.48
94	778.0	311.2	189.4	2.40
95	783.0	306.2	183.3	2.23
96	788.0	311.2	184.4	2.45
97	793.0	306.2	177.9	2.69
98	798.0	311.2	196.7	4.30
99	803.0	306.2	190.1	4.23
100	807.9	311.2	190.9	4.06
101	812.9	306.2	184.3	4.03
102	817.9	311.2	185.2	3.21
103	822.9	306.2	178.6	2.75
104	827.9	311.2	179.6	2.84
105	832.9	306.2	172.9	3.11
106	733.2	316.1	199.9	6.01
107	738.2	321.1	204.1	5.07
108	743.2	316.1	198.6	4.59
109	748.2	321.1	202.9	3.98
110	753.1	316.1	197.4	3.57
111	758.1	321.1	201.6	3.15
112	763.1	316.1	196.1	2.86
113	768.1	321.1	200.4	2.59
114	773.1	316.1	194.9	2.42
115	778.0	321.1	197.4	2.33
116	783.0	316.1	190.9	2.35
117	788.0	321.1	192.1	3.51
118	793.0	316.1	203.3	4.52
119	798.0	321.1	204.1	4.16
120	803.0	316.1	197.5	4.08
121	807.9	321.1	198.4	3.84
122	812.9	316.1	191.8	3.62
123	817.9	321.1	192.8	2.50
124	822.9	316.1	186.2	2.65
125	827.9	321.1	187.3	3.33
126	832.9	316.1	180.7	4.09
127	733.2	326.1	209.6	5.70
128	738.2	331.0	213.9	4.88
129	743.2	326.1	208.4	4.43
130	748.2	331.0	212.6	3.87
131	753.1	326.1	207.1	3.49
132	758.1	331.0	211.4	3.10
133	763.1	326.1	205.9	2.82
134	768.1	331.0	210.1	2.56
135	773.1	326.1	203.8	2.40
136	778.0	331.0	205.1	2.56
137	783.0	326.1	198.6	2.86
138	788.0	331.0	217.3	4.50
139	793.0	326.1	210.7	4.31
140	798.0	331.0	211.6	4.03
141	803.0	326.1	205.0	3.89
142	807.9	331.0	206.1	2.70
143	812.9	326.1	199.4	2.60
144	817.9	331.0	200.6	2.70
145	822.9	326.1	193.9	2.95
146	827.9	331.0	210.6	4.58

147	832.9	326.1	203.9	4.67
148	733.2	336.0	219.4	5.30
149	738.2	341.0	223.7	4.71
150	743.2	336.0	218.1	4.28
151	748.2	341.0	222.4	3.76
152	753.1	336.0	216.9	3.41
153	758.1	341.0	221.2	3.04
154	763.1	336.0	215.6	2.78
155	768.1	341.0	218.1	2.55
156	773.1	336.0	211.6	2.50
157	778.0	341.0	212.9	4.15
158	783.0	336.0	223.9	4.71
159	788.0	341.0	224.9	4.29
160	793.0	336.0	218.3	4.11
161	798.0	341.0	219.3	3.72
162	803.0	336.0	212.7	3.44
163	807.9	341.0	213.8	2.39
164	812.9	336.0	207.2	2.52
165	817.9	341.0	208.4	3.13
166	822.9	336.0	201.8	3.75
167	827.9	341.0	218.3	4.58
168	832.9	336.0	211.6	4.63
169	733.2	345.9	229.2	5.12
170	738.2	350.9	233.4	4.56
171	743.2	345.9	227.9	4.16
172	748.2	350.9	232.2	3.67
173	753.1	345.9	226.7	3.34
174	758.1	350.9	230.9	2.99
175	763.1	345.9	224.6	2.76
176	768.1	350.9	225.9	2.82
177	773.1	345.9	219.4	3.09
178	778.0	350.9	238.1	4.70
179	783.0	345.9	231.5	4.50
180	788.0	350.9	232.6	4.05
181	793.0	345.9	225.9	3.88
182	798.0	350.9	227.1	2.52
183	803.0	345.9	220.5	2.49
184	807.9	350.9	221.7	2.56
185	812.9	345.9	215.1	2.78
186	817.9	350.9	231.8	4.46
187	822.9	345.9	225.1	4.52
188	827.9	350.9	226.2	4.46
189	832.9	345.9	219.4	4.51
190	733.2	355.8	238.9	4.95
191	738.2	360.8	243.2	4.43
192	743.2	355.8	237.7	4.04
193	748.2	360.8	241.9	3.59
194	753.1	355.8	236.4	3.27
195	758.1	360.8	239.0	3.04
196	763.1	355.8	232.4	2.80
197	768.1	360.8	251.4	5.15
198	773.1	355.8	244.8	4.93
199	778.0	360.8	245.8	4.53
200	783.0	355.8	239.2	4.25
201	788.0	360.8	240.4	3.67
202	793.0	355.8	233.7	3.43
203	798.0	360.8	235.0	2.30
204	803.0	355.8	228.3	2.41
205	807.9	360.8	229.7	2.92

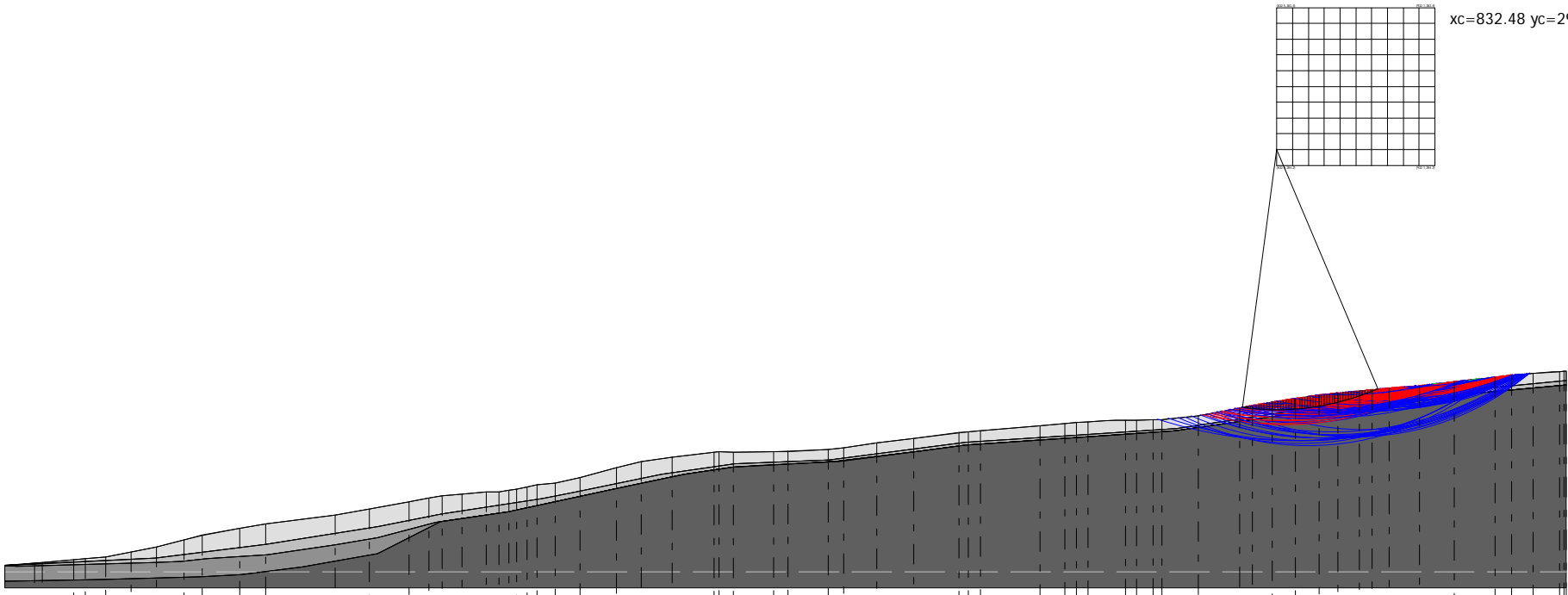
206	812.9	355.8	223.1	3.43
207	817.9	360.8	239.6	4.42
208	822.9	355.8	232.9	4.44
209	827.9	360.8	234.1	4.24
210	832.9	355.8	227.4	3.87
211	733.2	365.8	248.7	4.80
212	743.2	365.8	247.4	3.94
213	753.1	365.8	245.5	3.28
214	763.1	365.8	240.4	3.50
215	773.1	365.8	252.5	4.72
216	783.0	365.8	247.0	3.94
217	793.0	365.8	241.6	2.46
218	803.0	365.8	236.3	2.63
219	812.9	365.8	246.4	4.39
220	822.9	365.8	240.9	4.32
221	832.9	365.8	235.5	3.11

Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici strato2	3
5.Vertici strato3	3
6.Coefficienti parziali azioni	3
7.Coefficienti parziali per i parametri geotecnici del terreno	4
8.Stratigrafia	4
9.Risultati analisi pendio [A2+M2+R2]	4
Indice	9

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE
 DA 800 A 900 m
 IN CONDIZIONI STATICHE

xc=832.48 yc=294.09 Rc=163.91 Fs=2.72



- Strato...1
g=1.9t/m³
Fi=16°
c=6 kN/m²
- Strato...2
g=1.9t/m³
Fi=18°
c=10 kN/m²
- Strato...3
g=1.7t/m³
Fi=34°
c= kN/m²
- Strato...4
g=2.0t/m³
Fi=28°
c=20 kN/m²

Quote	0.00	32.21	19.02	33.71	35.80	36.64	37.49	40.72	43.89	48.26	51.28	55.43	58.43	64.09	67.83	72.22	74.74	76.00	77.14	78.48	78.68	80.50	81.68	82.98	84.23	87.48	93.83	97.75	100.32	103.62	104.02	104.03	105.16	106.26	109.44	112.23	115.81	116.50	117.05	120.06	121.70	122.29	122.71	123.66	123.52	123.93	124.14	126.28	131.32	132.81	134.93	137.23	139.45	140.70	142.13	142.86	143.76	145.30	147.81	150.83	151.96	153.20	154.88
Distanze Parziali	0.00	19.02	33.71	35.80	36.64	37.49	40.72	43.89	48.26	51.28	55.43	58.43	64.09	67.83	72.22	74.74	76.00	77.14	78.48	78.68	80.50	81.68	82.98	84.23	87.48	93.83	97.75	100.32	103.62	104.02	104.03	105.16	106.26	109.44	112.23	115.81	116.50	117.05	120.06	121.70	122.29	122.71	123.66	123.52	123.93	124.14	126.28	131.32	132.81	134.93	137.23	139.45	140.70	142.13	142.86	143.76	145.30	147.81	150.83	151.96	153.20	154.88	
Distanze Progressive	0.00	19.02	33.71	35.80	36.64	37.49	40.72	43.89	48.26	51.28	55.43	58.43	64.09	67.83	72.22	74.74	76.00	77.14	78.48	78.68	80.50	81.68	82.98	84.23	87.48	93.83	97.75	100.32	103.62	104.02	104.03	105.16	106.26	109.44	112.23	115.81	116.50	117.05	120.06	121.70	122.29	122.71	123.66	123.52	123.93	124.14	126.28	131.32	132.81	134.93	137.23	139.45	140.70	142.13	142.86	143.76	145.30	147.81	150.83	151.96	153.20	154.88	

Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2018
Numero di strati	4.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	832.48 m
Ordinata vertice sinistro inferiore yi	284.17 m
Ascissa vertice destro superiore xs	932.12 m
Ordinata vertice destro superiore ys	383.41 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	31.79	32.21
2	50.82	33.71
3	55.54	33.97
4	75.36	35.8
5	82.73	36.64
6	95.61	37.49
7	111.57	40.72
8	127.24	43.89
9	144.7	48.26
10	156.36	51.28
11	179.68	55.43
12	196.25	58.43
13	239.82	64.09
14	261.3	67.83
15	286.22	72.22
16	298.73	74.74
17	307.32	76.0
18	319.59	77.14
19	334.93	78.48
20	342.91	78.68
21	349.05	79.54
22	353.96	80.2
23	360.71	81.68
24	366.84	82.98
25	378.5	84.23
26	393.84	87.48
27	416.76	93.83
28	432.65	97.75
29	452.14	100.32
30	478.29	103.66
31	481.36	103.84

32	490.59	103.62
33	515.72	104.02
34	524.95	104.03
35	550.07	105.16
36	559.81	106.26
37	580.83	109.44
38	603.91	112.23
39	632.62	115.81
40	638.26	116.5
41	645.95	117.05
42	683.38	120.06
43	699.28	121.7
44	706.45	122.29
45	713.63	122.71
46	723.37	123.3
47	731.07	123.72
48	737.22	123.66
49	744.4	123.52
50	754.65	123.93
51	760.05	124.14
52	783.16	126.28
53	809.3	131.32
54	817.15	132.81
55	829.69	134.93
56	844.33	137.23
57	858.97	139.45
58	870.99	140.7
59	884.59	142.13
60	892.43	142.86
61	903.41	143.76
62	922.23	145.3
63	944.18	147.81
64	969.8	150.83
65	980.26	151.96
66	993.91	153.2
67	1005.87	154.0
68	1010.58	154.3
69	1013.19	154.68
70	1014.76	154.71

Vertici strato1

N	X (m)	y (m)
1	31.79	32.21
2	126.69	36.78
3	196.43	45.54
4	266.76	56.77
5	306.96	64.47
6	370.57	74.33
7	389.75	78.13
8	445.45	89.49
9	491.31	96.28
10	550.88	98.78
11	636.67	109.79
12	701.93	114.06
13	769.59	118.49
14	888.47	136.63
15	1014.76	148.71

Vertici strato2

N	X (m)	y (m)
1	31.79	32.21
2	39.47	31.68
3	126.69	33.96
4	143.38	34.9
5	159.34	36.39
6	197.2	38.81
7	239.84	45.32
8	266.76	49.77
9	303.56	59.28
10	348.75	66.1
11	421.3	81.57
12	459.64	89.74
13	490.15	94.18
14	505.11	95.0
15	540.62	96.92
16	556.59	97.79
17	607.97	104.35
18	636.66	108.04
19	739.0	114.83
20	768.76	117.04
21	864.7	131.09
22	888.65	134.6
23	929.62	138.23
24	969.35	141.74
25	1014.76	145.99

Vertici strato3

N	X (m)	y (m)
1	31.79	22.16
2	91.15	23.31
3	154.98	24.99
4	180.8	26.53
5	219.34	31.19
6	266.76	39.77
7	306.25	59.69
8	348.75	66.1
9	421.3	81.57
10	459.64	89.74
11	490.15	94.18
12	540.62	96.92
13	556.59	97.79
14	607.97	104.35
15	636.66	108.04
16	739.0	114.83
17	768.76	117.04
18	864.7	131.09
19	888.65	134.6
20	929.62	138.23
21	969.35	141.74
22	1014.76	145.99

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3			34	1.7		
4	20		28	2.0		



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.72
Ascissa centro superficie	832.48 m
Ordinata centro superficie	294.09 m
Raggio superficie	163.91 m

Numero di superfici esaminate....(178)

N°	Xo	Yo	Ro	Fs
1	832.5	284.2	156.5	3.62
2	837.5	289.1	157.3	2.90
3	842.4	284.2	150.7	3.13
4	847.4	289.1	167.4	5.11
5	852.4	284.2	176.3	5.22
6	857.4	289.1	176.5	5.30
7	862.4	284.2	154.5	5.36
8	867.4	289.1	155.3	3.95
9	872.3	284.2	148.5	3.98
10	877.3	289.1	149.4	5.42
11	882.3	284.2	171.0	5.83
12	887.3	289.1	171.4	5.94
13	892.3	284.2	150.8	5.92
14	897.2	289.1	151.7	4.32
15	902.2	284.2	144.9	4.14
16	907.2	289.1	146.1	6.12
17	912.2	284.2	152.2	6.09
18	917.2	289.1	153.5	5.66
19	922.2	284.2	146.6	4.93
20	927.1	289.1	148.1	3.49
21	932.1	284.2	141.3	3.58
22	832.5	294.1	163.9	2.72
23	837.5	299.1	164.8	3.30
24	842.4	294.1	158.2	3.87
25	847.4	299.1	190.1	5.06
26	852.4	294.1	183.3	5.16
27	857.4	299.1	168.7	4.95
28	862.4	294.1	162.0	4.45

29	867.4	299.1	162.9	3.93
30	872.3	294.1	156.2	4.48
31	877.3	299.1	185.3	5.66
32	882.3	294.1	164.4	5.98
33	887.3	299.1	165.4	5.66
34	892.3	294.1	158.6	4.47
35	897.2	299.1	159.7	4.29
36	902.2	294.1	152.9	4.82
37	907.2	299.1	167.2	6.08
38	912.2	294.1	160.3	5.93
39	917.2	299.1	161.7	4.86
40	922.2	294.1	154.9	3.89
41	927.1	299.1	156.6	3.64
42	832.5	304.0	171.4	2.98
43	837.5	309.0	188.1	4.82
44	842.4	304.0	181.4	4.97
45	847.4	309.0	182.2	4.99
46	852.4	304.0	175.5	5.02
47	857.4	309.0	176.4	3.65
48	862.4	304.0	169.6	3.74
49	867.4	309.0	170.7	4.69
50	872.3	304.0	178.1	5.73
51	877.3	309.0	179.0	5.80
52	882.3	304.0	172.2	5.81
53	887.3	309.0	173.3	4.27
54	892.3	304.0	166.5	4.23
55	897.2	309.0	167.9	5.12
56	902.2	304.0	161.1	7.18
57	912.2	304.0	168.5	5.64
58	927.1	309.0	165.3	3.91
59	932.1	304.0	158.6	4.53
60	832.5	313.9	179.1	3.64
61	837.5	318.9	195.7	4.81
62	842.4	313.9	188.9	4.91
63	847.4	318.9	189.9	4.68
64	852.4	313.9	183.1	4.31
65	857.4	318.9	184.2	3.55
66	862.4	313.9	177.5	3.97
67	867.4	318.9	206.7	5.38
68	872.3	313.9	199.8	5.52
69	877.3	318.9	187.0	5.58
70	882.3	313.9	180.2	5.35
71	887.3	318.9	181.5	4.06
72	892.3	313.9	174.7	4.42
73	897.2	318.9	189.1	5.96
74	907.2	318.9	183.7	5.58
75	912.2	313.9	176.9	4.86
76	917.2	318.9	178.7	3.68
77	922.2	313.9	172.0	3.70
78	932.1	313.9	167.4	6.47
79	832.5	323.9	202.4	4.70
80	837.5	328.8	203.3	4.74
81	842.4	323.9	196.6	4.75
82	847.4	328.8	197.7	3.41
83	852.4	323.9	190.9	3.50
84	857.4	328.8	192.2	4.03
85	862.4	323.9	185.4	4.95
86	867.4	328.8	214.4	5.38
87	872.3	323.9	193.8	5.67

88	877.3	328.8	195.1	5.03
89	882.3	323.9	188.3	4.23
90	887.3	328.8	189.7	4.50
91	892.3	323.9	183.0	5.36
92	902.2	323.9	190.5	5.90
93	917.2	328.8	187.4	3.76
94	922.2	323.9	180.8	3.95
95	832.5	333.8	210.1	4.67
96	837.5	338.8	211.2	4.48
97	842.4	333.8	204.4	4.28
98	847.4	338.8	205.6	3.24
99	852.4	333.8	198.9	3.55
100	857.4	338.8	200.3	5.29
101	862.4	333.8	221.3	5.25
102	867.4	338.8	222.2	5.36
103	872.3	333.8	201.9	5.36
104	877.3	338.8	203.3	4.14
105	882.3	333.8	196.5	4.08
106	887.3	338.8	198.1	5.49
107	892.3	333.8	204.2	5.91
108	902.2	333.8	199.0	5.64
109	907.2	338.8	200.9	4.00
110	912.2	333.8	194.1	3.81
111	922.2	333.8	189.6	4.42
112	927.1	338.8	192.0	14.74
113	832.5	343.7	217.9	4.51
114	837.5	348.7	219.1	3.21
115	842.4	343.7	212.4	3.31
116	847.4	348.7	213.7	3.55
117	852.4	343.7	207.0	4.10
118	857.4	348.7	222.3	5.32
119	862.4	343.7	215.5	5.44
120	867.4	348.7	216.8	5.16
121	872.3	343.7	210.0	4.69
122	877.3	348.7	211.6	4.07
123	882.3	343.7	204.9	4.55
124	887.3	348.7	219.4	5.82
125	892.3	343.7	212.6	5.83
126	897.2	348.7	214.3	5.62
127	917.2	348.7	205.1	4.40
128	922.2	343.7	198.5	5.49
129	832.5	353.6	225.8	4.20
130	837.5	358.6	227.2	3.07
131	842.4	353.6	220.4	3.22
132	847.4	358.6	221.9	4.18
133	852.4	353.6	229.1	5.20
134	857.4	358.6	230.4	5.25
135	862.4	353.6	223.6	5.24
136	867.4	358.6	225.1	4.24
137	872.3	353.6	218.4	4.06
138	877.3	358.6	220.1	4.56
139	882.3	353.6	213.3	5.52
140	897.2	358.6	223.0	5.13
141	902.2	353.6	216.3	4.03
142	912.2	353.6	211.8	4.02
143	917.2	358.6	214.1	5.24
144	922.2	353.6	207.6	9.76
145	832.5	363.6	233.9	3.13
146	837.5	368.5	235.3	3.19

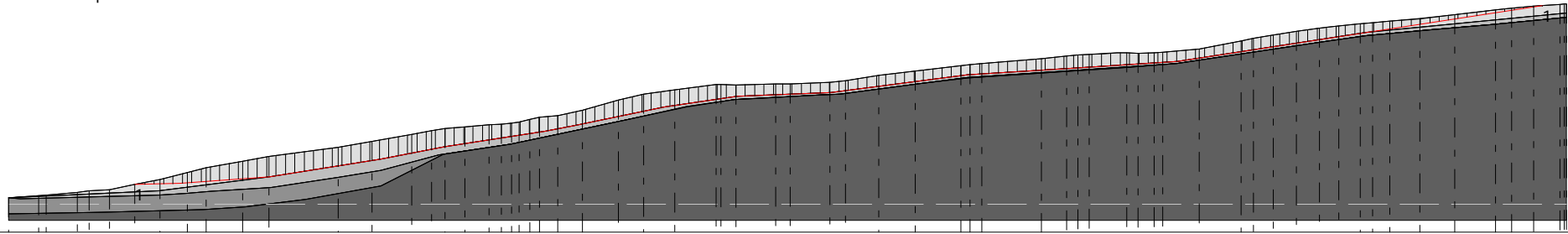
147	842.4	363.6	228.6	3.55
148	847.4	368.5	257.7	4.99
149	852.4	363.6	237.2	5.18
150	857.4	368.5	238.7	5.15
151	862.4	363.6	231.9	5.02
152	867.4	368.5	233.5	3.98
153	872.3	363.6	226.8	4.03
154	877.3	368.5	228.6	5.46
155	882.3	363.6	234.6	5.67
156	897.2	368.5	231.7	4.03
157	902.2	363.6	225.1	3.97
158	912.2	363.6	220.7	4.38
159	832.5	373.5	242.1	2.96
160	837.5	378.4	243.6	3.56
161	842.4	373.5	236.9	4.27
162	847.4	378.4	252.2	5.09
163	852.4	373.5	245.4	5.16
164	857.4	378.4	247.0	4.75
165	862.4	373.5	240.3	3.83
166	867.4	378.4	242.0	3.96
167	872.3	373.5	235.3	4.51
168	877.3	378.4	249.9	5.60
169	882.3	373.5	243.2	5.66
170	887.3	378.4	245.1	5.52
171	897.2	378.4	240.6	4.00
172	902.2	373.5	233.9	3.83
173	832.5	383.4	250.3	3.18
174	842.4	383.4	272.7	4.94
175	852.4	383.4	253.8	4.95
176	862.4	383.4	248.8	3.86
177	872.3	383.4	243.9	5.34
178	912.2	383.4	238.8	6.63

Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici strato2	3
5.Vertici strato3	3
6.Coefficienti parziali azioni	3
7.Coefficienti parziali per i parametri geotecnici del terreno	4
8.Stratigrafia	4
9.Risultati analisi pendio [A2+M2+R2]	4
Indice	8

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE
 SUPERFICIE 1
 IN CONDIZIONI SISMICHE

Fs=1.71 Sup...1



- Strato...1
g=1.9t/m³
Fi=16°
c=6 kN/m²
- Strato...2
g=1.9t/m³
Fi=18°
c=10 kN/m²
- Strato...3
g=1.7t/m³
Fi=34°
c= kN/m²
- Strato...4
g=2.0t/m³
Fi=28°
c=20 kN/m²

Quote	0.00	32.21	19.02	49.02	33.71	35.80	36.64	37.49	40.72	43.89	48.26	51.28	55.43	58.43	64.09	67.83	72.22	74.74	76.00	77.14	78.48	78.68	80.30	81.68	82.98	84.23	87.48	93.83	97.75	100.32	103.62	104.02	104.03	105.16	106.26	109.44	112.23	115.81	116.50	117.05	120.06	121.70	122.29	122.71	123.66	123.52	123.93	124.14	126.28	131.32	132.81	134.93	137.23	139.45	140.70	142.13	142.86	143.76	145.30	147.81	150.83	151.96	153.20	154.88
Distanze Parziali	0.00	19.02	49.02	33.71	35.80	36.64	37.49	40.72	43.89	48.26	51.28	55.43	58.43	64.09	67.83	72.22	74.74	76.00	77.14	78.48	78.68	80.30	81.68	82.98	84.23	87.48	93.83	97.75	100.32	103.62	104.02	104.03	105.16	106.26	109.44	112.23	115.81	116.50	117.05	120.06	121.70	122.29	122.71	123.66	123.52	123.93	124.14	126.28	131.32	132.81	134.93	137.23	139.45	140.70	142.13	142.86	143.76	145.30	147.81	150.83	151.96	153.20	154.88	
Distanze Progressive	0.00	19.02	49.02	33.71	35.80	36.64	37.49	40.72	43.89	48.26	51.28	55.43	58.43	64.09	67.83	72.22	74.74	76.00	77.14	78.48	78.68	80.30	81.68	82.98	84.23	87.48	93.83	97.75	100.32	103.62	104.02	104.03	105.16	106.26	109.44	112.23	115.81	116.50	117.05	120.06	121.70	122.29	122.71	123.66	123.52	123.93	124.14	126.28	131.32	132.81	134.93	137.23	139.45	140.70	142.13	142.86	143.76	145.30	147.81	150.83	151.96	153.20	154.88	

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.160679/10.980336
Calcolo eseguito secondo	NTC 2018
Numero di strati	4.0
Numero dei conci	150.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma generica	

Coefficiente azione sismica orizzontale	0.076
Coefficiente azione sismica verticale	0.038

Vertici profilo

Nr	X (m)	y (m)
1	31.79	32.21
2	50.82	33.71
3	55.54	33.97
4	75.36	35.8
5	82.73	36.64
6	95.61	37.49
7	111.57	40.72
8	127.24	43.89
9	144.7	48.26
10	156.36	51.28
11	179.68	55.43
12	196.25	58.43
13	239.82	64.09
14	261.3	67.83
15	286.22	72.22
16	298.73	74.74
17	307.32	76.0
18	319.59	77.14
19	334.93	78.48
20	342.91	78.68
21	349.05	79.54
22	353.96	80.2
23	360.71	81.68
24	366.84	82.98
25	378.5	84.23
26	393.84	87.48
27	416.76	93.83
28	432.65	97.75
29	452.14	100.32
30	478.29	103.66
31	481.36	103.84
32	490.59	103.62
33	515.72	104.02
34	524.95	104.03
35	550.07	105.16
36	559.81	106.26

37	580.83	109.44
38	603.91	112.23
39	632.62	115.81
40	638.26	116.5
41	645.95	117.05
42	683.38	120.06
43	699.28	121.7
44	706.45	122.29
45	713.63	122.71
46	723.37	123.3
47	731.07	123.72
48	737.22	123.66
49	744.4	123.52
50	754.65	123.93
51	760.05	124.14
52	783.16	126.28
53	809.3	131.32
54	817.15	132.81
55	829.69	134.93
56	844.33	137.23
57	858.97	139.45
58	870.99	140.7
59	884.59	142.13
60	892.43	142.86
61	903.41	143.76
62	922.23	145.3
63	944.18	147.81
64	969.8	150.83
65	980.26	151.96
66	993.91	153.2
67	1005.87	154.0
68	1010.58	154.3
69	1013.19	154.68
70	1014.76	154.71

Vertici strato1

N	X (m)	y (m)
1	31.79	32.21
2	126.69	36.78
3	196.43	45.54
4	266.76	56.77
5	306.96	64.47
6	370.57	74.33
7	389.75	78.13
8	445.45	89.49
9	491.31	96.28
10	550.88	98.78
11	636.67	109.79
12	701.93	114.06
13	769.59	118.49
14	888.47	136.63
15	1014.76	148.71

Vertici strato2

N	X (m)	y (m)
1	31.79	32.21
2	39.47	31.68
3	126.69	33.96

4	143.38	34.9
5	159.34	36.39
6	197.2	38.81
7	239.84	45.32
8	266.76	49.77
9	303.56	59.28
10	348.75	66.1
11	421.3	81.57
12	459.64	89.74
13	490.15	94.18
14	505.11	95.0
15	540.62	96.92
16	556.59	97.79
17	607.97	104.35
18	636.66	108.04
19	739.0	114.83
20	768.76	117.04
21	864.7	131.09
22	888.65	134.6
23	929.62	138.23
24	969.35	141.74
25	1014.76	145.99

Vertici strato3

N	X (m)	y (m)
1	31.79	22.16
2	91.15	23.31
3	154.98	24.99
4	180.8	26.53
5	219.34	31.19
6	266.76	39.77
7	306.25	59.69
8	348.75	66.1
9	421.3	81.57
10	459.64	89.74
11	490.15	94.18
12	540.62	96.92
13	556.59	97.79
14	607.97	104.35
15	636.66	108.04
16	739.0	114.83
17	768.76	117.04
18	864.7	131.09
19	888.65	134.6
20	929.62	138.23
21	969.35	141.74
22	1014.76	145.99

Vertici superficie Nr...1

N	X m	y m
1	111.32	40.77
2	140.13	41.42
3	196.43	45.54
4	266.76	56.77
5	306.96	64.47
6	370.57	74.33
7	389.75	78.13
8	445.45	89.49

9	491.31	96.28
10	550.88	98.78
11	636.67	109.79
12	701.93	114.06
13	769.59	118.49
14	999.62	153.59

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coazione efficace	1.0
Coazione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coazione (kN/m ²)	Coazione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3			34	1.7		
4	20		28	2.0		



B: Larghezza del concio; Alfa: Angolo di inclinazione della base del concio; Li: Lunghezza della base del concio; Wi: Peso del concio; Ui: Forze derivanti dalle pressioni neutre; Ni: forze agenti normalmente alla direzione di scivolamento; Ti: forze agenti parallelamente alla superficie di scivolamento; Fi: Angolo di attrito; c: coazione.

Superficie Nr...1 Fattore di sicurezza=1.71

Nr.	B m	Alfa (°)	Li m	Wi (kN)	Kh•Wi (kN)	Kv•Wi (kN)	c (kN/m ²)	Fi (°)	Ui (kN)	N'i (kN)	Ti (kN)
1	5.92	1.3	5.92	58.63	4.46	2.23	6.0	16.0	0.0	12.8	22.9
2	5.92	1.3	5.92	176.0	13.38	6.69	6.0	16.0	0.0	27.3	25.3
3	5.92	1.3	5.92	293.5	22.31	11.15	6.0	16.0	0.0	41.9	27.7
4	5.92	1.3	5.92	439.54	33.41	16.7	6.0	16.0	0.0	60.1	30.8
5	5.92	2.0	5.92	584.35	44.41	22.21	6.0	16.0	0.0	120.5	40.9
6	5.92	4.1	5.93	712.72	54.17	27.08	6.0	16.0	0.0	296.2	70.3
7	5.92	4.3	5.93	833.46	63.34	31.67	6.0	16.0	0.0	354.9	80.1
8	5.92	4.1	5.93	954.45	72.54	36.27	6.0	16.0	0.0	394.8	86.8
9	5.92	4.1	5.93	1024.1	77.83	38.92	6.0	16.0	0.0	423.2	91.5
10	5.92	4.3	5.93	1092.24	83.01	41.51	6.0	16.0	0.0	463.3	98.2
11	5.92	4.1	5.93	1160.38	88.19	44.09	6.0	16.0	0.0	478.7	100.8
12	5.92	4.1	5.93	1229.26	93.42	46.71	6.0	16.0	0.0	506.8	105.5
13	5.92	4.3	5.93	1299.14	98.73	49.37	6.0	16.0	0.0	550.0	112.7
14	5.92	4.1	5.93	1369.01	104.04	52.02	6.0	16.0	0.0	563.8	115.0
15	5.92	7.6	5.97	1411.53	107.28	53.64	6.0	16.0	0.0	1067.4	199.3

16	5.92	9.2	5.99	1400.13	106.41	53.2	10.0	18.0	0.0	1275.1	276.3
17	5.92	9.0	5.99	1380.42	104.91	52.46	6.0	16.0	0.0	1241.5	228.4
18	5.92	9.0	5.99	1361.38	103.46	51.73	10.0	18.0	0.0	1224.4	266.7
19	5.92	9.2	5.99	1341.68	101.97	50.98	6.0	16.0	0.0	1222.0	225.2
20	5.92	9.0	5.99	1321.97	100.47	50.24	6.0	16.0	0.0	1189.1	219.7
21	5.92	9.0	5.99	1302.93	99.02	49.51	6.0	16.0	0.0	1172.0	216.8
22	5.92	9.0	5.99	1283.88	97.58	48.79	10.0	18.0	0.0	1154.9	253.5
23	5.92	9.2	5.99	1289.68	98.02	49.01	6.0	16.0	0.0	1174.6	217.2
24	5.92	9.0	5.99	1298.92	98.72	49.36	6.0	16.0	0.0	1168.3	216.2
25	5.92	9.0	5.99	1308.82	99.47	49.74	6.0	16.0	0.0	1177.1	217.7
26	5.92	9.0	5.99	1319.0	100.24	50.12	10.0	18.0	0.0	1186.2	259.4
27	5.92	10.6	6.02	1321.0	100.4	50.2	6.0	16.0	0.0	1394.0	253.9
28	5.92	10.8	6.02	1312.48	99.75	49.87	10.0	18.0	0.0	1418.4	303.4
29	5.92	10.8	6.02	1302.49	98.99	49.49	10.0	18.0	0.0	1407.6	301.4
30	5.92	10.8	6.02	1293.16	98.28	49.14	10.0	18.0	0.0	1397.5	299.5
31	5.92	10.8	6.02	1299.59	98.77	49.38	10.0	18.0	0.0	1404.4	300.8
32	5.92	10.8	6.02	1306.02	99.26	49.63	10.0	18.0	0.0	1411.3	302.1
33	5.92	10.9	6.03	1279.88	97.27	48.64	10.0	18.0	0.0	1385.8	297.3
34	5.92	8.8	5.99	1245.98	94.69	47.35	6.0	16.0	0.0	1092.2	203.5
35	5.92	8.8	5.99	1205.21	91.6	45.8	6.0	16.0	0.0	1056.6	197.5
36	5.92	8.8	5.99	1163.06	88.39	44.2	6.0	16.0	0.0	1019.7	191.3
37	5.92	8.8	5.99	1118.85	85.03	42.52	6.0	16.0	0.0	981.1	184.9
38	5.92	8.7	5.99	1075.3	81.72	40.86	6.0	16.0	0.0	930.8	176.5
39	5.92	8.8	5.99	998.85	75.91	37.96	10.0	18.0	0.0	876.2	200.6
40	5.92	8.8	5.99	948.37	72.08	36.04	10.0	18.0	0.0	832.1	192.3
41	5.92	8.8	5.99	937.15	71.22	35.61	10.0	18.0	0.0	822.3	190.4
42	5.92	8.8	5.99	956.51	72.69	36.35	10.0	18.0	0.0	839.2	193.6
43	5.92	8.8	5.99	995.95	75.69	37.85	10.0	18.0	0.0	873.6	200.1
44	5.92	9.5	6.0	1000.61	76.05	38.02	6.0	16.0	0.0	946.4	179.1
45	5.92	11.3	6.03	950.99	72.28	36.14	6.0	16.0	0.0	1071.5	200.0
46	5.92	11.2	6.03	921.86	70.06	35.03	6.0	16.0	0.0	1028.3	192.8
47	5.92	11.3	6.03	930.39	70.71	35.35	6.0	16.0	0.0	1050.0	196.4
48	5.92	11.5	6.04	936.94	71.21	35.6	6.0	16.0	0.0	1076.9	200.9
49	5.92	11.5	6.04	978.76	74.39	37.19	10.0	18.0	0.0	1124.7	247.8
50	5.92	11.5	6.04	1026.86	78.04	39.02	10.0	18.0	0.0	1179.8	258.2
51	5.92	11.6	6.04	1074.31	81.65	40.82	6.0	16.0	0.0	1246.3	229.2
52	5.92	11.5	6.04	1121.75	85.25	42.63	6.0	16.0	0.0	1288.4	236.3
53	5.92	11.5	6.04	1150.55	87.44	43.72	6.0	16.0	0.0	1321.3	241.8
54	5.92	11.5	6.04	1178.96	89.6	44.8	10.0	18.0	0.0	1353.9	291.2
55	5.92	11.5	6.04	1185.22	90.08	45.04	10.0	18.0	0.0	1361.0	292.6
56	5.92	11.6	6.04	1137.79	86.47	43.24	10.0	18.0	0.0	1319.5	284.7
57	5.92	9.6	6.0	1101.6	83.72	41.86	10.0	18.0	0.0	1051.4	233.9
58	5.92	8.4	5.98	1084.46	82.42	41.21	6.0	16.0	0.0	901.1	171.5
59	5.92	8.4	5.98	1071.84	81.46	40.73	10.0	18.0	0.0	890.6	203.4
60	5.92	8.5	5.98	1058.55	80.45	40.22	10.0	18.0	0.0	891.6	203.6
61	5.92	8.4	5.98	1045.27	79.44	39.72	10.0	18.0	0.0	868.5	199.2
62	5.92	8.5	5.98	1031.98	78.43	39.22	6.0	16.0	0.0	869.2	166.1
63	5.92	8.4	5.98	988.56	75.13	37.57	6.0	16.0	0.0	821.5	158.2
64	5.92	8.5	5.98	876.67	66.63	33.31	6.0	16.0	0.0	738.8	144.3
65	5.92	3.1	5.93	808.26	61.43	30.71	10.0	18.0	0.0	246.0	81.2
66	5.92	2.4	5.92	787.44	59.85	29.92	10.0	18.0	0.0	190.6	70.7
67	5.92	2.4	5.92	770.23	58.54	29.27	6.0	16.0	0.0	186.4	51.9
68	5.92	2.4	5.92	753.03	57.23	28.62	6.0	16.0	0.0	182.3	51.2
69	5.92	2.4	5.92	733.29	55.73	27.87	6.0	16.0	0.0	177.6	50.4
70	5.92	2.3	5.92	706.91	53.72	26.86	10.0	18.0	0.0	163.2	65.5
71	5.92	2.4	5.92	700.59	53.24	26.62	10.0	18.0	0.0	169.7	66.7
72	5.92	2.4	5.92	702.29	53.37	26.69	10.0	18.0	0.0	170.1	66.8
73	5.92	2.4	5.92	703.99	53.5	26.75	10.0	18.0	0.0	170.4	66.8
74	5.92	2.4	5.92	705.68	53.63	26.82	6.0	16.0	0.0	170.8	49.3

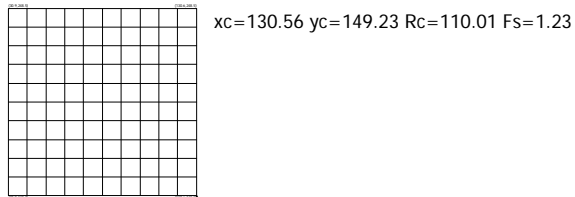
75	5.92	6.4	5.95	704.69	53.56	26.78	6.0	16.0	0.0	448.0	95.7
76	5.92	7.3	5.97	699.76	53.18	26.59	6.0	16.0	0.0	510.6	106.1
77	5.92	7.2	5.97	710.11	53.97	26.98	10.0	18.0	0.0	510.0	131.2
78	5.92	7.3	5.97	725.27	55.12	27.56	10.0	18.0	0.0	529.0	134.8
79	5.92	7.3	5.97	739.77	56.22	28.11	6.0	16.0	0.0	539.5	111.0
80	5.92	7.2	5.97	749.92	56.99	28.5	10.0	18.0	0.0	538.3	136.6
81	5.92	7.3	5.97	745.36	56.65	28.32	10.0	18.0	0.0	543.5	137.6
82	5.92	7.3	5.97	740.14	56.25	28.13	10.0	18.0	0.0	539.6	136.8
83	5.92	7.3	5.97	734.92	55.85	27.93	6.0	16.0	0.0	535.8	110.4
84	5.92	7.2	5.97	731.28	55.58	27.79	6.0	16.0	0.0	524.9	108.5
85	5.92	7.3	5.97	729.33	55.43	27.71	10.0	18.0	0.0	531.7	135.3
86	5.92	7.3	5.97	726.71	55.23	27.62	6.0	16.0	0.0	529.8	109.4
87	5.92	7.2	5.97	724.75	55.08	27.54	10.0	18.0	0.0	520.1	133.1
88	5.92	7.3	5.97	722.79	54.93	27.47	10.0	18.0	0.0	526.8	134.4
89	5.92	6.1	5.95	726.04	55.18	27.59	10.0	18.0	0.0	441.9	118.3
90	5.92	3.8	5.93	730.68	55.53	27.77	10.0	18.0	0.0	275.6	86.8
91	5.92	3.7	5.93	736.16	55.95	27.97	10.0	18.0	0.0	269.3	85.6
92	5.92	3.8	5.93	745.97	56.69	28.35	10.0	18.0	0.0	281.3	87.9
93	5.92	3.7	5.93	755.78	57.44	28.72	10.0	18.0	0.0	276.3	86.9
94	5.92	3.8	5.93	765.59	58.18	29.09	10.0	18.0	0.0	288.5	89.2
95	5.92	3.7	5.93	775.4	58.93	29.47	10.0	18.0	0.0	283.4	88.3
96	5.92	3.8	5.93	785.21	59.68	29.84	10.0	18.0	0.0	295.8	90.6
97	5.92	3.7	5.93	795.01	60.42	30.21	10.0	18.0	0.0	290.4	89.6
98	5.92	3.8	5.93	818.32	62.19	31.1	10.0	18.0	0.0	308.1	92.9
99	5.92	3.7	5.93	842.72	64.05	32.02	10.0	18.0	0.0	307.7	92.9
100	5.92	3.7	5.93	864.3	65.69	32.84	10.0	18.0	0.0	320.2	95.2
101	5.92	3.8	5.93	874.75	66.48	33.24	10.0	18.0	0.0	329.1	96.9
102	5.92	3.7	5.93	870.17	66.13	33.07	10.0	18.0	0.0	317.5	94.7
103	5.92	3.8	5.93	866.91	65.89	32.94	10.0	18.0	0.0	326.1	96.4
104	5.92	3.7	5.93	863.18	65.6	32.8	10.0	18.0	0.0	314.9	94.2
105	5.92	3.8	5.93	855.58	65.02	32.51	10.0	18.0	0.0	321.8	95.5
106	5.92	3.7	5.93	811.85	61.7	30.85	10.0	18.0	0.0	296.2	90.7
107	5.92	3.8	5.93	757.47	57.57	28.78	10.0	18.0	0.0	285.0	88.6
108	5.92	3.7	5.93	726.17	55.19	27.59	10.0	18.0	0.0	265.0	84.8
109	5.92	3.8	5.93	710.07	53.97	26.98	10.0	18.0	0.0	267.2	85.2
110	5.92	3.7	5.93	692.03	52.59	26.3	10.0	18.0	0.0	252.6	82.4
111	5.92	3.8	5.93	708.8	53.87	26.93	10.0	18.0	0.0	266.7	85.1
112	5.92	8.0	5.98	702.02	53.35	26.68	6.0	16.0	0.0	555.4	113.6
113	5.92	8.7	5.99	666.98	50.69	25.35	6.0	16.0	0.0	576.2	117.1
114	5.92	8.6	5.98	632.45	48.07	24.03	6.0	16.0	0.0	539.2	110.9
115	5.92	8.7	5.99	658.79	50.07	25.03	10.0	18.0	0.0	569.1	142.4
116	5.92	8.7	5.99	684.48	52.02	26.01	6.0	16.0	0.0	591.2	119.6
117	5.92	8.7	5.99	710.17	53.97	26.99	6.0	16.0	0.0	613.3	123.3
118	5.92	8.6	5.98	736.52	55.98	27.99	6.0	16.0	0.0	627.6	125.7
119	5.92	8.7	5.99	762.08	57.92	28.96	10.0	18.0	0.0	657.9	159.3
120	5.92	8.7	5.99	781.94	59.43	29.71	6.0	16.0	0.0	675.0	133.7
121	5.92	8.6	5.98	792.68	60.24	30.12	10.0	18.0	0.0	675.2	162.5
122	5.92	8.7	5.99	801.96	60.95	30.47	10.0	18.0	0.0	692.2	165.8
123	5.92	8.7	5.99	804.77	61.16	30.58	10.0	18.0	0.0	694.6	166.2
124	5.92	8.7	5.99	807.57	61.38	30.69	6.0	16.0	0.0	697.0	137.3
125	5.92	8.6	5.98	808.19	61.42	30.71	10.0	18.0	0.0	688.3	165.0
126	5.92	8.7	5.99	807.73	61.39	30.69	10.0	18.0	0.0	697.0	166.7
127	5.92	8.7	5.99	798.79	60.71	30.35	10.0	18.0	0.0	689.3	165.2
128	5.92	8.7	5.99	766.71	58.27	29.13	6.0	16.0	0.0	661.6	131.4
129	5.92	8.6	5.98	735.56	55.9	27.95	6.0	16.0	0.0	626.4	125.5
130	5.92	8.7	5.99	705.42	53.61	26.81	10.0	18.0	0.0	608.7	149.9
131	5.92	8.7	5.99	674.62	51.27	25.64	6.0	16.0	0.0	582.1	118.1
132	5.92	8.7	5.99	635.94	48.33	24.17	6.0	16.0	0.0	548.8	112.5
133	5.92	8.6	5.98	593.0	45.07	22.53	6.0	16.0	0.0	505.0	105.2

134	5.92	8.7	5.99	547.19	41.59	20.79	6.0	16.0	0.0	472.2	99.7
135	5.92	8.7	5.99	500.69	38.05	19.03	6.0	16.0	0.0	432.1	93.0
136	5.92	8.6	5.98	454.83	34.57	17.28	6.0	16.0	0.0	387.4	85.5
137	5.92	8.7	5.99	408.98	31.08	15.54	6.0	16.0	0.0	353.0	79.8
138	5.92	8.7	5.99	374.45	28.46	14.23	6.0	16.0	0.0	323.2	74.8
139	5.92	8.7	5.99	349.23	26.54	13.27	6.0	16.0	0.0	301.4	71.1
140	5.92	8.6	5.98	324.68	24.68	12.34	6.0	16.0	0.0	276.5	67.0
141	5.92	8.7	5.99	300.12	22.81	11.4	6.0	16.0	0.0	259.0	64.1
142	5.92	8.7	5.99	276.74	21.03	10.52	6.0	16.0	0.0	238.8	60.7
143	5.92	8.7	5.99	253.69	19.28	9.64	6.0	16.0	0.0	218.9	57.3
144	5.92	8.6	5.98	231.29	17.58	8.79	6.0	16.0	0.0	196.9	53.7
145	5.92	8.7	5.99	208.89	15.88	7.94	6.0	16.0	0.0	180.2	50.9
146	5.92	8.7	5.99	182.34	13.86	6.93	6.0	16.0	0.0	157.3	47.0
147	5.92	8.7	5.99	152.6	11.6	5.8	6.0	16.0	0.0	131.6	42.7
148	5.92	8.6	5.98	115.28	8.76	4.38	6.0	16.0	0.0	98.1	37.1
149	5.92	8.7	5.99	75.3	5.72	2.86	6.0	16.0	0.0	65.0	31.6
150	5.92	8.7	5.99	27.88	2.12	1.06	6.0	16.0	0.0	24.0	24.7

Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	3
4.Vertici strato2	3
5.Vertici strato3	3
6.Vertici superficie Nr...1	4
7.Coefficienti parziali azioni	4
8.Coefficienti parziali per i parametri geotecnici del terreno	4
9.Stratigrafia	4
Indice	8

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE
 DA 0 A 100 m
 IN CONDIZIONI SISMICHE



- Strato...1
g=1.9t/m³
Fi=16°
c=6 kN/m²
- Strato...2
g=1.9t/m³
Fi=18°
c=10 kN/m²
- Strato...3
g=1.7t/m³
Fi=34°
c= kN/m²
- Strato...4
g=2.0t/m³
Fi=28°
c=20 kN/m²

Quote	0.00	32.21	19.02	33.71	43.57	35.80	50.93	36.64	63.82	37.49	79.77	40.72	95.44	43.89	112.91	48.26	124.57	51.28	147.89	55.43	164.46	58.43	208.02	64.09	229.50	67.83	254.42	72.22	266.93	74.74	275.53	76.00	287.80	77.14	303.14	78.48	311.72	78.89	322.16	80.20	328.91	81.68	335.05	82.96	346.71	84.23	362.05	87.48	384.96	93.83	400.86	97.75	420.34	100.32	446.49	103.62	458.80	104.02	483.92	104.03	493.15	105.16	518.27	106.26	528.02	109.44	549.04	112.23	572.11	115.81	600.83	117.05	614.16	120.06	651.59	121.70	667.48	122.71	681.84	123.66	705.42	123.52	712.60	123.93	722.86	126.28	751.37	131.32	777.51	132.81	785.35	134.93	797.90	137.23	812.54	139.45	827.17	140.70	839.20	142.13	852.70	142.86	866.63	143.76	871.61	145.30	890.43	147.81	912.39	150.83	938.01	151.96	948.46	153.20	962.11	164.98	985.98	164.98
Distanze Parziali	0.00	19.02	4.72	33.71	19.83	35.80	7.36	36.64	12.89	37.49	15.95	40.72	15.67	43.89	17.47	48.26	11.66	51.28	23.32	55.43	16.57	58.43	43.57	64.09	21.48	67.83	24.92	72.22	12.51	74.74	8.59	76.00	12.27	77.14	15.34	78.48	7.98	78.89	17.69	80.20	6.75	81.68	6.14	82.96	11.66	84.23	15.34	87.48	22.91	93.83	15.89	97.75	19.48	100.32	26.45	103.62	25.12	104.02	9.23	104.03	25.12	105.16	9.74	106.26	21.02	109.44	23.07	112.23	28.71	115.81	17.69	117.05	37.43	120.06	15.89	121.70	7.18	122.71	23.59	123.66	7.18	123.52	10.25	123.93	23.11	126.28	26.14	131.32	7.84	132.81	12.55	134.93	14.64	137.23	14.64	139.45	12.02	140.70	13.59	142.13	7.84	142.86	10.98	143.76	18.82	145.30	21.96	147.81	25.62	150.83	10.46	151.96	13.65	153.20	21.96	164.98	21.96	
Distanze Progressive	0.00	19.02	23.74	33.71	43.57	50.93	63.82	79.77	95.44	112.91	124.57	147.89	164.46	208.02	229.50	254.42	266.93	275.53	287.80	303.14	311.72	322.16	328.91	335.05	346.71	362.05	384.96	400.86	420.34	446.49	458.80	483.92	493.15	518.27	528.02	549.04	572.11	600.83	614.16	651.59	667.48	681.84	705.42	712.60	722.86	751.37	777.51	785.35	797.90	812.54	827.17	839.20	852.70	866.63	871.61	890.43	912.39	938.01	948.46	962.11	985.98	1000.00																																																								

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.160679/10.980336
Calcolo eseguito secondo	NTC 2018
Numero di strati	4.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	30.92 m
Ordinata vertice sinistro inferiore yi	149.23 m
Ascissa vertice destro superiore xs	130.56 m
Ordinata vertice destro superiore ys	248.47 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.076
Coefficiente azione sismica verticale	0.038

Vertici profilo

Nr	X (m)	y (m)
1	31.79	32.21
2	50.82	33.71
3	55.54	33.97
4	75.36	35.8
5	82.73	36.64
6	95.61	37.49
7	111.57	40.72
8	127.24	43.89
9	144.7	48.26
10	156.36	51.28
11	179.68	55.43
12	196.25	58.43
13	239.82	64.09
14	261.3	67.83
15	286.22	72.22
16	298.73	74.74
17	307.32	76.0
18	319.59	77.14
19	334.93	78.48
20	342.91	78.68
21	349.05	79.54
22	353.96	80.2
23	360.71	81.68
24	366.84	82.98
25	378.5	84.23
26	393.84	87.48

27	416.76	93.83
28	432.65	97.75
29	452.14	100.32
30	478.29	103.66
31	481.36	103.84
32	490.59	103.62
33	515.72	104.02
34	524.95	104.03
35	550.07	105.16
36	559.81	106.26
37	580.83	109.44
38	603.91	112.23
39	632.62	115.81
40	638.26	116.5
41	645.95	117.05
42	683.38	120.06
43	699.28	121.7
44	706.45	122.29
45	713.63	122.71
46	723.37	123.3
47	731.07	123.72
48	737.22	123.66
49	744.4	123.52
50	754.65	123.93
51	760.05	124.14
52	783.16	126.28
53	809.3	131.32
54	817.15	132.81
55	829.69	134.93
56	844.33	137.23
57	858.97	139.45
58	870.99	140.7
59	884.59	142.13
60	892.43	142.86
61	903.41	143.76
62	922.23	145.3
63	944.18	147.81
64	969.8	150.83
65	980.26	151.96
66	993.91	153.2
67	1005.87	154.0
68	1010.58	154.3
69	1013.19	154.68
70	1014.76	154.71

Vertici strato1

N	X (m)	y (m)
1	31.79	32.21
2	126.69	36.78
3	196.43	45.54
4	266.76	56.77
5	306.96	64.47
6	370.57	74.33
7	389.75	78.13
8	445.45	89.49
9	491.31	96.28
10	550.88	98.78
11	636.67	109.79

12	701.93	114.06
13	769.59	118.49
14	888.47	136.63
15	1014.76	148.71

Vertici strato2

N	X (m)	y (m)
1	31.79	32.21
2	39.47	31.68
3	126.69	33.96
4	143.38	34.9
5	159.34	36.39
6	197.2	38.81
7	239.84	45.32
8	266.76	49.77
9	303.56	59.28
10	348.75	66.1
11	421.3	81.57
12	459.64	89.74
13	490.15	94.18
14	505.11	95.0
15	540.62	96.92
16	556.59	97.79
17	607.97	104.35
18	636.66	108.04
19	739.0	114.83
20	768.76	117.04
21	864.7	131.09
22	888.65	134.6
23	929.62	138.23
24	969.35	141.74
25	1014.76	145.99

Vertici strato3

N	X (m)	y (m)
1	31.79	22.16
2	91.15	23.31
3	154.98	24.99
4	180.8	26.53
5	219.34	31.19
6	266.76	39.77
7	306.25	59.69
8	348.75	66.1
9	421.3	81.57
10	459.64	89.74
11	490.15	94.18
12	540.62	96.92
13	556.59	97.79
14	607.97	104.35
15	636.66	108.04
16	739.0	114.83
17	768.76	117.04
18	864.7	131.09
19	888.65	134.6
20	929.62	138.23
21	969.35	141.74
22	1014.76	145.99

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3			34	1.7		
4	20		28	2.0		



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.23
Ascissa centro superficie	130.56 m
Ordinata centro superficie	149.23 m
Raggio superficie	110.01 m

Numero di superfici esaminate...(60)

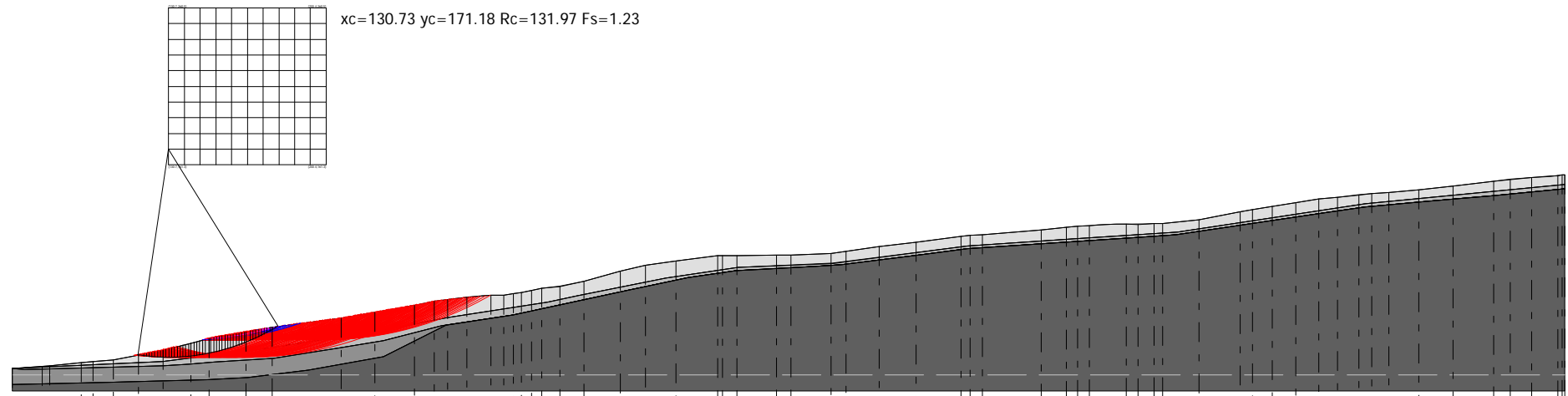
N°	Xo	Yo	Ro	Fs
1	100.7	149.2	110.1	2.05
2	115.6	154.2	115.0	1.28
3	120.6	149.2	110.0	1.25
4	130.6	149.2	110.0	1.23
5	95.7	164.1	125.0	3.03
6	100.7	159.2	120.0	1.87
7	105.6	164.1	124.9	1.45
8	110.6	159.2	120.0	1.34
9	125.6	164.1	124.9	1.24
10	105.6	174.0	134.9	1.41
11	115.6	174.0	134.9	1.27
12	120.6	169.1	129.9	1.25
13	95.7	184.0	144.8	2.19
14	100.7	179.0	139.8	1.62
15	105.6	184.0	144.8	1.38
16	110.6	179.0	139.8	1.31
17	115.6	184.0	144.8	1.26
18	125.6	184.0	144.8	1.24
19	130.6	179.0	139.8	1.24
20	95.7	193.9	154.7	1.96
21	100.7	188.9	149.8	1.53
22	110.6	188.9	149.7	1.30
23	115.6	193.9	154.7	1.26

24	120.6	188.9	149.7	1.24
25	125.6	193.9	154.7	1.24
26	130.6	188.9	149.7	1.24
27	90.7	198.9	159.7	3.80
28	95.7	203.8	164.7	1.77
29	100.7	198.9	159.7	1.48
30	105.6	203.8	164.6	1.34
31	115.6	203.8	164.6	1.26
32	120.6	198.9	159.7	1.24
33	125.6	203.8	164.6	1.24
34	130.6	198.9	159.6	1.24
35	90.7	208.8	169.6	2.88
36	105.6	213.7	174.6	1.33
37	110.6	208.8	169.6	1.29
38	115.6	213.7	174.5	1.26
39	120.6	208.8	169.6	1.24
40	85.7	223.7	184.5	20.00
41	90.7	218.7	179.6	2.38
42	105.6	223.7	184.5	1.32
43	110.6	218.7	179.5	1.28
44	115.6	223.7	184.5	1.26
45	95.7	233.6	194.4	1.52
46	100.7	228.6	189.5	1.39
47	105.6	233.6	194.4	1.31
48	110.6	228.6	189.4	1.28
49	125.6	233.6	194.4	1.25
50	130.6	228.6	189.4	1.26
51	95.7	243.5	204.4	1.48
52	100.7	238.6	199.4	1.37
53	105.6	243.5	204.3	1.31
54	120.6	238.6	199.3	1.25
55	125.6	243.5	204.3	1.25
56	130.6	238.6	199.3	1.26
57	90.7	248.5	209.3	1.72
58	100.7	248.5	209.3	1.36
59	120.6	248.5	209.3	1.25
60	130.6	248.5	209.3	1.26

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	3
4.Vertici strato2	3
5.Vertici strato3	4
6.Coefficienti parziali azioni	4
7.Coefficienti parziali per i parametri geotecnici del terreno	4
8.Stratigrafia	4
9.Risultati analisi pendio [A2+M2+R2]	4
Indice	7

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE
 DA 100 A 200 m
 IN CONDIZIONI SISMICHE



xc=130.73 yc=171.18 Rc=131.97 Fs=1.23

- Strato...1
g=1.9t/m³
Fi=16°
c=6 kN/m²
- Strato...2
g=1.9t/m³
Fi=18°
c=10 kN/m²
- Strato...3
g=1.7t/m³
Fi=34°
c= kN/m²
- Strato...4
g=2.0t/m³
Fi=28°
c=20 kN/m²

Quote	0.00	32.21	19.92	33.71	43.57	35.80	50.93	36.64	63.82	37.49	79.77	40.72	95.44	43.89	112.91	48.26	124.57	51.28	147.89	55.43	164.46	58.43	208.02	64.09	229.50	67.83	254.42	72.22	266.93	74.74	275.53	76.00	287.80	77.14	303.14	78.48	311.72	78.89	322.16	80.20	328.91	81.68	335.05	82.98	346.71	84.23	362.05	87.48	384.96	93.83	400.86	97.75	420.34	100.32	446.49	103.62	458.80	104.02	483.92	104.03	493.15	105.16	518.27	106.26	528.02	109.44	549.04	112.23	572.11	115.81	600.83	121.70	614.16	122.71	651.59	120.06	667.48	121.70	676.67	122.71	705.42	123.66	712.60	123.52	722.86	123.93	728.28	124.14	751.37	126.28	777.51	131.32	785.35	132.81	797.90	134.93	812.54	137.23	827.17	139.45	839.20	140.70	852.70	142.13	866.63	142.86	871.61	143.76	890.43	145.30	912.39	147.81	938.01	150.83	948.46	151.96	962.11	153.20	985.98	154.98	1000.00	157.00
Distanze Parziali	0.00	19.92	4.72	33.71	19.83	35.80	7.36	36.64	12.89	37.49	15.95	40.72	15.67	43.89	17.47	48.26	11.66	51.28	23.32	55.43	16.57	58.43	43.57	64.09	21.48	67.83	24.92	72.22	12.51	74.74	8.59	76.00	12.27	77.14	15.34	78.48	7.98	78.89	17.69	80.20	6.75	81.68	6.14	82.98	11.66	84.23	15.34	87.48	22.91	93.83	15.89	97.75	19.48	100.32	26.45	103.62	25.12	104.02	9.23	104.03	25.12	105.16	9.74	106.26	21.02	109.44	23.07	112.23	28.71	115.81	7.69	117.05	37.43	120.06	15.89	121.70	7.18	122.71	23.59	123.66	7.18	123.52	10.25	123.93	5.40	124.14	23.11	126.28	26.14	131.32	7.84	132.81	12.55	134.93	14.64	137.23	14.64	139.45	12.02	140.70	13.59	142.13	7.84	142.86	10.98	143.76	18.82	145.30	21.96	147.81	25.62	150.83	10.46	151.96	13.65	153.20	21.57	154.98	157.00			
Distanze Progressive	0.00	19.92	23.74	33.71	43.57	35.80	50.93	36.64	63.82	37.49	79.77	40.72	95.44	43.89	112.91	48.26	124.57	51.28	147.89	55.43	164.46	58.43	208.02	43.57	229.50	21.48	267.83	24.92	292.22	12.51	304.74	8.59	313.00	12.27	325.14	15.34	340.48	7.98	348.37	17.69	366.06	6.75	372.81	6.14	378.95	11.66	390.61	15.34	405.95	22.91	428.86	15.89	444.71	19.48	464.19	100.32	483.81	103.62	483.92	104.02	493.15	105.16	518.27	106.26	528.02	109.44	549.04	112.23	572.11	115.81	600.83	121.70	614.16	122.71	651.59	120.06	667.48	121.70	676.67	122.71	705.42	123.66	712.60	123.52	722.86	123.93	728.28	124.14	751.37	126.28	777.51	131.32	785.35	132.81	797.90	134.93	812.54	137.23	827.17	139.45	839.20	140.70	852.70	142.13	866.63	142.86	871.61	143.76	890.43	145.30	912.39	147.81	938.01	150.83	948.46	151.96	962.11	153.20	985.98	154.98	1000.00	

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.160679/10.980336
Calcolo eseguito secondo	NTC 2018
Numero di strati	4.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	130.73 m
Ordinata vertice sinistro inferiore yi	161.26 m
Ascissa vertice destro superiore xs	230.38 m
Ordinata vertice destro superiore ys	260.5 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.076
Coefficiente azione sismica verticale	0.038

Vertici profilo

Nr	X (m)	y (m)
1	31.79	32.21
2	50.82	33.71
3	55.54	33.97
4	75.36	35.8
5	82.73	36.64
6	95.61	37.49
7	111.57	40.72
8	127.24	43.89
9	144.7	48.26
10	156.36	51.28
11	179.68	55.43
12	196.25	58.43
13	239.82	64.09
14	261.3	67.83
15	286.22	72.22
16	298.73	74.74
17	307.32	76.0
18	319.59	77.14
19	334.93	78.48
20	342.91	78.68
21	349.05	79.54
22	353.96	80.2
23	360.71	81.68
24	366.84	82.98
25	378.5	84.23
26	393.84	87.48

27	416.76	93.83
28	432.65	97.75
29	452.14	100.32
30	478.29	103.66
31	481.36	103.84
32	490.59	103.62
33	515.72	104.02
34	524.95	104.03
35	550.07	105.16
36	559.81	106.26
37	580.83	109.44
38	603.91	112.23
39	632.62	115.81
40	638.26	116.5
41	645.95	117.05
42	683.38	120.06
43	699.28	121.7
44	706.45	122.29
45	713.63	122.71
46	723.37	123.3
47	731.07	123.72
48	737.22	123.66
49	744.4	123.52
50	754.65	123.93
51	760.05	124.14
52	783.16	126.28
53	809.3	131.32
54	817.15	132.81
55	829.69	134.93
56	844.33	137.23
57	858.97	139.45
58	870.99	140.7
59	884.59	142.13
60	892.43	142.86
61	903.41	143.76
62	922.23	145.3
63	944.18	147.81
64	969.8	150.83
65	980.26	151.96
66	993.91	153.2
67	1005.87	154.0
68	1010.58	154.3
69	1013.19	154.68
70	1014.76	154.71

Vertici strato1

N	X (m)	y (m)
1	31.79	32.21
2	126.69	36.78
3	196.43	45.54
4	266.76	56.77
5	306.96	64.47
6	370.57	74.33
7	389.75	78.13
8	445.45	89.49
9	491.31	96.28
10	550.88	98.78
11	636.67	109.79

12	701.93	114.06
13	769.59	118.49
14	888.47	136.63
15	1014.76	148.71

Vertici strato2

N	X (m)	y (m)
1	31.79	32.21
2	39.47	31.68
3	126.69	33.96
4	143.38	34.9
5	159.34	36.39
6	197.2	38.81
7	239.84	45.32
8	266.76	49.77
9	303.56	59.28
10	348.75	66.1
11	421.3	81.57
12	459.64	89.74
13	490.15	94.18
14	505.11	95.0
15	540.62	96.92
16	556.59	97.79
17	607.97	104.35
18	636.66	108.04
19	739.0	114.83
20	768.76	117.04
21	864.7	131.09
22	888.65	134.6
23	929.62	138.23
24	969.35	141.74
25	1014.76	145.99

Vertici strato3

N	X (m)	y (m)
1	31.79	22.16
2	91.15	23.31
3	154.98	24.99
4	180.8	26.53
5	219.34	31.19
6	266.76	39.77
7	306.25	59.69
8	348.75	66.1
9	421.3	81.57
10	459.64	89.74
11	490.15	94.18
12	540.62	96.92
13	556.59	97.79
14	607.97	104.35
15	636.66	108.04
16	739.0	114.83
17	768.76	117.04
18	864.7	131.09
19	888.65	134.6
20	929.62	138.23
21	969.35	141.74
22	1014.76	145.99

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3			34	1.7		
4	20		28	2.0		



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.23
Ascissa centro superficie	130.73 m
Ordinata centro superficie	171.18 m
Raggio superficie	131.97 m

Numero di superfici esaminate...(214)

N°	Xo	Yo	Ro	Fs
1	135.7	166.2	127.0	1.24
2	140.7	161.3	122.0	1.31
3	145.7	166.2	127.0	1.37
4	150.7	161.3	122.0	1.42
5	155.6	166.2	115.9	1.85
6	160.6	161.3	110.9	1.72
7	165.6	166.2	115.9	1.66
8	170.6	161.3	110.9	1.63
9	175.6	166.2	115.8	1.62
10	180.6	161.3	110.8	1.62
11	185.5	166.2	115.8	1.62
12	190.5	161.3	110.8	1.63
13	195.5	166.2	115.8	1.62
14	200.5	161.3	110.8	1.62
15	205.5	166.2	115.7	1.59
16	210.4	161.3	110.7	1.59
17	215.4	166.2	115.7	1.56
18	220.4	161.3	110.7	1.60
19	225.4	166.2	115.6	1.63
20	230.4	161.3	110.7	1.64
21	130.7	171.2	132.0	1.23
22	140.7	171.2	131.9	1.32
23	145.7	176.1	136.9	1.38

24	150.7	171.2	131.9	1.42
25	155.6	176.1	136.9	1.46
26	160.6	171.2	131.9	1.50
27	165.6	176.1	125.8	1.65
28	170.6	171.2	131.9	1.59
29	175.6	176.1	125.8	1.62
30	180.6	171.2	120.8	1.62
31	185.5	176.1	125.7	1.62
32	190.5	171.2	120.7	1.62
33	195.5	176.1	125.7	1.60
34	200.5	171.2	120.7	1.60
35	205.5	176.1	125.6	1.57
36	210.4	171.2	120.7	1.57
37	215.4	176.1	125.6	1.54
38	220.4	171.2	120.6	1.59
39	225.4	176.1	125.6	1.61
40	230.4	171.2	120.6	1.62
41	130.7	181.1	141.9	1.24
42	135.7	186.1	146.8	1.25
43	140.7	181.1	141.9	1.33
44	145.7	186.1	146.8	1.38
45	150.7	181.1	141.9	1.43
46	155.6	186.1	135.7	1.79
47	160.6	181.1	130.8	1.70
48	165.6	186.1	146.8	1.54
49	170.6	181.1	141.8	1.58
50	175.6	186.1	146.8	1.60
51	180.6	181.1	130.7	1.62
52	185.5	186.1	135.6	1.61
53	190.5	181.1	130.7	1.61
54	195.5	186.1	135.6	1.59
55	200.5	181.1	130.6	1.58
56	205.5	186.1	135.6	1.56
57	210.4	181.1	130.6	1.55
58	215.4	186.1	135.5	1.52
59	220.4	181.1	130.5	1.59
60	225.4	186.1	135.5	1.60
61	230.4	181.1	130.5	1.61
62	130.7	191.0	151.8	1.24
63	135.7	196.0	156.8	1.25
64	140.7	191.0	151.8	1.34
65	145.7	196.0	145.7	2.50
66	150.7	191.0	151.8	1.43
67	155.6	196.0	156.7	1.47
68	160.6	191.0	151.8	1.51
69	165.6	196.0	156.7	1.54
70	170.6	191.0	151.7	1.57
71	175.6	196.0	145.6	1.62
72	180.6	191.0	151.7	1.61
73	185.5	196.0	145.6	1.61
74	190.5	191.0	140.6	1.60
75	195.5	196.0	145.5	1.58
76	200.5	191.0	140.5	1.57
77	205.5	196.0	145.5	1.54
78	210.4	191.0	140.5	1.53
79	215.4	196.0	145.5	1.50
80	220.4	191.0	140.5	1.57
81	225.4	196.0	145.4	1.58
82	230.4	191.0	140.4	1.60

83	130.7	201.0	161.7	1.24
84	135.7	205.9	166.7	1.26
85	140.7	201.0	161.7	1.35
86	145.7	205.9	155.6	2.36
87	150.7	201.0	150.7	1.94
88	155.6	205.9	166.7	1.48
89	160.6	201.0	161.7	1.51
90	165.6	205.9	166.6	1.54
91	170.6	201.0	150.6	1.63
92	175.6	205.9	155.5	1.62
93	180.6	201.0	150.5	1.61
94	185.5	205.9	155.5	1.60
95	190.5	201.0	150.5	1.59
96	195.5	205.9	155.4	1.56
97	200.5	201.0	150.5	1.55
98	205.5	205.9	155.4	1.53
99	210.4	201.0	150.4	1.52
100	215.4	205.9	155.4	1.49
101	220.4	201.0	150.4	1.56
102	225.4	205.9	155.3	1.58
103	230.4	201.0	150.4	1.59
104	130.7	210.9	171.7	1.25
105	140.7	210.9	171.6	1.36
106	145.7	215.8	176.6	1.41
107	150.7	210.9	171.6	1.44
108	155.6	215.8	176.6	1.49
109	160.6	210.9	171.6	1.51
110	165.6	215.8	165.5	1.65
111	170.6	210.9	171.6	1.56
112	175.6	215.8	176.5	1.57
113	180.6	210.9	171.6	1.60
114	185.5	215.8	165.4	1.59
115	190.5	210.9	160.4	1.58
116	195.5	215.8	165.4	1.55
117	200.5	210.9	160.4	1.54
118	205.5	215.8	165.3	1.51
119	210.4	210.9	160.4	1.50
120	215.4	215.8	165.3	1.51
121	220.4	210.9	160.3	1.55
122	225.4	215.8	165.3	1.57
123	230.4	210.9	160.3	1.59
124	140.7	220.8	170.5	3.26
125	145.7	225.8	186.5	1.41
126	150.7	220.8	181.5	1.45
127	155.6	225.8	175.4	1.74
128	160.6	220.8	170.5	1.68
129	165.6	225.8	175.4	1.64
130	170.6	220.8	181.5	1.55
131	175.6	225.8	186.5	1.57
132	180.6	220.8	181.5	1.59
133	185.5	225.8	175.3	1.58
134	190.5	220.8	170.4	1.56
135	195.5	225.8	175.3	1.54
136	200.5	220.8	170.3	1.52
137	205.5	225.8	175.3	1.50
138	210.4	220.8	170.3	1.49
139	215.4	225.8	175.2	1.51
140	220.4	220.8	170.2	1.55
141	225.4	225.8	175.2	1.57

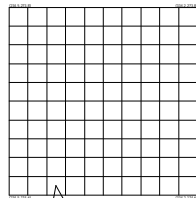
142	230.4	220.8	170.2	1.59
143	135.7	235.7	196.5	1.32
144	140.7	230.7	191.5	1.38
145	145.7	235.7	196.4	1.42
146	150.7	230.7	191.5	1.46
147	155.6	235.7	185.4	1.73
148	160.6	230.7	180.4	1.68
149	165.6	235.7	196.4	1.53
150	170.6	230.7	191.4	1.54
151	175.6	235.7	196.4	1.56
152	180.6	230.7	191.4	1.58
153	185.5	235.7	185.3	1.57
154	190.5	230.7	180.3	1.55
155	195.5	235.7	185.2	1.53
156	200.5	230.7	180.2	1.51
157	205.5	235.7	185.2	1.49
158	210.4	230.7	180.2	1.47
159	215.4	235.7	185.1	1.51
160	220.4	230.7	180.2	1.54
161	225.4	235.7	185.1	1.56
162	230.4	230.7	180.1	1.59
163	135.7	245.6	206.4	1.34
164	140.7	240.7	201.4	1.39
165	145.7	245.6	195.3	2.02
166	150.7	240.7	190.3	1.82
167	155.6	245.6	206.3	1.49
168	160.6	240.7	201.4	1.51
169	165.6	245.6	206.3	1.53
170	170.6	240.7	201.4	1.54
171	175.6	245.6	195.2	1.61
172	180.6	240.7	190.2	1.59
173	185.5	245.6	195.2	1.56
174	190.5	240.7	190.2	1.54
175	195.5	245.6	195.1	1.52
176	200.5	240.7	190.2	1.50
177	205.5	245.6	195.1	1.47
178	210.4	240.7	190.1	1.46
179	215.4	245.6	195.1	1.51
180	220.4	240.7	190.1	1.55
181	225.4	245.6	195.0	1.57
182	230.4	240.7	190.1	1.59
183	130.7	250.6	211.4	1.27
184	135.7	255.5	216.3	1.35
185	140.7	250.6	211.3	1.40
186	145.7	255.5	205.3	1.97
187	150.7	250.6	200.3	1.81
188	155.6	255.5	216.3	1.49
189	160.6	250.6	211.3	1.51
190	165.6	255.5	216.3	1.52
191	170.6	250.6	200.2	1.63
192	175.6	255.5	205.1	1.60
193	180.6	250.6	200.2	1.58
194	185.5	255.5	205.1	1.55
195	190.5	250.6	200.1	1.53
196	195.5	255.5	205.1	1.51
197	200.5	250.6	200.1	1.49
198	205.5	255.5	205.0	1.46
199	210.4	250.6	200.0	1.45
200	215.4	255.5	205.0	1.52

201	220.4	250.6	200.0	1.55
202	225.4	255.5	205.0	1.58
203	230.4	250.6	200.0	1.59
204	130.7	260.5	221.3	1.27
205	140.7	260.5	210.2	2.36
206	150.7	260.5	221.2	1.47
207	160.6	260.5	221.2	1.51
208	170.6	260.5	210.1	1.62
209	180.6	260.5	221.2	1.55
210	190.5	260.5	210.0	1.52
211	200.5	260.5	210.0	1.48
212	210.4	260.5	210.0	1.44
213	220.4	260.5	209.9	1.55
214	230.4	260.5	209.9	1.60

Indice

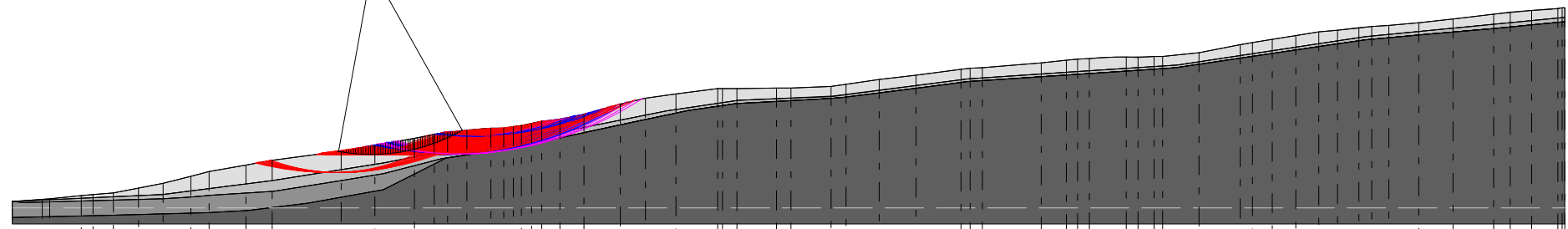
1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	3
4.Vertici strato2	3
5.Vertici strato3	4
6.Coefficienti parziali azioni	4
7.Coefficienti parziali per i parametri geotecnici del terreno	4
8.Stratigrafia	4
9.Risultati analisi pendio [A2+M2+R2]	4
Indice	9

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE
 DA 200 A 300 m
 IN CONDIZIONI SISMICHE



$x_c=259.44$ $y_c=179.53$ $R_c=117.57$ $F_s=1.46$

- Strato...1
 $g=1.9t/m^3$
 $F_i=16^\circ$
 $c=6$ kN/m²
- Strato...2
 $g=1.9t/m^3$
 $F_i=18^\circ$
 $c=10$ kN/m²
- Strato...3
 $g=1.7t/m^3$
 $F_i=34^\circ$
 $c=$ kN/m²
- Strato...4
 $g=2.0t/m^3$
 $F_i=28^\circ$
 $c=20$ kN/m²



Quote	0.00	32.21	19.02	33.71	43.57	19.83	35.80	50.93	7.36	36.64	63.82	12.89	37.49	79.77	15.95	40.72	95.44	15.67	43.89	112.91	17.47	48.26	124.57	11.66	51.28	147.89	23.32	55.43	164.46	16.57	58.43	208.02	43.57	64.09	229.50	21.48	67.83	254.42	24.92	72.22	264.93	12.51	74.74	275.53	8.59	76.00	287.80	12.27	77.14	303.14	15.34	78.48	311.72	7.98	78.69	322.76	8.94	80.20	328.91	6.75	81.68	335.05	6.14	82.96	346.71	11.66	84.23	362.05	15.34	87.48	384.96	22.91	93.83	400.86	15.89	97.75	420.34	19.48	100.32	446.49	26.85	103.62	458.80	9.23	104.02	483.92	25.12	104.03	493.15	9.23	104.03	518.27	25.12	105.16	528.02	9.74	106.26	549.04	21.02	109.44	572.11	23.07	112.23	600.83	28.71	115.81	614.16	7.69	117.05	651.59	37.43	120.06	667.48	15.89	121.70	681.84	7.18	122.71	705.42	23.59	123.66	712.60	7.18	123.52	722.86	10.25	123.93	728.28	5.40	124.14	751.37	23.11	126.28	777.51	26.14	131.32	785.35	7.84	132.81	797.90	12.55	134.93	812.54	14.64	137.23	827.17	14.64	139.45	839.20	12.02	140.70	852.70	13.59	142.13	866.63	7.84	142.86	871.61	10.98	143.76	890.43	18.82	145.30	912.39	21.96	147.81	938.01	25.62	150.83	948.46	10.46	151.96	962.11	13.65	153.20	985.98	21.67	164.88
Distanze Parziali	0.00	0.00	19.02	4.72	43.57	19.83	35.80	50.93	7.36	36.64	63.82	12.89	37.49	79.77	15.95	40.72	95.44	15.67	43.89	112.91	17.47	48.26	124.57	11.66	51.28	147.89	23.32	55.43	164.46	16.57	58.43	208.02	43.57	64.09	229.50	21.48	67.83	254.42	24.92	72.22	264.93	12.51	74.74	275.53	8.59	76.00	287.80	12.27	77.14	303.14	15.34	78.48	311.72	7.98	78.69	322.76	8.94	80.20	328.91	6.75	81.68	335.05	6.14	82.96	346.71	11.66	84.23	362.05	15.34	87.48	384.96	22.91	93.83	400.86	15.89	97.75	420.34	19.48	100.32	446.49	26.85	103.62	458.80	9.23	104.02	483.92	25.12	104.02	493.15	9.23	104.03	518.27	25.12	105.16	528.02	9.74	106.26	549.04	21.02	109.44	572.11	23.07	112.23	600.83	28.71	115.81	614.16	7.69	117.05	651.59	37.43	120.06	667.48	15.89	121.70	681.84	7.18	122.71	705.42	23.59	123.66	712.60	7.18	123.52	722.86	10.25	123.93	728.28	5.40	124.14	751.37	23.11	126.28	777.51	26.14	131.32	785.35	7.84	132.81	797.90	12.55	134.93	812.54	14.64	137.23	827.17	14.64	139.45	839.20	12.02	140.70	852.70	13.59	142.13	866.63	7.84	142.86	871.61	10.98	143.76	890.43	18.82	145.30	912.39	21.96	147.81	938.01	25.62	150.83	948.46	10.46	151.96	962.11	13.65	153.20	985.98	21.67	164.88
Distanze Progressive	0.00	19.02	33.71	43.57	50.93	63.82	79.77	95.44	112.91	124.57	147.89	164.46	208.02	229.50	254.42	264.93	275.53	287.80	303.14	311.72	322.76	328.91	335.05	346.71	362.05	384.96	400.86	420.34	446.49	458.80	483.92	493.15	518.27	528.02	549.04	572.11	600.83	614.16	651.59	667.48	681.84	705.42	712.60	722.86	728.28	751.37	777.51	785.35	797.90	812.54	827.17	839.20	852.70	866.63	871.61	890.43	912.39	938.01	948.46	962.11	985.98	1000.00																																																																																																																				

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.160679/10.980336
Calcolo eseguito secondo	NTC 2018
Numero di strati	4.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	234.53 m
Ordinata vertice sinistro inferiore yi	174.57 m
Ascissa vertice destro superiore xs	334.17 m
Ordinata vertice destro superiore ys	273.81 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.076
Coefficiente azione sismica verticale	0.038

Vertici profilo

Nr	X (m)	y (m)
1	31.79	32.21
2	50.82	33.71
3	55.54	33.97
4	75.36	35.8
5	82.73	36.64
6	95.61	37.49
7	111.57	40.72
8	127.24	43.89
9	144.7	48.26
10	156.36	51.28
11	179.68	55.43
12	196.25	58.43
13	239.82	64.09
14	261.3	67.83
15	286.22	72.22
16	298.73	74.74
17	307.32	76.0
18	319.59	77.14
19	334.93	78.48
20	342.91	78.68
21	349.05	79.54
22	353.96	80.2
23	360.71	81.68
24	366.84	82.98
25	378.5	84.23
26	393.84	87.48

27	416.76	93.83
28	432.65	97.75
29	452.14	100.32
30	478.29	103.66
31	481.36	103.84
32	490.59	103.62
33	515.72	104.02
34	524.95	104.03
35	550.07	105.16
36	559.81	106.26
37	580.83	109.44
38	603.91	112.23
39	632.62	115.81
40	638.26	116.5
41	645.95	117.05
42	683.38	120.06
43	699.28	121.7
44	706.45	122.29
45	713.63	122.71
46	723.37	123.3
47	731.07	123.72
48	737.22	123.66
49	744.4	123.52
50	754.65	123.93
51	760.05	124.14
52	783.16	126.28
53	809.3	131.32
54	817.15	132.81
55	829.69	134.93
56	844.33	137.23
57	858.97	139.45
58	870.99	140.7
59	884.59	142.13
60	892.43	142.86
61	903.41	143.76
62	922.23	145.3
63	944.18	147.81
64	969.8	150.83
65	980.26	151.96
66	993.91	153.2
67	1005.87	154.0
68	1010.58	154.3
69	1013.19	154.68
70	1014.76	154.71

Vertici strato1

N	X (m)	y (m)
1	31.79	32.21
2	126.69	36.78
3	196.43	45.54
4	266.76	56.77
5	306.96	64.47
6	370.57	74.33
7	389.75	78.13
8	445.45	89.49
9	491.31	96.28
10	550.88	98.78
11	636.67	109.79

12	701.93	114.06
13	769.59	118.49
14	888.47	136.63
15	1014.76	148.71

Vertici strato2

N	X (m)	y (m)
1	31.79	32.21
2	39.47	31.68
3	126.69	33.96
4	143.38	34.9
5	159.34	36.39
6	197.2	38.81
7	239.84	45.32
8	266.76	49.77
9	303.56	59.28
10	348.75	66.1
11	421.3	81.57
12	459.64	89.74
13	490.15	94.18
14	505.11	95.0
15	540.62	96.92
16	556.59	97.79
17	607.97	104.35
18	636.66	108.04
19	739.0	114.83
20	768.76	117.04
21	864.7	131.09
22	888.65	134.6
23	929.62	138.23
24	969.35	141.74
25	1014.76	145.99

Vertici strato3

N	X (m)	y (m)
1	31.79	22.16
2	91.15	23.31
3	154.98	24.99
4	180.8	26.53
5	219.34	31.19
6	266.76	39.77
7	306.25	59.69
8	348.75	66.1
9	421.3	81.57
10	459.64	89.74
11	490.15	94.18
12	540.62	96.92
13	556.59	97.79
14	607.97	104.35
15	636.66	108.04
16	739.0	114.83
17	768.76	117.04
18	864.7	131.09
19	888.65	134.6
20	929.62	138.23
21	969.35	141.74
22	1014.76	145.99

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3			34	1.7		
4	20		28	2.0		



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.46
Ascissa centro superficie	259.44 m
Ordinata centro superficie	179.53 m
Raggio superficie	117.57 m

Numero di superfici esaminate...(221)

N°	Xo	Yo	Ro	Fs
1	234.5	174.6	124.0	1.62
2	239.5	179.5	128.9	1.62
3	244.5	174.6	112.7	1.61
4	249.5	179.5	117.6	1.52
5	254.5	174.6	112.6	1.48
6	259.4	179.5	117.6	1.46
7	264.4	174.6	112.6	1.47
8	269.4	179.5	117.5	1.49
9	274.4	174.6	112.5	1.51
10	279.4	179.5	117.5	1.55
11	284.3	174.6	112.5	1.62
12	289.3	179.5	117.4	1.76
13	294.3	174.6	112.4	1.84
14	299.3	179.5	117.4	1.88
15	304.3	174.6	112.4	1.92
16	309.3	179.5	117.3	1.93
17	314.2	174.6	112.3	1.97
18	319.2	179.5	117.2	2.35
19	324.2	174.6	100.9	2.42
20	329.2	179.5	105.8	2.14
21	334.2	174.6	100.8	2.01
22	234.5	184.5	133.9	1.61
23	239.5	189.5	138.8	1.62

24	244.5	184.5	122.6	1.59
25	249.5	189.5	127.6	1.51
26	254.5	184.5	122.6	1.48
27	259.4	189.5	127.5	1.47
28	264.4	184.5	122.5	1.47
29	269.4	189.5	127.4	1.49
30	274.4	184.5	122.5	1.52
31	279.4	189.5	127.4	1.56
32	284.3	184.5	122.4	1.65
33	289.3	189.5	127.3	1.77
34	294.3	184.5	122.3	1.83
35	299.3	189.5	127.3	1.86
36	304.3	184.5	122.3	1.90
37	309.3	189.5	127.2	1.90
38	314.2	184.5	122.2	2.00
39	319.2	189.5	127.2	2.37
40	324.2	184.5	110.8	2.32
41	329.2	189.5	115.7	2.09
42	334.2	184.5	110.7	1.98
43	234.5	194.4	143.8	1.60
44	239.5	199.4	148.7	1.62
45	244.5	194.4	132.5	1.57
46	249.5	199.4	137.5	1.50
47	254.5	194.4	132.5	1.47
48	259.4	199.4	137.4	1.47
49	264.4	194.4	132.4	1.48
50	269.4	199.4	137.4	1.50
51	274.4	194.4	132.4	1.53
52	279.4	199.4	137.3	1.57
53	284.3	194.4	132.3	1.68
54	289.3	199.4	137.3	1.77
55	294.3	194.4	132.3	1.83
56	299.3	199.4	137.2	1.85
57	304.3	194.4	132.2	1.88
58	309.3	199.4	137.1	1.88
59	314.2	194.4	132.2	2.09
60	319.2	199.4	137.1	2.36
61	324.2	194.4	120.7	2.24
62	329.2	199.4	125.7	2.06
63	334.2	194.4	120.7	1.94
64	234.5	204.3	153.7	1.60
65	239.5	209.3	158.7	1.62
66	244.5	204.3	142.5	1.55
67	249.5	209.3	147.4	1.49
68	254.5	204.3	142.4	1.47
69	259.4	209.3	147.3	1.48
70	264.4	204.3	142.4	1.48
71	269.4	209.3	147.3	1.51
72	274.4	204.3	142.3	1.54
73	279.4	209.3	147.2	1.58
74	284.3	204.3	142.2	1.70
75	289.3	209.3	147.2	1.77
76	294.3	204.3	142.2	1.81
77	299.3	209.3	147.1	1.83
78	304.3	204.3	142.1	1.86
79	309.3	209.3	147.1	1.86
80	314.2	204.3	142.1	2.09
81	319.2	209.3	147.0	2.35
82	324.2	204.3	130.7	2.18

83	329.2	209.3	135.6	2.03
84	334.2	204.3	130.6	1.90
85	234.5	214.3	163.6	1.60
86	239.5	219.2	157.4	1.60
87	244.5	214.3	152.4	1.53
88	249.5	219.2	157.3	1.49
89	254.5	214.3	152.3	1.48
90	259.4	219.2	157.3	1.48
91	264.4	214.3	152.3	1.49
92	269.4	219.2	157.2	1.52
93	274.4	214.3	152.2	1.55
94	279.4	219.2	157.2	1.59
95	284.3	214.3	152.2	1.70
96	289.3	219.2	157.1	1.77
97	294.3	214.3	152.1	1.80
98	299.3	219.2	157.0	1.82
99	304.3	214.3	152.1	1.85
100	309.3	219.2	157.0	1.84
101	314.2	214.3	152.0	2.09
102	319.2	219.2	145.6	2.29
103	324.2	214.3	140.6	2.14
104	329.2	219.2	145.5	1.99
105	334.2	214.3	140.5	1.86
106	234.5	224.2	173.6	1.60
107	239.5	229.1	167.3	1.58
108	244.5	224.2	162.3	1.52
109	249.5	229.1	167.2	1.49
110	254.5	224.2	162.3	1.48
111	259.4	229.1	167.2	1.49
112	264.4	224.2	162.2	1.50
113	269.4	229.1	167.1	1.53
114	274.4	224.2	162.1	1.56
115	279.4	229.1	167.1	1.62
116	284.3	224.2	162.1	1.71
117	289.3	229.1	167.0	1.76
118	294.3	224.2	162.0	1.80
119	299.3	229.1	167.0	1.81
120	304.3	224.2	162.0	1.84
121	309.3	229.1	166.9	1.82
122	314.2	224.2	161.9	2.16
123	319.2	229.1	155.5	2.23
124	324.2	224.2	150.5	2.11
125	329.2	229.1	155.4	1.95
126	334.2	224.2	150.4	1.82
127	234.5	234.1	183.5	1.61
128	239.5	239.1	177.2	1.57
129	244.5	234.1	172.2	1.52
130	249.5	239.1	177.2	1.49
131	254.5	234.1	172.2	1.49
132	259.4	239.1	177.1	1.50
133	264.4	234.1	172.1	1.51
134	269.4	239.1	177.1	1.54
135	274.4	234.1	172.1	1.57
136	279.4	239.1	177.0	1.64
137	284.3	234.1	172.0	1.72
138	289.3	239.1	176.9	1.75
139	294.3	234.1	172.0	1.79
140	299.3	239.1	176.9	1.80
141	304.3	234.1	171.9	1.81

142	309.3	239.1	176.8	1.79
143	314.2	234.1	171.8	2.19
144	319.2	239.1	165.4	2.19
145	324.2	234.1	160.4	2.07
146	329.2	239.1	165.3	1.91
147	334.2	234.1	160.3	1.77
148	234.5	244.0	193.4	1.61
149	239.5	249.0	187.1	1.56
150	244.5	244.0	182.2	1.51
151	249.5	249.0	187.1	1.50
152	254.5	244.0	182.1	1.49
153	259.4	249.0	187.0	1.50
154	264.4	244.0	182.0	1.52
155	269.4	249.0	187.0	1.55
156	274.4	244.0	182.0	1.57
157	279.4	249.0	186.9	1.66
158	284.3	244.0	181.9	1.71
159	289.3	249.0	186.9	1.75
160	294.3	244.0	181.9	1.78
161	299.3	249.0	186.8	1.79
162	304.3	244.0	181.8	1.79
163	309.3	249.0	186.8	1.81
164	314.2	244.0	181.8	2.18
165	319.2	249.0	175.3	2.16
166	324.2	244.0	170.3	2.03
167	329.2	249.0	175.3	1.86
168	334.2	244.0	170.3	1.71
169	234.5	254.0	203.3	1.61
170	239.5	258.9	197.1	1.55
171	244.5	254.0	192.1	1.51
172	249.5	258.9	197.0	1.50
173	254.5	254.0	192.0	1.50
174	259.4	258.9	197.0	1.51
175	264.4	254.0	192.0	1.53
176	269.4	258.9	196.9	1.56
177	274.4	254.0	191.9	1.58
178	279.4	258.9	196.9	1.66
179	284.3	254.0	191.9	1.72
180	289.3	258.9	196.8	1.75
181	294.3	254.0	191.8	1.77
182	299.3	258.9	196.7	1.77
183	304.3	254.0	191.8	1.77
184	309.3	258.9	196.7	1.87
185	314.2	254.0	191.7	2.18
186	319.2	258.9	185.3	2.13
187	324.2	254.0	180.3	1.99
188	329.2	258.9	185.2	1.80
189	334.2	254.0	180.2	1.65
190	234.5	263.9	202.1	1.61
191	239.5	268.8	207.0	1.54
192	244.5	263.9	202.0	1.51
193	249.5	268.8	206.9	1.50
194	254.5	263.9	202.0	1.50
195	259.4	268.8	206.9	1.52
196	264.4	263.9	201.9	1.54
197	269.4	268.8	206.8	1.56
198	274.4	263.9	201.8	1.58
199	279.4	268.8	206.8	1.67
200	284.3	263.9	201.8	1.72

201	289.3	268.8	206.7	1.74
202	294.3	263.9	201.7	1.76
203	299.3	268.8	206.7	1.75
204	304.3	263.9	201.7	1.75
205	309.3	268.8	206.6	1.96
206	314.2	263.9	201.6	2.14
207	319.2	268.8	195.2	2.09
208	324.2	263.9	190.2	1.95
209	329.2	268.8	195.1	1.74
210	334.2	263.9	190.1	1.60
211	234.5	273.8	212.0	1.60
212	244.5	273.8	211.9	1.52
213	254.5	273.8	211.9	1.51
214	264.4	273.8	211.8	1.55
215	274.4	273.8	211.8	1.58
216	284.3	273.8	211.7	1.71
217	294.3	273.8	211.7	1.75
218	304.3	273.8	211.6	1.72
219	314.2	273.8	211.5	2.16
220	324.2	273.8	200.1	1.90
221	334.2	273.8	200.0	1.55

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	3
4.Vertici strato2	3
5.Vertici strato3	4
6.Coefficienti parziali azioni	4
7.Coefficienti parziali per i parametri geotecnici del terreno	4
8.Stratigrafia	4
9.Risultati analisi pendio [A2+M2+R2]	4
Indice	9

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.160679/10.980336
Calcolo eseguito secondo	NTC 2018
Numero di strati	4.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	335.66 m
Ordinata vertice sinistro inferiore yi	187.87 m
Ascissa vertice destro superiore xs	435.3 m
Ordinata vertice destro superiore ys	287.11 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.076
Coefficiente azione sismica verticale	0.038

Vertici profilo

Nr	X (m)	y (m)
1	31.79	32.21
2	50.82	33.71
3	55.54	33.97
4	75.36	35.8
5	82.73	36.64
6	95.61	37.49
7	111.57	40.72
8	127.24	43.89
9	144.7	48.26
10	156.36	51.28
11	179.68	55.43
12	196.25	58.43
13	239.82	64.09
14	261.3	67.83
15	286.22	72.22
16	298.73	74.74
17	307.32	76.0
18	319.59	77.14
19	334.93	78.48
20	342.91	78.68
21	349.05	79.54
22	353.96	80.2
23	360.71	81.68
24	366.84	82.98
25	378.5	84.23
26	393.84	87.48

27	416.76	93.83
28	432.65	97.75
29	452.14	100.32
30	478.29	103.66
31	481.36	103.84
32	490.59	103.62
33	515.72	104.02
34	524.95	104.03
35	550.07	105.16
36	559.81	106.26
37	580.83	109.44
38	603.91	112.23
39	632.62	115.81
40	638.26	116.5
41	645.95	117.05
42	683.38	120.06
43	699.28	121.7
44	706.45	122.29
45	713.63	122.71
46	723.37	123.3
47	731.07	123.72
48	737.22	123.66
49	744.4	123.52
50	754.65	123.93
51	760.05	124.14
52	783.16	126.28
53	809.3	131.32
54	817.15	132.81
55	829.69	134.93
56	844.33	137.23
57	858.97	139.45
58	870.99	140.7
59	884.59	142.13
60	892.43	142.86
61	903.41	143.76
62	922.23	145.3
63	944.18	147.81
64	969.8	150.83
65	980.26	151.96
66	993.91	153.2
67	1005.87	154.0
68	1010.58	154.3
69	1013.19	154.68
70	1014.76	154.71

Vertici strato1

N	X (m)	y (m)
1	31.79	32.21
2	126.69	36.78
3	196.43	45.54
4	266.76	56.77
5	306.96	64.47
6	370.57	74.33
7	389.75	78.13
8	445.45	89.49
9	491.31	96.28
10	550.88	98.78
11	636.67	109.79

12	701.93	114.06
13	769.59	118.49
14	888.47	136.63
15	1014.76	148.71

Vertici strato2

N	X (m)	y (m)
1	31.79	32.21
2	39.47	31.68
3	126.69	33.96
4	143.38	34.9
5	159.34	36.39
6	197.2	38.81
7	239.84	45.32
8	266.76	49.77
9	303.56	59.28
10	348.75	66.1
11	421.3	81.57
12	459.64	89.74
13	490.15	94.18
14	505.11	95.0
15	540.62	96.92
16	556.59	97.79
17	607.97	104.35
18	636.66	108.04
19	739.0	114.83
20	768.76	117.04
21	864.7	131.09
22	888.65	134.6
23	929.62	138.23
24	969.35	141.74
25	1014.76	145.99

Vertici strato3

N	X (m)	y (m)
1	31.79	22.16
2	91.15	23.31
3	154.98	24.99
4	180.8	26.53
5	219.34	31.19
6	266.76	39.77
7	306.25	59.69
8	348.75	66.1
9	421.3	81.57
10	459.64	89.74
11	490.15	94.18
12	540.62	96.92
13	556.59	97.79
14	607.97	104.35
15	636.66	108.04
16	739.0	114.83
17	768.76	117.04
18	864.7	131.09
19	888.65	134.6
20	929.62	138.23
21	969.35	141.74
22	1014.76	145.99

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3			34	1.7		
4	20		28	2.0		



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.22
Ascissa centro superficie	395.44 m
Ordinata centro superficie	187.87 m
Raggio superficie	102.16 m

Numero di superfici esaminate...(221)

N°	Xo	Yo	Ro	Fs
1	335.7	187.9	114.1	1.93
2	340.6	192.8	119.0	1.77
3	345.6	187.9	114.0	1.65
4	350.6	192.8	119.0	1.49
5	355.6	187.9	114.0	1.40
6	360.6	192.8	118.9	1.39
7	365.5	187.9	113.9	1.37
8	370.5	192.8	118.8	1.35
9	375.5	187.9	113.8	1.56
10	380.5	192.8	107.3	1.56
11	385.5	187.9	102.2	1.33
12	390.5	192.8	107.2	1.24
13	395.4	187.9	102.2	1.22
14	400.4	192.8	107.1	1.23
15	405.4	187.9	102.1	1.25
16	410.4	192.8	107.0	1.29
17	415.4	187.9	102.0	1.32
18	420.4	192.8	106.9	1.45
19	425.3	187.9	101.9	1.54
20	430.3	192.8	106.8	1.64
21	435.3	187.9	101.8	2.13
22	335.7	197.8	124.0	1.89
23	340.6	202.8	128.9	1.72

24	345.6	197.8	124.0	1.60
25	350.6	202.8	128.9	1.45
26	355.6	197.8	123.9	1.37
27	360.6	202.8	128.8	1.37
28	365.5	197.8	123.8	1.36
29	370.5	202.8	128.7	1.34
30	375.5	197.8	123.7	1.61
31	380.5	202.8	117.2	1.47
32	385.5	197.8	112.2	1.30
33	390.5	202.8	117.1	1.24
34	395.4	197.8	112.1	1.23
35	400.4	202.8	117.0	1.24
36	405.4	197.8	112.0	1.26
37	410.4	202.8	116.9	1.30
38	415.4	197.8	111.9	1.33
39	420.4	202.8	116.8	1.47
40	425.3	197.8	111.8	1.55
41	430.3	202.8	116.7	1.81
42	435.3	197.8	111.7	2.18
43	335.7	207.7	133.9	1.85
44	340.6	212.7	138.9	1.67
45	345.6	207.7	133.9	1.55
46	350.6	212.7	138.8	1.41
47	355.6	207.7	133.8	1.36
48	360.6	212.7	138.7	1.36
49	365.5	207.7	133.7	1.35
50	370.5	212.7	138.7	1.35
51	375.5	207.7	133.7	1.67
52	380.5	212.7	127.1	1.39
53	385.5	207.7	122.1	1.28
54	390.5	212.7	127.0	1.24
55	395.4	207.7	122.0	1.24
56	400.4	212.7	126.9	1.26
57	405.4	207.7	121.9	1.27
58	410.4	212.7	126.8	1.31
59	415.4	207.7	121.8	1.34
60	420.4	212.7	126.7	1.49
61	425.3	207.7	121.7	1.56
62	430.3	212.7	126.6	1.93
63	435.3	207.7	121.6	2.23
64	335.7	217.6	143.9	1.80
65	340.6	222.6	148.8	1.62
66	345.6	217.6	143.8	1.50
67	350.6	222.6	148.7	1.38
68	355.6	217.6	143.7	1.36
69	360.6	222.6	148.6	1.35
70	365.5	217.6	143.7	1.35
71	370.5	222.6	148.6	1.44
72	375.5	217.6	143.6	1.70
73	380.5	222.6	137.0	1.35
74	385.5	217.6	132.0	1.27
75	390.5	222.6	136.9	1.25
76	395.4	217.6	131.9	1.25
77	400.4	222.6	136.8	1.27
78	405.4	217.6	131.8	1.28
79	410.4	222.6	136.7	1.32
80	415.4	217.6	131.7	1.39
81	420.4	222.6	136.7	1.51
82	425.3	217.6	131.6	1.59

83	430.3	222.6	136.6	1.99
84	435.3	217.6	131.6	2.29
85	335.7	227.6	153.8	1.75
86	340.6	232.5	158.7	1.57
87	345.6	227.6	153.7	1.46
88	350.6	232.5	158.6	1.35
89	355.6	227.6	153.6	1.36
90	360.6	232.5	158.6	1.36
91	365.5	227.6	153.6	1.36
92	370.5	232.5	158.5	1.55
93	375.5	227.6	142.0	1.57
94	380.5	232.5	146.9	1.33
95	385.5	227.6	141.9	1.27
96	390.5	232.5	146.9	1.26
97	395.4	227.6	141.8	1.26
98	400.4	232.5	146.8	1.28
99	405.4	227.6	141.8	1.29
100	410.4	232.5	146.7	1.32
101	415.4	227.6	141.7	1.42
102	420.4	232.5	146.6	1.53
103	425.3	227.6	141.6	1.61
104	430.3	232.5	146.5	2.08
105	435.3	227.6	141.5	2.35
106	335.7	237.5	163.7	1.70
107	340.6	242.5	168.6	1.52
108	345.6	237.5	163.6	1.42
109	350.6	242.5	168.6	1.32
110	355.6	237.5	163.6	1.36
111	360.6	242.5	168.5	1.36
112	365.5	237.5	163.5	1.35
113	370.5	242.5	168.4	1.63
114	375.5	237.5	152.0	1.48
115	380.5	242.5	156.9	1.32
116	385.5	237.5	151.9	1.27
117	390.5	242.5	156.8	1.27
118	395.4	237.5	151.8	1.27
119	400.4	242.5	156.7	1.29
120	405.4	237.5	151.7	1.30
121	410.4	242.5	156.6	1.33
122	415.4	237.5	151.6	1.44
123	420.4	242.5	156.5	1.55
124	425.3	237.5	151.5	1.63
125	430.3	242.5	156.4	2.13
126	435.3	237.5	151.4	2.40
127	335.7	247.4	173.6	1.64
128	340.6	252.4	178.6	1.48
129	345.6	247.4	173.6	1.39
130	350.6	252.4	178.5	1.31
131	355.6	247.4	173.5	1.35
132	360.6	252.4	178.4	1.36
133	365.5	247.4	173.4	1.36
134	370.5	252.4	178.3	1.70
135	375.5	247.4	161.9	1.43
136	380.5	252.4	166.8	1.31
137	385.5	247.4	161.8	1.28
138	390.5	252.4	166.7	1.27
139	395.4	247.4	161.7	1.28
140	400.4	252.4	166.6	1.30
141	405.4	247.4	161.6	1.31

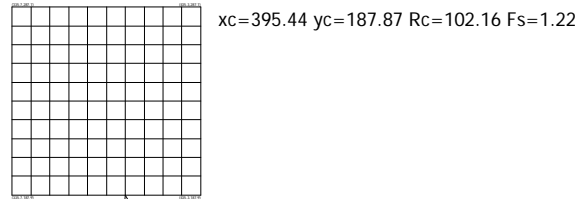
142	410.4	252.4	166.5	1.34
143	415.4	247.4	161.5	1.47
144	420.4	252.4	166.4	1.57
145	425.3	247.4	161.4	1.75
146	430.3	252.4	166.3	2.19
147	435.3	247.4	161.3	2.46
148	335.7	257.3	183.6	1.59
149	340.6	262.3	188.5	1.44
150	345.6	257.3	183.5	1.36
151	350.6	262.3	188.4	1.34
152	355.6	257.3	183.4	1.36
153	360.6	262.3	188.3	1.37
154	365.5	257.3	183.3	1.37
155	370.5	262.3	176.8	1.60
156	375.5	257.3	171.8	1.39
157	380.5	262.3	176.7	1.31
158	385.5	257.3	171.7	1.28
159	390.5	262.3	176.6	1.28
160	395.4	257.3	171.6	1.29
161	400.4	262.3	176.5	1.30
162	405.4	257.3	171.5	1.32
163	410.4	262.3	176.4	1.38
164	415.4	257.3	171.4	1.48
165	420.4	262.3	176.4	1.59
166	425.3	257.3	171.3	1.85
167	430.3	262.3	176.3	2.27
168	435.3	257.3	171.2	2.51
169	335.7	267.3	193.5	1.54
170	340.6	272.2	198.4	1.41
171	345.6	267.3	193.4	1.34
172	350.6	272.2	198.3	1.34
173	355.6	267.3	193.3	1.36
174	360.6	272.2	198.3	1.37
175	365.5	267.3	193.3	1.43
176	370.5	272.2	186.7	1.52
177	375.5	267.3	181.7	1.37
178	380.5	272.2	186.6	1.31
179	385.5	267.3	181.6	1.29
180	390.5	272.2	186.6	1.29
181	395.4	267.3	181.5	1.29
182	400.4	272.2	186.5	1.31
183	405.4	267.3	181.5	1.33
184	410.4	272.2	186.4	1.42
185	415.4	267.3	181.4	1.51
186	420.4	272.2	186.3	1.61
187	425.3	267.3	181.3	1.95
188	430.3	272.2	186.2	2.30
189	435.3	267.3	181.2	2.53
190	335.7	277.2	203.4	1.50
191	340.6	282.2	208.3	1.38
192	345.6	277.2	203.3	1.33
193	350.6	282.2	208.3	1.35
194	355.6	277.2	203.3	1.36
195	360.6	282.2	208.2	1.37
196	365.5	277.2	203.2	1.56
197	370.5	282.2	196.7	1.47
198	375.5	277.2	191.7	1.36
199	380.5	282.2	196.6	1.31
200	385.5	277.2	191.6	1.29

201	390.5	282.2	196.5	1.30
202	395.4	277.2	191.5	1.30
203	400.4	282.2	196.4	1.32
204	405.4	277.2	191.4	1.34
205	410.4	282.2	196.3	1.45
206	415.4	277.2	191.3	1.54
207	420.4	282.2	196.2	1.64
208	425.3	277.2	191.2	2.01
209	430.3	282.2	196.1	2.39
210	435.3	277.2	191.1	2.58
211	335.7	287.1	213.3	1.46
212	345.6	287.1	213.3	1.31
213	355.6	287.1	213.2	1.37
214	365.5	287.1	213.1	1.64
215	375.5	287.1	201.6	1.35
216	385.5	287.1	201.5	1.30
217	395.4	287.1	201.4	1.31
218	405.4	287.1	201.3	1.35
219	415.4	287.1	201.2	1.56
220	425.3	287.1	201.1	2.10
221	435.3	287.1	189.4	2.58

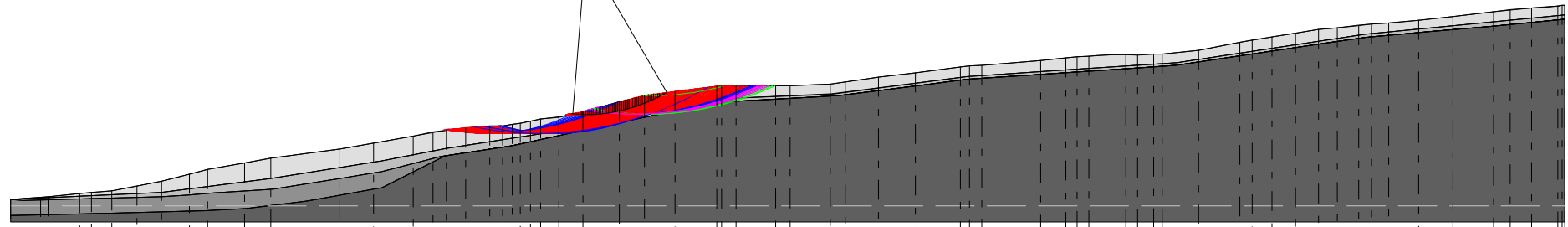
Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	3
4.Vertici strato2	3
5.Vertici strato3	4
6.Coefficienti parziali azioni	4
7.Coefficienti parziali per i parametri geotecnici del terreno	4
8.Stratigrafia	4
9.Risultati analisi pendio [A2+M2+R2]	4
Indice	9

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE
 DA 300 A 400 m
 IN CONDIZIONI SISMICHE



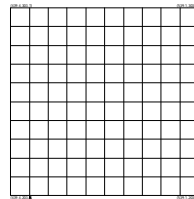
- Strato...1
g=1.9t/m³
Fi=16°
c=6 kN/m²
- Strato...2
g=1.9t/m³
Fi=18°
c=10 kN/m²
- Strato...3
g=1.7t/m³
Fi=34°
c= kN/m²
- Strato...4
g=2.0t/m³
Fi=28°
c=20 kN/m²



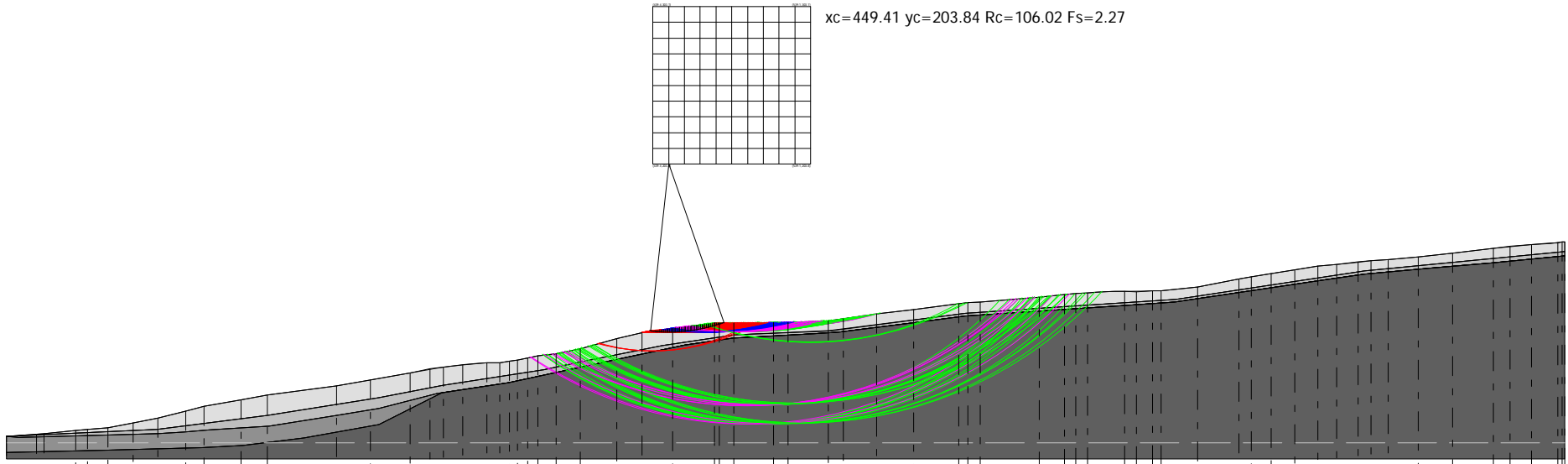
Quote	0.00	32.21	19.02	33.71	43.57	19.83	35.80	50.93	7.36	36.64	63.82	12.89	37.49	79.77	15.95	40.72	95.44	15.67	43.89	112.91	17.47	48.26	124.57	11.66	51.28	147.89	23.32	55.43	164.46	16.57	58.43	208.02	43.57	64.09	229.50	21.48	67.83	254.42	24.92	72.22	266.93	12.51	74.74	275.53	8.59	76.00	287.80	12.27	77.14	303.14	15.34	78.48	311.72	7.98	78.89	322.16	8.91	80.20	328.91	6.75	81.68	335.05	6.14	82.98	346.71	11.66	84.23	362.05	15.34	87.48	384.96	22.91	93.83	400.86	15.89	97.75	420.34	19.48	100.32	446.49	26.85	103.62	458.80	9.23	104.02	483.92	25.12	104.03	493.15	9.23	104.03	518.27	25.12	105.16	528.02	9.74	106.26	549.04	21.02	109.44	572.11	23.07	112.23	600.83	28.71	115.81	614.16	7.69	117.05	651.59	37.43	120.06	667.48	15.89	121.70	681.84	7.18	122.71	705.42	23.59	123.66	712.60	7.18	123.52	722.86	10.25	123.93	728.28	5.40	124.14	751.37	23.11	126.28	777.51	26.14	131.32	785.35	7.84	132.81	797.90	12.55	134.93	812.54	14.64	137.23	827.17	14.64	139.45	839.20	12.02	140.70	852.70	13.59	142.13	866.63	7.84	142.86	871.61	10.98	143.76	890.43	18.82	145.30	912.39	21.96	147.81	938.01	25.62	150.83	948.46	10.46	151.96	962.11	13.65	153.20	985.98	21.67	164.88
Distanze Parziali	0.00	0.00	19.02	4.72	43.57	19.83	35.80	50.93	7.36	36.64	63.82	12.89	37.49	79.77	15.95	40.72	95.44	15.67	43.89	112.91	17.47	48.26	124.57	11.66	51.28	147.89	23.32	55.43	164.46	16.57	58.43	208.02	43.57	64.09	229.50	21.48	67.83	254.42	24.92	72.22	266.93	12.51	74.74	275.53	8.59	76.00	287.80	12.27	77.14	303.14	15.34	78.48	311.72	7.98	78.89	322.16	8.91	80.20	328.91	6.75	81.68	335.05	6.14	82.98	346.71	11.66	84.23	362.05	15.34	87.48	384.96	22.91	93.83	400.86	15.89	97.75	420.34	19.48	100.32	446.49	26.85	103.62	458.80	9.23	104.02	483.92	25.12	104.02	493.15	9.23	104.03	518.27	25.12	105.16	528.02	9.74	106.26	549.04	21.02	109.44	572.11	23.07	112.23	600.83	28.71	115.81	614.16	7.69	117.05	651.59	37.43	120.06	667.48	15.89	121.70	681.84	7.18	122.71	705.42	23.59	123.66	712.60	7.18	123.52	722.86	10.25	123.93	728.28	5.40	124.14	751.37	23.11	126.28	777.51	26.14	131.32	785.35	7.84	132.81	797.90	12.55	134.93	812.54	14.64	137.23	827.17	14.64	139.45	839.20	12.02	140.70	852.70	13.59	142.13	866.63	7.84	142.86	871.61	10.98	143.76	890.43	18.82	145.30	912.39	21.96	147.81	938.01	25.62	150.83	948.46	10.46	151.96	962.11	13.65	153.20	985.98	21.67	164.88
Distanze Progressive	0.00	19.02	33.71	43.57	50.93	63.82	79.77	95.44	112.91	124.57	147.89	164.46	208.02	229.50	254.42	266.93	275.53	287.80	303.14	311.72	322.16	328.91	335.05	346.71	362.05	384.96	400.86	420.34	446.49	458.80	483.92	493.15	518.27	528.02	549.04	572.11	600.83	614.16	651.59	667.48	681.84	705.42	712.60	722.86	728.28	751.37	777.51	785.35	797.90	812.54	827.17	839.20	852.70	866.63	871.61	890.43	912.39	938.01	948.46	962.11	985.98																																																																																																																					

VERIFICA ANALITICA DI STABILITA' DI VERSANTE DA 400 A 500 m IN CONDIZIONI SISMICHE

xc=449.41 yc=203.84 Rc=106.02 Fs=2.27



- Strato...1
 $g=1.9t/m^3$
 $Fi=16^\circ$
 $c=6\text{ kN}/m^2$
- Strato...2
 $g=1.9t/m^3$
 $Fi=18^\circ$
 $c=10\text{ kN}/m^2$
- Strato...3
 $g=1.7t/m^3$
 $Fi=34^\circ$
 $c= \text{ kN}/m^2$
- Strato...4
 $g=2.0t/m^3$
 $Fi=28^\circ$
 $c=20\text{ kN}/m^2$



Quote	0.00	32.21	19.02	33.71	43.57	19.83	35.80	50.93	7.36	36.64	63.82	12.89	37.49	79.77	15.95	40.72	95.44	15.67	43.89	112.91	17.47	48.26	124.57	11.66	51.28	147.89	23.32	55.43	164.46	16.57	58.43	208.02	43.57	64.09	229.50	21.48	67.83	254.42	24.92	72.22	266.93	12.51	74.74	275.53	8.59	76.00	287.80	12.27	77.14	303.14	15.34	78.48	311.72	7.98	78.89	322.16	8.91	80.20	328.91	6.75	81.68	335.05	6.14	82.96	346.71	11.66	84.23	362.05	15.34	87.48	384.96	22.91	93.83	400.86	15.89	97.75	420.34	19.48	100.32	446.49	26.45	103.62	458.80	9.23	104.02	483.92	25.12	104.03	493.15	9.23	104.03	518.27	25.12	105.16	528.02	9.74	106.26	549.04	21.02	109.44	572.11	23.07	112.23	600.83	28.71	115.81	614.16	7.69	117.05	651.59	37.43	120.06	667.48	15.89	121.70	681.84	7.18	122.71	705.42	23.59	123.66	712.60	7.18	123.52	722.86	10.25	123.93	728.28	5.40	124.14	751.37	23.11	126.28	777.51	26.14	131.32	785.35	7.84	132.81	797.90	12.55	134.93	812.54	14.64	137.23	827.17	14.64	139.45	839.20	12.02	140.70	852.70	13.59	142.13	860.63	7.84	142.86	871.61	10.98	143.76	890.43	18.82	145.30	912.39	21.96	147.81	938.01	25.62	150.83	948.46	10.46	151.96	962.11	13.65	153.20	985.98	21.67	164.98
Distanze Parziali	0.00	0.00	19.02	33.71	43.57	19.83	35.80	50.93	7.36	36.64	63.82	12.89	37.49	79.77	15.95	40.72	95.44	15.67	43.89	112.91	17.47	48.26	124.57	11.66	51.28	147.89	23.32	55.43	164.46	16.57	58.43	208.02	43.57	64.09	229.50	21.48	67.83	254.42	24.92	72.22	266.93	12.51	74.74	275.53	8.59	76.00	287.80	12.27	77.14	303.14	15.34	78.48	311.72	7.98	78.89	322.16	8.91	80.20	328.91	6.75	81.68	335.05	6.14	82.96	346.71	11.66	84.23	362.05	15.34	87.48	384.96	22.91	93.83	400.86	15.89	97.75	420.34	19.48	100.32	446.49	26.45	103.62	458.80	9.23	104.02	483.92	25.12	104.03	493.15	9.23	104.03	518.27	25.12	105.16	528.02	9.74	106.26	549.04	21.02	109.44	572.11	23.07	112.23	600.83	28.71	115.81	614.16	7.69	117.05	651.59	37.43	120.06	667.48	15.89	121.70	681.84	7.18	122.71	705.42	23.59	123.66	712.60	7.18	123.52	722.86	10.25	123.93	728.28	5.40	124.14	751.37	23.11	126.28	777.51	26.14	131.32	785.35	7.84	132.81	797.90	12.55	134.93	812.54	14.64	137.23	827.17	14.64	139.45	839.20	12.02	140.70	852.70	13.59	142.13	860.63	7.84	142.86	871.61	10.98	143.76	890.43	18.82	145.30	912.39	21.96	147.81	938.01	25.62	150.83	948.46	10.46	151.96	962.11	13.65	153.20	985.98	21.67	164.98
Distanze Progressive	0.00	19.02	33.71	43.57	50.93	63.82	79.77	95.44	112.91	124.57	147.89	164.46	208.02	229.50	254.42	266.93	275.53	287.80	303.14	311.72	322.16	328.91	335.05	346.71	362.05	384.96	400.86	420.34	446.49	458.80	483.92	493.15	518.27	528.02	549.04	572.11	600.83	614.16	651.59	667.48	681.84	705.42	712.60	722.86	728.28	751.37	777.51	785.35	797.90	812.54	827.17	839.20	852.70	860.63	871.61	890.43	912.39	938.01	948.46	962.11	985.98																																																																																																																					

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.160679/10.980336
Calcolo eseguito secondo	NTC 2018
Numero di strati	4.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	439.45 m
Ordinata vertice sinistro inferiore yi	203.84 m
Ascissa vertice destro superiore xs	539.09 m
Ordinata vertice destro superiore ys	303.08 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.076
Coefficiente azione sismica verticale	0.038

Vertici profilo

Nr	X (m)	y (m)
1	31.79	32.21
2	50.82	33.71
3	55.54	33.97
4	75.36	35.8
5	82.73	36.64
6	95.61	37.49
7	111.57	40.72
8	127.24	43.89
9	144.7	48.26
10	156.36	51.28
11	179.68	55.43
12	196.25	58.43
13	239.82	64.09
14	261.3	67.83
15	286.22	72.22
16	298.73	74.74
17	307.32	76.0
18	319.59	77.14
19	334.93	78.48
20	342.91	78.68
21	349.05	79.54
22	353.96	80.2
23	360.71	81.68
24	366.84	82.98
25	378.5	84.23
26	393.84	87.48

27	416.76	93.83
28	432.65	97.75
29	452.14	100.32
30	478.29	103.66
31	481.36	103.84
32	490.59	103.62
33	515.72	104.02
34	524.95	104.03
35	550.07	105.16
36	559.81	106.26
37	580.83	109.44
38	603.91	112.23
39	632.62	115.81
40	638.26	116.5
41	645.95	117.05
42	683.38	120.06
43	699.28	121.7
44	706.45	122.29
45	713.63	122.71
46	723.37	123.3
47	731.07	123.72
48	737.22	123.66
49	744.4	123.52
50	754.65	123.93
51	760.05	124.14
52	783.16	126.28
53	809.3	131.32
54	817.15	132.81
55	829.69	134.93
56	844.33	137.23
57	858.97	139.45
58	870.99	140.7
59	884.59	142.13
60	892.43	142.86
61	903.41	143.76
62	922.23	145.3
63	944.18	147.81
64	969.8	150.83
65	980.26	151.96
66	993.91	153.2
67	1005.87	154.0
68	1010.58	154.3
69	1013.19	154.68
70	1014.76	154.71

Vertici strato1

N	X (m)	y (m)
1	31.79	32.21
2	126.69	36.78
3	196.43	45.54
4	266.76	56.77
5	306.96	64.47
6	370.57	74.33
7	389.75	78.13
8	445.45	89.49
9	491.31	96.28
10	550.88	98.78
11	636.67	109.79

12	701.93	114.06
13	769.59	118.49
14	888.47	136.63
15	1014.76	148.71

Vertici strato2

N	X (m)	y (m)
1	31.79	32.21
2	39.47	31.68
3	126.69	33.96
4	143.38	34.9
5	159.34	36.39
6	197.2	38.81
7	239.84	45.32
8	266.76	49.77
9	303.56	59.28
10	348.75	66.1
11	421.3	81.57
12	459.64	89.74
13	490.15	94.18
14	505.11	95.0
15	540.62	96.92
16	556.59	97.79
17	607.97	104.35
18	636.66	108.04
19	739.0	114.83
20	768.76	117.04
21	864.7	131.09
22	888.65	134.6
23	929.62	138.23
24	969.35	141.74
25	1014.76	145.99

Vertici strato3

N	X (m)	y (m)
1	31.79	22.16
2	91.15	23.31
3	154.98	24.99
4	180.8	26.53
5	219.34	31.19
6	266.76	39.77
7	306.25	59.69
8	348.75	66.1
9	421.3	81.57
10	459.64	89.74
11	490.15	94.18
12	540.62	96.92
13	556.59	97.79
14	607.97	104.35
15	636.66	108.04
16	739.0	114.83
17	768.76	117.04
18	864.7	131.09
19	888.65	134.6
20	929.62	138.23
21	969.35	141.74
22	1014.76	145.99

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3			34	1.7		
4	20		28	2.0		



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.27
Ascissa centro superficie	449.41 m
Ordinata centro superficie	203.84 m
Raggio superficie	106.02 m

Numero di superfici esaminate...(221)

N°	Xo	Yo	Ro	Fs
1	439.4	203.8	117.7	2.47
2	444.4	208.8	111.0	2.40
3	449.4	203.8	106.0	2.27
4	454.4	208.8	110.9	2.29
5	459.4	203.8	105.9	2.37
6	464.4	208.8	110.8	2.52
7	469.3	203.8	105.8	2.67
8	474.3	208.8	110.7	2.88
9	479.3	203.8	105.7	3.09
10	484.3	208.8	110.6	3.33
11	489.3	203.8	105.6	3.61
12	494.2	208.8	110.5	3.86
13	499.2	203.8	105.5	4.09
14	504.2	208.8	110.4	4.15
15	509.2	203.8	105.4	4.16
16	514.2	208.8	109.9	4.04
17	519.2	203.8	104.3	3.95
18	524.1	208.8	108.4	3.89
19	529.1	203.8	102.8	3.79
20	534.1	208.8	106.9	3.60
21	539.1	203.8	101.3	3.35
22	439.4	213.8	127.6	2.49
23	444.4	218.7	121.0	2.37

24	449.4	213.8	115.9	2.28
25	454.4	218.7	120.8	2.32
26	459.4	213.8	115.8	2.40
27	464.4	218.7	120.7	2.55
28	469.3	213.8	115.7	2.69
29	474.3	218.7	120.6	2.89
30	479.3	213.8	115.6	3.09
31	484.3	218.7	120.5	3.32
32	489.3	213.8	115.5	3.58
33	494.2	218.7	120.4	3.80
34	499.2	213.8	115.4	4.02
35	504.2	218.7	120.3	4.08
36	509.2	213.8	115.3	4.10
37	514.2	218.7	119.6	4.06
38	519.2	213.8	114.0	3.95
39	524.1	218.7	118.1	3.90
40	529.1	213.8	112.5	3.79
41	534.1	218.7	116.6	3.62
42	539.1	213.8	111.0	3.36
43	439.4	223.7	137.6	2.54
44	444.4	228.7	130.9	2.35
45	449.4	223.7	125.9	2.29
46	454.4	228.7	130.8	2.35
47	459.4	223.7	125.8	2.43
48	464.4	228.7	130.7	2.57
49	469.3	223.7	125.6	2.71
50	474.3	228.7	130.6	2.90
51	479.3	223.7	125.5	3.09
52	484.3	228.7	130.4	3.31
53	489.3	223.7	125.4	3.56
54	494.2	228.7	130.3	3.76
55	499.2	223.7	125.3	3.95
56	504.2	228.7	130.2	4.01
57	509.2	223.7	125.2	4.04
58	514.2	228.7	129.4	4.06
59	519.2	223.7	123.8	3.96
60	524.1	228.7	127.9	3.92
61	529.1	223.7	122.3	3.80
62	534.1	228.7	126.4	3.63
63	539.1	223.7	120.8	3.39
64	439.4	233.6	135.9	2.56
65	444.4	238.6	140.8	2.35
66	449.4	233.6	135.8	2.31
67	454.4	238.6	140.7	2.38
68	459.4	233.6	135.7	2.46
69	464.4	238.6	140.6	2.60
70	469.3	233.6	135.6	2.73
71	474.3	238.6	140.5	2.91
72	479.3	233.6	135.5	3.09
73	484.3	238.6	140.4	3.30
74	489.3	233.6	135.3	3.53
75	494.2	238.6	140.3	3.72
76	499.2	233.6	135.2	3.89
77	504.2	238.6	140.1	3.95
78	509.2	233.6	135.0	4.02
79	514.2	238.6	139.1	4.08
80	519.2	233.6	133.5	3.97
81	524.1	238.6	137.6	3.94
82	529.1	233.6	132.0	3.82

83	534.1	238.6	136.1	3.67
84	539.1	233.6	130.5	3.42
85	439.4	243.5	145.8	2.52
86	444.4	248.5	150.7	2.35
87	449.4	243.5	145.7	2.33
88	454.4	248.5	150.6	2.40
89	459.4	243.5	145.6	2.49
90	464.4	248.5	150.5	2.62
91	469.3	243.5	145.5	2.75
92	474.3	248.5	150.4	2.92
93	479.3	243.5	145.4	3.09
94	484.3	248.5	150.3	3.30
95	489.3	243.5	145.3	3.51
96	494.2	248.5	150.2	3.68
97	499.2	243.5	145.2	3.84
98	504.2	248.5	150.1	3.90
99	509.2	243.5	144.7	4.02
100	514.2	248.5	208.4	4.01
101	519.2	243.5	143.2	4.00
102	524.1	248.5	147.4	3.97
103	529.1	243.5	141.7	3.85
104	534.1	248.5	145.9	3.72
105	539.1	243.5	140.2	3.46
106	439.4	253.5	155.7	2.48
107	444.4	258.4	160.7	2.36
108	449.4	253.5	155.6	2.35
109	454.4	258.4	160.5	2.43
110	459.4	253.5	155.5	2.51
111	464.4	258.4	160.4	2.64
112	469.3	253.5	155.4	2.77
113	474.3	258.4	160.3	2.93
114	479.3	253.5	155.3	3.10
115	484.3	258.4	160.2	3.30
116	489.3	253.5	155.2	3.49
117	494.2	258.4	160.1	3.65
118	499.2	253.5	155.1	3.79
119	504.2	258.4	218.5	3.84
120	509.2	253.5	201.7	3.95
121	514.2	258.4	218.3	3.93
122	519.2	253.5	153.0	4.03
123	524.1	258.4	157.1	4.00
124	529.1	253.5	151.5	3.90
125	534.1	258.4	155.6	3.78
126	539.1	253.5	150.0	3.53
127	439.4	263.4	165.7	2.45
128	444.4	268.3	170.6	2.37
129	449.4	263.4	165.6	2.38
130	454.4	268.3	170.5	2.45
131	459.4	263.4	165.4	2.53
132	464.4	268.3	170.4	2.66
133	469.3	263.4	165.3	2.78
134	474.3	268.3	170.2	2.94
135	479.3	263.4	165.2	3.10
136	484.3	268.3	170.1	3.29
137	489.3	263.4	165.1	3.48
138	494.2	268.3	170.0	3.62
139	499.2	263.4	165.0	3.75
140	504.2	268.3	228.4	3.78
141	509.2	263.4	223.3	3.85

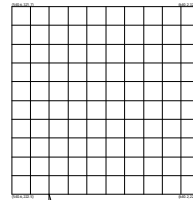
142	514.2	268.3	216.2	3.88
143	519.2	263.4	223.1	3.95
144	524.1	268.3	215.7	3.97
145	529.1	263.4	161.2	3.95
146	534.1	268.3	165.3	3.86
147	539.1	263.4	159.7	3.62
148	439.4	273.3	175.6	2.44
149	444.4	278.3	180.5	2.38
150	449.4	273.3	175.5	2.40
151	454.4	278.3	180.4	2.47
152	459.4	273.3	175.4	2.56
153	464.4	278.3	180.3	2.68
154	469.3	273.3	175.3	2.80
155	474.3	278.3	180.2	2.95
156	479.3	273.3	175.1	3.11
157	484.3	278.3	180.1	3.29
158	489.3	273.3	175.0	3.46
159	494.2	278.3	179.9	3.59
160	499.2	273.3	174.9	3.71
161	504.2	278.3	226.6	3.74
162	509.2	273.3	233.2	3.80
163	514.2	278.3	226.1	3.83
164	519.2	273.3	233.0	3.88
165	524.1	278.3	225.6	3.91
166	529.1	273.3	232.7	3.96
167	534.1	278.3	175.1	3.96
168	539.1	273.3	169.4	3.73
169	439.4	283.2	185.5	2.44
170	444.4	288.2	190.4	2.40
171	449.4	283.2	185.4	2.42
172	454.4	288.2	190.3	2.50
173	459.4	283.2	185.3	2.58
174	464.4	288.2	190.2	2.70
175	469.3	283.2	185.2	2.81
176	474.3	288.2	190.1	2.96
177	479.3	283.2	185.1	3.12
178	484.3	288.2	190.0	3.29
179	489.3	283.2	185.0	3.44
180	494.2	288.2	189.9	3.56
181	499.2	283.2	243.3	3.67
182	504.2	288.2	236.4	3.69
183	509.2	283.2	243.1	3.75
184	514.2	288.2	235.9	3.78
185	519.2	283.2	242.9	3.82
186	524.1	288.2	235.4	3.85
187	529.1	283.2	242.6	3.90
188	534.1	288.2	247.5	3.91
189	539.1	283.2	191.8	3.84
190	439.4	293.2	195.4	2.44
191	444.4	298.1	200.3	2.41
192	449.4	293.2	195.3	2.44
193	454.4	298.1	200.2	2.52
194	459.4	293.2	195.2	2.60
195	464.4	298.1	200.1	2.71
196	469.3	293.2	195.1	2.83
197	474.3	298.1	200.0	2.97
198	479.3	293.2	195.0	3.12
199	484.3	298.1	199.9	3.28
200	489.3	293.2	194.9	3.43

201	494.2	298.1	199.8	3.54
202	499.2	293.2	241.6	3.63
203	504.2	298.1	258.1	3.64
204	509.2	293.2	241.1	3.71
205	514.2	298.1	257.8	3.71
206	519.2	293.2	240.6	3.79
207	524.1	298.1	257.6	3.78
208	529.1	293.2	240.1	3.87
209	534.1	298.1	257.3	3.86
210	539.1	293.2	201.6	3.81
211	439.4	303.1	205.4	2.44
212	449.4	303.1	205.3	2.46
213	459.4	303.1	205.1	2.62
214	469.3	303.1	205.0	2.84
215	479.3	303.1	204.9	3.13
216	489.3	303.1	204.8	3.41
217	499.2	303.1	251.5	3.59
218	509.2	303.1	251.0	3.67
219	519.2	303.1	250.5	3.75
220	529.1	303.1	250.0	3.82
221	539.1	303.1	211.3	3.78

Indice

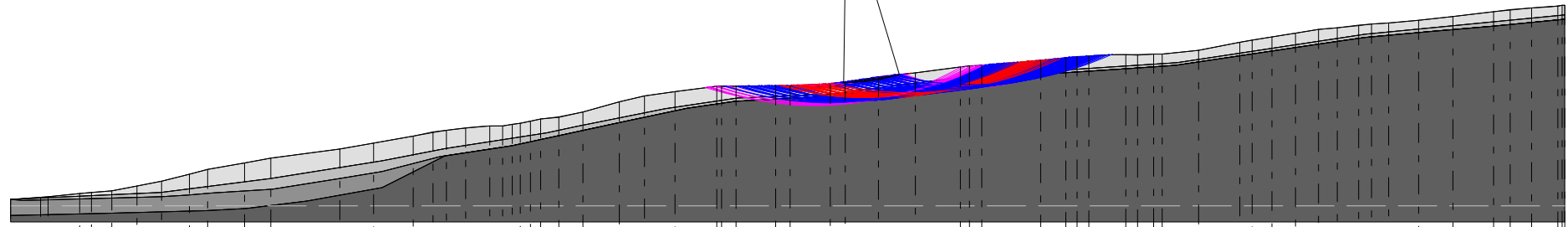
1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	3
4.Vertici strato2	3
5.Vertici strato3	4
6.Coefficienti parziali azioni	4
7.Coefficienti parziali per i parametri geotecnici del terreno	4
8.Stratigrafia	4
9.Risultati analisi pendio [A2+M2+R2]	4
Indice	9

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE
 DA 500 A 600 m
 IN CONDIZIONI SISMICHE



xc=560.50 yc=222.47 Rc=116.35 Fs=2.83

- Strato...1
 g=1.9t/m³
 Fi=16°
 c=6 kN/m²
- Strato...2
 g=1.9t/m³
 Fi=18°
 c=10 kN/m²
- Strato...3
 g=1.7t/m³
 Fi=34°
 c= kN/m²
- Strato...4
 g=2.0t/m³
 Fi=28°
 c=20 kN/m²



Quote	0.00	32.21	19.02	33.71	43.57	35.80	50.93	36.64	63.82	37.49	79.77	40.72	95.44	43.89	112.91	48.26	124.57	51.28	147.89	55.43	164.46	58.43	208.02	64.09	229.50	67.83	254.42	72.22	266.93	74.74	275.53	76.00	287.80	77.14	303.14	78.48	311.72	78.89	322.18	80.20	328.91	81.68	335.05	81.14	346.71	81.66	362.05	87.48	384.96	93.83	400.86	97.75	420.34	100.32	446.49	103.62	458.80	103.62	483.92	104.02	493.15	92.23	518.27	105.16	528.02	97.74	549.04	109.44	572.11	112.23	600.83	115.81	614.16	117.05	651.59	120.06	667.48	121.70	677.51	122.71	705.42	123.66	712.60	123.52	722.86	123.93	728.28	124.14	751.37	126.28	777.51	131.32	785.35	132.81	797.90	134.93	812.54	137.23	827.17	139.45	839.20	140.70	852.70	142.13	860.63	142.86	871.61	143.76	890.43	145.30	912.39	147.81	938.01	150.83	948.46	151.96	962.11	153.20	985.98	157.67	1004.99	164.98																																																	
Distanze Parziali	0.00	19.02	4.72	33.71	19.83	35.80	7.36	36.64	12.89	37.49	15.95	40.72	15.67	43.89	17.47	48.26	11.66	51.28	23.32	55.43	16.57	58.43	43.57	64.09	21.48	67.83	24.92	72.22	12.51	74.74	8.59	76.00	12.27	77.14	15.34	78.48	7.98	78.89	17.69	80.20	6.75	81.68	5.14	82.96	11.66	84.23	15.34	87.48	22.91	93.83	15.89	97.75	19.48	100.32	56.45	103.62	25.12	104.02	9.23	104.03	25.12	105.16	9.74	106.26	21.02	109.44	23.07	112.23	28.71	115.81	17.69	117.05	37.43	120.06	15.89	121.70	7.18	122.71	23.59	123.66	7.18	123.52	10.25	123.93	5.40	124.14	23.11	126.28	26.14	131.32	7.84	132.81	12.55	134.93	14.64	137.23	14.64	139.45	12.02	140.70	13.59	142.13	7.84	142.86	10.98	143.76	18.82	145.30	21.96	147.81	25.62	150.83	10.46	151.96	13.65	153.20	41.57	164.98																																																					
Distanze Progressive	0.00	19.02	23.74	33.71	43.57	19.83	50.93	36.64	63.82	12.89	79.77	15.95	95.44	15.67	43.89	112.91	17.47	124.57	11.66	51.28	23.32	55.43	164.46	16.57	58.43	208.02	64.09	229.50	21.48	67.83	254.42	24.92	72.22	266.93	12.51	74.74	275.53	8.59	76.00	287.80	12.27	77.14	303.14	15.34	78.48	311.72	7.98	78.89	322.18	17.69	80.20	328.91	6.75	81.68	335.05	5.14	82.96	346.71	11.66	84.23	362.05	15.34	87.48	384.96	22.91	93.83	400.86	15.89	97.75	420.34	19.48	100.32	446.49	56.45	103.62	458.80	9.23	103.62	483.92	25.12	104.02	493.15	9.23	104.03	518.27	25.12	105.16	528.02	9.74	106.26	549.04	21.02	109.44	572.11	23.07	112.23	600.83	28.71	115.81	614.16	17.69	117.05	651.59	37.43	120.06	667.48	15.89	121.70	677.51	7.18	122.71	705.42	23.59	123.66	712.60	7.18	123.52	722.86	10.25	123.93	728.28	5.40	124.14	751.37	23.11	126.28	777.51	26.14	131.32	785.35	7.84	132.81	797.90	12.55	134.93	812.54	14.64	137.23	827.17	14.64	139.45	839.20	12.02	140.70	852.70	13.59	142.13	860.63	7.84	142.86	871.61	10.98	143.76	890.43	18.82	145.30	912.39	21.96	147.81	938.01	25.62	150.83	948.46	10.46	151.96	962.11	13.65	153.20	985.98	41.57	164.98

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.160679/10.980336
Calcolo eseguito secondo	NTC 2018
Numero di strati	4.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	540.58 m
Ordinata vertice sinistro inferiore yi	222.47 m
Ascissa vertice destro superiore xs	640.22 m
Ordinata vertice destro superiore ys	321.71 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.076
Coefficiente azione sismica verticale	0.038

Vertici profilo

Nr	X (m)	y (m)
1	31.79	32.21
2	50.82	33.71
3	55.54	33.97
4	75.36	35.8
5	82.73	36.64
6	95.61	37.49
7	111.57	40.72
8	127.24	43.89
9	144.7	48.26
10	156.36	51.28
11	179.68	55.43
12	196.25	58.43
13	239.82	64.09
14	261.3	67.83
15	286.22	72.22
16	298.73	74.74
17	307.32	76.0
18	319.59	77.14
19	334.93	78.48
20	342.91	78.68
21	349.05	79.54
22	353.96	80.2
23	360.71	81.68
24	366.84	82.98
25	378.5	84.23
26	393.84	87.48

27	416.76	93.83
28	432.65	97.75
29	452.14	100.32
30	478.29	103.66
31	481.36	103.84
32	490.59	103.62
33	515.72	104.02
34	524.95	104.03
35	550.07	105.16
36	559.81	106.26
37	580.83	109.44
38	603.91	112.23
39	632.62	115.81
40	638.26	116.5
41	645.95	117.05
42	683.38	120.06
43	699.28	121.7
44	706.45	122.29
45	713.63	122.71
46	723.37	123.3
47	731.07	123.72
48	737.22	123.66
49	744.4	123.52
50	754.65	123.93
51	760.05	124.14
52	783.16	126.28
53	809.3	131.32
54	817.15	132.81
55	829.69	134.93
56	844.33	137.23
57	858.97	139.45
58	870.99	140.7
59	884.59	142.13
60	892.43	142.86
61	903.41	143.76
62	922.23	145.3
63	944.18	147.81
64	969.8	150.83
65	980.26	151.96
66	993.91	153.2
67	1005.87	154.0
68	1010.58	154.3
69	1013.19	154.68
70	1014.76	154.71

Vertici strato1

N	X (m)	y (m)
1	31.79	32.21
2	126.69	36.78
3	196.43	45.54
4	266.76	56.77
5	306.96	64.47
6	370.57	74.33
7	389.75	78.13
8	445.45	89.49
9	491.31	96.28
10	550.88	98.78
11	636.67	109.79

12	701.93	114.06
13	769.59	118.49
14	888.47	136.63
15	1014.76	148.71

Vertici strato2

N	X (m)	y (m)
1	31.79	32.21
2	39.47	31.68
3	126.69	33.96
4	143.38	34.9
5	159.34	36.39
6	197.2	38.81
7	239.84	45.32
8	266.76	49.77
9	303.56	59.28
10	348.75	66.1
11	421.3	81.57
12	459.64	89.74
13	490.15	94.18
14	505.11	95.0
15	540.62	96.92
16	556.59	97.79
17	607.97	104.35
18	636.66	108.04
19	739.0	114.83
20	768.76	117.04
21	864.7	131.09
22	888.65	134.6
23	929.62	138.23
24	969.35	141.74
25	1014.76	145.99

Vertici strato3

N	X (m)	y (m)
1	31.79	22.16
2	91.15	23.31
3	154.98	24.99
4	180.8	26.53
5	219.34	31.19
6	266.76	39.77
7	306.25	59.69
8	348.75	66.1
9	421.3	81.57
10	459.64	89.74
11	490.15	94.18
12	540.62	96.92
13	556.59	97.79
14	607.97	104.35
15	636.66	108.04
16	739.0	114.83
17	768.76	117.04
18	864.7	131.09
19	888.65	134.6
20	929.62	138.23
21	969.35	141.74
22	1014.76	145.99

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3			34	1.7		
4	20		28	2.0		



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.83
Ascissa centro superficie	560.5 m
Ordinata centro superficie	222.47 m
Raggio superficie	116.35 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	540.6	222.5	119.3	3.32
2	545.6	227.4	123.5	3.15
3	550.5	222.5	117.8	2.93
4	555.5	227.4	122.0	2.85
5	560.5	222.5	116.3	2.83
6	565.5	227.4	120.5	3.02
7	570.5	222.5	114.9	3.14
8	575.5	227.4	132.3	3.21
9	580.4	222.5	126.8	3.15
10	585.4	227.4	131.1	3.15
11	590.4	222.5	125.6	3.16
12	595.4	227.4	129.8	3.19
13	600.4	222.5	124.3	3.23
14	605.3	227.4	128.6	3.28
15	610.3	222.5	123.1	3.35
16	615.3	227.4	127.3	3.37
17	620.3	222.5	121.8	3.44
18	625.3	227.4	126.1	3.49
19	630.3	222.5	120.6	3.54
20	635.2	227.4	124.9	3.55
21	640.2	222.5	119.3	3.60
22	540.6	232.4	129.1	3.36
23	545.6	237.4	133.2	3.21

24	550.5	232.4	127.6	2.98
25	555.5	237.4	131.7	2.94
26	560.5	232.4	126.1	2.93
27	565.5	237.4	130.2	3.17
28	570.5	232.4	137.9	3.25
29	575.5	237.4	142.1	3.19
30	580.4	232.4	136.6	3.16
31	585.4	237.4	140.9	3.13
32	590.4	232.4	135.4	3.16
33	595.4	237.4	139.6	3.18
34	600.4	232.4	134.1	3.23
35	605.3	237.4	138.4	3.29
36	610.3	232.4	132.9	3.31
37	615.3	237.4	137.1	3.36
38	620.3	232.4	131.6	3.42
39	625.3	237.4	135.9	3.47
40	630.3	232.4	130.4	3.49
41	635.2	237.4	134.6	3.52
42	640.2	232.4	129.1	3.58
43	540.6	242.3	138.8	3.41
44	545.6	247.3	142.9	3.28
45	550.5	242.3	137.3	3.03
46	555.5	247.3	141.4	3.04
47	560.5	242.3	135.8	3.07
48	565.5	247.3	153.1	3.29
49	570.5	242.3	147.6	3.23
50	575.5	247.3	151.9	3.19
51	580.4	242.3	146.4	3.14
52	585.4	247.3	150.6	3.12
53	590.4	242.3	145.1	3.16
54	595.4	247.3	149.4	3.18
55	600.4	242.3	143.9	3.23
56	605.3	247.3	148.1	3.25
57	610.3	242.3	142.6	3.30
58	615.3	247.3	146.9	3.36
59	620.3	242.3	141.4	3.41
60	625.3	247.3	145.6	3.43
61	630.3	242.3	140.1	3.47
62	635.2	247.3	144.4	3.47
63	640.2	242.3	138.9	3.56
64	540.6	252.2	148.5	3.48
65	545.6	257.2	152.7	3.36
66	550.5	252.2	147.1	3.07
67	555.5	257.2	151.2	3.16
68	560.5	252.2	145.6	3.22
69	565.5	257.2	162.9	3.28
70	570.5	252.2	157.4	3.22
71	575.5	257.2	161.6	3.17
72	580.4	252.2	156.1	3.13
73	585.4	257.2	160.4	3.13
74	590.4	252.2	154.9	3.14
75	595.4	257.2	159.1	3.19
76	600.4	252.2	153.6	3.20
77	605.3	257.2	157.9	3.25
78	610.3	252.2	152.4	3.30
79	615.3	257.2	156.6	3.35
80	620.3	252.2	151.1	3.38
81	625.3	257.2	155.4	3.42
82	630.3	252.2	149.9	3.43

83	635.2	257.2	154.1	3.46
84	640.2	252.2	148.6	3.48
85	540.6	262.2	158.3	3.57
86	545.6	267.1	162.4	3.45
87	550.5	262.2	156.8	3.19
88	555.5	267.1	160.9	3.30
89	560.5	262.2	168.4	3.36
90	565.5	267.1	172.7	3.29
91	570.5	262.2	167.1	3.22
92	575.5	267.1	171.4	3.18
93	580.4	262.2	165.9	3.13
94	585.4	267.1	170.2	3.13
95	590.4	262.2	164.7	3.14
96	595.4	267.1	168.9	3.16
97	600.4	262.2	163.4	3.20
98	605.3	267.1	167.7	3.25
99	610.3	262.2	162.2	3.30
100	615.3	267.1	166.4	3.32
101	620.3	262.2	160.9	3.36
102	625.3	267.1	165.2	3.40
103	630.3	262.2	159.7	3.43
104	635.2	267.1	163.9	3.43
105	640.2	262.2	158.4	3.47
106	540.6	272.1	168.0	3.68
107	545.6	277.1	172.1	3.54
108	550.5	272.1	166.5	3.33
109	555.5	277.1	183.7	3.44
110	560.5	272.1	178.2	3.35
111	565.5	277.1	182.4	3.27
112	570.5	272.1	176.9	3.23
113	575.5	277.1	181.2	3.16
114	580.4	272.1	175.7	3.14
115	585.4	277.1	179.9	3.14
116	590.4	272.1	174.4	3.14
117	595.4	277.1	178.7	3.14
118	600.4	272.1	173.2	3.20
119	605.3	277.1	177.4	3.25
120	610.3	272.1	171.9	3.29
121	615.3	277.1	176.2	3.31
122	620.3	272.1	170.7	3.33
123	625.3	277.1	174.9	3.36
124	630.3	272.1	169.4	3.40
125	635.2	277.1	173.7	3.41
126	640.2	272.1	168.2	3.47
127	540.6	282.0	190.4	3.81
128	545.6	287.0	181.9	3.53
129	550.5	282.0	176.3	3.49
130	555.5	287.0	193.4	3.43
131	560.5	282.0	187.9	3.35
132	565.5	287.0	192.2	3.29
133	570.5	282.0	186.7	3.22
134	575.5	287.0	190.9	3.14
135	580.4	282.0	185.4	3.15
136	585.4	287.0	189.7	3.15
137	590.4	282.0	184.2	3.15
138	595.4	287.0	188.4	3.14
139	600.4	282.0	182.9	3.20
140	605.3	287.0	187.2	3.22
141	610.3	282.0	181.7	3.27

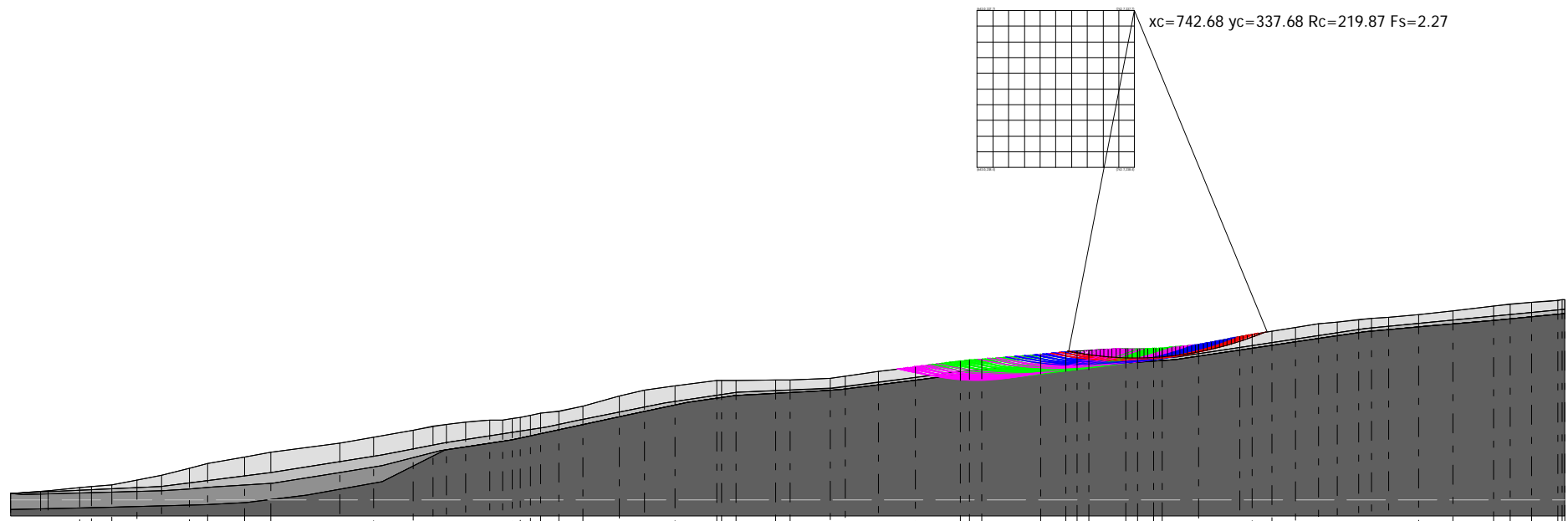
142	615.3	287.0	185.9	3.28
143	620.3	282.0	180.4	3.32
144	625.3	287.0	184.7	3.33
145	630.3	282.0	179.2	3.38
146	635.2	287.0	183.4	3.41
147	640.2	282.0	177.9	3.46
148	540.6	291.9	200.2	3.78
149	545.6	296.9	204.5	3.62
150	550.5	291.9	198.9	3.53
151	555.5	296.9	203.2	3.42
152	560.5	291.9	197.7	3.35
153	565.5	296.9	202.0	3.28
154	570.5	291.9	196.4	3.21
155	575.5	296.9	200.7	3.15
156	580.4	291.9	195.2	3.11
157	585.4	296.9	199.5	3.13
158	590.4	291.9	193.9	3.13
159	595.4	296.9	198.2	3.15
160	600.4	291.9	192.7	3.18
161	605.3	296.9	197.0	3.19
162	610.3	291.9	191.5	3.23
163	615.3	296.9	195.7	3.27
164	620.3	291.9	190.2	3.32
165	625.3	296.9	194.5	3.34
166	630.3	291.9	189.0	3.37
167	635.2	296.9	193.2	3.41
168	640.2	291.9	187.7	3.45
169	540.6	301.9	210.0	3.72
170	545.6	306.8	214.2	3.64
171	550.5	301.9	208.7	3.52
172	555.5	306.8	213.0	3.42
173	560.5	301.9	207.5	3.33
174	565.5	306.8	211.7	3.24
175	570.5	301.9	206.2	3.18
176	575.5	306.8	210.5	3.15
177	580.4	301.9	205.0	3.12
178	585.4	306.8	209.2	3.10
179	590.4	301.9	203.7	3.13
180	595.4	306.8	208.0	3.15
181	600.4	301.9	202.5	3.21
182	605.3	306.8	206.7	3.19
183	610.3	301.9	201.2	3.23
184	615.3	306.8	205.5	3.27
185	620.3	301.9	200.0	3.29
186	625.3	306.8	204.2	3.32
187	630.3	301.9	198.7	3.37
188	635.2	306.8	203.0	3.41
189	640.2	301.9	197.5	3.41
190	540.6	311.8	219.7	3.70
191	545.6	316.7	224.0	3.62
192	550.5	311.8	218.5	3.49
193	555.5	316.7	222.7	3.41
194	560.5	311.8	217.2	3.32
195	565.5	316.7	221.5	3.26
196	570.5	311.8	216.0	3.19
197	575.5	316.7	220.2	3.16
198	580.4	311.8	214.7	3.13
199	585.4	316.7	219.0	3.11
200	590.4	311.8	213.5	3.14

201	595.4	316.7	217.7	3.16
202	600.4	311.8	212.2	3.15
203	605.3	316.7	216.5	3.19
204	610.3	311.8	211.0	3.23
205	615.3	316.7	215.2	3.25
206	620.3	311.8	209.7	3.29
207	625.3	316.7	214.0	3.32
208	630.3	311.8	208.5	3.36
209	635.2	316.7	212.7	3.41
210	640.2	311.8	207.2	3.42
211	540.6	321.7	229.5	3.68
212	550.5	321.7	228.2	3.49
213	560.5	321.7	227.0	3.32
214	570.5	321.7	225.7	3.19
215	580.4	321.7	224.5	3.13
216	590.4	321.7	223.2	3.12
217	600.4	321.7	222.0	3.15
218	610.3	321.7	220.7	3.23
219	620.3	321.7	219.5	3.29
220	630.3	321.7	218.3	3.36
221	640.2	321.7	217.0	3.42

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	3
4.Vertici strato2	3
5.Vertici strato3	4
6.Coefficienti parziali azioni	4
7.Coefficienti parziali per i parametri geotecnici del terreno	4
8.Stratigrafia	4
9.Risultati analisi pendio [A2+M2+R2]	4
Indice	9

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE
 DA 600 A 700 m
 IN CONDIZIONI SISMICHE



- Strato...1
 $g=1.9t/m^3$
 $Fi=16^\circ$
 $c=6\text{ kN}/m^2$
- Strato...2
 $g=1.9t/m^3$
 $Fi=18^\circ$
 $c=10\text{ kN}/m^2$
- Strato...3
 $g=1.7t/m^3$
 $Fi=34^\circ$
 $c= \text{KN}/m^2$
- Strato...4
 $g=2.0t/m^3$
 $Fi=28^\circ$
 $c=20\text{ kN}/m^2$

Quote	0.00	32.21	19.02	33.71	43.57	35.80	50.93	36.64	63.82	37.49	79.77	40.72	95.44	43.89	112.91	48.26	124.57	51.28	147.89	55.43	164.46	58.43	208.02	64.09	229.50	67.83	254.42	72.22	266.93	74.74	275.53	76.00	287.80	77.14	303.14	78.48	311.72	78.89	322.16	80.20	328.91	81.68	335.05	81.14	346.71	81.66	362.05	87.48	384.96	93.83	400.86	97.75	420.34	100.32	446.49	103.62	458.80	103.62	483.92	104.02	493.15	104.03	518.27	105.16	528.02	106.26	549.04	109.44	572.11	112.23	600.83	115.81	614.16	117.05	651.59	120.06	667.48	121.70	674.66	122.71	705.42	123.66	712.60	123.52	722.86	123.93	728.28	124.14	751.37	126.28	777.51	131.32	785.35	132.81	797.90	134.93	812.54	137.23	827.17	139.45	839.20	140.70	852.70	142.13	860.63	142.86	871.61	143.76	890.43	145.30	912.39	147.81	938.01	150.83	948.46	151.96	962.11	153.20	985.98	156.67	1004.99	161.98																																																
Distanze Parziali	0.00	19.02	4.72	33.71	19.83	35.80	7.36	36.64	12.89	37.49	15.95	40.72	15.67	43.89	17.47	48.26	11.66	51.28	23.32	55.43	16.57	58.43	43.57	64.09	21.48	67.83	24.92	72.22	12.51	74.74	8.59	76.00	12.27	77.14	15.34	78.48	7.98	78.89	11.94	80.20	6.75	81.68	5.14	82.96	11.66	84.23	15.34	87.48	22.91	93.83	15.89	97.75	19.48	100.32	26.45	103.62	25.12	104.02	9.23	104.03	25.12	105.16	9.74	106.26	21.02	109.44	23.07	112.23	28.71	115.81	7.69	117.05	37.43	120.06	15.89	121.70	7.18	122.71	23.59	123.66	7.18	123.52	10.25	123.93	5.40	124.14	23.11	126.28	26.14	131.32	7.84	132.81	12.55	134.93	14.64	137.23	14.64	139.45	12.02	140.70	13.59	142.13	7.84	142.86	10.98	143.76	18.82	145.30	21.96	147.81	25.62	150.83	10.46	151.96	13.65	153.20	25.97	156.67	161.98																																																			
Distanze Progressive	0.00	19.02	23.74	33.71	43.57	35.80	50.93	36.64	63.82	37.49	79.77	40.72	95.44	43.89	112.91	48.26	124.57	51.28	147.89	55.43	164.46	58.43	208.02	43.57	64.09	229.50	21.48	67.83	254.42	24.92	72.22	266.93	12.51	74.74	275.53	8.59	76.00	287.80	12.27	77.14	303.14	15.34	78.48	311.72	7.98	78.89	322.16	11.94	80.20	328.91	6.75	81.68	335.05	5.14	82.96	346.71	11.66	84.23	362.05	15.34	87.48	384.96	22.91	93.83	400.86	15.89	97.75	420.34	19.48	100.32	446.49	26.45	103.62	458.80	9.23	103.62	483.92	25.12	104.02	493.15	9.23	104.03	518.27	25.12	105.16	528.02	9.74	106.26	549.04	21.02	109.44	572.11	23.07	112.23	600.83	28.71	115.81	614.16	7.69	117.05	651.59	37.43	120.06	667.48	15.89	121.70	674.66	7.18	122.71	705.42	23.59	123.66	712.60	7.18	123.52	722.86	10.25	123.93	728.28	5.40	124.14	751.37	23.11	126.28	777.51	26.14	131.32	785.35	7.84	132.81	797.90	12.55	134.93	812.54	14.64	137.23	827.17	14.64	139.45	839.20	12.02	140.70	852.70	13.59	142.13	860.63	7.84	142.86	871.61	10.98	143.76	890.43	18.82	145.30	912.39	21.96	147.81	938.01	25.62	150.83	948.46	10.46	151.96	962.11	13.65	153.20	985.98	25.97	156.67	1004.99

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.160679/10.980336
Calcolo eseguito secondo	NTC 2018
Numero di strati	4.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	643.04 m
Ordinata vertice sinistro inferiore yi	238.44 m
Ascissa vertice destro superiore xs	742.68 m
Ordinata vertice destro superiore ys	337.68 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.076
Coefficiente azione sismica verticale	0.038

Vertici profilo

Nr	X (m)	y (m)
1	31.79	32.21
2	50.82	33.71
3	55.54	33.97
4	75.36	35.8
5	82.73	36.64
6	95.61	37.49
7	111.57	40.72
8	127.24	43.89
9	144.7	48.26
10	156.36	51.28
11	179.68	55.43
12	196.25	58.43
13	239.82	64.09
14	261.3	67.83
15	286.22	72.22
16	298.73	74.74
17	307.32	76.0
18	319.59	77.14
19	334.93	78.48
20	342.91	78.68
21	349.05	79.54
22	353.96	80.2
23	360.71	81.68
24	366.84	82.98
25	378.5	84.23
26	393.84	87.48

27	416.76	93.83
28	432.65	97.75
29	452.14	100.32
30	478.29	103.66
31	481.36	103.84
32	490.59	103.62
33	515.72	104.02
34	524.95	104.03
35	550.07	105.16
36	559.81	106.26
37	580.83	109.44
38	603.91	112.23
39	632.62	115.81
40	638.26	116.5
41	645.95	117.05
42	683.38	120.06
43	699.28	121.7
44	706.45	122.29
45	713.63	122.71
46	723.37	123.3
47	731.07	123.72
48	737.22	123.66
49	744.4	123.52
50	754.65	123.93
51	760.05	124.14
52	783.16	126.28
53	809.3	131.32
54	817.15	132.81
55	829.69	134.93
56	844.33	137.23
57	858.97	139.45
58	870.99	140.7
59	884.59	142.13
60	892.43	142.86
61	903.41	143.76
62	922.23	145.3
63	944.18	147.81
64	969.8	150.83
65	980.26	151.96
66	993.91	153.2
67	1005.87	154.0
68	1010.58	154.3
69	1013.19	154.68
70	1014.76	154.71

Vertici strato1

N	X (m)	y (m)
1	31.79	32.21
2	126.69	36.78
3	196.43	45.54
4	266.76	56.77
5	306.96	64.47
6	370.57	74.33
7	389.75	78.13
8	445.45	89.49
9	491.31	96.28
10	550.88	98.78
11	636.67	109.79

12	701.93	114.06
13	769.59	118.49
14	888.47	136.63
15	1014.76	148.71

Vertici strato2

N	X (m)	y (m)
1	31.79	32.21
2	39.47	31.68
3	126.69	33.96
4	143.38	34.9
5	159.34	36.39
6	197.2	38.81
7	239.84	45.32
8	266.76	49.77
9	303.56	59.28
10	348.75	66.1
11	421.3	81.57
12	459.64	89.74
13	490.15	94.18
14	505.11	95.0
15	540.62	96.92
16	556.59	97.79
17	607.97	104.35
18	636.66	108.04
19	739.0	114.83
20	768.76	117.04
21	864.7	131.09
22	888.65	134.6
23	929.62	138.23
24	969.35	141.74
25	1014.76	145.99

Vertici strato3

N	X (m)	y (m)
1	31.79	22.16
2	91.15	23.31
3	154.98	24.99
4	180.8	26.53
5	219.34	31.19
6	266.76	39.77
7	306.25	59.69
8	348.75	66.1
9	421.3	81.57
10	459.64	89.74
11	490.15	94.18
12	540.62	96.92
13	556.59	97.79
14	607.97	104.35
15	636.66	108.04
16	739.0	114.83
17	768.76	117.04
18	864.7	131.09
19	888.65	134.6
20	929.62	138.23
21	969.35	141.74
22	1014.76	145.99

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3			34	1.7		
4	20		28	2.0		



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.27
Ascissa centro superficie	742.68 m
Ordinata centro superficie	337.68 m
Raggio superficie	219.87 m

Numero di superfici esaminate...(221)

N°	Xo	Yo	Ro	Fs
1	643.0	238.4	134.7	3.59
2	648.0	243.4	139.0	3.57
3	653.0	238.4	133.5	3.66
4	658.0	243.4	137.7	3.65
5	663.0	238.4	132.2	3.70
6	667.9	243.4	136.5	3.72
7	672.9	238.4	131.0	3.76
8	677.9	243.4	135.2	3.78
9	682.9	238.4	129.7	3.81
10	687.9	243.4	134.0	3.82
11	692.9	238.4	128.5	3.91
12	697.8	243.4	132.7	3.93
13	702.8	238.4	127.2	3.99
14	707.8	243.4	131.5	3.97
15	712.8	238.4	126.0	3.98
16	717.8	243.4	130.2	3.88
17	722.7	238.4	124.7	3.78
18	727.7	243.4	129.0	3.22
19	732.7	238.4	123.5	3.26
20	737.7	243.4	127.7	3.15
21	742.7	238.4	122.2	3.04
22	643.0	248.4	144.5	3.51
23	648.0	253.3	148.7	3.55

24	653.0	248.4	143.2	3.61
25	658.0	253.3	147.5	3.66
26	663.0	248.4	142.0	3.68
27	667.9	253.3	146.2	3.72
28	672.9	248.4	140.7	3.76
29	677.9	253.3	145.0	3.80
30	682.9	248.4	139.5	3.83
31	687.9	253.3	143.7	3.84
32	692.9	248.4	138.2	3.92
33	697.8	253.3	142.5	3.94
34	702.8	248.4	137.0	3.97
35	707.8	253.3	141.2	3.91
36	712.8	248.4	135.7	3.96
37	717.8	253.3	140.0	3.79
38	722.7	248.4	134.5	3.59
39	727.7	253.3	138.7	3.18
40	732.7	248.4	133.2	3.20
41	737.7	253.3	137.5	3.07
42	742.7	248.4	132.0	2.94
43	643.0	258.3	154.2	3.50
44	648.0	263.2	158.5	3.55
45	653.0	258.3	153.0	3.60
46	658.0	263.2	157.2	3.62
47	663.0	258.3	151.7	3.67
48	667.9	263.2	156.0	3.71
49	672.9	258.3	150.5	3.73
50	677.9	263.2	154.7	3.76
51	682.9	258.3	149.2	3.81
52	687.9	263.2	153.5	3.85
53	692.9	258.3	148.0	3.85
54	697.8	263.2	152.2	3.85
55	702.8	258.3	146.7	3.88
56	707.8	263.2	151.0	3.84
57	712.8	258.3	145.5	3.82
58	717.8	263.2	149.8	3.65
59	722.7	258.3	144.2	3.33
60	727.7	263.2	148.5	3.13
61	732.7	258.3	143.0	3.14
62	737.7	263.2	147.3	2.99
63	742.7	258.3	141.7	2.85
64	643.0	268.2	164.0	3.50
65	648.0	273.2	168.3	3.54
66	653.0	268.2	162.8	3.58
67	658.0	273.2	167.0	3.61
68	663.0	268.2	161.5	3.67
69	667.9	273.2	165.8	3.71
70	672.9	268.2	160.3	3.72
71	677.9	273.2	164.5	3.74
72	682.9	268.2	159.0	3.77
73	687.9	273.2	163.3	3.84
74	692.9	268.2	157.8	3.85
75	697.8	273.2	162.0	3.87
76	702.8	268.2	156.5	3.86
77	707.8	273.2	160.8	3.77
78	712.8	268.2	155.3	3.69
79	717.8	273.2	159.5	3.35
80	722.7	268.2	154.0	3.08
81	727.7	273.2	158.3	3.07
82	732.7	268.2	152.8	3.07

83	737.7	273.2	157.0	2.90
84	742.7	268.2	151.5	2.75
85	643.0	278.1	173.8	3.49
86	648.0	283.1	178.0	3.50
87	653.0	278.1	172.5	3.54
88	658.0	283.1	176.8	3.60
89	663.0	278.1	171.3	3.67
90	667.9	283.1	175.5	3.67
91	672.9	278.1	170.0	3.71
92	677.9	283.1	174.3	3.75
93	682.9	278.1	168.8	3.78
94	687.9	283.1	173.0	3.78
95	692.9	278.1	167.5	3.87
96	697.8	283.1	171.8	3.76
97	702.8	278.1	166.3	3.78
98	707.8	283.1	170.5	3.71
99	712.8	278.1	165.0	3.56
100	717.8	283.1	169.3	3.01
101	722.7	278.1	163.8	3.06
102	727.7	283.1	168.0	3.02
103	732.7	278.1	162.5	2.99
104	737.7	283.1	166.8	2.82
105	742.7	278.1	161.3	2.67
106	643.0	288.1	183.5	3.48
107	648.0	293.0	187.8	3.50
108	653.0	288.1	182.3	3.55
109	658.0	293.0	186.5	3.61
110	663.0	288.1	181.0	3.63
111	667.9	293.0	185.3	3.64
112	672.9	288.1	179.8	3.70
113	677.9	293.0	184.0	3.77
114	682.9	288.1	178.5	3.76
115	687.9	293.0	182.8	3.77
116	692.9	288.1	177.3	3.77
117	697.8	293.0	181.5	3.77
118	702.8	288.1	176.0	3.76
119	707.8	293.0	180.3	3.60
120	712.8	288.1	174.8	3.46
121	717.8	293.0	179.0	2.99
122	722.7	288.1	173.5	3.03
123	727.7	293.0	177.8	2.99
124	732.7	288.1	172.3	2.92
125	737.7	293.0	176.6	2.73
126	742.7	288.1	171.0	2.56
127	643.0	298.0	193.3	3.45
128	648.0	302.9	197.6	3.49
129	653.0	298.0	192.0	3.55
130	658.0	302.9	196.3	3.60
131	663.0	298.0	190.8	3.64
132	667.9	302.9	195.1	3.65
133	672.9	298.0	189.6	3.68
134	677.9	302.9	193.8	3.69
135	682.9	298.0	188.3	3.77
136	687.9	302.9	192.6	3.72
137	692.9	298.0	187.1	3.79
138	697.8	302.9	191.3	3.68
139	702.8	298.0	185.8	3.68
140	707.8	302.9	190.1	3.47
141	712.8	298.0	184.6	3.28

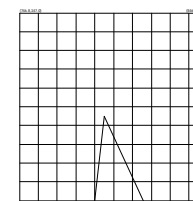
142	717.8	302.9	188.8	2.98
143	722.7	298.0	183.3	2.99
144	727.7	302.9	187.6	2.92
145	732.7	298.0	182.1	2.85
146	737.7	302.9	186.3	2.65
147	742.7	298.0	180.8	2.44
148	643.0	307.9	203.1	3.45
149	648.0	312.9	207.3	3.48
150	653.0	307.9	201.8	3.55
151	658.0	312.9	206.1	3.59
152	663.0	307.9	200.6	3.61
153	667.9	312.9	204.8	3.67
154	672.9	307.9	199.3	3.70
155	677.9	312.9	203.6	3.69
156	682.9	307.9	198.1	3.75
157	687.9	312.9	202.3	3.70
158	692.9	307.9	196.8	3.69
159	697.8	312.9	201.1	3.68
160	702.8	307.9	195.6	3.63
161	707.8	312.9	199.8	3.31
162	712.8	307.9	194.3	2.94
163	717.8	312.9	198.6	2.95
164	722.7	307.9	193.1	2.95
165	727.7	312.9	197.3	2.87
166	732.7	307.9	191.8	2.77
167	737.7	312.9	196.1	2.54
168	742.7	307.9	190.6	2.39
169	643.0	317.8	212.8	3.45
170	648.0	322.8	217.1	3.50
171	653.0	317.8	211.6	3.52
172	658.0	322.8	215.8	3.54
173	663.0	317.8	210.3	3.62
174	667.9	322.8	214.6	3.65
175	672.9	317.8	209.1	3.70
176	677.9	322.8	213.3	3.71
177	682.9	317.8	207.8	3.70
178	687.9	322.8	212.1	3.70
179	692.9	317.8	206.6	3.71
180	697.8	322.8	210.8	3.56
181	702.8	317.8	205.3	3.51
182	707.8	322.8	209.6	3.01
183	712.8	317.8	204.1	2.92
184	717.8	322.8	208.3	2.91
185	722.7	317.8	202.8	2.92
186	727.7	322.8	207.1	2.80
187	732.7	317.8	201.6	2.71
188	737.7	322.8	205.8	2.45
189	742.7	317.8	200.3	2.34
190	643.0	327.8	222.6	3.46
191	648.0	332.7	226.9	3.47
192	653.0	327.8	221.3	3.49
193	658.0	332.7	225.6	3.54
194	663.0	327.8	220.1	3.63
195	667.9	332.7	224.4	3.61
196	672.9	327.8	218.8	3.68
197	677.9	332.7	223.1	3.68
198	682.9	327.8	217.6	3.71
199	687.9	332.7	221.9	3.64
200	692.9	327.8	216.4	3.62

201	697.8	332.7	220.6	3.46
202	702.8	327.8	215.1	3.40
203	707.8	332.7	219.4	2.88
204	712.8	327.8	213.9	2.91
205	717.8	332.7	218.1	2.90
206	722.7	327.8	212.6	2.86
207	727.7	332.7	216.9	2.75
208	732.7	327.8	211.4	2.63
209	737.7	332.7	215.6	2.41
210	742.7	327.8	210.1	2.30
211	643.0	337.7	232.4	3.42
212	653.0	337.7	231.1	3.53
213	663.0	337.7	229.9	3.59
214	672.9	337.7	228.6	3.65
215	682.9	337.7	227.4	3.68
216	692.9	337.7	226.1	3.62
217	702.8	337.7	224.9	3.19
218	712.8	337.7	223.6	2.90
219	722.7	337.7	222.4	2.82
220	732.7	337.7	221.1	2.50
221	742.7	337.7	219.9	2.27

Indice

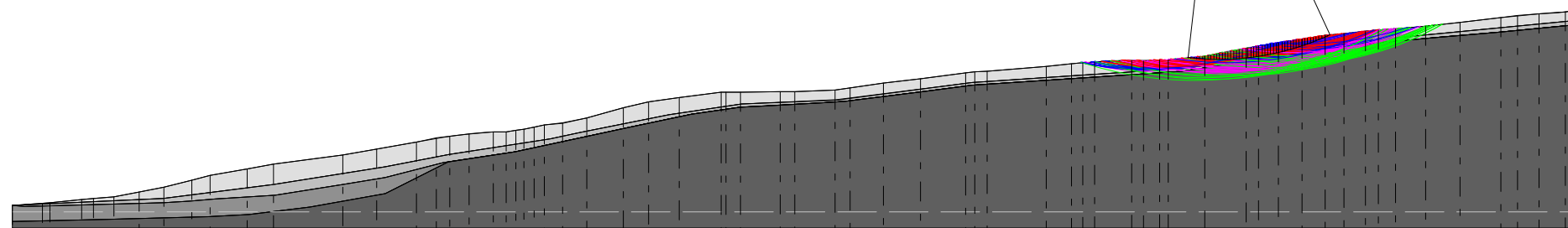
1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	3
4.Vertici strato2	3
5.Vertici strato3	4
6.Coefficienti parziali azioni	4
7.Coefficienti parziali per i parametri geotecnici del terreno	4
8.Stratigrafia	4
9.Risultati analisi pendio [A2+M2+R2]	4
Indice	9

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE
 DA 700 A 800 m
 IN CONDIZIONI SISMICHE



xc=791.67 yc=292.41 Rc=168.17 Fs=1.50

- Strato...1
g=1.9t/m³
Fi=16°
c=6 kN/m²
- Strato...2
g=1.9t/m³
Fi=18°
c=10 kN/m²
- Strato...3
g=1.7t/m³
Fi=34°
c= kN/m²
- Strato...4
g=2.0t/m³
Fi=28°
c=20 kN/m²



Quote	0.00	32.21	19.02	33.71	43.57	35.80	50.93	36.64	63.82	37.49	79.77	40.72	95.44	43.89	112.91	48.26	124.57	51.28	147.89	55.43	164.46	58.43	208.02	64.09	229.50	67.83	254.42	72.22	266.93	74.74	275.53	76.00	287.80	77.14	303.14	78.48	311.72	78.89	322.76	80.20	328.91	81.68	335.05	82.98	346.71	84.23	362.05	87.48	384.96	93.83	400.86	97.75	420.34	100.32	446.49	103.62	458.80	104.02	483.92	104.03	493.15	105.16	518.27	106.26	528.02	109.44	549.04	112.23	572.11	115.81	600.83	117.05	614.16	120.06	651.59	121.70	667.48	122.71	681.84	123.52	705.42	123.66	712.60	123.93	722.86	124.14	751.37	126.28	777.51	131.32	785.35	132.81	797.90	134.93	812.54	137.23	827.17	139.45	839.20	140.70	852.70	142.13	860.63	142.86	871.61	143.76	890.43	145.30	912.39	147.81	938.01	150.83	948.46	151.96	962.11	153.20	985.98	154.99
Distanze Parziali	0.00	19.02	4.72	33.71	19.83	35.80	7.36	36.64	12.89	37.49	15.95	40.72	15.67	43.89	17.47	48.26	11.66	51.28	23.32	55.43	16.57	58.43	43.57	64.09	21.48	67.83	24.92	72.22	12.51	74.74	8.59	76.00	12.27	77.14	15.34	78.48	7.98	78.89	11.91	80.20	6.75	81.68	6.14	82.98	11.66	84.23	15.34	87.48	22.91	93.83	15.89	97.75	19.48	100.32	56.45	103.62	25.12	104.02	9.23	104.03	25.12	105.16	9.74	106.26	21.02	109.44	23.07	112.23	28.71	115.81	16.64	117.05	37.43	120.06	15.89	121.70	7.18	122.71	7.18	123.52	23.59	123.66	10.25	123.93	5.40	124.14	23.11	126.28	26.14	131.32	7.84	132.81	12.55	134.93	14.64	137.23	14.64	139.45	12.02	140.70	13.59	142.13	7.84	142.86	10.98	143.76	18.82	145.30	21.96	147.81	25.62	150.83	10.46	151.96	13.65	153.20	41.67	154.99
Distanze Progressive	0.00	19.02	23.74	33.71	43.57	50.93	63.82	79.77	95.44	112.91	124.57	147.89	164.46	208.02	229.50	254.42	266.93	275.53	287.80	303.14	311.72	322.76	328.91	335.05	346.71	362.05	384.96	400.86	420.34	446.49	458.80	483.92	493.15	518.27	528.02	549.04	572.11	600.83	614.16	651.59	667.48	681.84	705.42	712.60	722.86	751.37	777.51	785.35	797.90	812.54	827.17	839.20	852.70	860.63	871.61	890.43	912.39	938.01	948.46	962.11	985.98																																																									

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.160679/10.980336
Calcolo eseguito secondo	NTC 2018
Numero di strati	4.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	746.83 m
Ordinata vertice sinistro inferiore yi	247.75 m
Ascissa vertice destro superiore xs	846.47 m
Ordinata vertice destro superiore ys	346.99 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.076
Coefficiente azione sismica verticale	0.038

Vertici profilo

Nr	X (m)	y (m)
1	31.79	32.21
2	50.82	33.71
3	55.54	33.97
4	75.36	35.8
5	82.73	36.64
6	95.61	37.49
7	111.57	40.72
8	127.24	43.89
9	144.7	48.26
10	156.36	51.28
11	179.68	55.43
12	196.25	58.43
13	239.82	64.09
14	261.3	67.83
15	286.22	72.22
16	298.73	74.74
17	307.32	76.0
18	319.59	77.14
19	334.93	78.48
20	342.91	78.68
21	349.05	79.54
22	353.96	80.2
23	360.71	81.68
24	366.84	82.98
25	378.5	84.23
26	393.84	87.48

27	416.76	93.83
28	432.65	97.75
29	452.14	100.32
30	478.29	103.66
31	481.36	103.84
32	490.59	103.62
33	515.72	104.02
34	524.95	104.03
35	550.07	105.16
36	559.81	106.26
37	580.83	109.44
38	603.91	112.23
39	632.62	115.81
40	638.26	116.5
41	645.95	117.05
42	683.38	120.06
43	699.28	121.7
44	706.45	122.29
45	713.63	122.71
46	723.37	123.3
47	731.07	123.72
48	737.22	123.66
49	744.4	123.52
50	754.65	123.93
51	760.05	124.14
52	783.16	126.28
53	809.3	131.32
54	817.15	132.81
55	829.69	134.93
56	844.33	137.23
57	858.97	139.45
58	870.99	140.7
59	884.59	142.13
60	892.43	142.86
61	903.41	143.76
62	922.23	145.3
63	944.18	147.81
64	969.8	150.83
65	980.26	151.96
66	993.91	153.2
67	1005.87	154.0
68	1010.58	154.3
69	1013.19	154.68
70	1014.76	154.71

Vertici strato1

N	X (m)	y (m)
1	31.79	32.21
2	126.69	36.78
3	196.43	45.54
4	266.76	56.77
5	306.96	64.47
6	370.57	74.33
7	389.75	78.13
8	445.45	89.49
9	491.31	96.28
10	550.88	98.78
11	636.67	109.79

12	701.93	114.06
13	769.59	118.49
14	888.47	136.63
15	1014.76	148.71

Vertici strato2

N	X (m)	y (m)
1	31.79	32.21
2	39.47	31.68
3	126.69	33.96
4	143.38	34.9
5	159.34	36.39
6	197.2	38.81
7	239.84	45.32
8	266.76	49.77
9	303.56	59.28
10	348.75	66.1
11	421.3	81.57
12	459.64	89.74
13	490.15	94.18
14	505.11	95.0
15	540.62	96.92
16	556.59	97.79
17	607.97	104.35
18	636.66	108.04
19	739.0	114.83
20	768.76	117.04
21	864.7	131.09
22	888.65	134.6
23	929.62	138.23
24	969.35	141.74
25	1014.76	145.99

Vertici strato3

N	X (m)	y (m)
1	31.79	22.16
2	91.15	23.31
3	154.98	24.99
4	180.8	26.53
5	219.34	31.19
6	266.76	39.77
7	306.25	59.69
8	348.75	66.1
9	421.3	81.57
10	459.64	89.74
11	490.15	94.18
12	540.62	96.92
13	556.59	97.79
14	607.97	104.35
15	636.66	108.04
16	739.0	114.83
17	768.76	117.04
18	864.7	131.09
19	888.65	134.6
20	929.62	138.23
21	969.35	141.74
22	1014.76	145.99

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3			34	1.7		
4	20		28	2.0		



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.5
Ascissa centro superficie	791.67 m
Ordinata centro superficie	292.41 m
Raggio superficie	168.17 m

Numero di superfici esaminate...(221)

N°	Xo	Yo	Ro	Fs
1	746.8	247.8	130.9	2.75
2	751.8	252.7	135.1	2.42
3	756.8	247.8	129.6	2.21
4	761.8	252.7	133.9	2.01
5	766.8	247.8	128.4	1.90
6	771.7	252.7	132.6	1.79
7	776.7	247.8	127.1	1.71
8	781.7	252.7	131.4	1.66
9	786.7	247.8	125.9	1.63
10	791.7	252.7	130.1	1.61
11	796.6	247.8	124.6	1.60
12	801.6	252.7	128.9	1.61
13	806.6	247.8	123.4	1.63
14	811.6	252.7	127.6	1.65
15	816.6	247.8	121.8	1.68
16	821.6	252.7	122.4	1.71
17	826.5	247.8	116.1	1.81
18	831.5	252.7	135.0	2.95
19	836.5	247.8	128.5	2.99
20	841.5	252.7	128.7	2.98
21	846.5	247.8	122.3	3.01
22	746.8	257.7	140.6	2.65
23	751.8	262.6	144.9	2.32

24	756.8	257.7	139.4	2.16
25	761.8	262.6	143.6	1.96
26	766.8	257.7	138.1	1.88
27	771.7	262.6	142.4	1.76
28	776.7	257.7	136.9	1.70
29	781.7	262.6	141.1	1.64
30	786.7	257.7	135.6	1.63
31	791.7	262.6	139.9	1.61
32	796.6	257.7	134.4	1.60
33	801.6	262.6	138.6	1.60
34	806.6	257.7	133.1	1.63
35	811.6	262.6	135.2	1.56
36	816.6	257.7	128.8	1.63
37	821.6	262.6	129.6	2.23
38	826.5	257.7	123.2	2.77
39	831.5	262.6	141.7	2.88
40	836.5	257.7	135.2	2.93
41	841.5	262.6	135.6	2.78
42	846.5	257.7	129.1	2.72
43	746.8	267.6	150.4	2.54
44	751.8	272.6	154.6	2.27
45	756.8	267.6	149.1	2.11
46	761.8	272.6	153.4	1.93
47	766.8	267.6	147.9	1.84
48	771.7	272.6	152.2	1.73
49	776.7	267.6	146.6	1.68
50	781.7	272.6	150.9	1.64
51	786.7	267.6	145.4	1.62
52	791.7	272.6	149.7	1.60
53	796.6	267.6	144.1	1.60
54	801.6	272.6	148.0	1.59
55	806.6	267.6	141.6	1.51
56	811.6	272.6	142.4	1.78
57	816.6	267.6	136.0	1.95
58	821.6	272.6	154.8	2.83
59	826.5	267.6	148.3	2.86
60	831.5	272.6	148.7	2.81
61	836.5	267.6	142.2	2.84
62	841.5	272.6	142.7	1.93
63	846.5	267.6	136.2	1.93
64	746.8	277.5	160.2	2.42
65	751.8	282.5	164.4	2.22
66	756.8	277.5	158.9	2.07
67	761.8	282.5	163.2	1.90
68	766.8	277.5	157.7	1.80
69	771.7	282.5	161.9	1.71
70	776.7	277.5	156.4	1.67
71	781.7	282.5	160.7	1.63
72	786.7	277.5	155.2	1.61
73	791.7	282.5	159.4	1.60
74	796.6	277.5	153.9	1.60
75	801.6	282.5	155.3	1.58
76	806.6	277.5	148.8	1.67
77	811.6	282.5	167.8	2.81
78	816.6	277.5	161.3	2.81
79	821.6	282.5	161.8	2.77
80	826.5	277.5	155.3	2.81
81	831.5	282.5	155.9	2.54
82	836.5	277.5	149.3	2.32

83	841.5	282.5	150.0	1.85
84	846.5	277.5	143.4	1.99
85	746.8	287.4	169.9	2.36
86	751.8	292.4	174.2	2.18
87	756.8	287.4	168.7	2.04
88	761.8	292.4	172.9	1.88
89	766.8	287.4	167.4	1.76
90	771.7	292.4	171.7	1.69
91	776.7	287.4	166.2	1.66
92	781.7	292.4	170.4	1.61
93	786.7	287.4	164.9	1.60
94	791.7	292.4	168.2	1.50
95	796.6	287.4	161.7	1.52
96	801.6	292.4	162.7	1.93
97	806.6	287.4	156.2	2.24
98	811.6	292.4	174.9	2.76
99	816.6	287.4	168.4	2.75
100	821.6	292.4	169.0	2.67
101	826.5	287.4	162.4	2.62
102	831.5	292.4	163.2	1.82
103	836.5	287.4	156.6	1.76
104	841.5	292.4	157.5	2.15
105	846.5	287.4	150.9	2.55
106	746.8	297.4	179.7	2.31
107	751.8	302.3	183.9	2.14
108	756.8	297.4	178.4	2.01
109	761.8	302.3	182.7	1.86
110	766.8	297.4	177.2	1.74
111	771.7	302.3	181.4	1.66
112	776.7	297.4	175.9	1.63
113	781.7	302.3	180.2	1.61
114	786.7	297.4	174.6	1.59
115	791.7	302.3	175.6	1.63
116	796.6	297.4	169.2	1.75
117	801.6	302.3	188.1	2.79
118	806.6	297.4	181.5	2.75
119	811.6	302.3	182.2	2.69
120	816.6	297.4	175.6	2.69
121	821.6	302.3	176.4	2.32
122	826.5	297.4	169.8	1.81
123	831.5	302.3	170.7	1.80
124	836.5	297.4	164.1	1.94
125	841.5	302.3	180.7	3.01
126	846.5	297.4	174.0	3.09
127	746.8	307.3	189.5	2.27
128	751.8	312.3	193.7	2.10
129	756.8	307.3	188.2	1.98
130	761.8	312.3	192.5	1.84
131	766.8	307.3	187.0	1.73
132	771.7	312.3	191.2	1.62
133	776.7	307.3	185.7	1.63
134	781.7	312.3	188.6	1.55
135	786.7	307.3	182.1	1.57
136	791.7	312.3	183.3	2.13
137	796.6	307.3	176.8	2.74
138	801.6	312.3	195.4	2.72
139	806.6	307.3	188.8	2.71
140	811.6	312.3	189.6	2.58
141	816.6	307.3	183.0	2.48

142	821.6	312.3	183.9	1.71
143	826.5	307.3	177.3	1.70
144	831.5	312.3	178.4	2.08
145	836.5	307.3	171.7	2.47
146	841.5	312.3	188.2	3.01
147	846.5	307.3	181.5	3.02
148	746.8	317.2	199.2	2.23
149	751.8	322.2	203.5	2.07
150	756.8	317.2	198.0	1.95
151	761.8	322.2	202.2	1.82
152	766.8	317.2	196.7	1.72
153	771.7	322.2	201.0	1.62
154	776.7	317.2	195.1	1.56
155	781.7	322.2	196.2	1.70
156	786.7	317.2	189.7	1.85
157	791.7	322.2	208.6	2.83
158	796.6	317.2	202.0	2.76
159	801.6	322.2	202.8	2.62
160	806.6	317.2	196.2	2.60
161	811.6	322.2	197.2	2.15
162	816.6	317.2	190.6	1.74
163	821.6	322.2	191.6	1.74
164	826.5	317.2	185.0	1.88
165	831.5	322.2	201.7	2.92
166	836.5	317.2	194.9	2.98
167	841.5	322.2	195.8	2.93
168	846.5	317.2	189.1	2.88
169	746.8	327.1	209.0	2.19
170	751.8	332.1	213.2	2.04
171	756.8	327.1	207.7	1.93
172	761.8	332.1	212.0	1.80
173	766.8	327.1	206.5	1.70
174	771.7	332.1	209.2	1.65
175	776.7	327.1	202.7	1.66
176	781.7	332.1	204.0	2.42
177	786.7	327.1	215.2	2.92
178	791.7	332.1	216.1	2.72
179	796.6	327.1	209.4	2.68
180	801.6	332.1	210.4	2.51
181	806.6	327.1	203.8	2.38
182	811.6	332.1	204.9	1.61
183	816.6	327.1	198.2	1.65
184	821.6	332.1	199.4	2.00
185	826.5	327.1	192.8	2.34
186	831.5	332.1	209.3	2.90
187	836.5	327.1	202.6	2.93
188	841.5	332.1	203.6	2.73
189	846.5	327.1	196.9	2.42
190	746.8	337.1	218.8	2.16
191	751.8	342.0	223.0	2.02
192	756.8	337.1	217.5	1.91
193	761.8	342.0	221.8	1.79
194	766.8	337.1	215.7	1.70
195	771.7	342.0	217.0	1.84
196	776.7	337.1	210.5	1.98
197	781.7	342.0	229.3	2.90
198	786.7	337.1	222.7	2.81
199	791.7	342.0	223.7	2.63
200	796.6	337.1	217.0	2.58

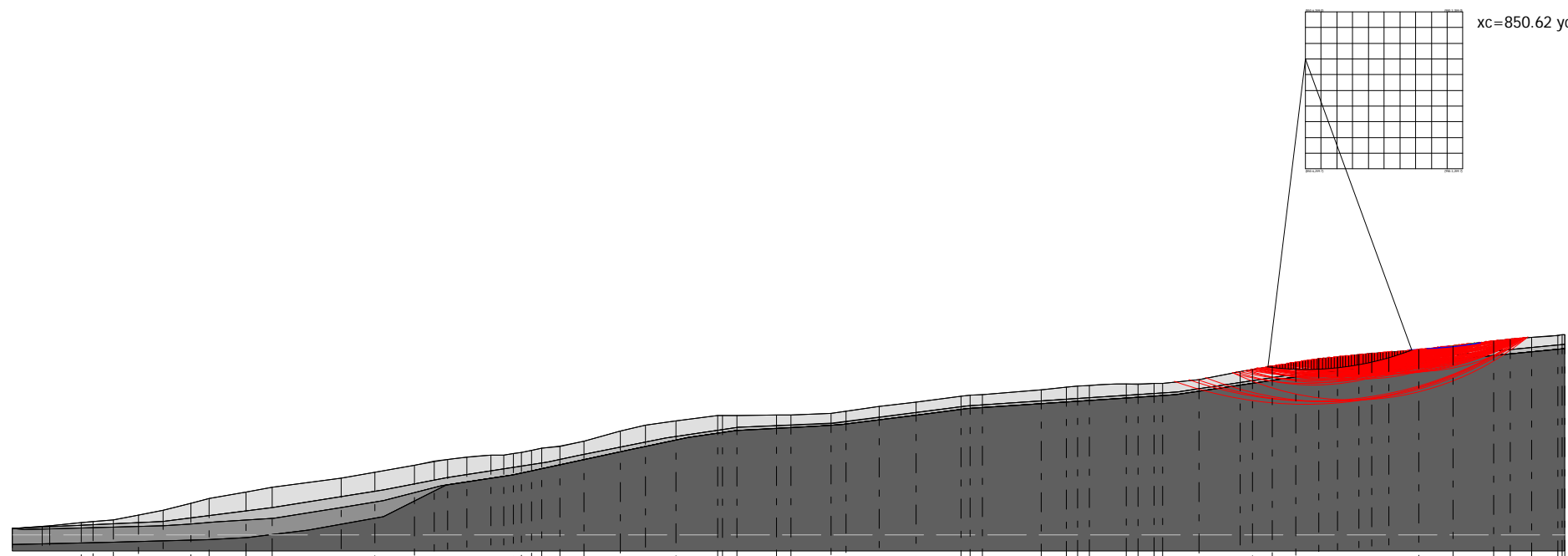
201	801.6	342.0	218.1	2.01
202	806.6	337.1	211.5	1.68
203	811.6	342.0	212.7	1.69
204	816.6	337.1	206.1	1.81
205	821.6	342.0	222.8	2.86
206	826.5	337.1	216.0	2.88
207	831.5	342.0	217.1	2.82
208	836.5	337.1	210.4	2.82
209	841.5	342.0	211.5	1.99
210	846.5	337.1	204.8	2.00
211	746.8	347.0	228.5	2.13
212	756.8	347.0	227.3	1.89
213	766.8	347.0	223.5	1.79
214	776.7	347.0	235.9	2.99
215	786.7	347.0	230.3	2.71
216	796.6	347.0	224.8	2.33
217	806.6	347.0	219.3	1.60
218	816.6	347.0	214.0	2.20
219	826.5	347.0	223.8	2.83
220	836.5	347.0	218.3	2.49
221	846.5	347.0	212.9	2.01

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	3
4.Vertici strato2	3
5.Vertici strato3	4
6.Coefficienti parziali azioni	4
7.Coefficienti parziali per i parametri geotecnici del terreno	4
8.Stratigrafia	4
9.Risultati analisi pendio [A2+M2+R2]	4
Indice	9

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE
 DA 800 A 900 m
 IN CONDIZIONI SISMICHE

xc=850.62 yc=329.20 Rc=196.19 Fs=2



- Strato...1
g=1.9t/m³
Fi=16°
c=6 kN/m²
- Strato...2
g=1.9t/m³
Fi=18°
c=10 kN/m²
- Strato...3
g=1.7t/m³
Fi=34°
c= kN/m²
- Strato...4
g=2.0t/m³
Fi=28°
c=20 kN/m²

Quote	0.00	32.21	19.92	33.71	43.57	35.80	50.93	36.64	63.82	37.49	79.77	40.72	95.44	43.89	112.91	48.26	124.57	51.28	147.89	55.43	164.46	58.43	208.02	64.09	229.50	67.83	254.42	72.22	266.93	74.74	275.53	76.00	287.80	77.14	303.14	78.48	311.72	78.89	322.76	80.20	328.91	81.68	335.05	82.96	346.71	84.23	362.05	87.48	384.96	93.83	400.86	97.75	420.34	100.32	446.49	103.62	458.80	104.02	483.92	104.03	493.15	105.16	518.27	106.26	528.02	109.44	549.04	112.23	572.11	115.81	600.83	117.05	614.16	120.06	651.59	121.70	667.48	122.71	681.84	123.66	705.42	123.52	712.60	123.93	722.86	124.14	751.37	126.28	777.51	131.32	785.35	132.81	797.90	134.93	812.54	137.23	827.17	139.45	839.20	140.70	852.70	142.13	866.63	142.86	871.61	143.76	890.43	145.30	912.39	147.81	938.01	150.83	948.46	151.96	962.11	153.20	985.98	154.98
Distanze Parziali	0.00	19.92	4.72	33.37	19.83	35.80	7.36	36.64	12.89	37.49	15.95	40.72	15.67	43.89	17.47	48.26	11.66	51.28	23.32	55.43	16.57	58.43	43.57	64.09	21.48	67.83	24.92	72.22	12.51	74.74	8.59	76.00	12.27	77.14	15.34	78.48	7.98	78.89	17.69	80.20	6.75	81.68	6.14	82.96	11.66	84.23	15.34	87.48	22.91	93.83	15.89	97.75	19.48	100.32	56.45	103.62	25.12	104.02	9.23	104.03	25.12	105.16	9.74	106.26	21.02	109.44	23.07	112.23	28.71	115.81	17.69	117.05	37.43	120.06	15.89	121.70	7.18	122.71	23.59	123.66	7.18	123.52	10.25	123.93	5.40	124.14	23.11	126.28	26.14	131.32	7.84	132.81	12.55	134.93	14.64	137.23	14.64	139.45	12.02	140.70	13.59	142.13	7.84	142.86	10.98	143.76	18.82	145.30	21.96	147.81	25.62	150.83	10.46	151.96	13.65	153.20	45.97	154.98
Distanze Progressive	0.00	19.92	23.74	33.71	43.57	50.93	63.82	79.77	95.44	112.91	124.57	147.89	164.46	208.02	229.50	254.42	266.93	275.53	287.80	303.14	311.72	322.76	328.91	335.05	346.71	362.05	384.96	400.86	420.34	446.49	458.80	483.92	493.15	518.27	528.02	549.04	572.11	600.83	614.16	651.59	667.48	681.84	705.42	712.60	722.86	751.37	777.51	785.35	797.90	812.54	827.17	839.20	852.70	866.63	871.61	890.43	912.39	938.01	948.46	962.11	985.98																																																									

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.160679/10.980336
Calcolo eseguito secondo	NTC 2018
Numero di strati	4.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	850.62 m
Ordinata vertice sinistro inferiore yi	259.73 m
Ascissa vertice destro superiore xs	950.26 m
Ordinata vertice destro superiore ys	358.97 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.076
Coefficiente azione sismica verticale	0.038

Vertici profilo

Nr	X (m)	y (m)
1	31.79	32.21
2	50.82	33.71
3	55.54	33.97
4	75.36	35.8
5	82.73	36.64
6	95.61	37.49
7	111.57	40.72
8	127.24	43.89
9	144.7	48.26
10	156.36	51.28
11	179.68	55.43
12	196.25	58.43
13	239.82	64.09
14	261.3	67.83
15	286.22	72.22
16	298.73	74.74
17	307.32	76.0
18	319.59	77.14
19	334.93	78.48
20	342.91	78.68
21	349.05	79.54
22	353.96	80.2
23	360.71	81.68
24	366.84	82.98
25	378.5	84.23
26	393.84	87.48

27	416.76	93.83
28	432.65	97.75
29	452.14	100.32
30	478.29	103.66
31	481.36	103.84
32	490.59	103.62
33	515.72	104.02
34	524.95	104.03
35	550.07	105.16
36	559.81	106.26
37	580.83	109.44
38	603.91	112.23
39	632.62	115.81
40	638.26	116.5
41	645.95	117.05
42	683.38	120.06
43	699.28	121.7
44	706.45	122.29
45	713.63	122.71
46	723.37	123.3
47	731.07	123.72
48	737.22	123.66
49	744.4	123.52
50	754.65	123.93
51	760.05	124.14
52	783.16	126.28
53	809.3	131.32
54	817.15	132.81
55	829.69	134.93
56	844.33	137.23
57	858.97	139.45
58	870.99	140.7
59	884.59	142.13
60	892.43	142.86
61	903.41	143.76
62	922.23	145.3
63	944.18	147.81
64	969.8	150.83
65	980.26	151.96
66	993.91	153.2
67	1005.87	154.0
68	1010.58	154.3
69	1013.19	154.68
70	1014.76	154.71

Vertici strato1

N	X (m)	y (m)
1	31.79	32.21
2	126.69	36.78
3	196.43	45.54
4	266.76	56.77
5	306.96	64.47
6	370.57	74.33
7	389.75	78.13
8	445.45	89.49
9	491.31	96.28
10	550.88	98.78
11	636.67	109.79

12	701.93	114.06
13	769.59	118.49
14	888.47	136.63
15	1014.76	148.71

Vertici strato2

N	X (m)	y (m)
1	31.79	32.21
2	39.47	31.68
3	126.69	33.96
4	143.38	34.9
5	159.34	36.39
6	197.2	38.81
7	239.84	45.32
8	266.76	49.77
9	303.56	59.28
10	348.75	66.1
11	421.3	81.57
12	459.64	89.74
13	490.15	94.18
14	505.11	95.0
15	540.62	96.92
16	556.59	97.79
17	607.97	104.35
18	636.66	108.04
19	739.0	114.83
20	768.76	117.04
21	864.7	131.09
22	888.65	134.6
23	929.62	138.23
24	969.35	141.74
25	1014.76	145.99

Vertici strato3

N	X (m)	y (m)
1	31.79	22.16
2	91.15	23.31
3	154.98	24.99
4	180.8	26.53
5	219.34	31.19
6	266.76	39.77
7	306.25	59.69
8	348.75	66.1
9	421.3	81.57
10	459.64	89.74
11	490.15	94.18
12	540.62	96.92
13	556.59	97.79
14	607.97	104.35
15	636.66	108.04
16	739.0	114.83
17	768.76	117.04
18	864.7	131.09
19	888.65	134.6
20	929.62	138.23
21	969.35	141.74
22	1014.76	145.99

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3			34	1.7		
4	20		28	2.0		



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.0
Ascissa centro superficie	850.62 m
Ordinata centro superficie	329.2 m
Raggio superficie	196.19 m

Numero di superfici esaminate...(163)

N°	Xo	Yo	Ro	Fs
1	850.6	259.7	128.0	2.01
2	855.6	264.7	128.6	2.23
3	860.6	259.7	122.0	2.60
4	865.6	264.7	138.4	3.31
5	870.5	259.7	131.7	3.34
6	875.5	264.7	132.1	3.02
7	880.5	259.7	125.4	2.52
8	885.5	264.7	125.9	2.51
9	890.5	259.7	119.2	2.96
10	895.5	264.7	134.1	3.50
11	900.4	259.7	127.2	3.50
12	905.4	264.7	127.8	2.38
13	910.4	259.7	121.0	2.33
14	915.4	264.7	121.8	2.73
15	920.4	259.7	128.1	3.50
16	925.4	264.7	128.9	3.27
17	930.3	259.7	122.1	2.96
18	940.3	259.7	116.4	2.08
19	945.3	264.7	118.0	2.78
20	950.3	259.7	111.2	4.86
21	850.6	269.7	135.2	2.02
22	855.6	274.6	151.8	3.20
23	860.6	269.7	145.1	3.26

24	865.6	274.6	145.5	3.19
25	870.5	269.7	138.8	3.15
26	875.5	274.6	139.4	2.32
27	880.5	269.7	132.7	2.29
28	885.5	274.6	147.7	3.45
29	890.5	269.7	140.9	3.49
30	895.5	274.6	141.5	3.36
31	900.4	269.7	134.7	3.17
32	905.4	274.6	135.5	2.23
33	910.4	269.7	128.7	2.39
34	915.4	274.6	129.8	6.83
35	920.4	269.7	135.8	3.39
36	925.4	274.6	137.0	2.91
37	930.3	269.7	130.1	2.21
38	935.3	274.6	131.5	2.10
39	940.3	269.7	124.7	2.29
40	945.3	274.6	126.6	4.81
41	850.6	279.6	142.5	2.62
42	855.6	284.5	158.9	3.17
43	860.6	279.6	152.2	3.21
44	865.6	284.5	152.8	2.85
45	870.5	279.6	146.1	2.32
46	875.5	284.5	146.9	2.39
47	880.5	279.6	140.2	2.74
48	885.5	284.5	155.2	3.42
49	890.5	279.6	148.3	3.41
50	895.5	284.5	149.2	2.88
51	900.4	279.6	142.3	2.37
52	905.4	284.5	143.4	2.55
53	910.4	279.6	136.6	3.12
54	915.4	284.5	150.7	3.40
55	920.4	279.6	143.8	3.21
56	925.4	284.5	145.2	2.22
57	935.3	284.5	140.0	2.31
58	940.3	279.6	133.3	2.79
59	850.6	289.5	165.6	3.12
60	855.6	294.5	166.3	3.05
61	860.6	289.5	159.6	3.03
62	865.6	294.5	160.4	2.20
63	870.5	289.5	153.7	2.18
64	875.5	294.5	154.6	3.10
65	880.5	289.5	176.1	3.38
66	885.5	294.5	162.8	3.33
67	890.5	289.5	156.0	3.24
68	895.5	294.5	157.0	2.37
69	900.4	289.5	150.2	2.30
70	905.4	294.5	164.5	3.45
71	910.4	289.5	144.7	20.00
72	915.4	294.5	158.8	3.17
73	925.4	294.5	153.6	2.04
74	930.3	289.5	146.8	2.13
75	940.3	289.5	142.0	4.54
76	850.6	299.4	173.0	3.08
77	855.6	304.4	173.9	2.76
78	860.6	299.4	167.1	2.16
79	865.6	304.4	168.1	2.22
80	870.5	299.4	161.4	2.51
81	875.5	304.4	176.5	3.30
82	880.5	299.4	169.7	3.33

83	885.5	304.4	170.7	3.11
84	890.5	299.4	163.8	2.36
85	895.5	304.4	165.1	2.37
86	900.4	299.4	158.3	2.70
87	910.4	299.4	165.7	3.31
88	915.4	304.4	167.2	2.75
89	920.4	299.4	160.4	2.23
90	925.4	304.4	162.1	2.15
91	930.3	299.4	155.4	2.32
92	935.3	304.4	157.5	4.18
93	850.6	309.3	180.6	2.93
94	855.6	314.3	181.6	2.10
95	860.6	309.3	174.8	2.04
96	865.6	314.3	176.0	2.67
97	870.5	309.3	183.3	3.27
98	875.5	314.3	184.3	3.24
99	880.5	309.3	177.5	3.23
100	885.5	314.3	178.7	2.33
101	890.5	309.3	171.9	2.31
102	895.5	314.3	173.3	2.82
103	900.4	309.3	179.4	3.38
104	905.4	314.3	180.8	3.32
105	910.4	309.3	174.0	3.14
106	920.4	309.3	168.9	2.06
107	930.3	309.3	164.1	2.71
108	850.6	319.3	188.3	2.34
109	855.6	324.2	189.5	2.06
110	860.6	319.3	182.7	2.28
111	865.6	324.2	211.9	3.19
112	870.5	319.3	191.1	3.24
113	875.5	324.2	192.3	3.12
114	880.5	319.3	185.5	2.91
115	885.5	324.2	186.8	2.23
116	890.5	319.3	180.1	2.42
117	895.5	324.2	194.5	3.36
118	910.4	319.3	182.4	2.75
119	920.4	319.3	177.5	2.16
120	850.6	329.2	196.2	2.00
121	855.6	334.2	197.5	2.34
122	860.6	329.2	190.7	2.87
123	865.6	334.2	205.9	3.18
124	870.5	329.2	199.1	3.18
125	875.5	334.2	200.4	2.74
126	880.5	329.2	193.6	2.32
127	885.5	334.2	195.1	2.46
128	890.5	329.2	188.4	2.91
129	900.4	329.2	196.0	3.29
130	925.4	334.2	188.6	3.49
131	930.3	329.2	182.0	14.28
132	850.6	339.1	204.2	2.08
133	855.6	344.1	205.6	3.13
134	860.6	339.1	226.5	3.14
135	865.6	344.1	214.0	3.10
136	870.5	339.1	207.2	3.01
137	875.5	344.1	208.7	2.29
138	880.5	339.1	201.9	2.24
139	885.5	344.1	203.6	2.96
140	890.5	339.1	196.8	4.72
141	895.5	344.1	211.3	3.22

142	900.4	339.1	204.5	3.14
143	920.4	339.1	195.2	2.63
144	925.4	344.1	197.5	7.57
145	850.6	349.0	212.3	2.41
146	855.6	354.0	241.3	3.09
147	860.6	349.0	220.8	3.12
148	865.6	354.0	222.2	2.88
149	870.5	349.0	215.4	2.55
150	875.5	354.0	217.0	2.23
151	880.5	349.0	210.3	2.48
152	885.5	354.0	224.8	3.31
153	890.5	349.0	218.0	3.26
154	895.5	354.0	219.8	3.16
155	900.4	349.0	213.1	2.82
156	905.4	354.0	215.1	2.22
157	915.4	354.0	210.7	2.58
158	850.6	359.0	248.2	3.06
159	860.6	359.0	229.0	3.03
160	870.5	359.0	223.8	2.26
161	880.5	359.0	218.8	2.96
162	890.5	359.0	226.6	3.19
163	920.4	359.0	213.1	5.37

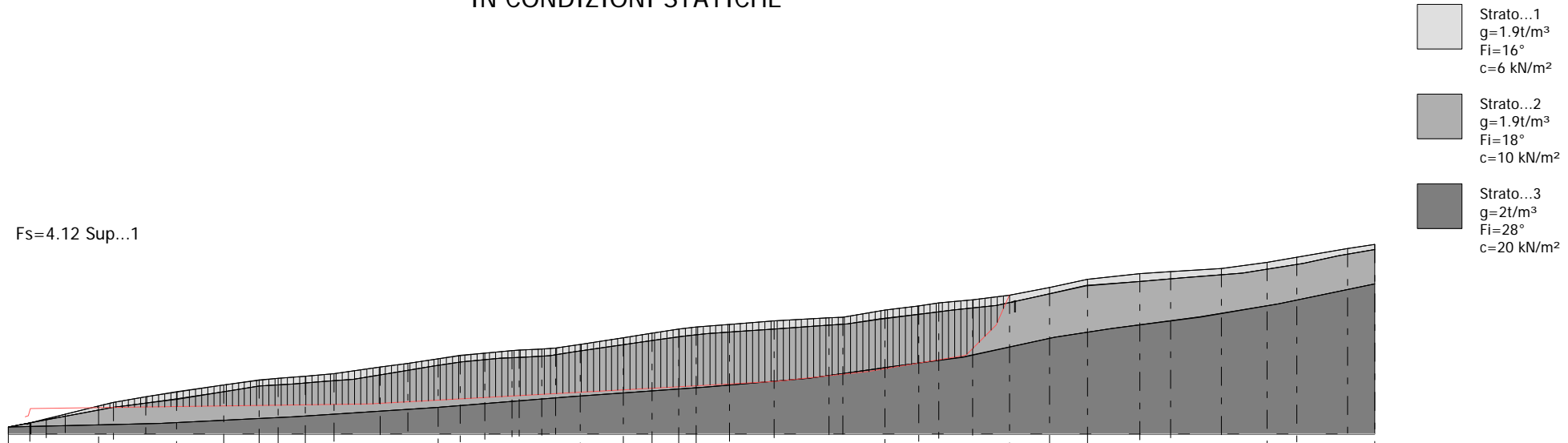
Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	3
4.Vertici strato2	3
5.Vertici strato3	4
6.Coefficienti parziali azioni	4
7.Coefficienti parziali per i parametri geotecnici del terreno	4
8.Stratigrafia	4
9.Risultati analisi pendio [A2+M2+R2]	4
Indice	8

PRATI 21

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE
 SUPERFICIE 1
 IN CONDIZIONI STATICHE

Fs=4.12 Sup...1



- Strato...1
 $g=1.9t/m^3$
 $Fi=16^\circ$
 $c=6 \text{ kN/m}^2$
- Strato...2
 $g=1.9t/m^3$
 $Fi=18^\circ$
 $c=10 \text{ kN/m}^2$
- Strato...3
 $g=2t/m^3$
 $Fi=28^\circ$
 $c=20 \text{ kN/m}^2$

Quote	0.00	18.49	12.37	20.77	21.65	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	288.74	15.47	63.02	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90
Distanze Parziali	0.00	18.49	12.37	20.77	21.65	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	288.74	15.47	63.02	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90
Distanze Progressive	0.00	18.49	12.37	20.77	21.65	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	288.74	15.47	63.02	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.175611/10.985884
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	150.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma generica	

Vertici profilo

Nr	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	50.21	23.11
4	61.35	25.95
5	80.53	30.66
6	89.19	32.86
7	107.75	35.96
8	125.69	38.81
9	152.91	42.89
10	173.33	45.62
11	184.47	46.61
12	199.93	47.83
13	216.64	49.27
14	243.24	53.06
15	259.33	55.27
16	276.65	58.06
17	289.64	59.85
18	303.87	61.29
19	319.34	62.72
20	323.67	63.02
21	336.66	63.64
22	344.7	64.23
23	358.93	66.21
24	383.68	70.12
25	400.39	72.6
26	415.85	75.14
27	425.75	76.18
28	444.97	77.91
29	470.75	79.79
30	502.71	81.6
31	510.56	82.07
32	534.98	86.02
33	554.28	88.38
34	566.05	90.23
35	585.67	92.1
36	606.97	94.76
37	629.96	99.23
38	651.82	103.92

39	682.09	107.02
40	700.03	108.18
41	729.18	109.97
42	755.53	113.74
43	772.9	116.69
44	802.05	121.54
45	817.75	123.9

Vertici strato1

N	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	88.42	29.65
4	104.2	31.75
5	126.08	34.66
6	155.17	39.33
7	173.72	42.3
8	193.86	43.34
9	211.16	44.76
10	227.87	46.14
11	254.74	50.49
12	274.51	53.7
13	290.29	56.26
14	312.26	58.25
15	326.11	58.72
16	341.35	59.84
17	354.13	61.7
18	380.78	65.59
19	403.27	68.86
20	418.32	71.06
21	431.94	72.52
22	449.06	73.67
23	471.11	75.15
24	495.77	76.8
25	513.11	77.96
26	532.31	80.9
27	559.94	84.41
28	574.12	86.22
29	599.33	88.67
30	621.23	93.54
31	650.98	100.15
32	683.22	102.72
33	707.27	104.64
34	741.33	107.35
35	776.65	113.11
36	796.99	117.45
37	817.75	121.07

Vertici strato2

N	X (m)	y (m)
1	28.56	18.49
2	116.3	20.69
3	193.7	24.56
4	275.52	29.89
5	352.89	35.88
6	431.94	41.72
7	490.94	46.62
8	539.62	53.35

9	580.11	58.95
10	633.05	70.32
11	665.91	75.36
12	717.25	82.08
13	762.2	89.71
14	817.75	101.22

Vertici superficie Nr...1

N	X m	y m
1	38.11	24.49
2	39.84	24.88
3	41.01	29.2
4	236.68	31.75
5	472.07	45.01
6	524.94	50.53
7	581.75	60.0
8	599.1	77.36
9	606.96	94.83

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3	20		28	2		

Superficie Nr...1 Fattore di sicurezza=4.12

Nr.	B m	Alfa (°)	Li m	Wi (kN)	Kh•Wi (kN)	Kv•Wi (kN)	c (kN/m ²)	Fi (°)	Ui (kN)	N'i (kN)	Ti (kN)
1	3.54	0.8	3.54	27.02	0.0	0.0	6.0	16.0	0.0	-76.7	-0.2
2	3.54	0.8	3.54	81.79	0.0	0.0	6.0	16.0	0.0	-73.4	0.0
3	3.54	0.8	3.54	137.92	0.0	0.0	6.0	16.0	0.0	-70.1	0.3
4	3.54	0.8	3.54	194.05	0.0	0.0	6.0	16.0	0.0	-66.8	0.5
5	3.54	0.6	3.54	232.24	0.0	0.0	10.0	18.0	0.0	-67.3	3.3
6	3.54	0.8	3.54	268.49	0.0	0.0	10.0	18.0	0.0	-62.1	3.7
7	3.54	0.8	3.54	304.35	0.0	0.0	10.0	18.0	0.0	-59.7	3.9
8	3.54	0.8	3.54	340.21	0.0	0.0	10.0	18.0	0.0	-57.4	4.1

9	3.54	0.8	3.54	376.06	0.0	0.0	10.0	18.0	0.0	-55.1	4.2
10	3.54	0.8	3.54	410.56	0.0	0.0	10.0	18.0	0.0	-52.9	4.4
11	3.54	0.8	3.54	444.35	0.0	0.0	10.0	18.0	0.0	-50.7	4.6
12	3.54	0.8	3.54	478.14	0.0	0.0	10.0	18.0	0.0	-48.5	4.8
13	3.54	0.6	3.54	512.31	0.0	0.0	10.0	18.0	0.0	-52.6	4.4
14	3.54	0.8	3.54	546.49	0.0	0.0	10.0	18.0	0.0	-44.0	5.1
15	3.54	0.8	3.54	579.13	0.0	0.0	10.0	18.0	0.0	-41.9	5.3
16	3.54	0.8	3.54	610.95	0.0	0.0	10.0	18.0	0.0	-39.8	5.4
17	3.54	0.8	3.54	642.77	0.0	0.0	10.0	18.0	0.0	-37.7	5.6
18	3.54	0.8	3.54	674.59	0.0	0.0	10.0	18.0	0.0	-35.6	5.8
19	3.54	0.8	3.54	706.41	0.0	0.0	10.0	18.0	0.0	-33.4	5.9
20	3.54	0.8	3.54	738.23	0.0	0.0	10.0	18.0	0.0	-31.3	6.1
21	3.54	0.6	3.54	770.44	0.0	0.0	10.0	18.0	0.0	-38.8	5.5
22	3.54	0.8	3.54	802.66	0.0	0.0	10.0	18.0	0.0	-27.1	6.4
23	3.54	0.8	3.54	831.1	0.0	0.0	10.0	18.0	0.0	-25.1	6.6
24	3.54	0.8	3.54	859.1	0.0	0.0	10.0	18.0	0.0	-23.2	6.7
25	3.54	0.8	3.54	887.1	0.0	0.0	10.0	18.0	0.0	-21.3	6.9
26	3.54	0.8	3.54	915.1	0.0	0.0	10.0	18.0	0.0	-19.4	7.0
27	3.54	0.8	3.54	943.11	0.0	0.0	10.0	18.0	0.0	-17.5	7.2
28	3.54	0.8	3.54	969.94	0.0	0.0	10.0	18.0	0.0	-15.6	7.3
29	3.54	0.6	3.54	987.87	0.0	0.0	10.0	18.0	0.0	-26.5	6.5
30	3.54	0.8	3.54	1005.8	0.0	0.0	10.0	18.0	0.0	-12.8	7.6
31	3.54	0.8	3.54	1023.34	0.0	0.0	10.0	18.0	0.0	-11.4	7.7
32	3.54	0.8	3.54	1038.64	0.0	0.0	10.0	18.0	0.0	-10.1	7.8
33	3.54	0.8	3.54	1053.85	0.0	0.0	10.0	18.0	0.0	-8.8	7.9
34	3.54	0.8	3.54	1069.06	0.0	0.0	10.0	18.0	0.0	-7.5	8.0
35	3.54	0.8	3.54	1084.27	0.0	0.0	10.0	18.0	0.0	-6.3	8.1
36	3.54	0.8	3.54	1100.56	0.0	0.0	10.0	18.0	0.0	-4.9	8.2
37	3.54	0.6	3.54	1117.99	0.0	0.0	10.0	18.0	0.0	-17.5	7.2
38	3.54	0.8	3.54	1135.42	0.0	0.0	10.0	18.0	0.0	-2.2	8.4
39	3.54	0.8	3.54	1152.46	0.0	0.0	10.0	18.0	0.0	-0.8	8.5
40	3.54	0.8	3.54	1169.5	0.0	0.0	10.0	18.0	0.0	0.6	8.6
41	3.54	0.8	3.54	1197.75	0.0	0.0	10.0	18.0	0.0	2.5	8.8
42	3.54	0.8	3.54	1227.75	0.0	0.0	10.0	18.0	0.0	4.5	8.9
43	3.54	0.8	3.54	1257.75	0.0	0.0	10.0	18.0	0.0	6.6	9.1
44	3.54	0.6	3.54	1288.14	0.0	0.0	10.0	18.0	0.0	-7.5	8.0
45	3.54	0.8	3.54	1318.53	0.0	0.0	10.0	18.0	0.0	10.6	9.4
46	3.54	2.6	3.54	1344.87	0.0	0.0	10.0	18.0	0.0	168.3	21.8
47	3.54	3.3	3.54	1366.11	0.0	0.0	10.0	18.0	0.0	235.2	27.1
48	3.54	3.1	3.54	1385.91	0.0	0.0	10.0	18.0	0.0	222.6	26.1
49	3.54	3.3	3.54	1404.99	0.0	0.0	10.0	18.0	0.0	244.5	27.8
50	3.54	3.3	3.54	1423.69	0.0	0.0	10.0	18.0	0.0	248.9	28.2
51	3.54	3.1	3.54	1442.77	0.0	0.0	10.0	18.0	0.0	235.5	27.1
52	3.54	3.3	3.54	1461.85	0.0	0.0	10.0	18.0	0.0	258.1	28.9
53	3.54	3.3	3.54	1484.86	0.0	0.0	10.0	18.0	0.0	263.5	29.3
54	3.54	3.3	3.54	1508.98	0.0	0.0	10.0	18.0	0.0	269.1	29.8
55	3.54	3.1	3.54	1533.5	0.0	0.0	10.0	18.0	0.0	255.7	28.7
56	3.54	3.3	3.54	1558.02	0.0	0.0	10.0	18.0	0.0	280.5	30.7
57	3.54	3.3	3.54	1582.14	0.0	0.0	10.0	18.0	0.0	286.2	31.1
58	3.54	3.1	3.54	1601.85	0.0	0.0	10.0	18.0	0.0	270.9	29.9
59	3.54	3.3	3.54	1620.99	0.0	0.0	10.0	18.0	0.0	295.4	31.9
60	3.54	3.3	3.54	1639.74	0.0	0.0	10.0	18.0	0.0	299.9	32.2
61	3.54	3.1	3.54	1657.0	0.0	0.0	10.0	18.0	0.0	283.5	30.9
62	3.54	3.3	3.54	1667.68	0.0	0.0	10.0	18.0	0.0	306.9	32.8
63	3.54	3.3	3.54	1677.95	0.0	0.0	10.0	18.0	0.0	309.6	33.0
64	3.54	3.3	3.54	1688.23	0.0	0.0	10.0	18.0	0.0	312.3	33.2
65	3.54	3.1	3.54	1698.49	0.0	0.0	10.0	18.0	0.0	293.8	31.7
66	3.54	3.3	3.54	1707.08	0.0	0.0	10.0	18.0	0.0	317.3	33.6
67	3.54	3.3	3.54	1715.28	0.0	0.0	10.0	18.0	0.0	319.6	33.8

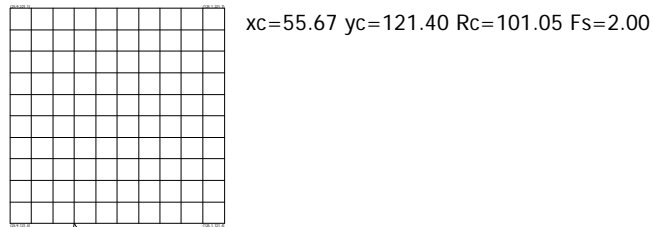
68	3.54	3.1	3.54	1723.87	0.0	0.0	10.0	18.0	0.0	300.5	32.3
69	3.54	3.3	3.54	1732.46	0.0	0.0	10.0	18.0	0.0	324.3	34.1
70	3.54	3.3	3.54	1736.45	0.0	0.0	10.0	18.0	0.0	325.6	34.2
71	3.54	3.1	3.54	1736.64	0.0	0.0	10.0	18.0	0.0	304.6	32.6
72	3.54	3.3	3.54	1734.63	0.0	0.0	10.0	18.0	0.0	326.3	34.3
73	3.54	3.3	3.54	1732.23	0.0	0.0	10.0	18.0	0.0	326.3	34.3
74	3.54	3.3	3.54	1729.83	0.0	0.0	10.0	18.0	0.0	326.3	34.3
75	3.54	3.1	3.54	1733.74	0.0	0.0	10.0	18.0	0.0	306.1	32.7
76	3.54	3.3	3.54	1738.12	0.0	0.0	10.0	18.0	0.0	329.1	34.5
77	3.54	3.3	3.54	1751.88	0.0	0.0	10.0	18.0	0.0	332.6	34.8
78	3.54	3.1	3.54	1771.27	0.0	0.0	10.0	18.0	0.0	315.1	33.4
79	3.54	3.3	3.54	1790.66	0.0	0.0	10.0	18.0	0.0	341.8	35.5
80	3.54	3.3	3.54	1809.66	0.0	0.0	10.0	18.0	0.0	346.4	35.9
81	3.54	3.3	3.54	1831.49	0.0	0.0	10.0	18.0	0.0	351.5	36.3
82	3.54	3.1	3.54	1855.39	0.0	0.0	10.0	18.0	0.0	334.0	34.9
83	3.54	3.3	3.54	1879.28	0.0	0.0	10.0	18.0	0.0	362.7	37.2
84	3.54	3.3	3.54	1902.79	0.0	0.0	10.0	18.0	0.0	368.2	37.6
85	3.54	3.1	3.54	1926.69	0.0	0.0	10.0	18.0	0.0	349.8	36.1
86	3.54	3.3	3.54	1950.59	0.0	0.0	10.0	18.0	0.0	379.3	38.5
87	3.54	3.3	3.54	1974.09	0.0	0.0	10.0	18.0	0.0	384.8	38.9
88	3.54	3.1	3.54	1996.51	0.0	0.0	10.0	18.0	0.0	365.3	37.4
89	3.54	3.3	3.54	2018.06	0.0	0.0	10.0	18.0	0.0	395.2	39.7
90	3.54	3.3	3.54	2039.22	0.0	0.0	10.0	18.0	0.0	400.2	40.1
91	3.54	3.3	3.54	2060.38	0.0	0.0	10.0	18.0	0.0	405.2	40.5
92	3.54	3.1	3.54	2081.93	0.0	0.0	10.0	18.0	0.0	384.4	38.9
93	3.54	3.3	3.54	2106.85	0.0	0.0	10.0	18.0	0.0	416.1	41.4
94	3.54	3.3	3.54	2131.74	0.0	0.0	10.0	18.0	0.0	421.9	41.8
95	3.54	3.1	3.54	2157.01	0.0	0.0	10.0	18.0	0.0	400.9	40.2
96	3.54	3.3	3.54	2182.29	0.0	0.0	10.0	18.0	0.0	433.6	42.8
97	3.54	3.3	3.54	2199.91	0.0	0.0	10.0	18.0	0.0	437.9	43.1
98	3.54	3.3	3.54	2211.13	0.0	0.0	10.0	18.0	0.0	440.8	43.3
99	3.54	3.1	3.54	2222.75	0.0	0.0	10.0	18.0	0.0	416.1	41.4
100	3.54	3.3	3.54	2231.72	0.0	0.0	10.0	18.0	0.0	446.2	43.7
101	3.54	3.3	3.54	2239.32	0.0	0.0	10.0	18.0	0.0	448.3	43.9
102	3.54	3.1	3.54	2247.31	0.0	0.0	10.0	18.0	0.0	422.6	41.9
103	3.54	3.3	3.54	2255.31	0.0	0.0	10.0	18.0	0.0	452.8	44.3
104	3.54	3.3	3.54	2262.91	0.0	0.0	10.0	18.0	0.0	454.9	44.4
105	3.54	3.1	3.54	2269.72	0.0	0.0	10.0	18.0	0.0	428.6	42.4
106	3.54	3.3	3.54	2273.74	0.0	0.0	10.0	18.0	0.0	458.2	44.7
107	3.54	3.3	3.54	2277.37	0.0	0.0	10.0	18.0	0.0	459.5	44.8
108	3.54	3.3	3.54	2281.0	0.0	0.0	10.0	18.0	0.0	460.8	44.9
109	3.54	3.1	3.54	2285.03	0.0	0.0	10.0	18.0	0.0	433.7	42.8
110	3.54	3.3	3.54	2289.05	0.0	0.0	10.0	18.0	0.0	463.6	45.1
111	3.54	3.3	3.54	2292.69	0.0	0.0	10.0	18.0	0.0	464.9	45.2
112	3.54	3.5	3.54	2295.84	0.0	0.0	10.0	18.0	0.0	498.8	47.9
113	3.54	6.0	3.56	2289.74	0.0	0.0	20.0	28.0	0.0	864.5	128.7
114	3.54	6.0	3.56	2278.6	0.0	0.0	10.0	18.0	0.0	860.8	76.4
115	3.54	6.0	3.56	2267.46	0.0	0.0	10.0	18.0	0.0	857.0	76.1
116	3.54	6.0	3.56	2256.31	0.0	0.0	10.0	18.0	0.0	853.2	75.8
117	3.54	6.0	3.56	2245.17	0.0	0.0	10.0	18.0	0.0	849.4	75.5
118	3.54	6.0	3.56	2234.02	0.0	0.0	10.0	18.0	0.0	845.6	75.2
119	3.54	6.0	3.56	2222.88	0.0	0.0	10.0	18.0	0.0	841.9	74.9
120	3.54	6.0	3.56	2211.74	0.0	0.0	10.0	18.0	0.0	838.1	74.6
121	3.54	6.0	3.56	2200.72	0.0	0.0	20.0	28.0	0.0	834.3	124.8
122	3.54	6.0	3.56	2190.64	0.0	0.0	20.0	28.0	0.0	831.0	124.3
123	3.54	6.0	3.56	2180.59	0.0	0.0	20.0	28.0	0.0	827.6	123.9
124	3.54	6.0	3.56	2188.47	0.0	0.0	20.0	28.0	0.0	831.2	124.4
125	3.54	6.0	3.56	2202.23	0.0	0.0	20.0	28.0	0.0	837.0	125.1
126	3.54	6.0	3.56	2216.0	0.0	0.0	20.0	28.0	0.0	842.9	125.9

127	3.54	6.6	3.56	2228.39	0.0	0.0	20.0	28.0	0.0	940.9	138.5
128	3.54	9.6	3.59	2232.92	0.0	0.0	20.0	28.0	0.0	1378.8	195.0
129	3.54	9.4	3.58	2231.39	0.0	0.0	20.0	28.0	0.0	1350.6	191.4
130	3.54	9.4	3.58	2230.27	0.0	0.0	20.0	28.0	0.0	1350.5	191.3
131	3.54	9.6	3.59	2220.95	0.0	0.0	20.0	28.0	0.0	1373.0	194.2
132	3.54	9.4	3.58	2210.23	0.0	0.0	20.0	28.0	0.0	1339.3	189.9
133	3.54	9.6	3.59	2199.51	0.0	0.0	20.0	28.0	0.0	1360.7	192.7
134	3.54	9.4	3.58	2188.78	0.0	0.0	20.0	28.0	0.0	1327.3	188.3
135	3.54	9.6	3.59	2178.06	0.0	0.0	20.0	28.0	0.0	1348.4	191.1
136	3.54	9.4	3.58	2170.78	0.0	0.0	10.0	18.0	0.0	1317.3	112.4
137	3.54	9.6	3.59	2168.52	0.0	0.0	10.0	18.0	0.0	1343.5	114.5
138	3.54	9.4	3.58	2166.26	0.0	0.0	10.0	18.0	0.0	1315.6	112.3
139	3.54	9.4	3.58	2163.53	0.0	0.0	10.0	18.0	0.0	1314.5	112.2
140	3.54	9.6	3.59	2146.91	0.0	0.0	10.0	18.0	0.0	1331.6	113.5
141	3.54	9.4	3.58	2130.28	0.0	0.0	10.0	18.0	0.0	1295.3	110.7
142	3.54	9.6	3.59	2113.66	0.0	0.0	10.0	18.0	0.0	1312.0	112.0
143	3.54	15.0	3.66	2085.14	0.0	0.0	10.0	18.0	0.0	2055.6	170.6
144	3.54	45.0	5.0	1959.61	0.0	0.0	10.0	18.0	0.0	7245.1	579.6
145	3.54	44.9	5.0	1752.44	0.0	0.0	10.0	18.0	0.0	6457.6	517.5
146	3.54	45.0	5.0	1548.6	0.0	0.0	10.0	18.0	0.0	5726.0	459.9
147	3.54	45.0	5.0	1344.36	0.0	0.0	10.0	18.0	0.0	4971.1	400.4
148	3.54	51.6	5.69	1109.8	0.0	0.0	10.0	18.0	0.0	5171.2	416.2
149	3.54	65.8	8.62	733.07	0.0	0.0	10.0	18.0	0.0	6015.9	482.7
150	3.54	65.8	8.62	244.39	0.0	0.0	6.0	16.0	0.0	2006.2	144.7

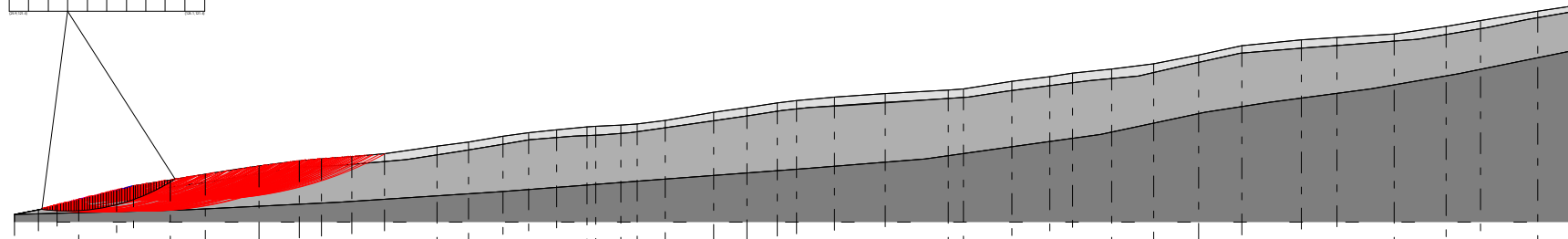
Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici strato2	3
5.Vertici superficie Nr...1	3
6.Coefficienti parziali azioni	3
7.Coefficienti parziali per i parametri geotecnici del terreno	4
8.Stratigrafia	4
Indice	8

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 0 A 100 m
 IN CONDIZIONI STATICHE



- Strato...1
 $g=1.9t/m^3$
 $Fi=16^\circ$
 $c=6 \text{ kN/m}^2$
- Strato...2
 $g=1.9t/m^3$
 $Fi=18^\circ$
 $c=10 \text{ kN/m}^2$
- Strato...3
 $g=2t/m^3$
 $Fi=28^\circ$
 $c=20 \text{ kN/m}^2$



Quote	0.00	18.49	12.37	20.77	21.65	9.28	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	298.78	15.47	63.02	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
Distanze Parziali	0.00	18.49	12.37	20.77	21.65	9.28	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	298.78	15.47	63.02	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
Distanze Progressive	0.00	18.49	30.86	51.63	73.28	82.56	91.84	124.63	135.77	146.91	198.88	218.06	248.72	309.35	318.01	326.67	345.13	363.69	382.25	400.81	419.37	437.93	456.49	475.05	493.61	512.17	530.73	549.29	567.85	586.41	604.97	623.53	642.09	660.65	679.21	697.77	716.33	734.89	753.45	772.01	790.57	809.13	827.69	846.25	864.81	883.37	901.93	920.49	939.05	957.61	976.17	994.73	1013.29	1031.85	1050.41	1068.97	1087.53	1106.09	1124.65	1143.21	1161.77	1180.33	1198.89	1217.45	1236.01	1254.57	1273.13	1291.69	1310.25	1328.81	1347.37	1365.93	1384.49	1403.05	1421.61	1440.17	1458.73	1477.29	1495.85	1514.41	1532.97	1551.53	1570.09	1588.65	1607.21	1625.77	1644.33	1662.89	1681.45	1700.01	1718.57	1737.13	1755.69	1774.25	1792.81	1811.37	1829.93	1848.49	1867.05	1885.61	1904.17	1922.73	1941.29	1959.85	1978.41	1996.97	2015.53	2034.09	2052.65	2071.21	2089.77	2108.33	2126.89	2145.45	2164.01	2182.57	2201.13	2219.69	2238.25	2256.81	2275.37	2293.93	2312.49	2331.05	2349.61	2368.17	2386.73	2405.29	2423.85	2442.41	2460.97	2479.53	2498.09	2516.65	2535.21	2553.77	2572.33	2590.89	2609.45	2628.01	2646.57	2665.13	2683.69	2702.25	2720.81	2739.37	2757.93	2776.49	2795.05	2813.61	2832.17	2850.73	2869.29	2887.85	2906.41	2924.97	2943.53	2962.09	2980.65	2999.21	3017.77	3036.33	3054.89	3073.45	3092.01	3110.57	3129.13	3147.69	3166.25	3184.81	3203.37	3221.93	3240.49	3259.05	3277.61	3296.17	3314.73	3333.29	3351.85	3370.41	3388.97	3407.53	3426.09	3444.65	3463.21	3481.77	3500.33	3518.89	3537.45	3556.01	3574.57	3593.13	3611.69	3630.25	3648.81	3667.37	3685.93	3704.49	3723.05	3741.61	3760.17	3778.73	3797.29	3815.85	3834.41	3852.97	3871.53	3890.09	3908.65	3927.21	3945.77	3964.33	3982.89	4001.45	4020.01	4038.57	4057.13	4075.69	4094.25	4112.81	4131.37	4149.93	4168.49	4187.05	4205.61	4224.17	4242.73	4261.29	4279.85	4298.41	4316.97	4335.53	4354.09	4372.65	4391.21	4409.77	4428.33	4446.89	4465.45	4484.01	4502.57	4521.13	4539.69	4558.25	4576.81	4595.37	4613.93	4632.49	4651.05	4669.61	4688.17	4706.73	4725.29	4743.85	4762.41	4780.97	4799.53	4818.09	4836.65	4855.21	4873.77	4892.33	4910.89	4929.45	4948.01	4966.57	4985.13	5003.69	5022.25	5040.81	5059.37	5077.93	5096.49	5115.05	5133.61	5152.17	5170.73	5189.29	5207.85	5226.41	5244.97	5263.53	5282.09	5300.65	5319.21	5337.77	5356.33	5374.89	5393.45	5412.01	5430.57	5449.13	5467.69	5486.25	5504.81	5523.37	5541.93	5560.49	5579.05	5597.61	5616.17	5634.73	5653.29	5671.85	5690.41	5708.97	5727.53	5746.09	5764.65	5783.21	5801.77	5820.33	5838.89	5857.45	5876.01	5894.57	5913.13	5931.69	5950.25	5968.81	5987.37	6005.93	6024.49	6043.05	6061.61	6080.17	6098.73	6117.29	6135.85	6154.41	6172.97	6191.53	6210.09	6228.65	6247.21	6265.77	6284.33	6302.89	6321.45	6340.01	6358.57	6377.13	6395.69	6414.25	6432.81	6451.37	6469.93	6488.49	6507.05	6525.61	6544.17	6562.73	6581.29	6600.85	6619.41	6637.97	6656.53	6675.09	6693.65	6712.21	6730.77	6749.33	6767.89	6786.45	6805.01	6823.57	6842.13	6860.69	6879.25	6897.81	6916.37	6934.93	6953.49	6972.05	6990.61	7009.17	7027.73	7046.29	7064.85	7083.41	7101.97	7120.53	7139.09	7157.65	7176.21	7194.77	7213.33	7231.89	7250.45	7269.01	7287.57	7306.13	7324.69	7343.25	7361.81	7380.37	7398.93	7417.49	7436.05	7454.61	7473.17	7491.73	7510.29	7528.85	7547.41	7565.97	7584.53	7603.09	7621.65	7640.21	7658.77	7677.33	7695.89	7714.45	7733.01	7751.57	7770.13	7788.69	7807.25	7825.81	7844.37	7862.93	7881.49	7900.05	7918.61	7937.17	7955.73	7974.29	7992.85	8011.41	8030.01	8048.57	8067.13	8085.69	8104.25	8122.81	8141.37	8159.93	8178.49	8197.05	8215.61	8234.17	8252.73	8271.29	8289.85	8308.41	8326.97	8345.53	8364.09	8382.65	8401.21	8419.77	8438.33	8456.89	8475.45	8494.01	8512.57	8531.13	8549.69	8568.25	8586.81	8605.37	8623.93	8642.49	8661.05	8679.61	8698.17	8716.73	8735.29	8753.85	8772.41	8790.97	8809.53	8828.09	8846.65	8865.21	8883.77	8902.33	8920.89	8939.45	8958.01	8976.57	8995.13	9013.69	9032.25	9050.81	9069.37	9087.93	9106.49	9125.05	9143.61	9162.17	9180.73	9199.29	9217.85	9236.41	9254.97	9273.53	9292.09	9310.65	9329.21	9347.77	9366.33	9384.89	9403.45	9422.01	9440.57	9459.13	9477.69	9496.25	9514.81	9533.37	9551.93	9570.49	9589.05	9607.61	9626.17	9644.73	9663.29	9681.85	9700.41	9718.97	9737.53	9756.09	9774.65	9793.21	9811.77	9830.33	9848.89	9867.45	9886.01	9904.57	9923.13	9941.69	9960.25	9978.81	9997.37	10015.93	10034.49	10053.05	10071.61	10090.17	10108.73	10127.29	10145.85	10164.41	10182.97	10201.53	10220.09	10238.65	10257.21	10275.77	10294.33	10312.89	10331.45	10350.01	10368.57	10387.13	10405.69	10424.25	10442.81	10461.37	10479.93	10498.49	10517.05	10535.61	10554.17	10572.73	10591.29	10609.85	10628.41	10646.97	10665.53	10684.09	10702.65	10721.21	10739.77	10758.33	10776.89	10795.45	10814.01	10832.57	10851.13	10869.69	10888.25	10906.81	10925.37	10943.93	10962.49	10981.05	10999.61	11018.17	11036.73	11055.29	11073.85	11092.41	11110.97	11129.53	11148.09	11166.65	11185.21	11203.77	11222.33	11240.89	11259.45	11278.01	11296.57	11315.13	11333.69	11352.25	11370.81	11389.37	11407.93	11426.49	11445.05	11463.61	11482.17	11500.73	11519.29	11537.85	11556.41	11574.97	11593.53	11612.09	11630.65	11649.21	11667.77	11686.33	11704.89	11723.45	11742.01	11760.57	11779.13	11797.69	11816.25	11834.81	11853.37	11871.93	11890.49	11909.05	11927.61	11946.17	11964.73	11983.29	12001.85	12020.41	12038.97	12057.53	12076.09	12094.65	12113.21	12131.77	12150.33	12168.89	12187.45	12206.01	12224.57	12243.13	12261.69	12280.25	12298.81	12317.37	12335.93	12354.49	12373.05	12391.61	12410.17	12428.73	12447.29	12465.85

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.175611/10.985884
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	25.91 m
Ordinata vertice sinistro inferiore yi	121.4 m
Ascissa vertice destro superiore xs	125.12 m
Ordinata vertice destro superiore ys	221.1 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	50.21	23.11
4	61.35	25.95
5	80.53	30.66
6	89.19	32.86
7	107.75	35.96
8	125.69	38.81
9	152.91	42.89
10	173.33	45.62
11	184.47	46.61
12	199.93	47.83
13	216.64	49.27
14	243.24	53.06
15	259.33	55.27
16	276.65	58.06
17	289.64	59.85
18	303.87	61.29
19	319.34	62.72
20	323.67	63.02
21	336.66	63.64
22	344.7	64.23
23	358.93	66.21
24	383.68	70.12
25	400.39	72.6
26	415.85	75.14
27	425.75	76.18
28	444.97	77.91

29	470.75	79.79
30	502.71	81.6
31	510.56	82.07
32	534.98	86.02
33	554.28	88.38
34	566.05	90.23
35	585.67	92.1
36	606.97	94.76
37	629.96	99.23
38	651.82	103.92
39	682.09	107.02
40	700.03	108.18
41	729.18	109.97
42	755.53	113.74
43	772.9	116.69
44	802.05	121.54
45	817.75	123.9

Vertici strato1

N	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	88.42	29.65
4	104.2	31.75
5	126.08	34.66
6	155.17	39.33
7	173.72	42.3
8	193.86	43.34
9	211.16	44.76
10	227.87	46.14
11	254.74	50.49
12	274.51	53.7
13	290.29	56.26
14	312.26	58.25
15	326.11	58.72
16	341.35	59.84
17	354.13	61.7
18	380.78	65.59
19	403.27	68.86
20	418.32	71.06
21	431.94	72.52
22	449.06	73.67
23	471.11	75.15
24	495.77	76.8
25	513.11	77.96
26	532.31	80.9
27	559.94	84.41
28	574.12	86.22
29	599.33	88.67
30	621.23	93.54
31	650.98	100.15
32	683.22	102.72
33	707.27	104.64
34	741.33	107.35
35	776.65	113.11
36	796.99	117.45
37	817.75	121.07

Vertici strato2

N	X (m)	y (m)
1	28.56	18.49
2	116.3	20.69
3	193.7	24.56
4	275.52	29.89
5	352.89	35.88
6	431.94	41.72
7	490.94	46.62
8	539.62	53.35
9	580.11	58.95
10	633.05	70.32
11	665.91	75.36
12	717.25	82.08
13	762.2	89.71
14	817.75	101.22

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3	20		28	2		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.0
Ascissa centro superficie	55.67 m
Ordinata centro superficie	121.4 m
Raggio superficie	101.05 m

Numero di superfici esaminate....(185)

N°	Xo	Yo	Ro	Fs
1	45.7	121.4	99.2	2.35
2	55.7	121.4	101.1	2.00
3	60.6	126.4	106.4	2.01
4	65.6	121.4	101.4	2.04
5	70.6	126.4	100.9	2.30
6	75.5	121.4	101.4	2.14

7	80.5	126.4	106.3	2.21
8	85.4	121.4	95.7	2.41
9	90.4	126.4	106.3	2.34
10	95.4	121.4	95.6	2.54
11	100.3	126.4	100.5	2.59
12	105.3	121.4	95.5	2.65
13	110.2	126.4	100.4	2.71
14	115.2	121.4	95.3	2.77
15	120.2	126.4	100.3	2.83
16	125.1	121.4	95.2	2.90
17	50.7	136.4	114.7	2.09
18	55.7	131.4	105.4	2.43
19	60.6	136.4	116.4	2.02
20	65.6	131.4	111.4	2.06
21	70.6	136.4	110.8	2.32
22	75.5	131.4	105.8	2.34
23	80.5	136.4	116.3	2.21
24	85.4	131.4	111.3	2.27
25	90.4	136.4	116.2	2.33
26	95.4	131.4	105.6	2.53
27	100.3	136.4	110.5	2.58
28	105.3	131.4	105.4	2.65
29	110.2	136.4	110.4	2.69
30	115.2	131.4	105.3	2.76
31	120.2	136.4	110.2	2.82
32	125.1	131.4	105.2	2.89
33	50.7	146.3	124.6	2.10
34	55.7	141.3	120.5	2.04
35	60.6	146.3	120.9	2.35
36	65.6	141.3	115.9	2.33
37	70.6	146.3	126.3	2.11
38	75.5	141.3	121.3	2.16
39	80.5	146.3	126.3	2.21
40	85.4	141.3	121.2	2.27
41	90.4	146.3	120.6	2.48
42	95.4	141.3	115.5	2.52
43	100.3	146.3	120.4	2.58
44	105.3	141.3	115.4	2.63
45	110.2	146.3	120.3	2.68
46	115.2	141.3	115.3	2.75
47	120.2	146.3	120.2	2.82
48	125.1	141.3	115.2	2.89
49	35.8	151.3	128.1	8.58
50	40.8	156.3	133.4	2.49
51	50.7	156.3	129.2	16.95
52	55.7	151.3	130.3	2.06
53	60.6	156.3	136.1	2.06
54	65.6	151.3	131.3	2.08
55	70.6	156.3	136.3	2.12
56	75.5	151.3	131.3	2.17
57	80.5	156.3	136.2	2.22
58	85.4	151.3	125.6	2.44
59	90.4	156.3	130.5	2.48
60	95.4	151.3	131.2	2.52
61	100.3	156.3	130.4	2.57
62	105.3	151.3	125.4	2.63
63	110.2	156.3	130.3	2.68
64	115.2	151.3	125.2	2.75
65	120.2	156.3	130.2	2.82

66	125.1	151.3	125.1	2.90
67	35.8	161.3	138.1	4.87
68	40.8	166.3	143.3	2.44
69	45.7	161.3	138.8	2.25
70	50.7	166.3	144.3	2.14
71	55.7	161.3	134.8	2.44
72	60.6	166.3	145.8	2.08
73	65.6	161.3	141.3	2.09
74	70.6	166.3	146.3	2.14
75	75.5	161.3	141.2	2.18
76	80.5	166.3	146.2	2.22
77	85.4	161.3	135.6	2.44
78	90.4	166.3	146.1	2.33
79	95.4	161.3	141.1	2.52
80	100.3	166.3	140.4	2.57
81	105.3	161.3	135.3	2.62
82	110.2	166.3	140.3	2.69
83	115.2	161.3	135.2	2.75
84	120.2	166.3	140.1	2.83
85	125.1	161.3	135.1	2.91
86	35.8	171.2	148.0	3.64
87	50.7	176.2	154.1	2.15
88	55.7	171.2	149.9	2.09
89	60.6	176.2	150.2	2.42
90	65.6	171.2	151.3	2.10
91	70.6	176.2	150.7	2.36
92	75.5	171.2	145.7	2.38
93	80.5	176.2	156.2	2.23
94	85.4	171.2	151.1	2.28
95	90.4	176.2	156.1	2.33
96	95.4	171.2	145.4	2.53
97	100.3	176.2	150.3	2.58
98	105.3	171.2	145.3	2.62
99	110.2	176.2	150.2	2.69
100	115.2	171.2	145.2	2.75
101	120.2	176.2	150.1	2.84
102	125.1	171.2	145.1	2.92
103	35.8	181.2	158.0	2.96
104	40.8	186.2	163.2	2.41
105	45.7	181.2	158.6	2.25
106	50.7	186.2	158.9	4.29
107	55.7	181.2	159.7	2.11
108	60.6	186.2	160.0	2.45
109	65.6	181.2	155.8	2.37
110	70.6	186.2	166.2	2.15
111	75.5	181.2	161.2	2.19
112	80.5	186.2	166.1	2.24
113	85.4	181.2	161.1	2.29
114	90.4	186.2	160.4	2.49
115	95.4	181.2	155.4	2.53
116	100.3	186.2	160.3	2.58
117	105.3	181.2	155.3	2.63
118	110.2	186.2	160.2	2.69
119	115.2	181.2	155.1	2.76
120	120.2	186.2	160.1	2.85
121	125.1	181.2	155.0	2.92
122	30.9	196.2	172.8	9.78
123	35.8	191.2	167.9	2.61
124	40.8	196.2	173.1	2.40

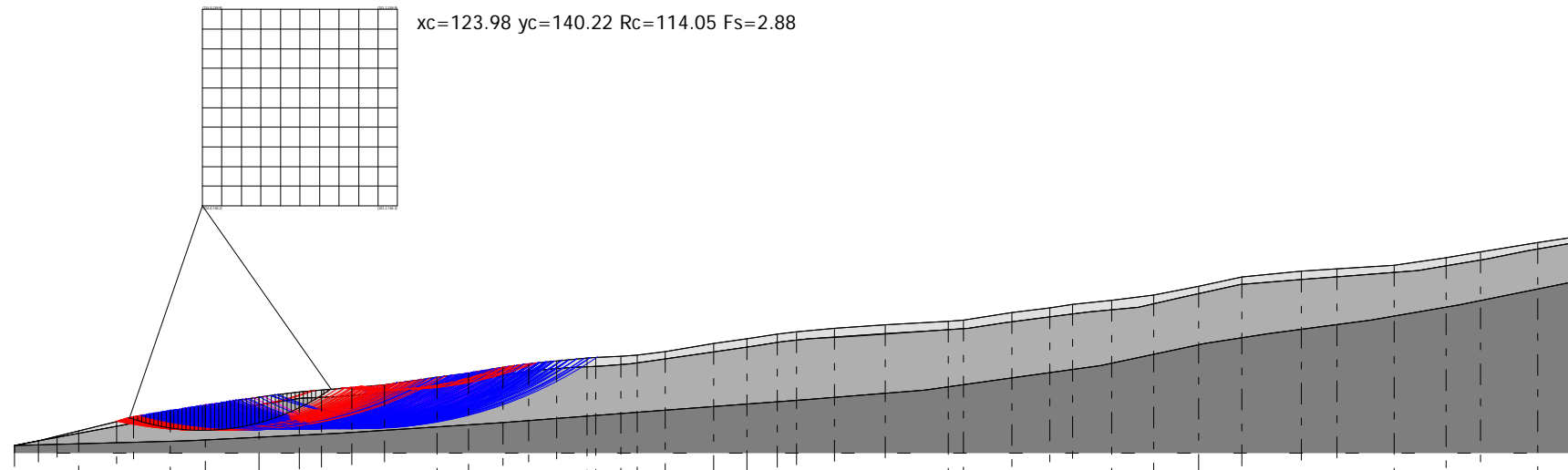
125	50.7	196.2	168.8	3.85
126	55.7	191.2	164.3	2.44
127	60.6	196.2	175.2	2.13
128	65.6	191.2	165.7	2.38
129	70.6	196.2	176.2	2.17
130	75.5	191.2	171.1	2.20
131	80.5	196.2	170.5	2.44
132	85.4	191.2	165.5	2.46
133	90.4	196.2	176.0	2.35
134	95.4	191.2	171.0	2.53
135	100.3	196.2	170.3	2.59
136	105.3	191.2	165.2	2.63
137	110.2	196.2	170.2	2.71
138	115.2	191.2	165.1	2.77
139	120.2	196.2	170.0	2.86
140	125.1	191.2	165.0	2.94
141	30.9	206.1	182.8	5.05
142	45.7	201.2	178.4	2.25
143	50.7	206.1	183.8	2.18
144	55.7	201.2	174.2	2.43
145	60.6	206.1	185.0	2.15
146	65.6	201.2	180.9	2.14
147	70.6	206.1	180.6	2.40
148	75.5	201.2	175.6	2.41
149	80.5	206.1	186.1	2.26
150	85.4	201.2	181.1	2.30
151	90.4	206.1	180.4	2.51
152	95.4	201.2	181.0	2.54
153	100.3	206.1	180.2	2.59
154	105.3	201.2	175.2	2.65
155	110.2	206.1	180.1	2.72
156	115.2	201.2	175.1	2.79
157	120.2	206.1	180.0	2.88
158	125.1	201.2	175.0	2.95
159	35.8	211.1	187.9	2.30
160	50.7	216.1	188.6	3.37
161	55.7	211.1	189.3	2.16
162	60.6	216.1	189.6	2.50
163	65.6	211.1	190.7	2.16
164	70.6	216.1	196.1	2.19
165	75.5	211.1	191.1	2.22
166	80.5	216.1	190.5	2.45
167	85.4	211.1	191.0	2.31
168	90.4	216.1	190.3	2.51
169	95.4	211.1	185.3	2.55
170	100.3	216.1	190.2	2.61
171	105.3	211.1	185.2	2.66
172	110.2	216.1	190.1	2.73
173	115.2	211.1	185.0	2.80
174	120.2	216.1	190.0	2.89
175	125.1	211.1	184.9	2.96
176	35.8	221.1	197.8	2.23
177	45.7	221.1	198.3	2.26
178	55.7	221.1	194.0	2.43
179	65.6	221.1	200.5	2.17
180	75.5	221.1	201.1	2.23
181	85.4	221.1	195.4	2.48
182	95.4	221.1	195.3	2.56
183	105.3	221.1	195.1	2.67

184	115.2	221.1	195.0	2.82
185	125.1	221.1	194.9	2.97

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Vertici strato2	3
5.Coefficienti parziali azioni	3
6.Coefficienti parziali per i parametri geotecnici del terreno	3
7.Stratigrafia	4
8.Risultati analisi pendio [A2+M2+R2]	4
Indice	8

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 100 A 200 m
 IN CONDIZIONI STATICHE



- Strato...1
 $g=1.9t/m^3$
 $Fi=16^\circ$
 $c=6 \text{ kN/m}^2$
- Strato...2
 $g=1.9t/m^3$
 $Fi=18^\circ$
 $c=10 \text{ kN/m}^2$
- Strato...3
 $g=2t/m^3$
 $Fi=28^\circ$
 $c=20 \text{ kN/m}^2$

Quote	0.00	18.49	12.37	20.77	21.65	9.28	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	298.78	15.47	63.02	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90
Distanze Parziali	0.00	18.49	12.37	20.77	21.65	9.28	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	298.78	15.47	63.02	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90
Distanze Progressive	0.00	18.49	30.86	51.63	73.28	82.56	91.79	102.98	114.12	125.26	144.43	163.61	183.79	203.97	224.15	244.33	264.51	284.69	304.87	325.05	345.23	365.41	385.59	405.77	425.95	446.13	466.31	486.49	506.67	526.85	547.03	567.21	587.39	607.57	627.75	647.93	668.11	688.29	708.47	728.65	748.83	769.01	789.19	809.37	829.55	849.73	869.91	890.09	910.27	930.45	950.63	970.81	990.99	1011.17	1031.35	1051.53	1071.71	1091.89	1112.07	1132.25	1152.43	1172.61	1192.79	1212.97	1233.15																																																																	

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.175611/10.985884
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	123.98 m
Ordinata vertice sinistro inferiore yi	140.22 m
Ascissa vertice destro superiore xs	223.19 m
Ordinata vertice destro superiore ys	239.92 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	50.21	23.11
4	61.35	25.95
5	80.53	30.66
6	89.19	32.86
7	107.75	35.96
8	125.69	38.81
9	152.91	42.89
10	173.33	45.62
11	184.47	46.61
12	199.93	47.83
13	216.64	49.27
14	243.24	53.06
15	259.33	55.27
16	276.65	58.06
17	289.64	59.85
18	303.87	61.29
19	319.34	62.72
20	323.67	63.02
21	336.66	63.64
22	344.7	64.23
23	358.93	66.21
24	383.68	70.12
25	400.39	72.6
26	415.85	75.14
27	425.75	76.18
28	444.97	77.91

29	470.75	79.79
30	502.71	81.6
31	510.56	82.07
32	534.98	86.02
33	554.28	88.38
34	566.05	90.23
35	585.67	92.1
36	606.97	94.76
37	629.96	99.23
38	651.82	103.92
39	682.09	107.02
40	700.03	108.18
41	729.18	109.97
42	755.53	113.74
43	772.9	116.69
44	802.05	121.54
45	817.75	123.9

Vertici strato1

N	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	88.42	29.65
4	104.2	31.75
5	126.08	34.66
6	155.17	39.33
7	173.72	42.3
8	193.86	43.34
9	211.16	44.76
10	227.87	46.14
11	254.74	50.49
12	274.51	53.7
13	290.29	56.26
14	312.26	58.25
15	326.11	58.72
16	341.35	59.84
17	354.13	61.7
18	380.78	65.59
19	403.27	68.86
20	418.32	71.06
21	431.94	72.52
22	449.06	73.67
23	471.11	75.15
24	495.77	76.8
25	513.11	77.96
26	532.31	80.9
27	559.94	84.41
28	574.12	86.22
29	599.33	88.67
30	621.23	93.54
31	650.98	100.15
32	683.22	102.72
33	707.27	104.64
34	741.33	107.35
35	776.65	113.11
36	796.99	117.45
37	817.75	121.07

Vertici strato2

N	X (m)	y (m)
1	28.56	18.49
2	116.3	20.69
3	193.7	24.56
4	275.52	29.89
5	352.89	35.88
6	431.94	41.72
7	490.94	46.62
8	539.62	53.35
9	580.11	58.95
10	633.05	70.32
11	665.91	75.36
12	717.25	82.08
13	762.2	89.71
14	817.75	101.22

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3	20		28	2		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.88
Ascissa centro superficie	123.98 m
Ordinata centro superficie	140.22 m
Raggio superficie	114.05 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	124.0	140.2	114.1	2.88
2	128.9	145.2	119.0	2.96
3	133.9	140.2	113.9	3.04
4	138.9	145.2	107.0	3.07
5	143.8	140.2	113.8	3.24
6	148.8	145.2	118.7	3.34

7	153.7	140.2	113.7	3.45
8	158.7	145.2	118.6	3.52
9	163.7	140.2	113.6	3.61
10	168.6	145.2	118.5	3.63
11	173.6	140.2	113.4	3.69
12	178.5	145.2	118.4	3.67
13	183.5	140.2	113.3	3.73
14	188.5	145.2	118.2	3.68
15	193.4	140.2	113.2	3.71
16	198.4	145.2	118.1	3.62
17	203.3	140.2	113.1	3.62
18	208.3	145.2	118.0	3.52
19	213.3	140.2	113.0	3.51
20	218.2	145.2	98.6	3.23
21	223.2	140.2	93.5	3.05
22	124.0	150.2	124.0	2.88
23	128.9	155.2	128.9	2.97
24	133.9	150.2	123.9	3.05
25	138.9	155.2	117.0	3.08
26	143.8	150.2	123.8	3.24
27	148.8	155.2	128.7	3.34
28	153.7	150.2	123.7	3.43
29	158.7	155.2	128.6	3.48
30	163.7	150.2	123.5	3.55
31	168.6	155.2	128.5	3.56
32	173.6	150.2	123.4	3.62
33	178.5	155.2	128.3	3.60
34	183.5	150.2	123.3	3.64
35	188.5	155.2	128.2	3.60
36	193.4	150.2	123.2	3.61
37	198.4	155.2	128.1	3.53
38	203.3	150.2	123.0	3.53
39	208.3	155.2	128.0	3.46
40	213.3	150.2	122.9	3.45
41	218.2	155.2	108.6	3.20
42	223.2	150.2	103.5	3.01
43	124.0	160.2	134.0	2.89
44	128.9	165.1	138.9	2.98
45	133.9	160.2	133.9	3.05
46	138.9	165.1	138.8	3.15
47	143.8	160.2	133.7	3.24
48	148.8	165.1	138.7	3.32
49	153.7	160.2	133.6	3.40
50	158.7	165.1	138.5	3.44
51	163.7	160.2	133.5	3.50
52	168.6	165.1	138.4	3.51
53	173.6	160.2	133.4	3.55
54	178.5	165.1	138.3	3.53
55	183.5	160.2	133.3	3.57
56	188.5	165.1	138.2	3.52
57	193.4	160.2	133.1	3.53
58	198.4	165.1	138.1	3.46
59	203.3	160.2	133.0	3.46
60	208.3	165.1	137.9	3.40
61	213.3	160.2	126.5	3.39
62	218.2	165.1	118.5	3.16
63	223.2	160.2	113.4	3.13
64	124.0	170.1	144.0	2.90
65	128.9	175.1	148.9	2.99

66	133.9	170.1	143.8	3.07
67	138.9	175.1	148.8	3.16
68	143.8	170.1	143.7	3.24
69	148.8	175.1	148.6	3.30
70	153.7	170.1	143.6	3.37
71	158.7	175.1	148.5	3.41
72	163.7	170.1	143.5	3.46
73	168.6	175.1	148.4	3.46
74	173.6	170.1	143.3	3.50
75	178.5	175.1	148.3	3.48
76	183.5	170.1	143.2	3.50
77	188.5	175.1	148.1	3.45
78	193.4	170.1	143.1	3.45
79	198.4	175.1	148.0	3.40
80	203.3	170.1	143.0	3.40
81	208.3	175.1	147.9	3.35
82	213.3	170.1	136.5	3.35
83	218.2	175.1	128.5	3.12
84	223.2	170.1	123.4	3.15
85	124.0	180.1	153.9	2.90
86	128.9	185.1	158.8	3.00
87	133.9	180.1	153.8	3.08
88	138.9	185.1	158.7	3.16
89	143.8	180.1	153.7	3.23
90	148.8	185.1	158.6	3.28
91	153.7	180.1	153.6	3.34
92	158.7	185.1	158.5	3.37
93	163.7	180.1	153.4	3.42
94	168.6	185.1	158.4	3.42
95	173.6	180.1	153.3	3.45
96	178.5	185.1	158.2	3.42
97	183.5	180.1	153.2	3.44
98	188.5	185.1	158.1	3.39
99	193.4	180.1	153.1	3.40
100	198.4	185.1	158.0	3.35
101	203.3	180.1	152.9	3.35
102	208.3	185.1	157.9	3.32
103	213.3	180.1	146.4	3.32
104	218.2	185.1	138.5	3.07
105	223.2	180.1	133.3	3.14
106	124.0	190.1	163.9	2.92
107	128.9	195.1	168.8	3.01
108	133.9	190.1	163.8	3.09
109	138.9	195.1	168.7	3.16
110	143.8	190.1	163.6	3.22
111	148.8	195.1	168.6	3.26
112	153.7	190.1	163.5	3.32
113	158.7	195.1	168.4	3.34
114	163.7	190.1	163.4	3.38
115	168.6	195.1	168.3	3.38
116	173.6	190.1	163.3	3.40
117	178.5	195.1	168.2	3.37
118	183.5	190.1	163.2	3.38
119	188.5	195.1	168.1	3.34
120	193.4	190.1	163.0	3.34
121	198.4	195.1	168.0	3.31
122	203.3	190.1	162.9	3.31
123	208.3	195.1	167.8	3.29
124	213.3	190.1	156.4	3.29

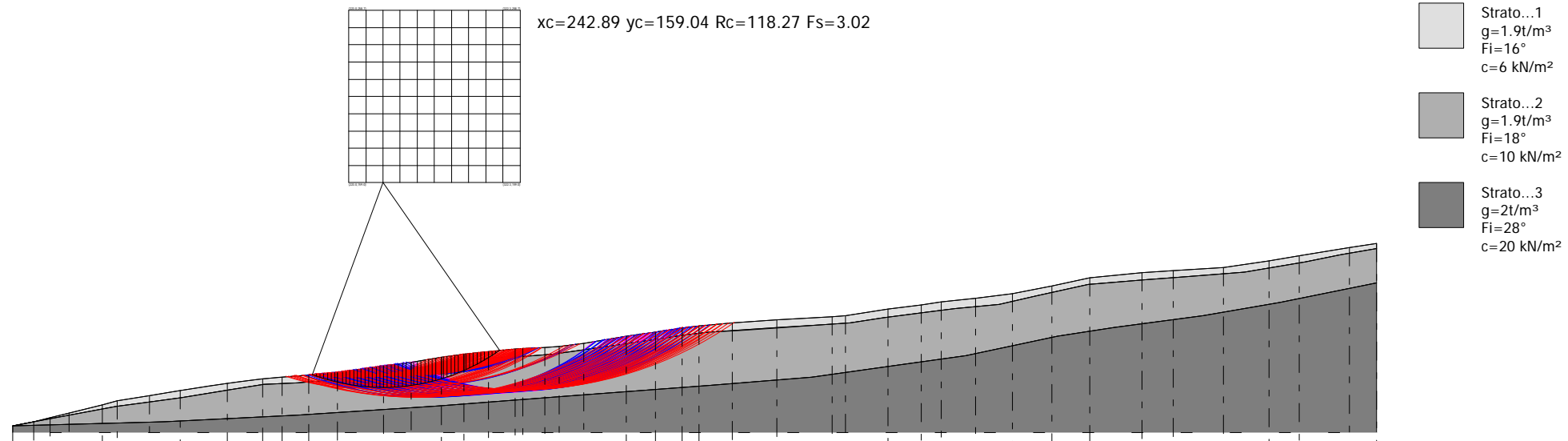
125	218.2	195.1	148.4	3.03
126	223.2	190.1	143.3	3.14
127	124.0	200.0	173.9	2.93
128	128.9	205.0	178.8	3.02
129	133.9	200.0	173.7	3.09
130	138.9	205.0	178.7	3.16
131	143.8	200.0	173.6	3.21
132	148.8	205.0	178.5	3.25
133	153.7	200.0	173.5	3.29
134	158.7	205.0	178.4	3.31
135	163.7	200.0	173.4	3.35
136	168.6	205.0	178.3	3.34
137	173.6	200.0	173.2	3.36
138	178.5	205.0	178.2	3.33
139	183.5	200.0	173.1	3.33
140	188.5	205.0	178.0	3.30
141	193.4	200.0	173.0	3.30
142	198.4	205.0	177.9	3.27
143	203.3	200.0	172.9	3.28
144	208.3	205.0	177.8	3.26
145	213.3	200.0	153.6	3.25
146	218.2	205.0	158.4	3.03
147	223.2	200.0	153.3	3.12
148	124.0	210.0	183.8	2.94
149	128.9	215.0	188.7	3.02
150	133.9	210.0	183.7	3.10
151	138.9	215.0	188.6	3.15
152	143.8	210.0	183.6	3.20
153	148.8	215.0	188.5	3.23
154	153.7	210.0	183.5	3.28
155	158.7	215.0	188.4	3.29
156	163.7	210.0	183.3	3.32
157	168.6	215.0	188.3	3.30
158	173.6	210.0	183.2	3.32
159	178.5	215.0	188.1	3.29
160	183.5	210.0	183.1	3.29
161	188.5	215.0	188.0	3.27
162	193.4	210.0	183.0	3.27
163	198.4	215.0	187.9	3.25
164	203.3	210.0	182.8	3.25
165	208.3	215.0	187.8	3.24
166	213.3	210.0	163.5	3.20
167	218.2	215.0	168.4	3.11
168	223.2	210.0	163.2	3.12
169	124.0	220.0	193.8	2.96
170	128.9	225.0	198.7	3.03
171	133.9	220.0	193.7	3.10
172	138.9	225.0	198.6	3.15
173	143.8	220.0	193.5	3.19
174	148.8	225.0	198.5	3.22
175	153.7	220.0	193.4	3.25
176	158.7	225.0	198.3	3.26
177	163.7	220.0	193.3	3.29
178	168.6	225.0	198.2	3.27
179	173.6	220.0	193.2	3.28
180	178.5	225.0	198.1	3.25
181	183.5	220.0	193.1	3.25
182	188.5	225.0	198.0	3.23
183	193.4	220.0	192.9	3.24

184	198.4	225.0	197.9	3.22
185	203.3	220.0	192.8	3.23
186	208.3	225.0	197.7	3.23
187	213.3	220.0	173.5	3.15
188	218.2	225.0	178.3	3.13
189	223.2	220.0	173.2	3.13
190	124.0	230.0	203.8	2.97
191	128.9	234.9	208.7	3.04
192	133.9	230.0	203.6	3.10
193	138.9	234.9	208.6	3.14
194	143.8	230.0	203.5	3.18
195	148.8	234.9	208.4	3.21
196	153.7	230.0	203.4	3.24
197	158.7	234.9	208.3	3.24
198	163.7	230.0	203.3	3.25
199	168.6	234.9	208.2	3.24
200	173.6	230.0	203.1	3.24
201	178.5	234.9	208.1	3.22
202	183.5	230.0	203.0	3.23
203	188.5	234.9	207.9	3.21
204	193.4	230.0	202.9	3.22
205	198.4	234.9	207.8	3.21
206	203.3	230.0	202.8	3.22
207	208.3	234.9	207.7	3.22
208	213.3	230.0	183.4	3.10
209	218.2	234.9	188.3	3.12
210	223.2	230.0	183.1	3.11
211	124.0	239.9	213.7	2.98
212	133.9	239.9	213.6	3.09
213	143.8	239.9	213.5	3.17
214	153.7	239.9	213.4	3.22
215	163.7	239.9	213.2	3.23
216	173.6	239.9	213.1	3.22
217	183.5	239.9	213.0	3.20
218	193.4	239.9	212.9	3.20
219	203.3	239.9	212.7	3.20
220	213.3	239.9	193.4	3.06
221	223.2	239.9	193.1	3.12

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Vertici strato2	3
5.Coefficienti parziali azioni	3
6.Coefficienti parziali per i parametri geotecnici del terreno	3
7.Stratigrafia	4
8.Risultati analisi pendio [A2+M2+R2]	4
Indice	9

VERIFICA ANALITICA DI STABILITA' DI VERSANTE DA 200 A 300 m IN CONDIZIONI STATICHE



- Strato...1
g=1.9t/m³
Fi=16°
c=6 kN/m²
- Strato...2
g=1.9t/m³
Fi=18°
c=10 kN/m²
- Strato...3
g=2t/m³
Fi=28°
c=20 kN/m²

Quote	0.00	18.49	12.37	20.77	21.65	9.28	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	298.78	15.47	63.02	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90																																																												
Distanze Parziali	0.00	18.49	12.37	20.77	21.65	9.28	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	298.78	15.47	63.02	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90																																																												
Distanze Progressive	0.00	18.49	30.86	51.63	73.28	82.56	91.84	103.03	114.17	125.31	144.28	163.46	182.64	201.82	221.00	240.18	259.36	278.54	297.72	316.90	336.08	355.26	374.44	393.62	412.80	431.98	451.16	470.34	489.52	508.70	527.88	547.06	566.24	585.42	604.60	623.78	642.96	662.14	681.32	700.50	719.68	738.86	758.04	777.22	796.40	815.58	834.76	853.94	873.12	892.30	911.48	930.66	949.84	969.02	988.20	1007.38	1026.56	1045.74	1064.92	1084.10	1103.28	1122.46	1141.64	1160.82	1179.99	1199.17	1218.35	1237.53	1256.71	1275.89	1295.07	1314.25	1333.43	1352.61	1371.79	1390.97	1410.15	1429.33	1448.51	1467.69	1486.87	1506.05	1525.23	1544.41	1563.59	1582.77	1601.95	1621.13	1640.31	1659.49	1678.67	1697.85	1717.03	1736.21	1755.39	1774.57	1793.75	1812.93	1832.11	1851.29	1870.47	1889.65	1908.83	1928.01	1947.19	1966.37	1985.55	2004.73	2023.91	2043.09	2062.27	2081.45	2100.63	2119.81	2138.99	2158.17	2177.35	2196.53	2215.71	2234.89	2254.07	2273.25	2292.43	2311.61	2330.79	2350.00	2369.20	2388.40	2407.60	2426.80	2446.00	2465.20	2484.40	2503.60	2522.80	2542.00	2561.20	2580.40	2600.00	2619.60	2639.20	2658.80	2678.40	2698.00	2717.60	2737.20	2756.80	2776.40	2796.00	2815.60	2835.20	2854.80	2874.40	2894.00	2913.60	2933.20	2952.80	2972.40	2992.00	3011.60	3031.20	3050.80	3070.40	3090.00	3109.60	3129.20	3148.80	3168.40	3188.00	3207.60	3227.20	3246.80	3266.40	3286.00	3305.60	3325.20	3344.80	3364.40	3384.00	3403.60	3423.20	3442.80	3462.40	3482.00	3501.60	3521.20	3540.80	3560.40	3580.00	3600.00

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.175611/10.985884
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	223.04 m
Ordinata vertice sinistro inferiore yi	159.04 m
Ascissa vertice destro superiore xs	322.25 m
Ordinata vertice destro superiore ys	258.74 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	50.21	23.11
4	61.35	25.95
5	80.53	30.66
6	89.19	32.86
7	107.75	35.96
8	125.69	38.81
9	152.91	42.89
10	173.33	45.62
11	184.47	46.61
12	199.93	47.83
13	216.64	49.27
14	243.24	53.06
15	259.33	55.27
16	276.65	58.06
17	289.64	59.85
18	303.87	61.29
19	319.34	62.72
20	323.67	63.02
21	336.66	63.64
22	344.7	64.23
23	358.93	66.21
24	383.68	70.12
25	400.39	72.6
26	415.85	75.14
27	425.75	76.18
28	444.97	77.91

29	470.75	79.79
30	502.71	81.6
31	510.56	82.07
32	534.98	86.02
33	554.28	88.38
34	566.05	90.23
35	585.67	92.1
36	606.97	94.76
37	629.96	99.23
38	651.82	103.92
39	682.09	107.02
40	700.03	108.18
41	729.18	109.97
42	755.53	113.74
43	772.9	116.69
44	802.05	121.54
45	817.75	123.9

Vertici strato1

N	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	88.42	29.65
4	104.2	31.75
5	126.08	34.66
6	155.17	39.33
7	173.72	42.3
8	193.86	43.34
9	211.16	44.76
10	227.87	46.14
11	254.74	50.49
12	274.51	53.7
13	290.29	56.26
14	312.26	58.25
15	326.11	58.72
16	341.35	59.84
17	354.13	61.7
18	380.78	65.59
19	403.27	68.86
20	418.32	71.06
21	431.94	72.52
22	449.06	73.67
23	471.11	75.15
24	495.77	76.8
25	513.11	77.96
26	532.31	80.9
27	559.94	84.41
28	574.12	86.22
29	599.33	88.67
30	621.23	93.54
31	650.98	100.15
32	683.22	102.72
33	707.27	104.64
34	741.33	107.35
35	776.65	113.11
36	796.99	117.45
37	817.75	121.07

Vertici strato2

N	X (m)	y (m)
1	28.56	18.49
2	116.3	20.69
3	193.7	24.56
4	275.52	29.89
5	352.89	35.88
6	431.94	41.72
7	490.94	46.62
8	539.62	53.35
9	580.11	58.95
10	633.05	70.32
11	665.91	75.36
12	717.25	82.08
13	762.2	89.71
14	817.75	101.22

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3	20		28	2		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	3.02
Ascissa centro superficie	242.89 m
Ordinata centro superficie	159.04 m
Raggio superficie	118.27 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	223.0	159.0	112.3	3.10
2	228.0	164.0	123.6	3.12
3	233.0	159.0	118.5	3.07
4	237.9	164.0	123.4	3.04
5	242.9	159.0	118.3	3.02
6	247.8	164.0	123.1	3.04

7	252.8	159.0	118.0	3.07
8	257.8	164.0	122.9	3.13
9	262.7	159.0	117.8	3.20
10	267.7	164.0	115.9	3.29
11	272.6	159.0	110.6	3.38
12	277.6	164.0	114.9	3.55
13	282.6	159.0	123.5	3.64
14	287.5	164.0	128.0	3.67
15	292.5	159.0	122.7	3.75
16	297.5	164.0	127.3	3.73
17	302.4	159.0	122.0	3.80
18	307.4	164.0	126.6	3.75
19	312.3	159.0	121.2	3.80
20	317.3	164.0	125.8	3.73
21	322.3	159.0	120.5	3.76
22	223.0	169.0	122.3	3.14
23	228.0	174.0	133.6	3.12
24	233.0	169.0	128.5	3.07
25	237.9	174.0	126.8	3.04
26	242.9	169.0	128.2	3.03
27	247.8	174.0	133.1	3.06
28	252.8	169.0	128.0	3.08
29	257.8	174.0	132.8	3.15
30	262.7	169.0	127.7	3.22
31	267.7	174.0	125.9	3.31
32	272.6	169.0	120.4	3.41
33	277.6	174.0	138.6	3.51
34	282.6	169.0	133.3	3.59
35	287.5	174.0	137.9	3.60
36	292.5	169.0	132.6	3.67
37	297.5	174.0	137.2	3.65
38	302.4	169.0	131.9	3.70
39	307.4	174.0	136.4	3.66
40	312.3	169.0	131.1	3.70
41	317.3	174.0	135.7	3.63
42	322.3	169.0	130.4	3.65
43	223.0	179.0	132.2	3.13
44	228.0	184.0	137.1	3.10
45	233.0	179.0	131.9	3.06
46	237.9	184.0	136.7	3.03
47	242.9	179.0	131.6	3.04
48	247.8	184.0	143.1	3.07
49	252.8	179.0	137.9	3.09
50	257.8	184.0	142.8	3.17
51	262.7	179.0	131.0	3.24
52	267.7	184.0	135.8	3.33
53	272.6	179.0	130.2	3.44
54	277.6	184.0	148.5	3.48
55	282.6	179.0	143.2	3.54
56	287.5	184.0	147.8	3.55
57	292.5	179.0	142.5	3.60
58	297.5	184.0	147.0	3.58
59	302.4	179.0	141.7	3.62
60	307.4	184.0	146.3	3.58
61	312.3	179.0	141.0	3.61
62	317.3	184.0	145.6	3.55
63	322.3	179.0	140.3	3.56
64	223.0	189.0	142.2	3.13
65	228.0	193.9	147.0	3.10

66	233.0	189.0	141.9	3.05
67	237.9	193.9	146.7	3.05
68	242.9	189.0	141.6	3.04
69	247.8	193.9	153.0	3.08
70	252.8	189.0	141.3	3.11
71	257.8	193.9	146.1	3.18
72	262.7	189.0	141.0	3.25
73	267.7	193.9	145.6	3.36
74	272.6	189.0	153.8	3.43
75	277.6	193.9	158.4	3.45
76	282.6	189.0	153.1	3.50
77	287.5	193.9	157.7	3.50
78	292.5	189.0	152.3	3.54
79	297.5	193.9	156.9	3.52
80	302.4	189.0	151.6	3.55
81	307.4	193.9	156.2	3.51
82	312.3	189.0	150.9	3.53
83	317.3	193.9	155.4	3.47
84	322.3	189.0	150.1	3.48
85	223.0	198.9	152.1	3.13
86	228.0	203.9	157.0	3.08
87	233.0	198.9	151.8	3.05
88	237.9	203.9	156.7	3.05
89	242.9	198.9	151.5	3.06
90	247.8	203.9	163.0	3.10
91	252.8	198.9	151.2	3.13
92	257.8	203.9	156.1	3.20
93	262.7	198.9	150.9	3.28
94	267.7	203.9	162.2	3.37
95	272.6	198.9	163.7	3.41
96	277.6	203.9	168.3	3.41
97	282.6	198.9	163.0	3.45
98	287.5	203.9	167.5	3.45
99	292.5	198.9	162.2	3.49
100	297.5	203.9	166.8	3.47
101	302.4	198.9	161.5	3.49
102	307.4	203.9	166.1	3.45
103	312.3	198.9	160.8	3.46
104	317.3	203.9	165.3	3.41
105	322.3	198.9	160.0	3.42
106	223.0	208.9	162.1	3.13
107	228.0	213.9	166.9	3.08
108	233.0	208.9	161.8	3.07
109	237.9	213.9	166.6	3.05
110	242.9	208.9	161.5	3.07
111	247.8	213.9	166.3	3.12
112	252.8	208.9	161.2	3.15
113	257.8	213.9	166.0	3.22
114	262.7	208.9	167.6	3.30
115	267.7	213.9	178.9	3.36
116	272.6	208.9	173.6	3.38
117	277.6	213.9	178.1	3.38
118	282.6	208.9	172.8	3.41
119	287.5	213.9	177.4	3.41
120	292.5	208.9	172.1	3.43
121	297.5	213.9	176.7	3.42
122	302.4	208.9	171.4	3.43
123	307.4	213.9	175.9	3.40
124	312.3	208.9	170.6	3.41

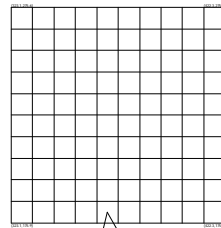
125	317.3	213.9	175.2	3.36
126	322.3	208.9	169.9	3.37
127	223.0	218.9	172.1	3.12
128	228.0	223.8	176.9	3.10
129	233.0	218.9	171.8	3.07
130	237.9	223.8	176.6	3.07
131	242.9	218.9	171.5	3.08
132	247.8	223.8	176.3	3.13
133	252.8	218.9	171.2	3.18
134	257.8	223.8	176.0	3.25
135	262.7	218.9	177.5	3.31
136	267.7	223.8	188.8	3.34
137	272.6	218.9	183.5	3.36
138	277.6	223.8	188.0	3.35
139	282.6	218.9	182.7	3.38
140	287.5	223.8	187.3	3.37
141	292.5	218.9	182.0	3.39
142	297.5	223.8	186.6	3.37
143	302.4	218.9	181.2	3.39
144	307.4	223.8	185.8	3.35
145	312.3	218.9	180.5	3.36
146	317.3	223.8	185.1	3.32
147	322.3	218.9	179.8	3.33
148	223.0	228.8	182.0	3.11
149	228.0	233.8	186.9	3.09
150	233.0	228.8	181.7	3.08
151	237.9	233.8	186.6	3.08
152	242.9	228.8	181.4	3.09
153	247.8	233.8	186.2	3.15
154	252.8	228.8	181.1	3.20
155	257.8	233.8	185.9	3.27
156	262.7	228.8	187.3	3.32
157	267.7	233.8	198.6	3.32
158	272.6	228.8	193.3	3.34
159	277.6	233.8	197.9	3.33
160	282.6	228.8	192.6	3.34
161	287.5	233.8	197.2	3.33
162	292.5	228.8	191.9	3.35
163	297.5	233.8	196.4	3.33
164	302.4	228.8	191.1	3.34
165	307.4	233.8	195.7	3.31
166	312.3	228.8	190.4	3.31
167	317.3	233.8	195.0	3.29
168	322.3	228.8	189.7	3.30
169	223.0	238.8	192.0	3.11
170	228.0	243.8	196.8	3.10
171	233.0	238.8	191.7	3.09
172	237.9	243.8	196.5	3.09
173	242.9	238.8	191.4	3.11
174	247.8	243.8	196.2	3.16
175	252.8	238.8	191.1	3.22
176	257.8	243.8	202.6	3.29
177	262.7	238.8	203.9	3.31
178	267.7	243.8	208.5	3.31
179	272.6	238.8	203.2	3.31
180	277.6	243.8	207.8	3.30
181	282.6	238.8	202.5	3.31
182	287.5	243.8	207.0	3.30
183	292.5	238.8	201.7	3.31

184	297.5	243.8	206.3	3.29
185	302.4	238.8	201.0	3.30
186	307.4	243.8	205.6	3.27
187	312.3	238.8	200.3	3.28
188	317.3	243.8	204.8	3.26
189	322.3	238.8	199.5	3.27
190	223.0	248.8	202.0	3.12
191	228.0	253.8	206.8	3.11
192	233.0	248.8	201.6	3.09
193	237.9	253.8	206.5	3.11
194	242.9	248.8	201.3	3.12
195	247.8	253.8	206.2	3.18
196	252.8	248.8	201.0	3.24
197	257.8	253.8	212.4	3.29
198	262.7	248.8	213.8	3.31
199	267.7	253.8	218.4	3.29
200	272.6	248.8	213.1	3.29
201	277.6	253.8	217.7	3.28
202	282.6	248.8	212.3	3.29
203	287.5	253.8	216.9	3.27
204	292.5	248.8	211.6	3.28
205	297.5	253.8	216.2	3.26
206	302.4	248.8	210.9	3.26
207	307.4	253.8	215.4	3.24
208	312.3	248.8	210.1	3.25
209	317.3	253.8	214.7	3.24
210	322.3	248.8	209.4	3.25
211	223.0	258.7	211.9	3.11
212	233.0	258.7	211.6	3.10
213	242.9	258.7	211.3	3.14
214	252.8	258.7	211.0	3.26
215	262.7	258.7	223.7	3.29
216	272.6	258.7	223.0	3.27
217	282.6	258.7	222.2	3.26
218	292.5	258.7	221.5	3.25
219	302.4	258.7	220.8	3.23
220	312.3	258.7	220.0	3.23
221	322.3	258.7	219.3	3.23

Indice

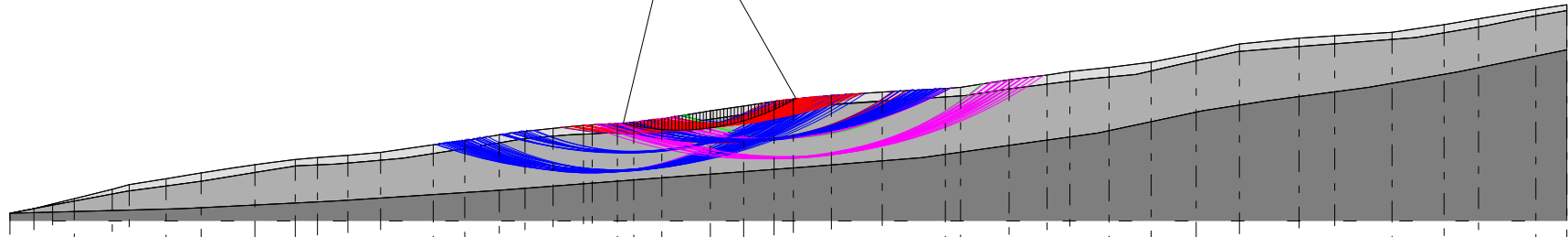
1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Vertici strato2	3
5.Coefficienti parziali azioni	3
6.Coefficienti parziali per i parametri geotecnici del terreno	3
7.Stratigrafia	4
8.Risultati analisi pendio [A2+M2+R2]	4
Indice	9

VERIFICA ANALITICA DI STABILITA' DI VERSANTE DA 300 A 400 m IN CONDIZIONI STATICHE



$x_c=367.74$ $y_c=180.87$ $R_c=120.34$ $F_s=2.86$

- Strato...1
 $g=1.9t/m^3$
 $Fi=16^\circ$
 $c=6$ kN/m²
- Strato...2
 $g=1.9t/m^3$
 $Fi=18^\circ$
 $c=10$ kN/m²
- Strato...3
 $g=2t/m^3$
 $Fi=28^\circ$
 $c=20$ kN/m²



Quote	0.00	18.49	12.37	20.77	21.65	9.28	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	288.78	15.47	63.02	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
Distanze Parziali	0.00	18.49	12.37	20.77	21.65	9.28	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	288.78	15.47	63.02	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
Distanze Progressive	0.00	18.49	30.86	51.63	73.28	82.56	105.67	138.46	159.60	185.55	237.52	256.70	287.36	347.99	356.65	389.51	408.70	427.26	463.22	481.16	500.07	518.91	546.17	573.43	600.65	627.74	654.72	681.60	708.47	735.31	762.14	788.96	815.77	842.57	869.36	896.14	922.91	949.67	976.42	1003.16	1029.89	1056.61	1083.32	1110.02	1136.71	1163.39	1190.06	1216.72	1243.37	1270.01	1296.64	1323.26	1349.87	1376.47	1403.05	1429.62	1456.18	1482.73	1509.27	1535.80	1562.32	1588.83	1615.33	1641.81	1668.28	1694.74	1721.19	1747.63	1774.06	1800.48	1826.89	1853.29	1879.68	1906.06	1932.43	1958.79	1985.14	2011.48	2037.81	2064.13	2090.44	2116.74	2143.03	2169.31	2195.58	2221.84	2248.09	2274.33	2300.56	2326.78	2352.99	2379.19	2405.38	2431.56	2457.73	2483.89	2510.04	2536.18	2562.31	2588.43	2614.54	2640.64	2666.73	2692.81	2718.88	2744.94	2770.99	2797.03	2823.06	2849.08	2875.09	2901.09	2927.08	2953.06	2979.03	3004.99	3030.94	3056.88	3082.81	3108.73	3134.64	3160.54	3186.43	3212.31	3238.18	3264.04	3289.89	3315.73	3341.56	3367.38	3393.19	3419.00	3444.80	3470.59	3496.37	3522.14	3547.90	3573.65	3600.00	3626.34	3652.67	3679.00	3705.32	3731.63	3757.93	3784.22	3810.50	3836.77	3863.04	3889.30	3915.55	3941.79	3968.02	3994.24	4020.45	4046.65	4072.84	4099.02	4125.19	4151.35	4177.50	4203.64	4229.77	4255.89	4282.00	4308.10	4334.19	4360.27	4386.34	4412.40	4438.45	4464.49	4490.52	4516.54	4542.55	4568.55	4594.54	4620.52	4646.49	4672.45	4698.40	4724.34	4750.27	4776.19	4802.10	4828.00	4853.89	4879.77	4905.64	4931.50	4957.35	4983.19	5009.02	5034.84	5060.65	5086.45	5112.24	5138.02	5163.79	5189.55	5215.30	5241.04	5266.77	5292.49	5318.20	5343.90	5369.59	5395.27	5420.94	5446.60	5472.25	5497.89	5523.52	5549.14	5574.75	5600.35	5625.94	5651.52	5677.09	5702.65	5728.20	5753.74	5779.27	5804.79	5830.30	5855.80	5881.29	5906.77	5932.24	5957.70	5983.15	6008.59	6034.02	6059.44	6084.85	6110.25	6135.64	6161.02	6186.39	6211.75	6237.10	6262.44	6287.77	6313.09	6338.40	6363.70	6389.00	6414.29	6439.57	6464.84	6490.10	6515.35	6540.59	6565.82	6591.04	6616.25	6641.45	6666.64	6691.82	6716.99	6742.15	6767.30	6792.44	6817.57	6842.69	6867.80	6892.90	6917.99	6943.07	6968.14	6993.20	7018.25	7043.29	7068.32	7093.34	7118.35	7143.35	7168.34	7193.32	7218.29	7243.25	7268.20	7293.14	7318.07	7342.99	7367.90	7392.80	7417.69	7442.57	7467.44	7492.30	7517.15	7541.99	7566.82	7591.64	7616.45	7641.25	7666.03	7690.80	7715.56	7740.31	7765.05	7789.78	7814.50	7839.21	7863.91	7888.60	7913.28	7937.95	7962.61	7987.26	8011.90	8036.53	8061.15	8085.76	8110.35	8134.93	8159.50	8184.06	8208.61	8233.15	8257.68	8282.20	8306.71	8331.21	8355.70	8380.18	8404.65	8429.11	8453.56	8478.00	8502.43	8526.85	8551.26	8575.66	8600.05	8624.43	8648.80	8673.16	8697.51	8721.85	8746.18	8770.50	8794.81	8819.11	8843.40	8867.68	8891.95	8916.21	8940.46	8964.70	8988.93	9013.15	9037.36	9061.56	9085.75	9109.93	9134.10	9158.26	9182.41	9206.55	9230.68	9254.80	9278.91	9303.01	9327.10	9351.18	9375.25	9399.31	9423.36	9447.40	9471.43	9495.45	9519.46	9543.46	9567.45	9591.43	9615.40	9639.36	9663.31	9687.25	9711.18	9735.10	9759.01	9782.91	9806.80	9830.68	9854.55	9878.41	9902.26	9926.10	9949.93	9973.75	9997.56	10021.36	10045.15	10068.93	10092.70	10116.46	10140.21	10163.95	10187.68	10211.40	10235.11	10258.81	10282.50	10306.18	10329.85	10353.51	10377.16	10400.80	10424.43	10448.05	10471.66	10495.26	10518.85	10542.43	10565.99	10589.54	10613.08	10636.61	10660.13	10683.64	10707.14	10730.63	10754.11	10777.58	10801.04	10824.49	10847.93	10871.36	10894.78	10918.19	10941.59	10964.98	10988.36	11011.73	11035.09	11058.44	11081.78	11105.11	11128.43	11151.74	11175.04	11198.33	11221.61	11244.88	11268.14	11291.39	11314.63	11337.86	11361.08	11384.29	11407.49	11430.68	11453.86	11477.03	11500.19	11523.34	11546.48	11569.61	11592.73	11615.84	11638.94	11662.03	11685.11	11708.18	11731.24	11754.29	11777.33	11800.36	11823.38	11846.39	11869.39	11892.38	11915.36	11938.33	11961.29	11984.24	12007.18	12030.11	12053.03	12075.94	12098.84	12121.73	12144.61	12167.48	12190.34	12213.19	12236.03	12258.86	12281.68	12304.49	12327.29	12349.98	12372.66	12395.33	12417.99	12440.64	12463.28	12485.91	12508.53	12531.14	12553.74	12576.33	12598.91	12621.48	12644.04	12666.59	12689.13	12711.66	12734.18	12756.69	12779.19	12801.68	12824.16	12846.63	12869.09	12891.54	12913.98	12936.41	12958.83	12981.24	13003.64	13026.03	13048.41	13070.78	13093.14	13115.49	13137.83	13160.16	13182.48	13204.79	13227.09	13249.38	13271.66	13293.93	13316.19	13338.44	13360.68	13382.91	13405.13	13427.34	13449.54	13471.73	13493.91	13516.08	13538.24	13560.39	13582.53	13604.66	13626.78	13648.89	13670.99	13693.08	13715.16	13737.23	13759.29	13781.34	13803.38	13825.41	13847.43	13869.44	13891.44	13913.43	13935.41	13957.38	13979.34	14001.29	14023.23	14045.16	14067.08	14088.99	14110.89	14132.78	14154.66	14176.53	14198.39	14220.24	14242.08	14263.91	14285.73	14307.54	14329.34	14351.13	14372.91	14394.68	14416.44	14438.19	14459.93	14481.66	14503.38	14525.09	14546.79	14568.48	14590.16	14611.83	14633.49	14655.14	14676.78	14698.41	14720.03	14741.64	14763.24	14784.83	14806.41	14827.98	14849.54	14871.09	14892.63	14914.16	14935.68	14957.19	14978.69	15000.18	15021.66	15043.13	15064.59	15086.04	15107.48	15128.91	15150.33	15171.74	15193.14	15214.53	15235.91	15257.28	15278.64	15300.00	15321.34	15342.67	15363.99	15385.30	15406.60	15427.89	15449.17	15470.44	15491.70	15512.95	15534.19	15555.42	15576.64	15597.85	15619.05	15640.24	15661.42	15682.59	15703.75	15724.90	15746.04	15767.17	15788.29	15809.40	15830.50	15851.59	15872.67	15893.74	15914.80	15935.85	15956.89	15977.92	15998.94	16019.95	16040.95	16061.94	16082.92	16103.89	16124.85	16145.80	16166.74	16187.67	16208.59	16229.50	16250.40	16271.29	16292.17	16313.04	16333.90	16354.75	16375.59	16396.42	16417.24	16438.05	16458.85	16479.64	16500.42	16521.19	16541.95	16562.70	16583.44	16604.17	16624.89	16645.60	16666.30	16687.00	16707.69	16728.37	16749.04	16769.70	16790.35	16810.99	16831.62	16852.24	16872.85	16893.45	16914.04	16934.62	16955.1

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.175611/10.985884
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	323.1 m
Ordinata vertice sinistro inferiore yi	175.88 m
Ascissa vertice destro superiore xs	422.31 m
Ordinata vertice destro superiore ys	275.58 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	50.21	23.11
4	61.35	25.95
5	80.53	30.66
6	89.19	32.86
7	107.75	35.96
8	125.69	38.81
9	152.91	42.89
10	173.33	45.62
11	184.47	46.61
12	199.93	47.83
13	216.64	49.27
14	243.24	53.06
15	259.33	55.27
16	276.65	58.06
17	289.64	59.85
18	303.87	61.29
19	319.34	62.72
20	323.67	63.02
21	336.66	63.64
22	344.7	64.23
23	358.93	66.21
24	383.68	70.12
25	400.39	72.6
26	415.85	75.14
27	425.75	76.18
28	444.97	77.91

29	470.75	79.79
30	502.71	81.6
31	510.56	82.07
32	534.98	86.02
33	554.28	88.38
34	566.05	90.23
35	585.67	92.1
36	606.97	94.76
37	629.96	99.23
38	651.82	103.92
39	682.09	107.02
40	700.03	108.18
41	729.18	109.97
42	755.53	113.74
43	772.9	116.69
44	802.05	121.54
45	817.75	123.9

Vertici strato1

N	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	88.42	29.65
4	104.2	31.75
5	126.08	34.66
6	155.17	39.33
7	173.72	42.3
8	193.86	43.34
9	211.16	44.76
10	227.87	46.14
11	254.74	50.49
12	274.51	53.7
13	290.29	56.26
14	312.26	58.25
15	326.11	58.72
16	341.35	59.84
17	354.13	61.7
18	380.78	65.59
19	403.27	68.86
20	418.32	71.06
21	431.94	72.52
22	449.06	73.67
23	471.11	75.15
24	495.77	76.8
25	513.11	77.96
26	532.31	80.9
27	559.94	84.41
28	574.12	86.22
29	599.33	88.67
30	621.23	93.54
31	650.98	100.15
32	683.22	102.72
33	707.27	104.64
34	741.33	107.35
35	776.65	113.11
36	796.99	117.45
37	817.75	121.07

Vertici strato2

N	X (m)	y (m)
1	28.56	18.49
2	116.3	20.69
3	193.7	24.56
4	275.52	29.89
5	352.89	35.88
6	431.94	41.72
7	490.94	46.62
8	539.62	53.35
9	580.11	58.95
10	633.05	70.32
11	665.91	75.36
12	717.25	82.08
13	762.2	89.71
14	817.75	101.22

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3	20		28	2		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.86
Ascissa centro superficie	367.74 m
Ordinata centro superficie	180.87 m
Raggio superficie	120.34 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	323.1	175.9	137.1	3.58
2	328.1	180.9	141.7	3.51
3	333.0	175.9	136.4	3.51
4	338.0	180.9	141.0	3.45
5	342.9	175.9	127.1	3.41
6	347.9	180.9	131.5	3.29

7	352.9	175.9	117.3	3.15
8	357.8	180.9	121.6	2.98
9	362.8	175.9	116.1	2.89
10	367.7	180.9	120.3	2.86
11	372.7	175.9	114.8	2.86
12	377.7	180.9	119.1	2.90
13	382.6	175.9	113.6	2.95
14	387.6	180.9	117.9	3.04
15	392.5	175.9	112.4	3.13
16	397.5	180.9	116.7	3.25
17	402.5	175.9	121.2	3.36
18	407.4	180.9	125.6	3.49
19	412.4	175.9	120.2	3.63
20	417.3	180.9	124.6	3.78
21	422.3	175.9	119.2	3.96
22	323.1	185.9	147.0	3.50
23	328.1	190.8	151.6	3.44
24	333.0	185.9	146.3	3.45
25	338.0	190.8	150.8	3.41
26	342.9	185.9	136.9	3.36
27	347.9	190.8	141.4	3.26
28	352.9	185.9	127.1	3.12
29	357.8	190.8	131.4	2.97
30	362.8	185.9	125.9	2.90
31	367.7	190.8	130.2	2.86
32	372.7	185.9	124.6	2.87
33	377.7	190.8	128.9	2.92
34	382.6	185.9	123.4	2.97
35	387.6	190.8	127.7	3.07
36	392.5	185.9	122.2	3.15
37	397.5	190.8	136.5	3.27
38	402.5	185.9	131.0	3.37
39	407.4	190.8	135.5	3.49
40	412.4	185.9	130.1	3.63
41	417.3	190.8	134.5	3.78
42	422.3	185.9	129.1	3.95
43	323.1	195.8	156.9	3.44
44	328.1	200.8	161.5	3.39
45	333.0	195.8	156.1	3.41
46	338.0	200.8	160.7	3.37
47	342.9	195.8	146.8	3.32
48	347.9	200.8	142.4	3.24
49	352.9	195.8	136.9	3.09
50	357.8	200.8	141.2	2.95
51	362.8	195.8	135.7	2.90
52	367.7	200.8	140.0	2.87
53	372.7	195.8	134.5	2.89
54	377.7	200.8	138.7	2.95
55	382.6	195.8	133.2	3.00
56	387.6	200.8	137.5	3.09
57	392.5	195.8	132.0	3.17
58	397.5	200.8	146.3	3.28
59	402.5	195.8	140.9	3.37
60	407.4	200.8	145.3	3.50
61	412.4	195.8	139.9	3.63
62	417.3	200.8	144.3	3.79
63	422.3	195.8	149.5	3.94
64	323.1	205.8	166.8	3.38
65	328.1	210.8	171.3	3.35

66	333.0	205.8	166.0	3.36
67	338.0	210.8	170.6	3.34
68	342.9	205.8	156.6	3.30
69	347.9	210.8	152.2	3.21
70	352.9	205.8	146.7	3.06
71	357.8	210.8	151.0	2.95
72	362.8	205.8	145.5	2.90
73	367.7	210.8	149.8	2.89
74	372.7	205.8	144.3	2.91
75	377.7	210.8	148.6	2.97
76	382.6	205.8	143.0	3.02
77	387.6	210.8	147.3	3.11
78	392.5	205.8	151.7	3.20
79	397.5	210.8	156.1	3.29
80	402.5	205.8	150.7	3.39
81	407.4	210.8	155.2	3.51
82	412.4	205.8	149.7	3.64
83	417.3	210.8	164.7	3.79
84	422.3	205.8	159.4	3.89
85	323.1	215.8	176.6	3.34
86	328.1	220.7	181.2	3.32
87	333.0	215.8	175.9	3.33
88	338.0	220.7	180.5	3.31
89	342.9	215.8	166.5	3.27
90	347.9	220.7	162.1	3.18
91	352.9	215.8	156.5	3.05
92	357.8	220.7	160.8	2.96
93	362.8	215.8	155.3	2.90
94	367.7	220.7	159.6	2.90
95	372.7	215.8	154.1	2.92
96	377.7	220.7	158.4	2.99
97	382.6	215.8	152.9	3.04
98	387.6	220.7	157.2	3.14
99	392.5	215.8	161.6	3.21
100	397.5	220.7	166.0	3.31
101	402.5	215.8	160.6	3.40
102	407.4	220.7	165.0	3.53
103	412.4	215.8	159.6	3.65
104	417.3	220.7	174.6	3.76
105	422.3	215.8	169.3	3.85
106	323.1	225.7	186.5	3.30
107	328.1	230.7	191.1	3.29
108	333.0	225.7	185.8	3.30
109	338.0	230.7	181.7	3.29
110	342.9	225.7	176.3	3.26
111	347.9	230.7	171.9	3.16
112	352.9	225.7	166.4	3.04
113	357.8	230.7	170.6	2.96
114	362.8	225.7	165.1	2.92
115	367.7	230.7	169.4	2.92
116	372.7	225.7	163.9	2.95
117	377.7	230.7	168.2	3.01
118	382.6	225.7	162.7	3.07
119	387.6	230.7	167.0	3.17
120	392.5	225.7	171.4	3.24
121	397.5	230.7	175.8	3.32
122	402.5	225.7	170.4	3.42
123	407.4	230.7	174.9	3.54
124	412.4	225.7	169.4	3.66

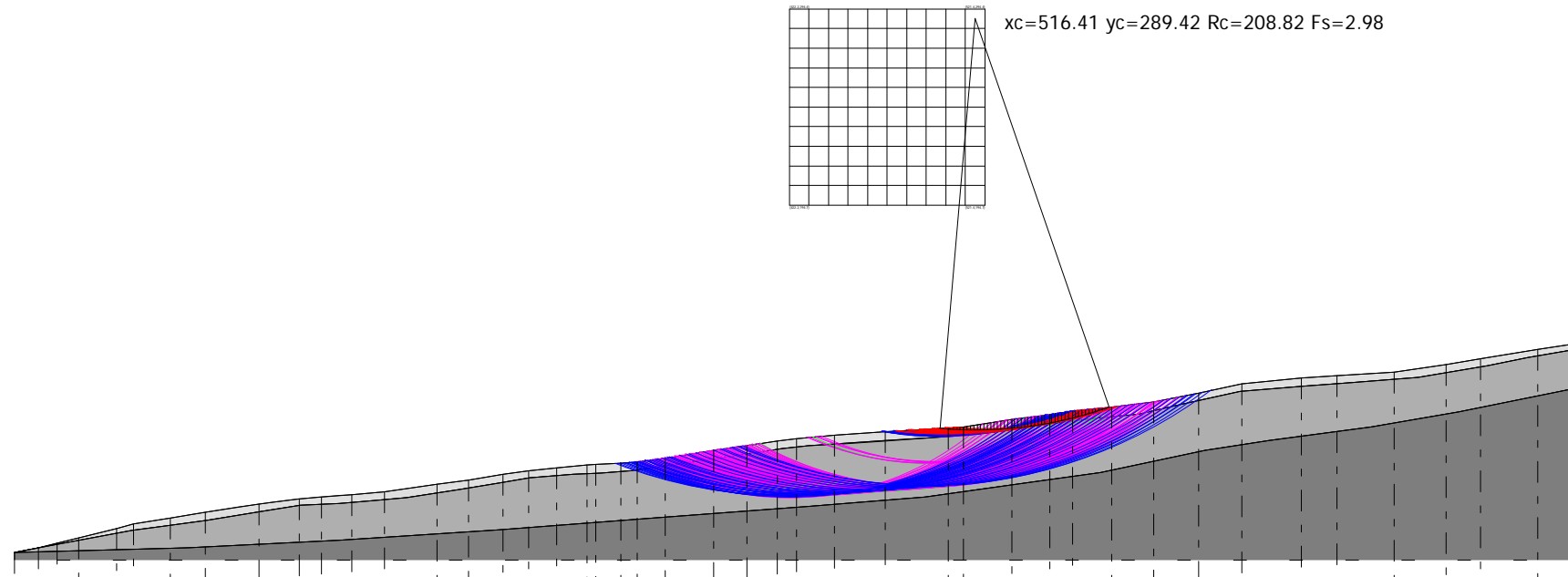
125	417.3	230.7	184.5	3.73
126	422.3	225.7	179.2	3.81
127	323.1	235.7	196.4	3.28
128	328.1	240.7	201.0	3.27
129	333.0	235.7	195.7	3.28
130	338.0	240.7	191.6	3.27
131	342.9	235.7	186.2	3.24
132	347.9	240.7	181.7	3.13
133	352.9	235.7	176.2	3.04
134	357.8	240.7	180.5	2.97
135	362.8	235.7	174.9	2.93
136	367.7	240.7	179.2	2.94
137	372.7	235.7	173.7	2.97
138	377.7	240.7	178.0	3.03
139	382.6	235.7	172.5	3.10
140	387.6	240.7	186.7	3.20
141	392.5	235.7	181.3	3.25
142	397.5	240.7	185.7	3.34
143	402.5	235.7	180.3	3.43
144	407.4	240.7	184.7	3.56
145	412.4	235.7	189.8	3.67
146	417.3	240.7	194.3	3.70
147	422.3	235.7	189.0	3.77
148	323.1	245.7	206.3	3.26
149	328.1	250.7	210.8	3.25
150	333.0	245.7	205.5	3.26
151	338.0	250.7	201.4	3.27
152	342.9	245.7	196.0	3.24
153	347.9	250.7	191.5	3.13
154	352.9	245.7	186.0	3.04
155	357.8	250.7	190.3	2.98
156	362.8	245.7	184.8	2.94
157	367.7	250.7	189.1	2.95
158	372.7	245.7	183.5	2.98
159	377.7	250.7	187.8	3.06
160	382.6	245.7	182.3	3.12
161	387.6	250.7	196.5	3.22
162	392.5	245.7	191.1	3.27
163	397.5	250.7	195.5	3.36
164	402.5	245.7	190.1	3.45
165	407.4	250.7	194.5	3.57
166	412.4	245.7	199.6	3.65
167	417.3	250.7	204.2	3.67
168	422.3	245.7	198.9	3.73
169	323.1	255.6	216.1	3.24
170	328.1	260.6	220.7	3.24
171	333.0	255.6	215.4	3.25
172	338.0	260.6	211.3	3.25
173	342.9	255.6	205.9	3.23
174	347.9	260.6	201.3	3.12
175	352.9	255.6	195.8	3.05
176	357.8	260.6	200.1	2.99
177	362.8	255.6	194.6	2.96
178	367.7	260.6	198.9	2.97
179	372.7	255.6	193.3	3.00
180	377.7	260.6	197.6	3.09
181	382.6	255.6	192.1	3.15
182	387.6	260.6	206.4	3.25
183	392.5	255.6	200.9	3.29

184	397.5	260.6	205.4	3.38
185	402.5	255.6	200.0	3.47
186	407.4	260.6	204.4	3.59
187	412.4	255.6	209.5	3.64
188	417.3	260.6	214.1	3.65
189	422.3	255.6	208.8	3.70
190	323.1	265.6	226.0	3.22
191	328.1	270.6	230.6	3.22
192	333.0	265.6	225.3	3.24
193	338.0	270.6	221.1	3.24
194	342.9	265.6	206.8	3.22
195	347.9	270.6	211.1	3.11
196	352.9	265.6	205.6	3.04
197	357.8	270.6	209.9	3.00
198	362.8	265.6	204.4	2.97
199	367.7	270.6	208.7	2.99
200	372.7	265.6	203.2	3.02
201	377.7	270.6	207.5	3.11
202	382.6	265.6	201.9	3.18
203	387.6	270.6	216.2	3.27
204	392.5	265.6	210.8	3.31
205	397.5	270.6	215.2	3.40
206	402.5	265.6	209.8	3.48
207	407.4	270.6	224.7	3.59
208	412.4	265.6	219.4	3.62
209	417.3	270.6	224.0	3.63
210	422.3	265.6	218.7	3.67
211	323.1	275.6	235.9	3.21
212	333.0	275.6	235.2	3.23
213	342.9	275.6	216.7	3.20
214	352.9	275.6	215.4	3.05
215	362.8	275.6	214.2	2.98
216	372.7	275.6	213.0	3.05
217	382.6	275.6	211.7	3.20
218	392.5	275.6	220.6	3.33
219	402.5	275.6	219.7	3.50
220	412.4	275.6	229.3	3.60
221	422.3	275.6	228.5	3.64

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Vertici strato2	3
5.Coefficienti parziali azioni	3
6.Coefficienti parziali per i parametri geotecnici del terreno	3
7.Stratigrafia	4
8.Risultati analisi pendio [A2+M2+R2]	4
Indice	9

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 400 A 500 m
 IN CONDIZIONI STATICHE



- Strato...1
 $g=1.9t/m^3$
 $F_i=16^\circ$
 $c=6 \text{ kN/m}^2$
- Strato...2
 $g=1.9t/m^3$
 $F_i=18^\circ$
 $c=10 \text{ kN/m}^2$
- Strato...3
 $g=2t/m^3$
 $F_i=28^\circ$
 $c=20 \text{ kN/m}^2$

Quote	0.00	18.49	12.37	20.77	21.65	9.28	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	298.78	15.47	63.72	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Distanze Parziali	0.00	18.49	12.37	20.77	21.65	9.28	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	298.78	15.47	63.72	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Distanze Progressive	0.00	18.49	30.86	51.63	73.28	82.56	91.84	103.03	114.17	125.31	177.28	196.46	227.12	287.75	296.41	305.07	323.66	342.22	360.78	378.72	396.66	414.60	432.54	450.48	468.42	486.36	504.30	522.24	540.18	558.12	576.06	594.00	611.94	629.88	647.82	665.76	683.70	701.64	719.58	737.52	755.46	773.40	791.34	809.28	827.22	845.16	863.10	881.04	898.98	916.92	934.86	952.80	970.74	988.68	1006.62	1024.56	1042.50	1060.44	1078.38	1096.32	1114.26	1132.20	1150.14	1168.08	1186.02	1203.96	1221.90	1239.84	1257.78	1275.72	1293.66	1311.60	1329.54	1347.48	1365.42	1383.36	1401.30	1419.24	1437.18	1455.12	1473.06	1491.00	1508.94	1526.88	1544.82	1562.76	1580.70	1598.64	1616.58	1634.52	1652.46	1670.40	1688.34	1706.28	1724.22	1742.16	1760.10	1778.04	1795.98	1813.92	1831.86	1849.80	1867.74	1885.68	1903.62	1921.56	1939.50	1957.44	1975.38	1993.32	2011.26	2029.20	2047.14	2065.08	2083.02	2100.96	2118.90	2136.84	2154.78	2172.72	2190.66	2208.60	2226.54	2244.48	2262.42	2280.36	2298.30	2316.24	2334.18	2352.12	2370.06	2388.00	2405.94	2423.88	2441.82	2459.76	2477.70	2495.64	2513.58	2531.52	2549.46	2567.40	2585.34	2603.28	2621.22	2639.16	2657.10	2675.04	2692.98	2710.92	2728.86	2746.80	2764.74	2782.68	2800.62	2818.56	2836.50	2854.44	2872.38	2890.32	2908.26	2926.20	2944.14	2962.08	2980.02	2997.96	3015.90	3033.84	3051.78	3069.72	3087.66	3105.60	3123.54	3141.48	3159.42	3177.36	3195.30	3213.24	3231.18	3249.12	3267.06	3285.00	3302.94	3320.88	3338.82	3356.76	3374.70	3392.64	3410.58	3428.52	3446.46	3464.40	3482.34	3500.28	3518.22	3536.16	3554.10	3572.04	3590.00	3607.96	3625.92	3643.88	3661.84	3679.80	3697.76	3715.72	3733.68	3751.64	3769.60	3787.56	3805.52	3823.48	3841.44	3859.40	3877.36	3895.32	3913.28	3931.24	3949.20	3967.16	3985.12	4003.08	4021.04	4039.00	4056.96	4074.92	4092.88	4110.84	4128.80	4146.76	4164.72	4182.68	4200.64	4218.60	4236.56	4254.52	4272.48	4290.44	4308.40	4326.36	4344.32	4362.28	4380.24	4398.20	4416.16	4434.12	4452.08	4470.04	4488.00	4505.96	4523.92	4541.88	4559.84	4577.80	4595.76	4613.72	4631.68	4649.64	4667.60	4685.56	4703.52	4721.48	4739.44	4757.40	4775.36	4793.32	4811.28	4829.24	4847.20	4865.16	4883.12	4901.08	4919.04	4937.00	4954.96	4972.92	4990.88	5008.84	5026.80	5044.76	5062.72	5080.68	5098.64	5116.60	5134.56	5152.52	5170.48	5188.44	5206.40	5224.36	5242.32	5260.28	5278.24	5296.20	5314.16	5332.12	5350.08	5368.04	5386.00	5403.96	5421.92	5439.88	5457.84	5475.80	5493.76	5511.72	5529.68	5547.64	5565.60	5583.56	5601.52	5619.48	5637.44	5655.40	5673.36	5691.32	5709.28	5727.24	5745.20	5763.16	5781.12	5799.08	5817.04	5835.00	5852.96	5870.92	5888.88	5906.84	5924.80	5942.76	5960.72	5978.68	5996.64	6014.60	6032.56	6050.52	6068.48	6086.44	6104.40	6122.36	6140.32	6158.28	6176.24	6194.20	6212.16	6230.12	6248.08	6266.04	6284.00	6301.96	6319.92	6337.88	6355.84	6373.80	6391.76	6409.72	6427.68	6445.64	6463.60	6481.56	6499.52	6517.48	6535.44	6553.40	6571.36	6589.32	6607.28	6625.24	6643.20	6661.16	6679.12	6697.08	6715.04	6733.00	6750.96	6768.92	6786.88	6804.84	6822.80	6840.76	6858.72	6876.68	6894.64	6912.60	6930.56	6948.52	6966.48	6984.44	7002.40	7020.36	7038.32	7056.28	7074.24	7092.20	7110.16	7128.12	7146.08	7164.04	7182.00	7200.00	7218.00	7236.00	7254.00	7272.00	7290.00	7308.00	7326.00	7344.00	7362.00	7380.00	7398.00	7416.00	7434.00	7452.00	7470.00	7488.00	7506.00	7524.00	7542.00	7560.00	7578.00	7596.00	7614.00	7632.00	7650.00	7668.00	7686.00	7704.00	7722.00	7740.00	7758.00	7776.00	7794.00	7812.00	7830.00	7848.00	7866.00	7884.00	7902.00	7920.00	7938.00	7956.00	7974.00	7992.00	8010.00	8028.00	8046.00	8064.00	8082.00	8100.00	8118.00	8136.00	8154.00	8172.00	8190.00	8208.00	8226.00	8244.00	8262.00	8280.00	8298.00	8316.00	8334.00	8352.00	8370.00	8388.00	8406.00	8424.00	8442.00	8460.00	8478.00	8496.00	8514.00	8532.00	8550.00	8568.00	8586.00	8604.00	8622.00	8640.00	8658.00	8676.00	8694.00	8712.00	8730.00	8748.00	8766.00	8784.00	8802.00	8820.00	8838.00	8856.00	8874.00	8892.00	8910.00	8928.00	8946.00	8964.00	8982.00	9000.00	9018.00	9036.00	9054.00	9072.00	9090.00	9108.00	9126.00	9144.00	9162.00	9180.00	9198.00	9216.00	9234.00	9252.00	9270.00	9288.00	9306.00	9324.00	9342.00	9360.00	9378.00	9396.00	9414.00	9432.00	9450.00	9468.00	9486.00	9504.00	9522.00	9540.00	9558.00	9576.00	9594.00	9612.00	9630.00	9648.00	9666.00	9684.00	9702.00	9720.00	9738.00	9756.00	9774.00	9792.00	9810.00	9828.00	9846.00	9864.00	9882.00	9900.00	9918.00	9936.00	9954.00	9972.00	9990.00	10008.00	10026.00	10044.00	10062.00	10080.00	10098.00	10116.00	10134.00	10152.00	10170.00	10188.00	10206.00	10224.00	10242.00	10260.00	10278.00	10296.00	10314.00	10332.00	10350.00	10368.00	10386.00	10404.00	10422.00	10440.00	10458.00	10476.00	10494.00	10512.00	10530.00	10548.00	10566.00	10584.00	10602.00	10620.00	10638.00	10656.00	10674.00	10692.00	10710.00	10728.00	10746.00	10764.00	10782.00	10800.00	10818.00	10836.00	10854.00	10872.00	10890.00	10908.00	10926.00	10944.00	10962.00	10980.00	10998.00	11016.00	11034.00	11052.00	11070.00	11088.00	11106.00	11124.00	11142.00	11160.00	11178.00	11196.00	11214.00	11232.00	11250.00	11268.00	11286.00	11304.00	11322.00	11340.00	11358.00	11376.00	11394.00	11412.00	11430.00	11448.00	11466.00	11484.00	11502.00	11520.00	11538.00	11556.00	11574.00	11592.00	11610.00	11628.00	11646.00	11664.00	11682.00	11700.00	11718.00	11736.00	11754.00	11772.00	11790.00	11808.00	11826.00	11844.00	11862.00	11880.00	11898.00	11916.00	11934.00	11952.00	11970.00	11988.00	12006.00	12024.00	12042.00	12060.00	12078.00	12096.00	12114.00	12132.00	12150.00	12168.00	12186.00	122

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.175611/10.985884
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	422.16 m
Ordinata vertice sinistro inferiore yi	194.7 m
Ascissa vertice destro superiore xs	521.37 m
Ordinata vertice destro superiore ys	294.41 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	50.21	23.11
4	61.35	25.95
5	80.53	30.66
6	89.19	32.86
7	107.75	35.96
8	125.69	38.81
9	152.91	42.89
10	173.33	45.62
11	184.47	46.61
12	199.93	47.83
13	216.64	49.27
14	243.24	53.06
15	259.33	55.27
16	276.65	58.06
17	289.64	59.85
18	303.87	61.29
19	319.34	62.72
20	323.67	63.02
21	336.66	63.64
22	344.7	64.23
23	358.93	66.21
24	383.68	70.12
25	400.39	72.6
26	415.85	75.14
27	425.75	76.18
28	444.97	77.91

29	470.75	79.79
30	502.71	81.6
31	510.56	82.07
32	534.98	86.02
33	554.28	88.38
34	566.05	90.23
35	585.67	92.1
36	606.97	94.76
37	629.96	99.23
38	651.82	103.92
39	682.09	107.02
40	700.03	108.18
41	729.18	109.97
42	755.53	113.74
43	772.9	116.69
44	802.05	121.54
45	817.75	123.9

Vertici strato1

N	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	88.42	29.65
4	104.2	31.75
5	126.08	34.66
6	155.17	39.33
7	173.72	42.3
8	193.86	43.34
9	211.16	44.76
10	227.87	46.14
11	254.74	50.49
12	274.51	53.7
13	290.29	56.26
14	312.26	58.25
15	326.11	58.72
16	341.35	59.84
17	354.13	61.7
18	380.78	65.59
19	403.27	68.86
20	418.32	71.06
21	431.94	72.52
22	449.06	73.67
23	471.11	75.15
24	495.77	76.8
25	513.11	77.96
26	532.31	80.9
27	559.94	84.41
28	574.12	86.22
29	599.33	88.67
30	621.23	93.54
31	650.98	100.15
32	683.22	102.72
33	707.27	104.64
34	741.33	107.35
35	776.65	113.11
36	796.99	117.45
37	817.75	121.07

Vertici strato2

N	X (m)	y (m)
1	28.56	18.49
2	116.3	20.69
3	193.7	24.56
4	275.52	29.89
5	352.89	35.88
6	431.94	41.72
7	490.94	46.62
8	539.62	53.35
9	580.11	58.95
10	633.05	70.32
11	665.91	75.36
12	717.25	82.08
13	762.2	89.71
14	817.75	101.22

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3	20		28	2		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.98
Ascissa centro superficie	516.41 m
Ordinata centro superficie	289.42 m
Raggio superficie	208.82 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	422.2	194.7	148.4	3.94
2	427.1	199.7	153.0	4.01
3	432.1	194.7	147.7	4.13
4	437.0	199.7	152.3	4.15
5	442.0	194.7	147.0	4.26
6	447.0	199.7	151.5	4.27

7	451.9	194.7	146.2	4.36
8	456.9	199.7	150.8	4.33
9	461.8	194.7	145.5	4.40
10	466.8	199.7	150.1	4.33
11	471.8	194.7	144.7	4.38
12	476.7	199.7	149.3	4.30
13	481.7	194.7	144.0	4.32
14	486.6	199.7	148.6	4.24
15	491.6	194.7	131.0	4.22
16	496.6	199.7	135.4	4.04
17	501.5	194.7	117.4	3.90
18	506.5	199.7	121.7	3.56
19	511.5	194.7	116.2	3.38
20	516.4	199.7	120.5	3.20
21	521.4	194.7	115.0	3.11
22	422.2	204.7	158.3	3.90
23	427.1	209.7	162.9	3.95
24	432.1	204.7	157.6	4.05
25	437.0	209.7	162.1	4.07
26	442.0	204.7	156.8	4.17
27	447.0	209.7	161.4	4.17
28	451.9	204.7	156.1	4.26
29	456.9	209.7	160.7	4.23
30	461.8	204.7	155.4	4.28
31	466.8	209.7	159.9	4.22
32	471.8	204.7	154.6	4.26
33	476.7	209.7	159.2	4.21
34	481.7	204.7	153.9	4.23
35	486.6	209.7	158.5	4.16
36	491.6	204.7	140.8	4.14
37	496.6	209.7	145.2	4.00
38	501.5	204.7	127.2	3.82
39	506.5	209.7	131.5	3.50
40	511.5	204.7	126.0	3.33
41	516.4	209.7	130.3	3.19
42	521.4	204.7	124.8	3.10
43	422.2	214.6	168.2	3.85
44	427.1	219.6	172.8	3.90
45	432.1	214.6	167.4	3.98
46	437.0	219.6	172.0	4.00
47	442.0	214.6	166.7	4.09
48	447.0	219.6	171.3	4.09
49	451.9	214.6	166.0	4.16
50	456.9	219.6	170.5	4.13
51	461.8	214.6	165.2	4.18
52	466.8	219.6	169.8	4.14
53	471.8	214.6	164.5	4.18
54	476.7	219.6	169.1	4.13
55	481.7	214.6	163.8	4.15
56	486.6	219.6	168.3	4.09
57	491.6	214.6	150.7	4.08
58	496.6	219.6	155.1	3.95
59	501.5	214.6	137.1	3.69
60	506.5	219.6	141.3	3.48
61	511.5	214.6	135.8	3.30
62	516.4	219.6	140.1	3.15
63	521.4	214.6	134.6	3.10
64	422.2	224.6	178.1	3.81
65	427.1	229.6	182.6	3.84

66	432.1	224.6	177.3	3.92
67	437.0	229.6	181.9	3.94
68	442.0	224.6	176.6	4.02
69	447.0	229.6	181.2	4.02
70	451.9	224.6	175.8	4.08
71	456.9	229.6	180.4	4.05
72	461.8	224.6	175.1	4.09
73	466.8	229.6	179.7	4.06
74	471.8	224.6	174.4	4.10
75	476.7	229.6	178.9	4.06
76	481.7	224.6	173.6	4.08
77	486.6	229.6	178.2	4.03
78	491.6	224.6	172.9	4.03
79	496.6	229.6	152.4	3.71
80	501.5	224.6	146.9	3.64
81	506.5	229.6	151.2	3.43
82	511.5	224.6	145.6	3.28
83	516.4	229.6	149.9	3.15
84	521.4	224.6	144.4	3.11
85	422.2	234.6	187.9	3.77
86	427.1	239.6	192.5	3.79
87	432.1	234.6	187.2	3.87
88	437.0	239.6	191.8	3.89
89	442.0	234.6	186.5	3.95
90	447.0	239.6	191.0	3.95
91	451.9	234.6	185.7	4.00
92	456.9	239.6	190.3	3.98
93	461.8	234.6	185.0	4.03
94	466.8	239.6	189.6	4.00
95	471.8	234.6	184.3	4.03
96	476.7	239.6	188.8	4.00
97	481.7	234.6	183.5	4.01
98	486.6	239.6	188.1	3.97
99	491.6	234.6	182.8	3.97
100	496.6	239.6	162.2	3.68
101	501.5	234.6	156.7	3.59
102	506.5	239.6	161.0	3.37
103	511.5	234.6	155.5	3.25
104	516.4	239.6	159.7	3.14
105	521.4	234.6	154.2	3.10
106	422.2	244.6	197.8	3.73
107	427.1	249.5	202.4	3.76
108	432.1	244.6	197.1	3.82
109	437.0	249.5	201.6	3.84
110	442.0	244.6	196.3	3.89
111	447.0	249.5	200.9	3.88
112	451.9	244.6	195.6	3.93
113	456.9	249.5	200.2	3.92
114	461.8	244.6	194.9	3.96
115	466.8	249.5	199.4	3.94
116	471.8	244.6	194.1	3.97
117	476.7	249.5	198.7	3.94
118	481.7	244.6	193.4	3.96
119	486.6	249.5	198.0	3.91
120	491.6	244.6	192.7	3.91
121	496.6	249.5	172.0	3.65
122	501.5	244.6	166.5	3.52
123	506.5	249.5	170.8	3.35
124	511.5	244.6	165.3	3.22

125	516.4	249.5	169.6	3.12
126	521.4	244.6	164.0	3.12
127	422.2	254.5	207.7	3.70
128	427.1	259.5	212.3	3.72
129	432.1	254.5	207.0	3.78
130	437.0	259.5	211.5	3.79
131	442.0	254.5	206.2	3.84
132	447.0	259.5	210.8	3.83
133	451.9	254.5	205.5	3.88
134	456.9	259.5	210.1	3.87
135	461.8	254.5	204.7	3.91
136	466.8	259.5	209.3	3.89
137	471.8	254.5	204.0	3.92
138	476.7	259.5	208.6	3.89
139	481.7	254.5	203.3	3.91
140	486.6	259.5	207.8	3.86
141	491.6	254.5	202.5	3.85
142	496.6	259.5	181.8	3.61
143	501.5	254.5	176.3	3.47
144	506.5	259.5	180.6	3.29
145	511.5	254.5	175.1	3.18
146	516.4	259.5	179.4	3.13
147	521.4	254.5	173.9	3.10
148	422.2	264.5	217.6	3.67
149	427.1	269.5	222.1	3.69
150	432.1	264.5	216.8	3.74
151	437.0	269.5	221.4	3.74
152	442.0	264.5	216.1	3.79
153	447.0	269.5	220.7	3.79
154	451.9	264.5	215.4	3.83
155	456.9	269.5	219.9	3.83
156	461.8	264.5	214.6	3.86
157	466.8	269.5	219.2	3.85
158	471.8	264.5	213.9	3.87
159	476.7	269.5	218.5	3.85
160	481.7	264.5	213.1	3.86
161	486.6	269.5	217.7	3.80
162	491.6	264.5	212.4	3.79
163	496.6	269.5	191.6	3.58
164	501.5	264.5	186.1	3.35
165	506.5	269.5	190.4	3.24
166	511.5	264.5	184.9	3.16
167	516.4	269.5	189.2	3.11
168	521.4	264.5	183.7	3.11
169	422.2	274.5	227.4	3.64
170	427.1	279.5	232.0	3.66
171	432.1	274.5	226.7	3.70
172	437.0	279.5	231.3	3.70
173	442.0	274.5	226.0	3.74
174	447.0	279.5	230.5	3.75
175	451.9	274.5	225.2	3.79
176	456.9	279.5	229.8	3.79
177	461.8	274.5	224.5	3.82
178	466.8	279.5	229.1	3.81
179	471.8	274.5	223.8	3.83
180	476.7	279.5	228.3	3.80
181	481.7	274.5	223.0	3.81
182	486.6	279.5	227.6	3.75
183	491.6	274.5	222.3	3.73

184	496.6	279.5	201.5	3.55
185	501.5	274.5	195.9	3.33
186	506.5	279.5	200.2	3.17
187	511.5	274.5	194.7	3.13
188	516.4	279.5	199.0	3.06
189	521.4	274.5	193.5	3.07
190	422.2	284.4	237.3	3.62
191	427.1	289.4	241.9	3.63
192	432.1	284.4	236.6	3.66
193	437.0	289.4	241.2	3.67
194	442.0	284.4	235.8	3.71
195	447.0	289.4	240.4	3.71
196	451.9	284.4	235.1	3.75
197	456.9	289.4	239.7	3.75
198	461.8	284.4	234.4	3.78
199	466.8	289.4	238.9	3.77
200	471.8	284.4	233.6	3.79
201	476.7	289.4	238.2	3.76
202	481.7	284.4	232.9	3.76
203	486.6	289.4	237.5	3.70
204	491.6	284.4	232.2	3.68
205	496.6	289.4	211.3	3.51
206	501.5	284.4	205.8	3.31
207	506.5	289.4	210.1	3.14
208	511.5	284.4	204.5	3.03
209	516.4	289.4	208.8	2.98
210	521.4	284.4	203.3	3.02
211	422.2	294.4	247.2	3.60
212	432.1	294.4	246.5	3.63
213	442.0	294.4	245.7	3.68
214	451.9	294.4	245.0	3.72
215	461.8	294.4	244.3	3.74
216	471.8	294.4	243.5	3.75
217	481.7	294.4	242.8	3.71
218	491.6	294.4	242.0	3.63
219	501.5	294.4	215.6	3.29
220	511.5	294.4	214.3	3.04
221	521.4	294.4	213.1	2.99

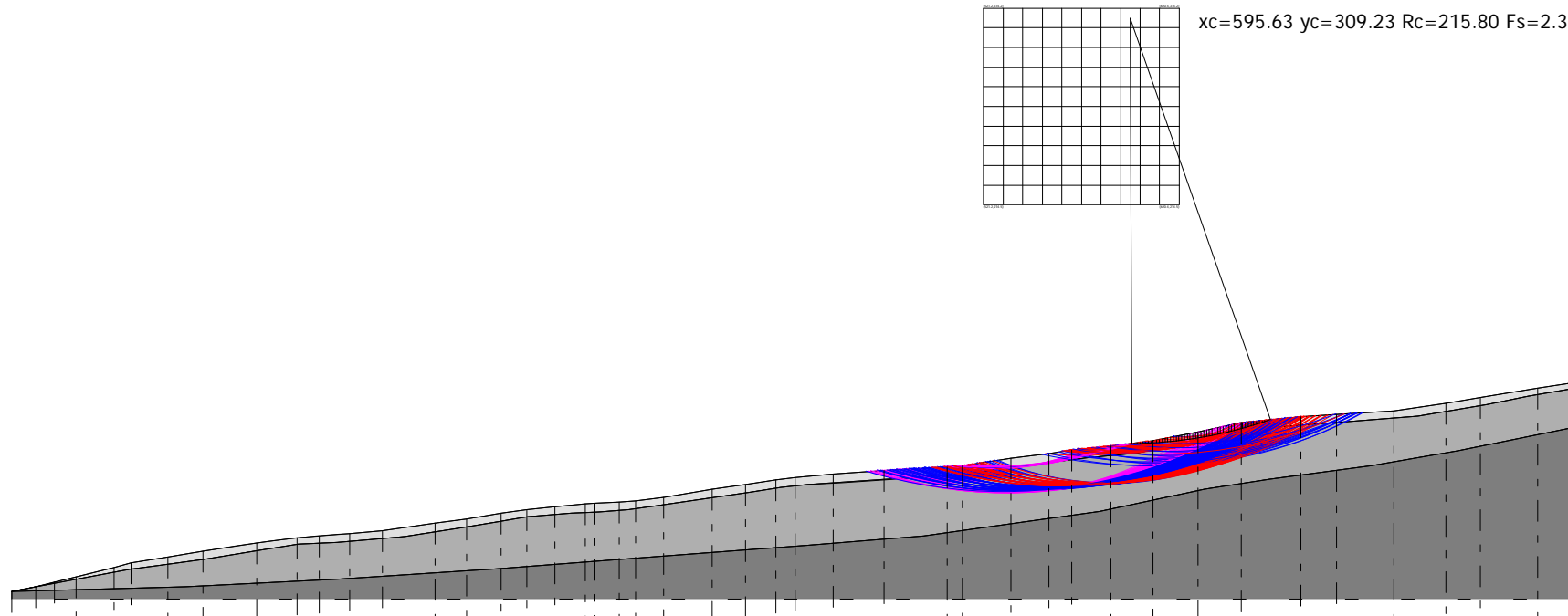
Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Vertici strato2	3
5.Coefficienti parziali azioni	3
6.Coefficienti parziali per i parametri geotecnici del terreno	3
7.Stratigrafia	4
8.Risultati analisi pendio [A2+M2+R2]	4
Indice	9

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 500 A 600 m
 IN CONDIZIONI STATICHE

xc=595.63 yc=309.23 Rc=215.80 Fs=2.38

- Strato...1
 $g=1.9t/m^3$
 $Fi=16^\circ$
 $c=6 \text{ kN/m}^2$
- Strato...2
 $g=1.9t/m^3$
 $Fi=18^\circ$
 $c=10 \text{ kN/m}^2$
- Strato...3
 $g=2t/m^3$
 $Fi=28^\circ$
 $c=20 \text{ kN/m}^2$



Quote	0.00	18.49	36.98	55.47	73.96	92.45	110.94	129.43	147.92	166.41	184.90	203.39	221.88	240.37	258.86	277.35	295.84	314.33	332.82	351.31	369.80	388.29	406.78	425.27	443.76	462.25	480.74	499.23	517.72	536.21	554.70	573.19	591.68	610.17	628.66	647.15	665.64	684.13	702.62	721.11	739.60	758.09	776.58	795.07	813.56	832.05	850.54	869.03	887.52	906.01	924.50	942.99	961.48	979.97	998.46	1016.95	1035.44	1053.93	1072.42	1090.91	1109.40	1127.89	1146.38	1164.87	1183.36	1201.85	1220.34	1238.83	1257.32	1275.81	1294.30	1312.79	1331.28	1349.77	1368.26	1386.75	1405.24	1423.73	1442.22	1460.71	1479.20	1497.69	1516.18	1534.67	1553.16	1571.65	1590.14	1608.63	1627.12	1645.61	1664.10	1682.59	1701.08	1719.57	1738.06	1756.55	1775.04	1793.53	1812.02	1830.51	1849.00	1867.49	1885.98	1904.47	1922.96	1941.45	1959.94	1978.43	1996.92	2015.41	2033.90	2052.39	2070.88	2089.37	2107.86	2126.35	2144.84	2163.33	2181.82	2200.31	2218.80	2237.29	2255.78	2274.27	2292.76	2311.25	2329.74	2348.23	2366.72	2385.21	2403.70	2422.19	2440.68	2459.17	2477.66	2496.15	2514.64	2533.13	2551.62	2570.11	2588.60	2607.09	2625.58	2644.07	2662.56	2681.05	2699.54	2718.03	2736.52	2755.01	2773.50	2791.99	2810.48	2828.97	2847.46	2865.95	2884.44	2902.93	2921.42	2939.91	2958.40	2976.89	2995.38	3013.87	3032.36	3050.85	3069.34	3087.83	3106.32	3124.81	3143.30	3161.79	3180.28	3198.77	3217.26	3235.75	3254.24	3272.73	3291.22	3309.71	3328.20	3346.69	3365.18	3383.67	3402.16	3420.65	3439.14	3457.63	3476.12	3494.61	3513.10	3531.59	3550.08	3568.57	3587.06	3605.55	3624.04	3642.53	3661.02	3679.51	3698.00	3716.49	3734.98	3753.47	3771.96	3790.45	3808.94	3827.43	3845.92	3864.41	3882.90	3901.39	3919.88	3938.37	3956.86	3975.35	3993.84	4012.33	4030.82	4049.31	4067.80	4086.29	4104.78	4123.27	4141.76	4160.25	4178.74	4197.23	4215.72	4234.21	4252.70	4271.19	4289.68	4308.17	4326.66	4345.15	4363.64	4382.13	4400.62	4419.11	4437.60	4456.09	4474.58	4493.07	4511.56	4530.05	4548.54	4567.03	4585.52	4604.01	4622.50	4640.99	4659.48	4677.97	4696.46	4714.95	4733.44	4751.93	4770.42	4788.91	4807.40	4825.89	4844.38	4862.87	4881.36	4899.85	4918.34	4936.83	4955.32	4973.81	4992.30	5010.79	5029.28	5047.77	5066.26	5084.75	5103.24	5121.73	5140.22	5158.71	5177.20	5195.69	5214.18	5232.67	5251.16	5269.65	5288.14	5306.63	5325.12	5343.61	5362.10	5380.59	5399.08	5417.57	5436.06	5454.55	5473.04	5491.53	5510.02	5528.51	5547.00	5565.49	5583.98	5602.47	5620.96	5639.45	5657.94	5676.43	5694.92	5713.41	5731.90	5750.39	5768.88	5787.37	5805.86	5824.35	5842.84	5861.33	5879.82	5898.31	5916.80	5935.29	5953.78	5972.27	5990.76	6009.25	6027.74	6046.23	6064.72	6083.21	6101.70	6120.19	6138.68	6157.17	6175.66	6194.15	6212.64	6231.13	6249.62	6268.11	6286.60	6305.09	6323.58	6342.07	6360.56	6379.05	6397.54	6416.03	6434.52	6453.01	6471.50	6490.00	6508.49	6526.98	6545.47	6563.96	6582.45	6600.94	6619.43	6637.92	6656.41	6674.90	6693.39	6711.88	6730.37	6748.86	6767.35	6785.84	6804.33	6822.82	6841.31	6859.80	6878.29	6896.78	6915.27	6933.76	6952.25	6970.74	6989.23	7007.72	7026.21	7044.70	7063.19	7081.68	7100.17	7118.66	7137.15	7155.64	7174.13	7192.62	7211.11	7229.60	7248.09	7266.58	7285.07	7303.56	7322.05	7340.54	7359.03	7377.52	7396.01	7414.50	7433.00	7451.49	7469.98	7488.47	7506.96	7525.45	7543.94	7562.43	7580.92	7599.41	7617.90	7636.39	7654.88	7673.37	7691.86	7710.35	7728.84	7747.33	7765.82	7784.31	7802.80	7821.29	7839.78	7858.27	7876.76	7895.25	7913.74	7932.23	7950.72	7969.21	7987.70	8006.19	8024.68	8043.17	8061.66	8080.15	8098.64	8117.13	8135.62	8154.11	8172.60	8191.09	8209.58	8228.07	8246.56	8265.05	8283.54	8302.03	8320.52	8339.01	8357.50	8376.00	8394.49	8412.98	8431.47	8449.96	8468.45	8486.94	8505.43	8523.92	8542.41	8560.90	8579.39	8597.88	8616.37	8634.86	8653.35	8671.84	8690.33	8708.82	8727.31	8745.80	8764.29	8782.78	8801.27	8819.76	8838.25	8856.74	8875.23	8893.72	8912.21	8930.70	8949.19	8967.68	8986.17	9004.66	9023.15	9041.64	9060.13	9078.62	9097.11	9115.60	9134.09	9152.58	9171.07	9189.56	9208.05	9226.54	9245.03	9263.52	9282.01	9300.50	9319.00	9337.49	9355.98	9374.47	9392.96	9411.45	9429.94	9448.43	9466.92	9485.41	9503.90	9522.39	9540.88	9559.37	9577.86	9596.35	9614.84	9633.33	9651.82	9670.31	9688.80	9707.29	9725.78	9744.27	9762.76	9781.25	9799.74	9818.23	9836.72	9855.21	9873.70	9892.19	9910.68	9929.17	9947.66	9966.15	9984.64	10003.13	10021.62	10040.11	10058.60	10077.09	10095.58	10114.07	10132.56	10151.05	10169.54	10188.03	10206.52	10225.01	10243.50	10262.00	10280.49	10298.98	10317.47	10335.96	10354.45	10372.94	10391.43	10409.92	10428.41	10446.90	10465.39	10483.88	10502.37	10520.86	10539.35	10557.84	10576.33	10594.82	10613.31	10631.80	10650.29	10668.78	10687.27	10705.76	10724.25	10742.74	10761.23	10779.72	10798.21	10816.70	10835.19	10853.68	10872.17	10890.66	10909.15	10927.64	10946.13	10964.62	10983.11	11001.60	11020.09	11038.58	11057.07	11075.56	11094.05	11112.54	11131.03	11149.52	11168.01	11186.50	11205.00	11223.49	11241.98	11260.47	11278.96	11297.45	11315.94	11334.43	11352.92	11371.41	11389.90	11408.39	11426.88	11445.37	11463.86	11482.35	11500.84	11519.33	11537.82	11556.31	11574.80	11593.29	11611.78	11630.27	11648.76	11667.25	11685.74	11704.23	11722.72	11741.21	11759.70	11778.19	11796.68	11815.17	11833.66	11852.15	11870.64	11889.13	11907.62	11926.11	11944.60	11963.09	11981.58	12000.07	12018.56	12037.05	12055.54	12074.03	12092.52	12111.01	12129.50	12148.00	12166.49	12184.98	12203.47	12221.96	12240.45	12258.94	12277.43	12295.92	12314.41	12332.90	12351.39	12369.88	12388.37	12406.86	12425.35	12443.84	12462.33	12480.82	12499.31	12517.80	12536.29	12554.78	12573.27	12591.76	12610.25	12628.74	12647.23	12665.72	12684.21	12702.70	12721.19	12739.68	12758.17	12776.66	12795.15	12813.64	12832.13	12850.62	12869.11	12887.60	12906.09	12924.58	12943.07	12961.56	12980.05	12998.54	13017.03	13035.52	13054.01	13072.50	13091.00	13109.49	13127.98	13146.47	13164.96	13183.45	13201.94	13220.43	13238.92	13257.41	13275.90	13294.39	13312.88	13331.37	13349.86	13368.35	13386.84	13405.33	13423.82	13442.31	13460.80	13479.29	13497.78	13516.27	13534.76	13553.25	13571.74	13590.23	13608.72	13627.21	13645.70	13664.19	13682.68	13701.17	13719.66	13738.15	13756.64	13775.13	13793.62	13812.11	13830.60	13849.09	13867.58	13886.07	13904.56	13923.05	13941.54	13960.03	13978.52	13997.01	14015.50	14034.00	14052.49	14070.98	14089.47	14107.96	14126.45	14144.94	14163.43	14181.92	14200.41	14218.90	14237.39	14255.88	14274.37	14292.86	14311.35	14329.84	14348.33	14366.82	14385.31	14403.80	14422.29	14440.78	14459.27	14477.76	14496.25	14514.74	14533.23	14551.72	14570.21	14588.70	14607.19	14625.68	14644.17	14662.66	14681.15	14699.64	14718.13	14736.62	14755.11	14773.60	14792.09	14810.58	14829.07	14847.56	14866.05	14884.54	14903.03	14921.52	14940.01	14958.50	14977.00	14995.49	15013.98	15032.47	15050.96	15069.45	15087.94	15106.43	15124.92	15143.41	15161.90	15180.39	15198.88	15217.37	15235.86	15254.35	15272.84	15291.33	15309.82	15328.31	15346.80	15365.29	15383.78	15402.27	15420.76	15439.25	15457.74	15476.23	15494.72	15513.21	15531.70	15550.19	15568.68	15587.17	15605.66	15624.15	15642.64	15661.13	15679.62	15698.11	15716.60	15735.09	15753.58	15772.07	15790.56	15809.05	15827.54	15846.03	15864.52	15883.01	15901.50	15920.00	15938.49	15956.98	15975.47	15993.96	16012.45	16030.94	16049.43	16067.92	16086.41	16104.90	16123.39	16141.88	16160.37	16178.86	16197.35	16215.84	16234.33	16252.82	16271.31	16289.80	16308.29	16326.78	16345.27	16363.76	16382.25	16400.74	16419.23	
-------	------	-------	-------	-------	-------	-------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	--

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.175611/10.985884
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	521.23 m
Ordinata vertice sinistro inferiore yi	214.52 m
Ascissa vertice destro superiore xs	620.44 m
Ordinata vertice destro superiore ys	314.22 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	50.21	23.11
4	61.35	25.95
5	80.53	30.66
6	89.19	32.86
7	107.75	35.96
8	125.69	38.81
9	152.91	42.89
10	173.33	45.62
11	184.47	46.61
12	199.93	47.83
13	216.64	49.27
14	243.24	53.06
15	259.33	55.27
16	276.65	58.06
17	289.64	59.85
18	303.87	61.29
19	319.34	62.72
20	323.67	63.02
21	336.66	63.64
22	344.7	64.23
23	358.93	66.21
24	383.68	70.12
25	400.39	72.6
26	415.85	75.14
27	425.75	76.18
28	444.97	77.91

29	470.75	79.79
30	502.71	81.6
31	510.56	82.07
32	534.98	86.02
33	554.28	88.38
34	566.05	90.23
35	585.67	92.1
36	606.97	94.76
37	629.96	99.23
38	651.82	103.92
39	682.09	107.02
40	700.03	108.18
41	729.18	109.97
42	755.53	113.74
43	772.9	116.69
44	802.05	121.54
45	817.75	123.9

Vertici strato1

N	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	88.42	29.65
4	104.2	31.75
5	126.08	34.66
6	155.17	39.33
7	173.72	42.3
8	193.86	43.34
9	211.16	44.76
10	227.87	46.14
11	254.74	50.49
12	274.51	53.7
13	290.29	56.26
14	312.26	58.25
15	326.11	58.72
16	341.35	59.84
17	354.13	61.7
18	380.78	65.59
19	403.27	68.86
20	418.32	71.06
21	431.94	72.52
22	449.06	73.67
23	471.11	75.15
24	495.77	76.8
25	513.11	77.96
26	532.31	80.9
27	559.94	84.41
28	574.12	86.22
29	599.33	88.67
30	621.23	93.54
31	650.98	100.15
32	683.22	102.72
33	707.27	104.64
34	741.33	107.35
35	776.65	113.11
36	796.99	117.45
37	817.75	121.07

Vertici strato2

N	X (m)	y (m)
1	28.56	18.49
2	116.3	20.69
3	193.7	24.56
4	275.52	29.89
5	352.89	35.88
6	431.94	41.72
7	490.94	46.62
8	539.62	53.35
9	580.11	58.95
10	633.05	70.32
11	665.91	75.36
12	717.25	82.08
13	762.2	89.71
14	817.75	101.22

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3	20		28	2		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.38
Ascissa centro superficie	595.63 m
Ordinata centro superficie	309.23 m
Raggio superficie	215.8 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	521.2	214.5	134.5	3.10
2	526.2	219.5	138.8	3.11
3	531.1	214.5	133.3	3.19
4	536.1	219.5	151.0	3.23
5	541.1	214.5	145.6	3.17
6	546.0	219.5	150.1	3.06

7	551.0	214.5	144.7	3.01
8	556.0	219.5	149.1	2.91
9	560.9	214.5	143.7	2.87
10	565.9	219.5	148.1	2.80
11	570.8	214.5	142.7	2.79
12	575.8	219.5	147.1	2.74
13	580.8	214.5	141.7	2.74
14	585.7	219.5	146.1	2.71
15	590.7	214.5	125.9	2.69
16	595.6	219.5	130.2	2.54
17	600.6	214.5	124.7	2.47
18	605.6	219.5	129.0	2.43
19	610.5	214.5	123.4	2.40
20	615.5	219.5	127.7	2.45
21	620.4	214.5	122.2	2.48
22	521.2	224.5	144.3	3.12
23	526.2	229.5	148.6	3.12
24	531.1	224.5	143.1	3.20
25	536.1	229.5	160.9	3.19
26	541.1	224.5	155.5	3.12
27	546.0	229.5	159.9	3.02
28	551.0	224.5	154.5	2.96
29	556.0	229.5	158.9	2.86
30	560.9	224.5	153.5	2.82
31	565.9	229.5	157.9	2.76
32	570.8	224.5	152.5	2.75
33	575.8	229.5	157.0	2.72
34	580.8	224.5	151.6	2.72
35	585.7	229.5	156.0	2.70
36	590.7	224.5	135.7	2.65
37	595.6	229.5	140.0	2.53
38	600.6	224.5	134.5	2.47
39	605.6	229.5	138.8	2.43
40	610.5	224.5	133.3	2.42
41	615.5	229.5	137.6	2.48
42	620.4	224.5	132.0	2.51
43	521.2	234.5	154.1	3.10
44	526.2	239.4	158.4	3.14
45	531.1	234.5	152.9	3.21
46	536.1	239.4	170.7	3.15
47	541.1	234.5	165.3	3.08
48	546.0	239.4	169.8	2.97
49	551.0	234.5	164.3	2.91
50	556.0	239.4	168.8	2.82
51	560.9	234.5	163.4	2.78
52	565.9	239.4	167.8	2.73
53	570.8	234.5	162.4	2.72
54	575.8	239.4	166.8	2.70
55	580.8	234.5	161.4	2.70
56	585.7	239.4	165.8	2.69
57	590.7	234.5	145.5	2.62
58	595.6	239.4	149.8	2.52
59	600.6	234.5	144.3	2.47
60	605.6	239.4	148.6	2.45
61	610.5	234.5	143.1	2.46
62	615.5	239.4	147.4	2.51
63	620.4	234.5	141.9	2.54
64	521.2	244.4	163.9	3.12
65	526.2	249.4	168.2	3.14

66	531.1	244.4	162.7	3.23
67	536.1	249.4	180.6	3.11
68	541.1	244.4	175.2	3.05
69	546.0	249.4	179.6	2.93
70	551.0	244.4	174.2	2.86
71	556.0	249.4	178.6	2.78
72	560.9	244.4	173.2	2.75
73	565.9	249.4	177.6	2.71
74	570.8	244.4	172.2	2.70
75	575.8	249.4	176.7	2.69
76	580.8	244.4	171.2	2.69
77	585.7	249.4	160.9	2.68
78	590.7	244.4	155.3	2.59
79	595.6	249.4	159.6	2.52
80	600.6	244.4	154.1	2.47
81	605.6	249.4	158.4	2.47
82	610.5	244.4	152.9	2.48
83	615.5	249.4	157.2	2.53
84	620.4	244.4	151.7	2.57
85	521.2	254.4	173.8	3.12
86	526.2	259.4	178.0	3.13
87	531.1	254.4	186.0	3.20
88	536.1	259.4	190.4	3.07
89	541.1	254.4	185.0	3.00
90	546.0	259.4	189.5	2.89
91	551.0	254.4	184.0	2.83
92	556.0	259.4	188.5	2.76
93	560.9	254.4	183.1	2.73
94	565.9	259.4	187.5	2.69
95	570.8	254.4	182.1	2.69
96	575.8	259.4	186.5	2.68
97	580.8	254.4	181.1	2.68
98	585.7	259.4	170.7	2.64
99	590.7	254.4	165.2	2.58
100	595.6	259.4	169.5	2.51
101	600.6	254.4	163.9	2.47
102	605.6	259.4	168.2	2.49
103	610.5	254.4	162.7	2.51
104	615.5	259.4	166.3	2.56
105	620.4	254.4	159.8	2.64
106	521.2	264.4	183.6	3.10
107	526.2	269.4	187.9	3.13
108	531.1	264.4	195.8	3.16
109	536.1	269.4	200.3	3.04
110	541.1	264.4	194.9	2.96
111	546.0	269.4	199.3	2.85
112	551.0	264.4	193.9	2.80
113	556.0	269.4	198.3	2.73
114	560.9	264.4	192.9	2.71
115	565.9	269.4	197.3	2.68
116	570.8	264.4	191.9	2.67
117	575.8	269.4	196.4	2.67
118	580.8	264.4	190.9	2.68
119	585.7	269.4	180.5	2.63
120	590.7	264.4	175.0	2.58
121	595.6	269.4	179.3	2.52
122	600.6	264.4	173.7	2.50
123	605.6	269.4	178.0	2.50
124	610.5	264.4	172.5	2.52

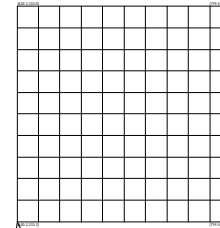
125	615.5	269.4	174.0	2.64
126	620.4	264.4	167.5	2.73
127	521.2	274.3	193.4	3.07
128	526.2	279.3	197.7	3.10
129	531.1	274.3	205.7	3.12
130	536.1	279.3	210.1	3.00
131	541.1	274.3	204.7	2.92
132	546.0	279.3	209.1	2.83
133	551.0	274.3	203.7	2.78
134	556.0	279.3	208.2	2.72
135	560.9	274.3	202.7	2.70
136	565.9	279.3	207.2	2.67
137	570.8	274.3	201.8	2.67
138	575.8	279.3	206.2	2.67
139	580.8	274.3	200.8	2.68
140	585.7	279.3	190.3	2.62
141	590.7	274.3	184.8	2.55
142	595.6	279.3	189.1	2.52
143	600.6	274.3	183.6	2.51
144	605.6	279.3	187.0	2.53
145	610.5	274.3	180.5	2.56
146	615.5	279.3	196.4	2.75
147	620.4	274.3	189.8	2.76
148	521.2	284.3	203.2	3.02
149	526.2	289.3	207.5	3.02
150	531.1	284.3	215.5	3.08
151	536.1	289.3	220.0	2.96
152	541.1	284.3	214.6	2.89
153	546.0	289.3	219.0	2.81
154	551.0	284.3	213.6	2.76
155	556.0	289.3	218.0	2.71
156	560.9	284.3	212.6	2.69
157	565.9	289.3	217.0	2.67
158	570.8	284.3	211.6	2.66
159	575.8	289.3	216.0	2.67
160	580.8	284.3	195.8	2.67
161	585.7	289.3	200.1	2.62
162	590.7	284.3	194.6	2.56
163	595.6	289.3	198.9	2.53
164	600.6	284.3	193.4	2.52
165	605.6	289.3	194.8	2.52
166	610.5	284.3	188.3	2.51
167	615.5	289.3	204.0	2.73
168	620.4	284.3	197.4	2.73
169	521.2	294.3	213.0	2.99
170	526.2	299.3	217.3	3.05
171	531.1	294.3	225.4	3.04
172	536.1	299.3	229.8	2.93
173	541.1	294.3	224.4	2.86
174	546.0	299.3	228.8	2.79
175	551.0	294.3	223.4	2.74
176	556.0	299.3	227.9	2.70
177	560.9	294.3	222.4	2.68
178	565.9	299.3	226.9	2.66
179	570.8	294.3	206.9	2.65
180	575.8	299.3	225.9	2.67
181	580.8	294.3	205.6	2.66
182	585.7	299.3	209.9	2.61
183	590.7	294.3	204.4	2.56

184	595.6	299.3	207.8	2.54
185	600.6	294.3	201.3	2.53
186	605.6	299.3	217.3	2.72
187	610.5	294.3	210.6	2.73
188	615.5	299.3	211.7	2.70
189	620.4	294.3	205.1	2.73
190	521.2	304.2	222.8	3.01
191	526.2	309.2	227.1	3.07
192	531.1	304.2	235.2	3.01
193	536.1	309.2	239.7	2.91
194	541.1	304.2	234.2	2.84
195	546.0	309.2	238.7	2.78
196	551.0	304.2	233.3	2.73
197	556.0	309.2	237.7	2.70
198	560.9	304.2	232.3	2.67
199	565.9	309.2	236.7	2.66
200	570.8	304.2	231.3	2.66
201	575.8	309.2	235.7	2.67
202	580.8	304.2	215.5	2.65
203	585.7	309.2	219.8	2.62
204	590.7	304.2	214.2	2.58
205	595.6	309.2	215.8	2.38
206	600.6	304.2	209.3	2.52
207	605.6	309.2	225.0	2.71
208	610.5	304.2	218.4	2.70
209	615.5	309.2	219.6	2.70
210	620.4	304.2	212.9	2.77
211	521.2	314.2	232.6	3.03
212	531.1	314.2	245.1	2.98
213	541.1	314.2	244.1	2.83
214	551.0	314.2	243.1	2.73
215	560.9	314.2	242.1	2.67
216	570.8	314.2	241.2	2.66
217	580.8	314.2	225.3	2.66
218	590.7	314.2	222.3	2.53
219	600.6	314.2	231.6	2.70
220	610.5	314.2	226.2	2.68
221	620.4	314.2	220.9	2.82

Indice

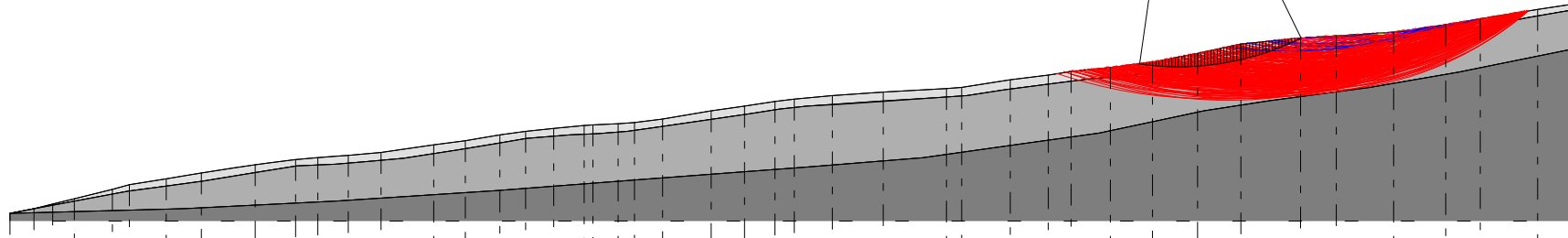
1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Vertici strato2	3
5.Coefficienti parziali azioni	3
6.Coefficienti parziali per i parametri geotecnici del terreno	3
7.Stratigrafia	4
8.Risultati analisi pendio [A2+M2+R2]	4
Indice	9

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 600 A 700 m
 IN CONDIZIONI STATICHE



xc=620.29 yc=233.34 Rc=140.77 Fs=2.53

- Strato...1
g=1.9t/m³
Fi=16°
c=6 kN/m²
- Strato...2
g=1.9t/m³
Fi=18°
c=10 kN/m²
- Strato...3
g=2t/m³
Fi=28°
c=20 kN/m²



Quote	0.00	18.49	12.37	20.77	23.11	25.95	30.66	32.86	35.96	38.81	42.89	45.62	46.61	47.83	49.27	53.06	55.27	58.06	59.85	61.29	63.02	63.64	64.23	66.21	70.12	72.60	75.14	76.18	77.91	79.79	81.60	82.07	86.02	88.38	90.23	92.10	94.76	99.23	103.92	107.02	108.18	109.97	113.74	116.69	121.54	123.90																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
Distanze Parziali	0.00	0.00	12.37	20.77	23.11	25.95	30.66	32.86	35.96	38.81	42.89	45.62	46.61	47.83	49.27	53.06	55.27	58.06	59.85	61.29	63.02	63.64	64.23	66.21	70.12	72.60	75.14	76.18	77.91	79.79	81.60	82.07	86.02	88.38	90.23	92.10	94.76	99.23	103.92	107.02	108.18	109.97	113.74	116.69	121.54	123.90																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
Distanze Progressive	0.00	18.49	30.86	51.63	74.74	100.69	131.35	164.21	200.17	239.08	281.97	328.85	378.72	431.57	487.40	546.26	608.11	673.07	741.13	812.28	886.53	963.87	1044.31	1127.84	1214.45	1304.14	1396.82	1492.40	1590.79	1691.80	1795.23	1901.00	2009.03	2119.23	2231.50	2345.84	2462.25	2580.63	2700.98	2823.30	2947.59	3073.86	3202.11	3332.34	3464.56	3598.77	3734.97	3873.16	4013.34	4155.51	4299.67	4445.83	4593.99	4744.16	4896.34	5050.53	5206.73	5364.94	5525.16	5687.39	5851.64	6017.91	6186.20	6356.51	6528.84	6703.19	6879.56	7057.95	7238.36	7420.79	7605.24	7791.71	7980.20	8170.71	8363.24	8557.79	8754.36	8952.95	9153.56	9356.19	9560.84	9767.51	9976.20	10186.91	10399.64	10614.39	10831.16	11049.95	11270.76	11493.59	11718.44	11945.31	12174.20	12405.11	12638.04	12873.00	13109.99	13348.99	13589.99	13832.99	14077.99	14324.99	14573.99	14824.99	15077.99	15332.99	15589.99	15848.99	16109.99	16372.99	16637.99	16904.99	17173.99	17444.99	17717.99	17992.99	18269.99	18548.99	18829.99	19112.99	19397.99	19684.99	19973.99	20264.99	20557.99	20852.99	21149.99	21448.99	21749.99	22052.99	22357.99	22664.99	22973.99	23284.99	23597.99	23912.99	24229.99	24547.99	24867.99	25189.99	25512.99	25837.99	26164.99	26492.99	26821.99	27151.99	27483.99	27816.99	28151.99	28488.99	28826.99	29166.99	29508.99	29851.99	30196.99	30543.99	30891.99	31241.99	31592.99	31945.99	32299.99	32655.99	33012.99	33370.99	33730.99	34092.99	34456.99	34822.99	35190.99	35560.99	35932.99	36306.99	36682.99	37060.99	37440.99	37822.99	38206.99	38592.99	38980.99	39370.99	39762.99	40156.99	40552.99	40950.99	41350.99	41752.99	42156.99	42562.99	42970.99	43380.99	43792.99	44206.99	44622.99	45040.99	45460.99	45882.99	46306.99	46732.99	47160.99	47590.99	48022.99	48456.99	48892.99	49330.99	49770.99	50212.99	50656.99	51102.99	51550.99	52000.99	52452.99	52906.99	53362.99	53820.99	54280.99	54742.99	55206.99	55672.99	56140.99	56610.99	57082.99	57556.99	58032.99	58510.99	58990.99	59472.99	59956.99	60442.99	60930.99	61420.99	61912.99	62406.99	62902.99	63400.99	63900.99	64402.99	64906.99	65412.99	65920.99	66430.99	66942.99	67456.99	67972.99	68490.99	69010.99	69532.99	70056.99	70582.99	71110.99	71640.99	72172.99	72706.99	73242.99	73780.99	74320.99	74862.99	75406.99	75952.99	76500.99	77050.99	77602.99	78156.99	78712.99	79270.99	79830.99	80392.99	80956.99	81522.99	82090.99	82660.99	83232.99	83806.99	84382.99	84960.99	85540.99	86122.99	86706.99	87292.99	87880.99	88470.99	89062.99	89656.99	90252.99	90850.99	91450.99	92052.99	92656.99	93262.99	93870.99	94480.99	95092.99	95706.99	96322.99	96940.99	97560.99	98182.99	98806.99	99432.99	100060.99	100690.99	101322.99	101956.99	102592.99	103230.99	103870.99	104512.99	105156.99	105802.99	106450.99	107100.99	107752.99	108406.99	109062.99	109720.99	110380.99	111042.99	111706.99	112372.99	113040.99	113710.99	114382.99	115056.99	115732.99	116410.99	117090.99	117772.99	118456.99	119142.99	119830.99	120520.99	121212.99	121906.99	122602.99	123300.99	124000.99	124702.99	125406.99	126112.99	126820.99	127530.99	128242.99	128956.99	129672.99	130390.99	131110.99	131832.99	132556.99	133282.99	134010.99	134740.99	135472.99	136206.99	136942.99	137680.99	138420.99	139162.99	139906.99	140652.99	141400.99	142150.99	142902.99	143656.99	144412.99	145170.99	145930.99	146692.99	147456.99	148222.99	148990.99	149760.99	150532.99	151306.99	152082.99	152860.99	153640.99	154422.99	155206.99	155992.99	156780.99	157570.99	158362.99	159156.99	159952.99	160750.99	161550.99	162352.99	163156.99	163962.99	164770.99	165580.99	166392.99	167206.99	168022.99	168840.99	169660.99	170482.99	171306.99	172132.99	172960.99	173790.99	174622.99	175456.99	176292.99	177130.99	177970.99	178812.99	179656.99	180502.99	181350.99	182200.99	183052.99	183906.99	184762.99	185620.99	186480.99	187342.99	188206.99	189072.99	189940.99	190810.99	191682.99	192556.99	193432.99	194310.99	195190.99	196072.99	196956.99	197842.99	198730.99	199620.99	200512.99	201406.99	202302.99	203200.99	204100.99	205002.99	205906.99	206812.99	207720.99	208630.99	209542.99	210456.99	211372.99	212290.99	213210.99	214132.99	215056.99	215982.99	216910.99	217840.99	218772.99	219706.99	220642.99	221580.99	222520.99	223462.99	224406.99	225352.99	226300.99	227250.99	228202.99	229156.99	230112.99	231070.99	232030.99	232992.99	233956.99	234922.99	235890.99	236860.99	237832.99	238806.99	239782.99	240760.99	241740.99	242722.99	243706.99	244692.99	245680.99	246670.99	247662.99	248656.99	249652.99	250650.99	251650.99	252652.99	253656.99	254662.99	255670.99	256680.99	257692.99	258706.99	259722.99	260740.99	261760.99	262782.99	263806.99	264832.99	265860.99	266890.99	267922.99	268956.99	269992.99	271030.99	272070.99	273112.99	274156.99	275202.99	276250.99	277300.99	278352.99	279406.99	280462.99	281520.99	282580.99	283642.99	284706.99	285772.99	286840.99	287910.99	288982.99	290056.99	291132.99	292210.99	293290.99	294372.99	295456.99	296542.99	297630.99	298720.99	299812.99	300906.99	301992.99	303080.99	304170.99	305262.99	306356.99	307452.99	308550.99	309650.99	310752.99	311856.99	312962.99	314070.99	315180.99	316292.99	317406.99	318522.99	319640.99	320760.99	321882.99	323006.99	324132.99	325260.99	326390.99	327522.99	328656.99	329792.99	330930.99	332070.99	333212.99	334356.99	335502.99	336650.99	337800.99	338952.99	340106.99	341262.99	342420.99	343580.99	344742.99	345906.99	347072.99	348240.99	349410.99	350582.99	351756.99	352932.99	354110.99	355290.99	356472.99	357656.99	358842.99	360030.99	361220.99	362412.99	363606.99	364802.99	366000.99	367200.99	368402.99	369606.99	370812.99	372020.99	373230.99	374442.99	375656.99	376872.99	378090.99	379310.99	380532.99	381756.99	382982.99	384210.99	385440.99	386672.99	387906.99	389142.99	390380.99	391620.99	392862.99	394106.99	395352.99	396600.99	397850.99	399102.99	400356.99	401612.99	402870.99	404130.99	405392.99	406656.99	407922.99	409190.99	410460.99	411732.99	413006.99	414282.99	415560.99	416840.99	418122.99	419406.99	420692.99	421980.99	423270.99	424562.99	425856.99	427152.99	428450.99	429750.99	431052.99	432356.99	433662.99	434970.99	436280.99	437592.99	438906.99	440222.99	441540.99	442860.99	444182.99	445506.99	446832.99	448160.99	449490.99	450822.99	452156.99	453492.99	454830.99	456170.99	457512.99	458856.99	460202.99	461550.99	462900.99	464252.99	465606.99	466962.99	468320.99	469680.99	471042.99	472406.99	473772.99	475140.99	476510.99	477882.99	479256.99	480632.99	482010.99	483390.99	484772.99	486156.99	487542.99	488930.99	490320.99	491712.99	493106.99	494502.99	495900.99	497300.99	498702.99	500106.99	501512.99	502920.99	504330.99	505742.99	507156.99	508572.99	509990.99	511410.99	512832.99	514256.99	515682.99	517110.99	518540.99	519972.99	521406.99	522842.99	524280.99	525720.99	527162.99	528606.99	530052.99	531500.99	532950.99	534402.99	535856.99	537312.99	538770.99	540230.99	541692.99	543156.99	544622.99	546090.99	547560.99	549032.99	550506.99	551982.99	553460.99	554940.99	556422.99	557906.99	559392.99	560880.99	562370.99	563862.99	565356.99	566852.99	568350.99	569850.99	571352.99	572856.99	574362.99	575870.99

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.175611/10.985884
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	620.29 m
Ordinata vertice sinistro inferiore yi	233.34 m
Ascissa vertice destro superiore xs	719.5 m
Ordinata vertice destro superiore ys	333.04 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	50.21	23.11
4	61.35	25.95
5	80.53	30.66
6	89.19	32.86
7	107.75	35.96
8	125.69	38.81
9	152.91	42.89
10	173.33	45.62
11	184.47	46.61
12	199.93	47.83
13	216.64	49.27
14	243.24	53.06
15	259.33	55.27
16	276.65	58.06
17	289.64	59.85
18	303.87	61.29
19	319.34	62.72
20	323.67	63.02
21	336.66	63.64
22	344.7	64.23
23	358.93	66.21
24	383.68	70.12
25	400.39	72.6
26	415.85	75.14
27	425.75	76.18
28	444.97	77.91
29	470.75	79.79

30	502.71	81.6
31	510.56	82.07
32	534.98	86.02
33	554.28	88.38
34	566.05	90.23
35	585.67	92.1
36	606.97	94.76
37	629.96	99.23
38	651.82	103.92
39	682.09	107.02
40	700.03	108.18
41	729.18	109.97
42	755.53	113.74
43	772.9	116.69
44	802.05	121.54
45	817.75	123.9

Vertici strato1

N	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	88.42	29.65
4	104.2	31.75
5	126.08	34.66
6	155.17	39.33
7	173.72	42.3
8	193.86	43.34
9	211.16	44.76
10	227.87	46.14
11	254.74	50.49
12	274.51	53.7
13	290.29	56.26
14	312.26	58.25
15	326.11	58.72
16	341.35	59.84
17	354.13	61.7
18	380.78	65.59
19	403.27	68.86
20	418.32	71.06
21	431.94	72.52
22	449.06	73.67
23	471.11	75.15
24	495.77	76.8
25	513.11	77.96
26	532.31	80.9
27	559.94	84.41
28	574.12	86.22
29	599.33	88.67
30	621.23	93.54
31	650.98	100.15
32	683.22	102.72
33	707.27	104.64
34	741.33	107.35
35	776.65	113.11
36	796.99	117.45
37	817.75	121.07

Vertici strato2

N	X	y
---	---	---

	(m)	(m)
1	28.56	18.49
2	116.3	20.69
3	193.7	24.56
4	275.52	29.89
5	352.89	35.88
6	431.94	41.72
7	490.94	46.62
8	539.62	53.35
9	580.11	58.95
10	633.05	70.32
11	665.91	75.36
12	717.25	82.08
13	762.2	89.71
14	817.75	101.22

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3	20		28	2		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.53
Ascissa centro superficie	620.29 m
Ordinata centro superficie	233.34 m
Raggio superficie	140.77 m

Numero di superfici esaminate....(204)

N°	Xo	Yo	Ro	Fs
1	620.3	233.3	140.8	2.53
2	625.3	238.3	145.1	2.63
3	630.2	233.3	138.7	2.76
4	635.2	238.3	154.8	2.90
5	640.1	233.3	148.3	2.97
6	645.1	238.3	148.8	3.11
7	650.1	233.3	156.8	3.23

8	655.0	238.3	156.9	3.30
9	660.0	233.3	150.3	3.43
10	664.9	238.3	150.6	3.68
11	669.9	233.3	143.9	3.90
12	674.9	238.3	157.3	3.57
13	679.8	233.3	150.5	3.72
14	684.8	238.3	150.7	3.93
15	689.7	233.3	143.8	4.12
16	694.7	238.3	156.1	3.66
17	699.7	233.3	149.2	3.75
18	704.6	238.3	149.5	3.82
19	709.6	233.3	142.5	3.83
20	714.5	238.3	143.1	3.75
21	719.5	233.3	136.2	3.66
22	620.3	243.3	150.6	2.57
23	625.3	248.3	152.6	2.75
24	630.2	243.3	161.4	2.86
25	635.2	248.3	162.0	2.89
26	640.1	243.3	155.4	2.98
27	645.1	248.3	170.3	3.15
28	650.1	243.3	163.6	3.22
29	655.0	248.3	164.0	3.33
30	660.0	243.3	157.3	3.48
31	664.9	248.3	170.9	3.35
32	669.9	243.3	164.1	3.44
33	674.9	248.3	164.3	3.61
34	679.8	243.3	157.5	3.76
35	684.8	248.3	157.9	4.04
36	689.7	243.3	163.1	3.56
37	694.7	248.3	151.7	4.56
38	699.7	243.3	156.4	3.75
39	704.6	248.3	145.8	4.95
40	709.6	243.3	150.0	3.80
41	714.5	248.3	150.9	3.74
42	620.3	253.3	159.0	2.62
43	625.3	258.3	160.2	2.75
44	630.2	253.3	168.5	2.83
45	635.2	258.3	169.3	2.90
46	640.1	253.3	162.7	3.02
47	645.1	258.3	177.4	3.14
48	650.1	253.3	170.7	3.22
49	655.0	258.3	171.2	3.38
50	660.0	253.3	164.5	3.56
51	664.9	258.3	177.9	3.35
52	669.9	253.3	171.1	3.47
53	674.9	258.3	171.6	3.67
54	679.8	253.3	164.8	3.84
55	684.8	258.3	177.2	3.46
56	689.7	253.3	170.3	3.56
57	694.7	258.3	170.8	3.68
58	699.7	253.3	163.9	3.77
59	704.6	258.3	164.7	3.84
60	709.6	253.3	146.9	5.27
61	719.5	253.3	152.0	3.66
62	620.3	263.2	166.7	2.72
63	625.3	268.2	182.5	2.78
64	630.2	263.2	175.9	2.82
65	635.2	268.2	176.8	2.94
66	640.1	263.2	184.1	3.09

67	645.1	268.2	184.6	3.14
68	650.1	263.2	177.9	3.24
69	655.0	268.2	191.6	3.20
70	660.0	263.2	184.8	3.27
71	664.9	268.2	185.3	3.38
72	669.9	263.2	178.4	3.51
73	674.9	268.2	179.1	3.75
74	679.8	263.2	172.2	3.95
75	684.8	268.2	184.7	3.48
76	689.7	263.2	166.3	4.60
77	694.7	268.2	178.5	3.72
78	699.7	263.2	160.5	5.21
79	704.6	268.2	161.8	6.20
80	709.6	263.2	165.7	3.83
81	714.5	268.2	167.0	3.81
82	620.3	273.2	189.1	2.76
83	625.3	278.2	190.0	2.77
84	630.2	273.2	183.4	2.85
85	635.2	278.2	184.4	3.03
86	640.1	273.2	191.4	3.07
87	645.1	278.2	192.1	3.17
88	650.1	273.2	185.4	3.29
89	655.0	278.2	198.9	3.20
90	660.0	273.2	192.1	3.28
91	664.9	278.2	192.8	3.42
92	669.9	273.2	185.9	3.58
93	674.9	278.2	198.5	3.29
94	679.8	273.2	191.6	3.37
95	684.8	278.2	181.0	4.59
96	689.7	273.2	185.4	3.61
97	694.7	278.2	175.4	5.43
98	699.7	273.2	179.5	3.85
99	704.6	278.2	170.1	16.52
100	709.6	273.2	173.9	3.87
101	719.5	273.2	168.5	3.70
102	620.3	283.2	196.6	2.74
103	625.3	288.2	197.7	2.80
104	630.2	283.2	191.0	2.89
105	635.2	288.2	205.6	3.02
106	640.1	283.2	198.8	3.08
107	645.1	288.2	212.6	3.12
108	650.1	283.2	205.8	3.15
109	655.0	288.2	206.4	3.22
110	660.0	283.2	199.6	3.31
111	664.9	288.2	200.4	3.49
112	669.9	283.2	205.5	3.22
113	674.9	288.2	206.2	3.30
114	679.8	283.2	199.3	3.40
115	684.8	288.2	189.1	4.88
116	689.7	283.2	182.2	5.17
117	694.7	288.2	194.5	3.83
118	699.7	283.2	187.6	3.90
119	709.6	283.2	182.2	3.91
120	719.5	283.2	177.1	3.46
121	620.3	293.2	204.3	2.73
122	625.3	298.1	205.5	2.84
123	630.2	293.2	198.9	2.98
124	635.2	298.1	213.2	3.03
125	640.1	293.2	206.5	3.10

126	645.1	298.1	220.1	3.11
127	650.1	293.2	213.3	3.15
128	655.0	298.1	214.1	3.24
129	660.0	293.2	207.3	3.35
130	664.9	298.1	208.3	3.59
131	669.9	293.2	201.5	3.79
132	674.9	298.1	214.0	3.33
133	679.8	293.2	195.9	4.55
134	684.8	298.1	208.2	3.60
135	689.7	293.2	201.3	3.72
136	694.7	298.1	192.1	7.84
137	699.7	293.2	195.8	3.96
138	719.5	293.2	185.8	3.52
139	620.3	303.1	212.1	2.76
140	625.3	308.1	213.4	2.94
141	630.2	303.1	219.9	2.99
142	635.2	308.1	221.0	3.05
143	640.1	303.1	226.9	3.08
144	645.1	308.1	227.8	3.12
145	650.1	303.1	221.0	3.17
146	655.0	308.1	222.0	3.29
147	660.0	303.1	215.1	3.42
148	664.9	308.1	216.3	3.70
149	669.9	303.1	209.5	3.94
150	674.9	308.1	210.8	4.47
151	679.8	303.1	204.0	4.87
152	684.8	308.1	216.4	3.67
153	689.7	303.1	198.8	5.83
154	694.7	308.1	200.6	15.91
155	709.6	303.1	199.2	4.07
156	714.5	308.1	201.2	3.75
157	719.5	303.1	194.5	4.02
158	620.3	313.1	220.1	2.80
159	625.3	318.1	234.5	2.95
160	630.2	313.1	227.7	2.99
161	635.2	318.1	241.5	3.05
162	640.1	313.1	234.6	3.08
163	645.1	318.1	235.6	3.12
164	650.1	313.1	228.8	3.19
165	655.0	318.1	229.9	3.35
166	660.0	313.1	234.7	3.12
167	664.9	318.1	235.8	3.18
168	669.9	313.1	228.9	3.27
169	674.9	318.1	230.1	3.41
170	679.8	313.1	223.3	3.53
171	684.8	318.1	224.7	3.74
172	689.7	313.1	217.9	3.87
173	694.7	318.1	219.5	4.08
174	699.7	313.1	212.8	4.13
175	704.6	318.1	214.7	4.23
176	709.6	313.1	207.9	3.97
177	714.5	318.1	210.1	4.29
178	719.5	313.1	203.4	5.43
179	620.3	323.1	228.1	2.89
180	625.3	328.1	242.4	2.95
181	630.2	323.1	235.7	3.00
182	635.2	328.1	249.3	3.05
183	640.1	323.1	242.4	3.08
184	645.1	328.1	243.6	3.15

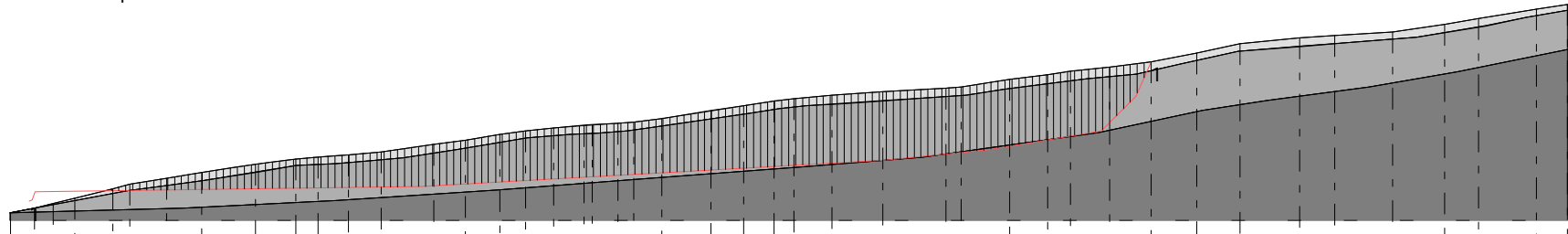
185	650.1	323.1	236.7	3.23
186	655.0	328.1	238.0	3.42
187	660.0	323.1	231.2	3.62
188	664.9	328.1	232.7	4.02
189	669.9	323.1	237.0	3.29
190	674.9	328.1	227.6	5.19
191	679.8	323.1	231.5	3.59
192	684.8	328.1	233.1	3.83
193	689.7	323.1	215.9	14.48
194	694.7	328.1	228.1	4.19
195	709.6	323.1	216.7	3.97
196	620.3	333.0	249.1	2.92
197	630.2	333.0	243.7	3.02
198	640.1	333.0	250.4	3.09
199	650.1	333.0	256.5	3.05
200	660.0	333.0	250.7	3.14
201	669.9	333.0	234.3	4.68
202	679.8	333.0	239.9	3.68
203	689.7	333.0	234.9	4.10
204	709.6	333.0	225.6	4.53

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Vertici strato2	3
5.Coefficienti parziali azioni	3
6.Coefficienti parziali per i parametri geotecnici del terreno	3
7.Stratigrafia	4
8.Risultati analisi pendio [A2+M2+R2]	4
Indice	8

VERIFICA ANALITICA DI STABILITA' DI
VERSANTE
SUPERFICIE 1
IN CONDIZIONI SISMICHE

Fs=2.31 Sup...1



- Strato...1
g=1.9t/m³
Fi=16°
c=6 kN/m²
- Strato...2
g=1.9t/m³
Fi=18°
c=10 kN/m²
- Strato...3
g=2t/m³
Fi=28°
c=20 kN/m²

Quote	0.00	18.49	12.37	20.77	21.65	9.28	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	288.79	15.47	63.02	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Distanze Parziali	0.00	18.49	30.86	51.63	63.00	72.28	81.49	92.78	104.12	115.41	126.69	138.16	149.82	161.68	173.74	186.00	198.49	211.15	223.96	236.91	249.99	263.21	276.58	290.10	303.77	317.59	331.57	345.70	359.98	374.41	388.98	403.70	418.57	433.59	448.76	464.08	479.55	495.17	510.94	526.86	542.93	559.15	575.52	592.04	608.71	625.53	642.50	659.62	676.89	694.31	711.88	729.60	747.47	765.49	783.66	801.98	820.45	839.07	857.84	876.76	895.83	915.05	934.42	953.94	973.61	993.43	1013.40	1033.52	1053.79	1074.21	1094.78	1115.50	1136.37	1157.39	1178.56	1199.88	1221.35	1242.97	1264.74	1286.66	1308.73	1330.95	1353.32	1375.84	1398.51	1421.33	1444.30	1467.42	1490.69	1514.11	1537.68	1561.40	1585.27	1609.29	1633.46	1657.78	1682.25	1706.87	1731.64	1756.56	1781.63	1806.85	1832.22	1857.74	1883.41	1909.23	1935.20	1961.32	1987.59	2014.01	2040.58	2067.30	2094.17	2121.19	2148.36	2175.68	2203.15	2230.77	2258.54	2286.46	2314.53	2342.75	2371.12	2399.64	2428.31	2457.13	2486.10	2515.22	2544.49	2573.91	2603.48	2633.20	2663.07	2693.09	2723.26	2753.58	2784.05	2814.67	2845.44	2876.36	2907.43	2938.65	2969.92	3001.34	3032.91	3064.63	3096.50	3128.52	3160.69	3193.01	3225.48	3258.10	3290.87	3323.79	3356.86	3389.98	3423.25	3456.67	3490.24	3523.96	3557.83	3591.85	3626.02	3660.34	3694.81	3729.43	3764.20	3799.12	3834.19	3869.41	3904.78	3940.30	3975.97	4011.79	4047.76	4083.88	4119.15	4154.67	4190.34	4226.16	4262.13	4298.25	4334.52	4370.94	4407.51	4444.23	4481.10	4518.12	4555.29	4592.61	4630.08	4667.70	4705.47	4743.39	4781.46	4819.68	4858.05	4896.57	4935.24	4974.06	5013.03	5052.15	5091.42	5130.84	5170.41	5210.13	5250.00	5290.02	5330.19	5370.51	5410.98	5451.60	5492.37	5533.29	5574.36	5615.58	5656.95	5698.47	5740.14	5781.96	5823.93	5866.05	5908.32	5950.74	5993.31	6036.03	6078.90	6121.92	6165.09	6208.41	6251.88	6295.50	6339.27	6383.19	6427.26	6471.48	6515.85	6560.37	6605.04	6649.86	6694.83	6739.95	6785.22	6830.64	6876.21	6921.93	6967.80	7013.82	7059.99	7106.31	7152.78	7199.40	7246.17	7293.09	7340.16	7387.38	7434.75	7482.27	7529.94	7577.76	7625.73	7673.85	7722.12	7770.54	7819.11	7867.83	7916.70	7965.72	8014.89	8064.21	8113.68	8163.30	8213.07	8263.00	8313.08	8363.31	8413.69	8464.22	8514.90	8565.73	8616.71	8667.84	8719.12	8770.55	8822.13	8873.86	8925.74	8977.77	9029.95	9082.28	9134.76	9187.39	9240.17	9293.10	9346.18	9399.41	9452.79	9506.32	9559.99	9613.81	9667.78	9721.90	9776.17	9830.59	9885.16	9939.88	9994.75	10049.77	10104.94	10160.26	10215.73	10271.35	10327.12	10383.04	10439.11	10495.34	10551.72	10608.25	10664.93	10721.76	10778.74	10835.87	10893.15	10950.58	11008.16	11065.89	11123.77	11181.80	11240.08	11298.51	11357.09	11415.82	11474.70	11533.73	11592.91	11652.24	11711.72	11771.35	11831.13	11891.06	11951.14	12011.37	12071.75	12132.28	12192.96	12253.79	12314.77	12375.90	12437.18	12498.61	12560.19	12621.92	12683.80	12745.83	12808.01	12870.34	12932.82	12995.45	13058.23	13121.16	13184.24	13247.47	13310.85	13374.38	13438.06	13501.89	13565.87	13629.99	13694.26	13758.68	13823.25	13887.97	13952.84	14017.86	14083.03	14148.35	14213.82	14279.44	14345.21	14411.13	14477.20	14543.42	14609.79	14676.31	14742.98	14809.80	14876.77	14943.89	15011.16	15078.58	15146.15	15213.87	15281.74	15349.76	15417.93	15486.25	15554.72	15623.34	15692.11	15761.03	15830.10	15900.32	15970.69	16041.21	16111.88	16182.70	16253.67	16324.79	16396.06	16467.48	16539.05	16610.77	16682.64	16754.66	16826.83	16899.15	16971.62	17044.24	17117.01	17190.93	17265.00	17339.22	17413.59	17488.11	17562.78	17637.60	17712.57	17787.69	17862.96	17938.38	18013.95	18089.67	18165.54	18241.56	18317.73	18394.05	18470.52	18547.14	18623.91	18700.83	18777.90	18855.12	18932.49	19010.01	19087.68	19165.50	19243.47	19321.59	19400.86	19480.28	19559.85	19639.57	19719.44	19800.46	19881.63	19962.95	20044.42	20126.04	20207.81	20289.73	20371.80	20454.02	20536.39	20618.91	20701.58	20784.40	20867.37	20950.49	21033.76	21117.18	21200.75	21284.47	21368.34	21452.36	21536.53	21620.85	21705.32	21789.94	21874.71	21959.63	22044.70	22130.92	22217.29	22303.81	22390.48	22477.30	22564.27	22651.39	22738.66	22826.08	22913.65	23001.37	23089.24	23177.26	23265.43	23353.75	23442.22	23530.84	23619.61	23708.53	23797.60	23886.82	23976.19	24065.71	24155.38	24245.20	24335.17	24425.29	24515.56	24605.98	24696.55	24787.27	24878.14	24969.16	25060.33	25151.65	25243.12	25334.74	25426.51	25518.43	25610.50	25702.72	25795.09	25887.61	25980.28	26073.10	26166.07	26259.19	26352.46	26445.88	26539.45	26633.17	26727.04	26821.06	26915.23	27009.55	27104.02	27198.64	27293.41	27388.33	27483.40	27578.62	27674.00	27769.53	27865.21	27961.04	28057.02	28153.15	28249.43	28345.86	28442.44	28539.17	28636.05	28733.08	28830.26	28927.59	29025.07	29122.70	29220.48	29318.41	29416.49	29514.72	29613.10	29711.63	29810.31	29909.14	30008.12	30107.25	30206.53	30305.96	30405.54	30505.27	30605.15	30705.18	30805.36	30905.69	31006.17	31106.80	31207.58	31308.51	31409.59	31510.82	31612.20	31713.73	31815.41	31917.24	32019.22	32121.35	32223.63	32326.06	32428.64	32531.37	32634.25	32737.28	32840.46	32943.79	33047.27	33150.90	33254.68	33358.61	33462.69	33566.92	33671.30	33775.83	33880.51	33985.34	34090.32	34195.45	34300.73	34406.16	34511.74	34617.47	34723.35	34829.38	34935.56	35041.89	35148.37	35255.00	35361.78	35468.71	35575.79	35683.02	35790.40	35897.93	36005.61	36113.44	36221.42	36329.55	36437.83	36546.26	36654.84	36763.57	36872.45	36981.48	37090.66	37199.99	37309.47	37419.10	37528.88	37638.81	37748.89	37859.12	37969.50	38079.93	38190.51	38301.24	38412.12	38523.15	38634.33	38745.66	38857.14	38968.77	39080.55	39192.48	39304.56	39416.79	39529.17	39641.70	39754.38	39867.21	39980.19	40093.32	40206.60	40320.03	40433.61	40547.34	40661.22	40775.25	40889.43	41003.76	41118.24	41232.87	41347.65	41462.58	41577.66	41692.89	41808.27	41923.80	42039.48	42155.31	42271.29	42387.42	42503.70	42620.13	42736.71	42853.44	42970.32	43087.35	43204.53	43321.86	43439.34	43556.97	43674.75	43792.68	43910.76	44028.99	44147.37	44265.90	44384.58	44503.41	44622.39	44741.52	44860.80	44980.23	45099.81	45219.54	45339.42	45459.45	45579.63	45699.96	45820.44	45941.07	46061.85	46182.78	46303.86	46425.09	46546.47	46668.00	46789.68	46911.51	47033.49	47155.62	47277.90	47400.33	47522.91	47645.64	47768.52	47891.55	48014.73	48138.06	48261.54	48385.17	48508.95	48632.88	48756.96	48881.19	49005.57	49130.10	49254.78	49379.61	49504.59	49629.72	49754.99	49880.41	50005.98	50131.70	50257.57	50383.59	50509.76	50636.08	50762.55	50889.17	51015.94	51142.86	51269.93	51397.15	51524.52	51652.04	51779.71	51907.53	52035.50	52163.62	52291.89	52420.31	52548.88	52677.60	52806.47	52935.49	53064.66	53193.98	53323.45	53453.07	53582.84	53712.

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.175611/10.985884
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	150.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma generica	

Coefficiente azione sismica orizzontale	0.07
Coefficiente azione sismica verticale	0.035

Vertici profilo

Nr	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	50.21	23.11
4	61.35	25.95
5	80.53	30.66
6	89.19	32.86
7	107.75	35.96
8	125.69	38.81
9	152.91	42.89
10	173.33	45.62
11	184.47	46.61
12	199.93	47.83
13	216.64	49.27
14	243.24	53.06
15	259.33	55.27
16	276.65	58.06
17	289.64	59.85
18	303.87	61.29
19	319.34	62.72
20	323.67	63.02
21	336.66	63.64
22	344.7	64.23
23	358.93	66.21
24	383.68	70.12
25	400.39	72.6
26	415.85	75.14
27	425.75	76.18
28	444.97	77.91
29	470.75	79.79
30	502.71	81.6
31	510.56	82.07
32	534.98	86.02
33	554.28	88.38
34	566.05	90.23
35	585.67	92.1
36	606.97	94.76

37	629.96	99.23
38	651.82	103.92
39	682.09	107.02
40	700.03	108.18
41	729.18	109.97
42	755.53	113.74
43	772.9	116.69
44	802.05	121.54
45	817.75	123.9

Vertici strato1

N	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	88.42	29.65
4	104.2	31.75
5	126.08	34.66
6	155.17	39.33
7	173.72	42.3
8	193.86	43.34
9	211.16	44.76
10	227.87	46.14
11	254.74	50.49
12	274.51	53.7
13	290.29	56.26
14	312.26	58.25
15	326.11	58.72
16	341.35	59.84
17	354.13	61.7
18	380.78	65.59
19	403.27	68.86
20	418.32	71.06
21	431.94	72.52
22	449.06	73.67
23	471.11	75.15
24	495.77	76.8
25	513.11	77.96
26	532.31	80.9
27	559.94	84.41
28	574.12	86.22
29	599.33	88.67
30	621.23	93.54
31	650.98	100.15
32	683.22	102.72
33	707.27	104.64
34	741.33	107.35
35	776.65	113.11
36	796.99	117.45
37	817.75	121.07

Vertici strato2

N	X (m)	y (m)
1	28.56	18.49
2	116.3	20.69
3	193.7	24.56
4	275.52	29.89
5	352.89	35.88
6	431.94	41.72

7	490.94	46.62
8	539.62	53.35
9	580.11	58.95
10	633.05	70.32
11	665.91	75.36
12	717.25	82.08
13	762.2	89.71
14	817.75	101.22

Vertici superficie Nr...1

N	X m	y m
1	38.11	24.49
2	39.84	24.88
3	41.01	29.2
4	236.68	31.75
5	472.07	45.01
6	524.94	50.53
7	581.75	60.0
8	599.1	77.36
9	606.96	94.83

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3	20		28	2		

B: Larghezza del concio; Alfa: Angolo di inclinazione della base del concio; Li: Lunghezza della base del concio; Wi: Peso del concio; Ui: Forze derivanti dalle pressioni neutre; Ni: forze agenti normalmente alla direzione di scivolamento; Ti: forze agenti parallelamente alla superficie di scivolamento; Fi: Angolo di attrito; c: coesione.

Superficie Nr...1 Fattore di sicurezza=2.31

Nr.	B m	Alfa (°)	Li m	Wi (kN)	Kh•Wi (kN)	Kv•Wi (kN)	c (kN/m ²)	Fi (°)	Ui (kN)	N'i (kN)	Ti (kN)
1	3.54	0.8	3.54	27.02	1.89	0.95	6.0	16.0	0.0	-35.6	4.8

2	3.54	0.8	3.54	81.79	5.73	2.86	6.0	16.0	0.0	-32.8	5.1
3	3.54	0.8	3.54	137.92	9.65	4.83	6.0	16.0	0.0	-29.9	5.5
4	3.54	0.8	3.54	194.05	13.58	6.79	6.0	16.0	0.0	-27.0	5.8
5	3.54	0.6	3.54	232.24	16.26	8.13	10.0	18.0	0.0	-27.7	11.4
6	3.54	0.8	3.54	268.49	18.79	9.4	10.0	18.0	0.0	-23.0	12.1
7	3.54	0.8	3.54	304.35	21.3	10.65	10.0	18.0	0.0	-21.1	12.4
8	3.54	0.8	3.54	340.21	23.81	11.91	10.0	18.0	0.0	-19.1	12.6
9	3.54	0.8	3.54	376.06	26.32	13.16	10.0	18.0	0.0	-17.2	12.9
10	3.54	0.8	3.54	410.56	28.74	14.37	10.0	18.0	0.0	-15.3	13.2
11	3.54	0.8	3.54	444.35	31.1	15.55	10.0	18.0	0.0	-13.5	13.4
12	3.54	0.8	3.54	478.14	33.47	16.73	10.0	18.0	0.0	-11.6	13.7
13	3.54	0.6	3.54	512.31	35.86	17.93	10.0	18.0	0.0	-15.8	13.1
14	3.54	0.8	3.54	546.49	38.25	19.13	10.0	18.0	0.0	-7.9	14.2
15	3.54	0.8	3.54	579.13	40.54	20.27	10.0	18.0	0.0	-6.1	14.5
16	3.54	0.8	3.54	610.95	42.77	21.38	10.0	18.0	0.0	-4.4	14.7
17	3.54	0.8	3.54	642.77	44.99	22.5	10.0	18.0	0.0	-2.6	15.0
18	3.54	0.8	3.54	674.59	47.22	23.61	10.0	18.0	0.0	-0.9	15.2
19	3.54	0.8	3.54	706.41	49.45	24.72	10.0	18.0	0.0	0.9	15.4
20	3.54	0.8	3.54	738.23	51.68	25.84	10.0	18.0	0.0	2.6	15.7
21	3.54	0.6	3.54	770.44	53.93	26.97	10.0	18.0	0.0	-4.7	14.7
22	3.54	0.8	3.54	802.66	56.19	28.09	10.0	18.0	0.0	6.1	16.2
23	3.54	0.8	3.54	831.1	58.18	29.09	10.0	18.0	0.0	7.7	16.4
24	3.54	0.8	3.54	859.1	60.14	30.07	10.0	18.0	0.0	9.3	16.6
25	3.54	0.8	3.54	887.1	62.1	31.05	10.0	18.0	0.0	10.9	16.9
26	3.54	0.8	3.54	915.1	64.06	32.03	10.0	18.0	0.0	12.4	17.1
27	3.54	0.8	3.54	943.11	66.02	33.01	10.0	18.0	0.0	14.0	17.3
28	3.54	0.8	3.54	969.94	67.9	33.95	10.0	18.0	0.0	15.5	17.5
29	3.54	0.6	3.54	987.87	69.15	34.58	10.0	18.0	0.0	5.0	16.0
30	3.54	0.8	3.54	1005.8	70.41	35.2	10.0	18.0	0.0	17.7	17.8
31	3.54	0.8	3.54	1023.34	71.63	35.82	10.0	18.0	0.0	18.8	18.0
32	3.54	0.8	3.54	1038.64	72.7	36.35	10.0	18.0	0.0	19.7	18.1
33	3.54	0.8	3.54	1053.85	73.77	36.88	10.0	18.0	0.0	20.7	18.2
34	3.54	0.8	3.54	1069.06	74.83	37.42	10.0	18.0	0.0	21.7	18.4
35	3.54	0.8	3.54	1084.27	75.9	37.95	10.0	18.0	0.0	22.6	18.5
36	3.54	0.8	3.54	1100.56	77.04	38.52	10.0	18.0	0.0	23.6	18.7
37	3.54	0.6	3.54	1117.99	78.26	39.13	10.0	18.0	0.0	11.5	16.9
38	3.54	0.8	3.54	1135.42	79.48	39.74	10.0	18.0	0.0	25.8	19.0
39	3.54	0.8	3.54	1152.46	80.67	40.34	10.0	18.0	0.0	26.8	19.1
40	3.54	0.8	3.54	1169.5	81.87	40.93	10.0	18.0	0.0	27.9	19.2
41	3.54	0.8	3.54	1197.75	83.84	41.92	10.0	18.0	0.0	29.5	19.5
42	3.54	0.8	3.54	1227.75	85.94	42.97	10.0	18.0	0.0	31.1	19.7
43	3.54	0.8	3.54	1257.75	88.04	44.02	10.0	18.0	0.0	32.8	19.9
44	3.54	0.6	3.54	1288.14	90.17	45.08	10.0	18.0	0.0	19.3	18.0
45	3.54	0.8	3.54	1318.53	92.3	46.15	10.0	18.0	0.0	36.1	20.4
46	3.54	2.6	3.54	1344.87	94.14	47.07	10.0	18.0	0.0	185.1	41.4
47	3.54	3.3	3.54	1366.11	95.63	47.81	10.0	18.0	0.0	248.2	50.3
48	3.54	3.1	3.54	1385.91	97.01	48.51	10.0	18.0	0.0	236.1	48.6
49	3.54	3.3	3.54	1404.99	98.35	49.17	10.0	18.0	0.0	256.5	51.4
50	3.54	3.3	3.54	1423.69	99.66	49.83	10.0	18.0	0.0	260.5	52.0
51	3.54	3.1	3.54	1442.77	100.99	50.5	10.0	18.0	0.0	247.6	50.2
52	3.54	3.3	3.54	1461.85	102.33	51.16	10.0	18.0	0.0	268.6	53.1
53	3.54	3.3	3.54	1484.86	103.94	51.97	10.0	18.0	0.0	273.5	53.8
54	3.54	3.3	3.54	1508.98	105.63	52.81	10.0	18.0	0.0	278.6	54.5
55	3.54	3.1	3.54	1533.5	107.34	53.67	10.0	18.0	0.0	265.7	52.7
56	3.54	3.3	3.54	1558.02	109.06	54.53	10.0	18.0	0.0	288.9	56.0
57	3.54	3.3	3.54	1582.14	110.75	55.37	10.0	18.0	0.0	294.0	56.7
58	3.54	3.1	3.54	1601.85	112.13	56.06	10.0	18.0	0.0	279.3	54.6
59	3.54	3.3	3.54	1620.99	113.47	56.73	10.0	18.0	0.0	302.3	57.9
60	3.54	3.3	3.54	1639.74	114.78	57.39	10.0	18.0	0.0	306.3	58.4

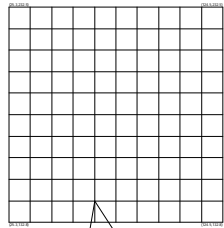
61	3.54	3.1	3.54	1657.0	115.99	58.0	10.0	18.0	0.0	290.4	56.2
62	3.54	3.3	3.54	1667.68	116.74	58.37	10.0	18.0	0.0	312.4	59.3
63	3.54	3.3	3.54	1677.95	117.46	58.73	10.0	18.0	0.0	314.7	59.6
64	3.54	3.3	3.54	1688.23	118.18	59.09	10.0	18.0	0.0	317.0	59.9
65	3.54	3.1	3.54	1698.49	118.89	59.45	10.0	18.0	0.0	299.3	57.5
66	3.54	3.3	3.54	1707.08	119.5	59.75	10.0	18.0	0.0	321.2	60.5
67	3.54	3.3	3.54	1715.28	120.07	60.03	10.0	18.0	0.0	323.1	60.8
68	3.54	3.1	3.54	1723.87	120.67	60.34	10.0	18.0	0.0	304.8	58.2
69	3.54	3.3	3.54	1732.46	121.27	60.64	10.0	18.0	0.0	327.1	61.4
70	3.54	3.3	3.54	1736.45	121.55	60.78	10.0	18.0	0.0	328.1	61.5
71	3.54	3.1	3.54	1736.64	121.56	60.78	10.0	18.0	0.0	307.9	58.7
72	3.54	3.3	3.54	1734.63	121.42	60.71	10.0	18.0	0.0	328.3	61.5
73	3.54	3.3	3.54	1732.23	121.26	60.63	10.0	18.0	0.0	328.0	61.5
74	3.54	3.3	3.54	1729.83	121.09	60.54	10.0	18.0	0.0	327.8	61.5
75	3.54	3.1	3.54	1733.74	121.36	60.68	10.0	18.0	0.0	308.4	58.7
76	3.54	3.3	3.54	1738.12	121.67	60.83	10.0	18.0	0.0	329.9	61.8
77	3.54	3.3	3.54	1751.88	122.63	61.32	10.0	18.0	0.0	332.9	62.2
78	3.54	3.1	3.54	1771.27	123.99	61.99	10.0	18.0	0.0	316.2	59.8
79	3.54	3.3	3.54	1790.66	125.35	62.67	10.0	18.0	0.0	341.2	63.4
80	3.54	3.3	3.54	1809.66	126.68	63.34	10.0	18.0	0.0	345.3	63.9
81	3.54	3.3	3.54	1831.49	128.2	64.1	10.0	18.0	0.0	349.9	64.6
82	3.54	3.1	3.54	1855.39	129.88	64.94	10.0	18.0	0.0	333.1	62.2
83	3.54	3.3	3.54	1879.28	131.55	65.77	10.0	18.0	0.0	360.0	66.0
84	3.54	3.3	3.54	1902.79	133.2	66.6	10.0	18.0	0.0	364.9	66.7
85	3.54	3.1	3.54	1926.69	134.87	67.43	10.0	18.0	0.0	347.2	64.2
86	3.54	3.3	3.54	1950.59	136.54	68.27	10.0	18.0	0.0	375.0	68.1
87	3.54	3.3	3.54	1974.09	138.19	69.09	10.0	18.0	0.0	380.0	68.8
88	3.54	3.1	3.54	1996.51	139.76	69.88	10.0	18.0	0.0	361.2	66.2
89	3.54	3.3	3.54	2018.06	141.26	70.63	10.0	18.0	0.0	389.3	70.1
90	3.54	3.3	3.54	2039.22	142.75	71.37	10.0	18.0	0.0	393.7	70.8
91	3.54	3.3	3.54	2060.38	144.23	72.11	10.0	18.0	0.0	398.2	71.4
92	3.54	3.1	3.54	2081.93	145.73	72.87	10.0	18.0	0.0	378.3	68.6
93	3.54	3.3	3.54	2106.85	147.48	73.74	10.0	18.0	0.0	408.0	72.8
94	3.54	3.3	3.54	2131.74	149.22	74.61	10.0	18.0	0.0	413.3	73.5
95	3.54	3.1	3.54	2157.01	150.99	75.5	10.0	18.0	0.0	393.2	70.7
96	3.54	3.3	3.54	2182.29	152.76	76.38	10.0	18.0	0.0	423.9	75.0
97	3.54	3.3	3.54	2199.91	153.99	77.0	10.0	18.0	0.0	427.7	75.5
98	3.54	3.3	3.54	2211.13	154.78	77.39	10.0	18.0	0.0	430.2	75.9
99	3.54	3.1	3.54	2222.75	155.59	77.8	10.0	18.0	0.0	406.6	72.6
100	3.54	3.3	3.54	2231.72	156.22	78.11	10.0	18.0	0.0	434.8	76.5
101	3.54	3.3	3.54	2239.32	156.75	78.38	10.0	18.0	0.0	436.6	76.8
102	3.54	3.1	3.54	2247.31	157.31	78.66	10.0	18.0	0.0	411.9	73.3
103	3.54	3.3	3.54	2255.31	157.87	78.94	10.0	18.0	0.0	440.3	77.3
104	3.54	3.3	3.54	2262.91	158.4	79.2	10.0	18.0	0.0	442.0	77.6
105	3.54	3.1	3.54	2269.72	158.88	79.44	10.0	18.0	0.0	416.9	74.0
106	3.54	3.3	3.54	2273.74	159.16	79.58	10.0	18.0	0.0	444.7	77.9
107	3.54	3.3	3.54	2277.37	159.42	79.71	10.0	18.0	0.0	445.7	78.1
108	3.54	3.3	3.54	2281.0	159.67	79.84	10.0	18.0	0.0	446.7	78.2
109	3.54	3.1	3.54	2285.03	159.95	79.98	10.0	18.0	0.0	420.8	74.6
110	3.54	3.3	3.54	2289.05	160.23	80.12	10.0	18.0	0.0	448.8	78.5
111	3.54	3.3	3.54	2292.69	160.49	80.24	10.0	18.0	0.0	449.7	78.6
112	3.54	3.5	3.54	2295.84	160.71	80.35	10.0	18.0	0.0	481.6	83.1
113	3.54	6.0	3.56	2289.74	160.28	80.14	20.0	28.0	0.0	827.5	221.3
114	3.54	6.0	3.56	2278.6	159.5	79.75	10.0	18.0	0.0	823.7	131.3
115	3.54	6.0	3.56	2267.46	158.72	79.36	10.0	18.0	0.0	819.9	130.7
116	3.54	6.0	3.56	2256.31	157.94	78.97	10.0	18.0	0.0	816.1	130.2
117	3.54	6.0	3.56	2245.17	157.16	78.58	10.0	18.0	0.0	812.2	129.7
118	3.54	6.0	3.56	2234.02	156.38	78.19	10.0	18.0	0.0	808.4	129.1
119	3.54	6.0	3.56	2222.88	155.6	77.8	10.0	18.0	0.0	804.6	128.6

120	3.54	6.0	3.56	2211.74	154.82	77.41	10.0	18.0	0.0	800.8	128.1
121	3.54	6.0	3.56	2200.72	154.05	77.03	20.0	28.0	0.0	797.0	214.3
122	3.54	6.0	3.56	2190.64	153.35	76.67	20.0	28.0	0.0	793.5	213.5
123	3.54	6.0	3.56	2180.59	152.64	76.32	20.0	28.0	0.0	790.1	212.7
124	3.54	6.0	3.56	2188.47	153.19	76.6	20.0	28.0	0.0	793.2	213.4
125	3.54	6.0	3.56	2202.23	154.16	77.08	20.0	28.0	0.0	798.5	214.6
126	3.54	6.0	3.56	2216.0	155.12	77.56	20.0	28.0	0.0	803.8	215.8
127	3.54	6.6	3.56	2228.39	155.99	77.99	20.0	28.0	0.0	896.3	237.1
128	3.54	9.6	3.59	2232.92	156.3	78.15	20.0	28.0	0.0	1310.6	332.6
129	3.54	9.4	3.58	2231.39	156.2	78.1	20.0	28.0	0.0	1283.7	326.4
130	3.54	9.4	3.58	2230.27	156.12	78.06	20.0	28.0	0.0	1283.3	326.3
131	3.54	9.6	3.59	2220.95	155.47	77.73	20.0	28.0	0.0	1304.3	331.1
132	3.54	9.4	3.58	2210.23	154.72	77.36	20.0	28.0	0.0	1272.2	323.7
133	3.54	9.6	3.59	2199.51	153.97	76.98	20.0	28.0	0.0	1292.2	328.3
134	3.54	9.4	3.58	2188.78	153.21	76.61	20.0	28.0	0.0	1260.3	321.0
135	3.54	9.6	3.59	2178.06	152.46	76.23	20.0	28.0	0.0	1280.0	325.5
136	3.54	9.4	3.58	2170.78	151.95	75.98	10.0	18.0	0.0	1250.4	191.4
137	3.54	9.6	3.59	2168.52	151.8	75.9	10.0	18.0	0.0	1274.9	194.8
138	3.54	9.4	3.58	2166.26	151.64	75.82	10.0	18.0	0.0	1248.3	191.1
139	3.54	9.4	3.58	2163.53	151.45	75.72	10.0	18.0	0.0	1247.0	190.9
140	3.54	9.6	3.59	2146.91	150.28	75.14	10.0	18.0	0.0	1262.9	193.1
141	3.54	9.4	3.58	2130.28	149.12	74.56	10.0	18.0	0.0	1228.2	188.2
142	3.54	9.6	3.59	2113.66	147.96	73.98	10.0	18.0	0.0	1243.8	190.4
143	3.54	15.0	3.66	2085.14	145.96	72.98	10.0	18.0	0.0	1947.4	289.5
144	3.54	45.0	5.0	1959.61	137.17	68.59	10.0	18.0	0.0	6859.2	981.0
145	3.54	44.9	5.0	1752.44	122.67	61.34	10.0	18.0	0.0	6113.5	876.0
146	3.54	45.0	5.0	1548.6	108.4	54.2	10.0	18.0	0.0	5420.8	778.5
147	3.54	45.0	5.0	1344.36	94.11	47.05	10.0	18.0	0.0	4706.0	677.8
148	3.54	51.6	5.69	1109.8	77.69	38.84	10.0	18.0	0.0	4895.1	704.5
149	3.54	65.8	8.62	733.07	51.31	25.66	10.0	18.0	0.0	5694.4	817.0
150	3.54	65.8	8.62	244.39	17.11	8.55	6.0	16.0	0.0	1899.0	245.1

Indice

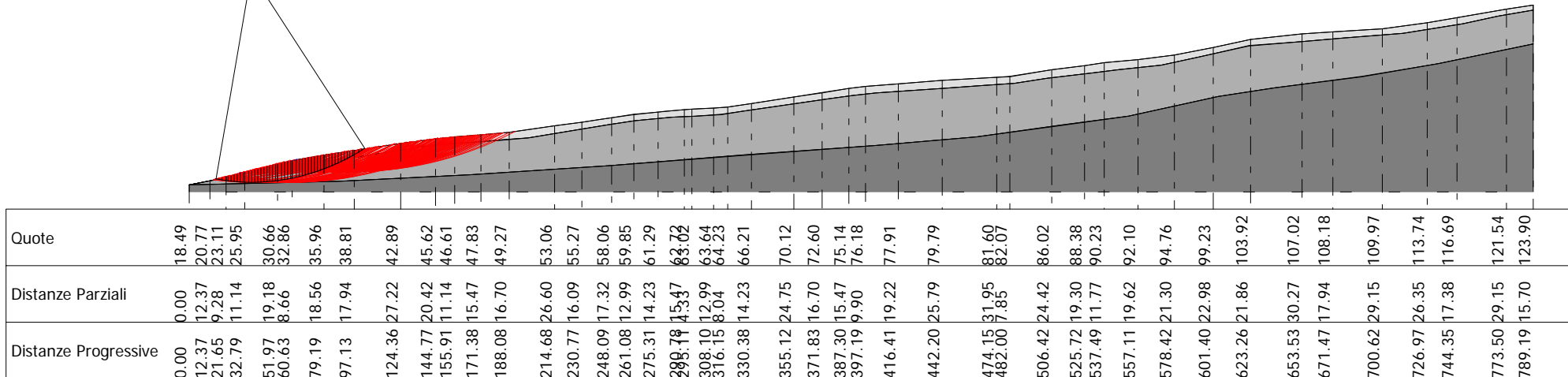
1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici strato2	3
5.Vertici superficie Nr...1	3
6.Coefficienti parziali azioni	3
7.Coefficienti parziali per i parametri geotecnici del terreno	4
8.Stratigrafia	4
Indice	8

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE
 DA 0 A 100 m
 IN CONDIZIONI SISMICHE



xc=64.98 yc=142.78 Rc=122.81 Fs=1.52

- Strato...1
 g=1.9 t/m³
 Fi=16°
 c=6 kN/m²
- Strato...2
 g=1.9 t/m³
 Fi=18°
 c=10 kN/m²
- Strato...3
 g=2 t/m³
 Fi=28°
 c=20 kN/m²



Quote	0.00	18.49	12.37	20.77	21.65	9.28	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	298.78	15.47	63.02	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90
Distanze Parziali	0.00	18.49	12.37	20.77	21.65	9.28	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	298.78	15.47	63.02	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90
Distanze Progressive	0.00	18.49	12.37	20.77	21.65	9.28	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	298.78	15.47	63.02	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.175611/10.985884
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	26.29 m
Ordinata vertice sinistro inferiore yi	132.81 m
Ascissa vertice destro superiore xs	125.5 m
Ordinata vertice destro superiore ys	232.51 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.0703
Coefficiente azione sismica verticale	0.0352

Vertici profilo

Nr	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	50.21	23.11
4	61.35	25.95
5	80.53	30.66
6	89.19	32.86
7	107.75	35.96
8	125.69	38.81
9	152.91	42.89
10	173.33	45.62
11	184.47	46.61
12	199.93	47.83
13	216.64	49.27
14	243.24	53.06
15	259.33	55.27
16	276.65	58.06
17	289.64	59.85
18	303.87	61.29
19	319.34	62.72
20	323.67	63.02
21	336.66	63.64
22	344.7	64.23
23	358.93	66.21
24	383.68	70.12
25	400.39	72.6
26	415.85	75.14

27	425.75	76.18
28	444.97	77.91
29	470.75	79.79
30	502.71	81.6
31	510.56	82.07
32	534.98	86.02
33	554.28	88.38
34	566.05	90.23
35	585.67	92.1
36	606.97	94.76
37	629.96	99.23
38	651.82	103.92
39	682.09	107.02
40	700.03	108.18
41	729.18	109.97
42	755.53	113.74
43	772.9	116.69
44	802.05	121.54
45	817.75	123.9

Vertici strato1

N	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	88.42	29.65
4	104.2	31.75
5	126.08	34.66
6	155.17	39.33
7	173.72	42.3
8	193.86	43.34
9	211.16	44.76
10	227.87	46.14
11	254.74	50.49
12	274.51	53.7
13	290.29	56.26
14	312.26	58.25
15	326.11	58.72
16	341.35	59.84
17	354.13	61.7
18	380.78	65.59
19	403.27	68.86
20	418.32	71.06
21	431.94	72.52
22	449.06	73.67
23	471.11	75.15
24	495.77	76.8
25	513.11	77.96
26	532.31	80.9
27	559.94	84.41
28	574.12	86.22
29	599.33	88.67
30	621.23	93.54
31	650.98	100.15
32	683.22	102.72
33	707.27	104.64
34	741.33	107.35
35	776.65	113.11
36	796.99	117.45

Vertici strato2	37	817.75	121.07
N	X (m)	y (m)	
1	28.56	18.49	
2	116.3	20.69	
3	193.7	24.56	
4	275.52	29.89	
5	352.89	35.88	
6	431.94	41.72	
7	490.94	46.62	
8	539.62	53.35	
9	580.11	58.95	
10	633.05	70.32	
11	665.91	75.36	
12	717.25	82.08	
13	762.2	89.71	
14	817.75	101.22	

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3	20		28	2		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.51
Ascissa centro superficie	61.01 m
Ordinata centro superficie	137.8 m
Raggio superficie	117.86 m

B: Larghezza del concio; Alfa: Angolo di inclinazione della base del concio; Li: Lunghezza della base del concio; Wi: Peso del concio; Ui: Forze derivanti dalle pressioni neutre; Ni: forze agenti normalmente alla direzione di scivolamento; Ti: forze agenti parallelamente alla superficie di scivolamento; Fi: Angolo di attrito; c: coesione.

$$x_c = 61.013 \quad y_c = 137.797 \quad R_c = 117.855 \quad F_s = 1.509$$

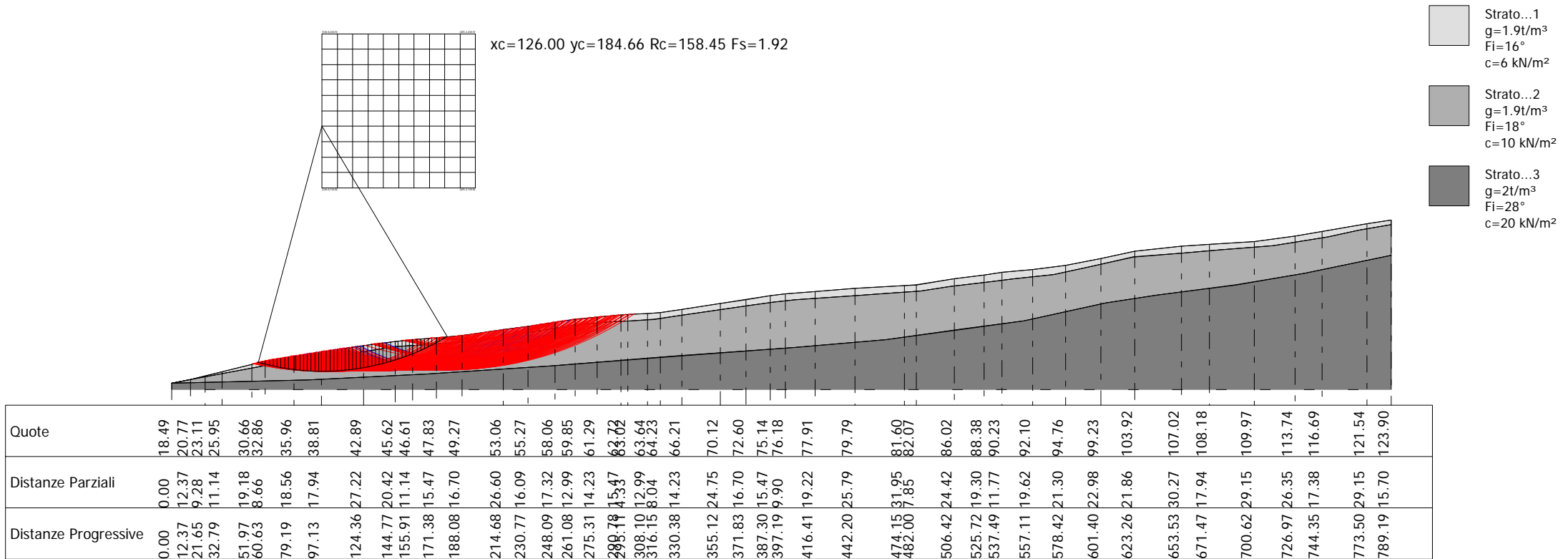
Nr.	B	Alfa	Li	Wi	Kh•Wi	Kv•Wi	c	Fi	Ui	N'i	Ti
-----	---	------	----	----	-------	-------	---	----	----	-----	----

	m	(°)	m	(kN)	(kN)	(kN)	(kN/m ²)	(°)	(kN)	(kN)	(kN)
1	1.63	-8.3	1.65	9.99	0.7	0.35	10.0	18.0	0.0	11.5	13.3
2	1.63	-7.5	1.65	29.45	2.07	1.04	10.0	18.0	0.0	7.5	12.4
3	1.63	-6.7	1.64	48.19	3.39	1.7	10.0	18.0	0.0	4.4	11.8
4	2.23	-5.8	2.24	94.81	6.67	3.34	10.0	18.0	0.0	-2.7	14.2
5	1.04	-5.0	1.04	55.07	3.87	1.94	10.0	18.0	0.0	3.3	7.6
6	1.63	-4.4	1.64	100.43	7.06	3.53	10.0	18.0	0.0	0.6	10.9
7	1.63	-3.6	1.64	116.55	8.19	4.1	10.0	18.0	0.0	0.9	11.0
8	1.63	-2.8	1.64	131.98	9.28	4.65	10.0	18.0	0.0	2.0	11.2
9	1.63	-2.0	1.63	146.72	10.31	5.16	10.0	18.0	0.0	3.7	11.6
10	1.63	-1.2	1.63	160.77	11.3	5.66	10.0	18.0	0.0	6.1	12.1
11	1.93	-0.3	1.93	207.58	14.59	7.31	10.0	18.0	0.0	10.8	15.1
12	1.33	0.5	1.33	153.2	10.77	5.39	10.0	18.0	0.0	10.3	11.0
13	1.63	1.2	1.63	198.13	13.93	6.97	10.0	18.0	0.0	16.7	14.4
14	1.63	2.0	1.63	208.93	14.69	7.35	10.0	18.0	0.0	21.3	15.4
15	1.63	2.8	1.64	219.03	15.4	7.71	10.0	18.0	0.0	26.2	16.5
16	1.63	3.6	1.64	228.44	16.06	8.04	10.0	18.0	0.0	31.5	17.6
17	1.63	4.4	1.64	237.17	16.67	8.35	10.0	18.0	0.0	37.2	18.8
18	1.63	5.2	1.64	245.19	17.24	8.63	10.0	18.0	0.0	43.1	20.1
19	1.63	6.0	1.64	252.52	17.75	8.89	10.0	18.0	0.0	49.3	21.4
20	1.63	6.8	1.64	259.15	18.22	9.12	10.0	18.0	0.0	55.7	22.8
21	1.63	7.6	1.65	265.07	18.63	9.33	10.0	18.0	0.0	62.3	24.2
22	1.63	8.4	1.65	270.29	19.0	9.51	10.0	18.0	0.0	69.0	25.7
23	1.51	9.2	1.53	254.78	17.91	8.97	10.0	18.0	0.0	65.6	24.2
24	1.75	10.0	1.78	298.87	21.01	10.52	10.0	18.0	0.0	94.3	31.9
25	1.63	10.8	1.66	282.37	19.85	9.94	10.0	18.0	0.0	89.8	30.1
26	1.63	11.6	1.67	285.17	20.05	10.04	10.0	18.0	0.0	96.7	31.6
27	1.63	12.4	1.67	287.23	20.19	10.11	10.0	18.0	0.0	103.6	33.1
28	2.01	13.3	2.07	355.4	24.98	12.51	10.0	18.0	0.0	166.8	49.2
29	1.26	14.1	1.29	221.03	15.54	7.78	10.0	18.0	0.0	70.4	23.5
30	1.63	14.9	1.69	283.48	19.93	9.98	10.0	18.0	0.0	121.3	36.9
31	1.63	15.7	1.7	278.22	19.56	9.79	10.0	18.0	0.0	125.5	37.8
32	1.63	16.5	1.7	272.18	19.13	9.58	10.0	18.0	0.0	129.1	38.6
33	1.63	17.4	1.71	265.36	18.66	9.34	10.0	18.0	0.0	132.2	39.3
34	1.63	18.2	1.72	257.76	18.12	9.07	10.0	18.0	0.0	134.6	39.8
35	1.63	19.0	1.73	249.35	17.53	8.78	10.0	18.0	0.0	136.4	40.2
36	1.63	19.9	1.74	240.12	16.88	8.45	10.0	18.0	0.0	137.3	40.4
37	1.63	20.7	1.75	230.07	16.17	8.1	10.0	18.0	0.0	137.4	40.4
38	1.63	21.6	1.76	219.17	15.41	7.71	10.0	18.0	0.0	136.5	40.2
39	1.63	22.4	1.77	207.42	14.58	7.3	10.0	18.0	0.0	134.7	39.8
40	0.97	23.1	1.06	117.67	8.27	4.14	10.0	18.0	0.0	47.8	16.7
41	2.29	24.0	2.51	258.01	18.14	9.08	10.0	18.0	0.0	251.1	69.3
42	1.63	25.0	1.8	166.02	11.67	5.84	10.0	18.0	0.0	121.4	37.0
43	1.63	25.9	1.82	150.24	10.56	5.29	10.0	18.0	0.0	114.2	35.4
44	1.63	26.8	1.83	133.5	9.39	4.7	10.0	18.0	0.0	105.4	33.5
45	1.63	27.7	1.84	115.8	8.14	4.08	6.0	16.0	0.0	94.9	24.5
46	1.63	28.6	1.86	97.11	6.83	3.42	6.0	16.0	0.0	82.5	22.2
47	1.63	29.5	1.88	77.4	5.44	2.72	6.0	16.0	0.0	68.2	19.5
48	1.63	30.4	1.89	56.65	3.98	1.99	6.0	16.0	0.0	51.8	16.3
49	1.63	31.3	1.91	34.82	2.45	1.23	6.0	16.0	0.0	33.0	12.8
50	1.63	32.3	1.93	11.89	0.84	0.42	6.0	16.0	0.0	11.7	8.7

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Vertici strato2	3
5.Coefficienti parziali azioni	3
6.Coefficienti parziali per i parametri geotecnici del terreno	3
7.Stratigrafia	4
8.Risultati analisi pendio [A2+M2+R2]	4
Indice	6

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE
 DA 100 A 200 m
 IN CONDIZIONI SISMICHE



- Strato...1
 $g=1.9t/m^3$
 $Fi=16^\circ$
 $c=6\text{ kN/m}^2$
- Strato...2
 $g=1.9t/m^3$
 $Fi=18^\circ$
 $c=10\text{ kN/m}^2$
- Strato...3
 $g=2t/m^3$
 $Fi=28^\circ$
 $c=20\text{ kN/m}^2$

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.175611/10.985884
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	126.0 m
Ordinata vertice sinistro inferiore yi	144.78 m
Ascissa vertice destro superiore xs	225.21 m
Ordinata vertice destro superiore ys	244.48 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.0703
Coefficiente azione sismica verticale	0.0352

Vertici profilo

Nr	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	50.21	23.11
4	61.35	25.95
5	80.53	30.66
6	89.19	32.86
7	107.75	35.96
8	125.69	38.81
9	152.91	42.89
10	173.33	45.62
11	184.47	46.61
12	199.93	47.83
13	216.64	49.27
14	243.24	53.06
15	259.33	55.27
16	276.65	58.06
17	289.64	59.85
18	303.87	61.29
19	319.34	62.72
20	323.67	63.02
21	336.66	63.64
22	344.7	64.23
23	358.93	66.21
24	383.68	70.12
25	400.39	72.6
26	415.85	75.14

27	425.75	76.18
28	444.97	77.91
29	470.75	79.79
30	502.71	81.6
31	510.56	82.07
32	534.98	86.02
33	554.28	88.38
34	566.05	90.23
35	585.67	92.1
36	606.97	94.76
37	629.96	99.23
38	651.82	103.92
39	682.09	107.02
40	700.03	108.18
41	729.18	109.97
42	755.53	113.74
43	772.9	116.69
44	802.05	121.54
45	817.75	123.9

Vertici strato1

N	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	88.42	29.65
4	104.2	31.75
5	126.08	34.66
6	155.17	39.33
7	173.72	42.3
8	193.86	43.34
9	211.16	44.76
10	227.87	46.14
11	254.74	50.49
12	274.51	53.7
13	290.29	56.26
14	312.26	58.25
15	326.11	58.72
16	341.35	59.84
17	354.13	61.7
18	380.78	65.59
19	403.27	68.86
20	418.32	71.06
21	431.94	72.52
22	449.06	73.67
23	471.11	75.15
24	495.77	76.8
25	513.11	77.96
26	532.31	80.9
27	559.94	84.41
28	574.12	86.22
29	599.33	88.67
30	621.23	93.54
31	650.98	100.15
32	683.22	102.72
33	707.27	104.64
34	741.33	107.35
35	776.65	113.11
36	796.99	117.45

Vertici strato2	37	817.75	121.07
N	X (m)	y (m)	
1	28.56	18.49	
2	116.3	20.69	
3	193.7	24.56	
4	275.52	29.89	
5	352.89	35.88	
6	431.94	41.72	
7	490.94	46.62	
8	539.62	53.35	
9	580.11	58.95	
10	633.05	70.32	
11	665.91	75.36	
12	717.25	82.08	
13	762.2	89.71	
14	817.75	101.22	

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3	20		28	2		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.92
Ascissa centro superficie	126.0 m
Ordinata centro superficie	184.66 m
Raggio superficie	158.45 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	126.0	144.8	118.6	1.92
2	131.0	149.8	123.5	1.96
3	135.9	144.8	118.5	2.00
4	140.9	149.8	123.4	2.03

5	145.8	144.8	118.3	2.08
6	150.8	149.8	123.3	2.11
7	155.8	144.8	118.2	2.15
8	160.7	149.8	123.1	2.17
9	165.7	144.8	118.1	2.20
10	170.6	149.8	123.0	2.20
11	175.6	144.8	118.0	2.23
12	180.6	149.8	122.9	2.22
13	185.5	144.8	117.9	2.24
14	190.5	149.8	122.8	2.22
15	195.5	144.8	117.7	2.23
16	200.4	149.8	122.7	2.20
17	205.4	144.8	117.6	2.20
18	210.3	149.8	122.5	2.17
19	215.3	144.8	111.1	2.16
20	220.3	149.8	103.1	2.04
21	225.2	144.8	98.0	2.07
22	126.0	154.7	128.6	1.92
23	131.0	159.7	133.5	1.96
24	135.9	154.7	128.4	1.99
25	140.9	159.7	133.4	2.03
26	145.8	154.7	128.3	2.07
27	150.8	159.7	133.2	2.10
28	155.8	154.7	128.2	2.13
29	160.7	159.7	133.1	2.15
30	165.7	154.7	128.1	2.17
31	170.6	159.7	133.0	2.17
32	175.6	154.7	127.9	2.19
33	180.6	159.7	132.9	2.18
34	185.5	154.7	127.8	2.20
35	190.5	159.7	132.7	2.18
36	195.5	154.7	127.7	2.19
37	200.4	159.7	132.6	2.16
38	205.4	154.7	127.6	2.16
39	210.3	159.7	132.5	2.13
40	215.3	154.7	121.1	2.13
41	220.3	159.7	113.1	2.02
42	225.2	154.7	114.4	2.06
43	126.0	164.7	138.5	1.92
44	131.0	169.7	143.4	1.96
45	135.9	164.7	138.4	1.99
46	140.9	169.7	143.3	2.03
47	145.8	164.7	138.3	2.06
48	150.8	169.7	143.2	2.08
49	155.8	164.7	138.2	2.11
50	160.7	169.7	143.1	2.12
51	165.7	164.7	138.0	2.15
52	170.6	169.7	143.0	2.14
53	175.6	164.7	137.9	2.16
54	180.6	169.7	142.8	2.15
55	185.5	164.7	137.8	2.17
56	190.5	169.7	142.7	2.14
57	195.5	164.7	137.7	2.15
58	200.4	169.7	142.6	2.12
59	205.4	164.7	137.5	2.13
60	210.3	169.7	142.5	2.10
61	215.3	164.7	131.0	2.11
62	220.3	169.7	123.0	1.99
63	225.2	164.7	124.4	2.05

64	126.0	174.7	148.5	1.92
65	131.0	179.7	153.4	1.96
66	135.9	174.7	148.4	1.99
67	140.9	179.7	153.3	2.02
68	145.8	174.7	148.2	2.05
69	150.8	179.7	153.2	2.07
70	155.8	174.7	148.1	2.09
71	160.7	179.7	153.0	2.10
72	165.7	174.7	148.0	2.12
73	170.6	179.7	152.9	2.12
74	175.6	174.7	147.9	2.14
75	180.6	179.7	152.8	2.12
76	185.5	174.7	147.8	2.13
77	190.5	179.7	152.7	2.11
78	195.5	174.7	147.6	2.12
79	200.4	179.7	152.6	2.09
80	205.4	174.7	147.5	2.10
81	210.3	179.7	152.4	2.08
82	215.3	174.7	141.0	2.08
83	220.3	179.7	133.0	1.97
84	225.2	174.7	134.3	2.03
85	126.0	184.7	158.5	1.92
86	131.0	189.6	163.4	1.96
87	135.9	184.7	158.3	1.99
88	140.9	189.6	163.3	2.02
89	145.8	184.7	158.2	2.04
90	150.8	189.6	163.1	2.06
91	155.8	184.7	158.1	2.08
92	160.7	189.6	163.0	2.09
93	165.7	184.7	158.0	2.10
94	170.6	189.6	162.9	2.10
95	175.6	184.7	157.8	2.11
96	180.6	189.6	162.8	2.10
97	185.5	184.7	157.7	2.10
98	190.5	189.6	162.6	2.09
99	195.5	184.7	157.6	2.09
100	200.4	189.6	162.5	2.07
101	205.4	184.7	157.5	2.08
102	210.3	189.6	162.4	2.06
103	215.3	184.7	150.9	2.06
104	220.3	189.6	143.0	2.03
105	225.2	184.7	144.3	2.03
106	126.0	194.6	168.4	1.92
107	131.0	199.6	173.3	1.96
108	135.9	194.6	168.3	1.99
109	140.9	199.6	173.2	2.01
110	145.8	194.6	168.2	2.03
111	150.8	199.6	173.1	2.04
112	155.8	194.6	168.1	2.07
113	160.7	199.6	173.0	2.07
114	165.7	194.6	167.9	2.08
115	170.6	199.6	172.9	2.08
116	175.6	194.6	167.8	2.09
117	180.6	199.6	172.7	2.07
118	185.5	194.6	167.7	2.08
119	190.5	199.6	172.6	2.06
120	195.5	194.6	167.6	2.07
121	200.4	199.6	172.5	2.05
122	205.4	194.6	167.4	2.06

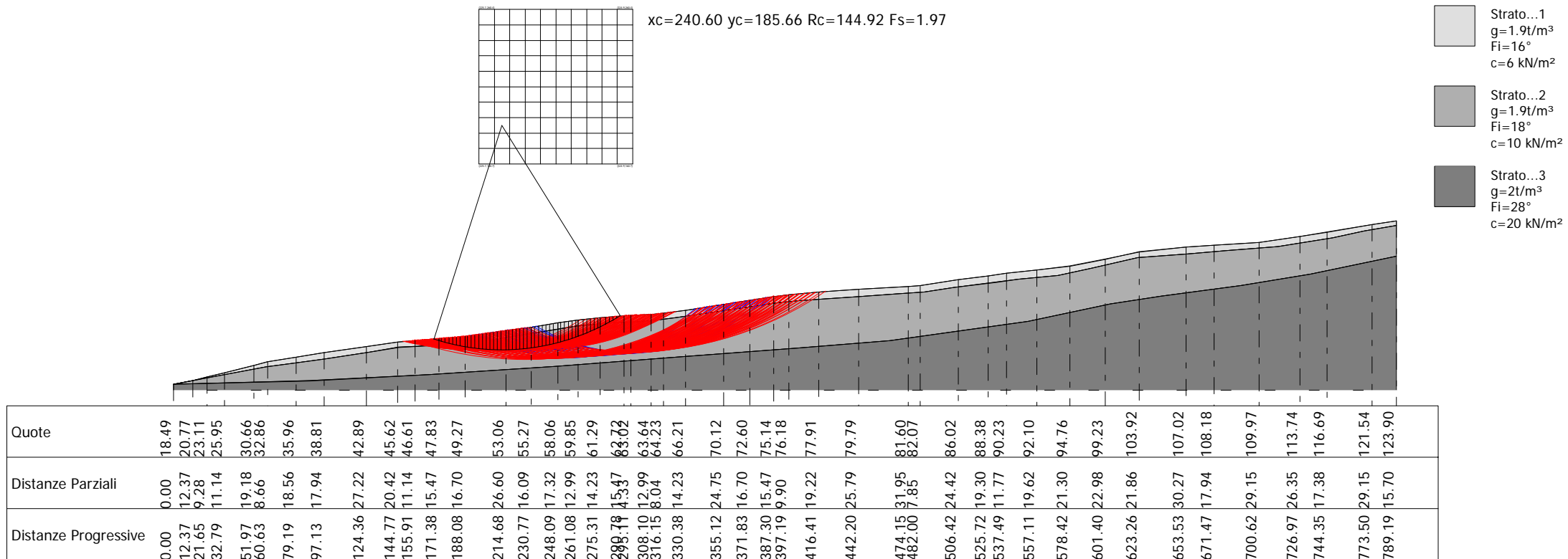
123	210.3	199.6	172.4	2.05
124	215.3	194.6	160.9	2.05
125	220.3	199.6	165.8	2.04
126	225.2	194.6	154.3	2.02
127	126.0	204.6	178.4	1.92
128	131.0	209.6	183.3	1.96
129	135.9	204.6	178.3	1.98
130	140.9	209.6	183.2	2.00
131	145.8	204.6	178.1	2.02
132	150.8	209.6	183.1	2.03
133	155.8	204.6	178.0	2.05
134	160.7	209.6	182.9	2.05
135	165.7	204.6	177.9	2.07
136	170.6	209.6	182.8	2.06
137	175.6	204.6	177.8	2.07
138	180.6	209.6	182.7	2.05
139	185.5	204.6	177.7	2.06
140	190.5	209.6	182.6	2.04
141	195.5	204.6	177.5	2.05
142	200.4	209.6	182.5	2.04
143	205.4	204.6	177.4	2.04
144	210.3	209.6	182.3	2.04
145	215.3	204.6	158.1	2.03
146	220.3	209.6	175.8	2.03
147	225.2	204.6	164.2	2.01
148	126.0	214.6	188.4	1.93
149	131.0	219.6	193.3	1.96
150	135.9	214.6	188.2	1.98
151	140.9	219.6	193.2	2.00
152	145.8	214.6	188.1	2.02
153	150.8	219.6	193.0	2.02
154	155.8	214.6	188.0	2.04
155	160.7	219.6	192.9	2.04
156	165.7	214.6	187.9	2.05
157	170.6	219.6	192.8	2.04
158	175.6	214.6	187.7	2.05
159	180.6	219.6	192.7	2.04
160	185.5	214.6	187.6	2.04
161	190.5	219.6	192.5	2.03
162	195.5	214.6	187.5	2.03
163	200.4	219.6	192.4	2.02
164	205.4	214.6	187.4	2.03
165	210.3	219.6	192.3	2.02
166	215.3	214.6	168.0	2.01
167	220.3	219.6	185.7	2.02
168	225.2	214.6	174.2	2.01
169	126.0	224.5	198.3	1.93
170	131.0	229.5	203.2	1.95
171	135.9	224.5	198.2	1.98
172	140.9	229.5	203.1	1.99
173	145.8	224.5	198.1	2.01
174	150.8	229.5	203.0	2.02
175	155.8	224.5	198.0	2.03
176	160.7	229.5	202.9	2.03
177	165.7	224.5	197.8	2.04
178	170.6	229.5	202.8	2.02
179	175.6	224.5	197.7	2.03
180	180.6	229.5	202.6	2.02
181	185.5	224.5	197.6	2.02

182	190.5	229.5	202.5	2.01
183	195.5	224.5	197.5	2.02
184	200.4	229.5	202.4	2.01
185	205.4	224.5	197.3	2.02
186	210.3	229.5	202.3	2.02
187	215.3	224.5	178.0	1.98
188	220.3	229.5	195.7	2.02
189	225.2	224.5	184.1	2.01
190	126.0	234.5	208.3	1.93
191	131.0	239.5	213.2	1.95
192	135.9	234.5	208.2	1.97
193	140.9	239.5	213.1	1.99
194	145.8	234.5	208.0	2.00
195	150.8	239.5	213.0	2.01
196	155.8	234.5	207.9	2.02
197	160.7	239.5	212.8	2.01
198	165.7	234.5	207.8	2.02
199	170.6	239.5	212.7	2.01
200	175.6	234.5	207.7	2.01
201	180.6	239.5	212.6	2.00
202	185.5	234.5	207.6	2.01
203	190.5	239.5	212.5	2.00
204	195.5	234.5	207.4	2.01
205	200.4	239.5	212.4	2.00
206	205.4	234.5	207.3	2.01
207	210.3	239.5	212.2	2.01
208	215.3	234.5	187.9	1.96
209	220.3	239.5	205.7	2.01
210	225.2	234.5	194.1	2.00
211	126.0	244.5	218.2	1.93
212	135.9	244.5	218.1	1.97
213	145.8	244.5	218.0	1.99
214	155.8	244.5	217.9	2.01
215	165.7	244.5	217.8	2.01
216	175.6	244.5	217.6	2.00
217	185.5	244.5	217.5	2.00
218	195.5	244.5	217.4	2.00
219	205.4	244.5	217.3	2.00
220	215.3	244.5	210.7	2.01
221	225.2	244.5	204.1	2.00

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Vertici strato2	3
5.Coefficienti parziali azioni	3
6.Coefficienti parziali per i parametri geotecnici del terreno	3
7.Stratigrafia	4
8.Risultati analisi pendio [A2+M2+R2]	4
Indice	9

VERIFICA ANALITICA DI STABILITA' DI VERSANTE DA 200 A 300 m IN CONDIZIONI SISMICHE



Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.175611/10.985884
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	225.72 m
Ordinata vertice sinistro inferiore yi	160.73 m
Ascissa vertice destro superiore xs	324.93 m
Ordinata vertice destro superiore ys	260.43 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.0703
Coefficiente azione sismica verticale	0.0352

Vertici profilo

Nr	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	50.21	23.11
4	61.35	25.95
5	80.53	30.66
6	89.19	32.86
7	107.75	35.96
8	125.69	38.81
9	152.91	42.89
10	173.33	45.62
11	184.47	46.61
12	199.93	47.83
13	216.64	49.27
14	243.24	53.06
15	259.33	55.27
16	276.65	58.06
17	289.64	59.85
18	303.87	61.29
19	319.34	62.72
20	323.67	63.02
21	336.66	63.64
22	344.7	64.23
23	358.93	66.21
24	383.68	70.12
25	400.39	72.6
26	415.85	75.14

27	425.75	76.18
28	444.97	77.91
29	470.75	79.79
30	502.71	81.6
31	510.56	82.07
32	534.98	86.02
33	554.28	88.38
34	566.05	90.23
35	585.67	92.1
36	606.97	94.76
37	629.96	99.23
38	651.82	103.92
39	682.09	107.02
40	700.03	108.18
41	729.18	109.97
42	755.53	113.74
43	772.9	116.69
44	802.05	121.54
45	817.75	123.9

Vertici strato1

N	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	88.42	29.65
4	104.2	31.75
5	126.08	34.66
6	155.17	39.33
7	173.72	42.3
8	193.86	43.34
9	211.16	44.76
10	227.87	46.14
11	254.74	50.49
12	274.51	53.7
13	290.29	56.26
14	312.26	58.25
15	326.11	58.72
16	341.35	59.84
17	354.13	61.7
18	380.78	65.59
19	403.27	68.86
20	418.32	71.06
21	431.94	72.52
22	449.06	73.67
23	471.11	75.15
24	495.77	76.8
25	513.11	77.96
26	532.31	80.9
27	559.94	84.41
28	574.12	86.22
29	599.33	88.67
30	621.23	93.54
31	650.98	100.15
32	683.22	102.72
33	707.27	104.64
34	741.33	107.35
35	776.65	113.11
36	796.99	117.45

Vertici strato2	37	817.75	121.07
N	X	y	
	(m)	(m)	
1	28.56	18.49	
2	116.3	20.69	
3	193.7	24.56	
4	275.52	29.89	
5	352.89	35.88	
6	431.94	41.72	
7	490.94	46.62	
8	539.62	53.35	
9	580.11	58.95	
10	633.05	70.32	
11	665.91	75.36	
12	717.25	82.08	
13	762.2	89.71	
14	817.75	101.22	

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3	20		28	2		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.97
Ascissa centro superficie	240.6 m
Ordinata centro superficie	185.66 m
Raggio superficie	144.92 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	225.7	160.7	120.4	2.05
2	230.7	165.7	125.2	2.01
3	235.6	160.7	120.1	1.99
4	240.6	165.7	125.0	1.98

5	245.6	160.7	119.9	1.98
6	250.5	165.7	124.7	1.99
7	255.5	160.7	119.6	2.00
8	260.4	165.7	124.5	2.03
9	265.4	160.7	119.4	2.07
10	270.4	165.7	124.2	2.11
11	275.3	160.7	118.8	2.16
12	280.3	165.7	130.2	2.19
13	285.2	160.7	124.9	2.23
14	290.2	165.7	129.5	2.23
15	295.2	160.7	124.2	2.27
16	300.1	165.7	128.8	2.25
17	305.1	160.7	123.5	2.28
18	310.0	165.7	128.0	2.26
19	315.0	160.7	122.7	2.28
20	320.0	165.7	127.3	2.25
21	324.9	160.7	122.0	2.27
22	225.7	170.7	130.3	2.03
23	230.7	175.7	135.2	2.00
24	235.6	170.7	130.1	1.99
25	240.6	175.7	135.0	1.97
26	245.6	170.7	129.9	1.97
27	250.5	175.7	134.7	1.98
28	255.5	170.7	129.6	2.00
29	260.4	175.7	134.5	2.03
30	265.4	170.7	129.4	2.07
31	270.4	175.7	134.1	2.11
32	275.3	170.7	128.7	2.15
33	280.3	175.7	140.1	2.17
34	285.2	170.7	134.8	2.20
35	290.2	175.7	139.4	2.20
36	295.2	170.7	134.1	2.23
37	300.1	175.7	138.6	2.21
38	305.1	170.7	133.3	2.24
39	310.0	175.7	137.9	2.22
40	315.0	170.7	132.6	2.23
41	320.0	175.7	137.2	2.20
42	324.9	170.7	131.9	2.21
43	225.7	180.7	140.3	2.02
44	230.7	185.7	145.2	2.00
45	235.6	180.7	140.1	1.98
46	240.6	185.7	144.9	1.97
47	245.6	180.7	139.8	1.97
48	250.5	185.7	144.7	1.98
49	255.5	180.7	139.6	2.00
50	260.4	185.7	144.4	2.03
51	265.4	180.7	139.3	2.07
52	270.4	185.7	143.9	2.11
53	275.3	180.7	145.4	2.14
54	280.3	185.7	150.0	2.14
55	285.2	180.7	144.7	2.17
56	290.2	185.7	149.3	2.17
57	295.2	180.7	143.9	2.19
58	300.1	185.7	148.5	2.18
59	305.1	180.7	143.2	2.20
60	310.0	185.7	147.8	2.18
61	315.0	180.7	142.5	2.19
62	320.0	185.7	147.0	2.16
63	324.9	180.7	141.7	2.17

64	225.7	190.6	150.3	2.02
65	230.7	195.6	155.1	1.99
66	235.6	190.6	150.0	1.98
67	240.6	195.6	154.9	1.97
68	245.6	190.6	149.8	1.97
69	250.5	195.6	154.6	1.99
70	255.5	190.6	149.5	2.01
71	260.4	195.6	154.4	2.04
72	265.4	190.6	149.3	2.07
73	270.4	195.6	160.6	2.10
74	275.3	190.6	155.3	2.12
75	280.3	195.6	159.9	2.12
76	285.2	190.6	154.6	2.14
77	290.2	195.6	159.1	2.14
78	295.2	190.6	153.8	2.16
79	300.1	195.6	158.4	2.15
80	305.1	190.6	153.1	2.16
81	310.0	195.6	157.7	2.14
82	315.0	190.6	152.4	2.15
83	320.0	195.6	156.9	2.13
84	324.9	190.6	151.6	2.13
85	225.7	200.6	160.2	2.01
86	230.7	205.6	165.1	1.99
87	235.6	200.6	160.0	1.98
88	240.6	205.6	164.8	1.98
89	245.6	200.6	159.7	1.98
90	250.5	205.6	164.6	2.00
91	255.5	200.6	159.5	2.01
92	260.4	205.6	164.4	2.04
93	265.4	200.6	159.2	2.07
94	270.4	205.6	170.5	2.09
95	275.3	200.6	165.2	2.10
96	280.3	205.6	169.7	2.10
97	285.2	200.6	164.4	2.12
98	290.2	205.6	169.0	2.11
99	295.2	200.6	163.7	2.13
100	300.1	205.6	168.3	2.12
101	305.1	200.6	163.0	2.13
102	310.0	205.6	167.5	2.11
103	315.0	200.6	162.2	2.12
104	320.0	205.6	166.8	2.10
105	324.9	200.6	161.5	2.11
106	225.7	210.6	170.2	2.01
107	230.7	215.6	175.1	1.99
108	235.6	210.6	169.9	1.98
109	240.6	215.6	174.8	1.97
110	245.6	210.6	169.7	1.98
111	250.5	215.6	174.6	2.00
112	255.5	210.6	169.5	2.02
113	260.4	215.6	174.3	2.05
114	265.4	210.6	169.0	2.07
115	270.4	215.6	180.4	2.07
116	275.3	210.6	175.1	2.09
117	280.3	215.6	179.6	2.08
118	285.2	210.6	174.3	2.10
119	290.2	215.6	178.9	2.09
120	295.2	210.6	173.6	2.11
121	300.1	215.6	178.2	2.10
122	305.1	210.6	172.8	2.11

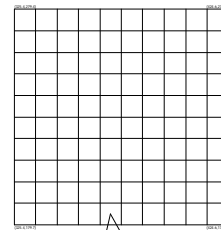
123	310.0	215.6	177.4	2.09
124	315.0	210.6	172.1	2.09
125	320.0	215.6	176.7	2.08
126	324.9	210.6	171.4	2.08
127	225.7	220.6	180.2	2.00
128	230.7	225.5	185.0	1.99
129	235.6	220.6	179.9	1.98
130	240.6	225.5	184.8	1.98
131	245.6	220.6	179.7	1.98
132	250.5	225.5	184.5	2.01
133	255.5	220.6	179.4	2.03
134	260.4	225.5	184.3	2.05
135	265.4	220.6	185.7	2.06
136	270.4	225.5	190.2	2.06
137	275.3	220.6	184.9	2.07
138	280.3	225.5	189.5	2.07
139	285.2	220.6	184.2	2.08
140	290.2	225.5	188.8	2.07
141	295.2	220.6	183.5	2.09
142	300.1	225.5	188.0	2.07
143	305.1	220.6	182.7	2.08
144	310.0	225.5	187.3	2.06
145	315.0	220.6	182.0	2.07
146	320.0	225.5	186.6	2.06
147	324.9	220.6	181.2	2.06
148	225.7	230.5	190.1	2.00
149	230.7	235.5	195.0	1.99
150	235.6	230.5	189.9	1.99
151	240.6	235.5	194.7	1.99
152	245.6	230.5	189.6	1.99
153	250.5	235.5	194.5	2.02
154	255.5	230.5	189.4	2.03
155	260.4	235.5	200.9	2.05
156	265.4	230.5	195.5	2.05
157	270.4	235.5	200.1	2.05
158	275.3	230.5	194.8	2.06
159	280.3	235.5	199.4	2.05
160	285.2	230.5	194.1	2.06
161	290.2	235.5	198.6	2.05
162	295.2	230.5	193.3	2.07
163	300.1	235.5	197.9	2.05
164	305.1	230.5	192.6	2.06
165	310.0	235.5	197.2	2.05
166	315.0	230.5	191.9	2.05
167	320.0	235.5	196.4	2.04
168	324.9	230.5	191.1	2.05
169	225.7	240.5	200.1	2.00
170	230.7	245.5	204.9	1.99
171	235.6	240.5	199.8	1.99
172	240.6	245.5	204.7	1.99
173	245.6	240.5	199.6	2.00
174	250.5	245.5	204.5	2.02
175	255.5	240.5	199.3	2.03
176	260.4	245.5	210.7	2.04
177	265.4	240.5	205.4	2.05
178	270.4	245.5	210.0	2.04
179	275.3	240.5	204.7	2.05
180	280.3	245.5	209.3	2.04
181	285.2	240.5	203.9	2.05

182	290.2	245.5	208.5	2.04
183	295.2	240.5	203.2	2.04
184	300.1	245.5	207.8	2.03
185	305.1	240.5	202.5	2.04
186	310.0	245.5	207.0	2.03
187	315.0	240.5	201.7	2.03
188	320.0	245.5	206.3	2.03
189	324.9	240.5	201.0	2.03
190	225.7	250.5	210.0	2.00
191	230.7	255.4	214.9	1.99
192	235.6	250.5	209.8	1.99
193	240.6	255.4	214.7	1.99
194	245.6	250.5	209.6	2.01
195	250.5	255.4	214.4	2.03
196	255.5	250.5	209.3	2.04
197	260.4	255.4	220.6	2.04
198	265.4	250.5	215.3	2.04
199	270.4	255.4	219.9	2.03
200	275.3	250.5	214.6	2.04
201	280.3	255.4	219.1	2.03
202	285.2	250.5	213.8	2.03
203	290.2	255.4	218.4	2.02
204	295.2	250.5	213.1	2.03
205	300.1	255.4	217.7	2.02
206	305.1	250.5	212.4	2.02
207	310.0	255.4	216.9	2.01
208	315.0	250.5	211.6	2.02
209	320.0	255.4	216.2	2.01
210	324.9	250.5	210.9	2.02
211	225.7	260.4	220.0	2.00
212	235.6	260.4	219.8	2.00
213	245.6	260.4	219.5	2.01
214	255.5	260.4	225.9	2.03
215	265.4	260.4	225.2	2.03
216	275.3	260.4	224.4	2.02
217	285.2	260.4	223.7	2.02
218	295.2	260.4	223.0	2.01
219	305.1	260.4	222.2	2.01
220	315.0	260.4	221.5	2.01
221	324.9	260.4	220.8	2.01

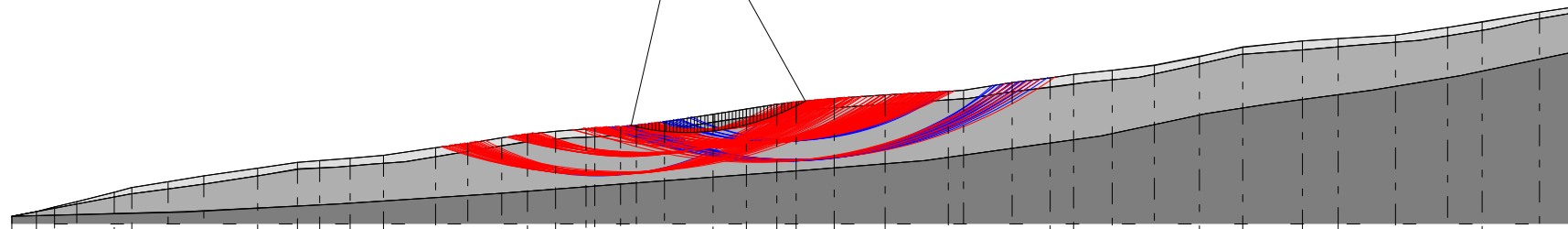
Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Vertici strato2	3
5.Coefficienti parziali azioni	3
6.Coefficienti parziali per i parametri geotecnici del terreno	3
7.Stratigrafia	4
8.Risultati analisi pendio [A2+M2+R2]	4
Indice	9

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE
 DA 300 A 400 m
 IN CONDIZIONI SISMICHE



xc=370.08 yc=184.66 Rc=123.79 Fs=1.93



- Strato...1
 $g=1.9t/m^3$
 $Fi=16^\circ$
 $c=6\text{ kN/m}^2$
- Strato...2
 $g=1.9t/m^3$
 $Fi=18^\circ$
 $c=10\text{ kN/m}^2$
- Strato...3
 $g=2t/m^3$
 $Fi=28^\circ$
 $c=20\text{ kN/m}^2$

Quote	0.00	18.49	12.37	20.77	21.65	9.28	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	299.78	15.47	63.72	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90
Distanze Parziali	0.00	18.49	12.37	20.77	21.65	9.28	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	299.78	15.47	63.72	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90
Distanze Progressive	0.00	18.49	12.37	20.77	21.65	9.28	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	299.78	15.47	63.72	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.175611/10.985884
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	325.43 m
Ordinata vertice sinistro inferiore yi	179.68 m
Ascissa vertice destro superiore xs	424.64 m
Ordinata vertice destro superiore ys	279.38 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.0703
Coefficiente azione sismica verticale	0.0352

Vertici profilo

Nr	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	50.21	23.11
4	61.35	25.95
5	80.53	30.66
6	89.19	32.86
7	107.75	35.96
8	125.69	38.81
9	152.91	42.89
10	173.33	45.62
11	184.47	46.61
12	199.93	47.83
13	216.64	49.27
14	243.24	53.06
15	259.33	55.27
16	276.65	58.06
17	289.64	59.85
18	303.87	61.29
19	319.34	62.72
20	323.67	63.02
21	336.66	63.64
22	344.7	64.23
23	358.93	66.21
24	383.68	70.12
25	400.39	72.6
26	415.85	75.14

27	425.75	76.18
28	444.97	77.91
29	470.75	79.79
30	502.71	81.6
31	510.56	82.07
32	534.98	86.02
33	554.28	88.38
34	566.05	90.23
35	585.67	92.1
36	606.97	94.76
37	629.96	99.23
38	651.82	103.92
39	682.09	107.02
40	700.03	108.18
41	729.18	109.97
42	755.53	113.74
43	772.9	116.69
44	802.05	121.54
45	817.75	123.9

Vertici strato1

N	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	88.42	29.65
4	104.2	31.75
5	126.08	34.66
6	155.17	39.33
7	173.72	42.3
8	193.86	43.34
9	211.16	44.76
10	227.87	46.14
11	254.74	50.49
12	274.51	53.7
13	290.29	56.26
14	312.26	58.25
15	326.11	58.72
16	341.35	59.84
17	354.13	61.7
18	380.78	65.59
19	403.27	68.86
20	418.32	71.06
21	431.94	72.52
22	449.06	73.67
23	471.11	75.15
24	495.77	76.8
25	513.11	77.96
26	532.31	80.9
27	559.94	84.41
28	574.12	86.22
29	599.33	88.67
30	621.23	93.54
31	650.98	100.15
32	683.22	102.72
33	707.27	104.64
34	741.33	107.35
35	776.65	113.11
36	796.99	117.45

Vertici strato2	37	817.75	121.07
N	X	y	
	(m)	(m)	
1	28.56	18.49	
2	116.3	20.69	
3	193.7	24.56	
4	275.52	29.89	
5	352.89	35.88	
6	431.94	41.72	
7	490.94	46.62	
8	539.62	53.35	
9	580.11	58.95	
10	633.05	70.32	
11	665.91	75.36	
12	717.25	82.08	
13	762.2	89.71	
14	817.75	101.22	

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3	20		28	2		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.93
Ascissa centro superficie	370.08 m
Ordinata centro superficie	184.66 m
Raggio superficie	123.79 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	325.4	179.7	140.7	2.17
2	330.4	184.7	145.3	2.15
3	335.4	179.7	140.0	2.15
4	340.3	184.7	136.0	2.13

5	345.3	179.7	130.6	2.10
6	350.2	184.7	135.0	2.06
7	355.2	179.7	120.7	2.02
8	360.2	184.7	125.0	1.96
9	365.1	179.7	119.5	1.93
10	370.1	184.7	123.8	1.93
11	375.0	179.7	118.3	1.94
12	380.0	184.7	122.6	1.96
13	385.0	179.7	117.0	1.98
14	389.9	184.7	131.1	2.01
15	394.9	179.7	125.7	2.04
16	399.8	184.7	130.1	2.08
17	404.8	179.7	124.7	2.13
18	409.8	184.7	129.1	2.17
19	414.7	179.7	123.7	2.23
20	419.7	184.7	128.2	2.29
21	424.6	179.7	122.7	2.36
22	325.4	189.6	150.6	2.14
23	330.4	194.6	155.2	2.12
24	335.4	189.6	149.9	2.13
25	340.3	194.6	145.9	2.10
26	345.3	189.6	140.4	2.08
27	350.2	194.6	144.9	2.04
28	355.2	189.6	130.5	2.01
29	360.2	194.6	134.8	1.95
30	365.1	189.6	129.3	1.93
31	370.1	194.6	133.6	1.93
32	375.0	189.6	128.1	1.94
33	380.0	194.6	132.4	1.96
34	385.0	189.6	136.5	1.99
35	389.9	194.6	141.0	2.01
36	394.9	189.6	135.5	2.04
37	399.8	194.6	140.0	2.07
38	404.8	189.6	134.6	2.12
39	409.8	194.6	139.0	2.17
40	414.7	189.6	133.6	2.22
41	419.7	194.6	138.0	2.28
42	424.6	189.6	132.6	2.34
43	325.4	199.6	160.5	2.11
44	330.4	204.6	165.0	2.09
45	335.4	199.6	159.7	2.10
46	340.3	204.6	155.7	2.08
47	345.3	199.6	150.3	2.06
48	350.2	204.6	154.7	2.03
49	355.2	199.6	140.4	1.99
50	360.2	204.6	144.7	1.95
51	365.1	199.6	139.1	1.93
52	370.1	204.6	143.4	1.94
53	375.0	199.6	137.9	1.95
54	380.0	204.6	142.2	1.97
55	385.0	199.6	146.4	1.98
56	389.9	204.6	150.8	2.01
57	394.9	199.6	145.4	2.04
58	399.8	204.6	149.8	2.07
59	404.8	199.6	144.4	2.12
60	409.8	204.6	148.8	2.16
61	414.7	199.6	143.4	2.22
62	419.7	204.6	147.9	2.27
63	424.6	199.6	153.1	2.32

64	325.4	209.6	170.3	2.09
65	330.4	214.6	174.9	2.07
66	335.4	209.6	169.6	2.08
67	340.3	214.6	165.6	2.07
68	345.3	209.6	160.1	2.05
69	350.2	214.6	164.6	2.03
70	355.2	209.6	150.2	1.99
71	360.2	214.6	154.5	1.96
72	365.1	209.6	148.9	1.94
73	370.1	214.6	153.2	1.94
74	375.0	209.6	147.7	1.95
75	380.0	214.6	161.6	1.98
76	385.0	209.6	156.2	1.99
77	389.9	214.6	160.6	2.01
78	394.9	209.6	155.2	2.04
79	399.8	214.6	159.7	2.07
80	404.8	209.6	154.2	2.12
81	409.8	214.6	158.7	2.16
82	414.7	209.6	153.3	2.21
83	419.7	214.6	168.3	2.26
84	424.6	209.6	163.0	2.29
85	325.4	219.6	180.2	2.07
86	330.4	224.5	184.8	2.06
87	335.4	219.6	179.5	2.06
88	340.3	224.5	175.4	2.05
89	345.3	219.6	170.0	2.04
90	350.2	224.5	174.4	2.02
91	355.2	219.6	160.0	1.98
92	360.2	224.5	164.3	1.96
93	365.1	219.6	158.8	1.94
94	370.1	224.5	163.1	1.94
95	375.0	219.6	157.5	1.96
96	380.0	224.5	171.5	1.98
97	385.0	219.6	166.1	1.99
98	389.9	224.5	170.5	2.01
99	394.9	219.6	165.1	2.04
100	399.8	224.5	169.5	2.08
101	404.8	219.6	164.1	2.12
102	409.8	224.5	168.5	2.16
103	414.7	219.6	163.1	2.21
104	419.7	224.5	178.2	2.24
105	424.6	219.6	172.9	2.27
106	325.4	229.5	190.1	2.05
107	330.4	234.5	194.7	2.04
108	335.4	229.5	189.4	2.05
109	340.3	234.5	185.2	2.05
110	345.3	229.5	179.8	2.03
111	350.2	234.5	184.3	2.01
112	355.2	229.5	169.8	1.99
113	360.2	234.5	174.1	1.96
114	365.1	229.5	168.6	1.94
115	370.1	234.5	172.9	1.95
116	375.0	229.5	167.3	1.97
117	380.0	234.5	181.3	1.99
118	385.0	229.5	175.9	1.99
119	389.9	234.5	180.3	2.02
120	394.9	229.5	174.9	2.04
121	399.8	234.5	179.4	2.08
122	404.8	229.5	173.9	2.12

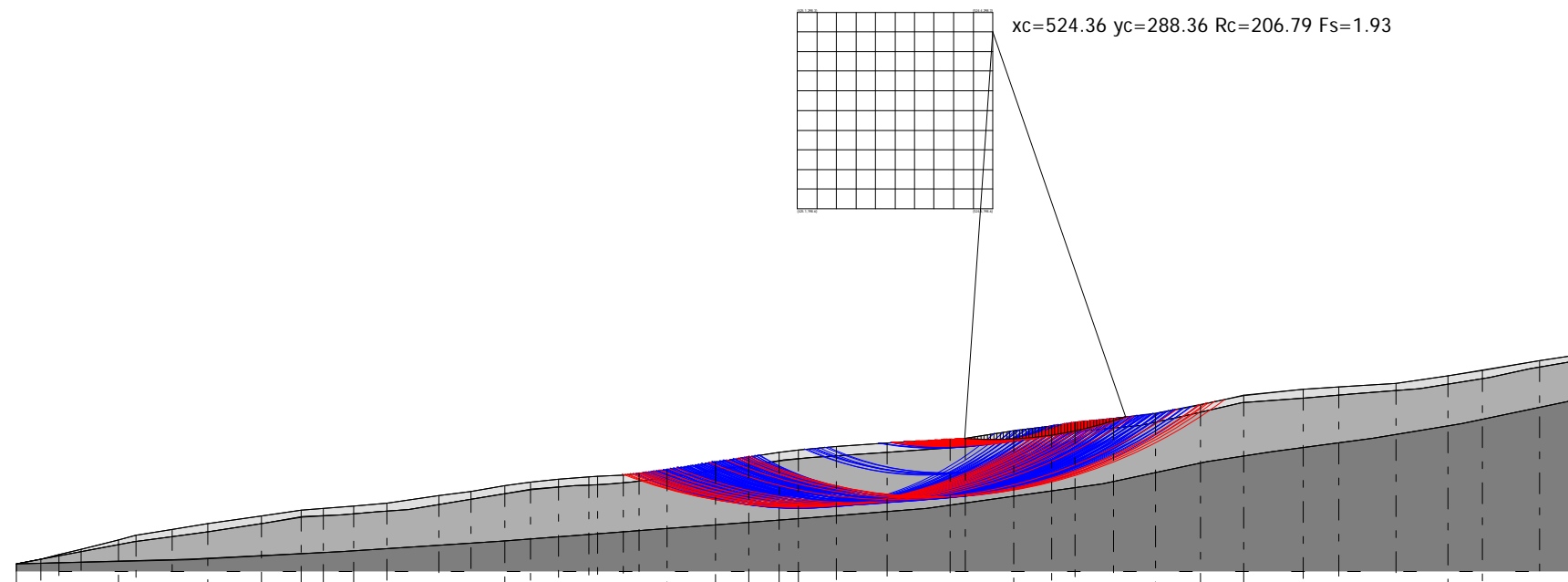
123	409.8	234.5	178.4	2.16
124	414.7	229.5	183.5	2.21
125	419.7	234.5	188.0	2.22
126	424.6	229.5	182.7	2.25
127	325.4	239.5	200.0	2.03
128	330.4	244.5	204.6	2.03
129	335.4	239.5	199.2	2.04
130	340.3	244.5	195.1	2.04
131	345.3	239.5	189.7	2.02
132	350.2	244.5	194.1	2.01
133	355.2	239.5	179.6	1.99
134	360.2	244.5	183.9	1.97
135	365.1	239.5	178.4	1.95
136	370.1	244.5	182.7	1.96
137	375.0	239.5	177.2	1.97
138	380.0	244.5	191.2	1.99
139	385.0	239.5	185.8	2.00
140	389.9	244.5	190.2	2.02
141	394.9	239.5	184.8	2.05
142	399.8	244.5	189.2	2.08
143	404.8	239.5	183.8	2.12
144	409.8	244.5	188.2	2.16
145	414.7	239.5	193.4	2.19
146	419.7	244.5	197.9	2.20
147	424.6	239.5	192.6	2.22
148	325.4	249.5	209.9	2.02
149	330.4	254.5	214.4	2.02
150	335.4	249.5	209.1	2.03
151	340.3	254.5	204.9	2.03
152	345.3	249.5	199.5	2.02
153	350.2	254.5	204.0	2.01
154	355.2	249.5	189.4	1.99
155	360.2	254.5	193.7	1.97
156	365.1	249.5	188.2	1.96
157	370.1	254.5	192.5	1.96
158	375.0	249.5	187.0	1.98
159	380.0	254.5	201.0	2.00
160	385.0	249.5	195.6	2.01
161	389.9	254.5	200.0	2.02
162	394.9	249.5	194.6	2.05
163	399.8	254.5	199.0	2.09
164	404.8	249.5	193.6	2.12
165	409.8	254.5	208.5	2.16
166	414.7	249.5	203.2	2.18
167	419.7	254.5	207.8	2.18
168	424.6	249.5	202.5	2.21
169	325.4	259.4	219.7	2.01
170	330.4	264.4	224.3	2.01
171	335.4	259.4	219.0	2.02
172	340.3	264.4	214.8	2.02
173	345.3	259.4	209.4	2.02
174	350.2	264.4	213.8	2.01
175	355.2	259.4	199.2	1.99
176	360.2	264.4	203.5	1.97
177	365.1	259.4	198.0	1.96
178	370.1	264.4	202.3	1.97
179	375.0	259.4	196.8	1.99
180	380.0	264.4	210.9	2.00
181	385.0	259.4	205.4	2.01

182	389.9	264.4	209.9	2.03
183	394.9	259.4	204.5	2.05
184	399.8	264.4	208.9	2.09
185	404.8	259.4	203.5	2.13
186	409.8	264.4	218.4	2.15
187	414.7	259.4	213.1	2.17
188	419.7	264.4	217.7	2.17
189	424.6	259.4	212.4	2.19
190	325.4	269.4	229.6	2.00
191	330.4	274.4	234.2	2.00
192	335.4	269.4	228.9	2.01
193	340.3	274.4	233.4	2.02
194	345.3	269.4	219.2	2.01
195	350.2	274.4	223.6	2.01
196	355.2	269.4	209.1	2.00
197	360.2	274.4	213.4	1.97
198	365.1	269.4	207.8	1.96
199	370.1	274.4	212.1	1.99
200	375.0	269.4	216.3	2.00
201	380.0	274.4	220.7	2.01
202	385.0	269.4	215.3	2.02
203	389.9	274.4	219.7	2.04
204	394.9	269.4	214.3	2.06
205	399.8	274.4	218.7	2.09
206	404.8	269.4	213.3	2.13
207	409.8	274.4	228.3	2.14
208	414.7	269.4	223.0	2.16
209	419.7	274.4	227.6	2.16
210	424.6	269.4	222.3	2.17
211	325.4	279.4	239.5	2.00
212	335.4	279.4	238.8	2.01
213	345.3	279.4	229.1	2.01
214	355.2	279.4	218.9	1.99
215	365.1	279.4	217.7	1.97
216	375.0	279.4	226.1	2.00
217	385.0	279.4	225.1	2.02
218	394.9	279.4	224.2	2.06
219	404.8	279.4	233.6	2.13
220	414.7	279.4	232.9	2.14
221	424.6	279.4	232.1	2.16

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Vertici strato2	3
5.Coefficienti parziali azioni	3
6.Coefficienti parziali per i parametri geotecnici del terreno	3
7.Stratigrafia	4
8.Risultati analisi pendio [A2+M2+R2]	4
Indice	9

VERIFICA ANALITICA DI STABILITA' DI VERSANTE DA 400 A 500 m IN CONDIZIONI SISMICHE



- Strato...1
 $g=1.9t/m^3$
 $Fi=16^\circ$
 $c=6\text{ kN/m}^2$
- Strato...2
 $g=1.9t/m^3$
 $Fi=18^\circ$
 $c=10\text{ kN/m}^2$
- Strato...3
 $g=2t/m^3$
 $Fi=28^\circ$
 $c=20\text{ kN/m}^2$

Quote	0.00	18.49	12.37	20.77	21.65	9.28	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	299.78	15.47	63.72	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90
Distanze Parziali	0.00	18.49	12.37	20.77	21.65	9.28	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	299.78	15.47	63.72	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90
Distanze Progressive	0.00	18.49	12.37	20.77	21.65	9.28	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	299.78	15.47	63.72	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.175611/10.985884
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	425.15 m
Ordinata vertice sinistro inferiore yi	198.62 m
Ascissa vertice destro superiore xs	524.36 m
Ordinata vertice destro superiore ys	298.33 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.0703
Coefficiente azione sismica verticale	0.0352

Vertici profilo

Nr	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	50.21	23.11
4	61.35	25.95
5	80.53	30.66
6	89.19	32.86
7	107.75	35.96
8	125.69	38.81
9	152.91	42.89
10	173.33	45.62
11	184.47	46.61
12	199.93	47.83
13	216.64	49.27
14	243.24	53.06
15	259.33	55.27
16	276.65	58.06
17	289.64	59.85
18	303.87	61.29
19	319.34	62.72
20	323.67	63.02
21	336.66	63.64
22	344.7	64.23
23	358.93	66.21
24	383.68	70.12
25	400.39	72.6
26	415.85	75.14

27	425.75	76.18
28	444.97	77.91
29	470.75	79.79
30	502.71	81.6
31	510.56	82.07
32	534.98	86.02
33	554.28	88.38
34	566.05	90.23
35	585.67	92.1
36	606.97	94.76
37	629.96	99.23
38	651.82	103.92
39	682.09	107.02
40	700.03	108.18
41	729.18	109.97
42	755.53	113.74
43	772.9	116.69
44	802.05	121.54
45	817.75	123.9

Vertici strato1

N	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	88.42	29.65
4	104.2	31.75
5	126.08	34.66
6	155.17	39.33
7	173.72	42.3
8	193.86	43.34
9	211.16	44.76
10	227.87	46.14
11	254.74	50.49
12	274.51	53.7
13	290.29	56.26
14	312.26	58.25
15	326.11	58.72
16	341.35	59.84
17	354.13	61.7
18	380.78	65.59
19	403.27	68.86
20	418.32	71.06
21	431.94	72.52
22	449.06	73.67
23	471.11	75.15
24	495.77	76.8
25	513.11	77.96
26	532.31	80.9
27	559.94	84.41
28	574.12	86.22
29	599.33	88.67
30	621.23	93.54
31	650.98	100.15
32	683.22	102.72
33	707.27	104.64
34	741.33	107.35
35	776.65	113.11
36	796.99	117.45

Vertici strato2	37	817.75	121.07
N	X (m)	y (m)	
1	28.56	18.49	
2	116.3	20.69	
3	193.7	24.56	
4	275.52	29.89	
5	352.89	35.88	
6	431.94	41.72	
7	490.94	46.62	
8	539.62	53.35	
9	580.11	58.95	
10	633.05	70.32	
11	665.91	75.36	
12	717.25	82.08	
13	762.2	89.71	
14	817.75	101.22	

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3	20		28	2		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.93
Ascissa centro superficie	524.36 m
Ordinata centro superficie	288.36 m
Raggio superficie	206.79 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	425.1	198.6	152.1	2.33
2	430.1	203.6	156.7	2.34
3	435.1	198.6	151.4	2.39
4	440.0	203.6	155.9	2.39

5	445.0	198.6	150.6	2.43
6	449.9	203.6	155.2	2.42
7	454.9	198.6	149.9	2.46
8	459.9	203.6	154.4	2.44
9	464.8	198.6	149.1	2.46
10	469.8	203.6	153.7	2.44
11	474.8	198.6	148.4	2.46
12	479.7	203.6	153.0	2.43
13	484.7	198.6	147.7	2.44
14	489.6	203.6	139.9	2.41
15	494.6	198.6	134.5	2.37
16	499.6	203.6	139.0	2.32
17	504.5	198.6	120.9	2.26
18	509.5	203.6	125.2	2.18
19	514.4	198.6	119.7	2.12
20	519.4	203.6	124.0	2.07
21	524.4	198.6	118.5	2.04
22	425.1	208.6	162.0	2.30
23	430.1	213.6	166.5	2.31
24	435.1	208.6	161.2	2.35
25	440.0	213.6	165.8	2.35
26	445.0	208.6	160.5	2.39
27	449.9	213.6	165.1	2.38
28	454.9	208.6	159.8	2.41
29	459.9	213.6	164.3	2.39
30	464.8	208.6	159.0	2.42
31	469.8	213.6	163.6	2.39
32	474.8	208.6	158.3	2.42
33	479.7	213.6	162.9	2.39
34	484.7	208.6	157.5	2.40
35	489.6	213.6	149.8	2.37
36	494.6	208.6	144.4	2.35
37	499.6	213.6	148.8	2.30
38	504.5	208.6	130.7	2.24
39	509.5	213.6	135.0	2.16
40	514.4	208.6	129.5	2.11
41	519.4	213.6	133.8	2.06
42	524.4	208.6	128.3	2.05
43	425.1	218.6	171.8	2.27
44	430.1	223.5	176.4	2.28
45	435.1	218.6	171.1	2.32
46	440.0	223.5	175.7	2.32
47	445.0	218.6	170.4	2.35
48	449.9	223.5	174.9	2.34
49	454.9	218.6	169.6	2.37
50	459.9	223.5	174.2	2.36
51	464.8	218.6	168.9	2.38
52	469.8	223.5	173.5	2.36
53	474.8	218.6	168.2	2.38
54	479.7	223.5	172.7	2.36
55	484.7	218.6	167.4	2.37
56	489.6	223.5	172.0	2.34
57	494.6	218.6	154.2	2.33
58	499.6	223.5	146.1	2.27
59	504.5	218.6	140.5	2.22
60	509.5	223.5	144.8	2.14
61	514.4	218.6	139.3	2.09
62	519.4	223.5	143.6	2.05
63	524.4	218.6	138.1	2.04

64	425.1	228.5	181.7	2.25
65	430.1	233.5	186.3	2.26
66	435.1	228.5	181.0	2.29
67	440.0	233.5	185.6	2.29
68	445.0	228.5	180.2	2.32
69	449.9	233.5	184.8	2.31
70	454.9	228.5	179.5	2.33
71	459.9	233.5	184.1	2.32
72	464.8	228.5	178.8	2.34
73	469.8	233.5	183.3	2.33
74	474.8	228.5	178.0	2.35
75	479.7	233.5	182.6	2.33
76	484.7	228.5	177.3	2.34
77	489.6	233.5	181.9	2.31
78	494.6	228.5	164.1	2.31
79	499.6	233.5	155.9	2.23
80	504.5	228.5	150.4	2.20
81	509.5	233.5	154.6	2.13
82	514.4	228.5	149.1	2.08
83	519.4	233.5	153.4	2.04
84	524.4	228.5	147.9	2.05
85	425.1	238.5	191.6	2.23
86	430.1	243.5	196.2	2.24
87	435.1	238.5	190.9	2.26
88	440.0	243.5	195.4	2.26
89	445.0	238.5	190.1	2.29
90	449.9	243.5	194.7	2.28
91	454.9	238.5	189.4	2.30
92	459.9	243.5	194.0	2.29
93	464.8	238.5	188.7	2.31
94	469.8	243.5	193.2	2.30
95	474.8	238.5	187.9	2.31
96	479.7	243.5	192.5	2.30
97	484.7	238.5	187.2	2.31
98	489.6	243.5	191.8	2.29
99	494.6	238.5	161.4	2.25
100	499.6	243.5	165.7	2.20
101	504.5	238.5	160.2	2.17
102	509.5	243.5	164.5	2.10
103	514.4	238.5	158.9	2.06
104	519.4	243.5	163.2	2.05
105	524.4	238.5	157.7	2.04
106	425.1	248.5	201.5	2.21
107	430.1	253.5	206.0	2.21
108	435.1	248.5	200.7	2.24
109	440.0	253.5	205.3	2.24
110	445.0	248.5	200.0	2.26
111	449.9	253.5	204.6	2.26
112	454.9	248.5	199.3	2.27
113	459.9	253.5	203.8	2.27
114	464.8	248.5	198.5	2.29
115	469.8	253.5	203.1	2.28
116	474.8	248.5	197.8	2.29
117	479.7	253.5	202.4	2.27
118	484.7	248.5	197.1	2.28
119	489.6	253.5	201.6	2.26
120	494.6	248.5	171.2	2.24
121	499.6	253.5	175.5	2.15
122	504.5	248.5	170.0	2.15

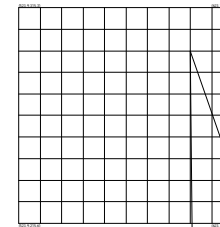
123	509.5	253.5	174.3	2.09
124	514.4	248.5	168.8	2.07
125	519.4	253.5	173.1	2.04
126	524.4	248.5	167.5	2.04
127	425.1	258.4	211.4	2.19
128	430.1	263.4	215.9	2.20
129	435.1	258.4	210.6	2.22
130	440.0	263.4	215.2	2.22
131	445.0	258.4	209.9	2.24
132	449.9	263.4	214.4	2.23
133	454.9	258.4	209.1	2.25
134	459.9	263.4	213.7	2.25
135	464.8	258.4	208.4	2.26
136	469.8	263.4	213.0	2.25
137	474.8	258.4	207.7	2.27
138	479.7	263.4	212.2	2.26
139	484.7	258.4	206.9	2.26
140	489.6	263.4	211.5	2.24
141	494.6	258.4	181.0	2.23
142	499.6	263.4	185.3	2.14
143	504.5	258.4	179.8	2.12
144	509.5	263.4	184.1	2.06
145	514.4	258.4	178.6	2.05
146	519.4	263.4	182.9	2.02
147	524.4	258.4	177.3	2.04
148	425.1	268.4	221.2	2.18
149	430.1	273.4	225.8	2.18
150	435.1	268.4	220.5	2.20
151	440.0	273.4	225.1	2.20
152	445.0	268.4	219.8	2.21
153	449.9	273.4	224.3	2.21
154	454.9	268.4	219.0	2.23
155	459.9	273.4	223.6	2.23
156	464.8	268.4	218.3	2.24
157	469.8	273.4	222.9	2.23
158	474.8	268.4	217.5	2.24
159	479.7	273.4	222.1	2.23
160	484.7	268.4	216.8	2.24
161	489.6	273.4	221.4	2.21
162	494.6	268.4	216.1	2.21
163	499.6	273.4	195.1	2.13
164	504.5	268.4	189.6	2.09
165	509.5	273.4	193.9	2.05
166	514.4	268.4	188.4	2.04
167	519.4	273.4	192.7	2.01
168	524.4	268.4	187.2	2.03
169	425.1	278.4	231.1	2.16
170	430.1	283.4	235.7	2.16
171	435.1	278.4	230.4	2.18
172	440.0	283.4	234.9	2.18
173	445.0	278.4	229.6	2.20
174	449.9	283.4	234.2	2.20
175	454.9	278.4	228.9	2.21
176	459.9	283.4	233.5	2.21
177	464.8	278.4	228.2	2.22
178	469.8	283.4	232.7	2.22
179	474.8	278.4	227.4	2.23
180	479.7	283.4	232.0	2.21
181	484.7	278.4	226.7	2.21

182	489.6	283.4	231.3	2.19
183	494.6	278.4	226.0	2.18
184	499.6	283.4	205.0	2.12
185	504.5	278.4	199.4	2.04
186	509.5	283.4	203.7	1.99
187	514.4	278.4	198.2	2.00
188	519.4	283.4	202.5	1.96
189	524.4	278.4	197.0	1.99
190	425.1	288.4	241.0	2.15
191	430.1	293.3	245.6	2.15
192	435.1	288.4	240.2	2.16
193	440.0	293.3	244.8	2.16
194	445.0	288.4	239.5	2.18
195	449.9	293.3	244.1	2.18
196	454.9	288.4	238.8	2.20
197	459.9	293.3	243.3	2.19
198	464.8	288.4	238.0	2.20
199	469.8	293.3	242.6	2.20
200	474.8	288.4	237.3	2.21
201	479.7	293.3	241.9	2.19
202	484.7	288.4	236.6	2.19
203	489.6	293.3	241.1	2.17
204	494.6	288.4	235.8	2.16
205	499.6	293.3	214.8	2.11
206	504.5	288.4	209.2	2.04
207	509.5	293.3	213.5	1.99
208	514.4	288.4	208.0	1.95
209	519.4	293.3	212.3	1.94
210	524.4	288.4	206.8	1.93
211	425.1	298.3	250.9	2.14
212	435.1	298.3	250.1	2.15
213	445.0	298.3	249.4	2.17
214	454.9	298.3	248.7	2.18
215	464.8	298.3	247.9	2.19
216	474.8	298.3	247.2	2.19
217	484.7	298.3	246.4	2.17
218	494.6	298.3	245.7	2.14
219	504.5	298.3	219.1	2.04
220	514.4	298.3	217.8	1.96
221	524.4	298.3	216.6	1.95

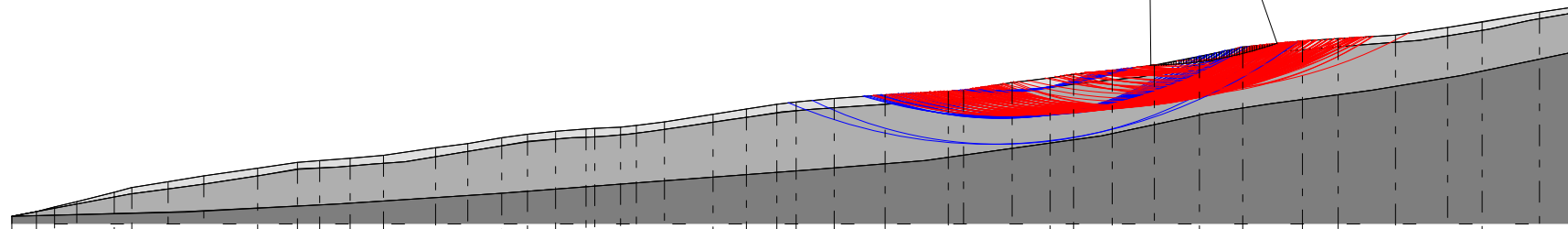
Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Vertici strato2	3
5.Coefficienti parziali azioni	3
6.Coefficienti parziali per i parametri geotecnici del terreno	3
7.Stratigrafia	4
8.Risultati analisi pendio [A2+M2+R2]	4
Indice	9

VERIFICA ANALITICA DI STABILITA' DI
 VERSANTE
 DA 500 A 600 m
 IN CONDIZIONI SISMICHE



xc=603.23 yc=295.34 Rc=200.79 Fs=1.71



- Strato...1
 g=1.9t/m³
 Fi=16°
 c=6 kN/m²
- Strato...2
 g=1.9t/m³
 Fi=18°
 c=10 kN/m²
- Strato...3
 g=2t/m³
 Fi=28°
 c=20 kN/m²

Quote	0.00	18.49	12.37	20.77	21.65	9.28	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	298.78	15.47	63.72	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90
Distanze Parziali	0.00	18.49	12.37	20.77	21.65	9.28	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	298.78	15.47	63.72	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90
Distanze Progressive	0.00	18.49	12.37	20.77	21.65	9.28	23.11	32.79	11.14	25.95	51.97	19.18	30.66	60.63	8.66	32.86	79.19	18.56	35.96	97.13	17.94	38.81	124.36	27.22	42.89	144.77	20.42	45.62	155.91	11.14	46.61	171.38	15.47	47.83	188.08	16.70	49.27	214.68	26.60	53.06	230.77	16.09	55.27	248.09	17.32	58.06	261.08	12.99	59.85	275.31	14.23	61.29	298.78	15.47	63.72	308.10	12.99	63.64	316.15	8.04	64.23	330.38	14.23	66.21	355.12	24.75	70.12	371.83	16.70	72.60	387.30	15.47	75.14	397.19	9.90	76.18	416.41	19.22	77.91	442.20	25.79	79.79	474.15	31.95	81.60	482.00	7.85	82.07	506.42	24.42	86.02	525.72	19.30	88.38	537.49	11.77	90.23	557.11	19.62	92.10	578.42	21.30	94.76	601.40	22.98	99.23	623.26	21.86	103.92	653.53	30.27	107.02	671.47	17.94	108.18	700.62	29.15	109.97	726.97	26.35	113.74	744.35	17.38	116.69	773.50	29.15	121.54	789.19	15.70	123.90

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.175611/10.985884
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	523.86 m
Ordinata vertice sinistro inferiore yi	215.57 m
Ascissa vertice destro superiore xs	623.08 m
Ordinata vertice destro superiore ys	315.28 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.0703
Coefficiente azione sismica verticale	0.0352

Vertici profilo

Nr	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	50.21	23.11
4	61.35	25.95
5	80.53	30.66
6	89.19	32.86
7	107.75	35.96
8	125.69	38.81
9	152.91	42.89
10	173.33	45.62
11	184.47	46.61
12	199.93	47.83
13	216.64	49.27
14	243.24	53.06
15	259.33	55.27
16	276.65	58.06
17	289.64	59.85
18	303.87	61.29
19	319.34	62.72
20	323.67	63.02
21	336.66	63.64
22	344.7	64.23
23	358.93	66.21
24	383.68	70.12
25	400.39	72.6
26	415.85	75.14

27	425.75	76.18
28	444.97	77.91
29	470.75	79.79
30	502.71	81.6
31	510.56	82.07
32	534.98	86.02
33	554.28	88.38
34	566.05	90.23
35	585.67	92.1
36	606.97	94.76
37	629.96	99.23
38	651.82	103.92
39	682.09	107.02
40	700.03	108.18
41	729.18	109.97
42	755.53	113.74
43	772.9	116.69
44	802.05	121.54
45	817.75	123.9

Vertici strato1

N	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	88.42	29.65
4	104.2	31.75
5	126.08	34.66
6	155.17	39.33
7	173.72	42.3
8	193.86	43.34
9	211.16	44.76
10	227.87	46.14
11	254.74	50.49
12	274.51	53.7
13	290.29	56.26
14	312.26	58.25
15	326.11	58.72
16	341.35	59.84
17	354.13	61.7
18	380.78	65.59
19	403.27	68.86
20	418.32	71.06
21	431.94	72.52
22	449.06	73.67
23	471.11	75.15
24	495.77	76.8
25	513.11	77.96
26	532.31	80.9
27	559.94	84.41
28	574.12	86.22
29	599.33	88.67
30	621.23	93.54
31	650.98	100.15
32	683.22	102.72
33	707.27	104.64
34	741.33	107.35
35	776.65	113.11
36	796.99	117.45

Vertici strato2	37	817.75	121.07
N	X (m)	y (m)	
1	28.56	18.49	
2	116.3	20.69	
3	193.7	24.56	
4	275.52	29.89	
5	352.89	35.88	
6	431.94	41.72	
7	490.94	46.62	
8	539.62	53.35	
9	580.11	58.95	
10	633.05	70.32	
11	665.91	75.36	
12	717.25	82.08	
13	762.2	89.71	
14	817.75	101.22	

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3	20		28	2		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.71
Ascissa centro superficie	603.23 m
Ordinata centro superficie	295.34 m
Raggio superficie	200.79 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	523.9	215.6	135.2	2.04
2	528.8	220.6	139.5	2.06
3	533.8	215.6	147.4	2.07
4	538.7	220.6	151.8	2.02

5	543.7	215.6	146.4	2.00
6	548.7	220.6	150.8	1.95
7	553.6	215.6	145.4	1.94
8	558.6	220.6	149.9	1.89
9	563.5	215.6	144.5	1.88
10	568.5	220.6	148.9	1.85
11	573.5	215.6	143.5	1.85
12	578.4	220.6	147.9	1.83
13	583.4	215.6	142.5	1.83
14	588.4	220.6	146.9	1.82
15	593.3	215.6	141.5	1.82
16	598.3	220.6	130.9	1.77
17	603.2	215.6	125.4	1.74
18	608.2	220.6	129.7	1.73
19	613.2	215.6	124.2	1.72
20	618.1	220.6	128.5	1.74
21	623.1	215.6	122.9	1.77
22	523.9	225.5	145.0	2.05
23	528.8	230.5	149.3	2.05
24	533.8	225.5	157.2	2.05
25	538.7	230.5	161.7	2.00
26	543.7	225.5	156.3	1.98
27	548.7	230.5	160.7	1.93
28	553.6	225.5	155.3	1.91
29	558.6	230.5	159.7	1.87
30	563.5	225.5	154.3	1.85
31	568.5	230.5	158.7	1.83
32	573.5	225.5	153.3	1.83
33	578.4	230.5	157.8	1.81
34	583.4	225.5	152.3	1.82
35	588.4	230.5	156.8	1.81
36	593.3	225.5	151.4	1.81
37	598.3	230.5	140.7	1.77
38	603.2	225.5	135.2	1.74
39	608.2	230.5	139.5	1.73
40	613.2	225.5	134.0	1.73
41	618.1	230.5	138.3	1.76
42	623.1	225.5	132.8	1.78
43	523.9	235.5	154.8	2.04
44	528.8	240.5	172.5	2.06
45	533.8	235.5	167.1	2.03
46	538.7	240.5	171.5	1.98
47	543.7	235.5	166.1	1.96
48	548.7	240.5	170.5	1.91
49	553.6	235.5	165.1	1.88
50	558.6	240.5	169.6	1.84
51	563.5	235.5	164.1	1.83
52	568.5	240.5	168.6	1.81
53	573.5	235.5	163.2	1.81
54	578.4	240.5	167.6	1.80
55	583.4	235.5	162.2	1.80
56	588.4	240.5	166.6	1.80
57	593.3	235.5	146.2	1.80
58	598.3	240.5	150.5	1.77
59	603.2	235.5	145.0	1.74
60	608.2	240.5	149.3	1.74
61	613.2	235.5	143.8	1.75
62	618.1	240.5	148.1	1.77
63	623.1	235.5	142.6	1.80

64	523.9	245.5	164.7	2.03
65	528.8	250.5	182.4	2.04
66	533.8	245.5	176.9	2.01
67	538.7	250.5	181.4	1.96
68	543.7	245.5	176.0	1.93
69	548.7	250.5	180.4	1.88
70	553.6	245.5	175.0	1.86
71	558.6	250.5	179.4	1.83
72	563.5	245.5	174.0	1.82
73	568.5	250.5	178.4	1.80
74	573.5	245.5	173.0	1.80
75	578.4	250.5	177.4	1.79
76	583.4	245.5	172.0	1.80
77	588.4	250.5	176.5	1.80
78	593.3	245.5	156.1	1.79
79	598.3	250.5	160.4	1.76
80	603.2	245.5	154.8	1.74
81	608.2	250.5	159.1	1.75
82	613.2	245.5	153.6	1.76
83	618.1	250.5	157.9	1.78
84	623.1	245.5	151.6	1.83
85	523.9	255.5	174.5	2.04
86	528.8	260.4	192.2	2.02
87	533.8	255.5	186.8	1.99
88	538.7	260.4	191.2	1.94
89	543.7	255.5	185.8	1.91
90	548.7	260.4	190.2	1.87
91	553.6	255.5	184.8	1.84
92	558.6	260.4	189.3	1.81
93	563.5	255.5	183.8	1.81
94	568.5	260.4	188.3	1.79
95	573.5	255.5	182.9	1.79
96	578.4	260.4	187.3	1.79
97	583.4	255.5	181.9	1.79
98	588.4	260.4	186.3	1.79
99	593.3	255.5	165.9	1.79
100	598.3	260.4	170.2	1.77
101	603.2	255.5	164.7	1.76
102	608.2	260.4	168.9	1.76
103	613.2	255.5	163.4	1.76
104	618.1	260.4	180.9	1.84
105	623.1	255.5	174.3	1.85
106	523.9	265.4	184.3	2.03
107	528.8	270.4	215.5	2.00
108	533.8	265.4	196.6	1.97
109	538.7	270.4	201.1	1.92
110	543.7	265.4	195.6	1.89
111	548.7	270.4	200.1	1.85
112	553.6	265.4	194.7	1.83
113	558.6	270.4	199.1	1.81
114	563.5	265.4	193.7	1.80
115	568.5	270.4	198.1	1.78
116	573.5	265.4	192.7	1.78
117	578.4	270.4	197.1	1.78
118	583.4	265.4	191.7	1.79
119	588.4	270.4	196.2	1.79
120	593.3	265.4	175.7	1.79
121	598.3	270.4	180.0	1.77
122	603.2	265.4	174.5	1.76

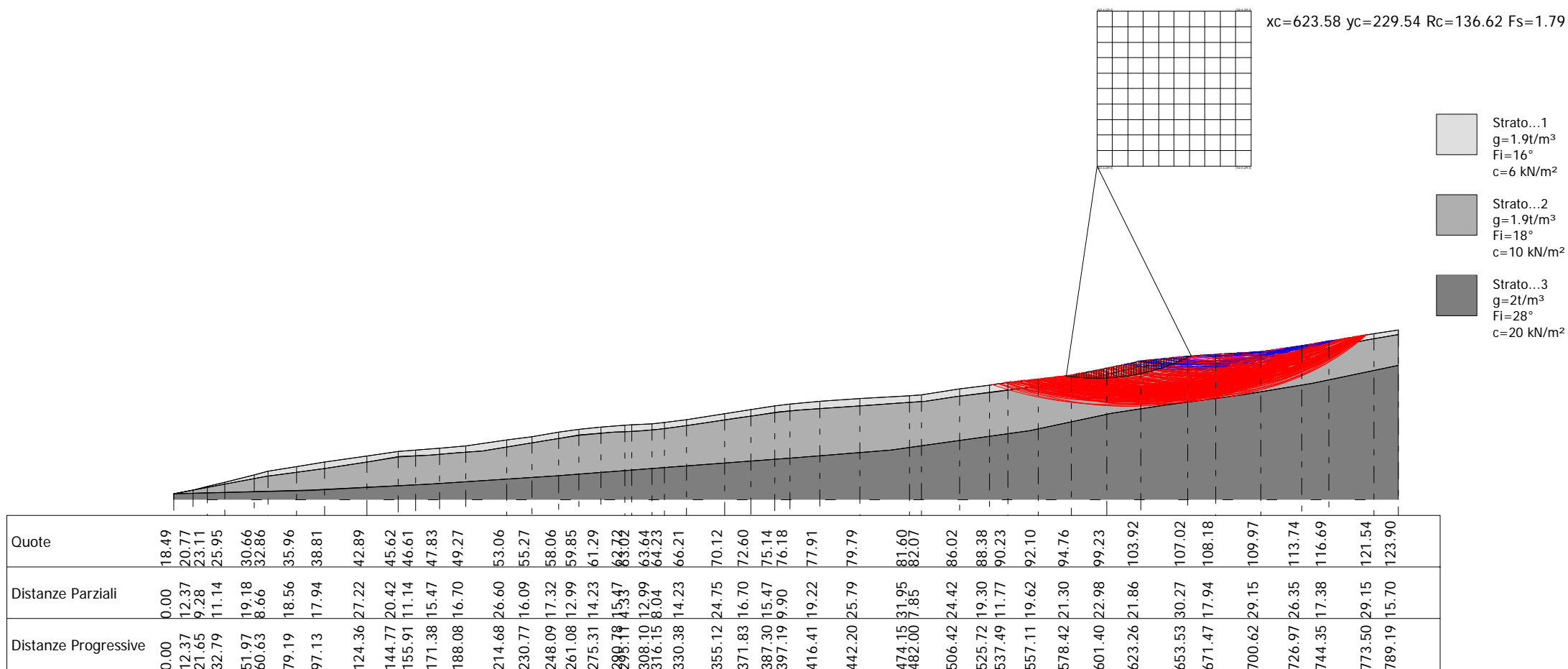
123	608.2	270.4	178.6	1.77
124	613.2	265.4	172.2	1.81
125	618.1	270.4	173.4	1.83
126	623.1	265.4	181.6	1.84
127	523.9	275.4	194.1	2.01
128	528.8	280.4	211.9	1.99
129	533.8	275.4	206.5	1.95
130	538.7	280.4	210.9	1.90
131	543.7	275.4	205.5	1.87
132	548.7	280.4	209.9	1.84
133	553.6	275.4	204.5	1.82
134	558.6	280.4	208.9	1.80
135	563.5	275.4	203.5	1.78
136	568.5	280.4	208.0	1.78
137	573.5	275.4	202.6	1.78
138	578.4	280.4	207.0	1.78
139	583.4	275.4	201.6	1.79
140	588.4	280.4	206.0	1.79
141	593.3	275.4	185.5	1.79
142	598.3	280.4	189.8	1.77
143	603.2	275.4	184.3	1.77
144	608.2	280.4	186.4	1.82
145	613.2	275.4	194.8	1.83
146	618.1	280.4	195.7	1.82
147	623.1	275.4	189.1	1.83
148	523.9	285.4	203.9	1.97
149	528.8	290.4	208.2	1.96
150	533.8	285.4	216.3	1.94
151	538.7	290.4	220.8	1.89
152	543.7	285.4	215.3	1.86
153	548.7	290.4	219.8	1.83
154	553.6	285.4	214.4	1.81
155	558.6	290.4	218.8	1.79
156	563.5	285.4	213.4	1.78
157	568.5	290.4	217.8	1.77
158	573.5	285.4	212.4	1.77
159	578.4	290.4	216.8	1.78
160	583.4	285.4	211.4	1.78
161	588.4	290.4	215.8	1.79
162	593.3	285.4	195.3	1.79
163	598.3	290.4	199.4	1.78
164	603.2	285.4	192.9	1.80
165	608.2	290.4	208.9	1.81
166	613.2	285.4	202.3	1.81
167	618.1	290.4	203.3	1.81
168	623.1	285.4	196.7	1.83
169	523.9	295.3	213.7	1.94
170	528.8	300.3	231.6	1.95
171	533.8	295.3	226.2	1.92
172	538.7	300.3	230.6	1.87
173	543.7	295.3	225.2	1.85
174	548.7	300.3	229.6	1.82
175	553.6	295.3	224.2	1.80
176	558.6	300.3	228.6	1.78
177	563.5	295.3	223.2	1.77
178	568.5	300.3	227.7	1.77
179	573.5	295.3	222.2	1.77
180	578.4	300.3	226.7	1.78
181	583.4	295.3	221.3	1.78

182	588.4	300.3	225.7	1.79
183	593.3	295.3	205.1	1.79
184	598.3	300.3	222.2	1.80
185	603.2	295.3	200.8	1.71
186	608.2	300.3	216.6	1.81
187	613.2	295.3	210.0	1.81
188	618.1	300.3	211.1	1.82
189	623.1	295.3	204.5	1.86
190	523.9	305.3	223.5	1.95
191	528.8	310.3	241.4	1.94
192	533.8	305.3	236.0	1.91
193	538.7	310.3	240.4	1.86
194	543.7	305.3	235.0	1.84
195	548.7	310.3	239.5	1.81
196	553.6	305.3	234.1	1.79
197	558.6	310.3	238.5	1.78
198	563.5	305.3	233.1	1.77
199	568.5	310.3	237.5	1.77
200	573.5	305.3	232.1	1.77
201	578.4	310.3	236.5	1.78
202	583.4	305.3	231.1	1.79
203	588.4	310.3	235.4	1.79
204	593.3	305.3	228.8	1.80
205	598.3	310.3	229.8	1.80
206	603.2	305.3	223.2	1.80
207	608.2	310.3	224.4	1.80
208	613.2	305.3	217.7	1.81
209	618.1	310.3	219.0	1.85
210	623.1	305.3	212.4	1.89
211	523.9	315.3	260.3	1.97
212	533.8	315.3	245.9	1.89
213	543.7	315.3	244.9	1.83
214	553.6	315.3	243.9	1.79
215	563.5	315.3	242.9	1.77
216	573.5	315.3	241.9	1.77
217	583.4	315.3	241.0	1.79
218	593.3	315.3	221.9	1.77
219	603.2	315.3	231.0	1.80
220	613.2	315.3	225.6	1.82
221	623.1	315.3	233.5	1.89

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Vertici strato2	3
5.Coefficienti parziali azioni	3
6.Coefficienti parziali per i parametri geotecnici del terreno	3
7.Stratigrafia	4
8.Risultati analisi pendio [A2+M2+R2]	4
Indice	9

VERIFICA ANALITICA DI STABILITA' DI VERSANTE DA 600 A 700 m IN CONDIZIONI SISMICHE



Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.175611/10.985884
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	623.58 m
Ordinata vertice sinistro inferiore yi	229.54 m
Ascissa vertice destro superiore xs	722.79 m
Ordinata vertice destro superiore ys	329.24 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.0703
Coefficiente azione sismica verticale	0.0352

Vertici profilo

Nr	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	50.21	23.11
4	61.35	25.95
5	80.53	30.66
6	89.19	32.86
7	107.75	35.96
8	125.69	38.81
9	152.91	42.89
10	173.33	45.62
11	184.47	46.61
12	199.93	47.83
13	216.64	49.27
14	243.24	53.06
15	259.33	55.27
16	276.65	58.06
17	289.64	59.85
18	303.87	61.29
19	319.34	62.72
20	323.67	63.02
21	336.66	63.64
22	344.7	64.23
23	358.93	66.21
24	383.68	70.12
25	400.39	72.6
26	415.85	75.14

27	425.75	76.18
28	444.97	77.91
29	470.75	79.79
30	502.71	81.6
31	510.56	82.07
32	534.98	86.02
33	554.28	88.38
34	566.05	90.23
35	585.67	92.1
36	606.97	94.76
37	629.96	99.23
38	651.82	103.92
39	682.09	107.02
40	700.03	108.18
41	729.18	109.97
42	755.53	113.74
43	772.9	116.69
44	802.05	121.54
45	817.75	123.9

Vertici strato1

N	X (m)	y (m)
1	28.56	18.49
2	40.93	20.77
3	88.42	29.65
4	104.2	31.75
5	126.08	34.66
6	155.17	39.33
7	173.72	42.3
8	193.86	43.34
9	211.16	44.76
10	227.87	46.14
11	254.74	50.49
12	274.51	53.7
13	290.29	56.26
14	312.26	58.25
15	326.11	58.72
16	341.35	59.84
17	354.13	61.7
18	380.78	65.59
19	403.27	68.86
20	418.32	71.06
21	431.94	72.52
22	449.06	73.67
23	471.11	75.15
24	495.77	76.8
25	513.11	77.96
26	532.31	80.9
27	559.94	84.41
28	574.12	86.22
29	599.33	88.67
30	621.23	93.54
31	650.98	100.15
32	683.22	102.72
33	707.27	104.64
34	741.33	107.35
35	776.65	113.11
36	796.99	117.45

Vertici strato2	37	817.75	121.07
N	X (m)	y (m)	
1	28.56	18.49	
2	116.3	20.69	
3	193.7	24.56	
4	275.52	29.89	
5	352.89	35.88	
6	431.94	41.72	
7	490.94	46.62	
8	539.62	53.35	
9	580.11	58.95	
10	633.05	70.32	
11	665.91	75.36	
12	717.25	82.08	
13	762.2	89.71	
14	817.75	101.22	

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3	20		28	2		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.79
Ascissa centro superficie	623.58 m
Ordinata centro superficie	229.54 m
Raggio superficie	136.62 m

Numero di superfici esaminate....(202)

N°	Xo	Yo	Ro	Fs
1	623.6	229.5	136.6	1.79
2	628.5	234.5	140.5	1.86
3	633.5	229.5	149.7	1.91
4	638.5	234.5	150.1	1.91

5	643.4	229.5	143.6	1.96
6	648.4	234.5	158.7	2.03
7	653.3	229.5	152.0	2.06
8	658.3	234.5	152.2	2.09
9	663.3	229.5	145.5	2.15
10	668.2	234.5	145.8	2.26
11	673.2	229.5	139.1	2.35
12	678.1	234.5	152.4	2.21
13	683.1	229.5	145.6	2.27
14	688.1	234.5	145.8	2.34
15	693.0	229.5	139.0	2.41
16	698.0	234.5	151.2	2.23
17	702.9	229.5	132.5	2.52
18	707.9	234.5	133.1	2.63
19	712.9	229.5	137.6	2.27
20	717.8	234.5	138.1	2.24
21	722.8	229.5	131.2	2.21
22	623.6	239.5	146.4	1.81
23	628.5	244.5	163.2	1.87
24	633.5	239.5	156.7	1.89
25	638.5	244.5	157.2	1.92
26	643.4	239.5	150.7	1.97
27	648.4	244.5	165.5	2.01
28	653.3	239.5	158.8	2.05
29	658.3	244.5	159.2	2.10
30	663.3	239.5	152.5	2.18
31	668.2	244.5	166.0	2.10
32	673.2	239.5	159.2	2.15
33	678.1	244.5	159.4	2.22
34	683.1	239.5	152.6	2.28
35	688.1	244.5	153.0	2.38
36	693.0	239.5	158.1	2.20
37	698.0	244.5	158.4	2.23
38	702.9	239.5	151.5	2.26
39	707.9	244.5	152.0	2.27
40	712.9	239.5	145.1	2.26
41	717.8	244.5	145.9	2.24
42	722.8	239.5	139.0	2.20
43	623.6	249.5	169.7	1.86
44	628.5	254.5	170.4	1.85
45	633.5	249.5	163.8	1.88
46	638.5	254.5	164.5	1.93
47	643.4	249.5	172.2	1.99
48	648.4	254.5	172.6	2.00
49	653.3	249.5	165.9	2.05
50	658.3	254.5	166.4	2.13
51	663.3	249.5	172.8	2.06
52	668.2	254.5	173.1	2.10
53	673.2	249.5	166.2	2.16
54	678.1	254.5	166.7	2.23
55	683.1	249.5	159.9	2.31
56	688.1	254.5	160.5	2.43
57	693.0	249.5	165.3	2.19
58	698.0	254.5	154.5	2.65
59	702.9	249.5	158.9	2.26
60	707.9	254.5	159.7	2.27
61	712.9	249.5	142.0	3.37
62	717.8	254.5	153.9	2.26
63	623.6	259.4	176.9	1.84

64	628.5	264.4	177.7	1.85
65	633.5	259.4	171.1	1.88
66	638.5	264.4	186.0	1.96
67	643.4	259.4	179.3	1.98
68	648.4	264.4	179.8	2.01
69	653.3	259.4	173.1	2.06
70	658.3	264.4	186.7	2.03
71	663.3	259.4	179.9	2.06
72	668.2	264.4	180.4	2.11
73	673.2	259.4	173.5	2.17
74	678.1	264.4	186.1	2.26
75	683.1	259.4	179.2	2.10
76	688.1	264.4	168.2	2.51
77	693.0	259.4	161.4	2.59
78	698.0	264.4	162.4	2.78
79	702.9	259.4	166.6	2.27
80	707.9	264.4	167.6	2.28
81	722.8	259.4	155.2	2.26
82	623.6	269.4	184.3	1.83
83	628.5	274.4	185.2	1.86
84	633.5	269.4	178.6	1.90
85	638.5	274.4	193.3	1.94
86	643.4	269.4	186.5	1.97
87	648.4	274.4	187.3	2.03
88	653.3	269.4	193.5	2.00
89	658.3	274.4	194.0	2.02
90	663.3	269.4	187.2	2.06
91	668.2	274.4	187.8	2.13
92	673.2	269.4	181.0	2.19
93	678.1	274.4	193.6	2.06
94	683.1	269.4	175.0	2.41
95	688.1	274.4	187.4	2.16
96	693.0	269.4	180.5	2.20
97	698.0	274.4	170.5	2.93
98	702.9	269.4	174.5	2.28
99	707.9	274.4	175.8	2.30
100	712.9	269.4	168.9	2.30
101	722.8	269.4	163.6	2.27
102	623.6	279.4	191.8	1.83
103	628.5	284.4	192.9	1.89
104	633.5	279.4	200.0	1.93
105	638.5	284.4	200.7	1.94
106	643.4	279.4	194.0	1.98
107	648.4	284.4	207.7	1.97
108	653.3	279.4	200.9	2.00
109	658.3	284.4	201.5	2.03
110	663.3	279.4	194.7	2.07
111	668.2	284.4	195.5	2.16
112	673.2	279.4	200.5	2.03
113	678.1	284.4	201.2	2.07
114	683.1	279.4	182.9	2.51
115	688.1	284.4	184.1	2.73
116	693.0	279.4	188.3	2.22
117	698.0	284.4	189.5	2.28
118	702.9	279.4	172.0	4.94
119	717.8	284.4	178.9	2.35
120	722.8	279.4	172.2	2.12
121	623.6	289.4	199.5	1.84
122	628.5	294.3	214.2	1.91

123	633.5	289.4	207.5	1.93
124	638.5	294.3	208.4	1.95
125	643.4	289.4	214.5	1.97
126	648.4	294.3	215.2	1.97
127	653.3	289.4	208.4	2.00
128	658.3	294.3	209.2	2.04
129	663.3	289.4	202.4	2.10
130	668.2	294.3	215.1	2.00
131	673.2	289.4	208.1	2.03
132	678.1	294.3	209.0	2.08
133	683.1	289.4	202.1	2.12
134	688.1	294.3	192.3	2.88
135	693.0	289.4	185.6	2.96
136	698.0	294.3	187.2	5.30
137	702.9	289.4	190.9	2.33
138	712.9	289.4	185.7	2.39
139	623.6	299.3	207.3	1.88
140	628.5	304.3	221.8	1.91
141	633.5	299.3	215.1	1.92
142	638.5	304.3	228.9	1.94
143	643.4	299.3	222.0	1.96
144	648.4	304.3	222.9	1.97
145	653.3	299.3	216.0	2.00
146	658.3	304.3	217.0	2.06
147	663.3	299.3	210.2	2.13
148	668.2	304.3	222.9	2.00
149	673.2	299.3	204.6	2.36
150	678.1	304.3	205.9	2.61
151	683.1	299.3	210.1	2.14
152	688.1	304.3	200.7	2.95
153	693.0	299.3	193.9	3.37
154	698.0	304.3	206.1	2.35
155	712.9	299.3	194.3	2.42
156	717.8	304.3	196.3	2.50
157	722.8	299.3	189.7	3.07
158	623.6	309.3	228.6	1.89
159	628.5	314.3	229.6	1.91
160	633.5	309.3	222.9	1.93
161	638.5	314.3	236.5	1.94
162	643.4	309.3	229.7	1.95
163	648.4	314.3	230.7	1.98
164	653.3	309.3	223.9	2.02
165	658.3	314.3	225.0	2.10
166	663.3	309.3	229.8	1.97
167	668.2	314.3	230.8	2.01
168	673.2	309.3	223.9	2.05
169	678.1	314.3	214.2	2.74
170	683.1	309.3	207.5	2.91
171	688.1	314.3	219.8	2.26
172	693.0	309.3	212.9	2.31
173	702.9	309.3	207.8	2.43
174	712.9	309.3	203.0	2.29
175	717.8	314.3	205.2	3.24
176	623.6	319.3	236.4	1.89
177	628.5	324.3	237.5	1.91
178	633.5	319.3	243.4	1.93
179	638.5	324.3	244.3	1.94
180	643.4	319.3	237.5	1.95
181	648.4	324.3	238.6	1.99

182	653.3	319.3	231.8	2.04
183	658.3	324.3	244.6	1.95
184	663.3	319.3	237.7	1.98
185	668.2	324.3	238.9	2.01
186	673.2	319.3	232.0	2.06
187	678.1	324.3	222.7	2.91
188	683.1	319.3	226.6	2.19
189	688.1	324.3	217.7	4.84
190	702.9	319.3	216.5	2.49
191	707.9	324.3	218.6	2.36
192	712.9	319.3	211.9	2.59
193	623.6	329.2	244.3	1.89
194	633.5	329.2	251.2	1.92
195	643.4	329.2	245.5	1.96
196	653.3	329.2	251.5	1.94
197	663.3	329.2	245.8	1.98
198	673.2	329.2	240.3	2.08
199	683.1	329.2	235.0	2.23
200	693.0	329.2	230.0	2.41
201	702.9	329.2	225.2	2.51
202	712.9	329.2	220.8	3.29

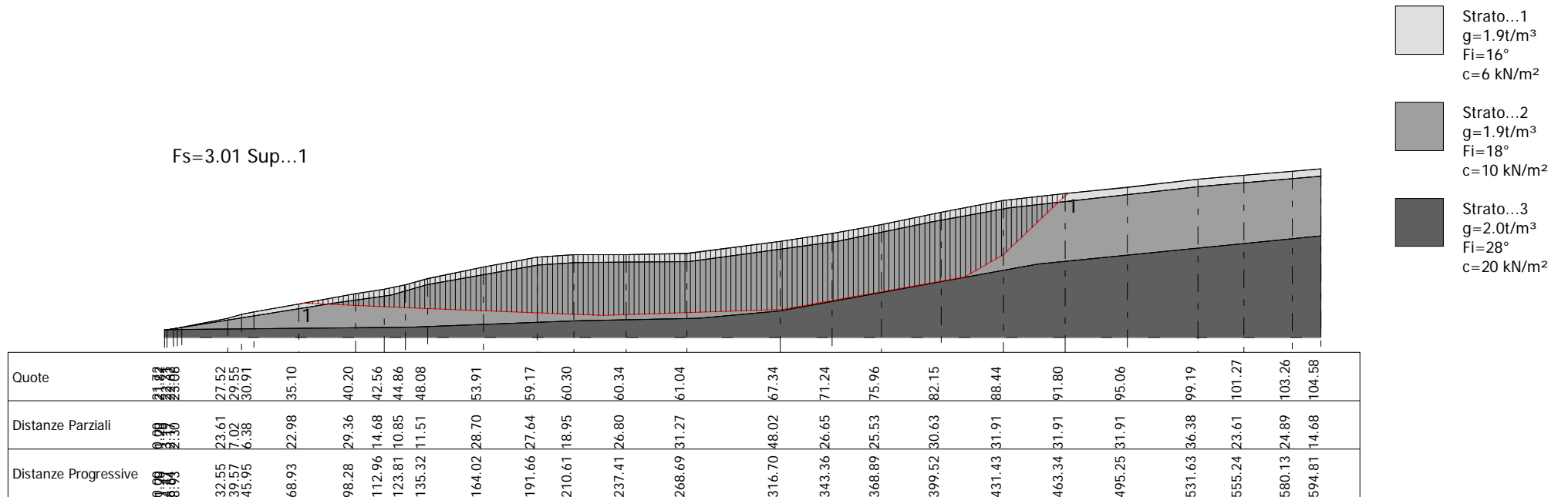
Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Vertici strato2	3
5.Coefficienti parziali azioni	3
6.Coefficienti parziali per i parametri geotecnici del terreno	3
7.Stratigrafia	4
8.Risultati analisi pendio [A2+M2+R2]	4
Indice	8

PRATI 24

VERIFICA ANALITICA DI STABILITA' DI VERSANTE SUPERFICIE 1 IN CONDIZIONI STATICHE

Fs=3.01 Sup...1



Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.179321/10.992644
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	150.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma generica	

Vertici profilo

Nr	X (m)	y (m)
1	18.92	21.72
2	20.2	21.82
3	23.39	22.31
4	25.56	22.62
5	27.85	23.08
6	51.47	27.52
7	58.49	29.55
8	64.87	30.91
9	87.85	35.1
10	117.2	40.2
11	131.88	42.56
12	142.73	44.86
13	154.24	48.08
14	182.94	53.91
15	210.58	59.17
16	229.53	60.3
17	256.33	60.34
18	287.61	61.04
19	335.62	67.34
20	362.28	71.24
21	387.81	75.96
22	418.44	82.15
23	450.35	88.44
24	482.26	91.8
25	514.17	95.06
26	550.55	99.19
27	574.16	101.27
28	599.05	103.26
29	613.73	104.58

Vertici strato1

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	20.57	21.81
4	104.62	35.3
5	135.54	39.67

6	153.63	44.79
7	211.19	55.12
8	230.71	56.21
9	288.82	56.91
10	326.12	62.02
11	365.14	67.36
12	413.19	77.12
13	453.74	84.46
14	489.93	88.55
15	551.3	95.49
16	613.73	100.8

Vertici strato2

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	18.92	21.72
4	145.78	23.14
5	231.29	26.37
6	293.79	27.74
7	335.62	31.34
8	417.99	46.31
9	468.28	55.46
10	557.71	64.42
11	613.64	70.03
12	613.73	70.05

Vertici superficie Nr...1

N	X m	y m
1	89.4	35.47
2	152.51	32.7
3	244.39	29.07
4	336.27	32.1
5	430.57	49.02
6	450.52	60.51
7	483.49	91.98

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		

2	10	18	1.9
3	20	28	2.0



Superficie Nr...1 Fattore di sicurezza=3.01

Nr.	B m	Alfa (°)	Li m	Wi (kN)	Kh•Wi (kN)	Kv•Wi (kN)	c (kN/m ²)	Fi (°)	Ui (kN)	N'i (kN)	Ti (kN)
1	2.62	-2.5	2.63	13.9	0.0	0.0	6.0	16.0	0.0	-91.2	-3.5
2	2.62	-2.6	2.63	41.85	0.0	0.0	6.0	16.0	0.0	-94.2	-3.7
3	2.62	-2.5	2.63	69.8	0.0	0.0	6.0	16.0	0.0	-96.8	-4.0
4	2.62	-2.5	2.63	97.61	0.0	0.0	6.0	16.0	0.0	-99.6	-4.3
5	2.62	-2.6	2.63	125.56	0.0	0.0	6.0	16.0	0.0	-103.2	-4.6
6	2.62	-2.5	2.63	153.51	0.0	0.0	10.0	18.0	0.0	-105.2	-2.6
7	2.62	-2.5	2.63	181.32	0.0	0.0	10.0	18.0	0.0	-107.9	-2.9
8	2.62	-2.6	2.63	209.27	0.0	0.0	10.0	18.0	0.0	-112.1	-3.4
9	2.62	-2.5	2.63	237.23	0.0	0.0	10.0	18.0	0.0	-113.6	-3.5
10	2.62	-2.5	2.63	265.03	0.0	0.0	10.0	18.0	0.0	-116.3	-3.8
11	2.62	-2.6	2.63	292.86	0.0	0.0	10.0	18.0	0.0	-121.0	-4.3
12	2.62	-2.5	2.63	319.2	0.0	0.0	10.0	18.0	0.0	-121.7	-4.4
13	2.62	-2.5	2.63	345.39	0.0	0.0	10.0	18.0	0.0	-124.3	-4.7
14	2.62	-2.6	2.63	371.73	0.0	0.0	10.0	18.0	0.0	-129.3	-5.2
15	2.62	-2.5	2.63	398.07	0.0	0.0	10.0	18.0	0.0	-129.5	-5.3
16	2.62	-2.5	2.63	424.27	0.0	0.0	10.0	18.0	0.0	-132.1	-5.5
17	2.62	-2.6	2.63	453.79	0.0	0.0	10.0	18.0	0.0	-138.0	-6.2
18	2.62	-2.5	2.63	486.68	0.0	0.0	10.0	18.0	0.0	-138.5	-6.2
19	2.62	-2.5	2.63	519.43	0.0	0.0	10.0	18.0	0.0	-141.9	-6.6
20	2.62	-2.6	2.63	552.32	0.0	0.0	10.0	18.0	0.0	-148.9	-7.3
21	2.62	-2.5	2.63	588.23	0.0	0.0	10.0	18.0	0.0	-149.1	-7.4
22	2.62	-2.5	2.63	629.58	0.0	0.0	10.0	18.0	0.0	-153.5	-7.9
23	2.62	-2.6	2.63	671.07	0.0	0.0	10.0	18.0	0.0	-162.3	-8.8
24	2.62	-2.4	2.63	712.47	0.0	0.0	10.0	18.0	0.0	-159.3	-8.5
25	2.62	-2.3	2.63	753.57	0.0	0.0	10.0	18.0	0.0	-162.0	-8.8
26	2.62	-2.2	2.63	785.09	0.0	0.0	10.0	18.0	0.0	-160.0	-8.5
27	2.62	-2.3	2.63	816.25	0.0	0.0	10.0	18.0	0.0	-168.0	-9.4
28	2.62	-2.2	2.63	847.41	0.0	0.0	10.0	18.0	0.0	-165.6	-9.2
29	2.62	-2.2	2.63	878.42	0.0	0.0	10.0	18.0	0.0	-168.4	-9.5
30	2.62	-2.3	2.63	909.58	0.0	0.0	10.0	18.0	0.0	-177.0	-10.4
31	2.62	-2.2	2.63	940.74	0.0	0.0	10.0	18.0	0.0	-174.0	-10.1
32	2.62	-2.2	2.63	971.76	0.0	0.0	10.0	18.0	0.0	-176.7	-10.4
33	2.62	-2.3	2.63	1002.92	0.0	0.0	10.0	18.0	0.0	-186.0	-11.3
34	2.62	-2.2	2.63	1034.08	0.0	0.0	10.0	18.0	0.0	-182.3	-11.0
35	2.62	-2.3	2.63	1065.24	0.0	0.0	10.0	18.0	0.0	-191.9	-12.0
36	2.62	-2.2	2.63	1096.36	0.0	0.0	10.0	18.0	0.0	-187.9	-11.6
37	2.62	-2.2	2.63	1125.71	0.0	0.0	10.0	18.0	0.0	-190.5	-11.8
38	2.62	-2.3	2.63	1155.21	0.0	0.0	10.0	18.0	0.0	-200.5	-12.9
39	2.62	-2.2	2.63	1184.72	0.0	0.0	10.0	18.0	0.0	-195.7	-12.4
40	2.62	-2.2	2.63	1214.07	0.0	0.0	10.0	18.0	0.0	-198.3	-12.7
41	2.62	-2.3	2.63	1243.57	0.0	0.0	10.0	18.0	0.0	-208.9	-13.8
42	2.62	-2.2	2.63	1273.08	0.0	0.0	10.0	18.0	0.0	-203.6	-13.2
43	2.62	-2.3	2.63	1302.58	0.0	0.0	10.0	18.0	0.0	-214.5	-14.4
44	2.62	-2.2	2.63	1332.08	0.0	0.0	10.0	18.0	0.0	-208.8	-13.8
45	2.62	-2.2	2.63	1361.44	0.0	0.0	10.0	18.0	0.0	-211.4	-14.1
46	2.62	-2.3	2.63	1390.94	0.0	0.0	10.0	18.0	0.0	-222.9	-15.3
47	2.62	-2.2	2.63	1412.24	0.0	0.0	10.0	18.0	0.0	-215.7	-14.6
48	2.62	-2.2	2.63	1424.85	0.0	0.0	10.0	18.0	0.0	-216.5	-14.6
49	2.62	-2.3	2.63	1437.62	0.0	0.0	10.0	18.0	0.0	-226.5	-15.7

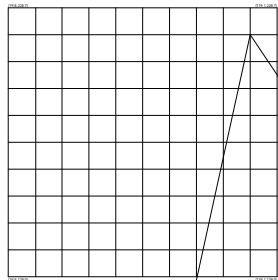
50	2.62	-2.2	2.63	1450.38	0.0	0.0	10.0	18.0	0.0	-218.1	-14.8
51	2.62	-2.3	2.63	1463.14	0.0	0.0	10.0	18.0	0.0	-228.3	-15.9
52	2.62	-2.2	2.63	1475.9	0.0	0.0	10.0	18.0	0.0	-219.7	-15.0
53	2.62	-2.2	2.63	1488.51	0.0	0.0	10.0	18.0	0.0	-220.4	-15.1
54	2.62	-2.3	2.63	1499.26	0.0	0.0	10.0	18.0	0.0	-230.6	-16.2
55	2.62	-2.2	2.63	1504.56	0.0	0.0	10.0	18.0	0.0	-221.0	-15.1
56	2.62	-2.2	2.63	1509.7	0.0	0.0	10.0	18.0	0.0	-221.0	-15.1
57	2.62	-2.3	2.63	1515.0	0.0	0.0	10.0	18.0	0.0	-230.6	-16.2
58	2.62	-2.2	2.63	1520.29	0.0	0.0	10.0	18.0	0.0	-220.9	-15.1
59	2.62	-2.0	2.63	1525.17	0.0	0.0	10.0	18.0	0.0	-203.0	-13.2
60	2.62	2.1	2.63	1525.24	0.0	0.0	10.0	18.0	0.0	102.2	19.7
61	2.62	1.8	2.63	1521.06	0.0	0.0	10.0	18.0	0.0	82.9	17.7
62	2.62	1.8	2.63	1517.18	0.0	0.0	10.0	18.0	0.0	83.1	17.7
63	2.62	1.8	2.63	1513.29	0.0	0.0	10.0	18.0	0.0	83.4	17.7
64	2.62	2.1	2.63	1509.25	0.0	0.0	10.0	18.0	0.0	102.9	19.8
65	2.62	1.8	2.63	1507.76	0.0	0.0	10.0	18.0	0.0	84.1	17.8
66	2.62	1.8	2.63	1506.55	0.0	0.0	10.0	18.0	0.0	84.6	17.8
67	2.62	1.8	2.63	1505.34	0.0	0.0	10.0	18.0	0.0	85.1	17.9
68	2.62	2.1	2.63	1503.85	0.0	0.0	10.0	18.0	0.0	104.8	20.0
69	2.62	1.8	2.63	1502.35	0.0	0.0	10.0	18.0	0.0	86.0	18.0
70	2.62	1.8	2.63	1501.15	0.0	0.0	10.0	18.0	0.0	86.5	18.0
71	2.62	1.8	2.63	1499.94	0.0	0.0	10.0	18.0	0.0	87.0	18.1
72	2.62	2.1	2.63	1498.44	0.0	0.0	10.0	18.0	0.0	106.6	20.2
73	2.62	1.8	2.63	1496.95	0.0	0.0	10.0	18.0	0.0	87.9	18.2
74	2.62	1.8	2.63	1495.74	0.0	0.0	10.0	18.0	0.0	88.4	18.2
75	2.62	1.8	2.63	1494.53	0.0	0.0	10.0	18.0	0.0	88.9	18.3
76	2.62	2.1	2.63	1494.9	0.0	0.0	10.0	18.0	0.0	108.7	20.4
77	2.62	1.8	2.63	1507.35	0.0	0.0	10.0	18.0	0.0	91.2	18.6
78	2.62	1.8	2.63	1520.1	0.0	0.0	10.0	18.0	0.0	93.0	18.7
79	2.62	1.8	2.63	1532.85	0.0	0.0	10.0	18.0	0.0	94.7	18.9
80	2.62	2.1	2.63	1545.3	0.0	0.0	10.0	18.0	0.0	116.2	21.2
81	2.62	1.8	2.63	1557.76	0.0	0.0	10.0	18.0	0.0	98.1	19.3
82	2.62	1.8	2.63	1570.51	0.0	0.0	10.0	18.0	0.0	99.9	19.5
83	2.62	1.8	2.63	1583.25	0.0	0.0	10.0	18.0	0.0	101.6	19.7
84	2.62	1.8	2.63	1596.0	0.0	0.0	10.0	18.0	0.0	103.4	19.9
85	2.62	2.1	2.63	1608.46	0.0	0.0	10.0	18.0	0.0	125.7	22.3
86	2.62	1.8	2.63	1620.91	0.0	0.0	10.0	18.0	0.0	106.8	20.2
87	2.62	1.8	2.63	1633.66	0.0	0.0	10.0	18.0	0.0	108.5	20.4
88	2.62	1.8	2.63	1646.4	0.0	0.0	10.0	18.0	0.0	110.3	20.6
89	2.62	2.1	2.63	1658.86	0.0	0.0	10.0	18.0	0.0	133.2	23.1
90	2.62	1.8	2.63	1671.31	0.0	0.0	10.0	18.0	0.0	113.7	21.0
91	2.62	1.8	2.63	1684.06	0.0	0.0	10.0	18.0	0.0	115.4	21.2
92	2.62	1.8	2.63	1696.81	0.0	0.0	10.0	18.0	0.0	117.2	21.4
93	2.62	2.1	2.63	1709.26	0.0	0.0	10.0	18.0	0.0	140.8	23.9
94	2.62	2.6	2.63	1720.85	0.0	0.0	10.0	18.0	0.0	186.0	28.8
95	2.62	10.0	2.66	1725.03	0.0	0.0	10.0	18.0	0.0	828.3	98.1
96	2.62	10.3	2.67	1720.78	0.0	0.0	10.0	18.0	0.0	848.8	100.3
97	2.62	10.0	2.66	1716.54	0.0	0.0	10.0	18.0	0.0	825.2	97.7
98	2.62	10.3	2.67	1712.29	0.0	0.0	10.0	18.0	0.0	845.6	99.9
99	2.62	10.0	2.66	1708.04	0.0	0.0	10.0	18.0	0.0	822.2	97.4
100	2.62	10.3	2.67	1703.8	0.0	0.0	10.0	18.0	0.0	842.5	99.6
101	2.62	10.0	2.66	1699.55	0.0	0.0	10.0	18.0	0.0	819.2	97.1
102	2.62	10.3	2.67	1695.3	0.0	0.0	10.0	18.0	0.0	839.4	99.3
103	2.62	10.0	2.66	1691.05	0.0	0.0	10.0	18.0	0.0	816.2	96.7
104	2.62	10.3	2.67	1686.81	0.0	0.0	10.0	18.0	0.0	836.2	98.9
105	2.62	10.0	2.66	1685.87	0.0	0.0	10.0	18.0	0.0	814.8	96.6
106	2.62	10.3	2.67	1686.54	0.0	0.0	10.0	18.0	0.0	837.3	99.0
107	2.62	10.0	2.66	1687.21	0.0	0.0	10.0	18.0	0.0	816.7	96.8
108	2.62	10.3	2.67	1687.87	0.0	0.0	10.0	18.0	0.0	839.2	99.2

109	2.62	10.0	2.66	1688.54	0.0	0.0	10.0	18.0	0.0	818.5	97.0
110	2.62	10.3	2.67	1689.21	0.0	0.0	10.0	18.0	0.0	841.1	99.4
111	2.62	10.0	2.66	1689.88	0.0	0.0	10.0	18.0	0.0	820.4	97.2
112	2.62	10.3	2.67	1690.55	0.0	0.0	10.0	18.0	0.0	843.0	99.6
113	2.62	10.0	2.66	1691.22	0.0	0.0	10.0	18.0	0.0	822.3	97.4
114	2.62	10.3	2.67	1691.88	0.0	0.0	10.0	18.0	0.0	844.9	99.8
115	2.62	10.0	2.66	1694.69	0.0	0.0	10.0	18.0	0.0	825.3	97.7
116	2.62	10.3	2.67	1697.62	0.0	0.0	10.0	18.0	0.0	849.1	100.3
117	2.62	10.0	2.66	1700.55	0.0	0.0	10.0	18.0	0.0	829.4	98.2
118	2.62	10.3	2.67	1703.48	0.0	0.0	10.0	18.0	0.0	853.3	100.8
119	2.62	10.0	2.66	1706.41	0.0	0.0	10.0	18.0	0.0	833.5	98.6
120	2.62	10.3	2.67	1709.34	0.0	0.0	10.0	18.0	0.0	857.5	101.2
121	2.62	10.0	2.66	1712.27	0.0	0.0	10.0	18.0	0.0	837.7	99.1
122	2.62	10.3	2.67	1715.2	0.0	0.0	10.0	18.0	0.0	861.7	101.7
123	2.62	10.0	2.66	1718.13	0.0	0.0	10.0	18.0	0.0	841.8	99.5
124	2.62	10.3	2.67	1721.06	0.0	0.0	10.0	18.0	0.0	865.9	102.1
125	2.62	10.0	2.66	1723.99	0.0	0.0	10.0	18.0	0.0	846.0	100.0
126	2.62	10.3	2.67	1726.74	0.0	0.0	10.0	18.0	0.0	870.1	102.6
127	2.62	10.0	2.66	1729.0	0.0	0.0	10.0	18.0	0.0	849.7	100.4
128	2.62	10.3	2.67	1731.26	0.0	0.0	10.0	18.0	0.0	873.6	102.9
129	2.62	10.0	2.66	1733.52	0.0	0.0	10.0	18.0	0.0	853.2	100.7
130	2.62	13.3	2.7	1732.23	0.0	0.0	10.0	18.0	0.0	1145.2	132.2
131	2.62	30.0	3.03	1705.3	0.0	0.0	10.0	18.0	0.0	2761.4	306.6
132	2.62	30.0	3.03	1656.57	0.0	0.0	10.0	18.0	0.0	2682.8	298.1
133	2.62	29.8	3.02	1608.12	0.0	0.0	10.0	18.0	0.0	2584.1	287.4
134	2.62	30.0	3.03	1559.68	0.0	0.0	10.0	18.0	0.0	2526.5	281.2
135	2.62	30.0	3.03	1510.94	0.0	0.0	10.0	18.0	0.0	2447.9	272.8
136	2.62	29.8	3.02	1462.5	0.0	0.0	10.0	18.0	0.0	2351.0	262.3
137	2.62	30.0	3.03	1414.05	0.0	0.0	10.0	18.0	0.0	2291.6	255.9
138	2.62	38.1	3.33	1350.85	0.0	0.0	10.0	18.0	0.0	2974.0	329.5
139	2.62	43.7	3.63	1252.94	0.0	0.0	10.0	18.0	0.0	3361.7	371.3
140	2.62	43.7	3.63	1144.06	0.0	0.0	10.0	18.0	0.0	3069.6	339.8
141	2.62	43.7	3.63	1035.19	0.0	0.0	10.0	18.0	0.0	2777.5	308.3
142	2.62	43.7	3.63	926.31	0.0	0.0	10.0	18.0	0.0	2485.3	276.8
143	2.62	43.7	3.63	817.44	0.0	0.0	10.0	18.0	0.0	2193.2	245.3
144	2.62	43.7	3.63	708.56	0.0	0.0	10.0	18.0	0.0	1901.1	213.8
145	2.62	43.7	3.63	599.69	0.0	0.0	10.0	18.0	0.0	1609.0	182.3
146	2.62	43.8	3.63	490.52	0.0	0.0	10.0	18.0	0.0	1322.4	151.4
147	2.62	43.7	3.63	381.35	0.0	0.0	10.0	18.0	0.0	1023.2	119.1
148	2.62	43.7	3.63	272.48	0.0	0.0	10.0	18.0	0.0	731.1	87.6
149	2.62	43.7	3.63	163.6	0.0	0.0	6.0	16.0	0.0	439.0	47.0
150	2.62	43.7	3.63	54.68	0.0	0.0	6.0	16.0	0.0	146.8	19.2

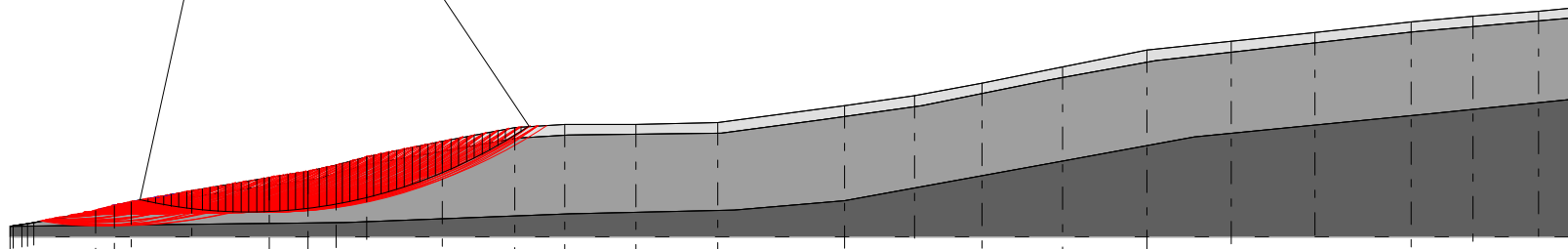
Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici strato2	2
5.Vertici superficie Nr...1	2
6.Coefficienti parziali azioni	3
7.Coefficienti parziali per i parametri geotecnici del terreno	3
8.Stratigrafia	3
Indice	7

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 0 A 100 m
 IN CONDIZIONI STATICHE



$x_c=109.20$ $y_c=218.71$ $R_c=191.61$ $F_s=2.03$



- Strato...1
 $g=1.9t/m^3$
 $F_i=16^\circ$
 $c=6$ kN/m²
- Strato...2
 $g=1.9t/m^3$
 $F_i=18^\circ$
 $c=10$ kN/m²
- Strato...3
 $g=2.0t/m^3$
 $F_i=28^\circ$
 $c=20$ kN/m²

Quote	0.00	21.32	23.66	27.52	29.55	30.91	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58
Distanze Parziali	0.00	21.32	23.66	27.52	29.55	30.91	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58
Distanze Progressive	0.00	21.32	23.66	27.52	29.55	30.91	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.179321/10.992644
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	150.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma generica	

Coefficiente azione sismica orizzontale	0.07
Coefficiente azione sismica verticale	0.035

Vertici profilo

Nr	X (m)	y (m)
1	18.92	21.72
2	20.2	21.82
3	23.39	22.31
4	25.56	22.62
5	27.85	23.08
6	51.47	27.52
7	58.49	29.55
8	64.87	30.91
9	87.85	35.1
10	117.2	40.2
11	131.88	42.56
12	142.73	44.86
13	154.24	48.08
14	182.94	53.91
15	210.58	59.17
16	229.53	60.3
17	256.33	60.34
18	287.61	61.04
19	335.62	67.34
20	362.28	71.24
21	387.81	75.96
22	418.44	82.15
23	450.35	88.44
24	482.26	91.8
25	514.17	95.06
26	550.55	99.19
27	574.16	101.27
28	599.05	103.26
29	613.73	104.58

Vertici strato1

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	20.57	21.81

4	104.62	35.3
5	135.54	39.67
6	153.63	44.79
7	211.19	55.12
8	230.71	56.21
9	288.82	56.91
10	326.12	62.02
11	365.14	67.36
12	413.19	77.12
13	453.74	84.46
14	489.93	88.55
15	551.3	95.49
16	613.73	100.8

Vertici strato2

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	18.92	21.72
4	145.78	23.14
5	231.29	26.37
6	293.79	27.74
7	335.62	31.34
8	417.99	46.31
9	468.28	55.46
10	557.71	64.42
11	613.64	70.03
12	613.73	70.05

Vertici superficie Nr...1

N	X m	y m
1	89.4	35.47
2	152.51	32.7
3	244.39	29.07
4	336.27	32.1
5	430.57	49.02
6	450.52	60.51
7	483.49	91.98

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coazione efficace	1.0
Coazione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coazione (kN/m ²)	Coazione non drenata (kN/m ²)	Angolo resistenza al taglio	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
--------	----------------------------------	---	-----------------------------------	--	------------------------------------	-----------

		(°)		
1	6		16	1.9
2	10		18	1.9
3	20		28	2.0



B: Larghezza del concio; Alfa: Angolo di inclinazione della base del concio; Li: Lunghezza della base del concio; Wi: Peso del concio; Ui: Forze derivanti dalle pressioni neutre; Ni: forze agenti normalmente alla direzione di scivolamento; Ti: forze agenti parallelamente alla superficie di scivolamento; Fi: Angolo di attrito; c: coesione.

Superficie Nr...1 Fattore di sicurezza=1.86

Nr.	B m	Alfa (°)	Li m	Wi (kN)	Kh•Wi (kN)	Kv•Wi (kN)	c (kN/m ²)	Fi (°)	Ui (kN)	N'i (kN)	Ti (kN)
1	2.62	-2.5	2.63	13.9	0.97	0.49	6.0	16.0	0.0	-28.4	4.1
2	2.62	-2.6	2.63	41.85	2.93	1.46	6.0	16.0	0.0	-31.7	3.6
3	2.62	-2.5	2.63	69.8	4.89	2.44	6.0	16.0	0.0	-34.4	3.2
4	2.62	-2.5	2.63	97.61	6.83	3.42	6.0	16.0	0.0	-37.4	2.7
5	2.62	-2.6	2.63	125.56	8.79	4.39	6.0	16.0	0.0	-41.2	2.1
6	2.62	-2.5	2.63	153.51	10.75	5.37	10.0	18.0	0.0	-43.4	6.5
7	2.62	-2.5	2.63	181.32	12.69	6.35	10.0	18.0	0.0	-46.4	6.0
8	2.62	-2.6	2.63	209.27	14.65	7.32	10.0	18.0	0.0	-50.7	5.3
9	2.62	-2.5	2.63	237.23	16.61	8.3	10.0	18.0	0.0	-52.4	5.0
10	2.62	-2.5	2.63	265.03	18.55	9.28	10.0	18.0	0.0	-55.4	4.4
11	2.62	-2.6	2.63	292.86	20.5	10.25	10.0	18.0	0.0	-60.1	3.6
12	2.62	-2.5	2.63	319.2	22.34	11.17	10.0	18.0	0.0	-61.2	3.4
13	2.62	-2.5	2.63	345.39	24.18	12.09	10.0	18.0	0.0	-64.0	2.9
14	2.62	-2.6	2.63	371.73	26.02	13.01	10.0	18.0	0.0	-69.0	2.1
15	2.62	-2.5	2.63	398.07	27.87	13.93	10.0	18.0	0.0	-69.6	2.0
16	2.62	-2.5	2.63	424.27	29.7	14.85	10.0	18.0	0.0	-72.4	1.5
17	2.62	-2.6	2.63	453.79	31.77	15.88	10.0	18.0	0.0	-78.3	0.4
18	2.62	-2.5	2.63	486.68	34.07	17.03	10.0	18.0	0.0	-79.1	0.3
19	2.62	-2.5	2.63	519.43	36.36	18.18	10.0	18.0	0.0	-82.7	-0.3
20	2.62	-2.6	2.63	552.32	38.66	19.33	10.0	18.0	0.0	-89.6	-1.5
21	2.62	-2.5	2.63	588.23	41.18	20.59	10.0	18.0	0.0	-90.2	-1.6
22	2.62	-2.5	2.63	629.58	44.07	22.04	10.0	18.0	0.0	-94.7	-2.4
23	2.62	-2.6	2.63	671.07	46.98	23.49	10.0	18.0	0.0	-103.2	-3.9
24	2.62	-2.4	2.63	712.47	49.87	24.94	10.0	18.0	0.0	-100.8	-3.5
25	2.62	-2.3	2.63	753.57	52.75	26.38	10.0	18.0	0.0	-103.7	-4.0
26	2.62	-2.2	2.63	785.09	54.96	27.48	10.0	18.0	0.0	-102.2	-3.8
27	2.62	-2.3	2.63	816.25	57.14	28.57	10.0	18.0	0.0	-110.1	-5.1
28	2.62	-2.2	2.63	847.41	59.32	29.66	10.0	18.0	0.0	-108.2	-4.8
29	2.62	-2.2	2.63	878.42	61.49	30.74	10.0	18.0	0.0	-111.2	-5.3
30	2.62	-2.3	2.63	909.58	63.67	31.84	10.0	18.0	0.0	-119.6	-6.8
31	2.62	-2.2	2.63	940.74	65.85	32.93	10.0	18.0	0.0	-117.2	-6.4
32	2.62	-2.2	2.63	971.76	68.02	34.01	10.0	18.0	0.0	-120.2	-6.9
33	2.62	-2.3	2.63	1002.92	70.2	35.1	10.0	18.0	0.0	-129.1	-8.5
34	2.62	-2.2	2.63	1034.08	72.39	36.19	10.0	18.0	0.0	-126.1	-7.9
35	2.62	-2.3	2.63	1065.24	74.57	37.28	10.0	18.0	0.0	-135.5	-9.6
36	2.62	-2.2	2.63	1096.36	76.74	38.37	10.0	18.0	0.0	-132.1	-9.0
37	2.62	-2.2	2.63	1125.71	78.8	39.4	10.0	18.0	0.0	-134.9	-9.5
38	2.62	-2.3	2.63	1155.21	80.86	40.43	10.0	18.0	0.0	-144.7	-11.2
39	2.62	-2.2	2.63	1184.72	82.93	41.47	10.0	18.0	0.0	-140.6	-10.5
40	2.62	-2.2	2.63	1214.07	84.99	42.49	10.0	18.0	0.0	-143.4	-11.0
41	2.62	-2.3	2.63	1243.57	87.05	43.53	10.0	18.0	0.0	-153.6	-12.8
42	2.62	-2.2	2.63	1273.08	89.12	44.56	10.0	18.0	0.0	-149.0	-12.0

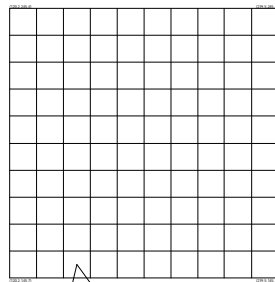
43	2.62	-2.3	2.63	1302.58	91.18	45.59	10.0	18.0	0.0	-159.6	-13.8
44	2.62	-2.2	2.63	1332.08	93.25	46.62	10.0	18.0	0.0	-154.7	-12.9
45	2.62	-2.2	2.63	1361.44	95.3	47.65	10.0	18.0	0.0	-157.5	-13.4
46	2.62	-2.3	2.63	1390.94	97.37	48.68	10.0	18.0	0.0	-168.6	-15.4
47	2.62	-2.2	2.63	1412.24	98.86	49.43	10.0	18.0	0.0	-162.3	-14.3
48	2.62	-2.2	2.63	1424.85	99.74	49.87	10.0	18.0	0.0	-163.4	-14.5
49	2.62	-2.3	2.63	1437.62	100.63	50.32	10.0	18.0	0.0	-173.1	-16.2
50	2.62	-2.2	2.63	1450.38	101.53	50.76	10.0	18.0	0.0	-165.6	-14.9
51	2.62	-2.3	2.63	1463.14	102.42	51.21	10.0	18.0	0.0	-175.5	-16.6
52	2.62	-2.2	2.63	1475.9	103.31	51.66	10.0	18.0	0.0	-167.8	-15.3
53	2.62	-2.2	2.63	1488.51	104.2	52.1	10.0	18.0	0.0	-169.0	-15.4
54	2.62	-2.3	2.63	1499.26	104.95	52.47	10.0	18.0	0.0	-178.8	-17.2
55	2.62	-2.2	2.63	1504.56	105.32	52.66	10.0	18.0	0.0	-170.2	-15.7
56	2.62	-2.2	2.63	1509.7	105.68	52.84	10.0	18.0	0.0	-170.6	-15.7
57	2.62	-2.3	2.63	1515.0	106.05	53.02	10.0	18.0	0.0	-180.0	-17.4
58	2.62	-2.2	2.63	1520.29	106.42	53.21	10.0	18.0	0.0	-171.3	-15.9
59	2.62	-2.0	2.63	1525.17	106.76	53.38	10.0	18.0	0.0	-154.9	-13.0
60	2.62	2.1	2.63	1525.24	106.77	53.38	10.0	18.0	0.0	129.8	36.9
61	2.62	1.8	2.63	1521.06	106.47	53.24	10.0	18.0	0.0	111.4	33.6
62	2.62	1.8	2.63	1517.18	106.2	53.1	10.0	18.0	0.0	111.2	33.6
63	2.62	1.8	2.63	1513.29	105.93	52.97	10.0	18.0	0.0	111.1	33.6
64	2.62	2.1	2.63	1509.25	105.65	52.82	10.0	18.0	0.0	129.0	36.7
65	2.62	1.8	2.63	1507.76	105.54	52.77	10.0	18.0	0.0	111.0	33.6
66	2.62	1.8	2.63	1506.55	105.46	52.73	10.0	18.0	0.0	111.1	33.6
67	2.62	1.8	2.63	1505.34	105.37	52.69	10.0	18.0	0.0	111.1	33.6
68	2.62	2.1	2.63	1503.85	105.27	52.63	10.0	18.0	0.0	129.2	36.8
69	2.62	1.8	2.63	1502.35	105.16	52.58	10.0	18.0	0.0	111.2	33.6
70	2.62	1.8	2.63	1501.15	105.08	52.54	10.0	18.0	0.0	111.3	33.6
71	2.62	1.8	2.63	1499.94	105.0	52.5	10.0	18.0	0.0	111.4	33.6
72	2.62	2.1	2.63	1498.44	104.89	52.45	10.0	18.0	0.0	129.4	36.8
73	2.62	1.8	2.63	1496.95	104.79	52.39	10.0	18.0	0.0	111.5	33.7
74	2.62	1.8	2.63	1495.74	104.7	52.35	10.0	18.0	0.0	111.6	33.7
75	2.62	1.8	2.63	1494.53	104.62	52.31	10.0	18.0	0.0	111.7	33.7
76	2.62	2.1	2.63	1494.9	104.64	52.32	10.0	18.0	0.0	129.8	36.9
77	2.62	1.8	2.63	1507.35	105.51	52.76	10.0	18.0	0.0	113.1	33.9
78	2.62	1.8	2.63	1520.1	106.41	53.2	10.0	18.0	0.0	114.3	34.2
79	2.62	1.8	2.63	1532.85	107.3	53.65	10.0	18.0	0.0	115.6	34.4
80	2.62	2.1	2.63	1545.3	108.17	54.09	10.0	18.0	0.0	135.3	37.8
81	2.62	1.8	2.63	1557.76	109.04	54.52	10.0	18.0	0.0	118.0	34.8
82	2.62	1.8	2.63	1570.51	109.94	54.97	10.0	18.0	0.0	119.3	35.0
83	2.62	1.8	2.63	1583.25	110.83	55.41	10.0	18.0	0.0	120.5	35.2
84	2.62	1.8	2.63	1596.0	111.72	55.86	10.0	18.0	0.0	121.8	35.5
85	2.62	2.1	2.63	1608.46	112.59	56.3	10.0	18.0	0.0	142.3	39.1
86	2.62	1.8	2.63	1620.91	113.46	56.73	10.0	18.0	0.0	124.2	35.9
87	2.62	1.8	2.63	1633.66	114.36	57.18	10.0	18.0	0.0	125.5	36.1
88	2.62	1.8	2.63	1646.4	115.25	57.62	10.0	18.0	0.0	126.7	36.3
89	2.62	2.1	2.63	1658.86	116.12	58.06	10.0	18.0	0.0	147.8	40.0
90	2.62	1.8	2.63	1671.31	116.99	58.5	10.0	18.0	0.0	129.2	36.8
91	2.62	1.8	2.63	1684.06	117.88	58.94	10.0	18.0	0.0	130.4	37.0
92	2.62	1.8	2.63	1696.81	118.78	59.39	10.0	18.0	0.0	131.7	37.2
93	2.62	2.1	2.63	1709.26	119.65	59.82	10.0	18.0	0.0	153.3	41.0
94	2.62	2.6	2.63	1720.85	120.46	60.23	10.0	18.0	0.0	195.2	48.3
95	2.62	10.0	2.66	1725.03	120.75	60.38	10.0	18.0	0.0	795.1	153.4
96	2.62	10.3	2.67	1720.78	120.45	60.23	10.0	18.0	0.0	813.9	156.7
97	2.62	10.0	2.66	1716.54	120.16	60.08	10.0	18.0	0.0	791.5	152.7
98	2.62	10.3	2.67	1712.29	119.86	59.93	10.0	18.0	0.0	810.2	156.0
99	2.62	10.0	2.66	1708.04	119.56	59.78	10.0	18.0	0.0	787.9	152.1
100	2.62	10.3	2.67	1703.8	119.27	59.63	10.0	18.0	0.0	806.5	155.4
101	2.62	10.0	2.66	1699.55	118.97	59.48	10.0	18.0	0.0	784.3	151.5

102	2.62	10.3	2.67	1695.3	118.67	59.34	10.0	18.0	0.0	802.8	154.7
103	2.62	10.0	2.66	1691.05	118.37	59.19	10.0	18.0	0.0	780.7	150.9
104	2.62	10.3	2.67	1686.81	118.08	59.04	10.0	18.0	0.0	799.1	154.1
105	2.62	10.0	2.66	1685.87	118.01	59.01	10.0	18.0	0.0	778.7	150.5
106	2.62	10.3	2.67	1686.54	118.06	59.03	10.0	18.0	0.0	799.3	154.1
107	2.62	10.0	2.66	1687.21	118.1	59.05	10.0	18.0	0.0	779.7	150.7
108	2.62	10.3	2.67	1687.87	118.15	59.08	10.0	18.0	0.0	800.3	154.3
109	2.62	10.0	2.66	1688.54	118.2	59.1	10.0	18.0	0.0	780.6	150.8
110	2.62	10.3	2.67	1689.21	118.24	59.12	10.0	18.0	0.0	801.4	154.5
111	2.62	10.0	2.66	1689.88	118.29	59.15	10.0	18.0	0.0	781.6	151.0
112	2.62	10.3	2.67	1690.55	118.34	59.17	10.0	18.0	0.0	802.4	154.6
113	2.62	10.0	2.66	1691.22	118.39	59.19	10.0	18.0	0.0	782.6	151.2
114	2.62	10.3	2.67	1691.88	118.43	59.22	10.0	18.0	0.0	803.4	154.8
115	2.62	10.0	2.66	1694.69	118.63	59.31	10.0	18.0	0.0	784.6	151.5
116	2.62	10.3	2.67	1697.62	118.83	59.42	10.0	18.0	0.0	806.5	155.4
117	2.62	10.0	2.66	1700.55	119.04	59.52	10.0	18.0	0.0	787.7	152.1
118	2.62	10.3	2.67	1703.48	119.24	59.62	10.0	18.0	0.0	809.6	155.9
119	2.62	10.0	2.66	1706.41	119.45	59.72	10.0	18.0	0.0	790.8	152.6
120	2.62	10.3	2.67	1709.34	119.65	59.83	10.0	18.0	0.0	812.8	156.5
121	2.62	10.0	2.66	1712.27	119.86	59.93	10.0	18.0	0.0	793.9	153.2
122	2.62	10.3	2.67	1715.2	120.06	60.03	10.0	18.0	0.0	816.0	157.0
123	2.62	10.0	2.66	1718.13	120.27	60.13	10.0	18.0	0.0	797.0	153.7
124	2.62	10.3	2.67	1721.06	120.47	60.24	10.0	18.0	0.0	819.2	157.6
125	2.62	10.0	2.66	1723.99	120.68	60.34	10.0	18.0	0.0	800.1	154.3
126	2.62	10.3	2.67	1726.74	120.87	60.44	10.0	18.0	0.0	822.2	158.1
127	2.62	10.0	2.66	1729.0	121.03	60.52	10.0	18.0	0.0	802.8	154.7
128	2.62	10.3	2.67	1731.26	121.19	60.59	10.0	18.0	0.0	824.8	158.6
129	2.62	10.0	2.66	1733.52	121.35	60.67	10.0	18.0	0.0	805.3	155.2
130	2.62	13.3	2.7	1732.23	121.26	60.63	10.0	18.0	0.0	1077.8	202.9
131	2.62	30.0	3.03	1705.3	119.37	59.69	10.0	18.0	0.0	2588.2	467.4
132	2.62	30.0	3.03	1656.57	115.96	57.98	10.0	18.0	0.0	2514.3	454.4
133	2.62	29.8	3.02	1608.12	112.57	56.28	10.0	18.0	0.0	2421.6	438.2
134	2.62	30.0	3.03	1559.68	109.18	54.59	10.0	18.0	0.0	2367.4	428.7
135	2.62	30.0	3.03	1510.94	105.77	52.88	10.0	18.0	0.0	2293.5	415.8
136	2.62	29.8	3.02	1462.5	102.37	51.19	10.0	18.0	0.0	2202.6	399.9
137	2.62	30.0	3.03	1414.05	98.98	49.49	10.0	18.0	0.0	2146.7	390.1
138	2.62	38.1	3.33	1350.85	94.56	47.28	10.0	18.0	0.0	2784.3	501.7
139	2.62	43.7	3.63	1252.94	87.71	43.85	10.0	18.0	0.0	3146.4	565.1
140	2.62	43.7	3.63	1144.06	80.08	40.04	10.0	18.0	0.0	2873.0	517.3
141	2.62	43.7	3.63	1035.19	72.46	36.23	10.0	18.0	0.0	2599.6	469.4
142	2.62	43.7	3.63	926.31	64.84	32.42	10.0	18.0	0.0	2326.2	421.5
143	2.62	43.7	3.63	817.44	57.22	28.61	10.0	18.0	0.0	2052.8	373.6
144	2.62	43.7	3.63	708.56	49.6	24.8	10.0	18.0	0.0	1779.4	325.7
145	2.62	43.7	3.63	599.69	41.98	20.99	10.0	18.0	0.0	1506.0	277.9
146	2.62	43.8	3.63	490.52	34.34	17.17	10.0	18.0	0.0	1237.7	230.9
147	2.62	43.7	3.63	381.35	26.69	13.35	10.0	18.0	0.0	957.7	181.8
148	2.62	43.7	3.63	272.48	19.07	9.54	10.0	18.0	0.0	684.3	134.0
149	2.62	43.7	3.63	163.6	11.45	5.73	6.0	16.0	0.0	410.9	72.0
150	2.62	43.7	3.63	54.68	3.83	1.91	6.0	16.0	0.0	137.4	29.7

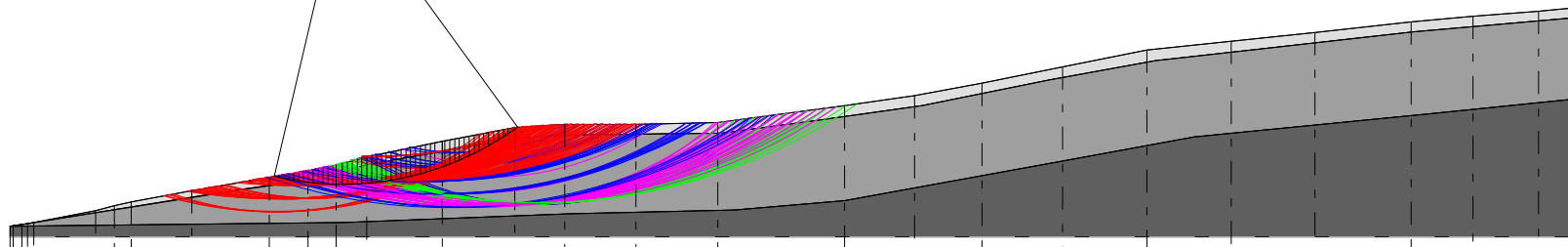
Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici strato2	2
5.Vertici superficie Nr...1	3
6.Coefficienti parziali azioni	3
7.Coefficienti parziali per i parametri geotecnici del terreno	3
8.Stratigrafia	3
Indice	7

VERIFICA ANALITICA DI STABILITA' DI VERSANTE DA 100 A 200 m IN CONDIZIONI STATICHE



$x_c=145.01$ $y_c=150.69$ $R_c=113.15$ $F_s=2.02$



- Strato...1
 $g=1.9t/m^3$
 $F_i=16^\circ$
 $c=6$ kN/m²
- Strato...2
 $g=1.9t/m^3$
 $F_i=18^\circ$
 $c=10$ kN/m²
- Strato...3
 $g=2.0t/m^3$
 $F_i=28^\circ$
 $c=20$ kN/m²

Quote	0.00	21.32	23.66	27.52	29.55	30.91	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58
Distanze Parziali	0.00	21.32	23.66	27.52	29.55	30.91	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58
Distanze Progressive	0.00	21.32	23.66	27.52	29.55	30.91	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58

Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	120.16 m
Ordinata vertice sinistro inferiore yi	145.7 m
Ascissa vertice destro superiore xs	219.55 m
Ordinata vertice destro superiore ys	245.42 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	18.92	21.72
2	20.2	21.82
3	23.39	22.31
4	25.56	22.62
5	27.85	23.08
6	51.47	27.52
7	58.49	29.55
8	64.87	30.91
9	87.85	35.1
10	117.2	40.2
11	131.88	42.56
12	142.73	44.86
13	154.24	48.08
14	182.94	53.91
15	210.58	59.17
16	229.53	60.3
17	256.33	60.34
18	287.61	61.04
19	335.62	67.34
20	362.28	71.24
21	387.81	75.96
22	418.44	82.15
23	450.35	88.44
24	482.26	91.8
25	514.17	95.06
26	550.55	99.19
27	574.16	101.27
28	599.05	103.26
29	613.73	104.58

Vertici strato1

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	20.57	21.81
4	104.62	35.3
5	135.54	39.67
6	153.63	44.79
7	211.19	55.12
8	230.71	56.21
9	288.82	56.91
10	326.12	62.02
11	365.14	67.36
12	413.19	77.12
13	453.74	84.46
14	489.93	88.55
15	551.3	95.49
16	613.73	100.8

Vertici strato2

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	18.92	21.72
4	145.78	23.14
5	231.29	26.37
6	293.79	27.74
7	335.62	31.34
8	417.99	46.31
9	468.28	55.46
10	557.71	64.42
11	613.64	70.03
12	613.73	70.05

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3	20		28	2.0		



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.02
Ascissa centro superficie	145.01 m
Ordinata centro superficie	150.69 m
Raggio superficie	113.15 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	120.2	145.7	118.5	2.09
2	125.1	150.7	118.6	2.06
3	130.1	145.7	113.5	2.05
4	135.1	150.7	118.3	2.03
5	140.0	145.7	108.3	2.03
6	145.0	150.7	113.2	2.02
7	150.0	145.7	108.0	2.03
8	154.9	150.7	112.8	2.08
9	159.9	145.7	107.7	2.13
10	164.9	150.7	112.5	2.23
11	169.9	145.7	107.4	2.33
12	174.8	150.7	107.0	2.47
13	179.8	145.7	101.8	2.60
14	184.8	150.7	101.3	2.79
15	189.7	145.7	96.1	2.97
16	194.7	150.7	105.7	3.30
17	199.7	145.7	100.1	3.60
18	204.6	150.7	121.5	4.00
19	209.6	145.7	116.3	4.38
20	214.6	150.7	121.0	4.71
21	219.5	145.7	115.7	5.15
22	120.2	155.7	128.4	2.07
23	125.1	160.7	128.5	2.05
24	130.1	155.7	123.4	2.04
25	135.1	160.7	128.3	2.03
26	140.0	155.7	118.3	2.03
27	145.0	160.7	123.1	2.03
28	150.0	155.7	118.0	2.05
29	154.9	160.7	122.8	2.10
30	159.9	155.7	117.7	2.16
31	164.9	160.7	122.5	2.26
32	169.9	155.7	117.3	2.36
33	174.8	160.7	117.0	2.51
34	179.8	155.7	111.8	2.65
35	184.8	160.7	116.6	2.86
36	189.7	155.7	106.0	3.05
37	194.7	160.7	115.5	3.37
38	199.7	155.7	115.5	3.67
39	204.6	160.7	131.4	3.98
40	209.6	155.7	126.2	4.33
41	214.6	160.7	130.8	4.62
42	219.5	155.7	125.6	5.00
43	120.2	165.6	138.4	2.05
44	125.1	170.6	138.5	2.04
45	130.1	165.6	133.4	2.03
46	135.1	170.6	138.3	2.03
47	140.0	165.6	128.2	2.02
48	145.0	170.6	133.1	2.04

49	150.0	165.6	127.9	2.06
50	154.9	170.6	132.8	2.12
51	159.9	165.6	127.6	2.19
52	164.9	170.6	132.4	2.30
53	169.9	165.6	127.3	2.40
54	174.8	170.6	126.9	2.56
55	179.8	165.6	121.7	2.70
56	184.8	170.6	126.5	2.92
57	189.7	165.6	121.1	3.12
58	194.7	170.6	136.3	3.43
59	199.7	165.6	136.6	3.69
60	204.6	170.6	141.3	3.96
61	209.6	165.6	136.1	4.27
62	214.6	170.6	140.7	4.53
63	219.5	165.6	135.5	4.87
64	120.2	175.6	148.4	2.04
65	125.1	180.6	148.5	2.03
66	130.1	175.6	143.4	2.02
67	135.1	180.6	143.3	2.03
68	140.0	175.6	138.2	2.03
69	145.0	180.6	143.0	2.05
70	150.0	175.6	137.9	2.08
71	154.9	180.6	142.7	2.15
72	159.9	175.6	127.4	2.22
73	164.9	180.6	142.4	2.33
74	169.9	175.6	137.3	2.44
75	174.8	180.6	142.1	2.61
76	179.8	175.6	131.7	2.75
77	184.8	180.6	136.4	2.98
78	189.7	175.6	130.8	3.18
79	194.7	180.6	151.7	3.45
80	199.7	175.6	146.5	3.69
81	204.6	180.6	151.2	3.94
82	209.6	175.6	146.0	4.22
83	214.6	180.6	150.6	4.45
84	219.5	175.6	145.4	4.76
85	120.2	185.6	158.3	2.04
86	125.1	190.6	158.4	2.03
87	130.1	185.6	153.3	2.03
88	135.1	190.6	153.3	2.03
89	140.0	185.6	148.2	2.04
90	145.0	190.6	153.0	2.07
91	150.0	185.6	147.9	2.10
92	154.9	190.6	152.7	2.18
93	159.9	185.6	137.4	2.20
94	164.9	190.6	152.4	2.37
95	169.9	185.6	147.2	2.48
96	174.8	190.6	152.0	2.65
97	179.8	185.6	146.9	2.80
98	184.8	190.6	151.5	3.03
99	189.7	185.6	151.5	3.23
100	194.7	190.6	161.6	3.47
101	199.7	185.6	156.4	3.69
102	204.6	190.6	161.1	3.91
103	209.6	185.6	155.9	4.16
104	214.6	190.6	160.5	4.37
105	219.5	185.6	155.3	4.65
106	120.2	195.6	163.5	2.04
107	125.1	200.5	168.4	2.03

108	130.1	195.6	163.3	2.03
109	135.1	200.5	163.3	2.04
110	140.0	195.6	158.1	2.05
111	145.0	200.5	162.9	2.09
112	150.0	195.6	157.8	2.13
113	154.9	200.5	162.6	2.21
114	159.9	195.6	147.3	2.28
115	164.9	200.5	162.3	2.41
116	169.9	195.6	157.2	2.53
117	174.8	200.5	162.0	2.70
118	179.8	195.6	156.9	2.85
119	184.8	200.5	166.7	3.08
120	189.7	195.6	161.4	3.26
121	194.7	200.5	171.5	3.47
122	199.7	195.6	166.3	3.68
123	204.6	200.5	171.0	3.88
124	209.6	195.6	165.8	4.11
125	214.6	200.5	170.4	4.30
126	219.5	195.6	165.2	4.55
127	120.2	205.5	173.5	2.03
128	125.1	210.5	178.4	2.03
129	130.1	205.5	168.4	2.04
130	135.1	210.5	173.2	2.05
131	140.0	205.5	168.1	2.07
132	145.0	210.5	172.9	2.12
133	150.0	205.5	167.8	2.15
134	154.9	210.5	172.6	2.25
135	159.9	205.5	167.5	2.33
136	164.9	210.5	172.3	2.45
137	169.9	205.5	167.1	2.57
138	174.8	210.5	172.0	2.74
139	179.8	205.5	166.8	2.89
140	184.8	210.5	176.6	3.11
141	189.7	205.5	171.2	3.29
142	194.7	210.5	181.4	3.48
143	199.7	205.5	176.2	3.67
144	204.6	210.5	180.9	3.85
145	209.6	205.5	175.6	4.07
146	214.6	210.5	180.3	4.23
147	219.5	205.5	175.1	4.46
148	120.2	215.5	183.5	2.03
149	125.1	220.5	188.3	2.04
150	130.1	215.5	178.4	2.04
151	135.1	220.5	183.2	2.07
152	140.0	215.5	178.0	2.09
153	145.0	220.5	182.9	2.14
154	150.0	215.5	177.7	2.20
155	154.9	220.5	172.4	2.24
156	159.9	215.5	177.4	2.36
157	164.9	220.5	182.2	2.50
158	169.9	215.5	177.1	2.61
159	174.8	220.5	181.9	2.78
160	179.8	215.5	176.6	2.94
161	184.8	220.5	186.4	3.14
162	189.7	215.5	186.6	3.31
163	194.7	220.5	191.3	3.48
164	199.7	215.5	186.1	3.66
165	204.6	220.5	190.8	3.83
166	209.6	215.5	185.5	4.02

167	214.6	220.5	190.2	4.17
168	219.5	215.5	185.0	4.38
169	120.2	225.5	193.4	2.04
170	125.1	230.5	198.3	2.06
171	130.1	225.5	188.3	2.06
172	135.1	230.5	193.1	2.09
173	140.0	225.5	188.0	2.11
174	145.0	230.5	192.8	2.17
175	150.0	225.5	187.7	2.22
176	154.9	230.5	182.4	2.25
177	159.9	225.5	187.4	2.40
178	164.9	230.5	192.2	2.54
179	169.9	225.5	187.1	2.65
180	174.8	230.5	191.9	2.83
181	179.8	225.5	186.4	2.98
182	184.8	230.5	196.3	3.18
183	189.7	225.5	196.5	3.33
184	194.7	230.5	201.2	3.48
185	199.7	225.5	196.0	3.64
186	204.6	230.5	200.7	3.80
187	209.6	225.5	195.4	3.98
188	214.6	230.5	200.1	4.11
189	219.5	225.5	194.9	4.30
190	120.2	235.4	203.4	2.05
191	125.1	240.4	203.4	2.07
192	130.1	235.4	198.3	2.07
193	135.1	240.4	203.1	2.10
194	140.0	235.4	198.0	2.13
195	145.0	240.4	202.8	2.20
196	150.0	235.4	197.6	2.26
197	154.9	240.4	192.3	2.32
198	159.9	235.4	197.3	2.44
199	164.9	240.4	202.2	2.58
200	169.9	235.4	197.0	2.70
201	174.8	240.4	201.7	2.87
202	179.8	235.4	201.6	3.02
203	184.8	240.4	211.7	3.20
204	189.7	235.4	206.4	3.34
205	194.7	240.4	211.1	3.48
206	199.7	235.4	205.9	3.63
207	204.6	240.4	210.5	3.77
208	209.6	235.4	205.3	3.94
209	214.6	240.4	210.0	4.07
210	219.5	235.4	204.8	4.23
211	120.2	245.4	213.3	2.06
212	130.1	245.4	208.2	2.09
213	140.0	245.4	207.9	2.15
214	150.0	245.4	207.6	2.29
215	159.9	245.4	207.3	2.48
216	169.9	245.4	207.0	2.74
217	179.8	245.4	211.5	3.06
218	189.7	245.4	216.3	3.34
219	199.7	245.4	215.8	3.62
220	209.6	245.4	215.2	3.90
221	219.5	245.4	214.7	4.17

Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici strato2	2
5.Coefficienti parziali azioni	2
6.Coefficienti parziali per i parametri geotecnici del terreno	2
7.Stratigrafia	2
8.Risultati analisi pendio [A2+M2+R2]	3
Indice	8

Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	221.5 m
Ordinata vertice sinistro inferiore yi	162.43 m
Ascissa vertice destro superiore xs	320.88 m
Ordinata vertice destro superiore ys	262.15 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	18.92	21.72
2	20.2	21.82
3	23.39	22.31
4	25.56	22.62
5	27.85	23.08
6	51.47	27.52
7	58.49	29.55
8	64.87	30.91
9	87.85	35.1
10	117.2	40.2
11	131.88	42.56
12	142.73	44.86
13	154.24	48.08
14	182.94	53.91
15	210.58	59.17
16	229.53	60.3
17	256.33	60.34
18	287.61	61.04
19	335.62	67.34
20	362.28	71.24
21	387.81	75.96
22	418.44	82.15
23	450.35	88.44
24	482.26	91.8
25	514.17	95.06
26	550.55	99.19
27	574.16	101.27
28	599.05	103.26
29	613.73	104.58

Vertici strato1

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	20.57	21.81
4	104.62	35.3
5	135.54	39.67
6	153.63	44.79
7	211.19	55.12
8	230.71	56.21
9	288.82	56.91
10	326.12	62.02
11	365.14	67.36
12	413.19	77.12
13	453.74	84.46
14	489.93	88.55
15	551.3	95.49
16	613.73	100.8

Vertici strato2

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	18.92	21.72
4	145.78	23.14
5	231.29	26.37
6	293.79	27.74
7	335.62	31.34
8	417.99	46.31
9	468.28	55.46
10	557.71	64.42
11	613.64	70.03
12	613.73	70.05

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3	20		28	2.0		



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.6
Ascissa centro superficie	320.88 m
Ordinata centro superficie	262.15 m
Raggio superficie	206.82 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	221.5	162.4	132.2	5.03
2	226.5	167.4	136.9	5.23
3	231.4	162.4	131.7	5.60
4	236.4	167.4	136.3	5.71
5	241.4	162.4	131.1	6.05
6	246.3	167.4	135.8	6.04
7	251.3	162.4	130.6	6.30
8	256.3	167.4	135.2	6.12
9	261.3	162.4	130.0	6.25
10	266.2	167.4	134.7	5.95
11	271.2	162.4	129.5	5.92
12	276.2	167.4	134.1	5.53
13	281.1	162.4	105.2	5.22
14	286.1	167.4	109.4	4.38
15	291.1	162.4	103.8	3.85
16	296.0	167.4	108.0	3.49
17	301.0	162.4	102.4	3.30
18	306.0	167.4	106.6	3.29
19	310.9	162.4	109.8	3.25
20	315.9	167.4	114.1	3.06
21	320.9	162.4	108.7	2.96
22	221.5	172.4	142.1	4.89
23	226.5	177.4	146.8	5.07
24	231.4	172.4	141.6	5.38
25	236.4	177.4	146.2	5.47
26	241.4	172.4	141.0	5.76
27	246.3	177.4	145.7	5.74
28	251.3	172.4	140.5	5.95
29	256.3	177.4	145.1	5.80
30	261.3	172.4	139.9	5.90
31	266.2	177.4	144.6	5.65
32	271.2	172.4	139.4	5.63
33	276.2	177.4	144.0	5.28
34	281.1	172.4	115.0	5.11
35	286.1	177.4	119.2	4.33
36	291.1	172.4	113.6	3.82
37	296.0	177.4	117.8	3.48
38	301.0	172.4	112.2	3.31
39	306.0	177.4	116.4	3.30
40	310.9	172.4	119.6	3.21
41	315.9	177.4	124.0	3.02
42	320.9	172.4	118.5	2.92
43	221.5	182.4	152.0	4.78
44	226.5	187.4	156.7	4.92
45	231.4	182.4	151.5	5.19
46	236.4	187.4	156.1	5.27
47	241.4	182.4	150.9	5.51
48	246.3	187.4	155.6	5.49

49	251.3	182.4	150.4	5.66
50	256.3	187.4	155.0	5.54
51	261.3	182.4	149.8	5.62
52	266.2	187.4	154.5	5.40
53	271.2	182.4	149.2	5.37
54	276.2	187.4	153.9	5.06
55	281.1	182.4	148.7	4.94
56	286.1	187.4	128.9	4.28
57	291.1	182.4	123.4	3.81
58	296.0	187.4	127.6	3.48
59	301.0	182.4	122.0	3.33
60	306.0	187.4	126.2	3.31
61	310.9	182.4	129.4	3.17
62	315.9	187.4	133.8	2.98
63	320.9	182.4	128.3	2.88
64	221.5	192.3	161.9	4.66
65	226.5	197.3	166.6	4.79
66	231.4	192.3	161.4	5.03
67	236.4	197.3	166.0	5.09
68	241.4	192.3	160.8	5.30
69	246.3	197.3	165.5	5.28
70	251.3	192.3	160.2	5.42
71	256.3	197.3	164.9	5.31
72	261.3	192.3	159.7	5.37
73	266.2	197.3	164.4	5.17
74	271.2	192.3	159.1	5.14
75	276.2	197.3	163.8	4.86
76	281.1	192.3	158.6	4.75
77	286.1	197.3	138.7	4.24
78	291.1	192.3	133.1	3.79
79	296.0	197.3	137.3	3.48
80	301.0	192.3	131.8	3.34
81	306.0	197.3	144.7	3.30
82	310.9	192.3	139.2	3.13
83	315.9	197.3	143.6	2.94
84	320.9	192.3	138.1	2.83
85	221.5	202.3	171.8	4.56
86	226.5	207.3	176.5	4.68
87	231.4	202.3	171.2	4.89
88	236.4	207.3	175.9	4.94
89	241.4	202.3	170.7	5.11
90	246.3	207.3	175.4	5.09
91	251.3	202.3	170.1	5.22
92	256.3	207.3	174.8	5.11
93	261.3	202.3	169.6	5.15
94	266.2	207.3	174.3	4.97
95	271.2	202.3	169.0	4.93
96	276.2	207.3	173.7	4.69
97	281.1	202.3	168.5	4.59
98	286.1	207.3	148.5	4.21
99	291.1	202.3	142.9	3.78
100	296.0	207.3	147.1	3.48
101	301.0	202.3	141.5	3.37
102	306.0	207.3	154.5	3.26
103	310.9	202.3	149.0	3.09
104	315.9	207.3	153.4	2.90
105	320.9	202.3	147.9	2.79
106	221.5	212.3	181.7	4.47
107	226.5	217.3	186.4	4.58

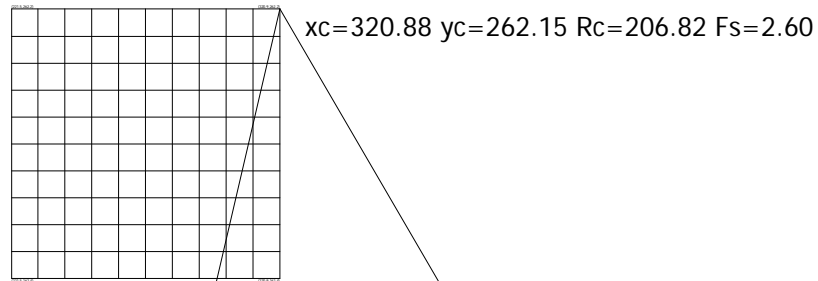
108	231.4	212.3	181.1	4.76
109	236.4	217.3	185.8	4.81
110	241.4	212.3	180.6	4.96
111	246.3	217.3	185.3	4.93
112	251.3	212.3	180.0	5.04
113	256.3	217.3	184.7	4.93
114	261.3	212.3	179.5	4.97
115	266.2	217.3	184.1	4.79
116	271.2	212.3	178.9	4.75
117	276.2	217.3	183.6	4.53
118	281.1	212.3	178.4	4.43
119	286.1	217.3	158.3	4.18
120	291.1	212.3	152.7	3.77
121	296.0	217.3	156.9	3.49
122	301.0	212.3	151.3	3.39
123	306.0	217.3	164.3	3.22
124	310.9	212.3	158.9	3.04
125	315.9	217.3	163.2	2.87
126	320.9	212.3	157.7	2.75
127	221.5	222.3	191.6	4.39
128	226.5	227.2	196.3	4.49
129	231.4	222.3	191.0	4.64
130	236.4	227.2	195.7	4.68
131	241.4	222.3	190.5	4.81
132	246.3	227.2	195.1	4.79
133	251.3	222.3	189.9	4.88
134	256.3	227.2	194.6	4.78
135	261.3	222.3	189.4	4.80
136	266.2	227.2	194.0	4.63
137	271.2	222.3	188.8	4.59
138	276.2	227.2	193.5	4.38
139	281.1	222.3	188.3	4.29
140	286.1	227.2	192.9	4.06
141	291.1	222.3	162.5	3.76
142	296.0	227.2	166.7	3.49
143	301.0	222.3	161.1	3.42
144	306.0	227.2	174.1	3.18
145	310.9	222.3	168.7	3.00
146	315.9	227.2	173.0	2.83
147	320.9	222.3	167.6	2.72
148	221.5	232.2	201.5	4.31
149	226.5	237.2	206.1	4.39
150	231.4	232.2	200.9	4.54
151	236.4	237.2	205.6	4.58
152	241.4	232.2	200.4	4.69
153	246.3	237.2	205.0	4.66
154	251.3	232.2	199.8	4.73
155	256.3	237.2	204.5	4.63
156	261.3	232.2	199.3	4.64
157	266.2	237.2	203.9	4.49
158	271.2	232.2	198.7	4.45
159	276.2	237.2	203.4	4.25
160	281.1	232.2	198.2	4.16
161	286.1	237.2	202.8	3.95
162	291.1	232.2	172.2	3.75
163	296.0	237.2	176.4	3.50
164	301.0	232.2	179.6	3.38
165	306.0	237.2	183.9	3.14
166	310.9	232.2	178.5	2.97

167	315.9	237.2	182.8	2.80
168	320.9	232.2	177.4	2.69
169	221.5	242.2	211.4	4.24
170	226.5	247.2	216.0	4.32
171	231.4	242.2	210.8	4.45
172	236.4	247.2	215.5	4.48
173	241.4	242.2	210.3	4.58
174	246.3	247.2	214.9	4.54
175	251.3	242.2	209.7	4.60
176	256.3	247.2	214.4	4.50
177	261.3	242.2	209.2	4.50
178	266.2	247.2	213.8	4.35
179	271.2	242.2	208.6	4.31
180	276.2	247.2	213.3	4.13
181	281.1	242.2	208.1	4.05
182	286.1	247.2	212.7	3.85
183	291.1	242.2	182.0	3.74
184	296.0	247.2	186.2	3.52
185	301.0	242.2	189.4	3.34
186	306.0	247.2	193.8	3.10
187	310.9	242.2	188.3	2.93
188	315.9	247.2	192.6	2.76
189	320.9	242.2	187.2	2.66
190	221.5	252.2	221.3	4.17
191	226.5	257.2	225.9	4.24
192	231.4	252.2	220.7	4.37
193	236.4	257.2	225.4	4.38
194	241.4	252.2	220.2	4.47
195	246.3	257.2	224.8	4.43
196	251.3	252.2	219.6	4.47
197	256.3	257.2	224.3	4.38
198	261.3	252.2	219.1	4.38
199	266.2	257.2	223.7	4.23
200	271.2	252.2	218.5	4.18
201	276.2	257.2	223.2	4.02
202	281.1	252.2	217.9	3.94
203	286.1	257.2	222.6	3.76
204	291.1	252.2	217.4	3.66
205	296.0	257.2	222.1	3.48
206	301.0	252.2	199.2	3.29
207	306.0	257.2	203.6	3.06
208	310.9	252.2	198.1	2.89
209	315.9	257.2	202.5	2.73
210	320.9	252.2	197.0	2.63
211	221.5	262.2	231.2	4.11
212	231.4	262.2	230.6	4.29
213	241.4	262.2	230.1	4.37
214	251.3	262.2	229.5	4.36
215	261.3	262.2	228.9	4.26
216	271.2	262.2	228.4	4.08
217	281.1	262.2	227.8	3.84
218	291.1	262.2	227.3	3.58
219	301.0	262.2	209.0	3.25
220	310.9	262.2	207.9	2.86
221	320.9	262.2	206.8	2.60

Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici strato2	2
5.Coefficienti parziali azioni	2
6.Coefficienti parziali per i parametri geotecnici del terreno	2
7.Stratigrafia	2
8.Risultati analisi pendio [A2+M2+R2]	3
Indice	8

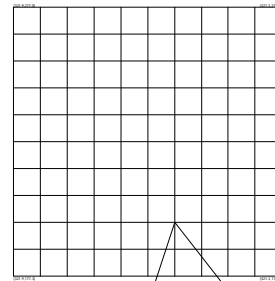
VERIFICA ANALITICA DI STABILITA' DI VERSANTE DA 200 A 300 m IN CONDIZIONI STATICHE



- Strato...1
 g=1.9t/m³
 Fi=16°
 c=6 kN/m²
- Strato...2
 g=1.9t/m³
 Fi=18°
 c=10 kN/m²
- Strato...3
 g=2.0t/m³
 Fi=28°
 c=20 kN/m²

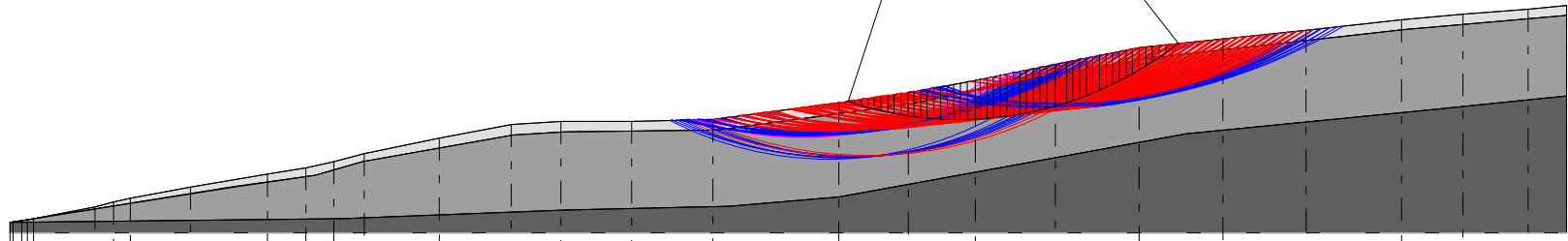
Quote	0.00	21.32	23.61	27.52	29.55	30.91	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58
Distanze Parziali	0.00	21.32	23.61	27.52	29.55	30.91	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58
Distanze Progressive	0.00	21.32	23.61	27.52	29.55	30.91	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58

VERIFICA ANALITICA DI STABILITA' DI VERSANTE DA 300 A 400 m IN CONDIZIONI STATICHE



$x_c=381.54$ $y_c=197.25$ $R_c=136.19$ $F_s=2.19$

- Strato...1
 $g=1.9t/m^3$
 $F_i=16^\circ$
 $c=6$ kN/m²
- Strato...2
 $g=1.9t/m^3$
 $F_i=18^\circ$
 $c=10$ kN/m²
- Strato...3
 $g=2.0t/m^3$
 $F_i=28^\circ$
 $c=20$ kN/m²



Quote	0.00	21.32	23.61	27.52	29.55	30.91	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58
Distanze Parziali	0.00	21.32	23.61	27.52	29.55	30.91	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58
Distanze Progressive	0.00	21.32	23.61	27.52	29.55	30.91	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58

Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	321.9 m
Ordinata vertice sinistro inferiore yi	177.31 m
Ascissa vertice destro superiore xs	421.29 m
Ordinata vertice destro superiore ys	277.03 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	18.92	21.72
2	20.2	21.82
3	23.39	22.31
4	25.56	22.62
5	27.85	23.08
6	51.47	27.52
7	58.49	29.55
8	64.87	30.91
9	87.85	35.1
10	117.2	40.2
11	131.88	42.56
12	142.73	44.86
13	154.24	48.08
14	182.94	53.91
15	210.58	59.17
16	229.53	60.3
17	256.33	60.34
18	287.61	61.04
19	335.62	67.34
20	362.28	71.24
21	387.81	75.96
22	418.44	82.15
23	450.35	88.44
24	482.26	91.8
25	514.17	95.06
26	550.55	99.19
27	574.16	101.27
28	599.05	103.26
29	613.73	104.58

Vertici strato1

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	20.57	21.81
4	104.62	35.3
5	135.54	39.67
6	153.63	44.79
7	211.19	55.12
8	230.71	56.21
9	288.82	56.91
10	326.12	62.02
11	365.14	67.36
12	413.19	77.12
13	453.74	84.46
14	489.93	88.55
15	551.3	95.49
16	613.73	100.8

Vertici strato2

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	18.92	21.72
4	145.78	23.14
5	231.29	26.37
6	293.79	27.74
7	335.62	31.34
8	417.99	46.31
9	468.28	55.46
10	557.71	64.42
11	613.64	70.03
12	613.73	70.05

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3	20		28	2.0		



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.19
Ascissa centro superficie	381.54 m
Ordinata centro superficie	197.25 m
Raggio superficie	136.19 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	321.9	177.3	123.2	2.87
2	326.9	182.3	127.6	2.76
3	331.8	177.3	131.5	2.71
4	336.8	182.3	136.0	2.60
5	341.8	177.3	130.6	2.55
6	346.8	182.3	125.3	2.48
7	351.7	177.3	119.9	2.44
8	356.7	182.3	114.2	2.34
9	361.7	177.3	118.8	2.33
10	366.6	182.3	123.1	2.27
11	371.6	177.3	117.7	2.24
12	376.6	182.3	122.0	2.20
13	381.5	177.3	116.6	2.19
14	386.5	182.3	120.9	2.19
15	391.5	177.3	115.5	2.20
16	396.4	182.3	119.8	2.23
17	401.4	177.3	103.0	2.25
18	406.4	182.3	107.2	2.28
19	411.4	177.3	101.7	2.33
20	416.3	182.3	105.9	2.42
21	421.3	177.3	100.3	2.49
22	321.9	187.3	133.0	2.83
23	326.9	192.3	137.4	2.71
24	331.8	187.3	131.9	2.67
25	336.8	192.3	145.8	2.57
26	341.8	187.3	140.5	2.52
27	346.8	192.3	135.2	2.44
28	351.7	187.3	129.7	2.40
29	356.7	192.3	123.9	2.32
30	361.7	187.3	128.6	2.30
31	366.6	192.3	132.9	2.24
32	371.6	187.3	127.5	2.22
33	376.6	192.3	131.8	2.19
34	381.5	187.3	126.4	2.19
35	386.5	192.3	130.7	2.19
36	391.5	187.3	125.3	2.20
37	396.4	192.3	129.6	2.23
38	401.4	187.3	112.8	2.25
39	406.4	192.3	117.0	2.31
40	411.4	187.3	111.4	2.36
41	416.3	192.3	127.4	2.44
42	421.3	187.3	122.0	2.50
43	321.9	197.3	142.8	2.79
44	326.9	202.2	147.2	2.67
45	331.8	197.3	141.7	2.62
46	336.8	202.2	155.7	2.53
47	341.8	197.3	150.3	2.48
48	346.8	202.2	154.9	2.41

49	351.7	197.3	139.5	2.37
50	356.7	202.2	133.7	2.29
51	361.7	197.3	138.4	2.27
52	366.6	202.2	142.8	2.22
53	371.6	197.3	137.3	2.20
54	376.6	202.2	141.7	2.19
55	381.5	197.3	136.2	2.19
56	386.5	202.2	140.5	2.20
57	391.5	197.3	135.1	2.21
58	396.4	202.2	139.4	2.24
59	401.4	197.3	134.0	2.27
60	406.4	202.2	138.3	2.33
61	411.4	197.3	132.9	2.38
62	416.3	202.2	137.2	2.44
63	421.3	197.3	131.8	2.51
64	321.9	207.2	152.6	2.76
65	326.9	212.2	157.0	2.64
66	331.8	207.2	151.5	2.59
67	336.8	212.2	155.9	2.50
68	341.8	207.2	160.2	2.45
69	346.8	212.2	154.8	2.38
70	351.7	207.2	149.3	2.35
71	356.7	212.2	143.5	2.27
72	361.7	207.2	148.2	2.25
73	366.6	212.2	152.6	2.21
74	371.6	207.2	147.1	2.20
75	376.6	212.2	151.5	2.19
76	381.5	207.2	146.0	2.19
77	386.5	212.2	150.4	2.20
78	391.5	207.2	144.9	2.22
79	396.4	212.2	149.3	2.25
80	401.4	207.2	143.8	2.28
81	406.4	212.2	148.1	2.34
82	411.4	207.2	142.7	2.39
83	416.3	212.2	147.0	2.45
84	421.3	207.2	141.6	2.52
85	321.9	217.2	162.5	2.71
86	326.9	222.2	166.8	2.60
87	331.8	217.2	161.4	2.55
88	336.8	222.2	165.7	2.47
89	341.8	217.2	160.2	2.43
90	346.8	222.2	164.6	2.36
91	351.7	217.2	159.1	2.32
92	356.7	222.2	153.3	2.26
93	361.7	217.2	158.0	2.23
94	366.6	222.2	162.4	2.20
95	371.6	217.2	156.9	2.19
96	376.6	222.2	161.3	2.19
97	381.5	217.2	155.8	2.19
98	386.5	222.2	160.2	2.21
99	391.5	217.2	154.7	2.23
100	396.4	222.2	159.1	2.26
101	401.4	217.2	153.6	2.30
102	406.4	222.2	158.0	2.34
103	411.4	217.2	152.5	2.40
104	416.3	222.2	156.9	2.47
105	421.3	217.2	151.4	2.52
106	321.9	227.2	172.3	2.68
107	326.9	232.2	176.6	2.57

108	331.8	227.2	171.2	2.52
109	336.8	232.2	175.5	2.44
110	341.8	227.2	170.1	2.40
111	346.8	232.2	174.4	2.33
112	351.7	227.2	169.0	2.30
113	356.7	232.2	163.0	2.24
114	361.7	227.2	167.8	2.22
115	366.6	232.2	172.2	2.20
116	371.6	227.2	166.7	2.19
117	376.6	232.2	171.1	2.19
118	381.5	227.2	165.6	2.20
119	386.5	232.2	170.0	2.22
120	391.5	227.2	164.5	2.24
121	396.4	232.2	168.9	2.28
122	401.4	227.2	163.4	2.31
123	406.4	232.2	167.8	2.36
124	411.4	227.2	162.3	2.41
125	416.3	232.2	166.7	2.47
126	421.3	227.2	161.2	2.54
127	321.9	237.1	182.1	2.65
128	326.9	242.1	186.4	2.54
129	331.8	237.1	181.0	2.49
130	336.8	242.1	185.3	2.42
131	341.8	237.1	179.9	2.38
132	346.8	242.1	184.2	2.31
133	351.7	237.1	178.8	2.28
134	356.7	242.1	172.8	2.22
135	361.7	237.1	177.7	2.22
136	366.6	242.1	182.0	2.20
137	371.6	237.1	176.6	2.19
138	376.6	242.1	180.9	2.20
139	381.5	237.1	175.4	2.21
140	386.5	242.1	179.8	2.23
141	391.5	237.1	174.3	2.25
142	396.4	242.1	178.7	2.29
143	401.4	237.1	173.2	2.32
144	406.4	242.1	177.6	2.37
145	411.4	237.1	172.1	2.42
146	416.3	242.1	176.5	2.49
147	421.3	237.1	171.0	2.55
148	321.9	247.1	191.9	2.62
149	326.9	252.1	196.3	2.52
150	331.8	247.1	190.8	2.46
151	336.8	252.1	195.1	2.40
152	341.8	247.1	189.7	2.35
153	346.8	252.1	194.0	2.29
154	351.7	247.1	188.6	2.26
155	356.7	252.1	182.6	2.21
156	361.7	247.1	187.5	2.21
157	366.6	252.1	191.8	2.20
158	371.6	247.1	186.4	2.20
159	376.6	252.1	190.7	2.21
160	381.5	247.1	185.3	2.22
161	386.5	252.1	189.6	2.24
162	391.5	247.1	184.2	2.26
163	396.4	252.1	188.5	2.30
164	401.4	247.1	183.1	2.33
165	406.4	252.1	187.4	2.38
166	411.4	247.1	181.9	2.43

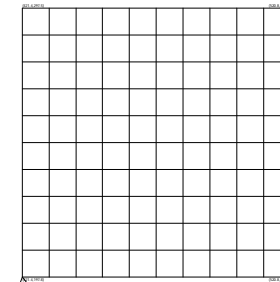
167	416.3	252.1	186.3	2.50
168	421.3	247.1	180.8	2.56
169	321.9	257.1	201.7	2.59
170	326.9	262.1	206.1	2.49
171	331.8	257.1	200.6	2.44
172	336.8	262.1	205.0	2.37
173	341.8	257.1	199.5	2.33
174	346.8	262.1	203.9	2.28
175	351.7	257.1	198.4	2.25
176	356.7	262.1	192.4	2.20
177	361.7	257.1	197.3	2.21
178	366.6	262.1	201.6	2.21
179	371.6	257.1	196.2	2.20
180	376.6	262.1	200.5	2.22
181	381.5	257.1	195.1	2.23
182	386.5	262.1	199.4	2.25
183	391.5	257.1	194.0	2.27
184	396.4	262.1	198.3	2.31
185	401.4	257.1	192.9	2.35
186	406.4	262.1	197.2	2.40
187	411.4	257.1	191.8	2.45
188	416.3	262.1	196.1	2.51
189	421.3	257.1	190.7	2.56
190	321.9	267.1	211.5	2.56
191	326.9	272.0	215.9	2.47
192	331.8	267.1	210.4	2.41
193	336.8	272.0	214.8	2.36
194	341.8	267.1	209.3	2.31
195	346.8	272.0	213.7	2.27
196	351.7	267.1	208.2	2.24
197	356.7	272.0	202.1	2.19
198	361.7	267.1	207.1	2.21
199	366.6	272.0	211.5	2.21
200	371.6	267.1	206.0	2.21
201	376.6	272.0	210.4	2.22
202	381.5	267.1	204.9	2.24
203	386.5	272.0	209.2	2.26
204	391.5	267.1	203.8	2.29
205	396.4	272.0	208.1	2.33
206	401.4	267.1	202.7	2.36
207	406.4	272.0	207.0	2.41
208	411.4	267.1	201.6	2.46
209	416.3	272.0	205.9	2.52
210	421.3	267.1	200.5	2.57
211	321.9	277.0	221.3	2.54
212	331.8	277.0	220.2	2.39
213	341.8	277.0	219.1	2.30
214	351.7	277.0	218.0	2.24
215	361.7	277.0	216.9	2.22
216	371.6	277.0	215.8	2.22
217	381.5	277.0	214.7	2.25
218	391.5	277.0	213.6	2.30
219	401.4	277.0	212.5	2.37
220	411.4	277.0	211.4	2.47
221	421.3	277.0	209.7	2.59

Indice

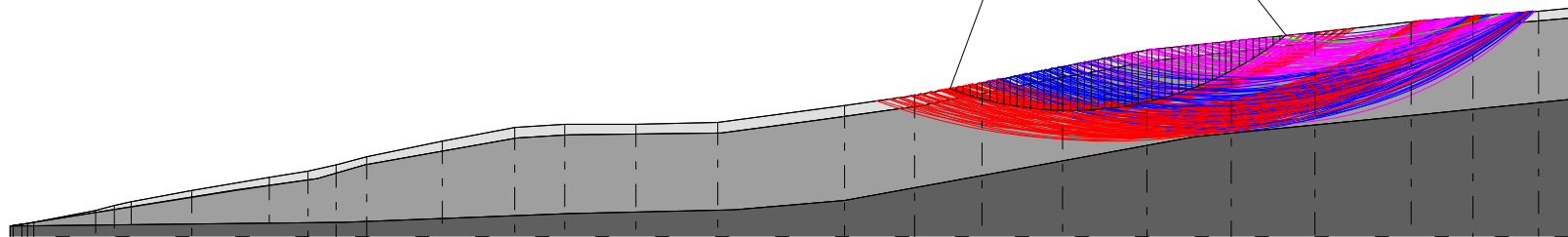
1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici strato2	2
5.Coefficienti parziali azioni	2
6.Coefficienti parziali per i parametri geotecnici del terreno	2
7.Stratigrafia	2
8.Risultati analisi pendio [A2+M2+R2]	3
Indice	8

VERIFICA ANALITICA DI STABILITA' DI VERSANTE DA 400 A 500 m IN CONDIZIONI STATICHE

xc=421.38 yc=197.76 Rc=132.26 Fs=2.51



- Strato...1
 g=1.9t/m³
 Fi=16°
 c=6 kN/m²
- Strato...2
 g=1.9t/m³
 Fi=18°
 c=10 kN/m²
- Strato...3
 g=2.0t/m³
 Fi=28°
 c=20 kN/m²



Quote	0.00	21.32	23.66	27.52	29.55	30.91	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58
Distanze Parziali	0.00	21.32	23.66	27.52	29.55	30.91	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58
Distanze Progressive	0.00	21.32	23.66	27.52	29.55	30.91	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58

Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	421.38 m
Ordinata vertice sinistro inferiore yi	197.76 m
Ascissa vertice destro superiore xs	520.77 m
Ordinata vertice destro superiore ys	297.48 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	18.92	21.72
2	20.2	21.82
3	23.39	22.31
4	25.56	22.62
5	27.85	23.08
6	51.47	27.52
7	58.49	29.55
8	64.87	30.91
9	87.85	35.1
10	117.2	40.2
11	131.88	42.56
12	142.73	44.86
13	154.24	48.08
14	182.94	53.91
15	210.58	59.17
16	229.53	60.3
17	256.33	60.34
18	287.61	61.04
19	335.62	67.34
20	362.28	71.24
21	387.81	75.96
22	418.44	82.15
23	450.35	88.44
24	482.26	91.8
25	514.17	95.06
26	550.55	99.19
27	574.16	101.27
28	599.05	103.26
29	613.73	104.58

Vertici strato1

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	20.57	21.81
4	104.62	35.3
5	135.54	39.67
6	153.63	44.79
7	211.19	55.12
8	230.71	56.21
9	288.82	56.91
10	326.12	62.02
11	365.14	67.36
12	413.19	77.12
13	453.74	84.46
14	489.93	88.55
15	551.3	95.49
16	613.73	100.8

Vertici strato2

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	18.92	21.72
4	145.78	23.14
5	231.29	26.37
6	293.79	27.74
7	335.62	31.34
8	417.99	46.31
9	468.28	55.46
10	557.71	64.42
11	613.64	70.03
12	613.73	70.05

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3	20		28	2.0		

Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.51
Ascissa centro superficie	421.38 m
Ordinata centro superficie	197.76 m
Raggio superficie	132.26 m

Numero di superfici esaminate....(219)

N°	Xo	Yo	Ro	Fs
1	421.4	197.8	132.3	2.51
2	426.3	202.7	136.6	2.59
3	431.3	197.8	131.2	2.67
4	436.3	202.7	135.5	2.75
5	441.3	197.8	130.0	2.85
6	446.2	202.7	147.1	2.93
7	451.2	197.8	141.7	3.01
8	456.2	202.7	146.2	3.08
9	461.1	197.8	140.0	3.18
10	466.1	202.7	140.0	3.26
11	471.1	197.8	133.3	3.37
12	476.0	202.7	145.3	3.43
13	481.0	197.8	138.5	3.55
14	486.0	202.7	138.4	3.63
15	491.0	197.8	131.6	3.75
16	495.9	202.7	142.5	3.81
17	500.9	197.8	124.8	3.93
18	505.9	202.7	125.1	3.94
19	510.8	197.8	118.2	3.95
20	515.8	202.7	118.8	3.98
21	520.8	197.8	111.9	4.04
22	421.4	207.7	142.1	2.52
23	426.3	212.7	146.4	2.59
24	431.3	207.7	141.0	2.67
25	436.3	212.7	145.3	2.75
26	441.3	207.7	139.9	2.84
27	446.2	212.7	156.9	2.90
28	451.2	207.7	151.6	2.99
29	456.2	212.7	153.4	3.05
30	461.1	207.7	146.7	3.15
31	466.1	212.7	146.9	3.24
32	471.1	207.7	140.1	3.36
33	476.0	212.7	152.0	3.39
34	481.0	207.7	145.2	3.50
35	486.0	212.7	145.3	3.60
36	491.0	207.7	138.5	3.72
37	495.9	212.7	149.3	3.76
38	500.9	207.7	142.4	3.87
39	505.9	212.7	132.5	3.91
40	510.8	207.7	125.6	3.95
41	515.8	212.7	136.2	3.99
42	520.8	207.7	119.6	4.07
43	421.4	217.7	151.9	2.53
44	426.3	222.7	156.2	2.60
45	431.3	217.7	150.8	2.67
46	436.3	222.7	155.1	2.76
47	441.3	217.7	162.3	2.83
48	446.2	222.7	166.8	2.89

49	451.2	217.7	160.1	2.96
50	456.2	222.7	160.3	3.03
51	461.1	217.7	153.6	3.13
52	466.1	222.7	165.7	3.18
53	471.1	217.7	158.8	3.28
54	476.0	222.7	159.0	3.37
55	481.0	217.7	152.1	3.48
56	486.0	222.7	152.5	3.59
57	491.0	217.7	156.3	3.64
58	495.9	222.7	156.5	3.73
59	500.9	217.7	149.6	3.84
60	505.9	222.7	150.1	3.90
61	510.8	217.7	133.3	3.95
62	515.8	222.7	134.4	4.07
63	520.8	217.7	137.0	4.00
64	421.4	227.7	161.7	2.54
65	426.3	232.7	166.1	2.61
66	431.3	227.7	160.6	2.68
67	436.3	232.7	177.4	2.75
68	441.3	227.7	172.1	2.82
69	446.2	232.7	173.8	2.87
70	451.2	227.7	167.0	2.95
71	456.2	232.7	167.5	3.03
72	461.1	227.7	160.7	3.13
73	466.1	232.7	172.7	3.16
74	471.1	227.7	165.8	3.26
75	476.0	232.7	166.2	3.36
76	481.0	227.7	159.4	3.47
77	486.0	232.7	159.9	3.60
78	491.0	227.7	163.5	3.62
79	495.9	232.7	164.0	3.71
80	500.9	227.7	147.0	3.88
81	505.9	232.7	157.8	3.89
82	510.8	227.7	150.8	3.94
83	515.8	232.7	142.6	4.17
84	520.8	227.7	145.0	4.00
85	421.4	237.6	171.5	2.55
86	426.3	242.6	175.9	2.62
87	431.3	237.6	170.4	2.69
88	436.3	242.6	187.2	2.75
89	441.3	237.6	180.5	2.80
90	446.2	242.6	181.0	2.86
91	451.2	237.6	174.2	2.94
92	456.2	242.6	186.4	3.00
93	461.1	237.6	179.5	3.08
94	466.1	242.6	179.9	3.15
95	471.1	237.6	173.1	3.25
96	476.0	242.6	184.3	3.30
97	481.0	237.6	177.4	3.40
98	486.0	242.6	177.9	3.49
99	491.0	237.6	170.9	3.60
100	495.9	242.6	171.6	3.70
101	500.9	237.6	164.7	3.81
102	505.9	242.6	156.2	3.99
103	510.8	237.6	149.4	4.07
104	515.8	242.6	150.9	4.23
105	520.8	237.6	144.1	4.10
106	421.4	247.6	181.3	2.56
107	426.3	252.6	185.7	2.62

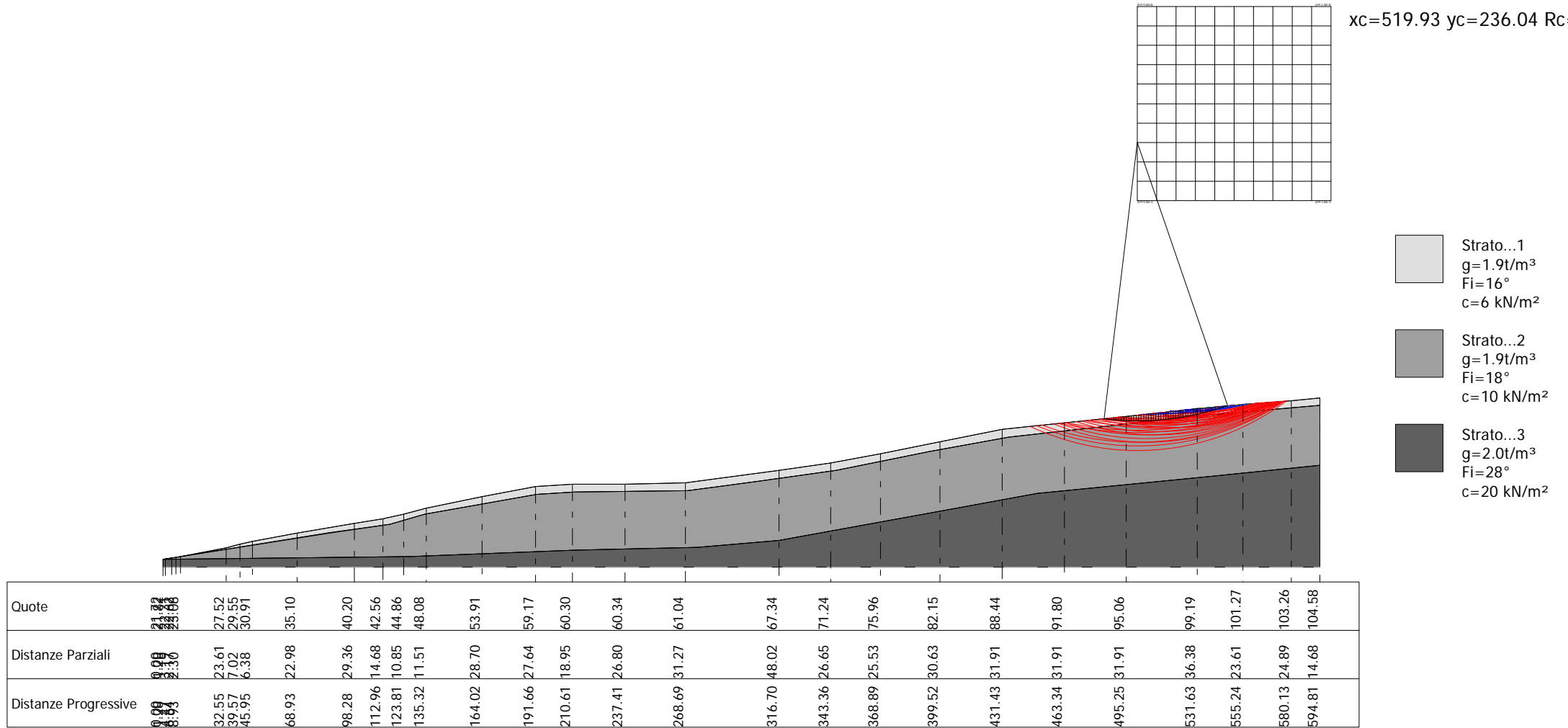
108	431.3	247.6	192.6	2.69
109	436.3	252.6	194.5	2.73
110	441.3	247.6	187.7	2.79
111	446.2	252.6	188.4	2.87
112	451.2	247.6	181.6	2.95
113	456.2	252.6	193.7	2.99
114	461.1	247.6	186.8	3.07
115	466.1	252.6	187.4	3.16
116	471.1	247.6	180.5	3.26
117	476.0	252.6	181.3	3.39
118	481.0	247.6	174.5	3.50
119	486.0	252.6	175.5	3.65
120	491.0	247.6	168.6	3.77
121	495.9	252.6	169.9	3.88
122	500.9	247.6	172.6	3.81
123	505.9	252.6	164.5	4.07
124	510.8	247.6	166.9	3.92
125	515.8	252.6	159.4	4.14
126	520.8	247.6	161.6	4.04
127	421.4	257.6	191.1	2.57
128	426.3	262.6	195.5	2.63
129	431.3	257.6	201.3	2.68
130	436.3	262.6	201.9	2.73
131	441.3	257.6	195.2	2.80
132	446.2	262.6	207.4	2.85
133	451.2	257.6	200.5	2.92
134	456.2	262.6	201.1	2.98
135	461.1	257.6	194.3	3.07
136	466.1	262.6	195.1	3.17
137	471.1	257.6	198.7	3.20
138	476.0	262.6	189.2	3.41
139	481.0	257.6	192.4	3.38
140	486.0	262.6	183.5	3.70
141	491.0	257.6	176.7	3.81
142	495.9	262.6	187.6	3.72
143	500.9	257.6	180.7	3.81
144	505.9	262.6	172.9	4.16
145	510.8	257.6	166.2	4.21
146	515.8	262.6	168.0	5.06
147	520.8	257.6	170.2	4.09
148	421.4	267.6	201.0	2.58
149	426.3	272.5	215.5	2.63
150	431.3	267.6	208.7	2.68
151	436.3	272.5	209.5	2.74
152	441.3	267.6	202.7	2.80
153	446.2	272.5	214.9	2.85
154	451.2	267.6	208.0	2.91
155	456.2	272.5	208.8	2.99
156	461.1	267.6	201.9	3.08
157	466.1	272.5	202.9	3.19
158	471.1	267.6	206.3	3.20
159	476.0	272.5	207.2	3.29
160	481.0	267.6	190.4	3.58
161	486.0	272.5	191.7	3.76
162	491.0	267.6	194.5	3.61
163	495.9	272.5	195.8	3.74
164	500.9	267.6	179.7	4.08
165	505.9	272.5	181.5	4.17
166	510.8	267.6	183.8	3.95

167	520.8	267.6	178.9	4.14
168	421.4	277.5	210.1	2.59
169	426.3	282.5	223.1	2.63
170	431.3	277.5	216.3	2.68
171	436.3	282.5	228.6	2.74
172	441.3	277.5	221.7	2.79
173	446.2	282.5	222.5	2.85
174	451.2	277.5	215.7	2.91
175	456.2	282.5	216.6	3.00
176	461.1	277.5	220.2	3.04
177	466.1	282.5	210.9	3.22
178	471.1	277.5	214.1	3.20
179	476.0	282.5	205.4	3.50
180	481.0	277.5	208.3	3.40
181	486.0	282.5	200.0	3.83
182	491.0	277.5	193.3	3.93
183	495.9	282.5	204.2	3.77
184	500.9	277.5	188.2	4.17
185	505.9	282.5	190.2	4.16
186	510.8	277.5	192.4	3.98
187	515.8	282.5	194.4	4.10
188	520.8	277.5	187.7	4.20
189	421.4	287.5	229.8	2.59
190	426.3	292.5	230.8	2.63
191	431.3	287.5	224.0	2.69
192	436.3	292.5	236.2	2.74
193	441.3	287.5	229.4	2.79
194	446.2	292.5	230.3	2.85
195	451.2	287.5	223.5	2.92
196	456.2	292.5	224.6	3.02
197	461.1	287.5	217.7	3.12
198	466.1	292.5	219.0	3.25
199	471.1	287.5	212.2	3.37
200	476.0	292.5	223.3	3.32
201	481.0	287.5	216.4	3.42
202	486.0	292.5	208.5	3.90
203	491.0	287.5	201.7	3.98
204	495.9	292.5	212.7	3.79
205	500.9	287.5	205.9	3.87
206	505.9	292.5	207.8	3.95
207	510.8	287.5	201.1	4.02
208	520.8	287.5	196.6	4.28
209	421.4	297.5	237.6	2.59
210	431.3	297.5	243.1	2.70
211	441.3	297.5	237.2	2.79
212	451.2	297.5	241.8	2.90
213	461.1	297.5	235.9	3.04
214	471.1	297.5	230.2	3.22
215	481.0	297.5	224.7	3.44
216	491.0	297.5	219.5	3.69
217	500.9	297.5	205.6	4.14
218	510.8	297.5	209.9	4.07
219	520.8	297.5	205.6	4.35

Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici strato2	2
5.Coefficienti parziali azioni	2
6.Coefficienti parziali per i parametri geotecnici del terreno	2
7.Stratigrafia	2
8.Risultati analisi pendio [A2+M2+R2]	3
Indice	8

VERIFICA ANALITICA DI STABILITA' DI VERSANTE DA 500 A 600 m IN CONDIZIONI STATICHE



Analisi di stabilità dei pendii con: BELL (1968)

Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	519.93 m
Ordinata vertice sinistro inferiore yi	206.13 m
Ascissa vertice destro superiore xs	619.31 m
Ordinata vertice destro superiore ys	305.85 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Vertici profilo

Nr	X (m)	y (m)
1	18.92	21.72
2	20.2	21.82
3	23.39	22.31
4	25.56	22.62
5	27.85	23.08
6	51.47	27.52
7	58.49	29.55
8	64.87	30.91
9	87.85	35.1
10	117.2	40.2
11	131.88	42.56
12	142.73	44.86
13	154.24	48.08
14	182.94	53.91
15	210.58	59.17
16	229.53	60.3
17	256.33	60.34
18	287.61	61.04
19	335.62	67.34
20	362.28	71.24
21	387.81	75.96
22	418.44	82.15
23	450.35	88.44
24	482.26	91.8
25	514.17	95.06
26	550.55	99.19
27	574.16	101.27
28	599.05	103.26
29	613.73	104.58

Vertici strato1

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	20.57	21.81
4	104.62	35.3
5	135.54	39.67
6	153.63	44.79
7	211.19	55.12
8	230.71	56.21
9	288.82	56.91
10	326.12	62.02
11	365.14	67.36
12	413.19	77.12
13	453.74	84.46
14	489.93	88.55
15	551.3	95.49
16	613.73	100.8

Vertici strato2

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	18.92	21.72
4	145.78	23.14
5	231.29	26.37
6	293.79	27.74
7	335.62	31.34
8	417.99	46.31
9	468.28	55.46
10	557.71	64.42
11	613.64	70.03
12	613.73	70.05

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		
2	10		18	1.9		
3	20		28	2.0		



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	3.97
Ascissa centro superficie	519.93 m
Ordinata centro superficie	236.04 m
Raggio superficie	143.19 m

Numero di superfici esaminate....(45)

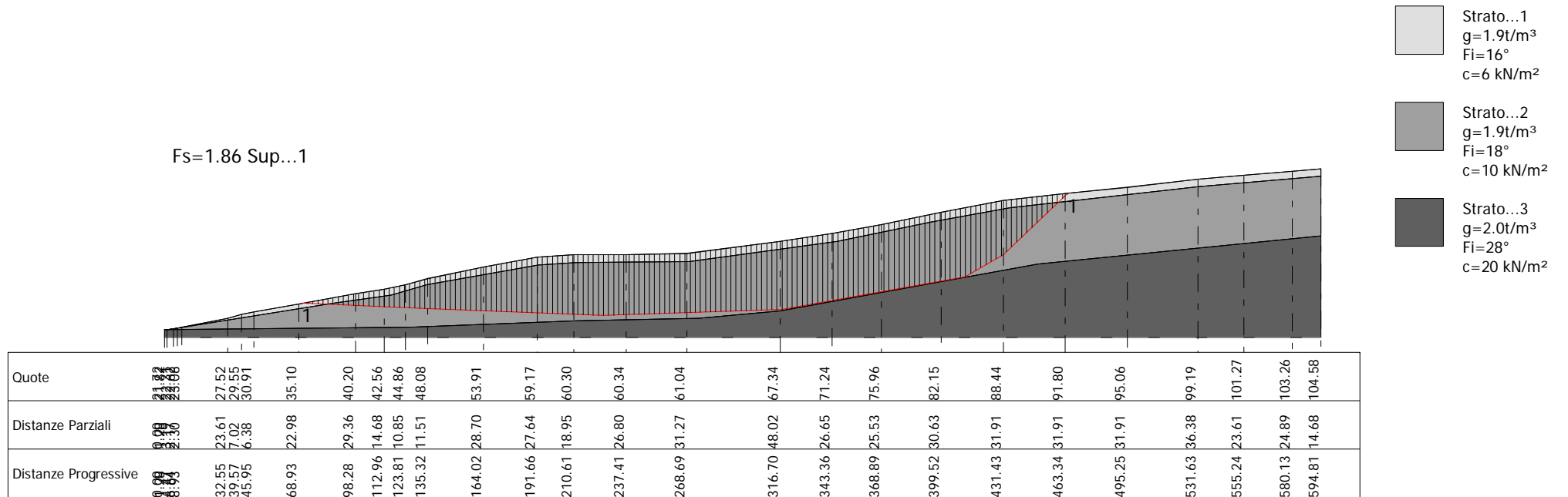
N°	Xo	Yo	Ro	Fs
1	519.9	206.1	128.5	4.03
2	524.9	211.1	129.3	4.04
3	529.9	206.1	113.1	4.34
4	534.8	211.1	114.4	6.03
5	539.8	206.1	116.6	4.31
6	544.8	211.1	118.1	4.62
7	549.7	206.1	111.3	4.88
8	554.7	211.1	113.2	5.88
9	559.7	206.1	106.6	10.16
10	519.9	216.1	136.2	4.00
11	524.9	221.1	137.3	4.04
12	529.9	216.1	130.4	4.10
13	534.8	221.1	131.8	4.24
14	539.8	216.1	124.9	4.39
15	544.8	221.1	126.7	4.73
16	519.9	226.1	144.2	3.99
17	524.9	231.1	145.5	4.06
18	529.9	226.1	138.6	4.13
19	534.8	231.1	140.3	4.32
20	544.8	231.1	135.5	4.51
21	549.7	226.1	128.8	5.46
22	519.9	236.0	143.2	3.97
23	524.9	241.0	144.9	6.58
24	529.9	236.0	147.1	4.18
25	534.8	241.0	148.9	4.41
26	544.8	241.0	144.4	5.09
27	549.7	236.0	137.8	7.15
28	519.9	246.0	151.7	4.54
29	539.8	246.0	151.0	4.53
30	549.7	246.0	146.8	14.11
31	519.9	256.0	169.2	4.05
32	524.9	261.0	171.1	4.21
33	529.9	256.0	164.4	4.34
34	519.9	266.0	177.9	4.10
35	524.9	270.9	179.9	4.28
36	529.9	266.0	173.3	4.42
37	534.8	270.9	175.6	4.52
38	539.8	266.0	169.1	5.56
39	524.9	280.9	188.9	4.37
40	529.9	275.9	182.2	4.48
41	539.8	275.9	178.2	7.23
42	524.9	290.9	197.9	4.40
43	534.8	290.9	193.9	6.13
44	539.8	285.9	187.5	12.96
45	524.9	300.9	207.0	4.14

Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici strato2	2
5.Coefficienti parziali azioni	2
6.Coefficienti parziali per i parametri geotecnici del terreno	2
7.Stratigrafia	2
8.Risultati analisi pendio [A2+M2+R2]	3
Indice	5

VERIFICA ANALITICA DI STABILITA' DI VERSANTE SUPERFICIE 1 IN CONDIZIONI SISMICHE

Fs=1.86 Sup...1



- Strato...1
 $g=1.9t/m^3$
 $Fi=16^\circ$
 $c=6 \text{ kN/m}^2$
- Strato...2
 $g=1.9t/m^3$
 $Fi=18^\circ$
 $c=10 \text{ kN/m}^2$
- Strato...3
 $g=2.0t/m^3$
 $Fi=28^\circ$
 $c=20 \text{ kN/m}^2$

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.179321/10.992644
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	150.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma generica	

Coefficiente azione sismica orizzontale	0.07
Coefficiente azione sismica verticale	0.035

Vertici profilo

Nr	X (m)	y (m)
1	18.92	21.72
2	20.2	21.82
3	23.39	22.31
4	25.56	22.62
5	27.85	23.08
6	51.47	27.52
7	58.49	29.55
8	64.87	30.91
9	87.85	35.1
10	117.2	40.2
11	131.88	42.56
12	142.73	44.86
13	154.24	48.08
14	182.94	53.91
15	210.58	59.17
16	229.53	60.3
17	256.33	60.34
18	287.61	61.04
19	335.62	67.34
20	362.28	71.24
21	387.81	75.96
22	418.44	82.15
23	450.35	88.44
24	482.26	91.8
25	514.17	95.06
26	550.55	99.19
27	574.16	101.27
28	599.05	103.26
29	613.73	104.58

Vertici strato1

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	20.57	21.81

4	104.62	35.3
5	135.54	39.67
6	153.63	44.79
7	211.19	55.12
8	230.71	56.21
9	288.82	56.91
10	326.12	62.02
11	365.14	67.36
12	413.19	77.12
13	453.74	84.46
14	489.93	88.55
15	551.3	95.49
16	613.73	100.8

Vertici strato2

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	18.92	21.72
4	145.78	23.14
5	231.29	26.37
6	293.79	27.74
7	335.62	31.34
8	417.99	46.31
9	468.28	55.46
10	557.71	64.42
11	613.64	70.03
12	613.73	70.05

Vertici superficie Nr...1

N	X m	y m
1	89.4	35.47
2	152.51	32.7
3	244.39	29.07
4	336.27	32.1
5	430.57	49.02
6	450.52	60.51
7	483.49	91.98

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coazione efficace	1.0
Coazione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coazione (kN/m ²)	Coazione non drenata (kN/m ²)	Angolo resistenza al taglio	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
--------	----------------------------------	---	-----------------------------------	--	------------------------------------	-----------

		(°)		
1	6		16	1.9
2	10		18	1.9
3	20		28	2.0



B: Larghezza del concio; Alfa: Angolo di inclinazione della base del concio; Li: Lunghezza della base del concio; Wi: Peso del concio; Ui: Forze derivanti dalle pressioni neutre; Ni: forze agenti normalmente alla direzione di scivolamento; Ti: forze agenti parallelamente alla superficie di scivolamento; Fi: Angolo di attrito; c: coesione.

Superficie Nr...1 Fattore di sicurezza=1.86

Nr.	B m	Alfa (°)	Li m	Wi (kN)	Kh•Wi (kN)	Kv•Wi (kN)	c (kN/m ²)	Fi (°)	Ui (kN)	N'i (kN)	Ti (kN)
1	2.62	-2.5	2.63	13.9	0.97	0.49	6.0	16.0	0.0	-28.4	4.1
2	2.62	-2.6	2.63	41.85	2.93	1.46	6.0	16.0	0.0	-31.7	3.6
3	2.62	-2.5	2.63	69.8	4.89	2.44	6.0	16.0	0.0	-34.4	3.2
4	2.62	-2.5	2.63	97.61	6.83	3.42	6.0	16.0	0.0	-37.4	2.7
5	2.62	-2.6	2.63	125.56	8.79	4.39	6.0	16.0	0.0	-41.2	2.1
6	2.62	-2.5	2.63	153.51	10.75	5.37	10.0	18.0	0.0	-43.4	6.5
7	2.62	-2.5	2.63	181.32	12.69	6.35	10.0	18.0	0.0	-46.4	6.0
8	2.62	-2.6	2.63	209.27	14.65	7.32	10.0	18.0	0.0	-50.7	5.3
9	2.62	-2.5	2.63	237.23	16.61	8.3	10.0	18.0	0.0	-52.4	5.0
10	2.62	-2.5	2.63	265.03	18.55	9.28	10.0	18.0	0.0	-55.4	4.4
11	2.62	-2.6	2.63	292.86	20.5	10.25	10.0	18.0	0.0	-60.1	3.6
12	2.62	-2.5	2.63	319.2	22.34	11.17	10.0	18.0	0.0	-61.2	3.4
13	2.62	-2.5	2.63	345.39	24.18	12.09	10.0	18.0	0.0	-64.0	2.9
14	2.62	-2.6	2.63	371.73	26.02	13.01	10.0	18.0	0.0	-69.0	2.1
15	2.62	-2.5	2.63	398.07	27.87	13.93	10.0	18.0	0.0	-69.6	2.0
16	2.62	-2.5	2.63	424.27	29.7	14.85	10.0	18.0	0.0	-72.4	1.5
17	2.62	-2.6	2.63	453.79	31.77	15.88	10.0	18.0	0.0	-78.3	0.4
18	2.62	-2.5	2.63	486.68	34.07	17.03	10.0	18.0	0.0	-79.1	0.3
19	2.62	-2.5	2.63	519.43	36.36	18.18	10.0	18.0	0.0	-82.7	-0.3
20	2.62	-2.6	2.63	552.32	38.66	19.33	10.0	18.0	0.0	-89.6	-1.5
21	2.62	-2.5	2.63	588.23	41.18	20.59	10.0	18.0	0.0	-90.2	-1.6
22	2.62	-2.5	2.63	629.58	44.07	22.04	10.0	18.0	0.0	-94.7	-2.4
23	2.62	-2.6	2.63	671.07	46.98	23.49	10.0	18.0	0.0	-103.2	-3.9
24	2.62	-2.4	2.63	712.47	49.87	24.94	10.0	18.0	0.0	-100.8	-3.5
25	2.62	-2.3	2.63	753.57	52.75	26.38	10.0	18.0	0.0	-103.7	-4.0
26	2.62	-2.2	2.63	785.09	54.96	27.48	10.0	18.0	0.0	-102.2	-3.8
27	2.62	-2.3	2.63	816.25	57.14	28.57	10.0	18.0	0.0	-110.1	-5.1
28	2.62	-2.2	2.63	847.41	59.32	29.66	10.0	18.0	0.0	-108.2	-4.8
29	2.62	-2.2	2.63	878.42	61.49	30.74	10.0	18.0	0.0	-111.2	-5.3
30	2.62	-2.3	2.63	909.58	63.67	31.84	10.0	18.0	0.0	-119.6	-6.8
31	2.62	-2.2	2.63	940.74	65.85	32.93	10.0	18.0	0.0	-117.2	-6.4
32	2.62	-2.2	2.63	971.76	68.02	34.01	10.0	18.0	0.0	-120.2	-6.9
33	2.62	-2.3	2.63	1002.92	70.2	35.1	10.0	18.0	0.0	-129.1	-8.5
34	2.62	-2.2	2.63	1034.08	72.39	36.19	10.0	18.0	0.0	-126.1	-7.9
35	2.62	-2.3	2.63	1065.24	74.57	37.28	10.0	18.0	0.0	-135.5	-9.6
36	2.62	-2.2	2.63	1096.36	76.74	38.37	10.0	18.0	0.0	-132.1	-9.0
37	2.62	-2.2	2.63	1125.71	78.8	39.4	10.0	18.0	0.0	-134.9	-9.5
38	2.62	-2.3	2.63	1155.21	80.86	40.43	10.0	18.0	0.0	-144.7	-11.2
39	2.62	-2.2	2.63	1184.72	82.93	41.47	10.0	18.0	0.0	-140.6	-10.5
40	2.62	-2.2	2.63	1214.07	84.99	42.49	10.0	18.0	0.0	-143.4	-11.0
41	2.62	-2.3	2.63	1243.57	87.05	43.53	10.0	18.0	0.0	-153.6	-12.8
42	2.62	-2.2	2.63	1273.08	89.12	44.56	10.0	18.0	0.0	-149.0	-12.0

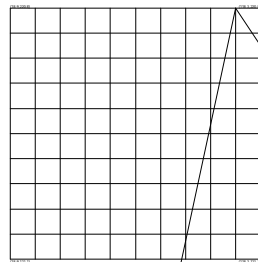
43	2.62	-2.3	2.63	1302.58	91.18	45.59	10.0	18.0	0.0	-159.6	-13.8
44	2.62	-2.2	2.63	1332.08	93.25	46.62	10.0	18.0	0.0	-154.7	-12.9
45	2.62	-2.2	2.63	1361.44	95.3	47.65	10.0	18.0	0.0	-157.5	-13.4
46	2.62	-2.3	2.63	1390.94	97.37	48.68	10.0	18.0	0.0	-168.6	-15.4
47	2.62	-2.2	2.63	1412.24	98.86	49.43	10.0	18.0	0.0	-162.3	-14.3
48	2.62	-2.2	2.63	1424.85	99.74	49.87	10.0	18.0	0.0	-163.4	-14.5
49	2.62	-2.3	2.63	1437.62	100.63	50.32	10.0	18.0	0.0	-173.1	-16.2
50	2.62	-2.2	2.63	1450.38	101.53	50.76	10.0	18.0	0.0	-165.6	-14.9
51	2.62	-2.3	2.63	1463.14	102.42	51.21	10.0	18.0	0.0	-175.5	-16.6
52	2.62	-2.2	2.63	1475.9	103.31	51.66	10.0	18.0	0.0	-167.8	-15.3
53	2.62	-2.2	2.63	1488.51	104.2	52.1	10.0	18.0	0.0	-169.0	-15.4
54	2.62	-2.3	2.63	1499.26	104.95	52.47	10.0	18.0	0.0	-178.8	-17.2
55	2.62	-2.2	2.63	1504.56	105.32	52.66	10.0	18.0	0.0	-170.2	-15.7
56	2.62	-2.2	2.63	1509.7	105.68	52.84	10.0	18.0	0.0	-170.6	-15.7
57	2.62	-2.3	2.63	1515.0	106.05	53.02	10.0	18.0	0.0	-180.0	-17.4
58	2.62	-2.2	2.63	1520.29	106.42	53.21	10.0	18.0	0.0	-171.3	-15.9
59	2.62	-2.0	2.63	1525.17	106.76	53.38	10.0	18.0	0.0	-154.9	-13.0
60	2.62	2.1	2.63	1525.24	106.77	53.38	10.0	18.0	0.0	129.8	36.9
61	2.62	1.8	2.63	1521.06	106.47	53.24	10.0	18.0	0.0	111.4	33.6
62	2.62	1.8	2.63	1517.18	106.2	53.1	10.0	18.0	0.0	111.2	33.6
63	2.62	1.8	2.63	1513.29	105.93	52.97	10.0	18.0	0.0	111.1	33.6
64	2.62	2.1	2.63	1509.25	105.65	52.82	10.0	18.0	0.0	129.0	36.7
65	2.62	1.8	2.63	1507.76	105.54	52.77	10.0	18.0	0.0	111.0	33.6
66	2.62	1.8	2.63	1506.55	105.46	52.73	10.0	18.0	0.0	111.1	33.6
67	2.62	1.8	2.63	1505.34	105.37	52.69	10.0	18.0	0.0	111.1	33.6
68	2.62	2.1	2.63	1503.85	105.27	52.63	10.0	18.0	0.0	129.2	36.8
69	2.62	1.8	2.63	1502.35	105.16	52.58	10.0	18.0	0.0	111.2	33.6
70	2.62	1.8	2.63	1501.15	105.08	52.54	10.0	18.0	0.0	111.3	33.6
71	2.62	1.8	2.63	1499.94	105.0	52.5	10.0	18.0	0.0	111.4	33.6
72	2.62	2.1	2.63	1498.44	104.89	52.45	10.0	18.0	0.0	129.4	36.8
73	2.62	1.8	2.63	1496.95	104.79	52.39	10.0	18.0	0.0	111.5	33.7
74	2.62	1.8	2.63	1495.74	104.7	52.35	10.0	18.0	0.0	111.6	33.7
75	2.62	1.8	2.63	1494.53	104.62	52.31	10.0	18.0	0.0	111.7	33.7
76	2.62	2.1	2.63	1494.9	104.64	52.32	10.0	18.0	0.0	129.8	36.9
77	2.62	1.8	2.63	1507.35	105.51	52.76	10.0	18.0	0.0	113.1	33.9
78	2.62	1.8	2.63	1520.1	106.41	53.2	10.0	18.0	0.0	114.3	34.2
79	2.62	1.8	2.63	1532.85	107.3	53.65	10.0	18.0	0.0	115.6	34.4
80	2.62	2.1	2.63	1545.3	108.17	54.09	10.0	18.0	0.0	135.3	37.8
81	2.62	1.8	2.63	1557.76	109.04	54.52	10.0	18.0	0.0	118.0	34.8
82	2.62	1.8	2.63	1570.51	109.94	54.97	10.0	18.0	0.0	119.3	35.0
83	2.62	1.8	2.63	1583.25	110.83	55.41	10.0	18.0	0.0	120.5	35.2
84	2.62	1.8	2.63	1596.0	111.72	55.86	10.0	18.0	0.0	121.8	35.5
85	2.62	2.1	2.63	1608.46	112.59	56.3	10.0	18.0	0.0	142.3	39.1
86	2.62	1.8	2.63	1620.91	113.46	56.73	10.0	18.0	0.0	124.2	35.9
87	2.62	1.8	2.63	1633.66	114.36	57.18	10.0	18.0	0.0	125.5	36.1
88	2.62	1.8	2.63	1646.4	115.25	57.62	10.0	18.0	0.0	126.7	36.3
89	2.62	2.1	2.63	1658.86	116.12	58.06	10.0	18.0	0.0	147.8	40.0
90	2.62	1.8	2.63	1671.31	116.99	58.5	10.0	18.0	0.0	129.2	36.8
91	2.62	1.8	2.63	1684.06	117.88	58.94	10.0	18.0	0.0	130.4	37.0
92	2.62	1.8	2.63	1696.81	118.78	59.39	10.0	18.0	0.0	131.7	37.2
93	2.62	2.1	2.63	1709.26	119.65	59.82	10.0	18.0	0.0	153.3	41.0
94	2.62	2.6	2.63	1720.85	120.46	60.23	10.0	18.0	0.0	195.2	48.3
95	2.62	10.0	2.66	1725.03	120.75	60.38	10.0	18.0	0.0	795.1	153.4
96	2.62	10.3	2.67	1720.78	120.45	60.23	10.0	18.0	0.0	813.9	156.7
97	2.62	10.0	2.66	1716.54	120.16	60.08	10.0	18.0	0.0	791.5	152.7
98	2.62	10.3	2.67	1712.29	119.86	59.93	10.0	18.0	0.0	810.2	156.0
99	2.62	10.0	2.66	1708.04	119.56	59.78	10.0	18.0	0.0	787.9	152.1
100	2.62	10.3	2.67	1703.8	119.27	59.63	10.0	18.0	0.0	806.5	155.4
101	2.62	10.0	2.66	1699.55	118.97	59.48	10.0	18.0	0.0	784.3	151.5

102	2.62	10.3	2.67	1695.3	118.67	59.34	10.0	18.0	0.0	802.8	154.7
103	2.62	10.0	2.66	1691.05	118.37	59.19	10.0	18.0	0.0	780.7	150.9
104	2.62	10.3	2.67	1686.81	118.08	59.04	10.0	18.0	0.0	799.1	154.1
105	2.62	10.0	2.66	1685.87	118.01	59.01	10.0	18.0	0.0	778.7	150.5
106	2.62	10.3	2.67	1686.54	118.06	59.03	10.0	18.0	0.0	799.3	154.1
107	2.62	10.0	2.66	1687.21	118.1	59.05	10.0	18.0	0.0	779.7	150.7
108	2.62	10.3	2.67	1687.87	118.15	59.08	10.0	18.0	0.0	800.3	154.3
109	2.62	10.0	2.66	1688.54	118.2	59.1	10.0	18.0	0.0	780.6	150.8
110	2.62	10.3	2.67	1689.21	118.24	59.12	10.0	18.0	0.0	801.4	154.5
111	2.62	10.0	2.66	1689.88	118.29	59.15	10.0	18.0	0.0	781.6	151.0
112	2.62	10.3	2.67	1690.55	118.34	59.17	10.0	18.0	0.0	802.4	154.6
113	2.62	10.0	2.66	1691.22	118.39	59.19	10.0	18.0	0.0	782.6	151.2
114	2.62	10.3	2.67	1691.88	118.43	59.22	10.0	18.0	0.0	803.4	154.8
115	2.62	10.0	2.66	1694.69	118.63	59.31	10.0	18.0	0.0	784.6	151.5
116	2.62	10.3	2.67	1697.62	118.83	59.42	10.0	18.0	0.0	806.5	155.4
117	2.62	10.0	2.66	1700.55	119.04	59.52	10.0	18.0	0.0	787.7	152.1
118	2.62	10.3	2.67	1703.48	119.24	59.62	10.0	18.0	0.0	809.6	155.9
119	2.62	10.0	2.66	1706.41	119.45	59.72	10.0	18.0	0.0	790.8	152.6
120	2.62	10.3	2.67	1709.34	119.65	59.83	10.0	18.0	0.0	812.8	156.5
121	2.62	10.0	2.66	1712.27	119.86	59.93	10.0	18.0	0.0	793.9	153.2
122	2.62	10.3	2.67	1715.2	120.06	60.03	10.0	18.0	0.0	816.0	157.0
123	2.62	10.0	2.66	1718.13	120.27	60.13	10.0	18.0	0.0	797.0	153.7
124	2.62	10.3	2.67	1721.06	120.47	60.24	10.0	18.0	0.0	819.2	157.6
125	2.62	10.0	2.66	1723.99	120.68	60.34	10.0	18.0	0.0	800.1	154.3
126	2.62	10.3	2.67	1726.74	120.87	60.44	10.0	18.0	0.0	822.2	158.1
127	2.62	10.0	2.66	1729.0	121.03	60.52	10.0	18.0	0.0	802.8	154.7
128	2.62	10.3	2.67	1731.26	121.19	60.59	10.0	18.0	0.0	824.8	158.6
129	2.62	10.0	2.66	1733.52	121.35	60.67	10.0	18.0	0.0	805.3	155.2
130	2.62	13.3	2.7	1732.23	121.26	60.63	10.0	18.0	0.0	1077.8	202.9
131	2.62	30.0	3.03	1705.3	119.37	59.69	10.0	18.0	0.0	2588.2	467.4
132	2.62	30.0	3.03	1656.57	115.96	57.98	10.0	18.0	0.0	2514.3	454.4
133	2.62	29.8	3.02	1608.12	112.57	56.28	10.0	18.0	0.0	2421.6	438.2
134	2.62	30.0	3.03	1559.68	109.18	54.59	10.0	18.0	0.0	2367.4	428.7
135	2.62	30.0	3.03	1510.94	105.77	52.88	10.0	18.0	0.0	2293.5	415.8
136	2.62	29.8	3.02	1462.5	102.37	51.19	10.0	18.0	0.0	2202.6	399.9
137	2.62	30.0	3.03	1414.05	98.98	49.49	10.0	18.0	0.0	2146.7	390.1
138	2.62	38.1	3.33	1350.85	94.56	47.28	10.0	18.0	0.0	2784.3	501.7
139	2.62	43.7	3.63	1252.94	87.71	43.85	10.0	18.0	0.0	3146.4	565.1
140	2.62	43.7	3.63	1144.06	80.08	40.04	10.0	18.0	0.0	2873.0	517.3
141	2.62	43.7	3.63	1035.19	72.46	36.23	10.0	18.0	0.0	2599.6	469.4
142	2.62	43.7	3.63	926.31	64.84	32.42	10.0	18.0	0.0	2326.2	421.5
143	2.62	43.7	3.63	817.44	57.22	28.61	10.0	18.0	0.0	2052.8	373.6
144	2.62	43.7	3.63	708.56	49.6	24.8	10.0	18.0	0.0	1779.4	325.7
145	2.62	43.7	3.63	599.69	41.98	20.99	10.0	18.0	0.0	1506.0	277.9
146	2.62	43.8	3.63	490.52	34.34	17.17	10.0	18.0	0.0	1237.7	230.9
147	2.62	43.7	3.63	381.35	26.69	13.35	10.0	18.0	0.0	957.7	181.8
148	2.62	43.7	3.63	272.48	19.07	9.54	10.0	18.0	0.0	684.3	134.0
149	2.62	43.7	3.63	163.6	11.45	5.73	6.0	16.0	0.0	410.9	72.0
150	2.62	43.7	3.63	54.68	3.83	1.91	6.0	16.0	0.0	137.4	29.7

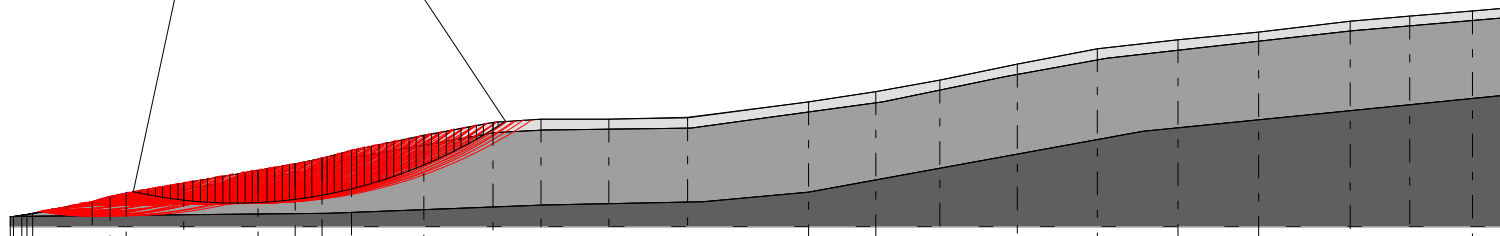
Indice

1.Dati generali	1
2.Vertici profilo	1
3.Vertici strato1	2
4.Vertici strato2	2
5.Vertici superficie Nr...1	3
6.Coefficienti parziali azioni	3
7.Coefficienti parziali per i parametri geotecnici del terreno	3
8.Stratigrafia	3
Indice	7

VERIFICA ANALITICA DI STABILITA' DI VERSANTE DA 0 A 100 m IN CONDIZIONI SISMICHE



$x_c=108.34$ $y_c=220.80$ $R_c=193.71$ $F_s=1.48$



- Strato...1
 $g=1.9t/m^3$
 $F_i=16^\circ$
 $c=6$ kN/m²
- Strato...2
 $g=1.9t/m^3$
 $F_i=18^\circ$
 $c=10$ kN/m²
- Strato...3
 $g=2.0t/m^3$
 $F_i=28^\circ$
 $c=20$ kN/m²

Quote	0.00	21.73	27.52	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58
Distanze Parziali	0.00	21.73	23.61	22.98	29.36	14.68	10.85	11.51	28.70	27.64	18.95	26.80	31.27	48.02	26.65	25.53	30.63	31.91	31.91	31.91	36.38	23.61	24.89	14.68
Distanze Progressive	0.00	21.73	32.55	68.93	98.28	112.96	123.81	135.32	164.02	191.66	210.61	237.41	268.69	316.70	343.36	368.89	399.52	431.43	463.34	495.25	531.63	555.24	580.13	594.81

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.179321/10.992644
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	18.89 m
Ordinata vertice sinistro inferiore yi	121.08 m
Ascissa vertice destro superiore xs	118.27 m
Ordinata vertice destro superiore ys	220.8 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.07
Coefficiente azione sismica verticale	0.035

Vertici profilo

Nr	X (m)	y (m)
1	18.92	21.72
2	20.2	21.82
3	23.39	22.31
4	25.56	22.62
5	27.85	23.08
6	51.47	27.52
7	58.49	29.55
8	64.87	30.91
9	87.85	35.1
10	117.2	40.2
11	131.88	42.56
12	142.73	44.86
13	154.24	48.08
14	182.94	53.91
15	210.58	59.17
16	229.53	60.3
17	256.33	60.34
18	287.61	61.04
19	335.62	67.34
20	362.28	71.24
21	387.81	75.96
22	418.44	82.15
23	450.35	88.44
24	482.26	91.8
25	514.17	95.06
26	550.55	99.19

27	574.16	101.27
28	599.05	103.26
29	613.73	104.58

Vertici strato1

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	20.57	21.81
4	104.62	35.3
5	135.54	39.67
6	153.63	44.79
7	211.19	55.12
8	230.71	56.21
9	288.82	56.91
10	326.12	62.02
11	365.14	67.36
12	413.19	77.12
13	453.74	84.46
14	489.93	88.55
15	551.3	95.49
16	613.73	100.8

Vertici strato2

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	18.92	21.72
4	145.78	23.14
5	231.29	26.37
6	293.79	27.74
7	335.62	31.34
8	417.99	46.31
9	468.28	55.46
10	557.71	64.42
11	613.64	70.03
12	613.73	70.05

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		

2	10	18	1.9
3	20	28	2.0



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.48
Ascissa centro superficie	108.34 m
Ordinata centro superficie	220.8 m
Raggio superficie	193.71 m

Numero di superfici esaminate....(192)

N°	Xo	Yo	Ro	Fs
1	33.8	126.1	101.5	2.52
2	38.8	121.1	97.3	1.98
3	43.7	126.1	99.0	2.21
4	48.7	121.1	94.9	2.04
5	53.7	126.1	99.9	1.90
6	58.6	121.1	94.8	1.86
7	63.6	126.1	99.8	1.82
8	68.6	121.1	94.7	1.80
9	73.5	126.1	99.6	1.79
10	78.5	121.1	94.5	1.79
11	83.5	126.1	99.4	1.77
12	88.5	121.1	94.4	1.76
13	93.4	126.1	99.3	1.71
14	98.4	121.1	94.2	1.69
15	103.4	126.1	99.1	1.64
16	108.3	121.1	94.1	1.63
17	113.3	126.1	99.0	1.59
18	118.3	121.1	93.9	1.58
19	28.8	131.1	105.9	10.42
20	43.7	136.0	112.9	1.77
21	48.7	131.1	109.1	1.84
22	53.7	136.0	114.1	1.85
23	58.6	131.1	104.8	1.85
24	63.6	136.0	109.7	1.81
25	68.6	131.1	104.7	1.79
26	73.5	136.0	109.6	1.78
27	78.5	131.1	104.5	1.78
28	83.5	136.0	109.4	1.74
29	88.5	131.1	104.3	1.73
30	93.4	136.0	109.2	1.68
31	98.4	131.1	104.2	1.66
32	103.4	136.0	109.1	1.61
33	108.3	131.1	104.0	1.60
34	113.3	136.0	108.9	1.56
35	118.3	131.1	103.9	1.56
36	28.8	141.0	115.8	5.41
37	38.8	141.0	116.9	1.96
38	43.7	146.0	122.7	1.77
39	48.7	141.0	114.6	2.02
40	53.7	146.0	124.1	1.84
41	58.6	141.0	114.8	1.83
42	63.6	146.0	119.7	1.79
43	68.6	141.0	114.6	1.78

44	73.5	146.0	119.5	1.76
45	78.5	141.0	114.5	1.75
46	83.5	146.0	119.4	1.73
47	88.5	141.0	114.3	1.70
48	93.4	146.0	119.2	1.65
49	98.4	141.0	114.1	1.63
50	103.4	146.0	119.0	1.58
51	108.3	141.0	114.0	1.57
52	113.3	146.0	118.9	1.54
53	118.3	141.0	113.8	1.54
54	38.8	151.0	126.8	1.95
55	43.7	156.0	128.4	2.23
56	48.7	151.0	128.5	1.68
57	53.7	156.0	134.0	1.86
58	58.6	151.0	124.7	1.82
59	63.6	156.0	129.6	1.78
60	68.6	151.0	124.6	1.77
61	73.5	156.0	129.5	1.75
62	78.5	151.0	124.4	1.74
63	83.5	156.0	129.3	1.70
64	88.5	151.0	124.3	1.67
65	93.4	156.0	129.2	1.62
66	98.4	151.0	124.1	1.60
67	103.4	156.0	129.0	1.56
68	108.3	151.0	124.0	1.55
69	113.3	156.0	128.9	1.53
70	118.3	151.0	123.8	1.52
71	28.8	161.0	135.7	2.98
72	38.8	161.0	132.7	20.00
73	43.7	166.0	142.3	1.78
74	48.7	161.0	138.3	1.69
75	53.7	166.0	139.8	1.86
76	58.6	161.0	134.7	1.81
77	63.6	166.0	139.6	1.77
78	68.6	161.0	134.6	1.76
79	73.5	166.0	139.5	1.74
80	78.5	161.0	134.4	1.72
81	83.5	166.0	139.3	1.67
82	88.5	161.0	134.2	1.64
83	93.4	166.0	139.1	1.60
84	98.4	161.0	134.1	1.58
85	103.4	166.0	139.0	1.55
86	108.3	161.0	133.9	1.53
87	113.3	166.0	138.8	1.51
88	118.3	161.0	133.8	1.51
89	28.8	170.9	145.7	2.62
90	33.8	175.9	151.0	2.20
91	38.8	170.9	146.6	1.93
92	43.7	175.9	148.1	2.18
93	48.7	170.9	148.0	1.69
94	53.7	175.9	153.9	1.73
95	58.6	170.9	144.7	1.80
96	63.6	175.9	149.6	1.77
97	68.6	170.9	144.5	1.75
98	73.5	175.9	149.4	1.72
99	78.5	170.9	144.4	1.70
100	83.5	175.9	149.3	1.64
101	88.5	170.9	144.2	1.62
102	93.4	175.9	149.1	1.58

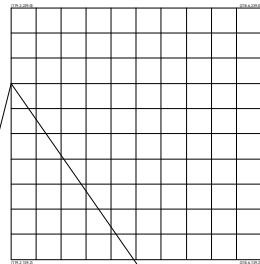
103	98.4	170.9	144.0	1.56
104	103.4	175.9	148.9	1.53
105	108.3	170.9	143.9	1.52
106	113.3	175.9	148.8	1.50
107	118.3	170.9	143.7	1.50
108	23.9	185.9	160.4	7.41
109	38.8	180.9	156.5	1.91
110	43.7	185.9	162.0	1.77
111	48.7	180.9	157.8	1.69
112	53.7	185.9	159.4	1.86
113	58.6	180.9	154.6	1.79
114	63.6	185.9	159.5	1.76
115	68.6	180.9	154.5	1.74
116	73.5	185.9	159.4	1.70
117	78.5	180.9	154.3	1.67
118	83.5	185.9	159.2	1.62
119	88.5	180.9	154.2	1.60
120	93.4	185.9	159.1	1.56
121	98.4	180.9	154.0	1.55
122	103.4	185.9	158.9	1.52
123	108.3	180.9	153.8	1.51
124	113.3	185.9	158.8	1.49
125	118.3	180.9	153.7	1.49
126	23.9	195.9	170.4	4.44
127	28.8	190.9	165.6	2.24
128	33.8	195.9	170.9	2.12
129	38.8	190.9	166.4	1.90
130	43.7	195.9	171.9	1.77
131	48.7	190.9	167.7	1.69
132	53.7	195.9	173.4	1.64
133	58.6	190.9	164.6	1.78
134	63.6	195.9	169.5	1.75
135	68.6	190.9	164.4	1.73
136	73.5	195.9	169.4	1.68
137	78.5	190.9	164.3	1.65
138	83.5	195.9	169.2	1.60
139	88.5	190.9	164.1	1.58
140	93.4	195.9	169.0	1.55
141	98.4	190.9	164.0	1.53
142	103.4	195.9	168.9	1.51
143	108.3	190.9	163.8	1.50
144	113.3	195.9	168.7	1.49
145	118.3	190.9	163.7	1.49
146	38.8	200.9	176.3	1.89
147	43.7	205.8	181.8	1.76
148	48.7	200.9	177.5	1.69
149	53.7	205.8	179.0	1.87
150	58.6	200.9	178.9	1.77
151	63.6	205.8	179.5	1.75
152	68.6	200.9	174.4	1.71
153	73.5	205.8	179.3	1.66
154	78.5	200.9	174.3	1.63
155	83.5	205.8	179.2	1.59
156	88.5	200.9	174.1	1.56
157	93.4	205.8	179.0	1.53
158	98.4	200.9	173.9	1.52
159	103.4	205.8	178.8	1.50
160	108.3	200.9	173.8	1.49
161	113.3	205.8	178.7	1.48

162	118.3	200.9	173.6	1.48
163	23.9	215.8	190.3	2.96
164	28.8	210.8	185.5	2.33
165	33.8	215.8	190.8	2.07
166	38.8	210.8	182.3	4.33
167	43.7	215.8	187.7	2.05
168	48.7	210.8	187.4	1.69
169	53.7	215.8	188.9	1.86
170	58.6	210.8	184.5	1.77
171	63.6	215.8	193.8	1.72
172	68.6	210.8	184.4	1.69
173	73.5	215.8	189.3	1.64
174	78.5	210.8	184.2	1.61
175	83.5	215.8	189.1	1.57
176	88.5	210.8	184.1	1.55
177	93.4	215.8	189.0	1.53
178	98.4	210.8	183.9	1.51
179	103.4	215.8	188.8	1.49
180	108.3	210.8	183.7	1.48
181	113.3	215.8	188.6	1.48
182	118.3	210.8	183.6	1.48
183	28.8	220.8	195.5	2.28
184	38.8	220.8	196.1	1.87
185	48.7	220.8	197.2	1.69
186	58.6	220.8	198.7	1.72
187	68.6	220.8	194.3	1.67
188	78.5	220.8	194.2	1.59
189	88.5	220.8	194.0	1.54
190	98.4	220.8	193.9	1.50
191	108.3	220.8	193.7	1.48
192	118.3	220.8	193.6	1.48

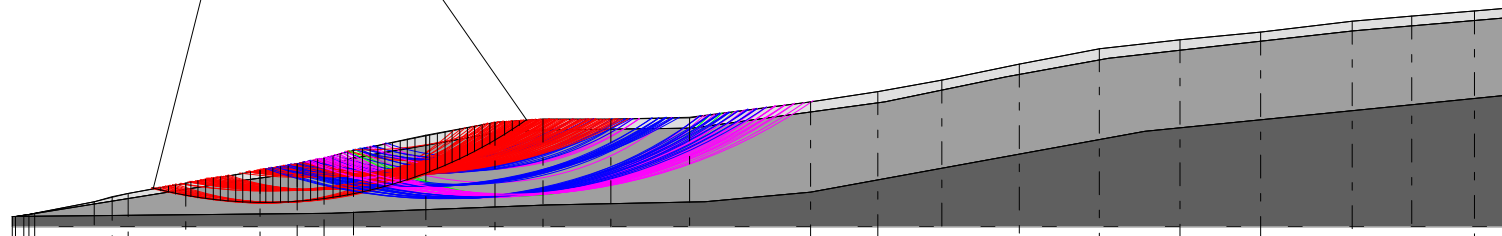
Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Vertici strato2	2
5.Coefficienti parziali azioni	3
6.Coefficienti parziali per i parametri geotecnici del terreno	3
7.Stratigrafia	3
8.Risultati analisi pendio [A2+M2+R2]	3
Indice	8

VERIFICA ANALITICA DI STABILITA' DI VERSANTE DA 100 A 200 m IN CONDIZIONI SISMICHE



$x_c=119.19$ $y_c=209.04$ $R_c=181.79$ $F_s=1.48$



- Strato...1
 $g=1.9t/m^3$
 $F_i=16^\circ$
 $c=6\text{ kN/m}^2$
- Strato...2
 $g=1.9t/m^3$
 $F_i=18^\circ$
 $c=10\text{ kN/m}^2$
- Strato...3
 $g=2.0t/m^3$
 $F_i=28^\circ$
 $c=20\text{ kN/m}^2$

Quote	0.00	21.73	27.52	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58
Distanze Parziali	0.00	21.73	23.61	22.98	29.36	14.68	10.85	11.51	28.70	27.64	18.95	26.80	31.27	48.02	26.65	25.53	30.63	31.91	31.91	31.91	36.38	23.61	24.89	14.68
Distanze Progressive	0.00	21.73	32.55	68.93	98.28	112.96	123.81	135.32	164.02	191.66	210.61	237.41	268.69	316.70	343.36	368.89	399.52	431.43	463.34	495.25	531.63	555.24	580.13	594.81

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.179321/10.992644
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	119.19 m
Ordinata vertice sinistro inferiore yi	139.24 m
Ascissa vertice destro superiore xs	218.57 m
Ordinata vertice destro superiore ys	238.95 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.07
Coefficiente azione sismica verticale	0.035

Vertici profilo

Nr	X (m)	y (m)
1	18.92	21.72
2	20.2	21.82
3	23.39	22.31
4	25.56	22.62
5	27.85	23.08
6	51.47	27.52
7	58.49	29.55
8	64.87	30.91
9	87.85	35.1
10	117.2	40.2
11	131.88	42.56
12	142.73	44.86
13	154.24	48.08
14	182.94	53.91
15	210.58	59.17
16	229.53	60.3
17	256.33	60.34
18	287.61	61.04
19	335.62	67.34
20	362.28	71.24
21	387.81	75.96
22	418.44	82.15
23	450.35	88.44
24	482.26	91.8
25	514.17	95.06
26	550.55	99.19

27	574.16	101.27
28	599.05	103.26
29	613.73	104.58

Vertici strato1

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	20.57	21.81
4	104.62	35.3
5	135.54	39.67
6	153.63	44.79
7	211.19	55.12
8	230.71	56.21
9	288.82	56.91
10	326.12	62.02
11	365.14	67.36
12	413.19	77.12
13	453.74	84.46
14	489.93	88.55
15	551.3	95.49
16	613.73	100.8

Vertici strato2

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	18.92	21.72
4	145.78	23.14
5	231.29	26.37
6	293.79	27.74
7	335.62	31.34
8	417.99	46.31
9	468.28	55.46
10	557.71	64.42
11	613.64	70.03
12	613.73	70.05

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		

2	10	18	1.9
3	20	28	2.0



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.48
Ascissa centro superficie	119.19 m
Ordinata centro superficie	209.04 m
Raggio superficie	181.79 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	119.2	139.2	112.0	1.54
2	124.2	144.2	116.9	1.52
3	129.1	139.2	107.0	1.52
4	134.1	144.2	111.9	1.51
5	139.1	139.2	106.8	1.51
6	144.0	144.2	106.7	1.50
7	149.0	139.2	101.6	1.50
8	154.0	144.2	106.4	1.52
9	158.9	139.2	101.3	1.54
10	163.9	144.2	106.1	1.59
11	168.9	139.2	101.0	1.63
12	173.8	144.2	105.8	1.70
13	178.8	139.2	95.4	1.77
14	183.8	144.2	100.2	1.86
15	188.8	139.2	95.0	1.94
16	193.7	144.2	99.5	2.06
17	198.7	139.2	93.9	2.18
18	203.7	144.2	103.8	2.33
19	208.6	139.2	98.3	2.48
20	213.6	144.2	114.6	2.62
21	218.6	139.2	109.4	2.77
22	119.2	149.2	122.0	1.52
23	124.2	154.2	126.9	1.51
24	129.1	149.2	117.0	1.51
25	134.1	154.2	121.9	1.50
26	139.1	149.2	116.8	1.50
27	144.0	154.2	116.7	1.50
28	149.0	149.2	111.5	1.50
29	154.0	154.2	116.4	1.52
30	158.9	149.2	111.2	1.55
31	163.9	154.2	116.1	1.59
32	168.9	149.2	110.9	1.65
33	173.8	154.2	115.7	1.72
34	178.8	149.2	105.4	1.79
35	183.8	154.2	110.2	1.88
36	188.8	149.2	105.0	1.96
37	193.7	154.2	109.3	2.08
38	198.7	149.2	109.3	2.20
39	203.7	154.2	113.6	2.33
40	208.6	149.2	114.0	2.47
41	213.6	154.2	124.5	2.57
42	218.6	149.2	119.3	2.71
43	119.2	159.2	132.0	1.51

44	124.2	164.2	136.9	1.50
45	129.1	159.2	127.0	1.50
46	134.1	164.2	131.8	1.49
47	139.1	159.2	126.7	1.49
48	144.0	164.2	126.6	1.50
49	149.0	159.2	121.5	1.50
50	154.0	164.2	126.3	1.53
51	158.9	159.2	121.2	1.56
52	163.9	164.2	126.0	1.61
53	168.9	159.2	120.9	1.66
54	173.8	164.2	125.7	1.73
55	178.8	159.2	120.6	1.80
56	183.8	164.2	125.4	1.90
57	188.8	159.2	114.9	1.98
58	193.7	164.2	124.5	2.10
59	198.7	159.2	119.1	2.21
60	203.7	164.2	134.9	2.32
61	208.6	159.2	129.7	2.44
62	213.6	164.2	134.4	2.53
63	218.6	159.2	129.2	2.65
64	119.2	169.2	141.9	1.50
65	124.2	174.1	146.8	1.49
66	129.1	169.2	136.9	1.49
67	134.1	174.1	141.8	1.49
68	139.1	169.2	136.7	1.49
69	144.0	174.1	136.6	1.50
70	149.0	169.2	131.5	1.51
71	154.0	174.1	136.3	1.54
72	158.9	169.2	131.2	1.57
73	163.9	174.1	136.0	1.62
74	168.9	169.2	130.8	1.67
75	173.8	174.1	135.7	1.75
76	178.8	169.2	130.5	1.81
77	183.8	174.1	135.3	1.91
78	188.8	169.2	130.0	2.00
79	193.7	174.1	139.9	2.10
80	198.7	169.2	134.5	2.21
81	203.7	174.1	144.8	2.30
82	208.6	169.2	139.6	2.41
83	213.6	174.1	144.3	2.49
84	218.6	169.2	139.1	2.60
85	119.2	179.1	151.9	1.49
86	124.2	184.1	156.8	1.49
87	129.1	179.1	146.9	1.49
88	134.1	184.1	151.8	1.49
89	139.1	179.1	146.7	1.50
90	144.0	184.1	146.6	1.50
91	149.0	179.1	141.4	1.52
92	154.0	184.1	146.2	1.55
93	158.9	179.1	141.1	1.58
94	163.9	184.1	145.9	1.64
95	168.9	179.1	140.8	1.69
96	173.8	184.1	145.6	1.76
97	178.8	179.1	140.5	1.83
98	183.8	184.1	145.3	1.93
99	188.8	179.1	145.2	2.01
100	193.7	184.1	149.7	2.11
101	198.7	179.1	150.1	2.20
102	203.7	184.1	154.7	2.28

103	208.6	179.1	149.5	2.38
104	213.6	184.1	154.2	2.45
105	218.6	179.1	148.9	2.55
106	119.2	189.1	161.9	1.49
107	124.2	194.1	162.0	1.49
108	129.1	189.1	156.9	1.48
109	134.1	194.1	161.7	1.49
110	139.1	189.1	156.6	1.50
111	144.0	194.1	156.5	1.51
112	149.0	189.1	151.4	1.53
113	154.0	194.1	156.2	1.56
114	158.9	189.1	151.1	1.60
115	163.9	194.1	155.9	1.65
116	168.9	189.1	150.8	1.70
117	173.8	194.1	155.6	1.78
118	178.8	189.1	150.4	1.85
119	183.8	194.1	160.4	1.94
120	188.8	189.1	155.1	2.02
121	193.7	194.1	165.2	2.11
122	198.7	189.1	159.9	2.19
123	203.7	194.1	164.6	2.27
124	208.6	189.1	159.4	2.36
125	213.6	194.1	164.1	2.42
126	218.6	189.1	158.8	2.51
127	119.2	199.1	171.8	1.48
128	124.2	204.1	171.9	1.49
129	129.1	199.1	166.8	1.49
130	134.1	204.1	171.7	1.50
131	139.1	199.1	161.7	1.50
132	144.0	204.1	166.5	1.52
133	149.0	199.1	161.3	1.54
134	154.0	204.1	166.2	1.58
135	158.9	199.1	150.9	1.60
136	163.9	204.1	165.8	1.67
137	168.9	199.1	160.7	1.72
138	173.8	204.1	165.5	1.80
139	178.8	199.1	160.4	1.86
140	183.8	204.1	170.3	1.95
141	188.8	199.1	164.9	2.03
142	193.7	204.1	175.1	2.11
143	198.7	199.1	169.8	2.18
144	203.7	204.1	174.5	2.25
145	208.6	199.1	169.3	2.34
146	213.6	204.1	174.0	2.39
147	218.6	199.1	168.7	2.47
148	119.2	209.0	181.8	1.48
149	124.2	214.0	181.9	1.49
150	129.1	209.0	176.8	1.49
151	134.1	214.0	181.6	1.50
152	139.1	209.0	171.6	1.51
153	144.0	214.0	176.4	1.53
154	149.0	209.0	171.3	1.55
155	154.0	214.0	176.1	1.59
156	158.9	209.0	171.0	1.63
157	163.9	214.0	175.8	1.69
158	168.9	209.0	170.7	1.74
159	173.8	214.0	175.5	1.81
160	178.8	209.0	170.4	1.88
161	183.8	214.0	180.1	1.96

162	188.8	209.0	174.8	2.03
163	193.7	214.0	185.0	2.11
164	198.7	209.0	179.7	2.17
165	203.7	214.0	184.4	2.24
166	208.6	209.0	179.2	2.31
167	213.6	214.0	183.8	2.36
168	218.6	209.0	178.6	2.44
169	119.2	219.0	191.8	1.48
170	124.2	224.0	191.8	1.49
171	129.1	219.0	186.7	1.49
172	134.1	224.0	191.6	1.51
173	139.1	219.0	181.6	1.52
174	144.0	224.0	186.4	1.54
175	149.0	219.0	181.3	1.56
176	154.0	224.0	186.1	1.61
177	158.9	219.0	180.9	1.64
178	163.9	224.0	185.8	1.70
179	168.9	219.0	180.6	1.76
180	173.8	224.0	185.5	1.83
181	178.8	219.0	180.2	1.89
182	183.8	224.0	190.0	1.97
183	188.8	219.0	190.2	2.04
184	193.7	224.0	194.8	2.10
185	198.7	219.0	189.6	2.17
186	203.7	224.0	194.3	2.22
187	208.6	219.0	189.1	2.29
188	213.6	224.0	193.7	2.34
189	218.6	219.0	188.5	2.41
190	119.2	229.0	196.9	1.49
191	124.2	234.0	201.8	1.49
192	129.1	229.0	196.7	1.50
193	134.1	234.0	196.7	1.52
194	139.1	229.0	191.5	1.53
195	144.0	234.0	196.4	1.55
196	149.0	229.0	191.2	1.58
197	154.0	234.0	196.0	1.62
198	158.9	229.0	190.9	1.66
199	163.9	234.0	195.7	1.72
200	168.9	229.0	190.6	1.77
201	173.8	234.0	195.4	1.85
202	178.8	229.0	195.3	1.91
203	183.8	234.0	199.8	1.98
204	188.8	229.0	200.1	2.04
205	193.7	234.0	204.7	2.10
206	198.7	229.0	199.5	2.16
207	203.7	234.0	204.2	2.21
208	208.6	229.0	199.0	2.27
209	213.6	234.0	203.6	2.32
210	218.6	229.0	198.4	2.38
211	119.2	239.0	206.9	1.49
212	129.1	239.0	206.7	1.51
213	139.1	239.0	201.5	1.54
214	149.0	239.0	201.2	1.59
215	158.9	239.0	200.9	1.68
216	168.9	239.0	200.5	1.79
217	178.8	239.0	205.2	1.92
218	188.8	239.0	210.0	2.04
219	198.7	239.0	209.4	2.15
220	208.6	239.0	208.9	2.25

221

218.6

239.0

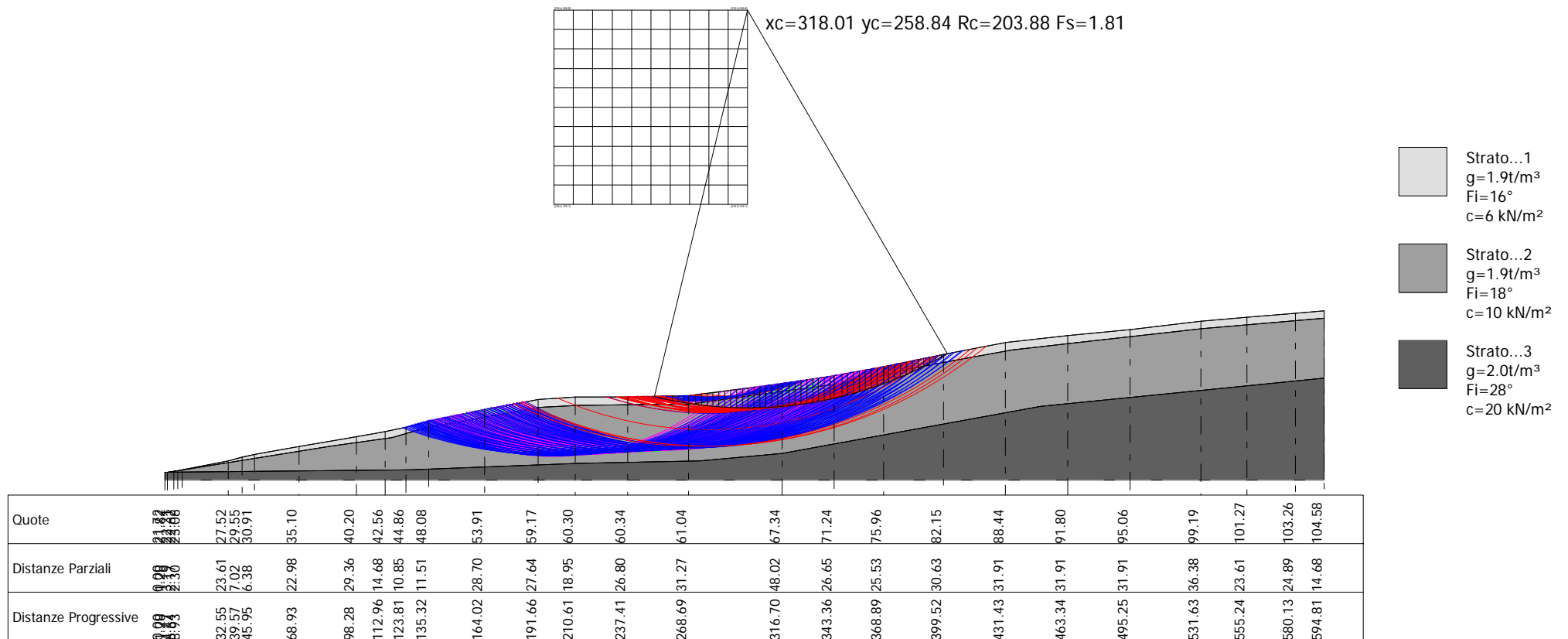
208.3

2.35

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Vertici strato2	2
5.Coefficienti parziali azioni	3
6.Coefficienti parziali per i parametri geotecnici del terreno	3
7.Stratigrafia	3
8.Risultati analisi pendio [A2+M2+R2]	3
Indice	8

VERIFICA ANALITICA DI STABILITA' DI VERSANTE DA 200 A 300 m IN CONDIZIONI SISMICHE



Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.179321/10.992644
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	218.62 m
Ordinata vertice sinistro inferiore yi	159.12 m
Ascissa vertice destro superiore xs	318.01 m
Ordinata vertice destro superiore ys	258.84 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.07
Coefficiente azione sismica verticale	0.035

Vertici profilo

Nr	X (m)	y (m)
1	18.92	21.72
2	20.2	21.82
3	23.39	22.31
4	25.56	22.62
5	27.85	23.08
6	51.47	27.52
7	58.49	29.55
8	64.87	30.91
9	87.85	35.1
10	117.2	40.2
11	131.88	42.56
12	142.73	44.86
13	154.24	48.08
14	182.94	53.91
15	210.58	59.17
16	229.53	60.3
17	256.33	60.34
18	287.61	61.04
19	335.62	67.34
20	362.28	71.24
21	387.81	75.96
22	418.44	82.15
23	450.35	88.44
24	482.26	91.8
25	514.17	95.06
26	550.55	99.19

27	574.16	101.27
28	599.05	103.26
29	613.73	104.58

Vertici strato1

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	20.57	21.81
4	104.62	35.3
5	135.54	39.67
6	153.63	44.79
7	211.19	55.12
8	230.71	56.21
9	288.82	56.91
10	326.12	62.02
11	365.14	67.36
12	413.19	77.12
13	453.74	84.46
14	489.93	88.55
15	551.3	95.49
16	613.73	100.8

Vertici strato2

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	18.92	21.72
4	145.78	23.14
5	231.29	26.37
6	293.79	27.74
7	335.62	31.34
8	417.99	46.31
9	468.28	55.46
10	557.71	64.42
11	613.64	70.03
12	613.73	70.05

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		

2	10	18	1.9
3	20	28	2.0



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.81
Ascissa centro superficie	318.01 m
Ordinata centro superficie	258.84 m
Raggio superficie	203.88 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	218.6	159.1	129.1	2.65
2	223.6	164.1	133.8	2.71
3	228.6	159.1	128.5	2.83
4	233.5	164.1	133.2	2.86
5	238.5	159.1	128.0	2.97
6	243.5	164.1	132.7	2.97
7	248.4	159.1	127.4	3.05
8	253.4	164.1	132.1	3.01
9	258.4	159.1	126.9	3.07
10	263.3	164.1	131.6	3.00
11	268.3	159.1	126.3	3.02
12	273.3	164.1	131.0	2.92
13	278.3	159.1	125.8	2.89
14	283.2	164.1	106.5	2.67
15	288.2	159.1	101.0	2.46
16	293.2	164.1	105.2	2.30
17	298.1	159.1	99.6	2.18
18	303.1	164.1	103.8	2.14
19	308.1	159.1	98.2	2.13
20	313.0	164.1	111.2	2.06
21	318.0	159.1	105.7	2.00
22	218.6	169.1	139.0	2.60
23	223.6	174.1	143.7	2.65
24	228.6	169.1	138.4	2.75
25	233.5	174.1	143.1	2.78
26	238.5	169.1	137.9	2.87
27	243.5	174.1	142.6	2.87
28	248.4	169.1	137.3	2.95
29	253.4	174.1	142.0	2.91
30	258.4	169.1	136.8	2.96
31	263.3	174.1	141.5	2.90
32	268.3	169.1	136.2	2.92
33	273.3	174.1	140.9	2.82
34	278.3	169.1	135.7	2.80
35	283.2	174.1	116.3	2.65
36	288.2	169.1	110.7	2.46
37	293.2	174.1	114.9	2.30
38	298.1	169.1	109.4	2.19
39	303.1	174.1	113.6	2.15
40	308.1	169.1	116.7	2.12
41	313.0	174.1	121.0	2.03
42	318.0	169.1	115.6	1.97
43	218.6	179.1	148.9	2.55

44	223.6	184.1	153.6	2.60
45	228.6	179.1	148.3	2.69
46	233.5	184.1	153.0	2.72
47	238.5	179.1	147.8	2.80
48	243.5	184.1	152.5	2.79
49	248.4	179.1	147.2	2.86
50	253.4	184.1	151.9	2.83
51	258.4	179.1	146.7	2.87
52	263.3	184.1	151.3	2.81
53	268.3	179.1	146.1	2.83
54	273.3	184.1	150.8	2.74
55	278.3	179.1	145.6	2.72
56	283.2	184.1	150.2	2.62
57	288.2	179.1	120.5	2.45
58	293.2	184.1	124.7	2.30
59	298.1	179.1	119.1	2.19
60	303.1	184.1	123.3	2.16
61	308.1	179.1	126.5	2.10
62	313.0	184.1	130.8	2.01
63	318.0	179.1	125.4	1.95
64	218.6	189.0	158.8	2.51
65	223.6	194.0	163.5	2.56
66	228.6	189.0	158.2	2.64
67	233.5	194.0	162.9	2.66
68	238.5	189.0	157.7	2.73
69	243.5	194.0	162.3	2.73
70	248.4	189.0	157.1	2.78
71	253.4	194.0	161.8	2.75
72	258.4	189.0	156.6	2.78
73	263.3	194.0	161.2	2.74
74	268.3	189.0	156.0	2.74
75	273.3	194.0	160.7	2.67
76	278.3	189.0	155.5	2.65
77	283.2	194.0	160.1	2.56
78	288.2	189.0	130.3	2.45
79	293.2	194.0	134.5	2.31
80	298.1	189.0	128.9	2.20
81	303.1	194.0	141.7	2.15
82	308.1	189.0	136.3	2.08
83	313.0	194.0	140.6	1.99
84	318.0	189.0	135.2	1.93
85	218.6	199.0	168.7	2.47
86	223.6	204.0	173.3	2.51
87	228.6	199.0	168.1	2.59
88	233.5	204.0	172.8	2.61
89	238.5	199.0	167.6	2.67
90	243.5	204.0	172.2	2.66
91	248.4	199.0	167.0	2.71
92	253.4	204.0	171.7	2.69
93	258.4	199.0	166.5	2.72
94	263.3	204.0	171.1	2.66
95	268.3	199.0	165.9	2.67
96	273.3	204.0	170.6	2.60
97	278.3	199.0	165.4	2.58
98	283.2	204.0	170.0	2.50
99	288.2	199.0	140.1	2.46
100	293.2	204.0	144.3	2.32
101	298.1	199.0	138.7	2.21
102	303.1	204.0	151.6	2.14

103	308.1	199.0	146.1	2.06
104	313.0	204.0	150.5	1.97
105	318.0	199.0	145.0	1.91
106	218.6	209.0	178.6	2.44
107	223.6	214.0	183.2	2.47
108	228.6	209.0	178.0	2.54
109	233.5	214.0	182.7	2.56
110	238.5	209.0	177.5	2.61
111	243.5	214.0	182.1	2.61
112	248.4	209.0	176.9	2.65
113	253.4	214.0	181.6	2.63
114	258.4	209.0	176.4	2.65
115	263.3	214.0	181.0	2.60
116	268.3	209.0	175.8	2.61
117	273.3	214.0	180.5	2.54
118	278.3	209.0	175.2	2.52
119	283.2	214.0	179.9	2.44
120	288.2	209.0	174.7	2.41
121	293.2	214.0	179.4	2.32
122	298.1	209.0	148.5	2.22
123	303.1	214.0	161.4	2.12
124	308.1	209.0	155.9	2.04
125	313.0	214.0	160.3	1.95
126	318.0	209.0	154.8	1.89
127	218.6	219.0	188.5	2.41
128	223.6	223.9	193.1	2.44
129	228.6	219.0	187.9	2.50
130	233.5	223.9	192.6	2.52
131	238.5	219.0	187.4	2.56
132	243.5	223.9	192.0	2.56
133	248.4	219.0	186.8	2.60
134	253.4	223.9	191.5	2.57
135	258.4	219.0	186.2	2.59
136	263.3	223.9	190.9	2.55
137	268.3	219.0	185.7	2.55
138	273.3	223.9	190.4	2.48
139	278.3	219.0	185.1	2.47
140	283.2	223.9	189.8	2.39
141	288.2	219.0	184.6	2.36
142	293.2	223.9	189.3	2.27
143	298.1	219.0	166.8	2.20
144	303.1	223.9	171.2	2.10
145	308.1	219.0	165.7	2.02
146	313.0	223.9	170.1	1.93
147	318.0	219.0	164.6	1.87
148	218.6	228.9	198.4	2.38
149	223.6	233.9	203.0	2.41
150	228.6	228.9	197.8	2.47
151	233.5	233.9	202.5	2.48
152	238.5	228.9	197.2	2.52
153	243.5	233.9	201.9	2.52
154	248.4	228.9	196.7	2.55
155	253.4	233.9	201.4	2.52
156	258.4	228.9	196.1	2.54
157	263.3	233.9	200.8	2.49
158	268.3	228.9	195.6	2.49
159	273.3	233.9	200.3	2.43
160	278.3	228.9	195.0	2.41
161	283.2	233.9	199.7	2.34

162	288.2	228.9	194.5	2.31
163	293.2	233.9	199.2	2.24
164	298.1	228.9	176.6	2.18
165	303.1	233.9	181.0	2.08
166	308.1	228.9	175.5	2.00
167	313.0	233.9	179.9	1.91
168	318.0	228.9	174.4	1.86
169	218.6	238.9	208.2	2.35
170	223.6	243.9	212.9	2.38
171	228.6	238.9	207.7	2.43
172	233.5	243.9	212.4	2.44
173	238.5	238.9	207.1	2.48
174	243.5	243.9	211.8	2.48
175	248.4	238.9	206.6	2.50
176	253.4	243.9	211.3	2.48
177	258.4	238.9	206.0	2.49
178	263.3	243.9	210.7	2.45
179	268.3	238.9	205.5	2.44
180	273.3	243.9	210.2	2.39
181	278.3	238.9	204.9	2.37
182	283.2	243.9	209.6	2.30
183	288.2	238.9	204.4	2.27
184	293.2	243.9	209.0	2.20
185	298.1	238.9	195.1	2.16
186	303.1	243.9	190.8	2.06
187	308.1	238.9	185.4	1.98
188	313.0	243.9	189.7	1.89
189	318.0	238.9	184.3	1.84
190	218.6	248.9	218.1	2.33
191	223.6	253.9	222.8	2.36
192	228.6	248.9	217.6	2.40
193	233.5	253.9	222.3	2.41
194	238.5	248.9	217.0	2.45
195	243.5	253.9	221.7	2.44
196	248.4	248.9	216.5	2.46
197	253.4	253.9	221.1	2.44
198	258.4	248.9	215.9	2.44
199	263.3	253.9	220.6	2.40
200	268.3	248.9	215.4	2.40
201	273.3	253.9	220.0	2.34
202	278.3	248.9	214.8	2.32
203	283.2	253.9	219.5	2.26
204	288.2	248.9	214.3	2.23
205	293.2	253.9	218.9	2.16
206	298.1	248.9	213.7	2.13
207	303.1	253.9	200.6	2.04
208	308.1	248.9	195.2	1.96
209	313.0	253.9	199.5	1.88
210	318.0	248.9	194.1	1.82
211	218.6	258.8	228.0	2.30
212	228.6	258.8	227.5	2.37
213	238.5	258.8	226.9	2.41
214	248.4	258.8	226.4	2.42
215	258.4	258.8	225.8	2.40
216	268.3	258.8	225.3	2.35
217	278.3	258.8	224.7	2.28
218	288.2	258.8	224.2	2.20
219	298.1	258.8	223.6	2.10
220	308.1	258.8	205.0	1.94

221

318.0

258.8

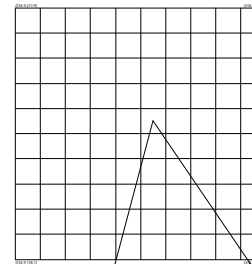
203.9

1.81

Indice

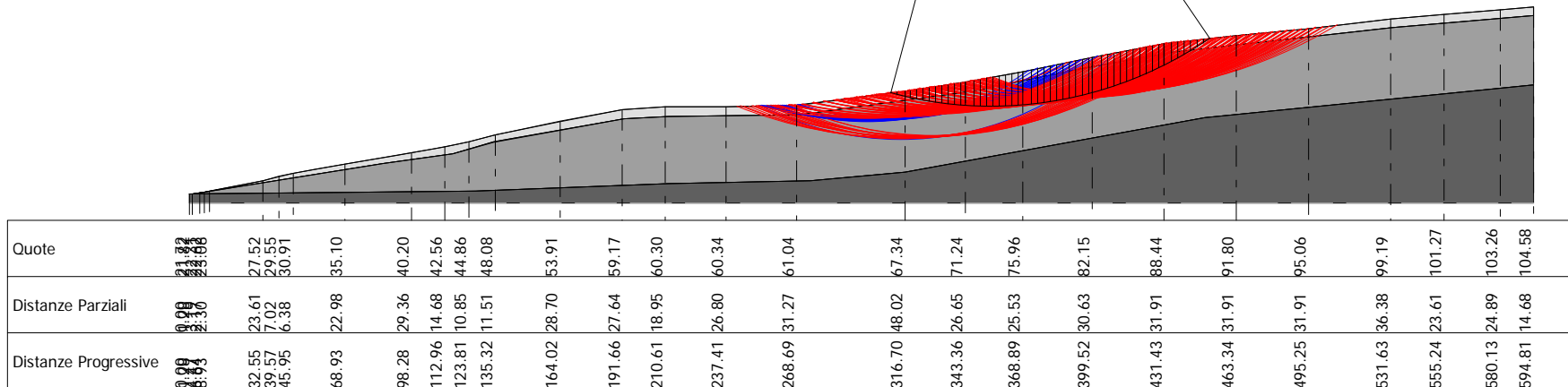
1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Vertici strato2	2
5.Coefficienti parziali azioni	3
6.Coefficienti parziali per i parametri geotecnici del terreno	3
7.Stratigrafia	3
8.Risultati analisi pendio [A2+M2+R2]	3
Indice	8

VERIFICA ANALITICA DI STABILITA' DI VERSANTE DA 300 A 400 m IN CONDIZIONI SISMICHE



$x_c=373.58$ $y_c=232.99$ $R_c=172.25$ $F_s=1.56$

- Strato...1
 $g=1.9t/m^3$
 $F_i=16^\circ$
 $c=6$ kN/m²
- Strato...2
 $g=1.9t/m^3$
 $F_i=18^\circ$
 $c=10$ kN/m²
- Strato...3
 $g=2.0t/m^3$
 $F_i=28^\circ$
 $c=20$ kN/m²



Quote	0.00	21.73	23.61	27.52	29.55	30.91	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58
Distanze Parziali	0.00	21.73	23.61	27.52	29.55	30.91	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58
Distanze Progressive	0.00	21.73	23.61	27.52	29.55	30.91	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.179321/10.992644
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	318.92 m
Ordinata vertice sinistro inferiore yi	178.15 m
Ascissa vertice destro superiore xs	418.31 m
Ordinata vertice destro superiore ys	277.86 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.07
Coefficiente azione sismica verticale	0.035

Vertici profilo

Nr	X (m)	y (m)
1	18.92	21.72
2	20.2	21.82
3	23.39	22.31
4	25.56	22.62
5	27.85	23.08
6	51.47	27.52
7	58.49	29.55
8	64.87	30.91
9	87.85	35.1
10	117.2	40.2
11	131.88	42.56
12	142.73	44.86
13	154.24	48.08
14	182.94	53.91
15	210.58	59.17
16	229.53	60.3
17	256.33	60.34
18	287.61	61.04
19	335.62	67.34
20	362.28	71.24
21	387.81	75.96
22	418.44	82.15
23	450.35	88.44
24	482.26	91.8
25	514.17	95.06
26	550.55	99.19

27	574.16	101.27
28	599.05	103.26
29	613.73	104.58

Vertici strato1

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	20.57	21.81
4	104.62	35.3
5	135.54	39.67
6	153.63	44.79
7	211.19	55.12
8	230.71	56.21
9	288.82	56.91
10	326.12	62.02
11	365.14	67.36
12	413.19	77.12
13	453.74	84.46
14	489.93	88.55
15	551.3	95.49
16	613.73	100.8

Vertici strato2

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	18.92	21.72
4	145.78	23.14
5	231.29	26.37
6	293.79	27.74
7	335.62	31.34
8	417.99	46.31
9	468.28	55.46
10	557.71	64.42
11	613.64	70.03
12	613.73	70.05

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		

2	10	18	1.9
3	20	28	2.0



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.56
Ascissa centro superficie	373.58 m
Ordinata centro superficie	232.99 m
Raggio superficie	172.25 m

Numero di superfici esaminate....(221)

N°	Xo	Yo	Ro	Fs
1	318.9	178.1	124.4	1.94
2	323.9	183.1	128.7	1.88
3	328.9	178.1	123.3	1.86
4	333.8	183.1	137.1	1.81
5	338.8	178.1	131.7	1.78
6	343.8	183.1	136.2	1.74
7	348.7	178.1	121.0	1.73
8	353.7	183.1	125.4	1.68
9	358.7	178.1	109.8	1.66
10	363.6	183.1	124.3	1.63
11	368.6	178.1	118.8	1.62
12	373.6	183.1	123.2	1.59
13	378.6	178.1	117.7	1.59
14	383.5	183.1	122.1	1.58
15	388.5	178.1	116.6	1.58
16	393.5	183.1	121.0	1.59
17	398.4	178.1	115.5	1.60
18	403.4	183.1	119.9	1.62
19	408.4	178.1	114.4	1.65
20	413.3	183.1	118.8	1.68
21	418.3	178.1	113.3	1.71
22	318.9	188.1	134.2	1.92
23	323.9	193.1	138.5	1.86
24	328.9	188.1	133.1	1.84
25	333.8	193.1	146.9	1.78
26	338.8	188.1	141.6	1.76
27	343.8	193.1	146.1	1.71
28	348.7	188.1	130.9	1.70
29	353.7	193.1	135.2	1.67
30	358.7	188.1	119.6	1.64
31	363.6	193.1	134.1	1.62
32	368.6	188.1	128.6	1.60
33	373.6	193.1	133.0	1.58
34	378.6	188.1	127.5	1.58
35	383.5	193.1	131.9	1.57
36	388.5	188.1	126.4	1.58
37	393.5	193.1	130.8	1.59
38	398.4	188.1	125.3	1.60
39	403.4	193.1	129.7	1.62
40	408.4	188.1	124.2	1.65
41	413.3	193.1	128.6	1.68
42	418.3	188.1	123.1	1.71
43	318.9	198.1	144.0	1.90

44	323.9	203.1	148.3	1.84
45	328.9	198.1	142.9	1.81
46	333.8	203.1	156.8	1.76
47	338.8	198.1	151.4	1.74
48	343.8	203.1	155.9	1.70
49	348.7	198.1	150.6	1.68
50	353.7	203.1	145.0	1.65
51	358.7	198.1	139.6	1.63
52	363.6	203.1	143.9	1.60
53	368.6	198.1	138.5	1.59
54	373.6	203.1	142.8	1.57
55	378.6	198.1	137.3	1.57
56	383.5	203.1	141.7	1.57
57	388.5	198.1	136.2	1.57
58	393.5	203.1	140.6	1.59
59	398.4	198.1	135.1	1.60
60	403.4	203.1	139.5	1.62
61	408.4	198.1	134.0	1.65
62	413.3	203.1	138.4	1.68
63	418.3	198.1	132.9	1.71
64	318.9	208.1	153.8	1.88
65	323.9	213.0	158.2	1.82
66	328.9	208.1	152.7	1.79
67	333.8	213.0	166.6	1.74
68	338.8	208.1	161.3	1.72
69	343.8	213.0	165.8	1.68
70	348.7	208.1	160.4	1.66
71	353.7	213.0	154.8	1.63
72	358.7	208.1	149.4	1.62
73	363.6	213.0	153.7	1.59
74	368.6	208.1	148.3	1.58
75	373.6	213.0	152.6	1.57
76	378.6	208.1	147.2	1.57
77	383.5	213.0	151.5	1.57
78	388.5	208.1	146.1	1.57
79	393.5	213.0	150.4	1.59
80	398.4	208.1	145.0	1.60
81	403.4	213.0	149.3	1.62
82	408.4	208.1	143.8	1.65
83	413.3	213.0	148.2	1.68
84	418.3	208.1	142.7	1.71
85	318.9	218.0	163.6	1.86
86	323.9	223.0	168.0	1.80
87	328.9	218.0	162.5	1.77
88	333.8	223.0	176.5	1.73
89	338.8	218.0	171.1	1.70
90	343.8	223.0	175.6	1.66
91	348.7	218.0	160.3	1.65
92	353.7	223.0	164.6	1.62
93	358.7	218.0	159.2	1.60
94	363.6	223.0	163.5	1.58
95	368.6	218.0	158.1	1.57
96	373.6	223.0	162.4	1.56
97	378.6	218.0	157.0	1.56
98	383.5	223.0	161.3	1.57
99	388.5	218.0	155.9	1.58
100	393.5	223.0	160.2	1.59
101	398.4	218.0	154.8	1.61
102	403.4	223.0	159.1	1.63

103	408.4	218.0	153.7	1.65
104	413.3	223.0	158.0	1.68
105	418.3	218.0	152.6	1.71
106	318.9	228.0	173.4	1.85
107	323.9	233.0	177.8	1.79
108	328.9	228.0	172.3	1.75
109	333.8	233.0	186.3	1.71
110	338.8	228.0	181.0	1.69
111	343.8	233.0	185.5	1.65
112	348.7	228.0	170.1	1.64
113	353.7	233.0	174.5	1.61
114	358.7	228.0	169.0	1.59
115	363.6	233.0	173.4	1.57
116	368.6	228.0	167.9	1.57
117	373.6	233.0	172.3	1.56
118	378.6	228.0	166.8	1.56
119	383.5	233.0	171.1	1.57
120	388.5	228.0	165.7	1.58
121	393.5	233.0	170.0	1.59
122	398.4	228.0	164.6	1.61
123	403.4	233.0	168.9	1.63
124	408.4	228.0	163.5	1.65
125	413.3	233.0	167.8	1.68
126	418.3	228.0	162.4	1.71
127	318.9	238.0	183.2	1.83
128	323.9	243.0	187.6	1.77
129	328.9	238.0	182.1	1.74
130	333.8	243.0	196.2	1.70
131	338.8	238.0	190.8	1.67
132	343.8	243.0	185.4	1.64
133	348.7	238.0	179.9	1.62
134	353.7	243.0	184.3	1.60
135	358.7	238.0	178.8	1.59
136	363.6	243.0	183.2	1.57
137	368.6	238.0	177.7	1.57
138	373.6	243.0	182.1	1.56
139	378.6	238.0	176.6	1.57
140	383.5	243.0	181.0	1.57
141	388.5	238.0	175.5	1.58
142	393.5	243.0	179.9	1.60
143	398.4	238.0	174.4	1.61
144	403.4	243.0	178.7	1.63
145	408.4	238.0	173.3	1.66
146	413.3	243.0	177.6	1.69
147	418.3	238.0	172.2	1.71
148	318.9	247.9	193.1	1.81
149	323.9	252.9	197.4	1.75
150	328.9	247.9	192.0	1.72
151	333.8	252.9	196.3	1.69
152	338.8	247.9	190.8	1.67
153	343.8	252.9	195.2	1.63
154	348.7	247.9	189.7	1.61
155	353.7	252.9	194.1	1.59
156	358.7	247.9	188.6	1.58
157	363.6	252.9	193.0	1.57
158	368.6	247.9	187.5	1.56
159	373.6	252.9	191.9	1.56
160	378.6	247.9	186.4	1.57
161	383.5	252.9	190.8	1.58

162	388.5	247.9	185.3	1.59
163	393.5	252.9	189.7	1.60
164	398.4	247.9	184.2	1.62
165	403.4	252.9	188.6	1.64
166	408.4	247.9	183.1	1.66
167	413.3	252.9	187.5	1.69
168	418.3	247.9	182.0	1.71
169	318.9	257.9	202.9	1.80
170	323.9	262.9	207.2	1.74
171	328.9	257.9	201.8	1.71
172	333.8	262.9	206.1	1.67
173	338.8	257.9	200.7	1.65
174	343.8	262.9	205.0	1.62
175	348.7	257.9	199.6	1.61
176	353.7	262.9	203.9	1.59
177	358.7	257.9	198.4	1.58
178	363.6	262.9	202.8	1.57
179	368.6	257.9	197.3	1.57
180	373.6	262.9	201.7	1.57
181	378.6	257.9	196.2	1.57
182	383.5	262.9	200.6	1.58
183	388.5	257.9	195.1	1.59
184	393.5	262.9	199.5	1.61
185	398.4	257.9	194.0	1.62
186	403.4	262.9	198.4	1.64
187	408.4	257.9	192.9	1.66
188	413.3	262.9	197.3	1.69
189	418.3	257.9	191.8	1.72
190	318.9	267.9	212.7	1.78
191	323.9	272.9	217.0	1.73
192	328.9	267.9	211.6	1.70
193	333.8	272.9	215.9	1.66
194	338.8	267.9	210.5	1.64
195	343.8	272.9	214.8	1.61
196	348.7	267.9	209.4	1.60
197	353.7	272.9	213.7	1.58
198	358.7	267.9	208.3	1.57
199	363.6	272.9	212.6	1.57
200	368.6	267.9	207.2	1.57
201	373.6	272.9	211.5	1.57
202	378.6	267.9	206.0	1.57
203	383.5	272.9	210.4	1.58
204	388.5	267.9	204.9	1.59
205	393.5	272.9	209.3	1.61
206	398.4	267.9	203.8	1.63
207	403.4	272.9	208.2	1.65
208	408.4	267.9	202.7	1.67
209	413.3	272.9	207.1	1.70
210	418.3	267.9	201.6	1.72
211	318.9	277.9	222.5	1.77
212	328.9	277.9	221.4	1.68
213	338.8	277.9	220.3	1.63
214	348.7	277.9	219.2	1.59
215	358.7	277.9	218.1	1.57
216	368.6	277.9	217.0	1.57
217	378.6	277.9	215.9	1.58
218	388.5	277.9	214.8	1.60
219	398.4	277.9	213.6	1.63
220	408.4	277.9	212.5	1.67

221

418.3

277.9

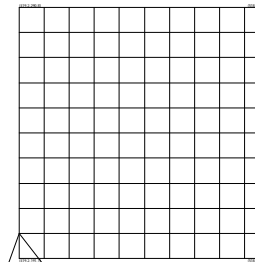
211.4

1.72

Indice

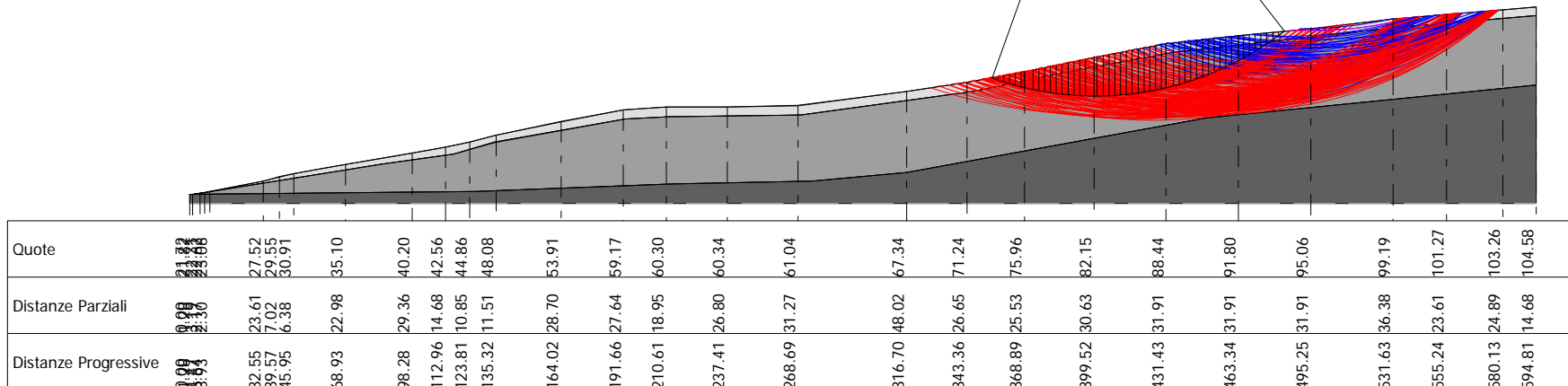
1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Vertici strato2	2
5.Coefficienti parziali azioni	3
6.Coefficienti parziali per i parametri geotecnici del terreno	3
7.Stratigrafia	3
8.Risultati analisi pendio [A2+M2+R2]	3
Indice	8

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 400 A 500 m
 IN CONDIZIONI SISMICHE



$x_c=419.22$ $y_c=201.09$ $R_c=135.77$ $F_s=1.72$

- Strato...1
 $g=1.9t/m^3$
 $F_i=16^\circ$
 $c=6$ kN/m²
- Strato...2
 $g=1.9t/m^3$
 $F_i=18^\circ$
 $c=10$ kN/m²
- Strato...3
 $g=2.0t/m^3$
 $F_i=28^\circ$
 $c=20$ kN/m²



Quote	0.00	21.73	23.61	27.52	29.55	30.91	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58
Distanze Parziali	0.00	21.73	23.61	27.52	29.55	30.91	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58
Distanze Progressive	0.00	21.73	23.61	27.52	29.55	30.91	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.179321/10.992644
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	419.22 m
Ordinata vertice sinistro inferiore yi	191.12 m
Ascissa vertice destro superiore xs	518.61 m
Ordinata vertice destro superiore ys	290.83 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.07
Coefficiente azione sismica verticale	0.035

Vertici profilo

Nr	X (m)	y (m)
1	18.92	21.72
2	20.2	21.82
3	23.39	22.31
4	25.56	22.62
5	27.85	23.08
6	51.47	27.52
7	58.49	29.55
8	64.87	30.91
9	87.85	35.1
10	117.2	40.2
11	131.88	42.56
12	142.73	44.86
13	154.24	48.08
14	182.94	53.91
15	210.58	59.17
16	229.53	60.3
17	256.33	60.34
18	287.61	61.04
19	335.62	67.34
20	362.28	71.24
21	387.81	75.96
22	418.44	82.15
23	450.35	88.44
24	482.26	91.8
25	514.17	95.06
26	550.55	99.19

27	574.16	101.27
28	599.05	103.26
29	613.73	104.58

Vertici strato1

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	20.57	21.81
4	104.62	35.3
5	135.54	39.67
6	153.63	44.79
7	211.19	55.12
8	230.71	56.21
9	288.82	56.91
10	326.12	62.02
11	365.14	67.36
12	413.19	77.12
13	453.74	84.46
14	489.93	88.55
15	551.3	95.49
16	613.73	100.8

Vertici strato2

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	18.92	21.72
4	145.78	23.14
5	231.29	26.37
6	293.79	27.74
7	335.62	31.34
8	417.99	46.31
9	468.28	55.46
10	557.71	64.42
11	613.64	70.03
12	613.73	70.05

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		

2	10	18	1.9
3	20	28	2.0



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	1.72
Ascissa centro superficie	419.22 m
Ordinata centro superficie	201.09 m
Raggio superficie	135.77 m

Numero di superfici esaminate....(219)

N°	Xo	Yo	Ro	Fs
1	419.2	191.1	126.0	1.72
2	424.2	196.1	130.3	1.75
3	429.2	191.1	124.9	1.79
4	434.1	196.1	129.2	1.83
5	439.1	191.1	123.7	1.87
6	444.1	196.1	128.1	1.91
7	449.0	191.1	122.6	1.97
8	454.0	196.1	127.0	2.00
9	459.0	191.1	134.5	2.05
10	463.9	196.1	137.0	2.07
11	468.9	191.1	130.4	2.12
12	473.9	196.1	130.3	2.15
13	478.9	191.1	123.6	2.20
14	483.8	196.1	135.5	2.23
15	488.8	191.1	128.7	2.28
16	493.8	196.1	128.5	2.30
17	498.7	191.1	121.7	2.34
18	503.7	196.1	121.7	2.34
19	508.7	191.1	114.9	2.36
20	513.6	196.1	115.2	2.35
21	518.6	191.1	108.3	2.37
22	419.2	201.1	135.8	1.72
23	424.2	206.1	140.1	1.75
24	429.2	201.1	134.7	1.79
25	434.1	206.1	139.0	1.82
26	439.1	201.1	133.6	1.87
27	444.1	206.1	137.9	1.90
28	449.0	201.1	132.5	1.95
29	454.0	206.1	149.7	1.98
30	459.0	201.1	143.7	2.02
31	463.9	206.1	143.7	2.05
32	468.9	201.1	137.0	2.09
33	473.9	206.1	149.0	2.13
34	478.9	201.1	142.2	2.18
35	483.8	206.1	142.1	2.19
36	488.8	201.1	135.3	2.24
37	493.8	206.1	135.4	2.27
38	498.7	201.1	128.6	2.31
39	503.7	206.1	128.9	2.32
40	508.7	201.1	122.0	2.33
41	513.6	206.1	122.6	2.34
42	518.6	201.1	125.6	2.37
43	419.2	211.1	145.6	1.72

44	424.2	216.0	149.9	1.75
45	429.2	211.1	144.5	1.78
46	434.1	216.0	148.8	1.82
47	439.1	211.1	143.4	1.86
48	444.1	216.0	147.7	1.90
49	449.0	211.1	155.0	1.94
50	454.0	216.0	157.1	1.96
51	459.0	211.1	150.4	2.00
52	463.9	216.0	150.6	2.03
53	468.9	211.1	143.9	2.08
54	473.9	216.0	155.8	2.10
55	478.9	211.1	149.0	2.14
56	483.8	216.0	149.1	2.17
57	488.8	211.1	142.2	2.22
58	493.8	216.0	153.2	2.24
59	498.7	211.1	135.8	2.29
60	503.7	216.0	146.5	2.30
61	508.7	211.1	129.5	2.33
62	513.6	216.0	140.1	2.33
63	518.6	211.1	133.1	2.34
64	419.2	221.0	155.4	1.72
65	424.2	226.0	159.8	1.75
66	429.2	221.0	154.3	1.78
67	434.1	226.0	158.6	1.82
68	439.1	221.0	153.2	1.86
69	444.1	226.0	170.2	1.88
70	449.0	221.0	163.8	1.92
71	454.0	226.0	164.0	1.94
72	459.0	221.0	157.3	1.98
73	463.9	226.0	169.4	2.01
74	468.9	221.0	162.6	2.05
75	473.9	226.0	162.8	2.08
76	478.9	221.0	155.9	2.12
77	483.8	226.0	167.1	2.15
78	488.8	221.0	160.1	2.19
79	493.8	226.0	150.1	2.25
80	498.7	221.0	153.4	2.26
81	503.7	226.0	144.1	2.30
82	508.7	221.0	147.0	2.31
83	513.6	226.0	138.3	2.41
84	518.6	221.0	140.9	2.33
85	419.2	231.0	165.2	1.72
86	424.2	236.0	169.6	1.75
87	429.2	231.0	164.1	1.78
88	434.1	236.0	168.5	1.82
89	439.1	231.0	175.6	1.85
90	444.1	236.0	177.5	1.87
91	449.0	231.0	170.8	1.90
92	454.0	236.0	171.3	1.93
93	459.0	231.0	164.5	1.97
94	463.9	236.0	176.5	1.99
95	468.9	231.0	169.6	2.03
96	473.9	236.0	170.1	2.07
97	478.9	231.0	163.2	2.11
98	483.8	236.0	174.3	2.13
99	488.8	231.0	167.3	2.17
100	493.8	236.0	167.9	2.20
101	498.7	231.0	160.9	2.24
102	503.7	236.0	161.7	2.27

103	508.7	231.0	154.8	2.30
104	513.6	236.0	155.8	2.30
105	518.6	231.0	148.9	2.33
106	419.2	241.0	175.0	1.72
107	424.2	246.0	179.4	1.75
108	429.2	241.0	173.9	1.78
109	434.1	246.0	190.8	1.81
110	439.1	241.0	184.3	1.84
111	444.1	246.0	184.8	1.86
112	449.0	241.0	178.0	1.89
113	454.0	246.0	190.2	1.92
114	459.0	241.0	183.4	1.96
115	463.9	246.0	183.8	1.98
116	468.9	241.0	176.9	2.02
117	473.9	246.0	177.5	2.06
118	478.9	241.0	181.3	2.09
119	483.8	246.0	181.8	2.12
120	488.8	241.0	164.6	2.21
121	493.8	246.0	175.6	2.19
122	498.7	241.0	168.6	2.23
123	503.7	246.0	160.1	2.37
124	508.7	241.0	162.7	2.29
125	513.6	246.0	154.8	2.54
126	518.6	241.0	157.2	2.34
127	419.2	250.9	184.8	1.72
128	424.2	255.9	189.2	1.75
129	429.2	250.9	183.7	1.78
130	434.1	255.9	198.3	1.80
131	439.1	250.9	191.5	1.83
132	444.1	255.9	192.2	1.86
133	449.0	250.9	185.4	1.89
134	454.0	255.9	197.5	1.91
135	459.0	250.9	190.7	1.94
136	463.9	255.9	191.3	1.98
137	468.9	250.9	184.4	2.02
138	473.9	255.9	185.2	2.06
139	478.9	250.9	178.4	2.11
140	483.8	255.9	189.4	2.11
141	488.8	250.9	182.5	2.15
142	493.8	255.9	183.5	2.19
143	498.7	250.9	166.9	2.32
144	503.7	255.9	168.4	2.41
145	508.7	250.9	170.9	2.29
146	513.6	255.9	172.4	2.32
147	518.6	250.9	156.6	2.84
148	419.2	260.9	194.7	1.72
149	424.2	265.9	199.0	1.75
150	429.2	260.9	205.0	1.78
151	434.1	265.9	205.7	1.80
152	439.1	260.9	199.0	1.82
153	444.1	265.9	211.2	1.85
154	449.0	260.9	204.4	1.88
155	454.0	265.9	205.0	1.90
156	459.0	260.9	198.1	1.94
157	463.9	265.9	199.0	1.98
158	468.9	260.9	202.6	2.00
159	473.9	265.9	193.1	2.07
160	478.9	260.9	186.2	2.12
161	483.8	265.9	197.3	2.10

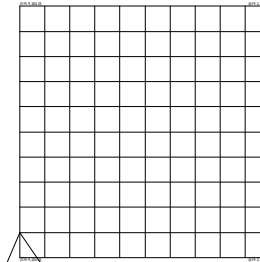
162	488.8	260.9	180.6	2.24
163	493.8	265.9	191.5	2.19
164	498.7	260.9	175.2	2.36
165	503.7	265.9	176.8	2.47
166	508.7	260.9	179.2	2.30
167	513.6	265.9	172.0	2.85
168	518.6	260.9	174.1	2.38
169	419.2	270.9	204.5	1.73
170	424.2	275.9	219.3	1.75
171	429.2	270.9	212.5	1.77
172	434.1	275.9	213.4	1.79
173	439.1	270.9	206.6	1.83
174	444.1	275.9	218.7	1.85
175	449.0	270.9	211.9	1.87
176	454.0	275.9	212.7	1.90
177	459.0	270.9	205.8	1.94
178	463.9	275.9	206.8	1.98
179	468.9	270.9	199.9	2.02
180	473.9	275.9	211.1	2.02
181	478.9	270.9	194.3	2.14
182	483.8	275.9	205.3	2.10
183	488.8	270.9	198.4	2.15
184	493.8	275.9	199.8	2.19
185	498.7	270.9	183.6	2.41
186	503.7	275.9	194.5	2.28
187	508.7	270.9	187.7	2.30
188	513.6	275.9	189.6	2.36
189	518.6	270.9	182.8	2.41
190	419.2	280.9	213.9	1.73
191	424.2	285.8	226.9	1.75
192	429.2	280.9	220.1	1.77
193	434.1	285.8	221.1	1.80
194	439.1	280.9	225.6	1.82
195	444.1	285.8	226.4	1.84
196	449.0	280.9	219.5	1.87
197	454.0	285.8	220.5	1.90
198	459.0	280.9	213.7	1.94
199	463.9	285.8	225.0	1.95
200	468.9	280.9	218.0	1.98
201	473.9	285.8	209.3	2.11
202	478.9	280.9	212.2	2.06
203	483.8	285.8	213.5	2.11
204	488.8	280.9	197.2	2.31
205	493.8	285.8	208.1	2.21
206	498.7	280.9	201.3	2.25
207	503.7	285.8	194.1	2.42
208	508.7	280.9	196.3	2.33
209	419.2	290.8	233.7	1.73
210	429.2	290.8	227.9	1.77
211	439.1	290.8	233.3	1.82
212	449.0	290.8	227.4	1.87
213	459.0	290.8	231.9	1.92
214	468.9	290.8	226.0	1.98
215	478.9	290.8	220.4	2.07
216	488.8	290.8	215.0	2.16
217	498.7	290.8	200.8	2.52
218	508.7	290.8	196.2	4.10
219	518.6	290.8	200.5	2.49

Indice

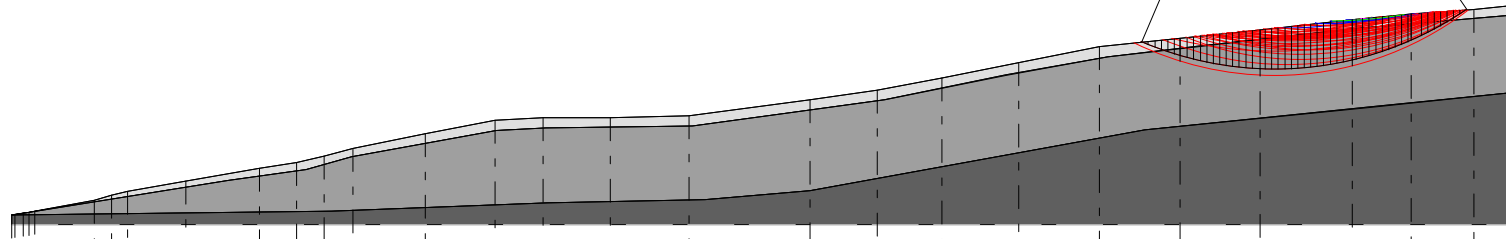
1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Vertici strato2	2
5.Coefficienti parziali azioni	3
6.Coefficienti parziali per i parametri geotecnici del terreno	3
7.Stratigrafia	3
8.Risultati analisi pendio [A2+M2+R2]	3
Indice	8

VERIFICA ANALITICA DI STABILITA' DI VERSANTE
 DA 500 A 600 m
 IN CONDIZIONI SISMICHE

xc=519.93 yc=214.24 Rc=134.78 Fs=2.34



- Strato...1
 g=1.9t/m³
 Fi=16°
 c=6 kN/m²
- Strato...2
 g=1.9t/m³
 Fi=18°
 c=10 kN/m²
- Strato...3
 g=2.0t/m³
 Fi=28°
 c=20 kN/m²



Quote	0.00	21.82	23.61	27.52	29.55	30.91	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58
Distanze Parziali	0.00	21.82	23.61	27.52	29.55	30.91	35.10	40.20	42.56	44.86	48.08	53.91	59.17	60.30	60.34	61.04	67.34	71.24	75.96	82.15	88.44	91.80	95.06	99.19	101.27	103.26	104.58
Distanze Progressive	0.00	21.82	32.55	39.57	45.95	68.93	98.28	112.96	123.81	135.32	164.02	191.66	210.61	237.41	268.69	316.70	343.36	368.89	399.52	431.43	463.34	495.25	531.63	555.24	580.13	594.81	

Analisi di stabilità dei pendii con: BELL (1968)

Lat./Long.	44.179321/10.992644
Calcolo eseguito secondo	NTC 2018
Numero di strati	3.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.0
Coefficiente parziale resistenza	1.0
Parametri geotecnici da usare. Angolo di attrito:	Picco
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	519.93 m
Ordinata vertice sinistro inferiore yi	204.27 m
Ascissa vertice destro superiore xs	619.31 m
Ordinata vertice destro superiore ys	303.99 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

Coefficiente azione sismica orizzontale	0.07
Coefficiente azione sismica verticale	0.035

Vertici profilo

Nr	X (m)	y (m)
1	18.92	21.72
2	20.2	21.82
3	23.39	22.31
4	25.56	22.62
5	27.85	23.08
6	51.47	27.52
7	58.49	29.55
8	64.87	30.91
9	87.85	35.1
10	117.2	40.2
11	131.88	42.56
12	142.73	44.86
13	154.24	48.08
14	182.94	53.91
15	210.58	59.17
16	229.53	60.3
17	256.33	60.34
18	287.61	61.04
19	335.62	67.34
20	362.28	71.24
21	387.81	75.96
22	418.44	82.15
23	450.35	88.44
24	482.26	91.8
25	514.17	95.06
26	550.55	99.19

27	574.16	101.27
28	599.05	103.26
29	613.73	104.58

Vertici strato1

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	20.57	21.81
4	104.62	35.3
5	135.54	39.67
6	153.63	44.79
7	211.19	55.12
8	230.71	56.21
9	288.82	56.91
10	326.12	62.02
11	365.14	67.36
12	413.19	77.12
13	453.74	84.46
14	489.93	88.55
15	551.3	95.49
16	613.73	100.8

Vertici strato2

N	X (m)	y (m)
1	18.92	21.72
2	18.92	21.72
3	18.92	21.72
4	145.78	23.14
5	231.29	26.37
6	293.79	27.74
7	335.62	31.34
8	417.99	46.31
9	468.28	55.46
10	557.71	64.42
11	613.64	70.03
12	613.73	70.05

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.0
Coesione efficace	1.0
Coesione non drenata	1.0
Riduzione parametri geotecnici terreno	Si

Stratigrafia

Strato	Coesione (kN/m ²)	Coesione non drenata (kN/m ²)	Angolo resistenza al taglio (°)	Peso unità di volume (t/m ³)	Peso saturo (t/m ³)	Litologia
1	6		16	1.9		

2	10	18	1.9
3	20	28	2.0



Risultati analisi pendio [A2+M2+R2]

Fs minimo individuato	2.34
Ascissa centro superficie	519.93 m
Ordinata centro superficie	214.24 m
Raggio superficie	134.78 m

Numero di superfici esaminate....(45)

N°	Xo	Yo	Ro	Fs
1	519.9	204.3	127.1	2.36
2	524.9	209.3	127.8	2.36
3	529.9	204.3	120.9	2.38
4	534.8	209.3	122.0	2.43
5	539.8	204.3	106.1	8.70
6	544.8	209.3	116.5	2.64
7	549.7	204.3	109.7	2.77
8	554.7	209.3	111.6	3.13
9	559.7	204.3	104.9	4.91
10	519.9	214.2	134.8	2.34
11	524.9	219.2	126.5	2.57
12	529.9	214.2	128.9	2.38
13	534.8	219.2	130.2	2.46
14	539.8	214.2	123.4	2.53
15	554.7	219.2	120.5	4.28
16	519.9	224.2	133.3	2.51
17	524.9	229.2	134.8	2.61
18	529.9	224.2	137.1	2.41
19	539.8	224.2	131.9	2.60
20	544.8	229.2	133.8	2.64
21	519.9	234.2	141.6	2.53
22	524.9	239.2	143.3	3.61
23	529.9	234.2	145.5	2.44
24	534.8	239.2	147.3	2.55
25	544.8	239.2	142.7	2.83
26	519.9	244.2	150.1	2.66
27	524.9	249.1	160.8	2.41
28	539.8	244.2	149.4	2.66
29	519.9	254.1	167.6	2.37
30	524.9	259.1	169.5	2.45
31	529.9	254.1	162.8	2.54
32	534.8	259.1	165.0	2.65
33	544.8	259.1	160.8	4.74
34	524.9	269.1	178.3	2.50
35	529.9	264.1	171.6	2.59
36	534.8	269.1	174.0	2.59
37	539.8	264.1	167.4	3.10
38	524.9	279.1	187.2	2.56
39	529.9	274.1	180.6	2.62
40	539.8	274.1	176.5	3.91
41	524.9	289.0	196.2	2.59
42	534.8	289.0	192.2	3.42
43	539.8	284.0	185.7	6.33

44	519.9	294.0	202.8	2.53
45	519.9	304.0	211.9	2.58

Indice

1.Dati generali	1
2.Vertici profilo	2
3.Vertici strato1	2
4.Vertici strato2	2
5.Coefficienti parziali azioni	3
6.Coefficienti parziali per i parametri geotecnici del terreno	3
7.Stratigrafia	3
8.Risultati analisi pendio [A2+M2+R2]	3
Indice	5