SANTA ANA WATERSHED PROJECT AUTHORITY

INLAND EMPIRE BRINE LINE REACH V
REHABILITATION AND IMPROVEMENT PROJECT – PHASE 2

ADDENDUM NO. 2

The following addendum is being issued for the above referenced contract(s). Bidders are required to incorporate the information contained herein as if originally issued and included with the contract documents. Pursuant to Section 6 of the Bid Form, Bidders are required to acknowledge receipt of this addendum and confirm all associated impacts from this addendum are included in the Bid. Failure to acknowledge this addendum in the Bid Form may render the Bid non-responsive and may not be considered.

PART 1: RESPONSES TO QUESTIONS

The following are emailed questions from Mike Lowen, Trautwein Construction, received Thursday, January 14, 2016:

1. Q – Do you have a soils report for the project?

   A – Geotechnical information available for the project is provided herewith. The Owner assumes no responsibility whatsoever with respect to the sufficiency or accuracy of any subsurface investigations, or of the interpretation thereof, and there is no guaranty either expressed or implied, that the conditions indicated are representative of those existing throughout the work, or any part of it, or that unexpected developments may not occur. Making such information available to bidders (not a part of the bid documents) is not to be construed in any way as a waiver of the requirement for bidders to satisfy themselves through their own investigations as to conditions to be encountered.

2. Q - If the trenching operations damage the edge of the road (say 12" +/-), then that damage would need to be repaired. However, there is usually a minimum distance from the edge required for structural stability so the edge (floater) doesn't crack off. What would that repair width be from the edge of the road?

   A – Detail 2 on Sheet D-4 provides the City standard requirements for trench backfill and roadway repair. The Contractor shall implement the standards of the City with regards to repair of Nichols Road, as may be defined in this standard or in the required permits from the City for this project. The Contractor shall be responsible for returning the project site to the pre-construction conditions to the satisfaction of the Owner and the City, in accordance with the Contract Documents.

PART 2: REVISIONS TO SPECIFICATIONS

3. California prevailing wages or Federal Davis Bacon wage rates, whichever is higher, shall be paid to all construction workers on this project. The current prevailing wage determination is provided herewith.

DATED: January 15, 2016

BY: _____
David P. Ruhl, P.E.
SAWPA Program Manager

BY: _____
D. Michael Metts, P.E.
Dudek

Attachments:

Geotechnical Reports
Prevailing Wage Rate Determination

Riverside County

38655 Sky Canyon Drive, Suite A
Murrieta, California 92563
951-600-9271

November 4, 2007
J.N. 259-06

Mr. Kevin Beals
CASTLE & COOKE ALBERHILL RANCH, INC.
17600 Collier Avenue, Suite C-120
Lake Elsinore, California 92531

Subject: Updated Geotechnical Recommendations, Proposed Nichols Road Phase 2, Stations 55+00 through 82+00, Alberhill Ranch Area, City of Lake Elsinore, Riverside County, California.

Dear Mr. Beals:

In accordance with your request, Petra Geotechnical, Inc. (Petra) is submitting this updated report presenting geotechnical recommendations for the proposed Nichols Road Phase 2 from Stations 55+00 through 82+00, located in Lake Elsinore area of Riverside County, California (Figure 1). This report presents the results of our engineering analysis, conclusions and recommendations pertaining to geotechnical design aspects of the proposed roadway. It should be noted that portions of the Nichols Road alignment between Stations 65+00 through 77+00 have been graded per previous recommendations (Petra 2005; 2006b).

Purpose and Scope of Services

The purpose of this study was to evaluate previous subsurface exploration information (Appendix A), background data and Petra's previous recommendations (Petra, 2005; 2006b) with respect to the site in order to provide revised geotechnical recommendations for the construction of the proposed roadway and associated slopes. The scope of services consisted of the following.

- Review of the 40-scale rough-grading plans prepared by KWC Engineers, (KWC, 2007), specifically, between Stations 55+00 through 82+00.

- Review of our previous geotechnical reports (Petra 2005; 2006a; 2006b; 2006c; 2006d; 2007) for the project site and adjacent areas.
- Meetings on September 19 and October 3, 2007, with you to discuss options for slope construction.
- Construct geologic cross sections depicting site geology and proposed construction grades in the cut slope areas.
- Slope stability analyses for the proposed stabilization fill slopes.
- Prepare this report presenting the geotechnical design recommendations for the proposed construction.

Previous Geotechnical Studies

Petra conducted a geotechnical investigation for the original Nichols Road alignment from Lake Street to Interstate 15 in 2005 (Petra, 2005). A total of 22 exploratory hollow-stem auger borings were excavated within the proposed alignment. The approximate locations of Borings B-16 through B-21 are depicted on Plates 2 and 3 and descriptive borings logs are presented in Appendix A.

Petra also conducted a geotechnical investigation for the adjacent Hoist property (Tentative Tract 30836) immediately to the north of the proposed re-alignment of Nichols Road (Petra, 2006a). One bucket-auger boring was excavated in the vicinity of the proposed cut slopes; however, the results were not reported at the time. Boring B-23 is depicted on Plate 1 and the descriptive log is presented in Appendix A. Petra provided updated geotechnical recommendations for the Nichols Road re-alignment in August 2006 (Petra, 2006b). Additional subsurface exploration associated with the updated recommendations was not performed within the roadway re-alignment. Recommended removal depths of unsuitable alluvial materials are depicted on Plates 2 and 3.

Rough grading of portions of Nichols Road was performed in April through August 2006, and a geotechnical report of rough grading was submitted for Stations 11+50 through 55+00 (Petra, 2006d). Petra excavated several bucket auger borings within the cut portion of Nichols Road near Stations 61+00 through 64+00 following rough grading to evaluate the subsurface conditions for installation of a deep cast-in-place storm-drain line (Petra, 2006c). The approximate location of Boring BA-1 is depicted on Plate 1 and the descriptive boring log is presented in Appendix A.

Petra also conducted a geotechnical investigation for the adjacent 31.6-acre mixed-use property immediately to the south of the proposed re-alignment of Nichols Road (Petra, 2007). The approximate locations of Boring BA-1 and BA-2 are depicted on Plate 1 and descriptive borings logs are presented in Appendix A.

Soil Conditions

A general description of the as-graded and undisturbed soil underlying the proposed sections of the subject road is provided below.

- Compacted Engineered Fill (map symbol afc) - The compacted-fill soils placed during mass grading were derived from alluvial soils and bedrock, both the Silverado Formation sedimentary bedrock and the Santiago Peak Volcanics bedrock, which were excavated onsite and from adjacent tracts. Fill soils consisted generally of fine to coarse sand, silty sand, silty sand with gravel, clayey sand and sandy clay. Fill materials included rock fragments of variable size derived from the Santiago Peak Volcanics bedrock.

- Older Alluvium (map symbol Qoal) - Pleistocene-age, older alluvium was exposed beneath portions of the site. The older alluvium consisted of silty sand, clayey sand and sandy clay that was brown to red brown, slightly moist to moist and dense to very dense.

- Ancient Landslide Material (map symbol Qls) – Ancient landslide materials were encountered within the subject site from about Station 55+00 to approximately Station 66+50. The materials within the landslide consisted of thickly bedded sandstone, intensely fractured siltstone and claystone of the Silverado Formation.

Laboratory Testing

During Petra's geotechnical investigation of the adjacent 31.6-acre mixed-use commercial site located along the south side of Nichols Road (Petra, 2007), two samples of "clayey" soil consisting of sandy clay and clayey sand were obtained from test pits TP-3 and TP-8 that appeared to be suitable for construction of stabilization fills recommended along portions of Nichols Road. Direct shear tests were performed on the two samples that were remolded to relative compactions equal to **90** and **95** percent of their respective maximum dry densities. The results of the direct shear tests are presented in Appendix C.

Existing Conditions

Nichols Road was rough-graded to the original grading plans (KWC, 2006) from Stations 11+50 through 55+00 between April and August 2006 (Petra, 2006d). Grading of this section of roadway included stabilization fills to replace the design cut slopes which exposed landslide deposits along the northern side of Nichols Road from approximate Stations 30+00 through 55+00. Rough grading within Nichols Road was also performed from approximate Stations 60+00 through 77+00 during the same time frame under the observation and testing of Petra; however, the grading of this area has not yet been documented in a final report. Temporary 3:1(horizontal:vertical [h:v]) cut slopes were excavated along the northern side of Nichols Road from approximate Stations 60+00 through 64+50 exposing landslide deposits. Approximate roadway Stations 55+00 through 60+00 and 77+00 through 82+00 remain in their natural, ungraded state. Existing power poles are present at various locations within the subject site.

Construction Feasibility and Slope Stability Analyses

Slope-stability analyses were performed for stabilization fill slopes recommended from Stations 55+00 through 57+00 and 63+00 through 65+00 utilizing the computer program GSTABL7. It is our opinion that the proposed grading and construction will not adversely affect the geologic stability of adjoining properties provided the grading and construction are performed in

accordance with the recommendations presented herein. Based on our analyses, construction of the proposed roadway and associated slopes as shown on Plates 1 through 3 and the geologic cross-sections on Figure 2 is considered feasible from a geotechnical point of view.

Slope stability analyses were performed for the recommended stabilization fill slopes to be constructed at ratios of 2:1 (h:v) and 1.7:1 (h:v). The analyses are based on fill soils compacted to a relative compaction of **90** percent or more for stabilization fill slopes constructed at ratios of 2:1 (h:v) and flatter, and on fill soils compacted to a relative compaction of **95** percent or more for one stabilization fill slope at about Station 56+25 recommended at a ratio of 1.7:1 (h:v). The stability analyses resulted in factors of safety ranging from 1.53 to 2.35 for static loading conditions and from 1.67 to 2.17 for pseudo-static (seismic) loading conditions. The stability analyses are presented in Appendix B.

Surficial slope stability analyses were performed for 2:1 (h:v) and 1.7:1 (h:v) fill slopes with soils compacted to relative compactions of **90** and **95** percent, respectively. The analyses were based on an infinite slope height and on a vertical depth of saturation of 4 feet with seepage parallel to the slope face. The analyses resulted in factors of safety of 1.64 and 3.71 for the two slope conditions, respectively. The calculations are included in Appendix B.

Alignment-Specific Grading Recommendations

The following mass-grading recommendations pertaining to Nichols Road grading and construction are referenced by station numbers due to the changes in construction grades and changes in geologic and soil conditions.

- Station 55+00 to 57+00 Based on the existing utility pole locations, existing subsurface landslide-debris materials, design 2:1 (h:v) cut slopes, and our slope stability calculations (Appendix B) Petra recommends that the proposed and existing temporary cut slopes along the north side of Nichols Road be replaced with permanent stabilization fills (Plates 1 and 2; Figure 2). The proposed stabilizations fill slopes should be 2:1 (h:v) or flatter with an exception to the area adjacent to the utility pole located at approximate Station 56+25 where the slope grade is proposed at 1.7:1 (h:v).

The stabilization fills should be constructed in accordance with the typical details shown on Figures 3 and 4. The stabilization-fill keys should be excavated to a minimum depth of 2 feet below design toe-of-slope and have a minimum bottom width of 15 feet. The bottoms of the fill keys should be tilted-back at a minimum of 2 percent towards the heel of the key. Keyways should be inspected by a geologist from Petra prior to backdrain installation. Internal backdrains should also be installed in each stabilization fill to mitigate the potential buildup of excessive hydrostatic pressures. Backdrains should be constructed in accordance with the details shown on Figures 3 and 4. Backdrain locations should be determined during grading based on local topography and the most feasible exit points for outlet pipe.

The stabilization fill slopes should be constructed with clayey soils such as those subjected to direct shear testing (Appendix C). The soils used for construction of 2:1 (h:v) and flatter stabilization fills slopes should be compacted to a relative compaction of **90** percent or more of maximum dry density determined in accordance with ASTM D1557. The soils used for construction of the 1.7:1 (h:v) stabilization fill slope at approximate Station 56+25 should be compacted to a relative compaction of **95** percent or more.

The stability of temporary backcut slopes associated with stabilization fill and keyway construction is dependent on many factors which include slope angle, height, geologic structure of unsupported bedrock, shear strength along planes of weakness, groundwater conditions, nuisance water and the length of time temporary cuts remain unsupported. Consequently, there is a risk of backcut failures during excavation of the fill keys for the stabilization fills. In order to maintain temporary stability, the backcuts should be laid back no steeper than 1.5:1 (h:v), except at Station 56+25 where a 1:1 (h:v) backcut will be required. In order to minimize the potential for backcut failures, the following techniques should also be considered.

- Shear keys should be excavated, observed by the project geologist and then filled in the shortest practical period of time. Keyway excavations should never be allowed to stand open for prolonged periods of time.

- Provisions should be made for preventing nuisance water and rainwater from collecting and ponding in keyway excavations.

- Grading equipment and other construction traffic should never be allowed to traverse along the tops of temporary backcut slopes.

- The temporary excavations (backcut slopes) for the cut slopes should be tentatively planned at a slope ratio of 1.5:1 (h:v). However, flatter slopes may be necessary in local areas due to widely variable subsurface or unforeseen conditions. Conversely, localized steepening of the backcut slopes may be suitable, depending on the observed geologic conditions.

- In addition to the above, OSHA requirements should be followed with respect to excavation safety.

- Station 57+00 to 63+00 Based on the existing subsurface landslide-debris materials and design cut slopes Petra recommends that the proposed cut slopes along the north side of Nichols Road be laid back at a 4:1 grade for slope stability (Plates 1 and 2; Figure 2). The three utility poles located near the top of the proposed 4:1 cut slopes at approximate Stations 57+50, 59+50 and 61+50 may be undercut by up to 2 feet to facilitate slope construction.

- Station 63+00 to 65+00 Based on the existing utility pole locations, existing subsurface landslide-debris materials, design 2:1 (h:v) cut slopes, and our slope stability calculations (Appendix B) Petra recommends that the proposed and existing temporary cut slopes along the north side of Nichols Road be replaced with permanent stabilization fills (Plates 1 and 2; Figure 2). The proposed stabilizations fill slopes should be 2:1 (h:v) or flatter with an exception to the area adjacent to the utility pole located at approximate Station 63+70 where the slope grade is proposed at a 2.6:1 (h:v). Recommendations presented for Stations 55+00 to 57+00 pertain to the grading of this section as well.

- Station 65+00 to 77+00 This section of roadway base has been previously rough graded to subgrade elevations. No further grading recommendations are required.

- Station 77+00 to 82+00 Cut and/or fills constructed along Nichols Road from Station 77+00 to 82+00 require remedial removals prior to fill placement. Existing low-density undocumented fills, alluvium and colluvium should be removed to competent older alluvium materials. Removals in these areas are anticipated to be approximately 7 to 10 feet below existing grade along the north side of Nichols Road and 3 to 4 feet below existing grade on the south side of Nichols Road. Fill keys, if required, should be constructed in accordance with the typical detail shown in Figures 3 and 4.

Slope Landscaping and Maintenance

Adequate slope- and pad-drainage facilities are essential in the design of grading for the subject site. An anticipated rainfall equivalency on the order of 60 to 100± inches per year at the site can result due to irrigation. The overall stability of the graded slopes should not be adversely

affected provided drainage provisions are properly constructed and maintained thereafter and provided engineered slopes are landscaped immediately following grading with a deep-rooted, drought-tolerant, maintenance-free plant species, as recommended by the project landscape architect. Additional comments and recommendations are presented below with respect to slope drainage, landscaping and irrigation.

A common type of slope failure in hillside areas is surficial instability and usually involves the upper approximately 1 to 6 feet. For a given gradient, these surficial-slope failures are caused generally by a wide variety of conditions, such as overwatering, cyclic changes in moisture content and density of slope soils from both seasonal and irrigation-induced wetting and drying, soil expansiveness, time lapse between slope construction and slope planting, type and spacing of plant materials used for slope protection, rainfall intensity and/or lack of a proper maintenance program. Based on this discussion, the following recommendations are presented to mitigate potential surficial slope failures.

- Proper drainage provisions for engineered slopes should consist of concrete terrace drains, downdrains and energy dissipaters (where required) constructed in accordance with the Grading Code of the City of Lake Elsinore. Provisions should also be made for construction of compacted-earth berms along the tops of engineered slopes.

- Permanent engineered slopes should be landscaped as soon as practical at the completion of grading. As noted, the landscaping should consist of a deep-rooted, drought-tolerant and maintenance-free plant species. If landscaping cannot be provided within a reasonable period of time, jute matting. or equivalent, or a spray-on product designed to seal slope surfaces should be considered as a temporary measure to inhibit surface erosion until such time permanent landscape plants have become well-established.

- Irrigation systems should be installed on the engineered slopes and a watering program then implemented which maintains a uniform, near-optimum moisture condition in the soils. Overwatering and subsequent saturation of the slope soils should be avoided. On the other hand, allowing the soils to dry-out is also detrimental to slope performance.

- Irrigation systems should be constructed at the surface only. Construction of sprinkler lines in trenches should not be allowed without prior approval from the geotechnical engineer and engineering geologist.

- During construction of terrace and downdrains, care must be taken to avoid placement of loose soil on the slope surfaces.

- A permanent slope-maintenance program should be initiated for major slopes not maintained by individual homeowners. Proper slope maintenance should include the care of drainage- and erosion-control provisions, rodent control and repair of leaking or damaged irrigation systems.

LIMITATIONS

This report is based on the proposed project and Petra's geotechnical data as described herein. The materials encountered on the project site described in other literature are believed representative of the total project area and the conclusions and recommendations contained in this report are presented on that basis. However, soil materials can vary in characteristics between points of sampling, both laterally and vertically and those variations could effect the conclusions and recommendations contained herein. As such, observation and testing by a geotechnical consultant during the grading and construction phases of the project are essential to confirming the basis of this report. To provide continuity between the design and construction phases, consideration should be given to retaining Petra for geotechnical construction services.

This report has been prepared consistent with that level of care being provided by other professionals providing similar services at the same locale and time period. The contents of this report are professional opinions and as such, are not to be considered a guaranty or warranty.

We appreciate this opportunity to be of service. If you have questions, please contact this office.

Respectfully submitted,

PETRA GEOTECHNICAL, INC.

James A. Larwood, CEG
Senior Associate Geologist

PROFESSIONAL GEOLOGIST
JAMES A. LARWOOD
NO. 1897
CERTIFIED
ENGINEERING
GEOLOGIST
30-8/31/08
STATE OF CALIFORNIA

Grayson R. Walker, GE
Principal Engineer

REGISTERED PROFESSIONAL ENGINEER
GRAYSON R. WALKER
No. 871
EXP. 8/31/09
GEOTECHNICAL
STATE OF CALIFORNIA

DJ/JAL/GRW/kec

Attachments: References
Figure 1 – Site Location Map
Figure 2 - Geologic Cross Sections (1-1' through 4-4')
Figure 3 – Buttress or Stabilization Fill Detail
Figure 4 – Buttress or Stabilization Fill Subdrain Detail
Figures 5 and 6 – Surficial Slope Stability Analyses (Appendix B)
Plates 1 through 3 –Geotechnical Maps (in pocket)
Appendix A – Logs of Borings (Petra, 2005; 2006c; 2007)
Appendix B – Slope Stability Calculations
Appendix C –Laboratory Testing

Distribution: (5) Addressee

REFERENCES

Petra Geotechnical, Inc., 2005, Geotechnical Investigation, Proposed Nichols Road Alignment, Lake Elsinore, County of Riverside, California, J.N. 160-04, dated September 28.

_____, 2006a, Geotechnical Investigation, Amended Vesting Tentative Tract No. 30836 (Hoist Property) Lake Elsinore, County of Riverside, California, J.N. 414-03, dated March 31.

_____, 2006b, Updated Geotechnical Recommendations, Proposed Nichols Road Realignment (Stations 46+00 through 81+00), City of Lake Elsinore, Riverside County, California, J.N. 259-06, dated August 30.

_____, 2006c, Summary of Anticipated Geotechnical Conditions, Proposed Cast-In-Place Storm Drain, Nichols Road Stations 58+00 through 65+00, City of Lake Elsinore, Riverside County, California, J.N. 259-06, dated November 1.

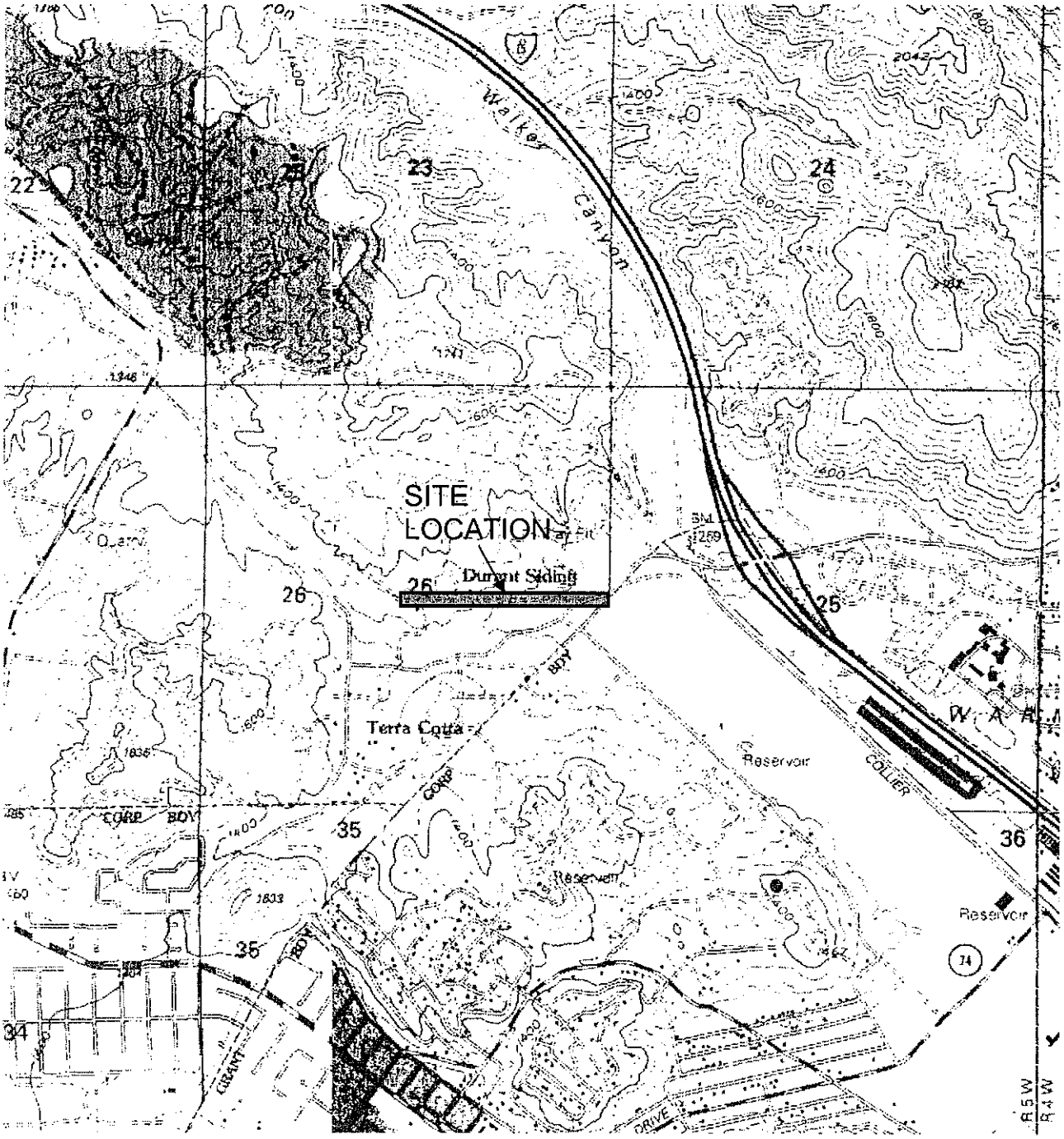
_____, 2006d, Geotechnical Report of Rough Grading, Nichols Road (Stations 11+50 to 55+00), City of Lake Elsinore, Riverside County, California, J.N. 259-06, dated November 6.

_____, 2007, Preliminary Geotechnical Investigation, Proposed 31.6-Acre Mixed-Use Site, South of Future Nichols Road (*Alberhill Ranch* Development), City of Lake Elsinore, Riverside County, California, J.N. 271-07, dated August 8.

KWC Engineers, 2006, Nichols Road Rough Grading Plan, Sheets 6 through 8, dated July 28.

_____, 2007, Tract No. 28214 Rough Grading Plan, C.F.D. Nichols Road Phase 2, City of Lake Elsinore, California, Sheets 6 through ___, dated September 28.

Gregory, Gary H., 1999, GSTABL7 with STEDwin, a computer program for Slope Stability Analysis.



SITE LOCATION MAP

NORTH

0 2000 FEET

SCALE

Reference:
USGS topographic map, 7.5 minutes series,
Alberhill Quadrangle, dated 1997,
Lake Elsinore Quadrangle, dated 1997.

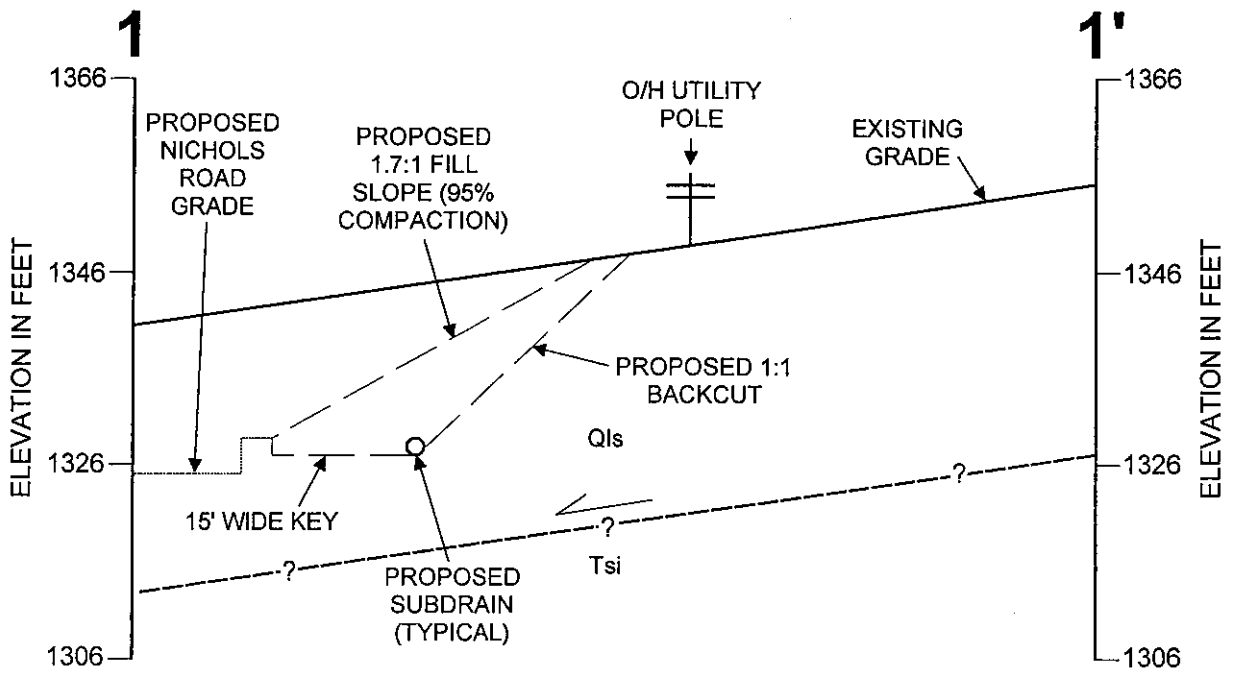
PETRA GEOTECHNICAL, INC.

JN 259-06 OCT, 2007

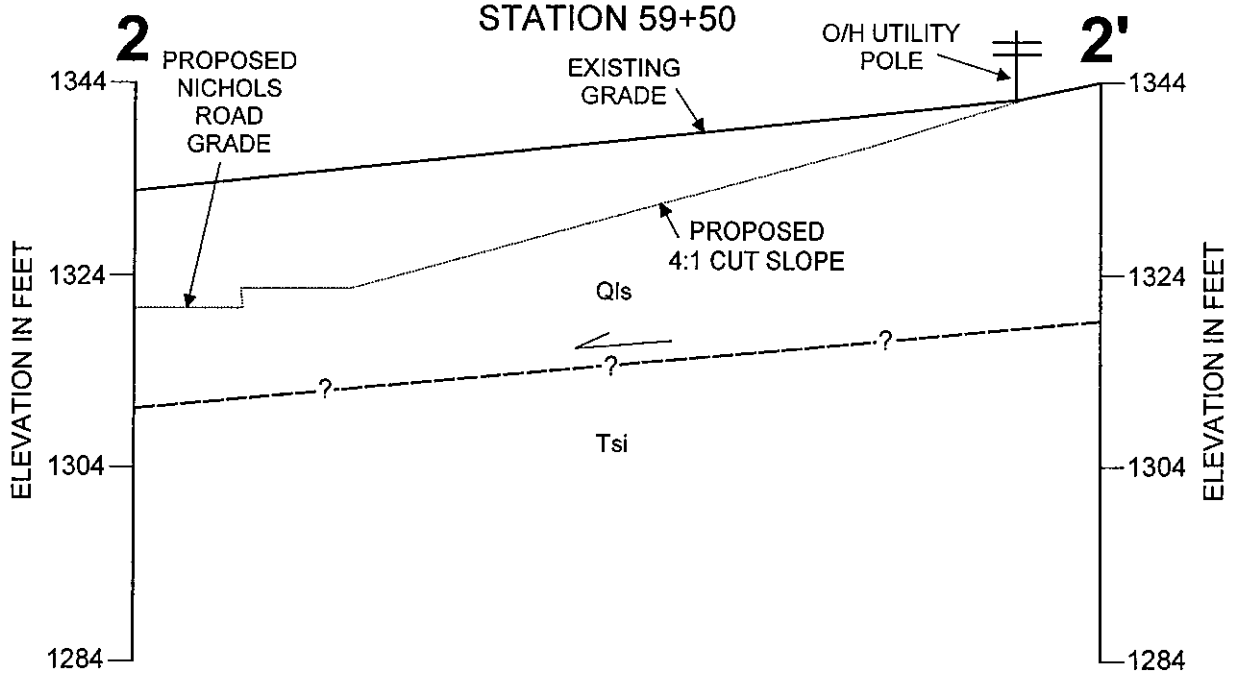
FIGURE 1

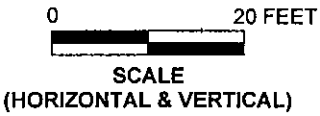
SITEMAP

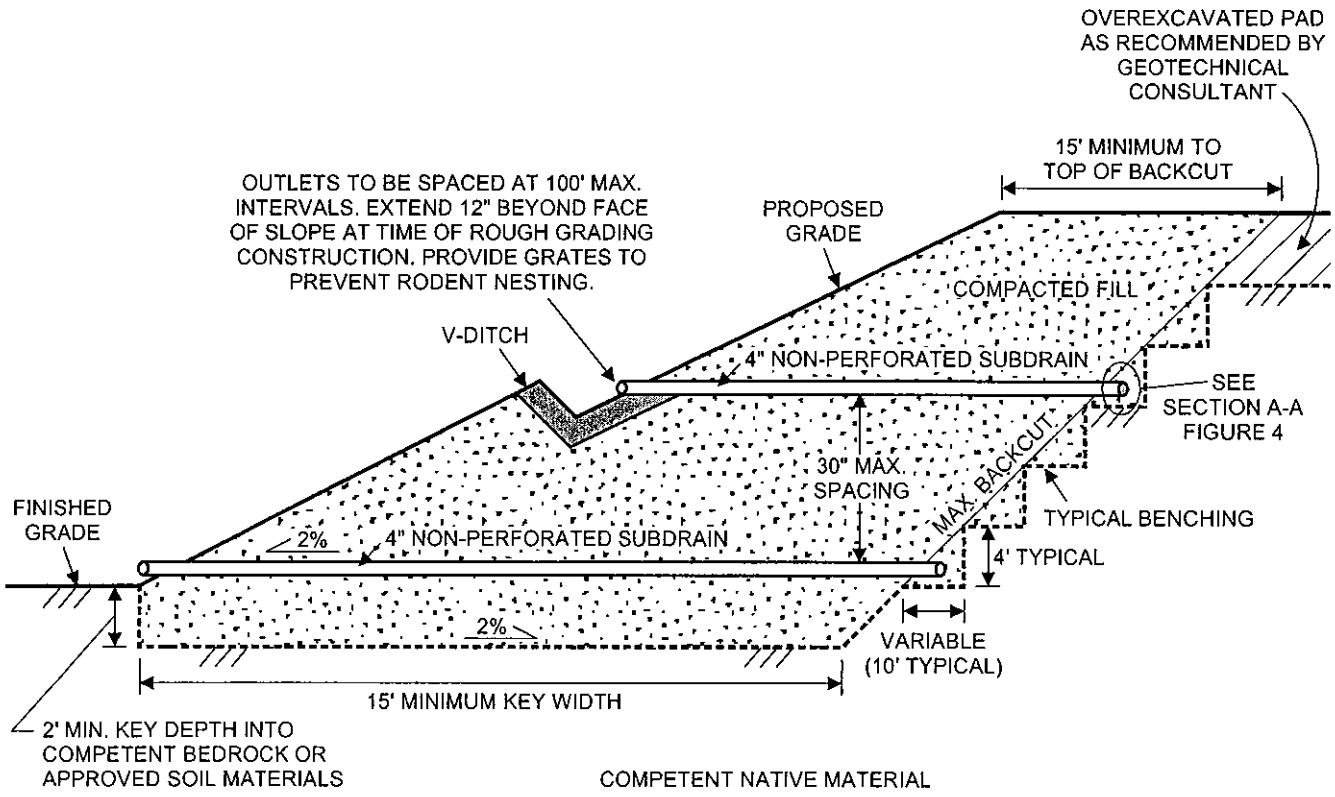
STATION 56+25



STATION 59+50

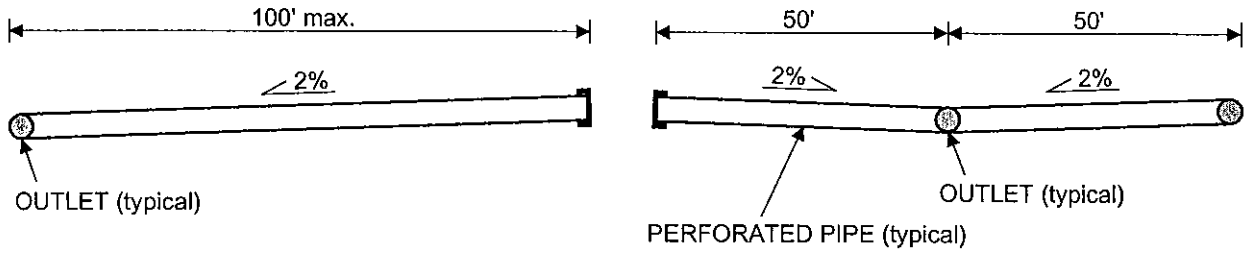






NOTES:

1. 30' MAXIMUM VERTICAL SPACINT BETWEEN SUBDRAIN SYSTEMS
2. 100' MAXIMUM HORIZONTAL DISTANCE BETWEEN NON-PERFORATED OUTLET PIPES. (see below)
3. MINIMUM GRADIENT OF 2% FOR ALL PERFORATED AND NON-PERFORATED PIPE.



BUTTRESS OR STABILIZATION FILL DETAIL

NOT TO SCALE

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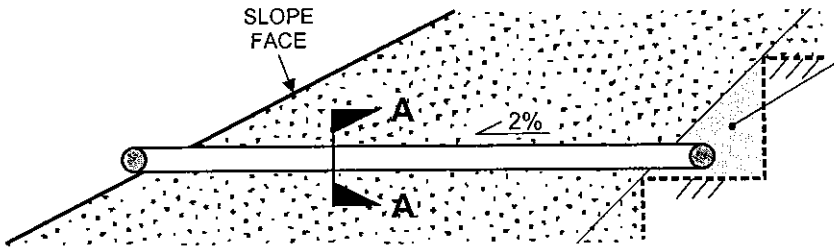
JN 259-06 OCT, 2007

FIGURE 3



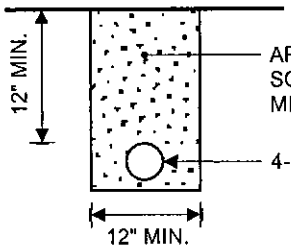
4-INCH PERFORATED PIPE WITH PERFORATION DOWN. MINIMUM 2% GRADE TO OUTLET PIPE.

APPROVED FILTER MATERIAL (MIRAFI 140N OR APPROVED EQUIVALENT).

5 CUBIC FEET OF GRAVEL PER LINEAR FOOT OF PIPE, WITHOUT FILTER FABRIC.

3 CUBIC FEET OF GRAVEL PER LINEAR FOOT OF FABRIC

FILTER FABRIC SHOULD BE LAPPED A MINIMUM OF 12-INCHES.



APPROVED ON SITE MATERIAL PER SOILS ENGINEER. COMPACTED TO A MINIMUM OF 90% MAXIMUM DENDITY.

4-INCH NON-PERFORATED PIPE

SECTION A-A (OUTLET PIPE)

PIPE SPECIFICATIONS:
1. 4-INCH MINIMUM DIAMETER, PVC SCHEDULE 40, OR ABS SDR-35.
2. FOR PERFORATED PIPE, MINIMUM 8 PERFORATIONS PER FOOT ON BOTTOM HALF OF PIPE.

FILTER MATERIAL/FABRIC SPECIFICATIONS:
OPEN GRADED GRAVEL ENCASED IN FILTER FABRIC.
(MIRAFI 140N OR EQUIVALENT)

OPEN GRADED

SEIVE SIZE	PERCENT PASSING
1 1/2-INCH	88-100
1-INCH	5-40
3/4-INCH	0-17
3/8-INCH	0-7
No. 200	0-3

ALTERNATIVE:
CLASS 2 PERMEABLE FILTER MATERIAL PER CALTRANS STANDARD SPECIFICATION 68-1.025.

CLASS 2

SEIVE SIZE	PERCENT PASSING
1-INCH	100
3/4-INCH	90-100
3/8-INCH	40-100
No. 4	25-40
No. 8	18-33
No. -30	5-15
No. -50	0-7
No. 200	0-3

BUTTRESS OR STABILIZATION FILL SUBDRAIN

NOT TO SCALE

PETRA GEOTECHNICAL, INC.

JN 259-06 OCT, 2007

FIGURE 4

APPENDIX A

LOGS OF BORINGS
Petra, 2005; 2006c; 2007

PETRA

APPENDIX A

LOGS OF BORINGS
Petra, 2005; 2006c; 2007

2005

PETRA

EXPLORATION LOG

Project: **Proposed Nichols Road Realignment**		Boring No.:	**B-16**
Location: **Nichols Road, Lake Elsinore, CA**		Elevation:	**1280'**
Job No.: **160-04**	Client: **Castle & Cook**	Date:	**5/11/05**
Drill Method: **Hollow-Stem Auger**	Driving Weight: **140 lbs / 30 in**	Logged By:	**EG**

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		OLDER ALLUVIUM (Qoal)							
		Clayey Sand (SC): Dark brown; moist; medium dense; fine- to medium-grained sand with some coarse sand.							
		Becomes very moist.		5 5 9	■		13.5	115.3	
5		Sandy Clay (CL): Brown; very moist; stiff; fine-grained sand with some medium to coarse sand; few gravel.		3 6 *11	■		14.7	114.2	
10		**BEDROCK - Silverado Formation (Tsi)**		9 25 50	■		16.8	108.9	
		Sandy Siltstone: Mottled gray - reddish brown - pale yellow; moist; moderately hard; fine-grained sand; slightly weathered; slightly micaceous.							
15		Sandy Siltstone to Silty Sandstone: Yellowish-brown; moist; hard; fine-grained sand; slightly weathered.		30 50-4"	■				
		Total Depth = 16.0 feet No Groundwater Borehole backfilled with cuttings.							

EXPLORATION LOG - V3 160-04C.GPJ PETRA.GDT 8/16/05

PLATE A-16

EXPLORATION LOG

Project: **Proposed Nichols Road Realignment**		Boring No.:	**B-17**
Location: **Nichols Road, Lake Elsinore, CA**		Elevation:	**1276'**
Job No.: **160-04**	Client: **Castle & Cook**	Date:	**5/11/05**
Drill Method: **Hollow-Stem Auger**	Driving Weight: **140 lbs / 30 in**	Logged By:	**EG**

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		OLDER ALLUVIUM (Qoal)							
		Clayey Sand (SC): Brown; slightly moist; medium dense; fine- to medium-grained sand with coarse sand; some fine gravel; slightly porous.		12 15 17	■		5.7	110.2	
5		Silty Sand / Clayey Sand (SM/SC): Brown; moist to very moist; medium dense; fine- to coarse-grained sand.		11 8 7	■		8.5	115.8	CON
10		Sandy Clay (CL): Dark brown; very moist to wet; stiff; fine- to medium-grained sand with some coarse sand; some gravel.		4 8 11	■		17.4	109.7	
		BEDROCK - Silverado Formation (Tsi)							
		Silty Sandstone: Mottled olive gray - yellowish brown; wet; moderately hard; fine-grained sand.							
15				3 13 26	■		18.8	107.6	
		Groundwater at 16.5 feet.	▼						
		Sandy Siltstone: Mottled gray - yellowish brown; wet; moderately hard to hard; fine-grained sand.							
20				8 20 40	■		16.8	111.4	
		Total Depth = 21.5 feet Groundwater at 16.5 feet Borehole backfilled with cuttings.							

EXPLORATION LOG - V3 160-04C.GPJ PETRA.GDT 9/21/05

PLATE A-17

Petra Geotechnical, Inc.

EXPLORATION LOG

Project: **Proposed Nichols Road Realignment**		Boring No.:	**B-18**
Location: **Nichols Road, Lake Elsinore, CA**		Elevation:	**1272'**
Job No.: **160-04**	Client: **Castle & Cook**	Date:	**5/11/05**
Drill Method: **Hollow-Stem Auger**	Driving Weight: **140 lbs / 30 in**	Logged By:	**EG**

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		OLDER ALLUVIUM (Qoal)							
		Clayey Sand (SC): Brown; very moist; medium dense; fine- to coarse-grained sand; few gravel; some rootlets.		6 6 8	■		8.7	116.8	
5		Sandy Clay (CL): Dark brown; very moist; firm to stiff; fine-grained sand with some medium to coarse sand.		5 8 11	■		13.2	116.4	
10		Clayey Sand (SC): Reddish-brown; very moist to wet; medium dense; fine-grained sand with some medium to coarse sand.		2 5 8	■		16.2	109.1	CON
		Groundwater at 14 feet.	▼						
15		Clayey Sand with Gravel (SC): Mottled reddish brown - olive gray - yellowish brown; wet; very dense; fine- to coarse-grained sand.		7 22 28	■		8.3	127.8	
20		Silty Sand (SM): Yellowish-brown; wet; dense; fine-grained sand; some clay.		5 12 18	■		20.8	102.5	
		Total Depth = 21.5 feet Groundwater at 14 feet Borehole backfilled with cuttings.							

EXPLORATION LOG - V3 160-04C.GPJ PETRA.GDT 9/21/05

PLATE A-18

Petra Geotechnical, Inc.

EXPLORATION LOG

Project: **Proposed Nichols Road Realignment**		Boring No.: **B-19**	
Location: **Nichols Road, Lake Elsinore, CA**		Elevation: **1269'**	
Job No.: **160-04**	Client: **Castle & Cook**	Date: **5/11/05**	
Drill Method: **Hollow-Stem Auger**	Driving Weight: **140 lbs / 30 in**	Logged By: **EG**	

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		OLDER ALLUVIUM (Qoal)							
		Clayey Sand (SC): Brown to dark brown; moist; medium dense; fine- to medium-grained sand with some coarse sand.							
		Slightly porous; few fine gravel.		7 8 8	■		7.7	108.2	
5		Clayey Sand (SC): Brown; very moist to wet; medium dense; fine- to coarse-grained sand.		2 2 5	■		8.7	109.3	
			▼						
10		Clayey Sand with Sand layers (SC): Brown; wet; medium dense; fine- to medium-grained sand; some gravel; Sand (SP) layers ~ 6 to 8" thick.		3 9 10	■		14.6	116.6	
15		Clayey Sand (SC): Dark brown; wet; medium dense; fine- to medium-grained sand.		5 9 12	■		18.3	109.0	
		Total Depth = 16.5 feet Groundwater at 8.5 feet Borehole backfilled with cuttings.							

EXPLORATION LOG - V3 160-04C.GPJ PETRA.GDT 9/21/05

PLATE A-19

Petra Geotechnical, Inc.

EXPLORATION LOG

Project: **Proposed Nichols Road Realignment**		Boring No.:	**B-20**
Location: **Nichols Road, Lake Elsinore, CA**		Elevation:	**1263'**
Job No.: **160-04**	Client: **Castle & Cook**	Date:	**5/11/05**
Drill Method: **Hollow-Stem Auger**	Driving Weight: **140 lbs / 30 in**	Logged By:	**EG**

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		OLDER ALLUVIUM (Qoal)							
		Clayey Sand (SC).							
		Clayey Sand (SC): Brown; moist; medium dense; fine- to coarse-grained sand; trace of rootlets.		7 8 9	■		10.7	119.1	
5		Sandy Clay (CL): Light brown; very moist to wet; firm; fine-grained sand with some medium sand.		3 3 5	■		15.2	107.3	
10		**BEDROCK - Silverado Formation (Tsi)**		7 50	■		9.3	125.4	
		Conglomeratic Sandstone: Yellowish-brown - olive gray; very moist; hard; fine- to coarse-grained sand; some gravel (granitic).							
		Groundwater at 13.5 feet.	▼						
15		Sandstone: Yellowish-brown; wet; moderately hard to hard; fine-grained sand; micaceous.		18 18 40	■				
		Total Depth = 16.5 feet Groundwater at 13.5 feet Borehole backfilled with cuttings.							

EXPLORATION LOG - V3 160-04C.GPJ PETRA.GDT 9/21/05

PLATE A-20

Petra Geotechnical, Inc.

EXPLORATION LOG

Project: **Proposed Nichols Road Realignment**		Boring No.:	**B-21**
Location: **Nichols Road, Lake Elsinore, CA**		Elevation:	**1259'**
Job No.: **160-04**	Client: **Castle & Cook**	Date:	**5/11/05**
Drill Method: **Hollow-Stem Auger**	Driving Weight: **140 lbs / 30 in**	Logged By:	**EG**

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		OLDER ALLUVIUM (Qoal)							
		Dry upper foot; desiccated upper 6 yo 8 inches.							
		Clayey Sand (SC): Brown; moist; medium dense; fine- to medium-grained sand with some coarse sand.		5 6 6	■		10.6	115.6	
5		Same as above.		3 4 6	■		17.5	109.0	
10		Silty Sand / Clayey Sand (SM/SC): Brown; very moist to wet; loose to medium dense; fine- to medium-grained sand with some coarse sand.		2 3 4	■		22.1	103.9	
		Groundwater at 13.5 feet.	▼						
15		**BEDROCK - Silverado Formation (Tsi)**		17 50	■		18.5	108.2	
		Sandy Siltstone: Mottled red - yellowish red; moist; hard; fine-grained sand.							
		Total Depth = 16.0 feet Groundwater at 13.5 feet Borehole backfilled with cuttings.							

PLATE A-21

Petra Geotechnical, Inc.

EXPLORATION LOG

Project: **Nichols Road**		Boring No.:	**B-23**
Location: **Lake Elsinore**		Elevation:	**1363**
Job No.: **259-06**	Client: **Castle & Cooke**	Date:	**5/11/06**
Drill Method: **Bucket Auger**	Driving Weight: **See Notes**	Logged By:	**DG/JL**

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		LANDSLIDE DEBRIS (Qls)							
		Sandstone: Light gray to brown; slightly moist; moderately hard; fine- to medium-grained sand; intensely fractured; highly weathered; friable.							
		Claystone: Olive gray; slightly moist; soft to moderately hard; intensely fractured; basal contact: N40E, 37SE.							
5		Sandstone: Light gray; slightly moist; moderately hard; fine-grained sand; massive; moderately friable.							
		Siltstone: Olive gray; slightly moist; moderately hard; intensely fractured; rootlets.							
		Sandstone: Light olive gray with orange oxidation along fractures; slightly moist; moderately hard; fine- to medium-grained sand; intensely fractured; joint: N46E, 84NW; bedding: N85W, 13SW.							
10				5			12.1	111.8	
		@ 11.0 feet; clay seam: N8E, 11SE; approximately 1 to 2-inches thick.							
		@ 12.4 feet; shear surface: N30W, 71SW; terminated on clay bed.							
		@ 19.5 feet; clay bed: N25W, 12SW.							
15		Alternating sandstone and claystone: Light gray and dark gray; slightly moist; moderately hard; sandstone is fine to medium grained and massive, claystone is laminated. Layers are approximately 1- to 2-feet thick.							
20				5			7.9	112.3	
		Clay seam: Mottled gray, red, and orange; soft; laminated; polished surfaces, approximately 4-inches thick; polished basal rupture surface: N83E, 18SE.							

EXPLORATION LOG - V2 259-06.GPJ PETRA.GDT 8/7/06

PLATE A-1

Petra Geotechnical, Inc.

EXPLORATION LOG

Project: Nichols Road		Boring No.: B-23	
Location: Lake Elsinore		Elevation: 1363	
Job No.: 259-06	Client: Castle & Cooke	Date: 5/11/06	
Drill Method: Bucket Auger	Driving Weight: See Notes	Logged By: DG/JL	

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		LANDSLIDE DEBRIS (Qls) (continued)							
		Sandstone: Light yellowish-gray; slightly moist; moderately hard; fine- to medium-grained sand; massive.							
		Siltstone and claystone: Gray to olive-brown; slightly moist; moderately hard; moderately fractured; bedding: N68W, 9SW.							
30				4			33.0	84.9	DSU
		@ 31.5 feet; seepage from fracture.							
35									
		Claystone: Dark gray to dark brown; moist; moderately hard; polished surfaces.							
		@ 36.0 feet; polished undulatory rupture surface: N85W, 30SW.							
		OLDER ALLUVIUM (Qoal)							
		Silty Clay (CL): Orange-brown; moist; firm.							
		BEDROCK - Silverado Formation (Tsi)							
40		Sandstone: Yellowish-brown; slightly moist; fine- to coarse-grained sand; scattered white shell fragements.		3			25.6	92.5	
		Sandstone: Light gray to yellowish-gray; slightly moist; moderately hard; fine- to coarse-grained sand; massive.							
		Siltstone: Olive-gray; slightly moist; moderately hard; massive; local gypsum-filled fractures.							
45				5			18.7	106.6	

EXPLORATION LOG - V2 259-06.GPJ PETRA.GDT 8/7/06

PLATE A-2

Petra Geotechnical, Inc.

EXPLORATION LOG

Project: **Nichols Road**		Boring No.:	**B-23**
Location: **Lake Elsinore**		Elevation:	**1363**
Job No.: **259-06**	Client: **Castle & Cooke**	Date:	**5/11/06**
Drill Method: **Bucket Auger**	Driving Weight: **See Notes**	Logged By:	**DG/JL**

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		BEDROCK - Silverado Formation (Tsi) (continued)		3	■		24.7	93.9	
		Siltstone: Olive-gray; slightly moist; moderately hard; massive; local gypsum-filled fractures.							
55		@ 54.5 feet; bedding: N15E, 20SE.		10	■		16.5	112.5	
60		Claystone: Olive-gray; moist; moderately hard; laminated; bedding: N85E, 21SE.		15	■		12.4	121.8	
		Sandstone: Yellowish-brown; moist; moderately hard; fine- to medium-grained sand; massive.							
		@ 62.5 feet; bedding: N52W, 11SW.							
		@ 63.0 feet; minor seepage.							
65									
70				20	■		11.2	122.2	

EXPLORATION LOG - VZ 259-06.GPJ PETRA.GDT 8/7/06

PLATE A-3

Petra Geotechnical, Inc.

EXPLORATION LOG

Project: Nichols Road		Boring No.:	B-23
Location: Lake Elsinore		Elevation:	1363
Job No.: 259-06	Client: Castle & Cooke	Date:	5/11/06
Drill Method: Bucket Auger	Driving Weight: See Notes	Logged By:	DG/JL

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		Total depth = 75 feet Seepage encountered at approximately 31 feet and 62.6 feet. Backfilled with on-site soils on 5/11/2006 Notes: Driller: Dave's Drilling Kelley Weights: 0 - 27' = 5500lbs 27' - 52' = 3700lbs 52' - 80' = 2750lbs.							

PLATE A-4

Petra Geotechnical, Inc.

EXPLORATION LOG - V2 259-06.GPJ PETRA.GDT 8/7/05

APPENDIX A

LOGS OF BORINGS
Petra, 2005; 2006c; 2007

2006c

PETRA

EXPLORATION LOG

Project: **Nichols Road Realignment**		Boring No.:	**BA-1/Sta 61+50**
Location: **Lake Elsinore, CA**		Elevation:	**1,318± ft msl**
Job No.: **259-06**	Client: **Castle & Cooke**	Date:	**9/25/06**
Drill Method: **24-inch bucket auger**	Driving Weight:	Logged By:	**D Johnston**

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		LANDSLIDE DEPOSITS (Qls)							
		Silty SANDSTONE: yellow-orange, moist, moderately hard; with cobbles.							
		Silty SANDSTONE: yellow, moist, hard; fine-grained.							
5		@ 7.0 feet: 3-inch thick yellowish brown, clayey sandstone bed.							
		CLAYSTONE: bluish grey, moist, hard; blocky fractures, orange staining.							
		Clayey SANDSTONE: orange brown with grey, moist, hard; cemented.							
10		Sandy SILTSTONE: orange brown with grey.							
		Sandy CLAYSTONE: blue grey, moist, hard; with orange staining.							
		SANDSTONE/Clayey SANDSTONE: less orange staining.							
15		CLAYSTONE: grey and orange, moist, hard.							
		Sandy SILTSTONE: grey to yellow brown, moist, hard.							

EXPLORATION LOG - V2 259-06.GPJ PETRA.GDT 10/23/07

PLATE A-1

Petra Geotechnical, Inc.

EXPLORATION LOG

Project: **Nichols Road Realignment**		Boring No.:	**BA-1/Sta 61+50**
Location: **Lake Elsinore, CA**		Elevation:	**1,318± ft msl**
Job No.: **259-06**	Client: **Castle & Cooke**	Date:	**9/25/06**
Drill Method: **24-inch bucket auger**	Driving Weight:	Logged By:	**D Johnston**

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		CLAYSTONE: olive grey; fat clay							
		N60°E, 30°SE.							
		Silty SANDSTONE: yellow brown.							
		CLAYSTONE: yellowish olive.							
		@ 22.5 feet: 2-inch thick black fat clay seam.							
		@ 22.7 feet: 3-inch thick, light yellowish grey, fat clay seam.							
		Clayey SANDSTONE: dark grey; with gravel.							
25		**BEDROCK: SILVERADO FORMATION (Tsi)**							
		Clayey SANDSTONE/Sandy CLAYSTONE: orange and grey, moderately hard; moderately weathered, mottled coloring.							
30		TOTAL DEPTH = 30.0'							
		NO GROUNDWATER ENCOUNTERED							
		BORING BACKFILLED.							

EXPLORATION LOG - V2 259-06.GPJ PETRA.GDT 10/23/07

PLATE A-2

Petra Geotechnical, Inc.

EXPLORATION LOG

Project: **31-Acre Parcel**		Boring No.: **BA-1**	
Location: **Lake Elsinore, CA**		Elevation: **1,326 ft± msl**	
Job No.: **271-07**	Client: **Castle & Cooke AR**	Date: **7/2/07**	
Drill Method: **30-inch bucket auger**	Driving Weight:	Logged By: **D Johnston**	

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		TOPSOIL Clayey SAND/Sandy CLAY (SC/CL): brown to yellowish brown, dry to moist, medium dense to very stiff; blocky structure, pedogenic soil.							
		LANDSLIDE DEPOSITS (Qls) Sandy CLAY (CL): grey, moist, stiff; fine to coarse, with iron staining.							
5		Silty SAND (SM): yellow, moist, medium dense; friable, trace claystone. @ 5.0 to 7.0 feet: abundant krotovina. @ 8.0 feet: white; trace fine gravel.							
10		CLAY (CL): olive grey,moist,stiff; iron staining, with sand and carbonates @ 9.0 feet: bedding: N80°W, 35°N. Sandy CLAY (CL): grey to olive grey,moist, stiff @ 11.0 feet: bedding: N80°W, 35 °N.							atterberg
15		@ 14.2 feet: 1/2 inch sheared clay seam, N48°W, 52°NE. Clayey SAND (SC): yellowish grey, moist, medium dense; fine to medium, cemented. @ 16.0 feet: interbedded clay/silty sand.							
20		Silty SAND (SM): white, moist, medium dense; slightly friable, micaceous, cross-bedded. Sandy CLAY (CL): olive grey, moist, very stiff. @ 23.5 feet: 1/2 to 1 inch clay seam, N55°E, 45°NW.							

EXPLORATION LOG - V2 271-07A.GPJ PETRA.GDT 10/23/07

PLATE A-11

Petra Geotechnical, Inc.

APPENDIX A

LOGS OF BORINGS
Petra, 2005; 2006c; 2007

2007

PETRA

EXPLORATION LOG

Project: **31-Acre Parcel**		Boring No.:	**BA-1**
Location: **Lake Elsinore, CA**		Elevation:	**1,326 ft± msl**
Job No.: **271-07**	Client: **Castle & Cooke AR**	Date:	**7/2/07**
Drill Method: **30-inch bucket auger**	Driving Weight:	Logged By:	**D Johnston**

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		@ 26.0 feet: jumbled silty sand/clay.							
		@ 29.0 feet: rupture surface, 1 to 2 inches clay seam, N85°W, 4°N.							atterberg
30		**OLDER ALLUVIUM (Qoal)** Silty SAND (SM): light grey to pale yellow, moist, medium dense; faint lamination, with gravel, claystone chunks.							atterberg
		Silty CLAY (CH): light reddish brown, moist, stiff; with decayed rootlets.							
35		**BEDROCK: SILVERADO FORMATION (Tsi)** Silty SANDSTONE: yellowish brown, moist, soft to moderately hard; moderately weathered, massive.							
		@ 37.5 feet: bedding attitude: N68°, 16°SE SILTSTONE: laminated, with iron staining.							
40		Silty SANDSTONE.	▽						
45									

EXPLORATION LOG - V2 271-07A.GPJ PETRA.GDT 10/23/07

PLATE A-12

Petra Geotechnical, Inc.

EXPLORATION LOG

Project: **31-Acre Parcel**		Boring No.:	**BA-1**
Location: **Lake Elsinore, CA**		Elevation:	**1,326 ft± msl**
Job No.: **271-07**	Client: **Castle & Cooke AR**	Date:	**7/2/07**
Drill Method: **30-inch bucket auger**	Driving Weight:	Logged By:	**D Johnston**

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		@ 50.0 feet: brownish yellow to yellowish grey, wet, hard; fine- to medium-grained, moderately weathered, groundwater.							
		@ 52.0 feet: bedding attitude: N40°E, 40°SE							
		@ 52.0 feet: light grey to pale yellow, wet, hard; fine-grained, very fine lamination (1 mm thick), cross-bedded, very heavy water flow.							
		@ 54.0 feet: bedding attitude: N60°E,20SE							
55		CLAYSTONE: olive yellow to grey, wet, very hard; with iron staining.							
		SANDSTONE/CLAYSTONE: interbedded.							
60									
		TOTAL DEPTH = 62.0' GROUNDWATER ENCOUNTERED @ 50.0' BORING BACKFILLED.							

EXPLORATION LOG - V2 271-07A.GPJ PETRA.GDT 10/23/07

PLATE A-13

EXPLORATION LOG

Project: **31-Acre Parcel**		Boring No.:	**BA-2**
Location: **Lake Elsinore, CA**		Elevation:	**1,321 ft± msl**
Job No.: **271-07**	Client: **Castle & Cooke AR**	Date:	**7/2/07**
Drill Method: **30-inch bucket auger**	Driving Weight:	Logged By:	**D Johnston**

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		TOPSOIL Sandy CLAY (CL): dark brown, dry to slightly moist, stiff; blocky structure, with cobbles, pedogenic soil.							
		LANDSLIDE DEPOSITS (Qls) Sandy CLAY/Clayey SAND (CL/SC): brownish red, moist, very stiff; with carbonate and cobbles to boulders, Pauba-derived.							
5		Silty SAND (SM): grey to pale yellow, slightly moist, dense; highly fractured, cemented, with iron staining.							
10		@ 11.0 feet: white to pale yellow; slightly friable, less cemented.							
		@ 13.0 feet: sheared clay seam 1.5 inches thick, N35°W, 26°NE							
		@ 13.0 feet: olive grey, moist, dense; cemented, with iron staining.							
15		Sandy CLAY (CL): olive grey, very stiff; with iron staining and gypsum.							
		Silty SAND (SM): pale yellow, moist, dense; with iron staining.							
		@ 19.0 feet: laminated.							
20		@ 20.75 feet: 1/4 inch clay seam.							
		@ 21.0 feet: white, moist, medium dense; friable, with iron staining.							
		SILT (ML): olive grey, moist, very stiff; abundant iron staining, with sand, very irregular contact.							

EXPLORATION LOG - V2 271-07A.GPJ PETRA.GDT 10/23/07

PLATE A-14

Petra Geotechnical, Inc.

EXPLORATION LOG

Project: **31-Acre Parcel**		Boring No.:	**BA-2**
Location: **Lake Elsinore, CA**		Elevation:	**1,321 ft± msl**
Job No.: **271-07**	Client: **Castle & Cooke AR**	Date:	**7/2/07**
Drill Method: **30-inch bucket auger**	Driving Weight:	Logged By:	**D Johnston**

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		@ 26.3 feet: 1/4 inch sheared orange clay seam, N60°W, 65°SW.							
		Silty SAND (SM).							
		@ 28.5 feet: 1 inch highly sheared, olive clay seam, fat clay with slickenside, N60°, 75°NW.							
30		@ 29.5 feet: yellow, moist, dense; slightly friable.							
		@ 31.2 feet: 1/2 inch sheared, olive clay seam, N45°W, 35°SW.							
		@ 31.7 feet: olive grey, moist, dense; massive, with iron staining.							
35		@ 36.75 feet: rupture surface, sheared, olive to olive yellow fat clay, subhorizontal.							
		OLDER ALLUVIUM (Qoal)							
		Clayey SAND (SC): grey, moist, dense; with gravels and claystone chunks.							
40		Silty SAND (SM): dark grey, wet, medium dense; fine to medium.							
		@ 41.0 feet: groundwater; very heavy caving.	▽						
45		**BEDROCK: SILVERADO FORMATION (Tsi)**							
		Silty SANDSTONE: olive yellow to yellow, wet, moderately hard; highly weathered, micaceous.							

EXPLORATION LOG - V2 271-07A.GPJ PETRA.GDT 10/23/07

PLATE A-15

Petra Geotechnical, Inc.

EXPLORATION LOG

Project: **31-Acre Parcel**		Boring No.:	**BA-2**
Location: **Lake Elsinore, CA**		Elevation:	**1,321 ft± msl**
Job No.: **271-07**	Client: **Castle & Cooke AR**	Date:	**7/2/07**
Drill Method: **30-inch bucket auger**	Driving Weight:	Logged By:	**D Johnston**

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
55		@ 51.0 feet: olive yellow, wet, moderately hard; micaceous.							
60		TOTAL DEPTH = 60.0' GROUNDWATER ENCOUNTERED @ 41.0' BORING BACKFILLED.							

EXPLORATION LOG - V2 271-07A.GPJ PETRA.GDT 10/23/07

PLATE A-16

Petra Geotechnical, Inc.

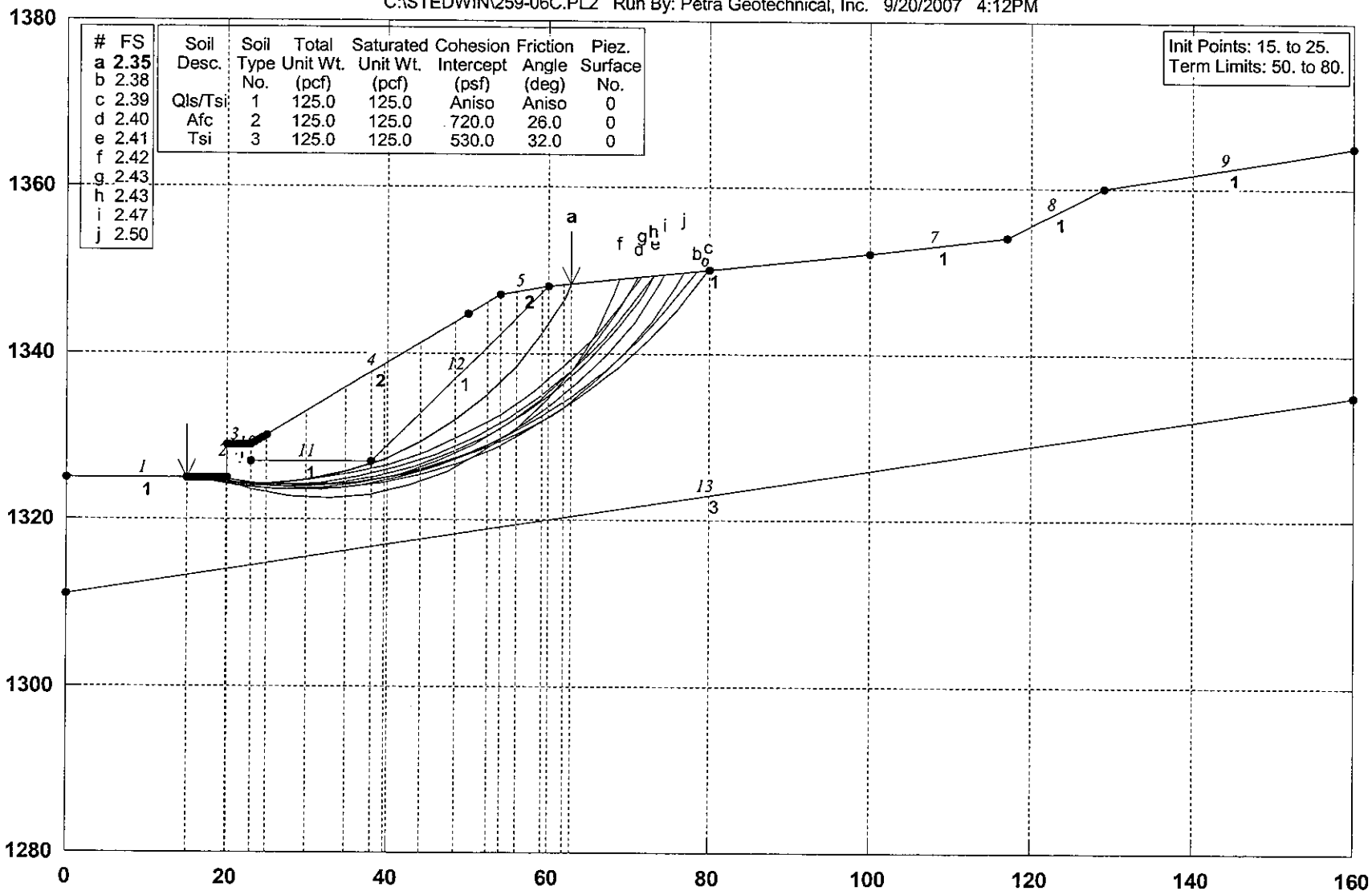
APPENDIX B

SLOPE STABILITY CALCULATIONS

PETRA

1.7:1 Stability fill slope at Sta 56+25 - Static analysis (95% TP-3 @ 0-3')

C:\STEDWIN\259-06C.PL2 Run By: Petra Geotechnical, Inc. 9/20/2007 4:12PM



GSTABL7 FSmin=2.35

Safety Factors Are Calculated By The Modified Bishop Method

PETRA

*** GSTABL7 ***
** GSTABL7 by Garry H. Gregory, P.E. **
** Version 1.0, January 1996; Version 1.14, Sept 1999 **
--Slope Stability Analysis--
Simplified Janbu, Modified Bishop
or Spencer`s Method of Slices
(Based on STABL6-1986, by Purdue University)

Run Date: 9/20/2007
Time of Run: 4:12PM
Run By: Petra Geotechnical, Inc.
Input Data Filename: C:259-06c.
Output Filename: C:259-06c.OUT
Unit System: English
Plotted Output Filename: C:259-06c.PLT
PROBLEM DESCRIPTION 1.7:1 Stability fill slope at Sta 56+25
- Static analysis (95% TP-3 @ 0-3')

BOUNDARY COORDINATES
Note: User origin value specified.
Add 0.00 to X-values and 1280.00 to Y-values listed.

9 Top Boundaries
13 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	45.00	19.90	45.00	1
2	19.90	45.00	20.00	49.00	1
3	20.00	49.00	23.00	49.00	1
4	23.00	49.00	54.00	67.00	2
5	54.00	67.00	60.00	68.00	2
6	60.00	68.00	100.00	72.00	1
7	100.00	72.00	117.00	74.00	1
8	117.00	74.00	129.00	80.00	1
9	129.00	80.00	160.00	85.00	1
10	23.00	49.00	23.01	47.00	1
11	23.01	47.00	38.00	47.00	1
12	38.00	47.00	60.00	68.00	1
13	0.00	31.00	160.00	55.00	3

ISOTROPIC SOIL PARAMETERS
3 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	125.0	125.0	530.0	32.0	0.00	0.0	0
2	125.0	125.0	720.0	26.0	0.00	0.0	0
3	125.0	125.0	530.0	32.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
1 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 3

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	5.0	530.0	32.0
2	20.0	140.0	15.0
3	90.0	530.0	32.0

A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
400 Trial Surfaces Have Been Generated.
20 Surfaces Initiate From Each Of 20 Points Equally Spaced
Along The Ground Surface Between X = 15.00(ft)
and X = 25.00(ft)
Each Surface Terminates Between X = 50.00(ft)
and X = 80.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = 0.00(ft)
5.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial

Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Bishop Method * *

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	15.00	45.00
2	19.96	44.34
3	24.96	44.25
4	29.93	44.71
5	34.83	45.73
6	39.58	47.29
7	44.13	49.37
8	48.41	51.95
9	52.38	54.99
10	55.98	58.46
11	59.17	62.31
12	61.91	66.49
13	62.81	68.28

Circle Center At X = 23.3 ; Y = 88.8 and Radius, 44.6

*** 2.345 ***

Individual data on the 19 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	4.9	198.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.1	12.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	20.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	3.0	1757.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	1.9	1290.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	5.0	4419.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	4.9	5646.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	3.2	4176.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	1.6	2200.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	4.5	6599.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	4.3	6343.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	4.0	5670.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	1.6	2181.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	2.0	2388.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	3.2	2875.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	0.8	517.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	1.9	729.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.9	95.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	15.53	45.00
2	20.47	44.25
3	25.46	43.90
4	30.46	43.95
5	35.44	44.39
6	40.37	45.22
7	45.22	46.44
8	49.95	48.04
9	54.55	50.01
10	58.97	52.34
11	63.20	55.01
12	67.20	58.01
13	70.96	61.31
14	74.43	64.90
15	77.62	68.76
16	78.37	69.84

Circle Center At X = 27.4 ; Y = 106.8 and Radius, 63.0

*** 2.377 ***

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	17.11	45.00
2	22.06	44.31
3	27.05	44.02
4	32.05	44.11
5	37.03	44.60
6	41.95	45.47
7	46.79	46.72
8	51.52	48.35
9	56.10	50.35
10	60.52	52.69
11	64.73	55.38
12	68.73	58.38
13	72.48	61.69
14	75.96	65.28
15	79.14	69.14
16	79.73	69.97

Circle Center At X = 28.4 ; Y = 107.8 and Radius, 63.8

*** 2.386 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	16.58	45.00
2	21.49	44.06
3	26.47	43.63
4	31.47	43.71
5	36.44	44.30
6	41.32	45.39
7	46.06	46.98
8	50.62	49.04
9	54.94	51.55
10	58.98	54.49
11	62.71	57.82
12	66.07	61.52
13	69.04	65.54
14	71.15	69.12

Circle Center At X = 28.2 ; Y = 92.5 and Radius, 48.9

*** 2.404 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	18.68	45.00
2	23.64	44.35
3	28.64	44.17
4	33.63	44.46
5	38.57	45.22
6	43.42	46.43
7	48.14	48.10
8	52.67	50.20
9	56.99	52.72
10	61.05	55.64
11	64.83	58.92
12	68.27	62.54
13	71.36	66.47
14	73.20	69.32

Circle Center At X = 28.1 ; Y = 97.2 and Radius, 53.0

*** 2.406 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	18.16	45.00
2	22.95	43.59
3	27.89	42.79
4	32.89	42.63
5	37.87	43.09
6	42.75	44.19

7	47.45	45.89
8	51.90	48.17
9	56.02	50.99
10	59.76	54.32
11	63.04	58.09
12	65.82	62.24
13	68.05	66.72
14	68.81	68.88

Circle Center At X = 31.7 ; Y = 81.9 and Radius, 39.3

*** 2.419 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	15.53	45.00
2	20.50	44.48
3	25.50	44.39
4	30.49	44.73
5	35.43	45.50
6	40.28	46.69
7	45.02	48.30
8	49.60	50.30
9	53.99	52.69
10	58.16	55.46
11	62.07	58.56
12	65.71	62.00
13	69.03	65.73
14	71.59	69.16

Circle Center At X = 24.0 ; Y = 102.3 and Radius, 58.0

*** 2.432 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	16.58	45.00
2	21.54	44.38
3	26.54	44.21
4	31.53	44.48
5	36.48	45.19
6	41.35	46.33
7	46.10	47.90
8	50.69	49.88
9	55.08	52.26
10	59.25	55.02
11	63.16	58.14
12	66.78	61.59
13	70.08	65.35
14	72.97	69.30

Circle Center At X = 26.0 ; Y = 100.7 and Radius, 56.5

*** 2.433 ***

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	17.11	45.00
2	22.02	44.09
3	27.00	43.65
4	32.00	43.68
5	36.98	44.19
6	41.88	45.16
7	46.67	46.60
8	51.30	48.48
9	55.74	50.79
10	59.93	53.51
11	63.85	56.61
12	67.46	60.07
13	70.73	63.86
14	73.62	67.94
15	74.49	69.45

Circle Center At X = 29.2 ; Y = 96.4 and Radius, 52.8

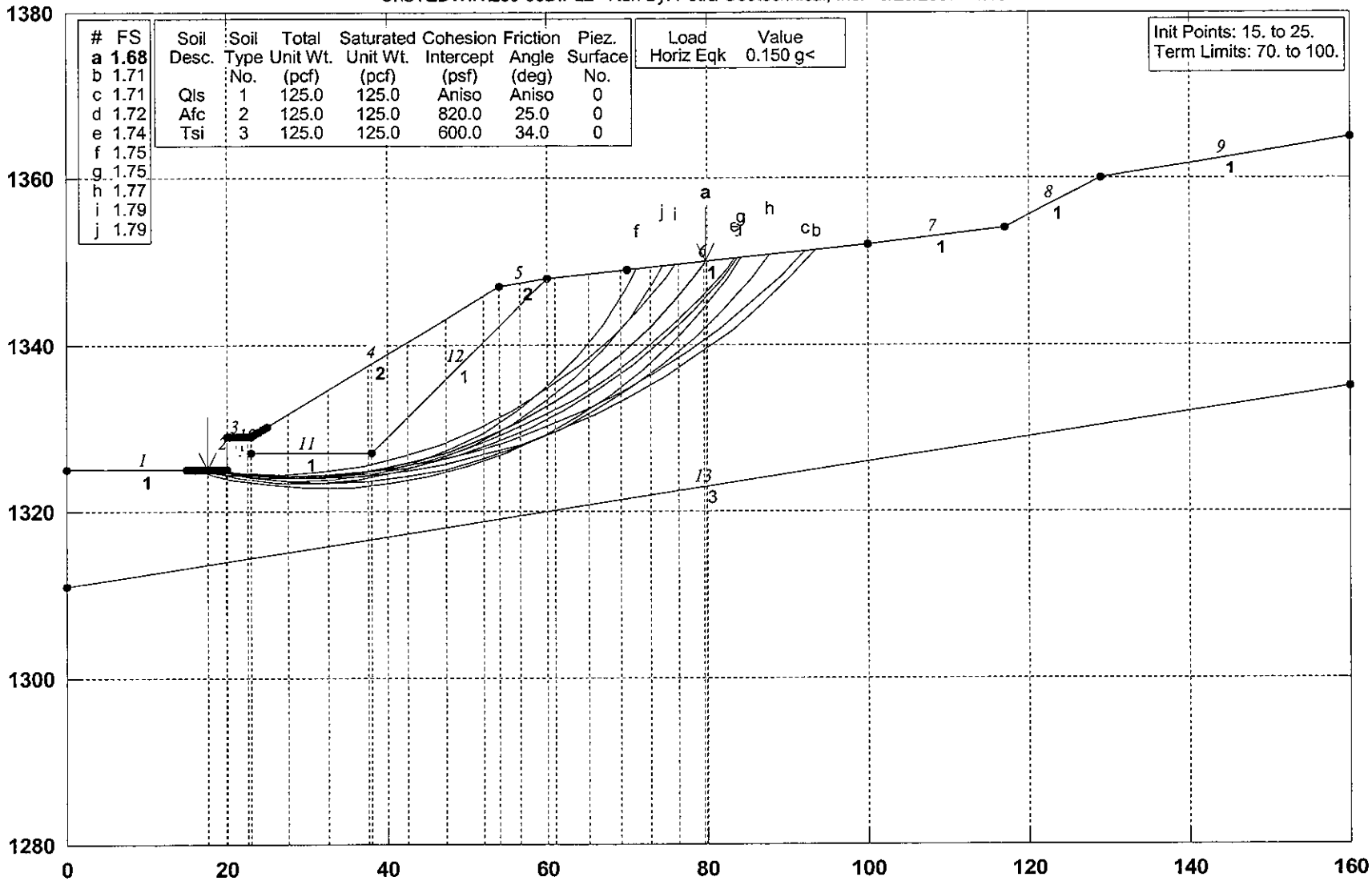
*** 2.468 ***
Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	19.21	45.00
2	24.14	44.15
3	29.12	43.75
4	34.12	43.82
5	39.09	44.36
6	43.99	45.35
7	48.78	46.79
8	53.41	48.67
9	57.85	50.97
10	62.06	53.67
11	66.00	56.75
12	69.63	60.19
13	72.94	63.94
14	75.87	67.99
15	76.88	69.69

Circle Center At X = 30.9 ; Y = 97.6 and Radius, 53.9
*** 2.504 ***

1.7:1 Stability fill slope at Sta 56+25 - Seismic analysis (95% TP-3 @ 0-3')

C:\STEDWIN\259-06D.PL2 Run By: Petra Geotechnical, Inc. 9/20/2007 4:15PM



GSTABL7 FSmin=1.68

Safety Factors Are Calculated By The Modified Bishop Method

PETRA

*** GSTABL7 ***
** GSTABL7 by Garry H. Gregory, P.E. **
** Version 1.0, January 1996; Version 1.14, Sept 1999 **
--Slope Stability Analysis--
Simplified Janbu, Modified Bishop
or Spencer`s Method of Slices
(Based on STABL6-1986, by Purdue University)

Run Date: 9/20/2007
Time of Run: 4:15PM
Run By: Petra Geotechnical, Inc.
Input Data Filename: C:259-06d.
Output Filename: C:259-06d.OUT
Unit System: English
Plotted Output Filename: C:259-06d.PLT
PROBLEM DESCRIPTION 1.7:1 Stability fill slope at Sta 56+25
- Seismic analysis (95% TP-3 @ 0-3')

BOUNDARY COORDINATES
Note: User origin value specified.
Add 0.00 to X-values and 1280.00 to Y-values listed.

9 Top Boundaries
13 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	45.00	19.90	45.00	1
2	19.90	45.00	20.00	49.00	1
3	20.00	49.00	23.00	49.00	1
4	23.00	49.00	54.00	67.00	2
5	54.00	67.00	60.00	68.00	2
6	60.00	68.00	100.00	72.00	1
7	100.00	72.00	117.00	74.00	1
8	117.00	74.00	129.00	80.00	1
9	129.00	80.00	160.00	85.00	1
10	23.00	49.00	23.01	47.00	1
11	23.01	47.00	38.00	47.00	1
12	38.00	47.00	60.00	68.00	1
13	0.00	31.00	160.00	55.00	3

ISOTROPIC SOIL PARAMETERS
3 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	125.0	125.0	600.0	34.0	0.00	0.0	0
2	125.0	125.0	820.0	25.0	0.00	0.0	0
3	125.0	125.0	600.0	34.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
1 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 3

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	5.0	530.0	32.0
2	20.0	140.0	15.0
3	90.0	530.0	32.0

A Horizontal Earthquake Loading Coefficient
Of0.150 Has Been Assigned
A Vertical Earthquake Loading Coefficient
Of0.000 Has Been Assigned
Cavitation Pressure = 0.0(psf)
A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
400 Trial Surfaces Have Been Generated.
20 Surfaces Initiate From Each Of 20 Points Equally Spaced
Along The Ground Surface Between X = 15.00(ft)
and X = 25.00(ft)
Each Surface Terminates Between X = 70.00(ft)

and X = 100.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = 0.00(ft)
5.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Examined. They Are Ordered - Most Critical
First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	17.63	45.00
2	22.60	44.39
3	27.59	44.17
4	32.59	44.33
5	37.56	44.87
6	42.47	45.79
7	47.30	47.09
8	52.02	48.76
9	56.59	50.78
10	60.99	53.14
11	65.20	55.84
12	69.19	58.85
13	72.94	62.16
14	76.42	65.75
15	79.62	69.60
16	79.90	69.99

Circle Center At X = 28.0 ; Y = 109.2 and Radius, 65.0
*** 1.682 ***
Individual data on the 22 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	2.3	39.3	0.0	0.0	0.0	0.0	5.9	0.0	0.0
2	0.1	28.5	0.0	0.0	0.0	0.0	4.3	0.0	0.0
3	2.6	1443.0	0.0	0.0	0.0	0.0	216.4	0.0	0.0
4	0.4	233.6	0.0	0.0	0.0	0.0	35.0	0.0	0.0
5	0.0	5.8	0.0	0.0	0.0	0.0	0.9	0.0	0.0
6	4.6	3471.6	0.0	0.0	0.0	0.0	520.7	0.0	0.0
7	5.0	5539.2	0.0	0.0	0.0	0.0	830.9	0.0	0.0
8	5.0	7088.9	0.0	0.0	0.0	0.0	1063.3	0.0	0.0
9	0.4	700.0	0.0	0.0	0.0	0.0	105.0	0.0	0.0
10	4.5	7621.0	0.0	0.0	0.0	0.0	1143.2	0.0	0.0
11	4.8	9213.7	0.0	0.0	0.0	0.0	1382.1	0.0	0.0
12	4.7	9756.7	0.0	0.0	0.0	0.0	1463.5	0.0	0.0
13	2.0	4273.5	0.0	0.0	0.0	0.0	641.0	0.0	0.0
14	2.6	5504.8	0.0	0.0	0.0	0.0	825.7	0.0	0.0
15	3.4	6831.5	0.0	0.0	0.0	0.0	1024.7	0.0	0.0
16	1.0	1884.3	0.0	0.0	0.0	0.0	282.6	0.0	0.0
17	4.2	7271.3	0.0	0.0	0.0	0.0	1090.7	0.0	0.0
18	4.0	5672.6	0.0	0.0	0.0	0.0	850.9	0.0	0.0
19	3.7	4027.5	0.0	0.0	0.0	0.0	604.1	0.0	0.0
20	3.5	2398.6	0.0	0.0	0.0	0.0	359.8	0.0	0.0
21	3.2	850.3	0.0	0.0	0.0	0.0	127.5	0.0	0.0
22	0.3	6.4	0.0	0.0	0.0	0.0	1.0	0.0	0.0

Failure Surface Specified By 18 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	17.11	45.00
2	22.07	44.38
3	27.06	44.06
4	32.06	44.01
5	37.05	44.26
6	42.02	44.79
7	46.95	45.61
8	51.83	46.71

9	56.64	48.09
10	61.36	49.74
11	65.97	51.66
12	70.47	53.85
13	74.84	56.28
14	79.05	58.97
15	83.11	61.89
16	86.99	65.04
17	90.69	68.41
18	93.56	71.36

Circle Center At X = 30.3 ; Y = 130.8 and Radius, 86.8
*** 1.707 ***
Failure Surface Specified By 18 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	15.53	45.00
2	20.50	44.48
3	25.49	44.23
4	30.49	44.25
5	35.48	44.55
6	40.45	45.12
7	45.38	45.97
8	50.25	47.08
9	55.06	48.46
10	59.78	50.10
11	64.41	52.00
12	68.92	54.15
13	73.31	56.55
14	77.56	59.18
15	81.66	62.04
16	85.60	65.12
17	89.36	68.42
18	92.23	71.22

Circle Center At X = 27.6 ; Y = 135.1 and Radius, 90.9
*** 1.708 ***
Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	18.68	45.00
2	23.64	44.37
3	28.64	44.10
4	33.64	44.19
5	38.62	44.65
6	43.55	45.47
7	48.41	46.65
8	53.17	48.17
9	57.81	50.04
10	62.30	52.24
11	66.61	54.76
12	70.74	57.59
13	74.64	60.71
14	78.31	64.11
15	81.72	67.76
16	83.84	70.38

Circle Center At X = 29.9 ; Y = 112.6 and Radius, 68.6
*** 1.718 ***
Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	15.00	45.00
2	19.95	44.32
3	24.94	43.99
4	29.94	44.00
5	34.93	44.35
6	39.88	45.04
7	44.78	46.07
8	49.59	47.43

9	54.29	49.12
10	58.87	51.13
11	63.30	53.45
12	67.56	56.07
13	71.63	58.97
14	75.50	62.14
15	79.13	65.57
16	82.53	69.25
17	83.40	70.34

Circle Center At X = 27.3 ; Y = 116.8 and Radius, 72.9

*** 1.736 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	18.16	45.00
2	23.07	44.07
3	28.06	43.67
4	33.05	43.79
5	38.01	44.45
6	42.87	45.62
7	47.58	47.31
8	52.08	49.48
9	56.33	52.11
10	60.28	55.19
11	63.88	58.66
12	67.09	62.49
13	69.87	66.64
14	71.18	69.12

Circle Center At X = 29.4 ; Y = 90.7 and Radius, 47.0

*** 1.750 ***

Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	15.53	45.00
2	20.40	43.88
3	25.35	43.15
4	30.33	42.81
5	35.33	42.87
6	40.31	43.32
7	45.24	44.17
8	50.09	45.41
9	54.82	47.02
10	59.41	49.01
11	63.82	51.35
12	68.04	54.04
13	72.03	57.05
14	75.77	60.37
15	79.24	63.97
16	82.40	67.84
17	84.19	70.42

Circle Center At X = 32.1 ; Y = 105.8 and Radius, 63.0

*** 1.753 ***

Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	17.63	45.00
2	22.56	44.13
3	27.53	43.61
4	32.53	43.44
5	37.52	43.64
6	42.49	44.19
7	47.41	45.09
8	52.25	46.35
9	56.99	47.95
10	61.60	49.88
11	66.06	52.13
12	70.35	54.70

13	74.44	57.57
14	78.32	60.73
15	81.97	64.15
16	85.35	67.83
17	87.70	70.77

Circle Center At X = 32.3 ; Y = 113.3 and Radius, 69.9

*** 1.767 ***

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	17.11	45.00
2	22.08	44.53
3	27.08	44.46
4	32.07	44.78
5	37.02	45.49
6	41.90	46.59
7	46.67	48.08
8	51.32	49.93
9	55.80	52.15
10	60.09	54.71
11	64.17	57.60
12	68.01	60.81
13	71.58	64.31
14	74.87	68.08
15	75.99	69.60

Circle Center At X = 25.5 ; Y = 107.8 and Radius, 63.3

*** 1.791 ***

Failure Surface Specified By 15 Coordinate Points

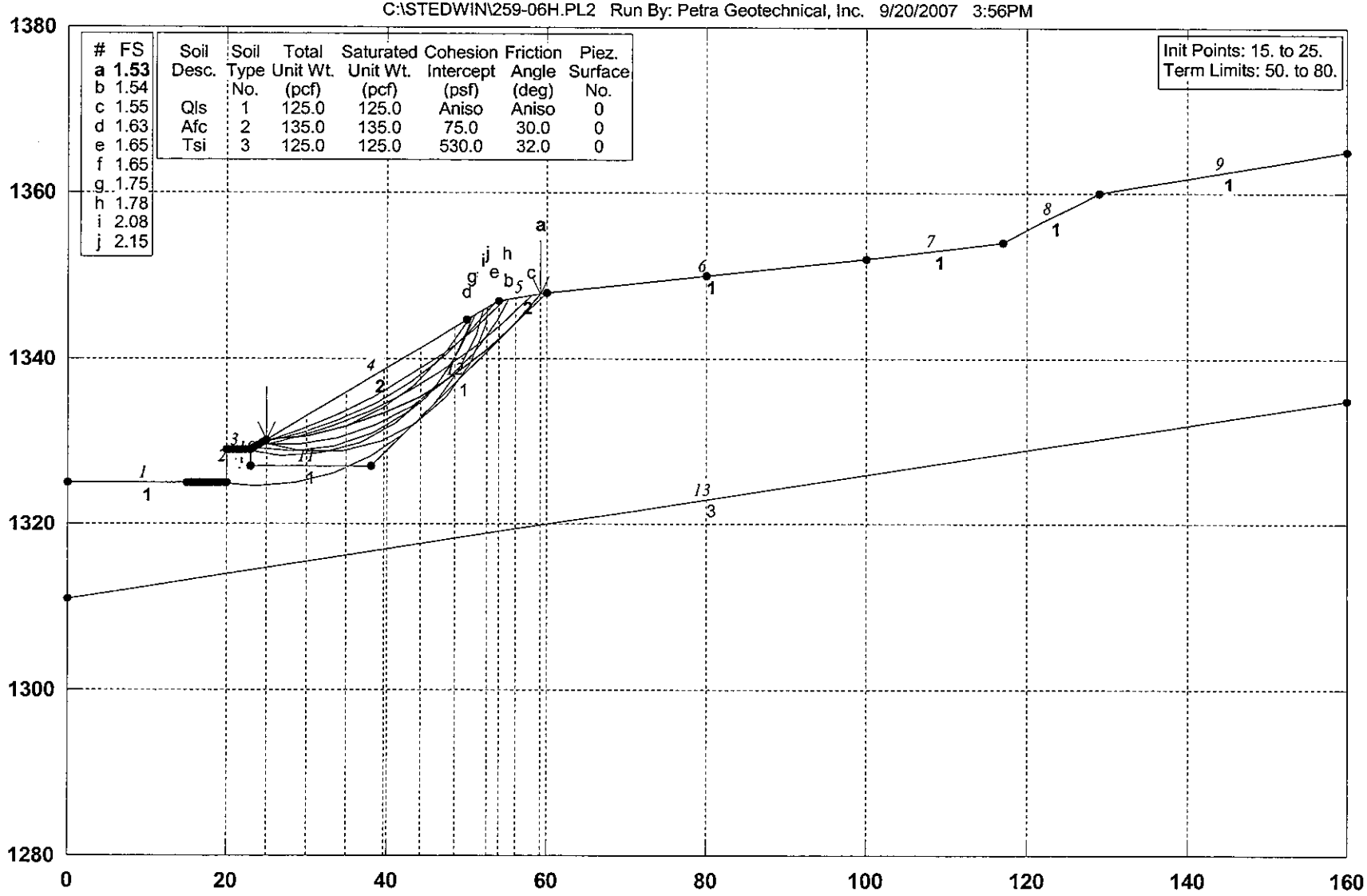
Point No.	X-Surf (ft)	Y-Surf (ft)
1	16.58	45.00
2	21.48	44.01
3	26.45	43.49
4	31.45	43.45
5	36.43	43.88
6	41.35	44.80
7	46.15	46.18
8	50.81	48.01
9	55.26	50.28
10	59.48	52.97
11	63.42	56.05
12	67.04	59.49
13	70.32	63.26
14	73.23	67.33
15	74.45	69.44

Circle Center At X = 29.4 ; Y = 95.5 and Radius, 52.1

*** 1.793 ***

1.7:1 Stability fill slope at Sta 56+25 - Static analysis (95% TP-8 @ 0-4')

C:\STEDWIN\259-06H.PL2 Run By: Petra Geotechnical, Inc. 9/20/2007 3:56PM



GSTABL7 FSmin=1.53

Safety Factors Are Calculated By The Modified Bishop Method

PETRA

*** GSTABL7 ***
** GSTABL7 by Garry H. Gregory, P.E. **
** Version 1.0, January 1996; Version 1.14, Sept 1999 **
--Slope Stability Analysis--
Simplified Janbu, Modified Bishop
or Spencer`s Method of Slices
(Based on STABL6-1986, by Purdue University)

Run Date: 9/20/2007
Time of Run: 3:56PM
Run By: Petra Geotechnical, Inc.
Input Data Filename: C:259-06h.
Output Filename: C:259-06h.OUT
Unit System: English
Plotted Output Filename: C:259-06h.PLT
PROBLEM DESCRIPTION 1.7:1 Stability fill slope at Sta 56+25
- Static analysis (95% TP-8 @ 0-4')

BOUNDARY COORDINATES
Note: User origin value specified.
Add 0.00 to X-values and 1280.00 to Y-values listed.

9 Top Boundaries
13 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	45.00	19.90	45.00	1
2	19.90	45.00	20.00	49.00	1
3	20.00	49.00	23.00	49.00	1
4	23.00	49.00	54.00	67.00	2
5	54.00	67.00	60.00	68.00	2
6	60.00	68.00	100.00	72.00	1
7	100.00	72.00	117.00	74.00	1
8	117.00	74.00	129.00	80.00	1
9	129.00	80.00	160.00	85.00	1
10	23.00	49.00	23.01	47.00	1
11	23.01	47.00	38.00	47.00	1
12	38.00	47.00	60.00	68.00	1
13	0.00	31.00	160.00	55.00	3

ISOTROPIC SOIL PARAMETERS
3 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	125.0	125.0	530.0	32.0	0.00	0.0	0
2	135.0	135.0	75.0	30.0	0.00	0.0	0
3	125.0	125.0	530.0	32.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
1 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 3

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	5.0	530.0	32.0
2	20.0	140.0	15.0
3	90.0	530.0	32.0

A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
400 Trial Surfaces Have Been Generated.
20 Surfaces Initiate From Each Of 20 Points Equally Spaced
Along The Ground Surface Between X = 15.00(ft)
and X = 25.00(ft)
Each Surface Terminates Between X = 50.00(ft)
and X = 80.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = 0.00(ft)
5.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial

Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Bishop Method * *

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	25.00	50.16
2	29.97	50.68
3	34.86	51.74
4	39.61	53.31
5	44.16	55.38
6	48.46	57.92
7	52.47	60.92
8	56.13	64.32
9	59.19	67.87

Circle Center At X = 22.6 ; Y = 96.6 and Radius, 46.5

*** 1.527 ***

Individual data on the 9 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	5.0	794.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	4.9	2150.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	4.7	3040.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	4.6	3455.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	4.3	3418.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	4.0	2987.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	1.5	1019.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	2.1	1103.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	3.1	627.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	23.95	49.55
2	28.95	49.63
3	33.88	50.46
4	38.63	52.02
5	43.09	54.28
6	47.16	57.18
7	50.76	60.65
8	53.79	64.63
9	55.19	67.20

Circle Center At X = 25.9 ; Y = 82.7 and Radius, 33.2

*** 1.536 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	23.42	49.24
2	28.30	50.33
3	33.08	51.80
4	37.74	53.63
5	42.23	55.81
6	46.55	58.34
7	50.65	61.20
8	54.52	64.36
9	57.98	67.66

Circle Center At X = 11.8 ; Y = 112.6 and Radius, 64.5

*** 1.547 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	25.00	50.16
2	29.98	50.59
3	34.81	51.88
4	39.35	53.97
5	43.46	56.82

6	47.02	60.33
7	49.93	64.40
8	50.08	64.72

Circle Center At X = 25.0 ; Y = 79.0 and Radius, 28.8

*** 1.635 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	24.47	49.86
2	29.36	50.94
3	34.10	52.53
4	38.64	54.61
5	42.95	57.15
6	46.96	60.14
7	50.63	63.53
8	53.32	66.60

Circle Center At X = 16.8 ; Y = 96.3 and Radius, 47.1

*** 1.647 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	23.42	49.24
2	28.40	48.78
3	33.37	49.35
4	38.11	50.94
5	42.42	53.47
6	46.11	56.84
7	49.03	60.90
8	50.92	65.21

Circle Center At X = 28.2 ; Y = 72.8 and Radius, 24.0

*** 1.650 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	21.84	49.00
2	26.79	48.26
3	31.78	48.56
4	36.60	49.88
5	41.04	52.18
6	44.91	55.35
7	48.04	59.25
8	50.29	63.71
9	50.64	65.05

Circle Center At X = 27.9 ; Y = 72.2 and Radius, 24.0

*** 1.750 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	24.47	49.86
2	29.23	51.41
3	33.86	53.28
4	38.37	55.45
5	42.72	57.90
6	46.91	60.64
7	50.91	63.65
8	54.70	66.91
9	54.95	67.16

Circle Center At X = 3.1 ; Y = 123.0 and Radius, 76.2

*** 1.785 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	18.68	45.00
2	23.67	44.56
3	28.65	44.96
4	33.49	46.20
5	38.06	48.24

6	42.21	51.03
7	45.84	54.47
8	48.83	58.48
9	51.10	62.93
10	52.01	65.85

Circle Center At X = 23.8 ; Y = 73.9 and Radius, 29.3

*** 2.077 ***

Failure Surface Specified By 9 Coordinate Points

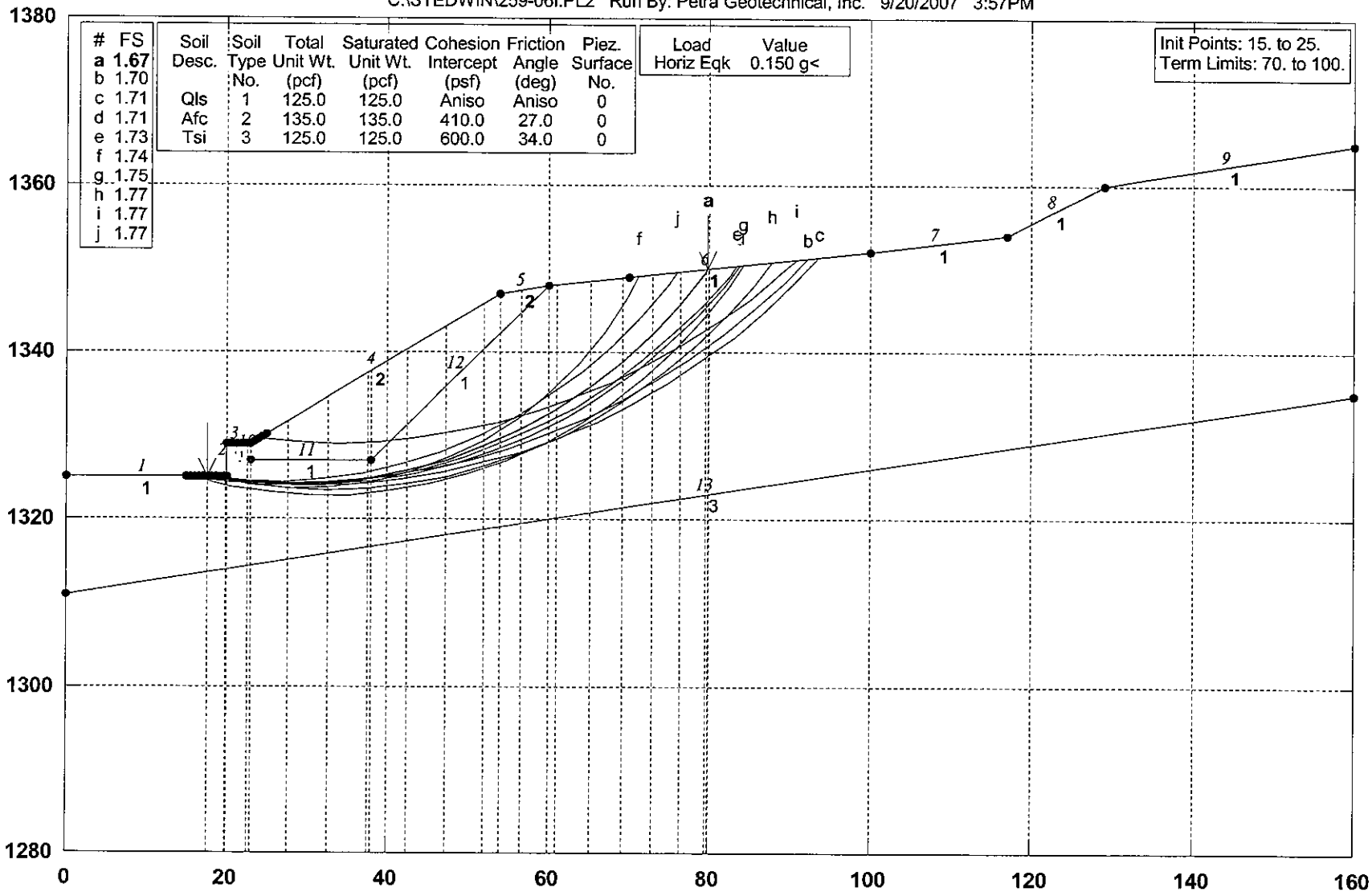
Point No.	X-Surf (ft)	Y-Surf (ft)
1	24.47	49.86
2	29.34	48.71
3	34.34	48.73
4	39.20	49.92
5	43.65	52.19
6	47.45	55.45
7	50.39	59.49
8	52.31	64.11
9	52.65	66.22

Circle Center At X = 31.8 ; Y = 69.9 and Radius, 21.4

*** 2.148 ***

1.7:1 Stability fill slope at Sta 56+25 - Seismic analysis (95% TP-8 @ 0-4')

C:\STEDWIN\259-06I.PL2 Run By: Petra Geotechnical, Inc. 9/20/2007 3:57PM



GSTABL7 FSmin=1.67

Safety Factors Are Calculated By The Modified Bishop Method

PETRA

***** GSTABL7 *****

** GSTABL7 by Garry H. Gregory, P.E. **
** Version 1.0, January 1996; Version 1.14, Sept 1999 **
--Slope Stability Analysis--
Simplified Janbu, Modified Bishop
or Spencer`s Method of Slices
(Based on STABL6-1986, by Purdue University)

Run Date: 9/20/2007
Time of Run: 3:57PM
Run By: Petra Geotechnical, Inc.
Input Data Filename: C:259-06i.
Output Filename: C:259-06i.OUT
Unit System: English
Plotted Output Filename: C:259-06i.PLT
PROBLEM DESCRIPTION 1.7:1 Stability fill slope at Sta 56+25
- Seismic analysis (95% TP-8 @ 0-4')

BOUNDARY COORDINATES
Note: User origin value specified.
Add 0.00 to X-values and 1280.00 to Y-values listed.

9 Top Boundaries
13 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	45.00	19.90	45.00	1
2	19.90	45.00	20.00	49.00	1
3	20.00	49.00	23.00	49.00	1
4	23.00	49.00	54.00	67.00	2
5	54.00	67.00	60.00	68.00	2
6	60.00	68.00	100.00	72.00	1
7	100.00	72.00	117.00	74.00	1
8	117.00	74.00	129.00	80.00	1
9	129.00	80.00	160.00	85.00	1
10	23.00	49.00	23.01	47.00	1
11	23.01	47.00	38.00	47.00	1
12	38.00	47.00	60.00	68.00	1
13	0.00	31.00	160.00	55.00	3

ISOTROPIC SOIL PARAMETERS
3 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	125.0	125.0	600.0	34.0	0.00	0.0	0
2	135.0	135.0	410.0	27.0	0.00	0.0	0
3	125.0	125.0	600.0	34.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
1 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 3

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	5.0	530.0	32.0
2	20.0	140.0	15.0
3	90.0	530.0	32.0

A Horizontal Earthquake Loading Coefficient
Of0.150 Has Been Assigned
A Vertical Earthquake Loading Coefficient
Of0.000 Has Been Assigned
Cavitation Pressure = 0.0(psf)
A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
400 Trial Surfaces Have Been Generated.
20 Surfaces Initiate From Each Of 20 Points Equally Spaced
Along The Ground Surface Between X = 15.00(ft)
and X = 25.00(ft)
Each Surface Terminates Between X = 70.00(ft)

and X = 100.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = 0.00(ft)
5.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Examined. They Are Ordered - Most Critical
First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	17.63	45.00
2	22.60	44.39
3	27.59	44.17
4	32.59	44.33
5	37.56	44.87
6	42.47	45.79
7	47.30	47.09
8	52.02	48.76
9	56.59	50.78
10	60.99	53.14
11	65.20	55.84
12	69.19	58.85
13	72.94	62.16
14	76.42	65.75
15	79.62	69.60
16	79.90	69.99

Circle Center At X = 28.0 ; Y = 109.2 and Radius, 65.0
*** 1.671 ***
Individual data on the 22 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	2.3	39.3	0.0	0.0	0.0	0.0	5.9	0.0	0.0
2	0.1	28.5	0.0	0.0	0.0	0.0	4.3	0.0	0.0
3	2.6	1443.0	0.0	0.0	0.0	0.0	216.4	0.0	0.0
4	0.4	233.6	0.0	0.0	0.0	0.0	35.0	0.0	0.0
5	0.0	5.9	0.0	0.0	0.0	0.0	0.9	0.0	0.0
6	4.6	3624.4	0.0	0.0	0.0	0.0	543.7	0.0	0.0
7	5.0	5844.8	0.0	0.0	0.0	0.0	876.7	0.0	0.0
8	5.0	7536.7	0.0	0.0	0.0	0.0	1130.5	0.0	0.0
9	0.4	746.8	0.0	0.0	0.0	0.0	112.0	0.0	0.0
10	4.5	8062.6	0.0	0.0	0.0	0.0	1209.4	0.0	0.0
11	4.8	9606.5	0.0	0.0	0.0	0.0	1441.0	0.0	0.0
12	4.7	10056.2	0.0	0.0	0.0	0.0	1508.4	0.0	0.0
13	2.0	4374.7	0.0	0.0	0.0	0.0	656.2	0.0	0.0
14	2.6	5600.8	0.0	0.0	0.0	0.0	840.1	0.0	0.0
15	3.4	6877.3	0.0	0.0	0.0	0.0	1031.6	0.0	0.0
16	1.0	1884.3	0.0	0.0	0.0	0.0	282.6	0.0	0.0
17	4.2	7271.3	0.0	0.0	0.0	0.0	1090.7	0.0	0.0
18	4.0	5672.6	0.0	0.0	0.0	0.0	850.9	0.0	0.0
19	3.7	4027.5	0.0	0.0	0.0	0.0	604.1	0.0	0.0
20	3.5	2398.6	0.0	0.0	0.0	0.0	359.8	0.0	0.0
21	3.2	850.3	0.0	0.0	0.0	0.0	127.5	0.0	0.0
22	0.3	6.4	0.0	0.0	0.0	0.0	1.0	0.0	0.0

Failure Surface Specified By 18 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	15.53	45.00
2	20.50	44.48
3	25.49	44.23
4	30.49	44.25
5	35.48	44.55
6	40.45	45.12
7	45.38	45.97
8	50.25	47.08

9	55.06	48.46
10	59.78	50.10
11	64.41	52.00
12	68.92	54.15
13	73.31	56.55
14	77.56	59.18
15	81.66	62.04
16	85.60	65.12
17	89.36	68.42
18	92.23	71.22

Circle Center At X = 27.6 ; Y = 135.1 and Radius, 90.9

*** 1.702 ***

Failure Surface Specified By 18 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	17.11	45.00
2	22.07	44.38
3	27.06	44.06
4	32.06	44.01
5	37.05	44.26
6	42.02	44.79
7	46.95	45.61
8	51.83	46.71
9	56.64	48.09
10	61.36	49.74
11	65.97	51.66
12	70.47	53.85
13	74.84	56.28
14	79.05	58.97
15	83.11	61.89
16	86.99	65.04
17	90.69	68.41
18	93.56	71.36

Circle Center At X = 30.3 ; Y = 130.8 and Radius, 86.8

*** 1.706 ***

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	18.68	45.00
2	23.64	44.37
3	28.64	44.10
4	33.64	44.19
5	38.62	44.65
6	43.55	45.47
7	48.41	46.65
8	53.17	48.17
9	57.81	50.04
10	62.30	52.24
11	66.61	54.76
12	70.74	57.59
13	74.64	60.71
14	78.31	64.11
15	81.72	67.76
16	83.84	70.38

Circle Center At X = 29.9 ; Y = 112.6 and Radius, 68.6

*** 1.712 ***

Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	15.00	45.00
2	19.95	44.32
3	24.94	43.99
4	29.94	44.00
5	34.93	44.35
6	39.88	45.04
7	44.78	46.07
8	49.59	47.43

9	54.29	49.12
10	58.87	51.13
11	63.30	53.45
12	67.56	56.07
13	71.63	58.97
14	75.50	62.14
15	79.13	65.57
16	82.53	69.25
17	83.40	70.34

Circle Center At X = 27.3 ; Y = 116.8 and Radius, 72.9
*** 1.726 ***
Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	18.16	45.00
2	23.07	44.07
3	28.06	43.67
4	33.05	43.79
5	38.01	44.45
6	42.87	45.62
7	47.58	47.31
8	52.08	49.48
9	56.33	52.11
10	60.28	55.19
11	63.88	58.66
12	67.09	62.49
13	69.87	66.64
14	71.18	69.12

Circle Center At X = 29.4 ; Y = 90.7 and Radius, 47.0
*** 1.735 ***
Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	15.53	45.00
2	20.40	43.88
3	25.35	43.15
4	30.33	42.81
5	35.33	42.87
6	40.31	43.32
7	45.24	44.17
8	50.09	45.41
9	54.82	47.02
10	59.41	49.01
11	63.82	51.35
12	68.04	54.04
13	72.03	57.05
14	75.77	60.37
15	79.24	63.97
16	82.40	67.84
17	84.19	70.42

Circle Center At X = 32.1 ; Y = 105.8 and Radius, 63.0
*** 1.750 ***
Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	17.63	45.00
2	22.56	44.13
3	27.53	43.61
4	32.53	43.44
5	37.52	43.64
6	42.49	44.19
7	47.41	45.09
8	52.25	46.35
9	56.99	47.95
10	61.60	49.88
11	66.06	52.13
12	70.35	54.70

13	74.44	57.57
14	78.32	60.73
15	81.97	64.15
16	85.35	67.83
17	87.70	70.77

Circle Center At X = 32.3 ; Y = 113.3 and Radius, 69.9

*** 1.767 ***

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	23.95	49.55
2	28.93	49.17
3	33.93	49.08
4	38.93	49.28
5	43.91	49.76
6	48.85	50.53
7	53.73	51.59
8	58.55	52.92
9	63.29	54.53
10	67.92	56.40
11	72.44	58.54
12	76.83	60.94
13	81.07	63.58
14	85.16	66.47
15	89.07	69.59
16	90.73	71.07

Circle Center At X = 33.0 ; Y = 135.7 and Radius, 86.7

*** 1.767 ***

Failure Surface Specified By 15 Coordinate Points

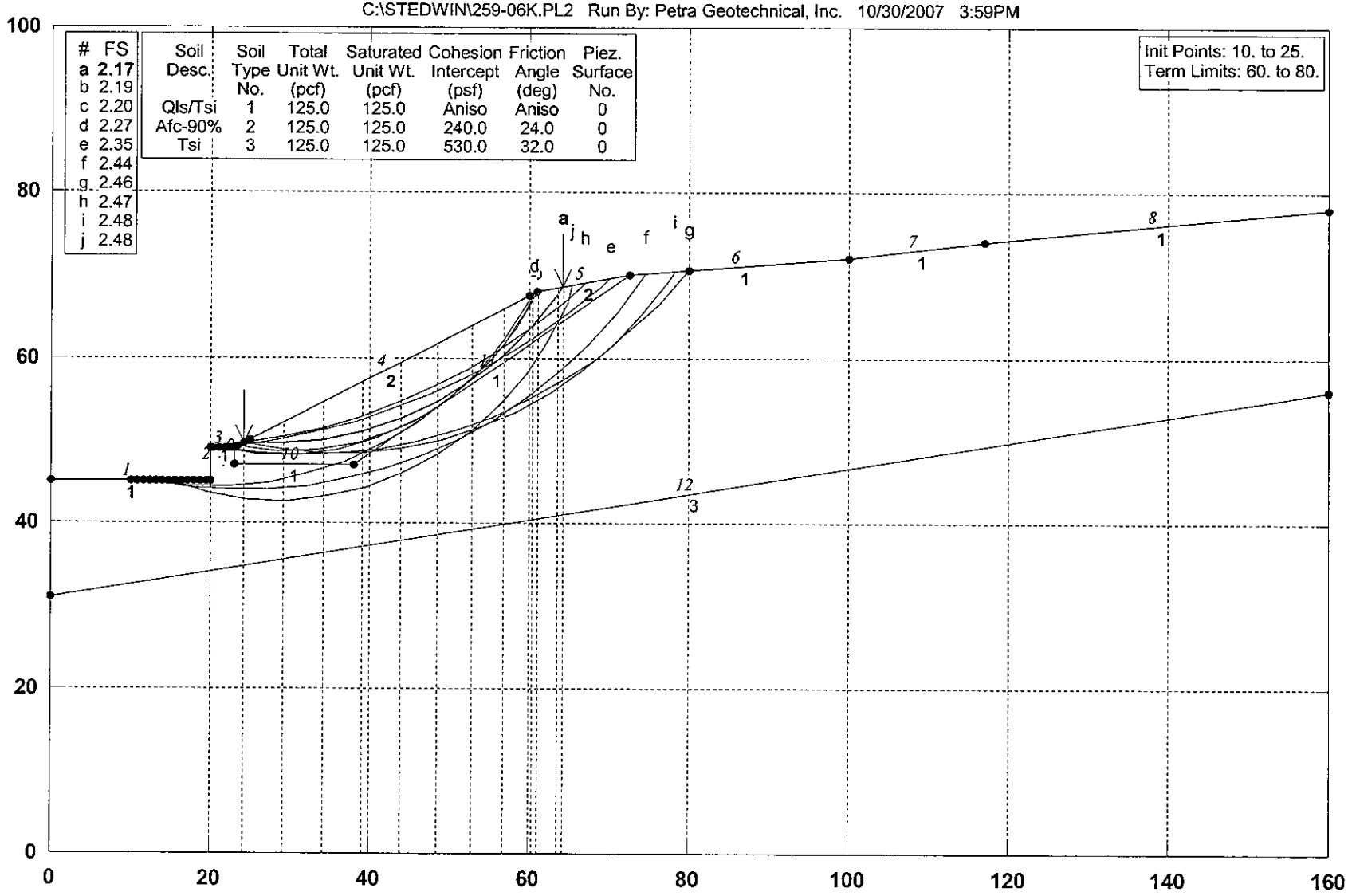
Point No.	X-Surf (ft)	Y-Surf (ft)
1	17.11	45.00
2	22.08	44.53
3	27.08	44.46
4	32.07	44.78
5	37.02	45.49
6	41.90	46.59
7	46.67	48.08
8	51.32	49.93
9	55.80	52.15
10	60.09	54.71
11	64.17	57.60
12	68.01	60.81
13	71.58	64.31
14	74.87	68.08
15	75.99	69.60

Circle Center At X = 25.5 ; Y = 107.8 and Radius, 63.3

*** 1.774 ***

2:1 stability fill slope-static analysis- 90% compaction (TP-3)

C:\STEDWIN\259-06K.PL2 Run By: Petra Geotechnical, Inc. 10/30/2007 3:59PM



GSTABL7 FSmin=2.17

Safety Factors Are Calculated By The Modified Bishop Method

PETRA

*** GSTABL7 ***
** GSTABL7 by Garry H. Gregory, P.E. **
** Version 1.0, January 1996; Version 1.14, Sept 1999 **
--Slope Stability Analysis--
Simplified Janbu, Modified Bishop
or Spencer`s Method of Slices
(Based on STABL6-1986, by Purdue University)

Run Date: 10/30/2007
Time of Run: 3:59PM
Run By: Petra Geotechnical, Inc.
Input Data Filename: C:259-06k.in
Output Filename: C:259-06k.OUT
Unit System: English
Plotted Output Filename: C:259-06k.PLT
PROBLEM DESCRIPTION 2:1 stability fill slope-static analysis
- 90% compaction (TP-3)

BOUNDARY COORDINATES
8 Top Boundaries
12 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	45.00	19.90	45.00	1
2	19.90	45.00	20.00	49.00	1
3	20.00	49.00	23.00	49.00	1
4	23.00	49.00	61.00	68.00	2
5	61.00	68.00	72.50	70.00	2
6	72.50	70.00	100.00	72.00	1
7	100.00	72.00	117.00	74.00	1
8	117.00	74.00	160.00	78.00	1
9	23.00	49.00	23.01	47.00	1
10	23.01	47.00	38.00	47.00	1
11	38.00	47.00	72.50	70.00	1
12	0.00	31.00	160.00	56.00	3

ISOTROPIC SOIL PARAMETERS
3 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	125.0	125.0	530.0	32.0	0.00	0.0	0
2	125.0	125.0	240.0	24.0	0.00	0.0	0
3	125.0	125.0	530.0	32.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
1 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 3

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	5.0	530.0	32.0
2	20.0	140.0	15.0
3	90.0	530.0	32.0

A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
400 Trial Surfaces Have Been Generated.
20 Surfaces Initiate From Each Of 20 Points Equally Spaced
Along The Ground Surface Between X = 10.00(ft)
and X = 25.00(ft)
Each Surface Terminates Between X = 60.00(ft)
and X = 80.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = 0.00(ft)
5.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Examined. They Are Ordered - Most Critical
First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	24.21	49.61
2	29.21	49.50
3	34.19	49.96
4	39.09	50.97
5	43.84	52.51
6	48.39	54.58
7	52.68	57.15
8	56.66	60.18
9	60.28	63.63
10	63.48	67.47
11	64.20	68.56

Circle Center At X = 27.6 ; Y = 94.2 and Radius, 44.7

*** 2.171 ***

Individual data on the 11 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	5.0	813.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	5.0	2253.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	4.9	3279.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	4.8	3857.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	4.6	3987.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	4.3	3701.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	4.0	3068.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	3.6	2180.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.7	339.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	2.5	691.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.7	43.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	23.42	49.21
2	28.39	48.64
3	33.39	48.80
4	38.31	49.67
5	43.06	51.23
6	47.53	53.47
7	51.64	56.32
8	55.29	59.74
9	58.41	63.65
10	60.94	67.96
11	60.94	67.97

Circle Center At X = 29.8 ; Y = 83.3 and Radius, 34.7

*** 2.188 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	12.37	45.00
2	17.34	44.42
3	22.34	44.38
4	27.31	44.88
5	32.20	45.91
6	36.96	47.46
7	41.51	49.51
8	45.83	52.05
9	49.84	55.03
10	53.51	58.43
11	56.79	62.20
12	59.64	66.31
13	60.41	67.70

Circle Center At X = 20.2 ; Y = 90.7 and Radius, 46.4

*** 2.198 ***

Failure Surface Specified By 11 Coordinate Points

Point	X-Surf	Y-Surf

No.	(ft)	(ft)
1	21.05	49.00
2	26.00	48.25
3	31.00	48.20
4	35.95	48.85
5	40.77	50.19
6	45.36	52.19
7	49.61	54.81
8	53.47	58.00
9	56.83	61.69
10	59.65	65.82
11	60.63	67.82

Circle Center At X = 28.8 ; Y = 83.8 and Radius, 35.7

*** 2.271 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	23.42	49.21
2	28.37	49.92
3	33.27	50.90
4	38.11	52.17
5	42.86	53.72
6	47.52	55.54
7	52.07	57.62
8	56.48	59.97
9	60.76	62.56
10	64.88	65.40
11	68.82	68.46
12	70.10	69.58

Circle Center At X = 13.8 ; Y = 135.0 and Radius, 86.3

*** 2.346 ***

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	12.37	45.00
2	17.31	44.25
3	22.30	43.91
4	27.30	43.97
5	32.28	44.44
6	37.20	45.31
7	42.04	46.57
8	46.76	48.22
9	51.33	50.25
10	55.72	52.64
11	59.91	55.38
12	63.85	58.44
13	67.54	61.82
14	70.94	65.49
15	74.04	69.41
16	74.53	70.15

Circle Center At X = 24.0 ; Y = 105.5 and Radius, 61.6

*** 2.444 ***

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	21.05	49.00
2	26.02	48.39
3	31.01	48.17
4	36.01	48.34
5	40.98	48.90
6	45.89	49.84
7	50.71	51.17
8	55.41	52.86
9	59.97	54.92
10	64.35	57.33
11	68.53	60.07
12	72.49	63.12

13	76.20	66.48
14	79.63	70.12
15	79.97	70.54

Circle Center At X = 31.3 ; Y = 112.3 and Radius, 64.1

*** 2.464 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	24.21	49.61
2	29.15	50.38
3	34.03	51.46
4	38.83	52.86
5	43.54	54.55
6	48.13	56.54
7	52.58	58.82
8	56.88	61.37
9	61.00	64.19
10	64.94	67.27
11	66.92	69.03

Circle Center At X = 14.5 ; Y = 127.7 and Radius, 78.7

*** 2.474 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	24.21	49.61
2	29.13	48.73
3	34.12	48.33
4	39.12	48.41
5	44.09	48.97
6	48.98	50.01
7	53.75	51.51
8	58.35	53.46
9	62.74	55.85
10	66.88	58.65
11	70.74	61.84
12	74.27	65.38
13	77.44	69.24
14	78.23	70.42

Circle Center At X = 35.8 ; Y = 100.1 and Radius, 51.8

*** 2.479 ***

Failure Surface Specified By 14 Coordinate Points

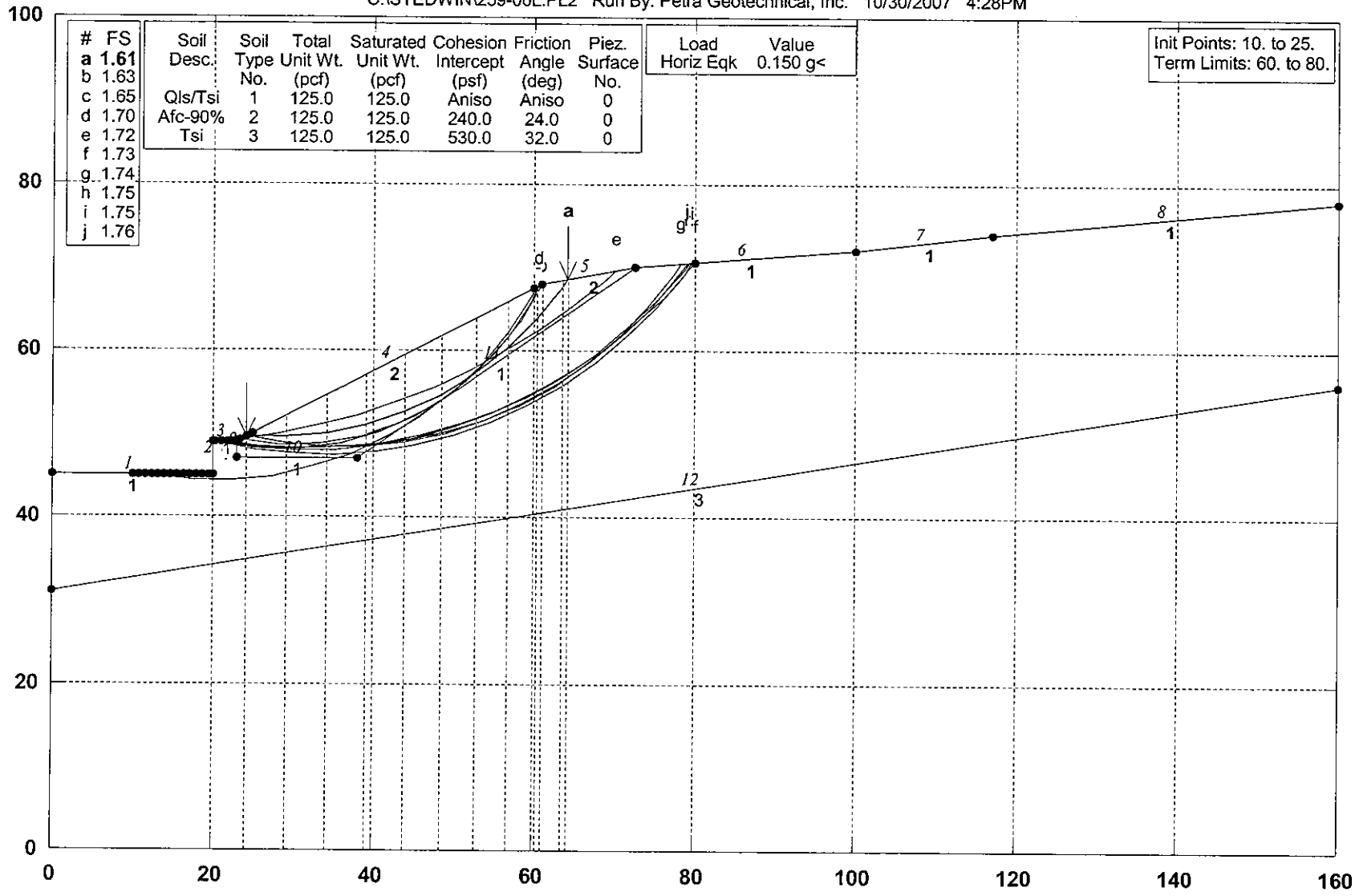
Point No.	X-Surf (ft)	Y-Surf (ft)
1	14.74	45.00
2	19.54	43.60
3	24.48	42.81
4	29.47	42.65
5	34.45	43.13
6	39.33	44.22
7	44.03	45.91
8	48.49	48.19
9	52.62	51.00
10	56.36	54.32
11	59.66	58.07
12	62.46	62.21
13	64.72	66.67
14	65.47	68.78

Circle Center At X = 28.2 ; Y = 82.2 and Radius, 39.6

*** 2.481 ***

2:1 stability fill slope-seismic anal. - 90% compaction (TP-3)

C:\STEDWIN\259-06L.PL2 Run By: Petra Geotechnical, Inc. 10/30/2007 4:28PM



GSTABL7 FSmin=1.61

Safety Factors Are Calculated By The Modified Bishop Method

PETRA

*** GSTABL7 ***
** GSTABL7 by Garry H. Gregory, P.E. **
** Version 1.0, January 1996; Version 1.14, Sept 1999 **
--Slope Stability Analysis--
Simplified Janbu, Modified Bishop
or Spencer`s Method of Slices
(Based on STABL6-1986, by Purdue University)

Run Date: 10/30/2007
Time of Run: 4:28PM
Run By: Petra Geotechnical, Inc.
Input Data Filename: C:259-061.in
Output Filename: C:259-061.OUT
Unit System: English
Plotted Output Filename: C:259-061.PLT
PROBLEM DESCRIPTION 2:1 stability fill slope-seismic anal.
- 90% compaction (TP-3)

BOUNDARY COORDINATES
8 Top Boundaries
12 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	45.00	19.90	45.00	1
2	19.90	45.00	20.00	49.00	1
3	20.00	49.00	23.00	49.00	1
4	23.00	49.00	61.00	68.00	2
5	61.00	68.00	72.50	70.00	2
6	72.50	70.00	100.00	72.00	1
7	100.00	72.00	117.00	74.00	1
8	117.00	74.00	160.00	78.00	1
9	23.00	49.00	23.01	47.00	1
10	23.01	47.00	38.00	47.00	1
11	38.00	47.00	72.50	70.00	1
12	0.00	31.00	160.00	56.00	3

ISOTROPIC SOIL PARAMETERS
3 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	125.0	125.0	530.0	32.0	0.00	0.0	0
2	125.0	125.0	240.0	24.0	0.00	0.0	0
3	125.0	125.0	530.0	32.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
1 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 3

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	5.0	530.0	32.0
2	20.0	140.0	15.0
3	90.0	530.0	32.0

A Horizontal Earthquake Loading Coefficient
Of0.150 Has Been Assigned
A Vertical Earthquake Loading Coefficient
Of0.000 Has Been Assigned
Cavitation Pressure = 0.0(psf)
A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
400 Trial Surfaces Have Been Generated.
20 Surfaces Initiate From Each Of 20 Points Equally Spaced
Along The Ground Surface Between X = 10.00(ft)
and X = 25.00(ft)
Each Surface Terminates Between X = 60.00(ft)
and X = 80.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = 0.00(ft)
5.00(ft) Line Segments Define Each Trial Failure Surface.

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Bishop Method * *

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	24.21	49.61
2	29.21	49.50
3	34.19	49.96
4	39.09	50.97
5	43.84	52.51
6	48.39	54.58
7	52.68	57.15
8	56.66	60.18
9	60.28	63.63
10	63.48	67.47
11	64.20	68.56

Circle Center At X = 27.6 ; Y = 94.2 and Radius, 44.7

*** 1.614 ***

Individual data on the 11 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	5.0	813.4	0.0	0.0	0.0	0.0	122.0	0.0	0.0
2	5.0	2253.5	0.0	0.0	0.0	0.0	338.0	0.0	0.0
3	4.9	3279.8	0.0	0.0	0.0	0.0	492.0	0.0	0.0
4	4.8	3857.7	0.0	0.0	0.0	0.0	578.7	0.0	0.0
5	4.6	3987.0	0.0	0.0	0.0	0.0	598.0	0.0	0.0
6	4.3	3701.7	0.0	0.0	0.0	0.0	555.3	0.0	0.0
7	4.0	3068.2	0.0	0.0	0.0	0.0	460.2	0.0	0.0
8	3.6	2180.9	0.0	0.0	0.0	0.0	327.1	0.0	0.0
9	0.7	339.7	0.0	0.0	0.0	0.0	50.9	0.0	0.0
10	2.5	691.6	0.0	0.0	0.0	0.0	103.7	0.0	0.0
11	0.7	43.1	0.0	0.0	0.0	0.0	6.5	0.0	0.0

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	23.42	49.21
2	28.39	48.64
3	33.39	48.80
4	38.31	49.67
5	43.06	51.23
6	47.53	53.47
7	51.64	56.32
8	55.29	59.74
9	58.41	63.65
10	60.94	67.96
11	60.94	67.97

Circle Center At X = 29.8 ; Y = 83.3 and Radius, 34.7

*** 1.631 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	12.37	45.00
2	17.34	44.42
3	22.34	44.38
4	27.31	44.88
5	32.20	45.91
6	36.96	47.46
7	41.51	49.51
8	45.83	52.05
9	49.84	55.03
10	53.51	58.43
11	56.79	62.20
12	59.64	66.31

13	60.41	67.70

Circle Center At X = 20.2 ; Y = 90.7 and Radius, 46.4

*** 1.648 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	21.05	49.00
2	26.00	48.25
3	31.00	48.20
4	35.95	48.85
5	40.77	50.19
6	45.36	52.19
7	49.61	54.81
8	53.47	58.00
9	56.83	61.69
10	59.65	65.82
11	60.63	67.82

Circle Center At X = 28.8 ; Y = 83.8 and Radius, 35.7

*** 1.697 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	23.42	49.21
2	28.37	49.92
3	33.27	50.90
4	38.11	52.17
5	42.86	53.72
6	47.52	55.54
7	52.07	57.62
8	56.48	59.97
9	60.76	62.56
10	64.88	65.40
11	68.82	68.46
12	70.10	69.58

Circle Center At X = 13.8 ; Y = 135.0 and Radius, 86.3

*** 1.720 ***

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	21.05	49.00
2	26.02	48.39
3	31.01	48.17
4	36.01	48.34
5	40.98	48.90
6	45.89	49.84
7	50.71	51.17
8	55.41	52.86
9	59.97	54.92
10	64.35	57.33
11	68.53	60.07
12	72.49	63.12
13	76.20	66.48
14	79.63	70.12
15	79.97	70.54

Circle Center At X = 31.3 ; Y = 112.3 and Radius, 64.1

*** 1.729 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	24.21	49.61
2	29.13	48.73
3	34.12	48.33
4	39.12	48.41
5	44.09	48.97
6	48.98	50.01
7	53.75	51.51
8	58.35	53.46

9	62.74	55.85
10	66.88	58.65
11	70.74	61.84
12	74.27	65.38
13	77.44	69.24
14	78.23	70.42

Circle Center At X = 35.8 ; Y = 100.1 and Radius, 51.8

*** 1.743 ***

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	20.26	49.00
2	25.21	48.29
3	30.20	47.97
4	35.20	48.07
5	40.18	48.56
6	45.10	49.46
7	49.93	50.75
8	54.64	52.42
9	59.20	54.47
10	63.58	56.89
11	67.75	59.64
12	71.68	62.73
13	75.35	66.12
14	78.74	69.80
15	79.28	70.49

Circle Center At X = 31.6 ; Y = 109.8 and Radius, 61.9

*** 1.748 ***

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	20.26	49.00
2	25.17	48.04
3	30.14	47.52
4	35.14	47.42
5	40.13	47.77
6	45.07	48.55
7	49.92	49.75
8	54.65	51.37
9	59.22	53.40
10	63.60	55.82
11	67.75	58.61
12	71.64	61.75
13	75.24	65.22
14	78.52	68.99
15	79.64	70.52

Circle Center At X = 33.7 ; Y = 104.8 and Radius, 57.4

*** 1.752 ***

Failure Surface Specified By 14 Coordinate Points

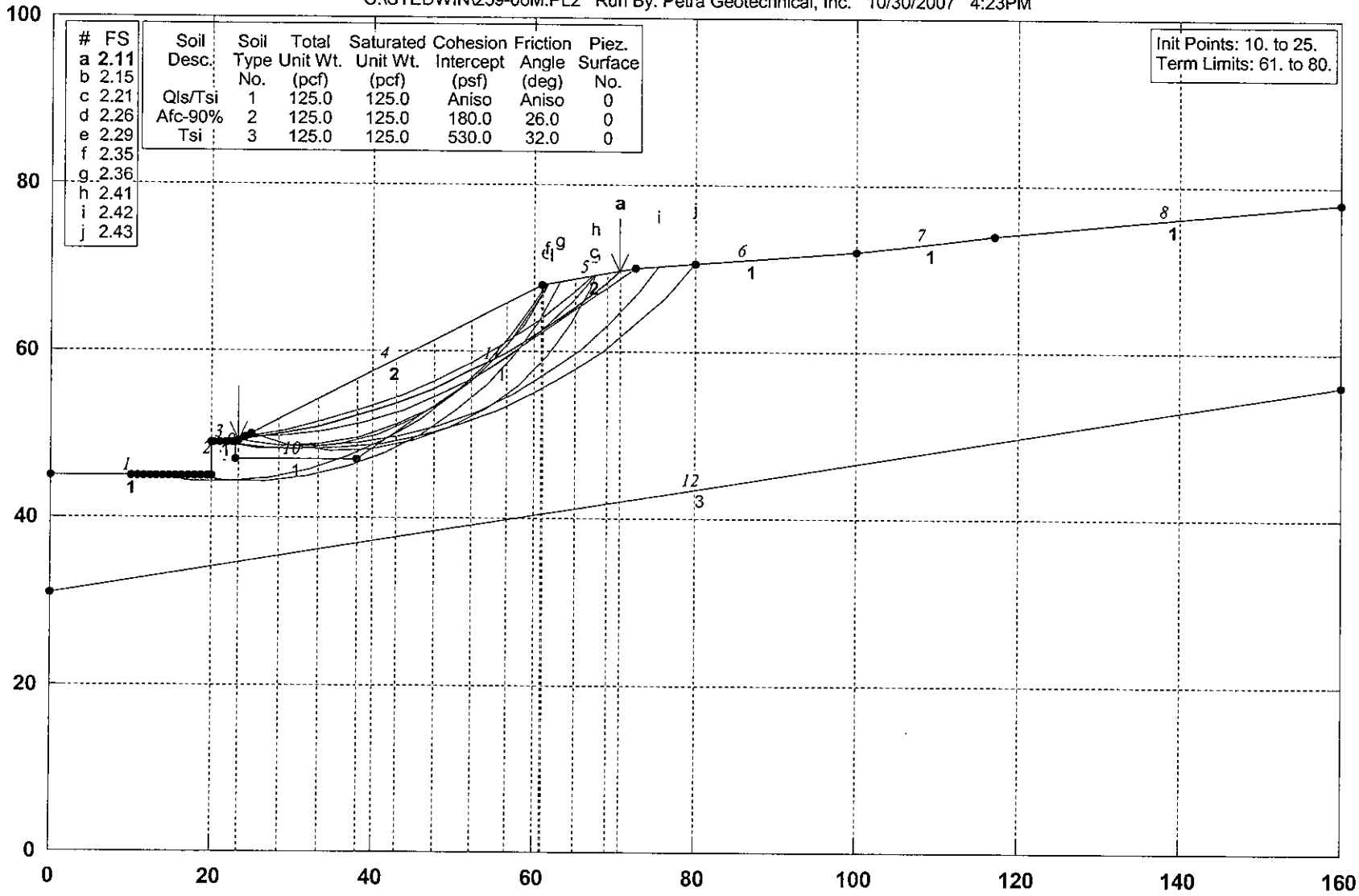
Point No.	X-Surf (ft)	Y-Surf (ft)
1	24.21	49.61
2	29.15	48.81
3	34.14	48.47
4	39.13	48.59
5	44.10	49.17
6	48.99	50.20
7	53.77	51.67
8	58.39	53.58
9	62.82	55.91
10	67.01	58.63
11	70.94	61.73
12	74.56	65.17
13	77.85	68.94
14	78.97	70.47

Circle Center At X = 35.3 ; Y = 102.7 and Radius, 54.2

*** 1.759 ***

2:1 stability fill slope-static analysis- 90% compaction (TP-8)

C:\STEDWIN\259-06M.PL2 Run By: Petra Geotechnical, Inc. 10/30/2007 4:23PM



GSTABL7 FSmin=2.11

Safety Factors Are Calculated By The Modified Bishop Method

PETRA

*** GSTABL7 ***
** GSTABL7 by Garry H. Gregory, P.E. **
** Version 1.0, January 1996; Version 1.14, Sept 1999 **
--Slope Stability Analysis--
Simplified Janbu, Modified Bishop
or Spencer`s Method of Slices
(Based on STABL6-1986, by Purdue University)

Run Date: 10/30/2007
Time of Run: 4:23PM
Run By: Petra Geotechnical, Inc.
Input Data Filename: C:259-06m.in
Output Filename: C:259-06m.OUT
Unit System: English
Plotted Output Filename: C:259-06m.PLT
PROBLEM DESCRIPTION 2:1 stability fill slope-static analysis
- 90% compaction (TP-8)

BOUNDARY COORDINATES
8 Top Boundaries
12 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	45.00	19.90	45.00	1
2	19.90	45.00	20.00	49.00	1
3	20.00	49.00	23.00	49.00	1
4	23.00	49.00	61.00	68.00	2
5	61.00	68.00	72.50	70.00	2
6	72.50	70.00	100.00	72.00	1
7	100.00	72.00	117.00	74.00	1
8	117.00	74.00	160.00	78.00	1
9	23.00	49.00	23.01	47.00	1
10	23.01	47.00	38.00	47.00	1
11	38.00	47.00	72.50	70.00	1
12	0.00	31.00	160.00	56.00	3

ISOTROPIC SOIL PARAMETERS
3 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	125.0	125.0	530.0	32.0	0.00	0.0	0
2	125.0	125.0	180.0	26.0	0.00	0.0	0
3	125.0	125.0	530.0	32.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
1 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 3

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	5.0	530.0	32.0
2	20.0	140.0	15.0
3	90.0	530.0	32.0

A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
400 Trial Surfaces Have Been Generated.
20 Surfaces Initiate From Each Of 20 Points Equally Spaced
Along The Ground Surface Between X = 10.00(ft)
and X = 25.00(ft)
Each Surface Terminates Between X = 61.00(ft)
and X = 80.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = 0.00(ft)
5.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Examined. They Are Ordered - Most Critical
First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	23.42	49.21
2	28.37	49.92
3	33.27	50.90
4	38.11	52.16
5	42.87	53.69
6	47.54	55.49
7	52.09	57.55
8	56.52	59.87
9	60.82	62.43
10	64.96	65.23
11	68.93	68.27
12	70.56	69.66

Circle Center At X = 13.6 ; Y = 136.5 and Radius, 87.8

*** 2.111 ***

Individual data on the 12 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	5.0	547.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	4.9	1534.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	4.8	2308.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	4.8	2867.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	4.7	3212.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	4.6	3350.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	4.4	3291.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	4.3	3050.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.2	125.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	4.0	2200.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	4.0	1134.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	1.6	113.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	24.21	49.61
2	29.21	49.77
3	34.17	50.37
4	39.06	51.40
5	43.85	52.86
6	48.48	54.74
7	52.93	57.02
8	57.16	59.68
9	61.14	62.71
10	64.84	66.07
11	67.69	69.16

Circle Center At X = 24.9 ; Y = 106.3 and Radius, 56.7

*** 2.148 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	24.21	49.61
2	29.14	50.42
3	34.02	51.53
4	38.82	52.93
5	43.52	54.62
6	48.12	56.59
7	52.59	58.83
8	56.92	61.34
9	61.09	64.10
10	65.08	67.10
11	67.46	69.12

Circle Center At X = 13.1 ; Y = 132.0 and Radius, 83.2

*** 2.210 ***

Failure Surface Specified By 11 Coordinate Points

Point	X-Surf	Y-Surf

No.	(ft)	(ft)
1	23.42	49.21
2	28.39	48.64
3	33.39	48.77
4	38.32	49.60
5	43.08	51.11
6	47.59	53.28
7	51.76	56.05
8	55.49	59.37
9	58.72	63.19
10	61.39	67.41
11	61.71	68.12

Circle Center At X = 29.9 ; Y = 84.3 and Radius, 35.7
*** 2.262 ***
Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	12.37	45.00
2	17.34	44.42
3	22.34	44.37
4	27.31	44.84
5	32.21	45.84
6	36.98	47.35
7	41.56	49.35
8	45.91	51.82
9	49.97	54.74
10	53.70	58.07
11	57.06	61.77
12	60.01	65.81
13	61.31	68.05

Circle Center At X = 20.3 ; Y = 91.7 and Radius, 47.4
*** 2.290 ***
Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	21.05	49.00
2	26.00	48.25
3	31.00	48.18
4	35.96	48.80
5	40.79	50.08
6	45.40	52.01
7	49.71	54.55
8	53.63	57.65
9	57.09	61.26
10	60.03	65.31
11	61.52	68.09

Circle Center At X = 29.0 ; Y = 84.8 and Radius, 36.6
*** 2.345 ***
Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	17.11	45.00
2	22.07	44.43
3	27.07	44.43
4	32.04	45.01
5	36.91	46.16
6	41.61	47.86
7	46.08	50.09
8	50.27	52.83
9	54.11	56.03
10	57.56	59.65
11	60.56	63.64
12	63.09	67.96
13	63.28	68.40

Circle Center At X = 24.5 ; Y = 87.6 and Radius, 43.3
*** 2.362 ***
Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	25.00	50.00
2	29.82	48.69
3	34.79	48.10
4	39.79	48.24
5	44.71	49.12
6	49.45	50.72
7	53.90	52.99
8	57.97	55.89
9	61.57	59.36
10	64.62	63.33
11	67.05	67.70
12	67.60	69.15

Circle Center At X = 36.3 ; Y = 81.8 and Radius, 33.8

*** 2.412 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	23.42	49.21
2	28.39	48.65
3	33.39	48.56
4	38.38	48.91
5	43.31	49.73
6	48.15	50.99
7	52.85	52.69
8	57.38	54.81
9	61.69	57.34
10	65.76	60.25
11	69.54	63.52
12	73.01	67.12
13	75.48	70.22

Circle Center At X = 32.0 ; Y = 103.1 and Radius, 54.6

*** 2.419 ***

Failure Surface Specified By 15 Coordinate Points

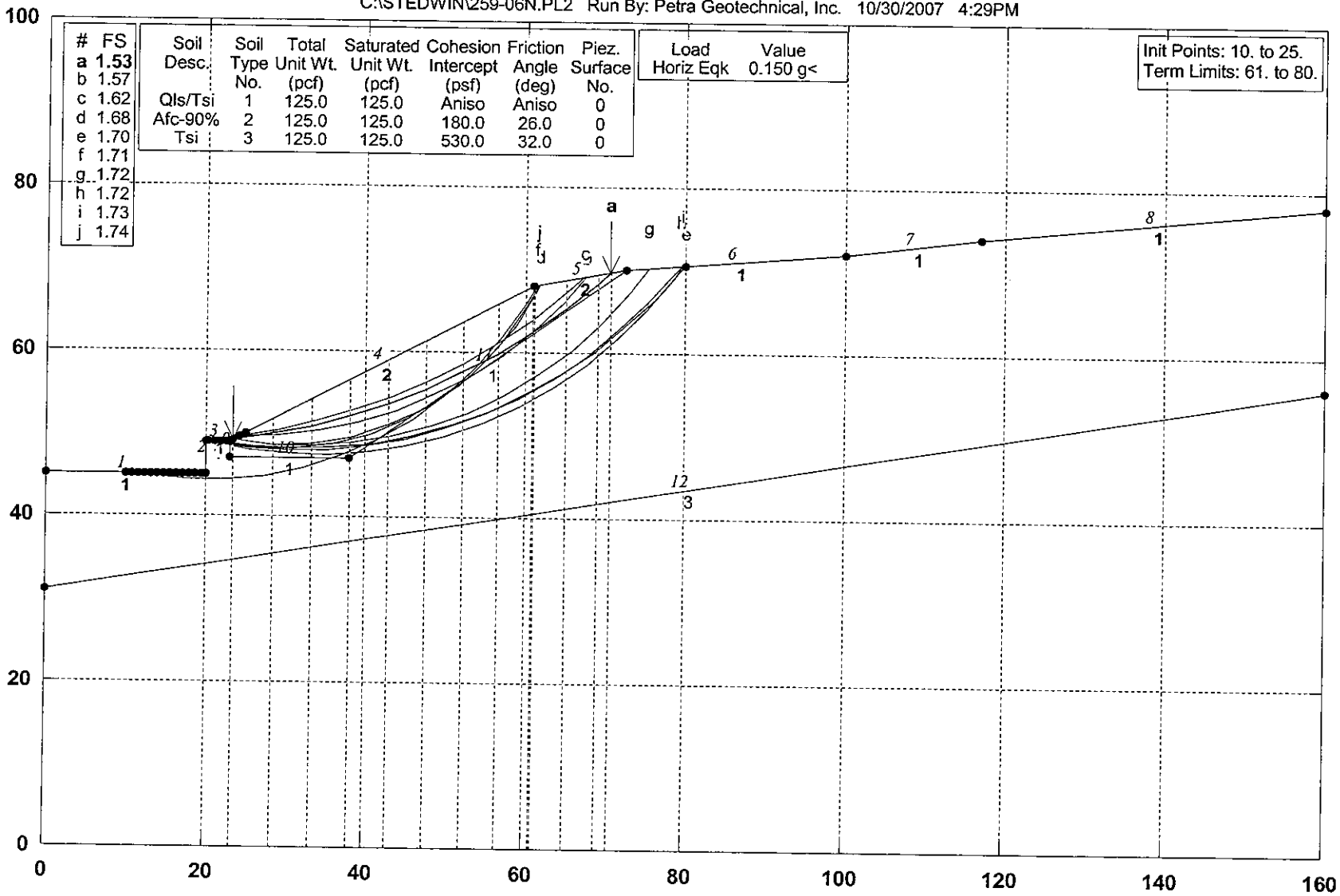
Point No.	X-Surf (ft)	Y-Surf (ft)
1	21.05	49.00
2	26.02	48.39
3	31.01	48.17
4	36.01	48.34
5	40.98	48.90
6	45.89	49.84
7	50.71	51.17
8	55.41	52.86
9	59.97	54.92
10	64.35	57.33
11	68.53	60.07
12	72.49	63.12
13	76.20	66.48
14	79.63	70.12
15	79.97	70.54

Circle Center At X = 31.3 ; Y = 112.3 and Radius, 64.1

*** 2.430 ***

2:1 stability fill slope-seismic anal. - 90% compaction (TP-8)

C:\STEDWIN\259-06N.PL2 Run By: Petra Geotechnical, Inc. 10/30/2007 4:29PM



GSTABL7 FSmin=1.53

Safety Factors Are Calculated By The Modified Bishop Method

PETRA

*** GSTABL7 ***
** GSTABL7 by Garry H. Gregory, P.E. **
** Version 1.0, January 1996; Version 1.14, Sept 1999 **
--Slope Stability Analysis--
Simplified Janbu, Modified Bishop
or Spencer`s Method of Slices
(Based on STABL6-1986, by Purdue University)

Run Date: 10/30/2007
Time of Run: 4:29PM
Run By: Petra Geotechnical, Inc.
Input Data Filename: C:259-06n.in
Output Filename: C:259-06n.OUT
Unit System: English
Plotted Output Filename: C:259-06n.PLT
PROBLEM DESCRIPTION 2:1 stability fill slope-seismic anal.
- 90% compaction (TP-8)

BOUNDARY COORDINATES
8 Top Boundaries
12 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	45.00	19.90	45.00	1
2	19.90	45.00	20.00	49.00	1
3	20.00	49.00	23.00	49.00	1
4	23.00	49.00	61.00	68.00	2
5	61.00	68.00	72.50	70.00	2
6	72.50	70.00	100.00	72.00	1
7	100.00	72.00	117.00	74.00	1
8	117.00	74.00	160.00	78.00	1
9	23.00	49.00	23.01	47.00	1
10	23.01	47.00	38.00	47.00	1
11	38.00	47.00	72.50	70.00	1
12	0.00	31.00	160.00	56.00	3

ISOTROPIC SOIL PARAMETERS
3 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	125.0	125.0	530.0	32.0	0.00	0.0	0
2	125.0	125.0	180.0	26.0	0.00	0.0	0
3	125.0	125.0	530.0	32.0	0.00	0.0	0

ANISOTROPIC STRENGTH PARAMETERS
1 soil type(s)
Soil Type 1 Is Anisotropic
Number Of Direction Ranges Specified = 3

Direction Range No.	Counterclockwise Direction Limit (deg)	Cohesion Intercept (psf)	Friction Angle (deg)
1	5.0	530.0	32.0
2	20.0	140.0	15.0
3	90.0	530.0	32.0

A Horizontal Earthquake Loading Coefficient
Of0.150 Has Been Assigned
A Vertical Earthquake Loading Coefficient
Of0.000 Has Been Assigned
Cavitation Pressure = 0.0(psf)
A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
400 Trial Surfaces Have Been Generated.
20 Surfaces Initiate From Each Of 20 Points Equally Spaced
Along The Ground Surface Between X = 10.00(ft)
and X = 25.00(ft)
Each Surface Terminates Between X = 61.00(ft)
and X = 80.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = 0.00(ft)
5.00(ft) Line Segments Define Each Trial Failure Surface.

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Bishop Method * *

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	23.42	49.21
2	28.37	49.92
3	33.27	50.90
4	38.11	52.16
5	42.87	53.69
6	47.54	55.49
7	52.09	57.55
8	56.52	59.87
9	60.82	62.43
10	64.96	65.23
11	68.93	68.27
12	70.56	69.66

Circle Center At X = 13.6 ; Y = 136.5 and Radius, 87.8

*** 1.535 ***

Individual data on the 12 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	5.0	547.6	0.0	0.0	0.0	0.0	82.1	0.0	0.0
2	4.9	1534.1	0.0	0.0	0.0	0.0	230.1	0.0	0.0
3	4.8	2308.3	0.0	0.0	0.0	0.0	346.2	0.0	0.0
4	4.8	2867.2	0.0	0.0	0.0	0.0	430.1	0.0	0.0
5	4.7	3212.7	0.0	0.0	0.0	0.0	481.9	0.0	0.0
6	4.6	3350.6	0.0	0.0	0.0	0.0	502.6	0.0	0.0
7	4.4	3291.6	0.0	0.0	0.0	0.0	493.7	0.0	0.0
8	4.3	3050.2	0.0	0.0	0.0	0.0	457.5	0.0	0.0
9	0.2	125.3	0.0	0.0	0.0	0.0	18.8	0.0	0.0
10	4.0	2200.4	0.0	0.0	0.0	0.0	330.1	0.0	0.0
11	4.0	1134.5	0.0	0.0	0.0	0.0	170.2	0.0	0.0
12	1.6	113.3	0.0	0.0	0.0	0.0	17.0	0.0	0.0

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	24.21	49.61
2	29.21	49.77
3	34.17	50.37
4	39.06	51.40
5	43.85	52.86
6	48.48	54.74
7	52.93	57.02
8	57.16	59.68
9	61.14	62.71
10	64.84	66.07
11	67.69	69.16

Circle Center At X = 24.9 ; Y = 106.3 and Radius, 56.7

*** 1.574 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	24.21	49.61
2	29.14	50.42
3	34.02	51.53
4	38.82	52.93
5	43.52	54.62
6	48.12	56.59
7	52.59	58.83
8	56.92	61.34
9	61.09	64.10
10	65.08	67.10

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   11         67.46        69.12
Circle Center At X =    13.1 ; Y =   132.0  and Radius,    83.2
      ***     1.624    ***
Failure Surface Specified By 11 Coordinate Points
  Point       X-Surf       Y-Surf
   No.         (ft)         (ft)
    1         23.42        49.21
    2         28.39        48.64
    3         33.39        48.77
    4         38.32        49.60
    5         43.08        51.11
    6         47.59        53.28
    7         51.76        56.05
    8         55.49        59.37
    9         58.72        63.19
   10         61.39        67.41
   11         61.71        68.12
Circle Center At X =    29.9 ; Y =    84.3  and Radius,    35.7
      ***     1.676    ***
Failure Surface Specified By 15 Coordinate Points
  Point       X-Surf       Y-Surf
   No.         (ft)         (ft)
    1         21.05        49.00
    2         26.02        48.39
    3         31.01        48.17
    4         36.01        48.34
    5         40.98        48.90
    6         45.89        49.84
    7         50.71        51.17
    8         55.41        52.86
    9         59.97        54.92
   10         64.35        57.33
   11         68.53        60.07
   12         72.49        63.12
   13         76.20        66.48
   14         79.63        70.12
   15         79.97        70.54
Circle Center At X =    31.3 ; Y =   112.3  and Radius,    64.1
      ***     1.703    ***
Failure Surface Specified By 13 Coordinate Points
  Point       X-Surf       Y-Surf
   No.         (ft)         (ft)
    1         12.37        45.00
    2         17.34        44.42
    3         22.34        44.37
    4         27.31        44.84
    5         32.21        45.84
    6         36.98        47.35
    7         41.56        49.35
    8         45.91        51.82
    9         49.97        54.74
   10         53.70        58.07
   11         57.06        61.77
   12         60.01        65.81
   13         61.31        68.05
Circle Center At X =    20.3 ; Y =    91.7  and Radius,    47.4
      ***     1.712    ***
Failure Surface Specified By 13 Coordinate Points
  Point       X-Surf       Y-Surf
   No.         (ft)         (ft)
    1         23.42        49.21
    2         28.39        48.65
    3         33.39        48.56
    4         38.38        48.91
    5         43.31        49.73
    6         48.15        50.99
    7         52.85        52.69
```

8	57.38	54.81
9	61.69	57.34
10	65.76	60.25
11	69.54	63.52
12	73.01	67.12
13	75.48	70.22

Circle Center At X = 32.0 ; Y = 103.1 and Radius, 54.6
*** 1.720 ***
Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	20.26	49.00
2	25.21	48.29
3	30.20	47.97
4	35.20	48.06
5	40.18	48.56
6	45.10	49.45
7	49.93	50.74
8	54.64	52.41
9	59.20	54.46
10	63.58	56.87
11	67.75	59.63
12	71.69	62.71
13	75.37	66.10
14	78.75	69.78
15	79.32	70.50

Circle Center At X = 31.6 ; Y = 109.9 and Radius, 61.9
*** 1.724 ***
Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	20.26	49.00
2	25.17	48.04
3	30.14	47.52
4	35.14	47.42
5	40.13	47.77
6	45.07	48.54
7	49.92	49.75
8	54.65	51.37
9	59.22	53.40
10	63.60	55.82
11	67.75	58.60
12	71.64	61.75
13	75.24	65.21
14	78.53	68.98
15	79.65	70.52

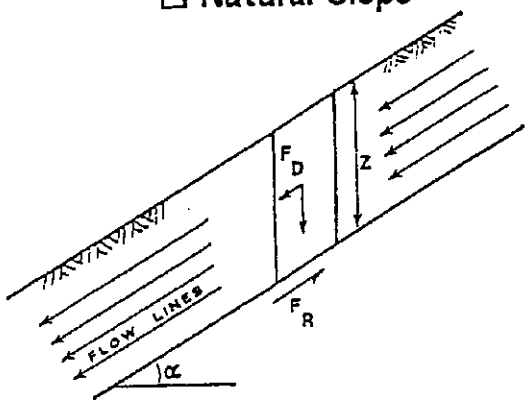
Circle Center At X = 33.7 ; Y = 104.8 and Radius, 57.4
*** 1.732 ***
Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	21.05	49.00
2	26.00	48.25
3	31.00	48.18
4	35.96	48.80
5	40.79	50.08
6	45.40	52.01
7	49.71	54.55
8	53.63	57.65
9	57.09	61.26
10	60.03	65.31
11	61.52	68.09

Circle Center At X = 29.0 ; Y = 84.8 and Radius, 36.6
*** 1.743 ***

SURFICIAL SLOPE STABLITY ANALYSIS

☐ Cut Slope
☒ Fill Slope 2:1 (h:v) - 90% compaction
☐ Natural Slope



Parameters

Z = Depth of Saturation (feet) = 4

γ_b = Buoyant Unit Weight of Soil (pcf) = 62.6

γ_t = Total Unit Weight of Soil (pcf) = 125.0

α = Slope Angle = 26.6°

ϕ = Angle of Internal Friction = 24°

c = Cohesion (psf) = 240 psf

Force Tending to Cause Movement

$$F_D = Z\gamma_t \cos\alpha \sin\alpha = \tfrac{1}{2} Z\gamma_t \sin 2\alpha$$

Force Tending to Resist Movement

$$F_R = Z\gamma_b \cos^2\alpha \tan\phi + c$$

Factor of Safety

$$F.S. = \frac{2Z\gamma_b \cos^2\alpha \tan\phi + 2c}{Z\gamma_t \sin 2\alpha} = \frac{658.3}{400.4} = 1.64$$

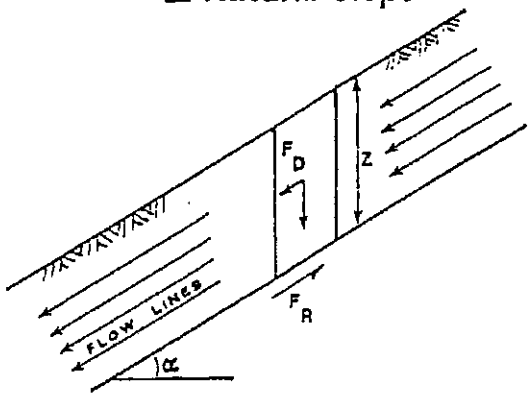
PETRA GEOTECHNICAL, INC.

JN 259-06 OCT., 2007

FIGURE 5

SURFICIAL SLOPE STABLITY ANALYSIS

☐ Cut Slope
☒ Fill Slope 1.7:1 (h:v) 95% compaction
☐ Natural Slope



Parameters

Z = Depth of Saturation (feet) = 4

γ_b = Buoyant Unit Weight of Soil (pcf) = 62.6

γ_t = Total Unit Weight of Soil (pcf) = 125.0

α = Slope Angle = 30.5°

ϕ = Angle of Internal Friction = 26°

c = Cohesion (psf) = 720 psf

Force Tending to Cause Movement

$$F_D = Z\gamma_t \cos\alpha \sin\alpha = \tfrac{1}{2} Z\gamma_t \sin 2\alpha$$

Force Tending to Resist Movement

$$F_R = Z\gamma_b \cos^2\alpha \tan\phi + c$$

Factor of Safety

$$F.S. = \frac{2Z\gamma_b \cos^2\alpha \tan\phi + 2c}{Z\gamma_t \sin 2\alpha} = \frac{1621.3}{437.3} = 3.71$$

PETRA GEOTECHNICAL, INC.

JN 259-06 OCT., 2007

FIGURE 6

APPENDIX C

LABORATORY TESTING

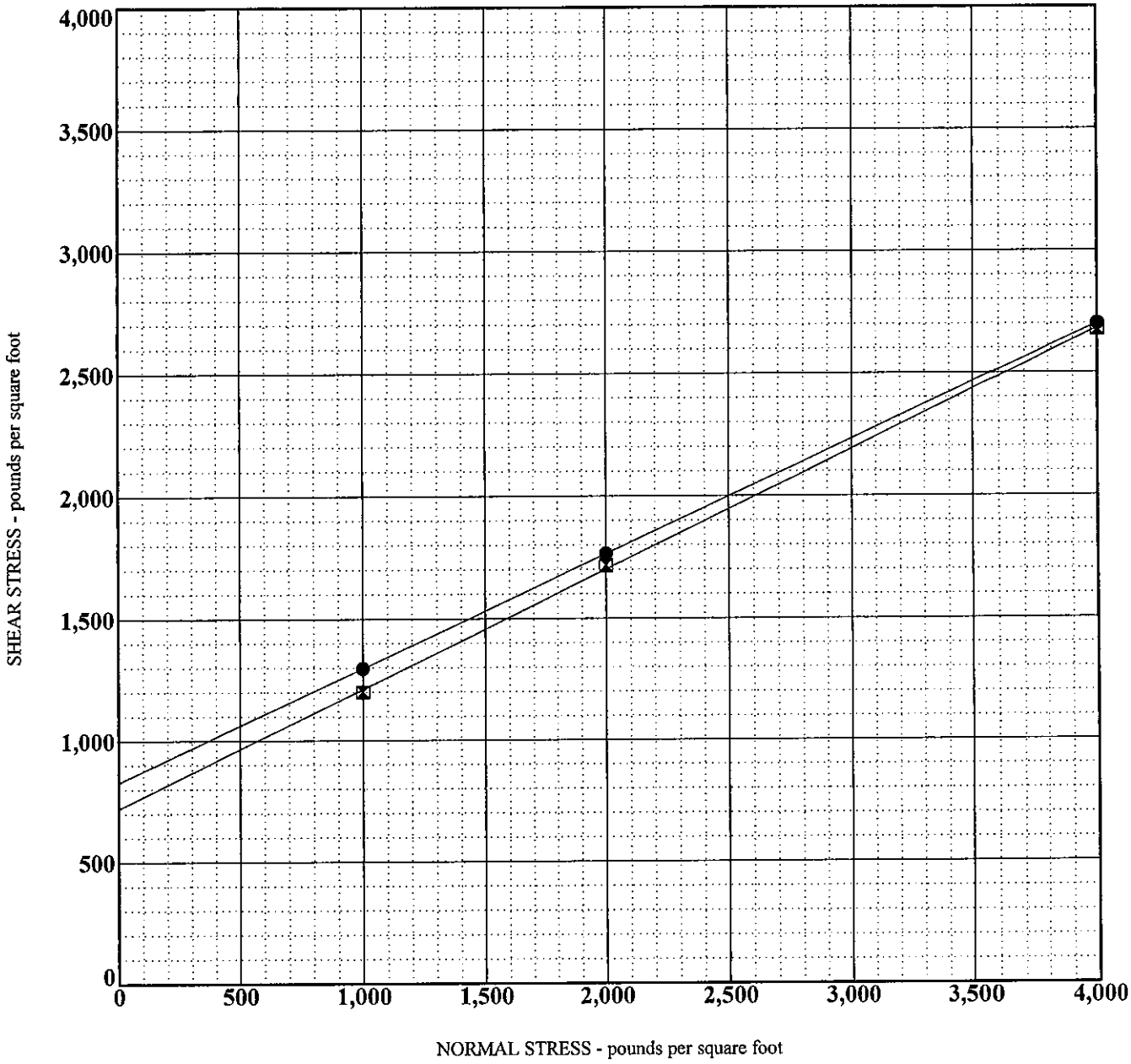
PETRA

APPENDIX C

Laboratory Test Criteria

Direct Shear

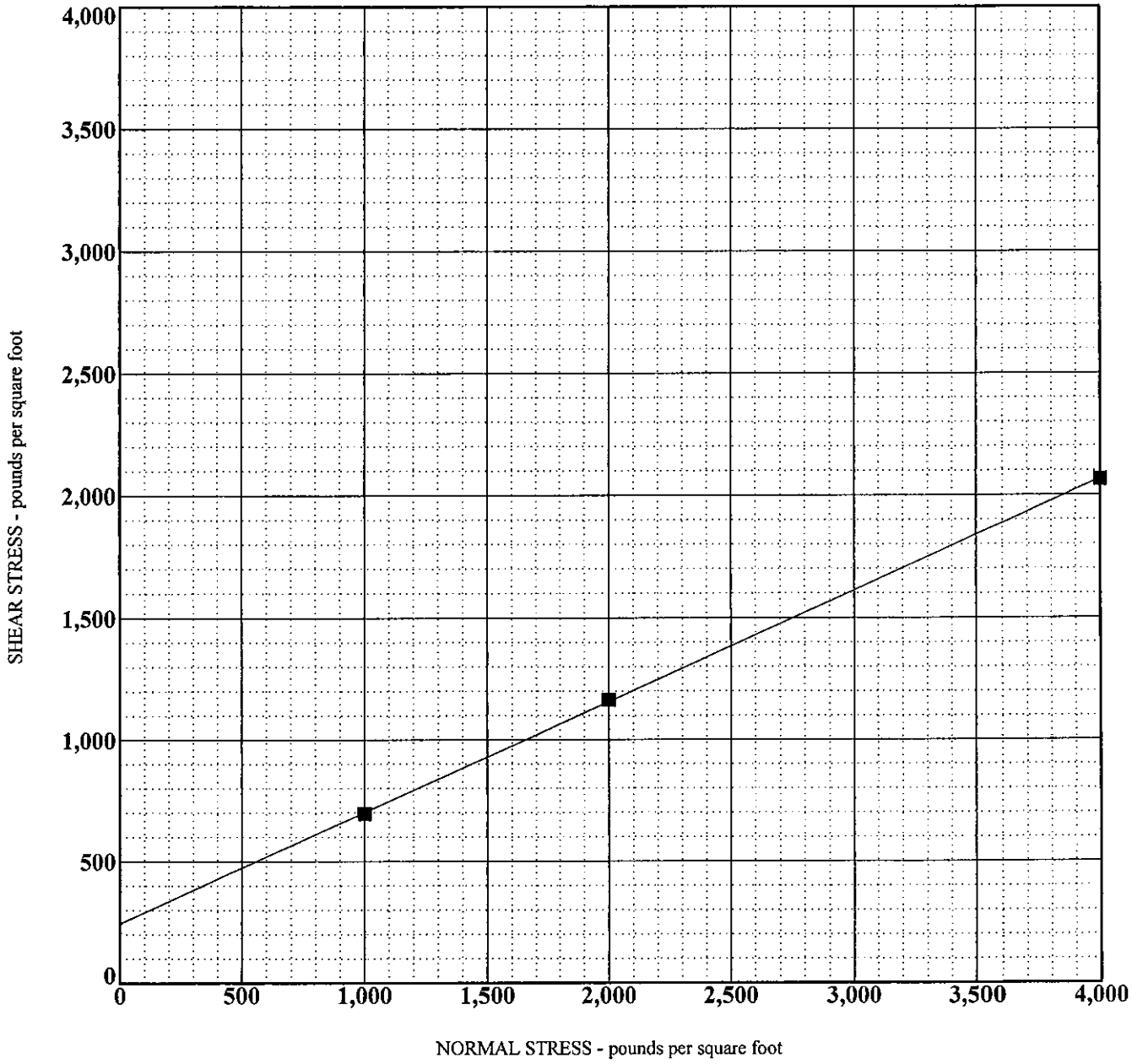
The Coulomb shear strength parameters, angle of internal friction and cohesion, were determined for selected samples of soil remolded to 90 and 95 percent of maximum dry density. The tests were performed in general accordance with ASTM D3080. Three specimens were prepared for each test. The test specimens were artificially saturated and then sheared under varied normal loads at a maximum constant rate of strain of 0.05 inch per minute. Results are graphically presented on Plate C-1 through C- 4.



SAMPLE LOCATION (feet)	DESCRIPTION	FRICTION ANGLE (°)	COHESION (PSF)
● TP-3 @ 0.0	Sandy CLAY - Peak (95%)	25	825
⊠ TP-3 @ 0.0	Sandy CLAY - Ultimate (95%)	26	720

DIRECT SHEAR 259-06.GPJ PETRA.GDT 11/13/07

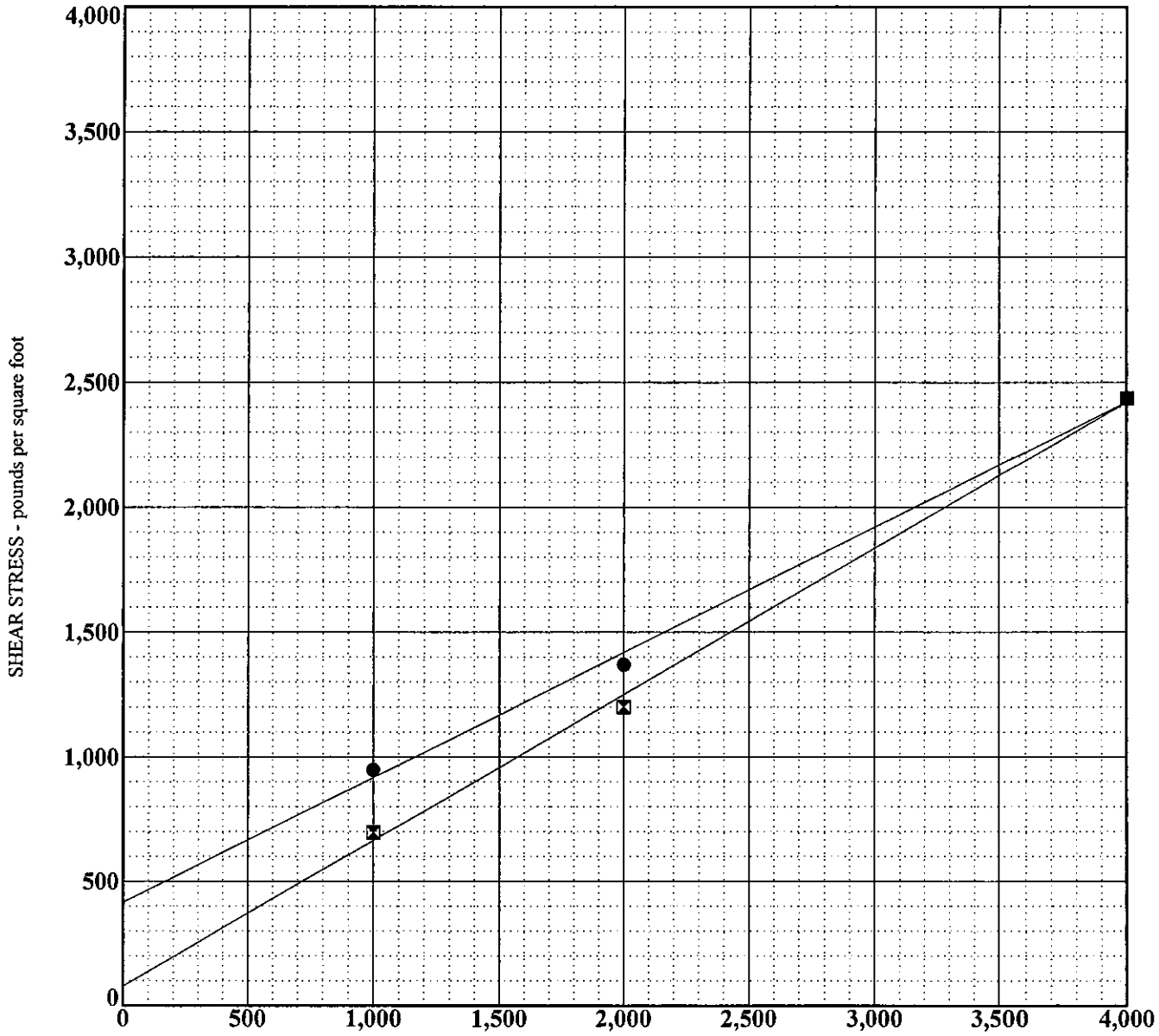
J.N. 259-06	DIRECT SHEAR TEST DATA	November, 2007
PETRA GEOTECHNICAL, INC.	REMOLDED TEST SAMPLES	PLATE C-1



SAMPLE LOCATION (feet)	DESCRIPTION	FRICTION ANGLE (°)	COHESION (PSF)
● TP-3 @ 0.0	Sandy CLAY - Ultimate (90%)	24	245
⊠ TP-3 @ 0.1	Sandy CLAY - Ultimate (90%)	24	245

DIRECT SHEAR 259-06.GPJ PETRA.GDT 11/13/07

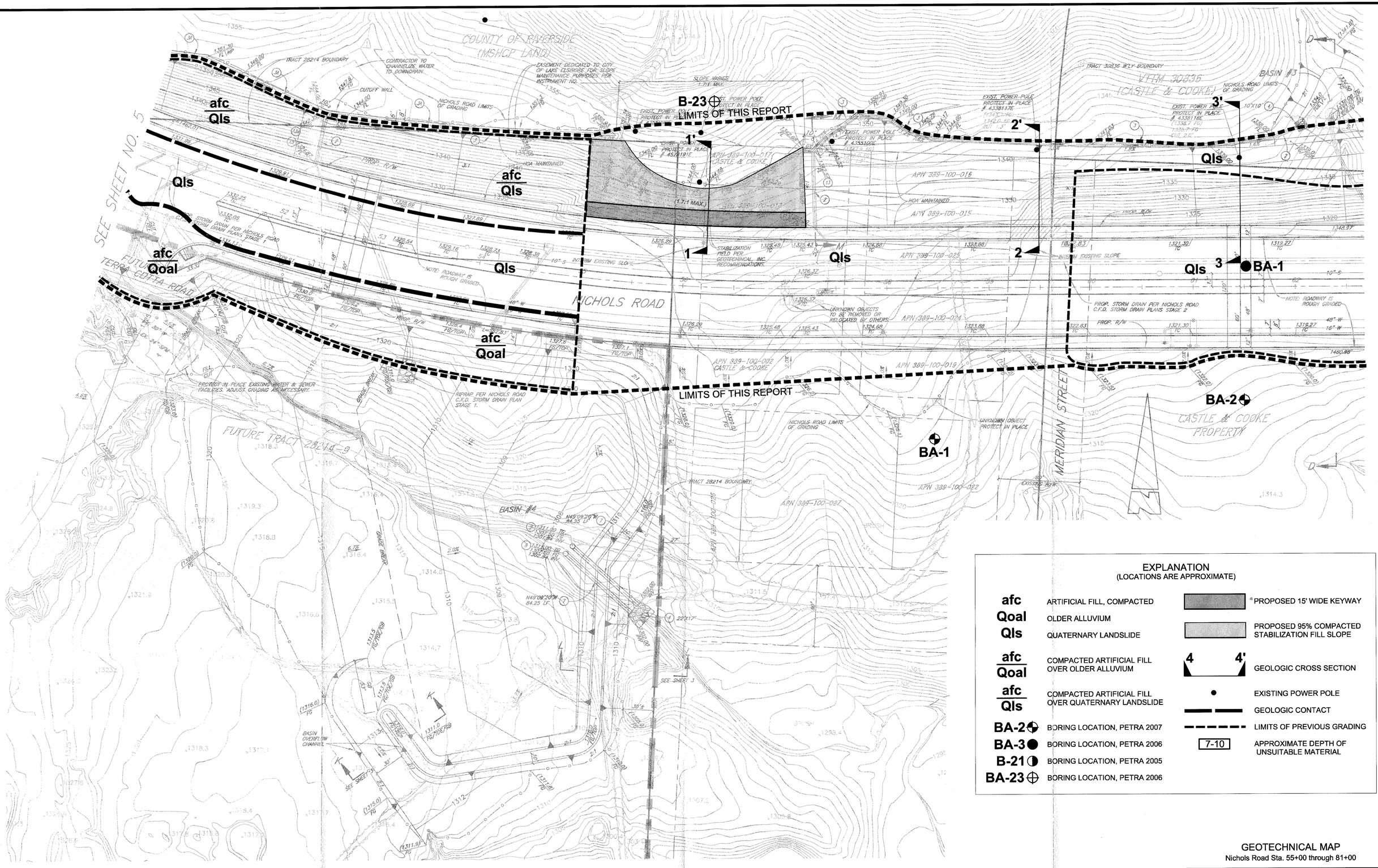
J.N. 259-06	**DIRECT SHEAR TEST DATA**	November, 2007
PETRA GEOTECHNICAL, INC.	**REMOLDED TEST SAMPLES**	PLATE C-2



SAMPLE LOCATION (feet)	DESCRIPTION	FRICTION ANGLE (°)	COHESION (PSF)
● TP-8 @ 0.0	Clayey SAND - Peak (95%)	27	410
⊠ TP-8 @ 0.0	Clayey SAND - Ultimate (95%)	30	75

DIRECT SHEAR 259-06.GPJ PETRA.GDT 11/13/07

J.N. 259-06	**DIRECT SHEAR TEST DATA**	November, 2007
PETRA GEOTECHNICAL, INC.	**REMOLDED TEST SAMPLES**	PLATE C-3



EXPLANATION
(LOCATIONS ARE APPROXIMATE)

afc	ARTIFICIAL FILL, COMPACTED
Qoal	OLDER ALLUVIUM
Qls	QUATERNARY LANDSLIDE
afc / Qoal	COMPACTED ARTIFICIAL FILL OVER OLDER ALLUVIUM
afc / Qls	COMPACTED ARTIFICIAL FILL OVER QUATERNARY LANDSLIDE
BA-2	BORING LOCATION, PETRA 2007
BA-3	BORING LOCATION, PETRA 2006
B-21	BORING LOCATION, PETRA 2005
BA-23	BORING LOCATION, PETRA 2006
*	PROPOSED 15' WIDE KEYWAY
	PROPOSED 95% COMPACTED STABILIZATION FILL SLOPE
4 4'	GEOLOGIC CROSS SECTION
	EXISTING POWER POLE
	GEOLOGIC CONTACT
	LIMITS OF PREVIOUS GRADING
7-10	APPROXIMATE DEPTH OF UNSUITABLE MATERIAL

GEOTECHNICAL MAP
Nichols Road Sta. 55+00 through 81+00

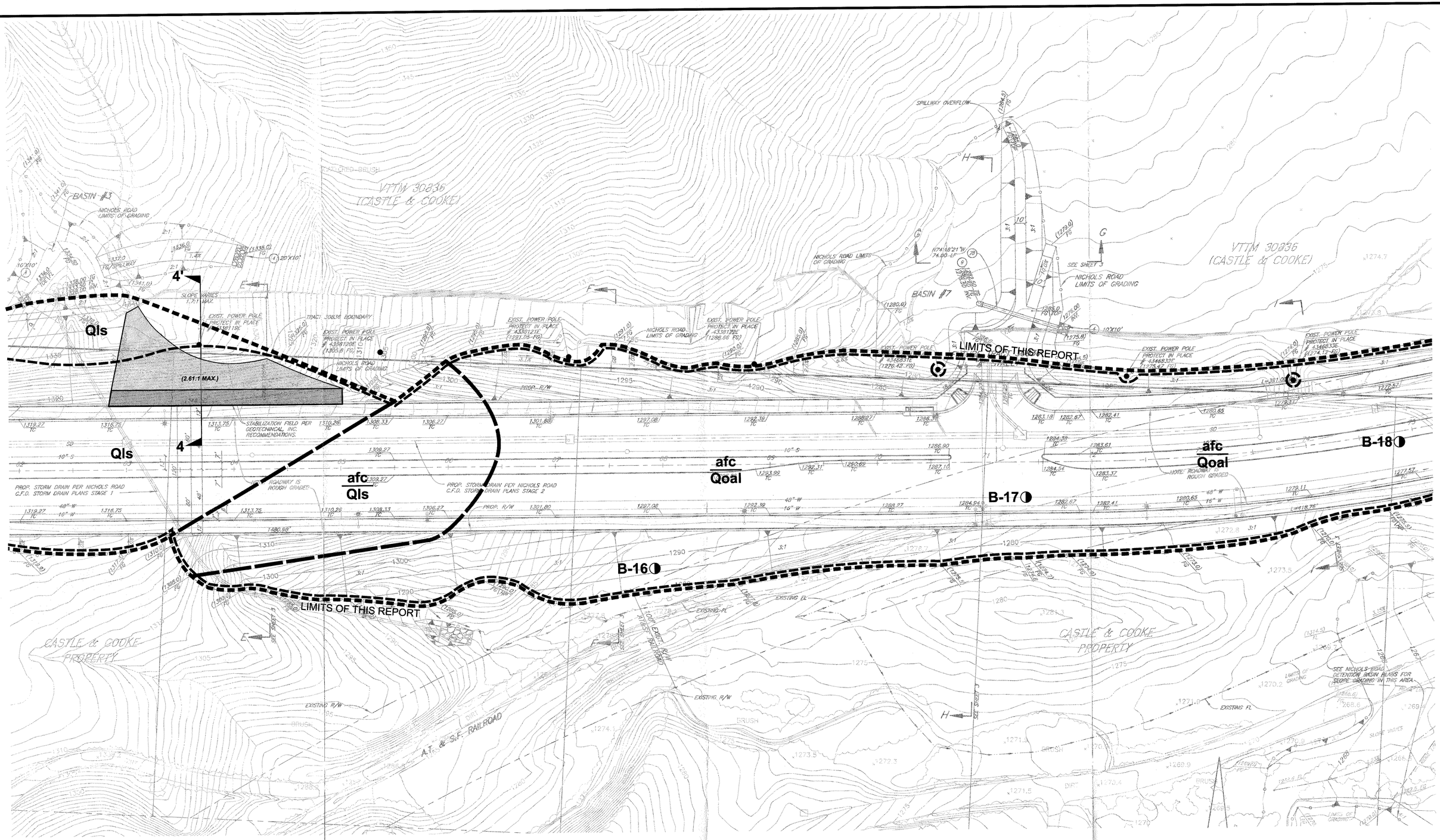
Reference:
KWC Engineers, City of Lake Elsinore,
Tract 28214 Rough Grading Plan,
C.F.D. Nichols Road, Phase 2,
sheet 6 of 9.

NORTH
0 40 FEET
SCALE

PETRA GEOTECHNICAL, INC.

JN 259-06 NOV. 2007

PLATE 1



(SEE PLATE 1 FOR EXPLANATION)

GEOTECHNICAL MAP

Nichols Road Sta. 55+00 through 81+00

Reference:
KWC Engineers, City of Lake Elsinore,
Tract 28214 Rough Grading Plan,
C.F.D. Nichols Road, Phase 2,
sheet 7 of 9.

NORTH

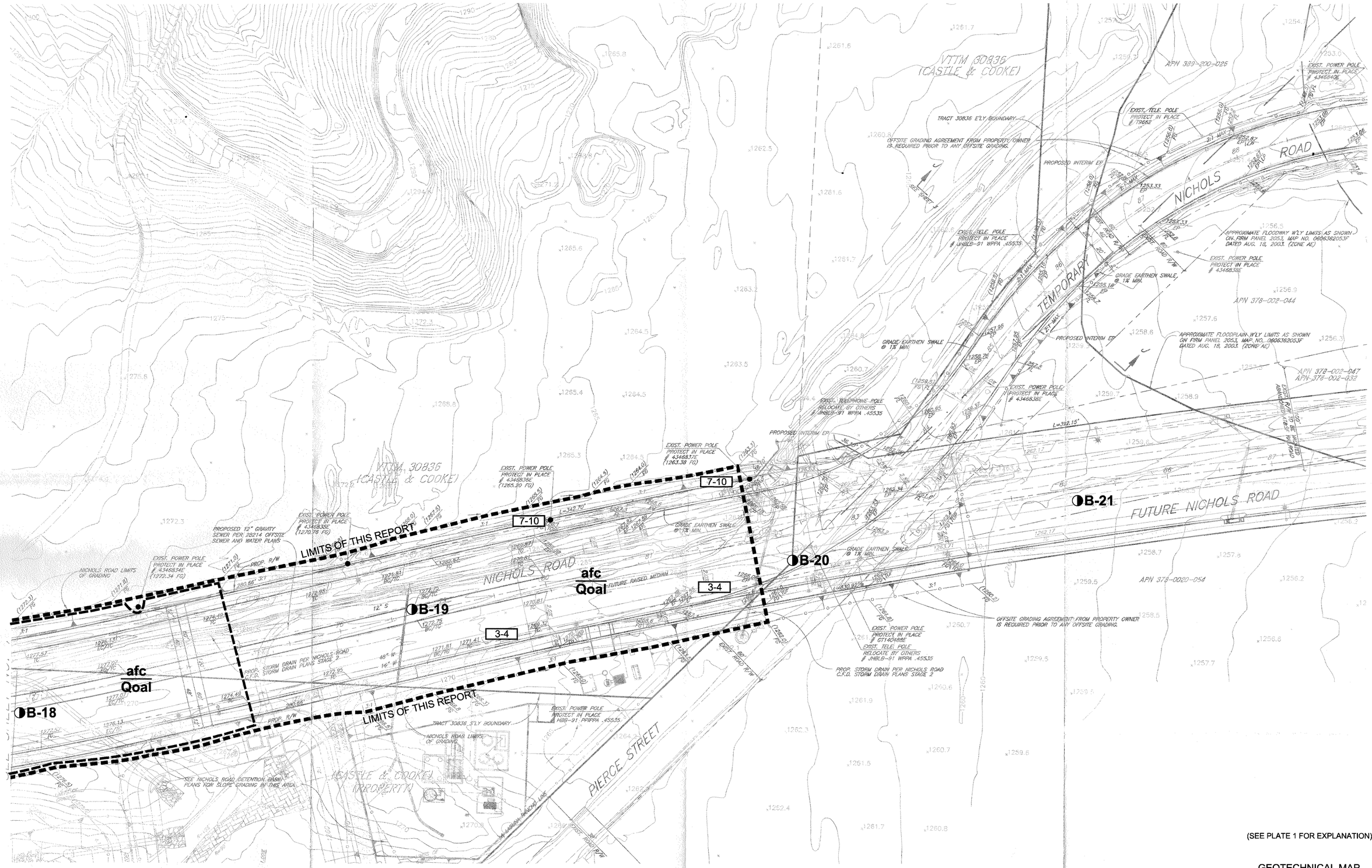
0 40 FEET

SCALE

PETRA GEOTECHNICAL, INC.

JN 259-06 NOV. 2007

PLATE 2



(SEE PLATE 1 FOR EXPLANATION)

GEOTECHNICAL MAP

Nichols Road Sta. 55+00 through 81+00

Reference:
KWC Engineers, City of Lake Elsinore,
Tract 28214 Rough Grading Plan,
C.F.D. Nichols Road, Phase 2,
sheet 8 of 9.

NORTH

0 40 FEET

SCALE

PETRA GEOTECHNICAL, INC.

JN 259-06 NOV. 2007

PLATE 3

Insert Prevailing Wage Determination

General Decision Number: CA160036 01/15/2016 CA36

Superseded General Decision Number: CA20150036

State: California

Construction Types: Building, Heavy (Heavy and Dredging) and Highway

County: Riverside County in California.

BUILDING CONSTRUCTION PROJECTS; DREDGING PROJECTS (does not include hopper dredge work); HEAVY CONSTRUCTION PROJECTS (does not include water well drilling); HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.15 for calendar year 2016 applies to all contracts subject to the Davis-Bacon Act for which the solicitation was issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.15 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2016. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/08/2016
1	01/15/2016

ASBE0005-002 07/01/2015

	Rates	Fringes
Asbestos Workers/Insulator (Includes the application of all insulating materials, protective coverings, coatings, and finishes to all types of mechanical systems)	$ 36.74	19.49
Fire Stop Technician (Application of Firestopping Materials for wall openings and penetrations in walls, floors, ceilings and curtain walls)	$ 25.38	16.81

ASBE0005-004 06/29/2015

	Rates	Fringes
Asbestos Removal worker/hazardous material handler (Includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging and disposing of all insulation materials from mechanical systems, whether they contain asbestos or not)	$ 18.06	10.57

BOIL0092-003 10/01/2012

	Rates	Fringes
BOILERMAKER	$ 41.17	28.27

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* BRCA0004-011 05/01/2015

	Rates	Fringes
BRICKLAYER; MARBLE SETTER	$ 37.15	13.02

*The wage scale for prevailing wage projects performed in Blythe, China lake, Death Valley, Fort Irwin, Twenty-Nine Palms, Needles and 1-15 corridor (Barstow to the Nevada State Line) will be Three Dollars ($3.00) above the standard San Bernardino/Riverside County hourly wage rate

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BRCA0018-004 06/01/2014

	Rates	Fringes
MARBLE FINISHER	$ 28.45	11.38
TILE FINISHER	$ 23.78	9.84
TILE LAYER	$ 35.14	14.33

BRCA0018-010 09/01/2013

	Rates	Fringes
TERRAZZO FINISHER	$ 26.59	10.34
TERRAZZO WORKER/SETTER	$ 33.63	11.13

CARP0409-001 07/01/2010

	Rates	Fringes
CARPENTER		
(1) Carpenter, Cabinet Installer, Insulation Installer, Hardwood Floor Worker and acoustical installer	$ 37.35	11.08
(2) Millwright	$ 37.85	11.08
(3) Piledrivermen/Derrick Bargeman, Bridge or Dock Carpenter, Heavy Framer, Rock Bargeman or Scowman, Rockslinger, Shingler (Commercial)	$ 37.48	11.08
(4) Pneumatic Nailer, Power Stapler	$ 37.60	11.08
(5) Sawfiler	$ 37.44	11.08
(6) Scaffold Builder	$ 28.55	11.08
(7) Table Power Saw Operator	$ 37.45	11.08

FOOTNOTE: Work of forming in the construction of open cut sewers or storm drains, on operations in which horizontal lagging is used in conjunction with steel H-Beams driven or placed in pre- drilled holes, for that portion of a lagged trench against which concrete is poured, namely, as a substitute for back forms (which work is performed by

piledrivers): $0.13 per hour additional.

CARP0409-002 07/01/2008

	Rates	Fringes
Diver		
(1) Wet	$ 663.68	9.82
(2) Standby	$ 331.84	9.82
(3) Tender	$ 323.84	9.82
(4) Assistant Tender	$ 299.84	9.82

Amounts in "Rates' column are per day

CARP0409-005 07/01/2010

	Rates	Fringes
Drywall		
DRYWALL INSTALLER/LATHER	$ 37.35	11.08
STOCKER/SCRAPPER	$ 10.00	6.67

CARP0409-008 08/01/2010

	Rates	Fringes
Modular Furniture Installer	$ 17.00	7.41

ELEC0440-001 11/30/2015

	Rates	Fringes
ELECTRICIAN		
INSIDE ELECTRICIAN	$ 36.56	23.11
INTELLIGENT TRANSPORTATION SYSTEMS		
Electrician	$ 36.56	23.11
Technician	$ 27.42	22.84

ZONE PAY: Zone A: Free travel zone for all contractors performing work in Zone A.
Zone B:Any work performed in Zone (B) shall add $12.00 per hour to the current wage scale. Zone (B) shall be the area from the eastern perimeter of Zone (A) to a line which runs north and south begininng at Little Morongo Canyon (San Bernardino/Riverside County Line), Southeast along the Coachella Tunnels, Colorado River Aqueduct and Mecca Tunnels to Pinkham Wash then South to Box Canyon Road, then southwest along Box Canyon Road to Highway 195 west onto 195 south to Highway 86 to Riverside/Imperial County Line.

ELEC0440-004 05/26/2014

COMMUNICATIONS AND SYSTEMS WORK

	Rates	Fringes
Communications System		
Installer	$ 28.38	4%+11.45
Technician	$ 30.18	4%+11.45

SCOPE OF WORK:
Installation, testing, service and maintenance of systems

utilizing the transmission and/or transference of voice, sound, vision and digital for commercial, educational, security and entertainment purposes for the following: TV monitoring and surveillance, background-foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multi-media, multiplex, nurse call systems, radio page, school intercom and sound, burglar alarms, fire alarms, and low voltage master clock systems in commercial buildings. Communication Systems that transmit or receive information and/or control systems that are intrinsic to the above listed systems; inclusion or exclusion of terminations and testings of conductors determined by their function; excluding all other data systems or multiple systems which include control function or power supply; excluding installation of raceway systems, conduit systems, line voltage work, and energy management systems. Does not cover work performed at China Lake Naval Ordnance Test Station.

ELEC1245-001 06/01/2015

	Rates	Fringes
LINE CONSTRUCTION		
(1) Lineman; Cable splicer	$ 52.85	15.53
(2) Equipment specialist (operates crawler tractors, commercial motor vehicles, backhoes, trenchers, cranes (50 tons and below), overhead & underground distribution line equipment)	$ 42.21	14.32
(3) Groundman	$ 32.28	14.03
(4) Powderman	$ 47.19	14.60

HOLIDAYS: New Year's Day, M.L. King Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day and day after Thanksgiving, Christmas Day

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ELEV0018-001 01/01/2015

	Rates	Fringes
ELEVATOR MECHANIC	$ 49.90	28.38

FOOTNOTE:
PAID VACATION: Employer contributes 8% of regular hourly rate as vacation pay credit for employees with more than 5 years of service, and 6% for 6 months to 5 years of service.
PAID HOLIDAYS: New Years Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, Friday after Thanksgiving, and Christmas Day.

ENGI0012-003 07/06/2015

	Rates	Fringes
OPERATOR: Power Equipment (All Other Work)		
GROUP 1	$ 39.95	23.35
GROUP 2	$ 40.73	23.35

GROUP 3	$ 41.02	23.35
GROUP 4	$ 42.51	23.35
GROUP 5	$ 41.86	23.35
GROUP 6	$ 41.83	23.35
GROUP 8	$ 42.84	23.35
GROUP 9	$ 42.19	23.35
GROUP 10	$ 42.96	23.35
GROUP 11	$ 42.31	23.35
GROUP 12	$ 43.13	23.35
GROUP 13	$ 43.23	23.35
GROUP 14	$ 43.26	23.35
GROUP 15	$ 43.34	23.35
GROUP 16	$ 43.46	23.35
GROUP 17	$ 43.63	23.35
GROUP 18	$ 43.73	23.35
GROUP 19	$ 43.84	23.35
GROUP 20	$ 43.96	23.35
GROUP 21	$ 44.13	23.35
GROUP 22	$ 44.23	23.35
GROUP 23	$ 44.34	23.35
GROUP 24	$ 44.46	23.35
GROUP 25	$ 44.63	23.35

OPERATOR: Power Equipment
(Cranes, Piledriving &
Hoisting)

GROUP 1	$ 41.30	23.35
GROUP 2	$ 42.08	23.35
GROUP 3	$ 42.37	23.35
GROUP 4	$ 42.51	23.35
GROUP 5	$ 42.73	23.35
GROUP 6	$ 42.84	23.35
GROUP 7	$ 42.96	23.35
GROUP 8	$ 43.13	23.35
GROUP 9	$ 43.30	23.35
GROUP 10	$ 44.30	23.35
GROUP 11	$ 45.30	23.35
GROUP 12	$ 46.30	23.35
GROUP 13	$ 47.30	23.35

OPERATOR: Power Equipment
(Tunnel Work)

GROUP 1	$ 41.80	23.35
GROUP 2	$ 42.58	23.35
GROUP 3	$ 42.87	23.35
GROUP 4	$ 43.01	23.35
GROUP 5	$ 43.23	23.35
GROUP 6	$ 43.34	23.35
GROUP 7	$ 43.46	23.35

PREMIUM PAY:
$3.75 per hour shall be paid on all Power Equipment Operator work on the followng Military Bases: China Lake Naval Reserve, Vandenberg AFB, Point Arguello, Seely Naval Base, Fort Irwin, Nebo Annex Marine Base, Marine Corp Logistics Base Yermo, Edwards AFB, 29 Palms Marine Base and Camp Pendleton

Workers required to suit up and work in a hazardous material environment: $2.00 per hour additional. Combination mixer and compressor operator on gunite work shall be classified as a concrete mobile mixer operator.

SEE ZONE DEFINITIONS AFTER CLASSIFICATIONS

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Bargeman; Brakeman; Compressor operator; Ditch Witch, with seat or similar type equipment; Elevator operator-inside; Engineer Oiler; Forklift operator (includes loed, lull or similar types under 5 tons; Generator operator; Generator, pump or compressor plant operator; Pump operator; Signalman; Switchman

GROUP 2: Asphalt-rubber plant operator (nurse tank operator); Concrete mixer operator-skip type; Conveyor operator; Fireman; Forklift operator (includes loed, lull or similar types over 5 tons; Hydrostatic pump operator; oiler crusher (asphalt or concrete plant); Petromat laydown machine; PJU side dum jack; Screening and conveyor machine operator (or similar types); Skiploader (wheel type up to 3/4 yd. without attachment); Tar pot fireman; Temporary heating plant operator; Trenching machine oiler

GROUP 3: Asphalt-rubber blend operator; Bobcat or similar type (Skid steer); Equipment greaser (rack); Ford Ferguson (with dragtype attachments); Helicopter radioman (ground); Stationary pipe wrapping and cleaning machine operator

GROUP 4: Asphalt plant fireman; Backhoe operator (mini-max or similar type); Boring machine operator; Boxman or mixerman (asphalt or concrete); Chip spreading machine operator; Concrete cleaning decontamination machine operator; Concrete Pump Operator (small portable); Drilling machine operator, small auger types (Texoma super economatic or similar types - Hughes 100 or 200 or similar types - drilling depth of 30' maximum); Equipment greaser (grease truck); Guard rail post driver operator; Highline cableway signalman; Hydra-hammer-aero stomper; Micro Tunneling (above ground tunnel); Power concrete curing machine operator; Power concrete saw operator; Power-driven jumbo form setter operator; Power sweeper operator; Rock Wheel Saw/Trencher; Roller operator (compacting); Screed operator (asphalt or concrete); Trenching machine operator (up to 6 ft.); Vacuum or much truck

GROUP 5: Equipment Greaser (Grease Truck/Multi Shift).

GROUP 6: Articulating material hauler; Asphalt plant engineer; Batch plant operator; Bit sharpener; Concrete joint machine operator (canal and similar type); Concrete planer operator; Dandy digger; Deck engine operator; Derrickman (oilfield type); Drilling machine operator, bucket or auger types (Calweld 100 bucket or similar types - Watson 1000 auger or similar types - Texoma 330, 500 or 600 auger or similar types - drilling depth of 45' maximum); Drilling machine operator; Hydrographic seeder machine operator (straw, pulp or seed), Jackson track maintainer, or similar type; Kalamazoo Switch tamper, or similar type; Machine tool operator; Maginnis internal full slab vibrator, Mechanical berm, curb or gutter(concrete or asphalt); Mechanical finisher operator (concrete, Clary-Johnson-Bidwell or similar); Micro tunnel system (below ground); Pavement breaker operator (truck mounted); Road oil mixing machine operator; Roller operator (asphalt or finish), rubber-tired earth moving equipment (single engine, up to and including 25 yds. struck); Self-propelled tar pipelining machine operator; Skiploader operator (crawler and wheel type, over 3/4 yd. and up to and including 1-1/2 yds.); Slip form pump operator (power driven hydraulic lifting device for concrete forms); Tractor operator-bulldozer, tamper-scraper (single engine,

up to 100 h.p. flywheel and similar types, up to and including D-5 and similar types); Tugger hoist operator (1 drum); Ultra high pressure waterjet cutting tool system operator; Vacuum blasting machine operator

GROUP 8: Asphalt or concrete spreading operator (tamping or finishing); Asphalt paving machine operator (Barber Greene or similar type); Asphalt-rubber distribution operator; Backhoe operator (up to and including 3/4 yd.), small ford, Case or similar; Cast-in-place pipe laying machine operator; Combination mixer and compressor operator (gunite work); Compactor operator (self-propelled); Concrete mixer operator (paving); Crushing plant operator; Drill Doctor; Drilling machine operator, Bucket or auger types (Calweld 150 bucket or similar types - Watson 1500, 2000 2500 auger or similar types - Texoma 700, 800 auger or similar types - drilling depth of 60' maximum); Elevating grader operator; Grade checker; Gradall operator; Grouting machine operator; Heavy-duty repairman; Heavy equipment robotics operator; Kalamazoo balliste regulator or similar type; Kolman belt loader and similar type; Le Tourneau blob compactor or similar type; Loader operator (Athey, Euclid, Sierra and similar types); Mobark Chipper or similar; Ozzie padder or similar types; P.C. slot saw; Pneumatic concrete placing machine operator (Hackley-Presswell or similar type); Pumpcrete gun operator; Rock Drill or similar types; Rotary drill operator (excluding caisson type); Rubber-tired earth-moving equipment operator (single engine, caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds. up to and including 50 cu. yds. struck); Rubber-tired earth-moving equipment operator (multiple engine up to and including 25 yds. struck); Rubber-tired scraper operator (self-loading paddle wheel type-John Deere, 1040 and similar single unit); Self-propelled curb and gutter machine operator; Shuttle buggy; Skiploader operator (crawler and wheel type over 1-1/2 yds. up to and including 6-1/2 yds.); Soil remediation plant operator; Surface heaters and planer operator; Tractor compressor drill combination operator; Tractor operator (any type larger than D-5 - 100 flywheel h.p. and over, or similar-bulldozer, tamper, scraper and push tractor single engine); Tractor operator (boom attachments), Traveling pipe wrapping, cleaning and bendng machine operator; Trenching machine operator (over 6 ft. depth capacity, manufacturer's rating); trenching Machine with Road Miner attachment (over 6 ft depth capacity): Ultra high pressure waterjet cutting tool system mechanic; Water pull (compaction) operator

GROUP 9: Heavy Duty Repairman

GROUP 10: Drilling machine operator, Bucket or auger types (Calweld 200 B bucket or similar types-Watson 3000 or 5000 auger or similar types-Texoma 900 auger or similar types-drilling depth of 105' maximum); Dual drum mixer, dynamic compactor LDC350 (or similar types); Monorail locomotive operator (diesel, gas or electric); Motor patrol-blade operator (single engine); Multiple engine tractor operator (Euclid and similar type-except Quad 9 cat.); Rubber-tired earth-moving equipment operator (single engine, over 50 yds. struck); Pneumatic pipe ramming tool and similar types; Prestressed wrapping machine operator; Rubber-tired earth-moving equipment operator (single engine, over 50 yds. struck); Rubber tired earth moving equipment operator (multiple engine, Euclid, caterpillar

and similar over 25 yds. and up to 50 yds. struck), Tower crane repairman; Tractor loader operator (crawler and wheel type over 6-1/2 yds.); Woods mixer operator (and similar Pugmill equipment)

GROUP 11: Heavy Duty Repairman - Welder Combination, Welder - Certified.

GROUP 12: Auto grader operator; Automatic slip form operator; Drilling machine operator, bucket or auger types (Calweld, auger 200 CA or similar types - Watson, auger 6000 or similar types - Hughes Super Duty, auger 200 or similar types - drilling depth of 175' maximum); Hoe ram or similar with compressor; Mass excavator operator less tha 750 cu. yards; Mechanical finishing machine operator; Mobile form traveler operator; Motor patrol operator (multi-engine); Pipe mobile machine operator; Rubber-tired earth- moving equipment operator (multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck); Rubber-tired self- loading scraper operator (paddle-wheel-auger type self-loading - two (2) or more units)

GROUP 13: Rubber-tired earth-moving equipment operator operating equipment with push-pull system (single engine, up to and including 25 yds. struck)

GROUP 14: Canal liner operator; Canal trimmer operator; Remote- control earth-moving equipment operator (operating a second piece of equipment: $1.00 per hour additional); Wheel excavator operator (over 750 cu. yds.)

GROUP 15: Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (single engine, Caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds. and up to and including 50 yds. struck); Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (multiple engine-up to and including 25 yds. struck)

GROUP 16: Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (single engine, over 50 yds. struck); Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (multiple engine, Euclid, Caterpillar and similar, over 25 yds. and up to 50 yds. struck)

GROUP 17: Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (multiple engine, Euclid, Caterpillar and similar, over 50 cu. yds. struck); Tandem tractor operator (operating crawler type tractors in tandem - Quad 9 and similar type)

GROUP 18: Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - single engine, up to and including 25 yds. struck)

GROUP 19: Rotex concrete belt operator (or similar types); Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - single engine, Caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds.and up to and including 50 cu. yds. struck); Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and

similar types in any combination, excluding compaction units - multiple engine, up to and including 25 yds. struck)

GROUP 20: Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - single engine, over 50 yds. struck); Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps, and similar types in any combination, excluding compaction units - multiple engine, Euclid, Caterpillar and similar, over 25 yds. and up to 50 yds. struck)

GROUP 21: Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck)

GROUP 22: Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (single engine, up to and including 25 yds. struck)

GROUP 23: Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (single engine, Caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds. and up to and including 50 yds. struck); Rubber-tired earth-moving equipment operator, operating with the tandem push-pull system (multiple engine, up to and including 25 yds. struck)

GROUP 24: Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (single engine, over 50 yds. struck); Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (multiple engine, Euclid, Caterpillar and similar, over 25 yds. and up to 50 yds. struck)

GROUP 25: Concrete pump operator-truck mounted; Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck)

CRANES, PILEDRIVING AND HOISTING EQUIPMENT CLASSIFICATIONS

GROUP 1: Engineer oiler; Fork lift operator (includes loed, lull or similar types)

GROUP 2: Truck crane oiler

GROUP 3: A-frame or winch truck operator; Ross carrier operator (jobsite)

GROUP 4: Bridge-type unloader and turntable operator; Helicopter hoist operator

GROUP 5: Hydraulic boom truck; Stinger crane (Austin-Western or similar type); Tugger hoist operator (1 drum)

GROUP 6: Bridge crane operator; Cretor crane operator; Hoist operator (Chicago boom and similar type); Lift mobile operator; Lift slab machine operator (Vagtborg and similar types); Material hoist and/or manlift operator; Polar

gantry crane operator; Self Climbing scaffold (or similar type); Shovel, backhoe, dragline, clamshell operator (over 3/4 yd. and up to 5 cu. yds. mrc); Tugger hoist operator

GROUP 7: Pedestal crane operator; Shovel, backhoe, dragline, clamshell operator (over 5 cu. yds. mrc); Tower crane repair; Tugger hoist operator (3 drum)

GROUP 8: Crane operator (up to and including 25 ton capacity); Crawler transporter operator; Derrick barge operator (up to and including 25 ton capacity); Hoist operator, stiff legs, Guy derrick or similar type (up to and including 25 ton capacity); Shovel, backhoe, dragline, clamshell operator (over 7 cu. yds., M.R.C.)

GROUP 9: Crane operator (over 25 tons and up to and including 50 tons mrc); Derrick barge operator (over 25 tons up to and including 50 tons mrc); Highline cableway operator; Hoist operator, stiff legs, Guy derrick or similar type (over 25 tons up to and including 50 tons mrc); K-crane operator; Polar crane operator; Self erecting tower crane operator maximum lifting capacity ten tons

GROUP 10: Crane operator (over 50 tons and up to and including 100 tons mrc); Derrick barge operator (over 50 tons up to and including 100 tons mrc); Hoist operator, stiff legs, Guy derrick or similar type (over 50 tons up to and including 100 tons mrc), Mobile tower crane operator (over 50 tons, up to and including 100 tons M.R.C.); Tower crane operator and tower gantry

GROUP 11: Crane operator (over 100 tons and up to and including 200 tons mrc); Derrick barge operator (over 100 tons up to and including 200 tons mrc); Hoist operator, stiff legs, Guy derrick or similar type (over 100 tons up to and including 200 tons mrc); Mobile tower crane operator (over 100 tons up to and including 200 tons mrc)

GROUP 12: Crane operator (over 200 tons up to and including 300 tons mrc); Derrick barge operator (over 200 tons up to and including 300 tons mrc); Hoist operator, stiff legs, Guy derrick or similar type (over 200 tons, up to and including 300 tons mrc); Mobile tower crane operator (over 200 tons, up to and including 300 tons mrc)

GROUP 13: Crane operator (over 300 tons); Derrick barge operator (over 300 tons); Helicopter pilot; Hoist operator, stiff legs, Guy derrick or similar type (over 300 tons); Mobile tower crane operator (over 300 tons)

TUNNEL CLASSIFICATIONS

GROUP 1: Skiploader (wheel type up to 3/4 yd. without attachment)

GROUP 2: Power-driven jumbo form setter operator

GROUP 3: Dinkey locomotive or motorperson (up to and including 10 tons)

GROUP 4: Bit sharpener; Equipment greaser (grease truck); Slip form pump operator (power-driven hydraulic lifting device for concrete forms); Tugger hoist operator (1 drum); Tunnel locomotive operator (over 10 and up to and including 30 tons)

GROUP 5: Backhoe operator (up to and including 3/4 yd.); Small Ford, Case or similar; Drill doctor; Grouting machine operator; Heading shield operator; Heavy-duty repairperson; Loader operator (Athey, Euclid, Sierra and similar types); Mucking machine operator (1/4 yd., rubber-tired, rail or track type); Pneumatic concrete placing machine operator (Hackley-Presswell or similar type); Pneumatic heading shield (tunnel); Pumpcrete gun operator; Tractor compressor drill combination operator; Tugger hoist operator (2 drum); Tunnel locomotive operator (over 30 tons)

GROUP 6: Heavy Duty Repairman

GROUP 7: Tunnel mole boring machine operator

ENGINEERS ZONES

$1.00 additional per hour for all of IMPERIAL County and the portions of KERN, RIVERSIDE & SAN BERNARDINO Counties as defined below:

That area within the following Boundary: Begin in San Bernardino County, approximately 3 miles NE of the intersection of I-15 and the California State line at that point which is the NW corner of Section 1, T17N,m R14E, San Bernardino Meridian. Continue W in a straight line to that point which is the SW corner of the northwest quarter of Section 6, T27S, R42E, Mt. Diablo Meridian. Continue North to the intersection with the Inyo County Boundary at that point which is the NE corner of the western half of the northern quarter of Section 6, T25S, R42E, MDM. Continue W along the Inyo and San Bernardino County boundary until the intersection with Kern County, as that point which is the SE corner of Section 34, T24S, R40E, MDM. Continue W along the Inyo and Kern County boundary until the intersection with Tulare County, at that point which is the SW corner of the SE quarter of Section 32, T24S, R37E, MDM. Continue W along the Kern and Tulare County boundary, until that point which is the NW corner of T25S, R32E, MDM. Continue S following R32E lines to the NW corner of T31S, R32E, MDM. Continue W to the NW corner of T31S, R31E, MDM. Continue S to the SW corner of T32S, R31E, MDM. Continue W to SW corner of SE quarter of Section 34, T32S, R30E, MDM. Continue S to SW corner of T11N, R17W, SBM. Continue E along south boundary of T11N, SBM to SW corner of T11N, R7W, SBM. Continue S to SW corner of T9N, R7W, SBM. Continue E along south boundary of T9N, SBM to SW corner of T9N, R1E, SBM. Continue S along west boundary of R1E, SMB to Riverside County line at the SW corner of T1S, R1E, SBM. Continue E along south boundary of T1s, SBM (Riverside County Line) to SW corner of T1S, R10E, SBM. Continue S along west boundary of R10E, SBM to Imperial County line at the SW corner of T8S, R10E, SBM. Continue W along Imperial and Riverside county line to NW corner of T9S, R9E, SBM. Continue S along the boundary between Imperial and San Diego Counties, along the west edge of R9E, SBM to the south boundary of Imperial County/California state line. Follow the California state line west to Arizona state line, then north to Nevada state line, then continuing NW back to start at the point which is the NW corner of Section 1, T17N, R14E, SBM

$1.00 additional per hour for portions of SAN LUIS OBISPO, KERN, SANTA BARBARA & VENTURA as defined below:

That area within the following Boundary: Begin approximately 5

miles north of the community of Cholame, on the Monterey County and San Luis Obispo County boundary at the NW corner of T25S, R16E, Mt. Diablo Meridian. Continue south along the west side of R16E to the SW corner of T30S, R16E, MDM. Continue E to SW corner of T30S, R17E, MDM. Continue S to SW corner of T31S, R17E, MDM. Continue E to SW corner of T31S, R18E, MDM. Continue S along West side of R18E, MDM as it crosses into San Bernardino Meridian numbering area and becomes R30W. Follow the west side of R30W, SBM to the SW corner of T9N, R30W, SBM. Continue E along the south edge of T9N, SBM to the Santa Barbara County and Ventura County boundary at that point whch is the SW corner of Section 34.T9N, R24W, SBM, continue S along the Ventura County line to that point which is the SW corner of the SE quarter of Section 32, T7N, R24W, SBM. Continue E along the south edge of T7N, SBM to the SE corner to T7N, R21W, SBM. Continue N along East side of R21W, SBM to Ventura County and Kern County boundary at the NE corner of T8N, R21W. Continue W along the Ventura County and Kern County boundary to the SE corner of T9N, R21W. Continue North along the East edge of R21W, SBM to the NE corner of T12N, R21W, SBM. Continue West along the north edge of T12N, SBM to the SE corner of T32S, R21E, MDM. [T12N SBM is a think strip between T11N SBM and T32S MDM]. Continue North along the East side of R21E, MDM to the Kings County and Kern County border at the NE corner of T25S, R21E, MDM, continue West along the Kings County and Kern County Boundary until the intersection of San Luis Obispo County. Continue west along the Kings County and San Luis Obispo County boundary until the intersection with Monterey County. Continue West along the Monterey County and San Luis Obispo County boundary to the beginning point at the NW corner of T25S, R16E, MDM.

$2.00 additional per hour for INYO and MONO Counties and the Northern portion of SAN BERNARDINO County as defined below:

That area within the following Boundary: Begin at the intersection of the northern boundary of Mono County and the California state line at the point which is the center of Section 17, T10N, R22E, Mt. Diablo Meridian. Continue S then SE along the entire western boundary of Mono County, until it reaches Inyo County at the point which is the NE corner of the Western half of the NW quarter of Section 2, T8S, R29E, MDM. Continue SSE along the entire western boundary of Inyo County, until the intersection with Kern County at the point which is the SW corner of the SE 1/4 of Section 32, T24S, R37E, MDM. Continue E along the Inyo and Kern County boundary until the intersection with San Bernardino County at that point which is the SE corner of section 34, T24S, R40E, MDM. Continue E along the Inyo and San Bernardino County boundary until the point which is the NE corner of the Western half of the NW quarter of Section 6, T25S, R42E, MDM. Continue S to that point which is the SW corner of the NW quarter of Section 6, T27S, R42E, MDM. Continue E in a straight line to the California and Nevada state border at the point which is the NW corner of Section 1, T17N, R14E, San Bernardino Meridian. Then continue NW along the state line to the starting point, which is the center of Section 18, T10N, R22E, MDM.

REMAINING AREA NOT DEFINED ABOVE RECIEVES BASE RATE

ENGI0012-004 08/01/2015

	Rates	Fringes
OPERATOR: Power Equipment (DREDGING)		
(1) Leverman	$ 49.50	23.60
(2) Dredge dozer	$ 43.53	23.60
(3) Deckmate	$ 43.42	23.60
(4) Winch operator (stern winch on dredge)	$ 42.87	23.60
(5) Fireman-Oiler, Deckhand, Bargeman, Leveehand	$ 42.33	23.60
(6) Barge Mate	$ 42.94	23.60

IRON0377-002 07/01/2015

	Rates	Fringes
Ironworkers:		
Fence Erector	$ 27.08	20.21
Ornamental, Reinforcing and Structural	$ 33.50	28.85

PREMIUM PAY:

$6.00 additional per hour at the following locations:

China Lake Naval Test Station, Chocolate Mountains Naval Reserve-Niland,
Edwards AFB, Fort Irwin Military Station, Fort Irwin Training Center-Goldstone, San Clemente Island, San Nicholas Island, Susanville Federal Prison, 29 Palms - Marine Corps, U.S. Marine Base - Barstow, U.S. Naval Air Facility - Sealey, Vandenberg AFB

$4.00 additional per hour at the following locations:

Army Defense Language Institute - Monterey, Fallon Air Base, Naval Post Graduate School - Monterey, Yermo Marine Corps Logistics Center

$2.00 additional per hour at the following locations:

Port Hueneme, Port Mugu, U.S. Coast Guard Station - Two Rock

LABO0300-005 01/01/2014

	Rates	Fringes
Asbestos Removal Laborer	$ 28.00	15.25

SCOPE OF WORK: Includes site mobilization, initial site cleanup, site preparation, removal of asbestos-containing material and toxic waste, encapsulation, enclosure and disposal of asbestos- containing materials and toxic waste by hand or with equipment or machinery; scaffolding, fabrication of temporary wooden barriers and assembly of decontamination stations.

LABO0345-001 07/01/2014

	Rates	Fringes

LABORER (GUNITE)

GROUP 1	$ 34.79	17.92
GROUP 2	$ 33.84	17.92
GROUP 3	$ 30.30	17.92

FOOTNOTE: GUNITE PREMIUM PAY: Workers working from a Bosn'n's Chair or suspended from a rope or cable shall receive 40 cents per hour above the foregoing applicable classification rates. Workers doing gunite and/or shotcrete work in a tunnel shall receive 35 cents per hour above the foregoing applicable classification rates, paid on a portal-to-portal basis. Any work performed on, in or above any smoke stack, silo, storage elevator or similar type of structure, when such structure is in excess of 75'-0" above base level and which work must be performed in whole or in part more than 75'-0" above base level, that work performed above the 75'-0" level shall be compensated for at 35 cents per hour above the applicable classification wage rate.

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Rodmen, Nozzlemen

GROUP 2: Gunmen

GROUP 3: Reboundmen

LABO1184-001 08/01/2015

	Rates	Fringes
Laborers: (HORIZONTAL DIRECTIONAL DRILLING)		
(1) Drilling Crew Laborer	$ 32.60	12.16
(2) Vehicle Operator/Hauler	$ 32.77	12.16
(3) Horizontal Directional Drill Operator	$ 34.62	12.16
(4) Electronic Tracking Locator	$ 36.62	12.16
Laborers: (STRIPING/SLURRY SEAL)		
GROUP 1	$ 33.76	15.04
GROUP 2	$ 35.06	15.04
GROUP 3	$ 37.07	15.04
GROUP 4	$ 38.81	15.04

LABORERS - STRIPING CLASSIFICATIONS

GROUP 1: Protective coating, pavement sealing, including repair and filling of cracks by any method on any surface in parking lots, game courts and playgrounds; carstops; operation of all related machinery and equipment; equipment repair technician

GROUP 2: Traffic surface abrasive blaster; pot tender - removal of all traffic lines and markings by any method (sandblasting, waterblasting, grinding, etc.) and preparation of surface for coatings. Traffic control person: controlling and directing traffic through both conventional and moving lane closures; operation of all related machinery and equipment

GROUP 3: Traffic delineating device applicator: Layout and

application of pavement markers, delineating signs, rumble and traffic bars, adhesives, guide markers, other traffic delineating devices including traffic control. This category includes all traffic related surface preparation (sandblasting, waterblasting, grinding) as part of the application process. Traffic protective delineating system installer: removes, relocates, installs, permanently affixed roadside and parking delineation barricades, fencing, cable anchor, guard rail, reference signs, monument markers; operation of all related machinery and equipment; power broom sweeper

GROUP 4: Striper: layout and application of traffic stripes and markings; hot thermo plastic; tape traffic stripes and markings, including traffic control; operation of all related machinery and equipment

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LABO1184-002 07/01/2014

	Rates	Fringes
LABORER (TUNNEL)		
GROUP 1	$ 35.74	16.48
GROUP 2	$ 36.06	16.48
GROUP 3	$ 36.52	16.48
GROUP 4	$ 37.21	16.48
LABORER		
GROUP 1	$ 30.19	16.48
GROUP 2	$ 30.74	16.48
GROUP 3	$ 31.29	16.48
GROUP 4	$ 32.84	16.48
GROUP 5	$ 33.19	16.48

LABORER CLASSIFICATIONS

GROUP 1: Cleaning and handling of panel forms; Concrete screeding for rough strike-off; Concrete, water curing; Demolition laborer, the cleaning of brick if performed by a worker performing any other phase of demolition work, and the cleaning of lumber; Fire watcher, limber, brush loader, piler and debris handler; Flag person; Gas, oil and/or water pipeline laborer; Laborer, asphalt-rubber material loader; Laborer, general or construction; Laborer, general clean-up; Laborer, landscaping; Laborer, jetting; Laborer, temporary water and air lines; Material hose operator (walls, slabs, floors and decks); Plugging, filling of shee bolt holes; Dry packing of concrete; Railroad maintenance, repair track person and road beds; Streetcar and railroad construction track laborers; Rigging and signaling; Scaler; Slip form raiser; Tar and mortar; Tool crib or tool house laborer; Traffic control by any method; Window cleaner; Wire mesh pulling - all concrete pouring operations

GROUP 2: Asphalt shoveler; Cement dumper (on 1 yd. or larger mixer and handling bulk cement); Cesspool digger and installer; Chucktender; Chute handler, pouring concrete, the handling of the chute from readymix trucks, such as walls, slabs, decks, floors, foundation, footings, curbs, gutters and sidewalks; Concrete curer, impervious membrane and form oiler; Cutting torch operator (demolition); Fine grader, highways and street paving, airport, runways and similar type heavy construction; Gas, oil and/or water pipeline wrapper - pot tender and form person; Guinea chaser; Headerboard person - asphalt; Laborer, packing rod

steel and pans; Membrane vapor barrier installer; Power broom sweeper (small); Riprap stonepaver, placing stone or wet sacked concrete; Roto scraper and tiller; Sandblaster (pot tender); Septic tank digger and installer(lead); Tank scaler and cleaner; Tree climber, faller, chain saw operator, Pittsburgh chipper and similar type brush shredder; Underground laborer, including caisson bellower

GROUP 3: Buggymobile person; Concrete cutting torch; Concrete pile cutter; Driller, jackhammer, 2-1/2 ft. drill steel or longer; Dri-pak-it machine; Gas, oil and/or water pipeline wrapper, 6-in. pipe and over, by any method, inside and out; High scaler (including drilling of same); Hydro seeder and similar type; Impact wrench multi-plate; Kettle person, pot person and workers applying asphalt, lay-kold, creosote, lime caustic and similar type materials ("applying" means applying, dipping, brushing or handling of such materials for pipe wrapping and waterproofing); Operator of pneumatic, gas, electric tools, vibrating machine, pavement breaker, air blasting, come-alongs, and similar mechanical tools not separately classified herein; Pipelayer's backup person, coating, grouting, making of joints, sealing, caulking, diapering and including rubber gasket joints, pointing and any and all other services; Rock slinger; Rotary scarifier or multiple head concrete chipping scarifier; Steel headerboard and guideline setter; Tamper, Barko, Wacker and similar type; Trenching machine, hand-propelled

GROUP 4: Asphalt raker, lute person, ironer, asphalt dump person, and asphalt spreader boxes (all types); Concrete core cutter (walls, floors or ceilings), grinder or sander; Concrete saw person, cutting walls or flat work, scoring old or new concrete; Cribber, shorer, lagging, sheeting and trench bracing, hand-guided lagging hammer; Head rock slinger; Laborer, asphalt- rubber distributor boot person; Laser beam in connection with laborers' work; Oversize concrete vibrator operator, 70 lbs. and over; Pipelayer performing all services in the laying and installation of pipe from the point of receiving pipe in the ditch until completion of operation, including any and all forms of tubular material, whether pipe, metallic or non-metallic, conduit and any other stationary type of tubular device used for the conveying of any substance or element, whether water, sewage, solid gas, air, or other product whatsoever and without regard to the nature of material from which the tubular material is fabricated; No-joint pipe and stripping of same; Prefabricated manhole installer; Sandblaster (nozzle person), water blasting, Porta Shot-Blast

GROUP 5: Blaster powder, all work of loading holes, placing and blasting of all powder and explosives of whatever type, regardless of method used for such loading and placing; Driller: All power drills, excluding jackhammer, whether core, diamond, wagon, track, multiple unit, and any and all other types of mechanical drills without regard to the form of motive power; Toxic waste removal

TUNNEL LABORER CLASSIFICATIONS

GROUP 1: Batch plant laborer; Changehouse person; Dump person; Dump person (outside); Swamper (brake person and switch person on tunnel work); Tunnel materials handling person; Nipper; Pot tender, using mastic or other materials (for example, but not by way of limitation, shotcrete, etc.)

GROUP 2: Chucktender, cabletender; Loading and unloading agitator cars; Vibrator person, jack hammer, pneumatic tools (except driller); Bull gang mucker, track person; Concrete crew, including rodder and spreader

GROUP 3: Blaster, driller, powder person; Chemical grout jet person; Cherry picker person; Grout gun person; Grout mixer person; Grout pump person; Jackleg miner; Jumbo person; Kemper and other pneumatic concrete placer operator; Miner, tunnel (hand or machine); Nozzle person; Operating of troweling and/or grouting machines; Powder person (primer house); Primer person; Sandblaster; Shotcrete person; Steel form raiser and setter; Timber person, retimber person, wood or steel; Tunnel Concrete finisher

GROUP 4: Diamond driller; Sandblaster; Shaft and raise work

LABO1184-004 07/01/2014

	Rates	Fringes
Brick Tender	$ 29.12	15.78

LABO1414-001 08/05/2015

	Rates	Fringes
LABORER		
PLASTER CLEAN-UP LABORER	$ 30.16	17.11
PLASTER TENDER	$ 32.71	17.11

Work on a swing stage scaffold: $1.00 per hour additional.

PAIN0036-001 07/01/2015

	Rates	Fringes
Painters: (Including Lead Abatement)		
(1) Repaint (excludes San Diego County)	$ 27.29	12.83
(2) All Other Work	$ 30.72	12.83

REPAINT of any previously painted structure. Exceptions: work involving the aerospace industry, breweries, commercial recreational facilities, hotels which operate commercial establishments as part of hotel service, and sports facilities.

PAIN0036-008 10/01/2015

	Rates	Fringes
DRYWALL FINISHER/TAPER	$ 36.18	16.82

PAIN0036-015 06/01/2015

	Rates	Fringes
GLAZIER	$ 40.70	20.92

FOOTNOTE: Additional $1.25 per hour for work in a condor,

from the third (3rd) floor and up Additional $1.25 per hour for work on the outside of the building from a swing stage or any suspended contrivance, from the ground up

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* PAIN1247-002 01/01/2016

	Rates	Fringes
SOFT FLOOR LAYER	$ 29.85	14.01

PLAS0200-009 08/05/2015

	Rates	Fringes
PLASTERER	$ 38.44	13.77

PLAS0500-002 07/01/2015

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 32.30	20.65

PLUM0016-001 07/01/2015

	Rates	Fringes
PLUMBER/PIPEFITTER		
Plumber and Pipefitter All other work except work on new additions and remodeling of bars, restaurant, stores and commercial buildings not to exceed 5,000 sq. ft. of floor space and work on strip malls, light commercial, tenant improvement and remodel work	$ 45.96	20.71
Work ONLY on new additions and remodeling of bars, restaurant, stores and commercial buildings not to exceed 5,000 sq. ft. of floor space	$ 44.54	19.73
Work ONLY on strip malls, light commercial, tenant improvement and remodel work	$ 35.16	18.06

PLUM0345-001 07/01/2014

	Rates	Fringes
PLUMBER		
Landscape/Irrigation Fitter	$ 29.27	19.75
Sewer & Storm Drain Work	$ 33.24	17.13

ROOF0036-002 08/01/2014

	Rates	Fringes
ROOFER	$ 35.02	13.57

FOOTNOTE: Pitch premium: Work on which employees are exposed to pitch fumes or required to handle pitch, pitch base or pitch impregnated products, or any material containing coal tar pitch, the entire roofing crew shall receive $1.75 per hour "pitch premium" pay.

SFCA0669-002 07/01/2013

	Rates	Fringes
SPRINKLER FITTER	$ 34.10	19.38

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* SHEE0105-003 01/01/2016

LOS ANGELES (South of a straight line drawn between Gorman and Big Pines)and Catalina Island, INYO, KERN (Northeast part, East of Hwy 395), MONO ORANGE, RIVERSIDE, AND SAN BERNARDINO COUNTIES

	Rates	Fringes
SHEET METAL WORKER		
(1) Commercial - New Construction and Remodel work	$ 41.26	25.38
(2) Industrial work including air pollution control systems, noise abatement, hand rails, guard rails, excluding aritechtural sheet metal work, excluding A-C, heating, ventilating systems for human comfort	$ 41.26	25.38

TEAM0011-002 07/01/2015

	Rates	Fringes
TRUCK DRIVER		
GROUP 1	$ 28.24	25.24
GROUP 2	$ 28.39	25.24
GROUP 3	$ 28.52	25.24
GROUP 4	$ 28.71	25.24
GROUP 5	$ 28.74	25.24
GROUP 6	$ 28.77	25.24
GROUP 7	$ 29.02	25.24
GROUP 8	$ 29.27	25.24
GROUP 9	$ 29.47	25.24
GROUP 10	$ 29.77	25.24
GROUP 11	$ 30.27	25.24
GROUP 12	$ 30.70	25.24

WORK ON ALL MILITARY BASES:
PREMIUM PAY: $3.00 per hour additional.
[29 palms Marine Base, Camp Roberts, China Lake, Edwards AFB, El Centro Naval Facility, Fort Irwin, Marine Corps Logistics Base at Nebo & Yermo, Mountain Warfare Training Center, Bridgeport, Point Arguello, Point Conception, Vandenberg AFB]

TRUCK DRIVERS CLASSIFICATIONS

GROUP 1: Truck driver

GROUP 2: Driver of vehicle or combination of vehicles - 2 axles; Traffic control pilot car excluding moving heavy equipment permit load; Truck mounted broom

GROUP 3: Driver of vehicle or combination of vehicles - 3 axles; Boot person; Cement mason distribution truck; Fuel truck driver; Water truck - 2 axle; Dump truck, less than 16 yds. water level; Erosion control driver

GROUP 4: Driver of transit mix truck, under 3 yds.; Dumpcrete truck, less than 6-1/2 yds. water level

GROUP 5: Water truck, 3 or more axles; Truck greaser and tire person ($0.50 additional for tire person); Pipeline and utility working truck driver, including winch truck and plastic fusion, limited to pipeline and utility work; Slurry truck driver

GROUP 6: Transit mix truck, 3 yds. or more; Dumpcrete truck, 6-1/2 yds. water level and over; Vehicle or combination of vehicles - 4 or more axles; Oil spreader truck; Dump truck, 16 yds. to 25 yds. water level

GROUP 7: A Frame, Swedish crane or similar; Forklift driver; Ross carrier driver

GROUP 8: Dump truck, 25 yds. to 49 yds. water level; Truck repair person; Water pull - single engine; Welder

GROUP 9: Truck repair person/welder; Low bed driver, 9 axles or over

GROUP 10: Dump truck - 50 yds. or more water level; Water pull - single engine with attachment

GROUP 11: Water pull - twin engine; Water pull - twin engine with attachments; Winch truck driver - $1.25 additional when operating winch or similar special attachments

GROUP 12: Boom Truck 17K and above

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical

order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION