GeoSolutions, INC.

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February 7, 2017
Project No. 10078-2

Cambria Community Health Care District
2535 Main Street
Cambria, California 93428

Subject: **Numerical Slope Stability Evaluation**
2535 Main Street
Cambria, California

1.0 INTRODUCTION

As requested, GeoSolutions, Inc. has completed a slope stability evaluation for the existing cut slope along the north side of the property located at 2535 Main Street, APN 013-241-024, Cambria, California. Figure 1 is a Site Location Map. The numerical analysis was conducted utilizing SLOPE/W, a computer-modeling program to ascertain the stability of the current cut slope.

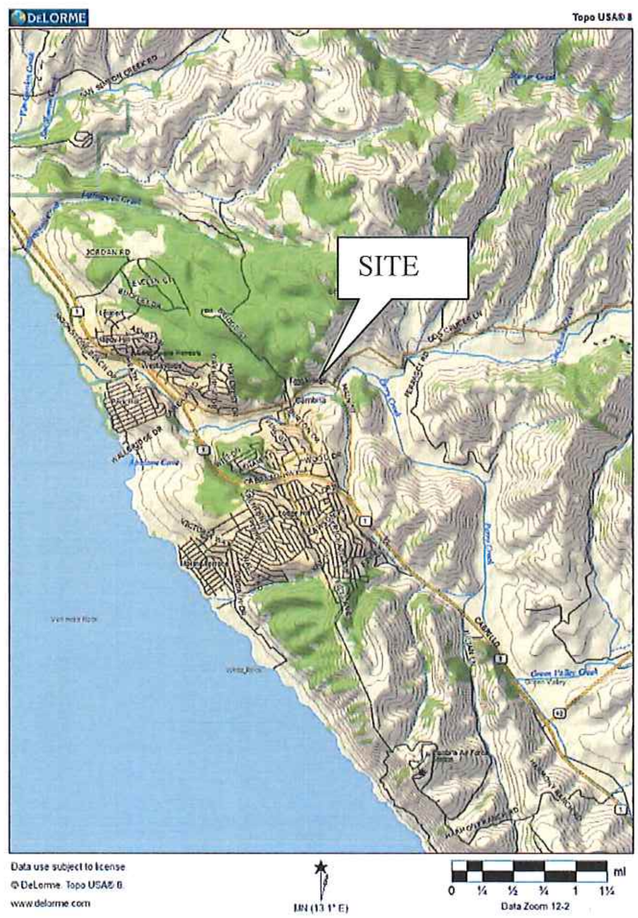

Figure 1: Site Location Map

2.0 CONCLUSIONS

The slope stability analyses performed for the existing cut slope along the north side of the access driveway at the property shows that the **critical static and pseudo-static factor of safety values are below the minimum standards, indicating that the slope reflects unstable conditions as now configured.** Slopes will continue to fail especially during saturated conditions (rain) and during a seismic event. It is recommended that the following recommendations are implemented at the property.

3.0 RECOMMENDATIONS

The following are recommended for the site regarding stability of cut slopes at the site.

1. The minimum building setback distance from ascending or descending slopes steeper than 3-to-1 (horizontal-to-vertical) but less than 1-to-1 must be maintained.

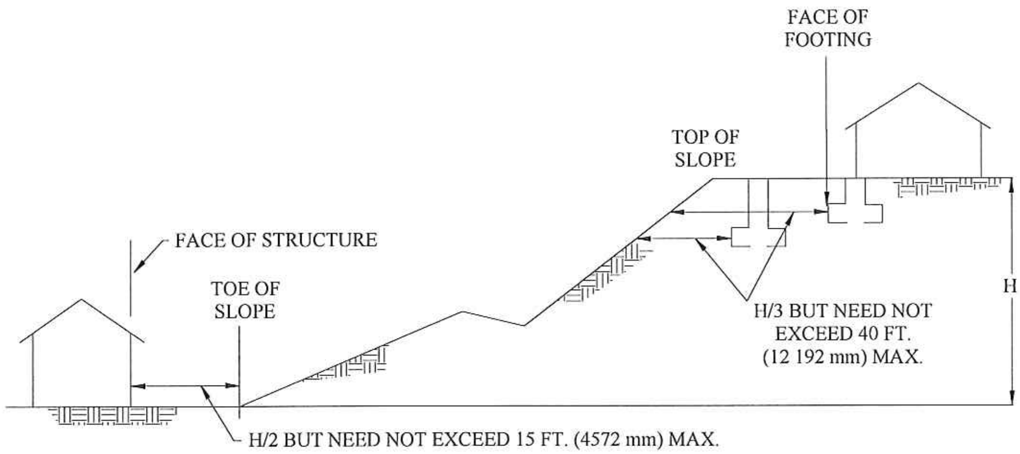

Figure 2: Building Setback Distance

It is recommended that the buildings at the site maintain a setback distance of 15 feet from toe of slope if retaining structures are not utilized at the property. Figure 2 shows recommended setbacks.

2. As slopes are unstable as currently cut, safety of personnel, equipment, and structures is paramount. It is recommended the small building utilized by personnel as a residence quarters, not be used until slopes can be retained or substantial distance (15 feet) from the building to the toe of slope can be maintained. K-rail is recommended to be installed within the driveway area that does not maintain a distance of 15 feet between the larger on-site building and failed slope as a temporary measure to reduce potential of failed slope material to affect the larger on-site building. Ambulances and other vehicles are recommended to NOT be parked behind the building until retaining structures can be constructed.

3. It is recommended that a civil engineer/general contractor with experience with cut slopes and retaining structures be contacted regarding types of retaining structures that can be established at the site where slopes exceed 2:1 (horizontal:vertical). In lieu of a poured concrete retaining wall, structures such as Redi-Rock stacked block wall may offer mitigation to retaining the slope. Graded options may be considered however, cuts within colluvial material (surface soils) and weathered rock must maintain a maximum slope gradient of 2:1 (horizontal:vertical) or less steep.

4. Irrigation and Surface Drainage. Excess free water should not be allowed to pond by irrigation or rainfall near the top of the slope. Surface grades should be maintained such that collected water is diverted and discharged away from the slope face.

5. Over-Slope Drainage. Concentrated over-slope drainage is to be strictly prevented. All water above the slope should be maintained in secure pipelines or other approved erosion resistant structures. Additional assessment may be necessary during period of rainfall.

Figure 3: Site Aerial with Trench Locations

4.0 SITE DESCRIPTION

The subject property is located in the community of Cambria, California along the north side of Main Street. The property maintains a relatively flat area on the southern portion of the property where a parking lot and two buildings are situated. One building is utilized as a health center, the other building is utilized as housing for medical personnel. A slope rises along the northern portion of the property that extends beyond the property boundary. A recent slope failure prompted the undersigned to assess the slope as it is currently configured. No site topographic map or site map was available for this investigation. Figure 3 depicts an aerial photograph of the site and trenching locations. Figure 4 depicts the failed slope at the site.

Figure 4: View northeast of failure of cut slope. Note proximity of building in back to cut slope and failure of wood wall. Trench T-1 was excavated near the building, Trench T-2 was excavated in the slide, and Trench T-3 was excavated just left of the sight of the picture.

5.0 SITE GEOLOGY

The site is located in the vicinity of the San Luis Range of the Coast Range Geomorphic Province of California. The Coast Ranges lie between the Pacific Ocean and the Sacramento-San Joaquin Valley and trend northwesterly along the California Coast for approximately 600 miles between Santa Maria and the Oregon border.

Regionally, the Site is located on the Cambrian Slab composed of a large, thick block of Cretaceous age sediments that are surrounded by Franciscan Complex rocks. The Cambrian Slab extends from the Los Osos fault south of the property north to the Oceanic fault.

5.1 Local Geology

Locally, bedrock underlying the site is Unnamed Sedimentary Rocks (Ks) overlain by colluvium as depicted on Plate 1A, Regional Geologic Map. Hall, 1974 has mapped the specific site as underlain by Terrace Deposits (Qt) and Unnamed Sedimentary Rocks (Ks) respectively. Our investigation of the area encountered Unnamed Sedimentary Rocks (Ks) overlain by colluvium (the subsurface investigation did not trench in the flat area of the property). Information derived from subsurface exploration was used to classify subsurface soil and formational units and to supplement geologic mapping.

Three trenches were excavated in the slope area to determine the depth to formational units, structural characteristics, and determine the quality of the formational material. Information from trenching is exhibited on the cross-sections within the slope stability analysis portion of this report.

5.1.1 Surficial Units

As determined from laboratory data, surface materials at the site generally consist of olive brown silty SAND termed colluvium. The thickness of colluvium at the site is approximately 2-6 feet as observed within the trenches.

5.1.2 Unnamed Sedimentary Rocks

Hall, 1974 mapped the specific site as underlain by Unnamed Sedimentary Rocks (Ks/Kss). Hall, 1974 describes the Unnamed Sedimentary Rocks as "feldspathic greywacke or arkosic wacke sandstone and interbedded greenish-brown or black micaceous shale and siltstone. Thick-bedded tan to dark-brown medium-grained sandstone composed of quartz, 50% to 70%; altered plagioclase and K-feldspar, 20% to 30%; claystone, chert fragments, and biotite, 2% to 7%. Convolute and cross bedding or lamination and graded bedding locally common". The thickness of Unnamed Sedimentary Rocks at the Site is unknown, but Hall, 1974 suggest the unit is approximately 6,000 feet thick.

The Unnamed Sedimentary Rocks at the site consisted of olive brown medium-grained sandstone. As modeled in the slope stability analysis, the upper approximately 3-feet of the sandstone is intensely to moderately weathered, soft, and saturated (from recent rains). This weathered sandstone appears to act as a soil and is not as cemented as the underlying rock, and is hackly fractured. Underlying the weathered sandstone is indurated (hard) sandstone that is hackly fractured, moderately to slightly weathered, with fractures that are closely spaced, discontinuous, both ends can be seen in the exposure, slightly to moderately open, very thin, moderate healing, slightly rough, with evidence of water flow. Main fractures were oriented N64E/9S and N30E/18N.

6.0 SITE INVESTIGATION

To ascertain the geologic characteristics of the subsurface within the slope, three trenches were excavated within the slope to observe subsurface conditions. Native slope configuration upslope of the existing cut slope is approximately 40 degrees (1.2:1 horizontal:vertical). The cut slope varies from 55 to 60 degrees in cut (approximately 0.5:1 horizontal:vertical). Vertical height of the cut slope is approximately 17 feet high. The cut slopes expose surface soils (colluvium), weathered sandstone, and competent sandstone. The recent slope failure appears to be within the surface colluvium and weathered sandstone. Samples of material was collected from the colluvial material and the weathered sandstone for laboratory analysis.

In addition to the recent slope failure, buildings at the site are within close proximity of the cut slope. The building utilized by employees as sleeping quarters is only several feet from the existing cut slope. The potential for an unstable slope to affect this building is very high.

7.0 NUMERICAL SLOPE STABILITY

A slope stability analysis was performed on three sections of the cut slope to determine the stability of the current cut slope. As no topographic map is available that depicts local conditions, the undersigned modeled the slope utilizing a tape and compass. Utilizing the results of laboratory testing performed on representative samples of soil material collected from the slope, the numerical slope stability analysis was performed utilizing SLOPE/W, a computer-modeling program by Geo-Slope International, Limited (Geo-Slope, 2012). SLOPE/W is a computer software program that uses limit equilibrium theory to compute the factor of safety of earth slopes. The engineering standard for permanent slopes is a factor of safety of 1.5 (static or non-seismic) and 1.15 for pseudo-static (seismic) conditions. A factor of safety less than unity (1.0) is considered unstable.

7.1 Slope/W Discussion

SLOPE/W was utilized to determine the critical factor of safety. SLOPE/W performs the stability analysis by passing a slip surface through the earth mass and dividing it into vertical slices. To compute the factor of safety, SLOPE/W utilizes the theory of limit equilibrium of forces and moments. The limit equilibrium method may be utilized to analyze circular and noncircular failure surfaces and assumes that:

1. The soil behaves as a Mohr-Coulomb material.
2. The factor of safety of the cohesive component of strength and the frictional component of strength are equal for all soils involved.
3. The factor of safety is the same for all slices.

The General Limit Equilibrium formulation and solution may be used to simulate most of the commonly used methods of slices. The characteristics of Spencer's method are identified as an "satisfies all conditions of equilibrium; applicable to any shape of slip surface; assumes that inclinations of side forces are the same for every slice; side force inclination is calculated in the process of solution so that all conditions of equilibrium are satisfied; accurate method; 3N equations and unknowns" (Duncan, 1996).

Each potential slip surface results in a different value for factor of safety. The smaller the factor of safety (the smaller the ratio of shear strength to shear stress required for equilibrium), the greater the potential for failure to occur by movement on that surface. Movement is most likely to occur on the slip surface with the minimum factor of safety. This is referred to as the critical slip surface. However, for movement to occur the ratio must be below 1.0.

7.2 Laboratory Test Results

Shear samples were collected from a "torpedo" sample tube pushed into the slope via a backhoe. The purpose of this data was to determine the soil resistance to deformation (shear strength), interparticle attraction (cohesion), and resistance to inter-particle slip (angle of internal friction). Angle of internal friction and cohesion values were utilized from laboratory test results for the model.

Moisture density relation curves, developed in accordance with ASTM D1557-91, five-layer method, were performed on representative samples obtained from the slope area. The purpose of the relation curve is to determine the maximum density and optimum moisture contents, as well as evaluate the stability of the soils. The dry unit weight of soil and have been converted to the unit weight (γ) for use in the stability analysis. Table 1 show laboratory results.

Table 1: Laboratory Results

Engineering Properties	Colluvium (Sample A)	Weathered rock (Sample B)
Unit Weight, γ	131.8 pcf	138.5 pcf
Angle of Internal Friction, °	49.5°	33.0°
Cohesion, C	0 psf	174 psf

7.3 Discussion Of Modeling Conditions

Modeling conditions for the following slopes included a cut slope face of approximately 17 feet in height, steepness of 55 to 60 degrees, and a native slope of approximately 40 degrees. Laboratory soils were saturated prior to shearing.

7.4 Static Slope Stability Analysis

Stability analysis was completed on three sections along the slope (areas of Trenches T-1, T-2, and T-3). The analysis resulted in a range of values for factor of safety and their respective slip surfaces. The lowest factor of safety value corresponds to the critical slip surface. This critical slip surface does not necessarily result in the largest slip surface. The critical static factors of safety values are presented in Table 2. The potential critical slip surfaces for static and pseudo-static (seismic) conditions are presented on Figures 5, 6 and 7.

Table 2: Factors of Safety Results

Profile	Static Factor of Safety (standard is 1.5)	Psuedo-Static Factor of Safety (standard is 1.15)
Trench T-1	1.18	0.95
Trench T-2	1.18	1.09
Trench T-3	1.26	1.03

The static stability analyses performed for the existing cut slope configurations as encountered at the site with material collected from three trenches (within the cut slope) shows that the **critical static factor of safety values are below the minimum standard, indicating that they reflect unstable conditions as the slope is now configured.** The minimum engineering standard for static factors of safety is 1.5.

7.5 Pseudo-Static Slope Stability Analysis

As the slope may be affected by seismic events, a dynamic loading condition was applied to the slope model (pseudo-static conditions). As stated in *Guidelines for Evaluating and Mitigating Seismic Hazards in California* (CDMG, 1997), "In California, many state and local agencies, on the basis of local experience, require the use of a seismic coefficient of 0.15, and a minimum computed pseudo-static factor of safety of 1.0 to 1.2 for analysis of natural, cut, and fill slopes. Basic guidelines for making preliminary evaluations of embankments to ensure acceptable performance…were: using a pseudo-static coefficient of 0.10 for magnitude 6.5 earthquakes and 0.15 for magnitude 8.25 earthquakes, with an acceptable factor of safety of the order of 1.15." Calculations for pseudo-static numerical analysis within these iterations utilized a seismic coefficient of 0.15 g.

The numerical slope stability analysis resulted in a range of values for factor of safety. The lowest factor of safety value corresponds to the critical slip surface. This critical slip surface does not necessarily result in the largest slip surface. The critical static factors of safety values are presented in Table 2. The potential critical slip surfaces for psuedo-static conditions are presented on Figures 5, 6, and 7.

The pseudo-static (seismic) stability analyses performed for the slope configurations shows the **critical pseudo-static factor of safety values are below the minimum standard (1.15), indicating that they reflect unstable conditions.**

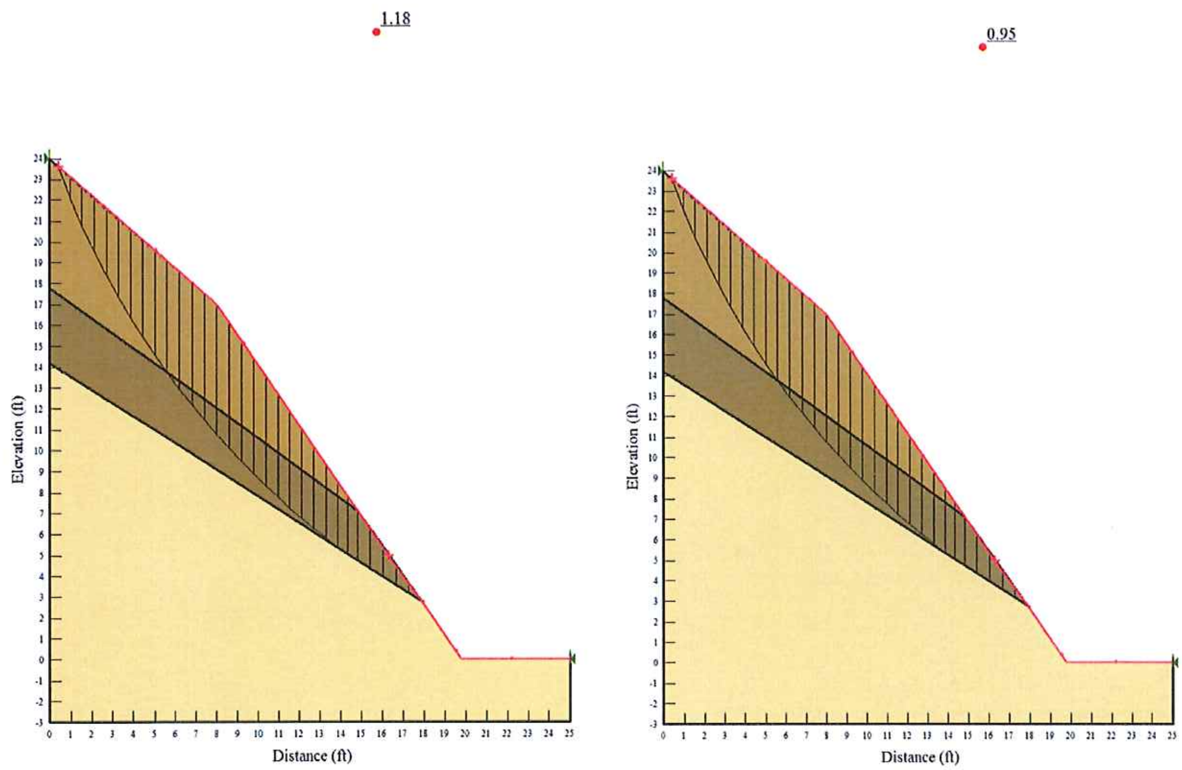

Figure 5: Trench T-1, (Static, value of 1.18, pseudo-static value of 0.95)

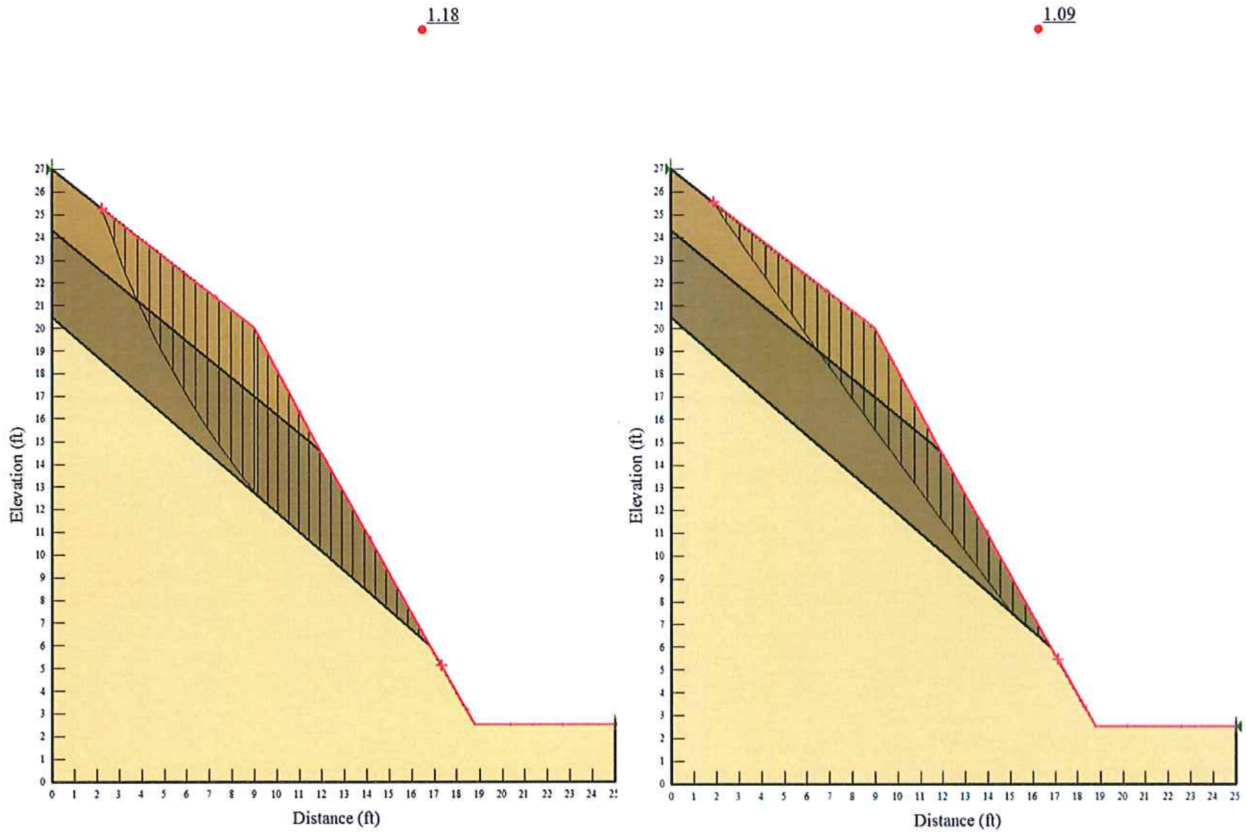

Figure 6: Trench T-2 (Static, value of 1.18, pseudo-static value of 1.09)

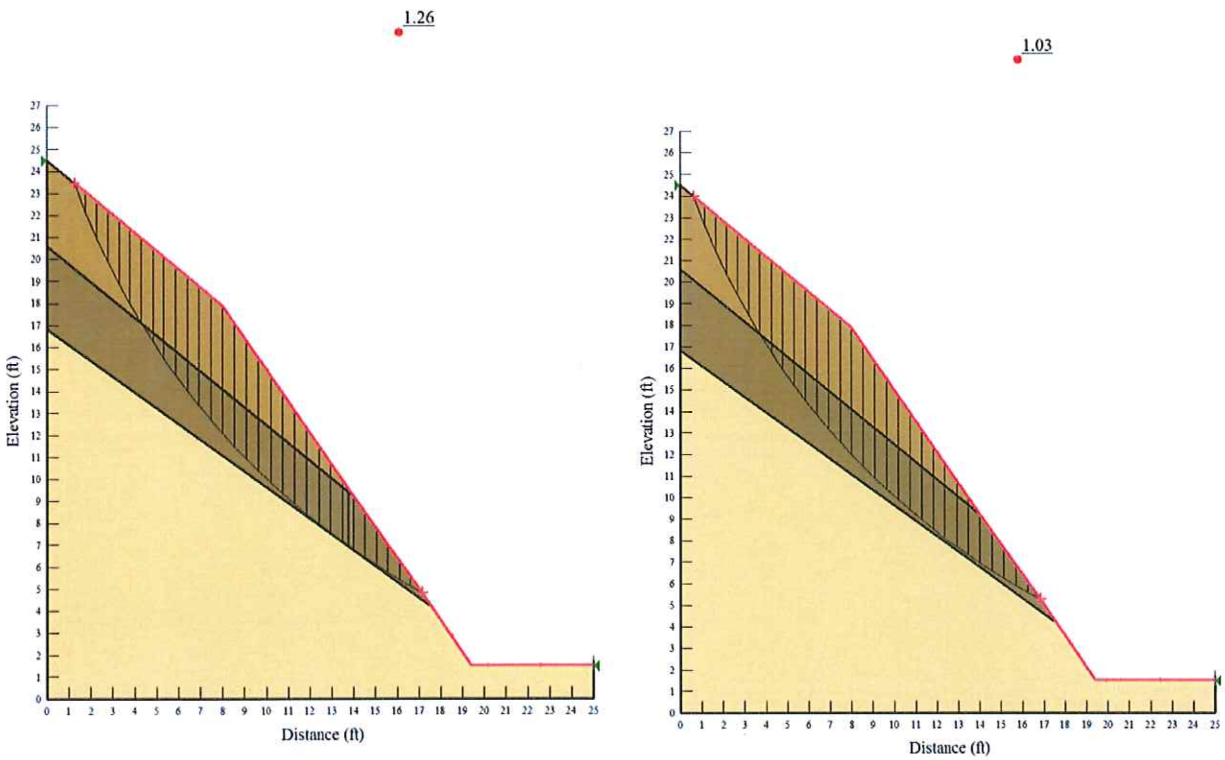

Figure 7: Trench T-3 (Static, value of 1.26, pseudo-static value of 1.03)

Based on the results of the analysis, the cut slope is not stable the current configuration (static values less than 1.5 or pseudo-static values less than 1.15).

8.0 LIMITATIONS

As of the present date, the findings of this report are valid for the property studied. With the passage of time, changes in the conditions of a property can occur whether they are due to natural processes or to the works of man on this or adjacent properties. Therefore, this report should not be relied upon after a period of one year without our review nor should it be used or is it applicable for any properties other than those studied. This is a not an engineering geology investigation, soils engineering report, environmental assessment, or geologic hazards assessment. Sincerely,

GeoSolutions, Inc.

John Kammer
Certified Engineering Geologist #2118
Principal

PROFESSIONAL GEOLOGIST
JOHN KAMMER
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ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

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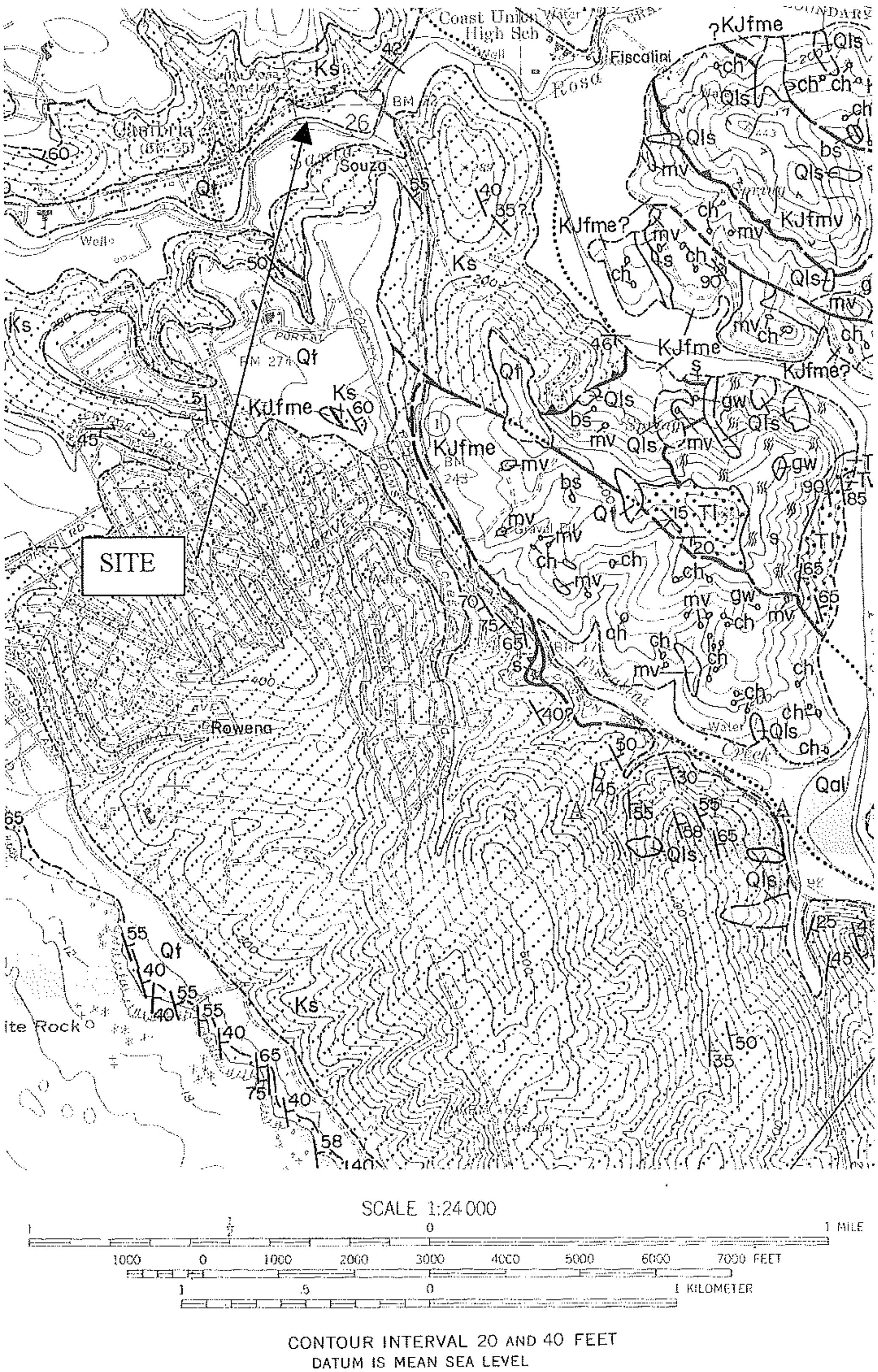
Attachments: Laboratory Test Results (4 pages)



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PROFESSIONAL GEOLOGIST
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REGIONAL GEOLOGIC MAP
HALL, 1974

2535 MAIN STREET, CAMBRIA AREA,
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE
1A

PROJECT NO:
SL10078-2

QUATERNARY

Holocene

Qal

Alluvial deposits

Cobble-pebble gravel, sand, silt, and clay

Qls / Qls(s)

Landslide deposits

Composed of rock and mudflow debris that moved downslope by gravity. Lithology dependent on source material. Not all landslide deposits are shown in areas where Franciscan rocks crop out or where too small to map.

Qls(s); dominantly serpentinite debris

Pleistocene and Holocene

Qt

Terrace deposits

Composed of stream and marine terrace deposits.

Stream terrace deposits consist of unconsolidated cobble-pebble gravel, sand, silt, and some clay. Approximately 3 to 10 feet thick. *Marine* terrace deposits consist of loosely consolidated white to buff sandstone and conglomerate. Clasts subrounded to angular, as large as four feet in diameter; consist of Franciscan rocks, Cambria Felsite, or Monterey Shale. In older marine terrace deposits strata are relatively flat lying or dip as much as 20 degrees. *Marine* terrace deposits occur at elevations of 20 to 100 feet and near 200, 400, and 600 feet. Approximately 2 to 10 feet thick. Ages unknown, but inferred to be Pleistocene and Holocene. *Marine* terrace deposits near Coyucos are late Pleistocene, 130,000±30,000 and 140,000 ±30,000 B.P. (Valentine, 1958; Veeh and Valentine, 1967). Youngest marine terrace deposits and some stream deposits are presumably Holocene

UNCONFORMITY

CRETACEOUS

Upper Cretaceous

Ks

Unnamed sedimentary rocks

Feldspathic graywacke or arkosic wacke sandstone and interbedded greenish-brown or black micaceous shale and siltstone. Thick-bedded tan to dark-brown medium-grained sandstone composed of quartz, 50% to 70%; altered plagioclase and K-feldspar, 20% to 30%; claystone, chert fragments, and biotite, 2% to 7%. Convolute and cross bedding or lamination and graded bedding locally common. Included in Asuncion Formation by Taliaferro (1944); broken formation A, Type III graywacke of Hsü (1969). Probably the same unit as the unnamed sedimentary rocks in Port San Luis quadrangle (Hall, 1973b). Exposed thickness in area is approximately 6000 feet. Late Cretaceous (Hsü, 1969). *Marine*

JURASSIC AND CRETACEOUS

Upper Jurassic and Lower Cretaceous

KJt

Toro Formation

Interbedded shale or claystone and sandstone. Dominantly thin-bedded greenish-brown or brown micaceous shale; contains calcareous lenses and concretions. Sandstone is composed of quartz, 60%; plagioclase, 20% to 30%; orthoclase, 5%; and lithic fragments, biotite, and hornblende, 5%. Assigned to Toro Formation by Fairbanks (1904) and Page (1970, 1972); to Marmolejo by Taliaferro (1944) and Hsü (1969). Retention of formational name "Toro" seems warranted because of priority. Type section is along Toro Creek, sections 22, 27, and 33, T. 28 S., R. 11 E., Morro Bay North quadrangle. Formation well exposed near Cienaga Creek, southeastern Cypress Mountain and southwestern York Mountain quadrangles. Exposed thickness more than 1500 feet; elsewhere in the region; more than 2100 feet. Late Jurassic and Early Cretaceous (Fairbanks, 1904; Page, 1970, 1972). *Marine*

Serpentinite and serpentinized ultrabasic rocks

KJfg | KJfmv | KJfme (sch, s, g, bs, gw, sc, sh, mv, ch)

Franciscan rocks

KJfg, very fine-grained graywacke or claystone and greenish-brown graywacke. Easily weathered relatively soft sandstone. Composed of quartz, 60% to 70%; plagioclase, 15% to 25%; K-feldspar, 2% to 5%; biotite, 2% to 5%; and rock fragments of dark-gray siltstone. Sandstone is commonly massive and shattered, but locally it is well bedded or interbedded with siltstone. Exotic fragments or clasts absent or rare.

KJfmv, metavolcanic rocks, greenstone, and some weathered diabase commonly associated with red chert (ch). Contacts between the metavolcanic rocks and other units of the Franciscan rocks are everywhere inferred to be faults.

KJfme, mélange of graywacke (gw), pervasively sheared and in large part composed of sheared greenish-black claystone. Includes exotic fragments or clasts of conglomerate (cg); blueschist (bs); schist (sch); metavolcanic rocks or greenstone (mv); white, red, or green chert (ch); serpentinite (s); shale (sh); silica-carbonate rocks (sc); and gabbro (g).

No stratigraphic order can be determined for the mélange, metavolcanic rocks, and graywacke. Because the mélange contains exotic fragments or clasts of blueschist and schist and is pervasively sheared, the inference could be [illegible] at the age of tectonism of the Franciscan mélange is older than the other units of the Franciscan rocks that lack such clasts. If, however, the graywacke, metavolcanic rocks, and chert clasts are from the KJfg and KJfmv, then the age of tectonism would be younger than all of the Franciscan rocks. The Franciscan rocks are probably of Jurassic or Cretaceous age

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Contact
Dashed where approximately located or inferred

High-angle fault
Dashed where approximately located or inferred; dotted where concealed

Thrust or reverse fault
Dashed where approximately located or inferred; dotted where concealed. Saw-teeth on upper plate. Dip of fault plane between 30° and 80°

Anticline
Showing axis at surface. Dashed where approximately located; dotted where concealed

Syncline
Showing axis at surface. Dashed where approximately located; dotted where concealed

⊕ Horizontal — 30 Inclined — 90 Vertical
Strike and dip of beds

x5928
Megafossil locality
UCLA locality number

Conglomerate
Sandstone
Siltstone
Tuff
Breccia

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GEOLOGIC EXPLANATIONS

HALL, 1974

2535 MAIN STREET, CAMBRIA AREA,
SAN LUIS OBISPO COUNTY, CALIFORNIA

PLATE
1B

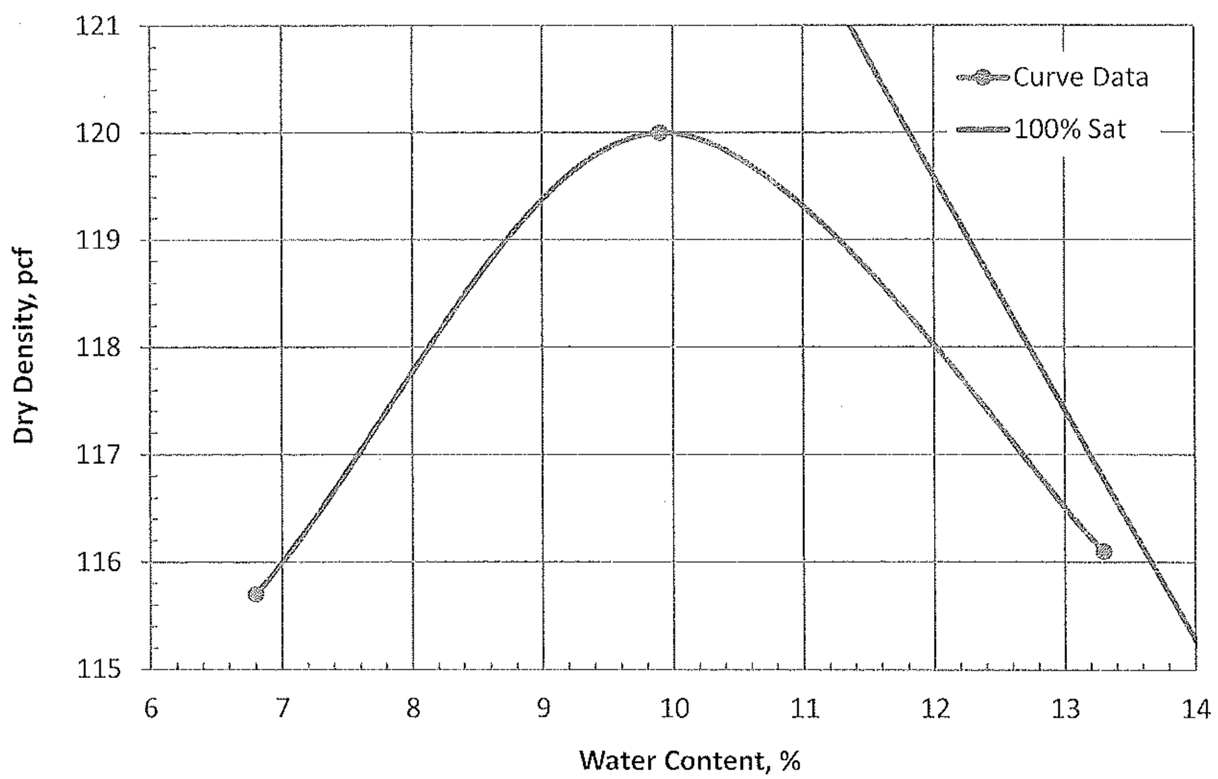
PROJECT NO:
SL10078-2

GeoSolutions, Inc.

LAB COMPACTION REPORT
ASTM D1557

(805) 543-8539

Project:	2535 Main Street - Cambria	Date Tested:	January 30, 2017
Client:		Project #:	SL10078-2
Sample #: A	Depth: 2.0 Feet	Lab #:	16778
Source:	T-1	Sample Date:	January 25, 2017
Material:	Olive Brown Silty SAND	Sampled By:	JK



ASTM Test Designation: [ ] D 698 [x] D 1557

Method (sieve size): [ ] A (#4) [x] B (3/8") [ ] C (3/4")

% Passing, Pf: ____ *% Retained, Pc:* ____ [x] Estimated [ ] Measured

Type of Rammer: [x] Mechanical [ ] Manual

Preparation Method [x] Moist [ ] Dry

100% Saturation Curve-Estimated Gs: 2.48

Laboratory Test Results

Trial #	1	2	3	4
Water Content,%	6.8	9.9	13.3	
Dry Density, pcf	115.7	120.0	116.1	

MAXIMUM DRY DENSITY, pcf:	120.0	OPTIMUM MOISTURE, %:	9.9

Report By: Aaron Eichman

GeoSolutions, Inc.

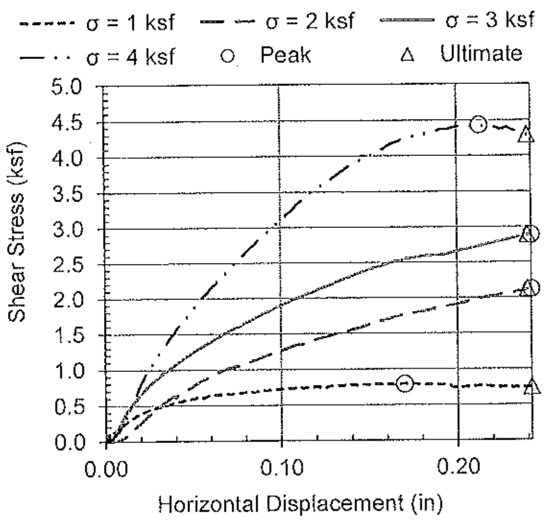
DIRECT SHEAR TEST SUMMARY REPORT (ASTM D3080)

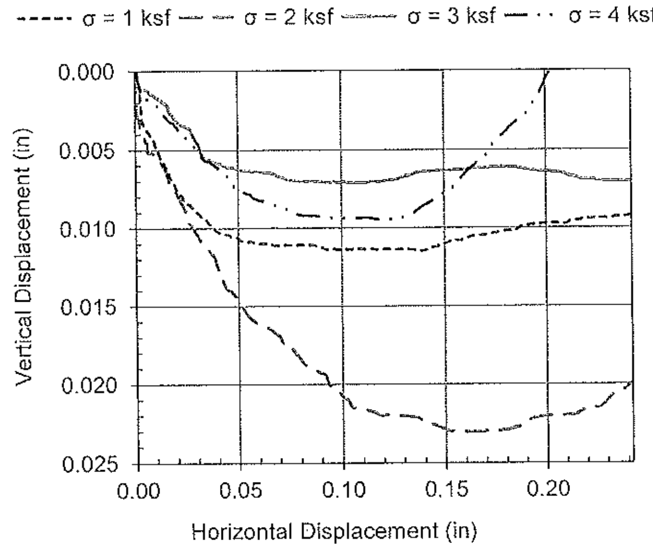
(805) 543-8539

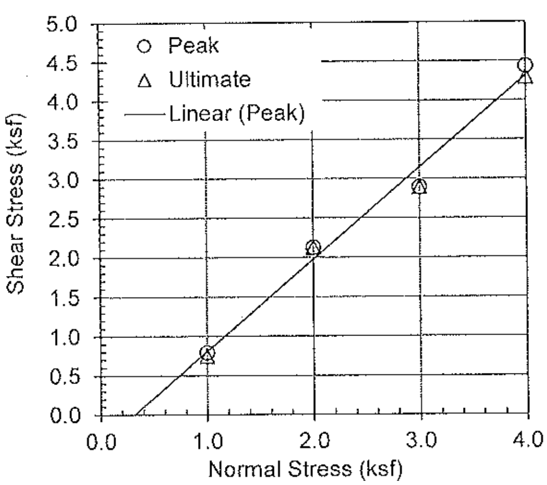
Project:	2535 Main Street - Cambria			Project No.: SL10078-2
Client:				Date Tested: 1/31/2017
Sample No.:	T-1 @ 2'	Depth:	2.0 Feet	Lab No.: 16778
Location:	T-1			Checked By: AE

MATERIAL DESCRIPTION	LL	PL	PI	% passing No. 200	Gs *	Sample Type
Olive Brown Silty SAND	nm	nm	nm	nm	2.48	in-situ (rings)

* Gs = assumed; nm = not measured







Angle of Internal Friction, ϕ_{peak} (degrees):	49.5
Cohesion, C_{peak} (psf)	0

Initial Conditions	Specimen No. 1	2	3	4
Dry Density	112.9	112.9	116.2	116.4
Water Content (%)	7.2	7.2	7.2	7.2
Diameter (in)	2.42	2.42	2.42	2.42
Sample Height (in)	1.00	1.00	1.00	1.00

Test Data	Specimen No. 1	2	3	4
Normal Stress (ksf)	1.00	2.00	3.00	4.00
Peak Shear Stress (ksf)	0.79	2.12	2.89	4.43
Horiz. Displacenent at Peak Shear (in)	0.17	0.24	0.24	0.21
Ultimate Shear Stress (ksf)	0.74	2.12	2.89	4.29
Horiz. Displ. at Ult. Shear (in)	0.24	0.24	0.24	0.24
Rate of Deformation (in/min)	0.024	0.024	0.024	0.024

Remarks:

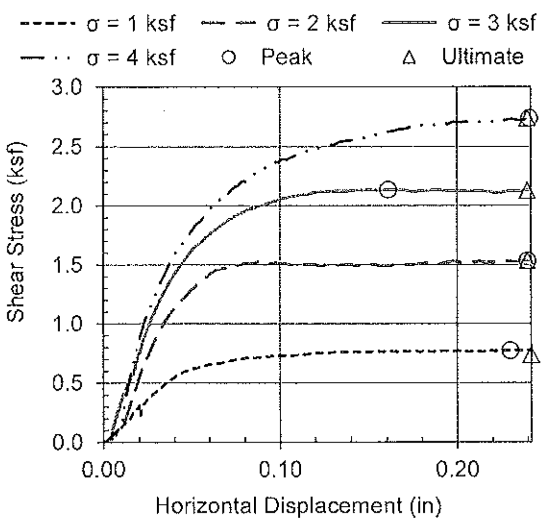
Samples were saturated prior to shearing

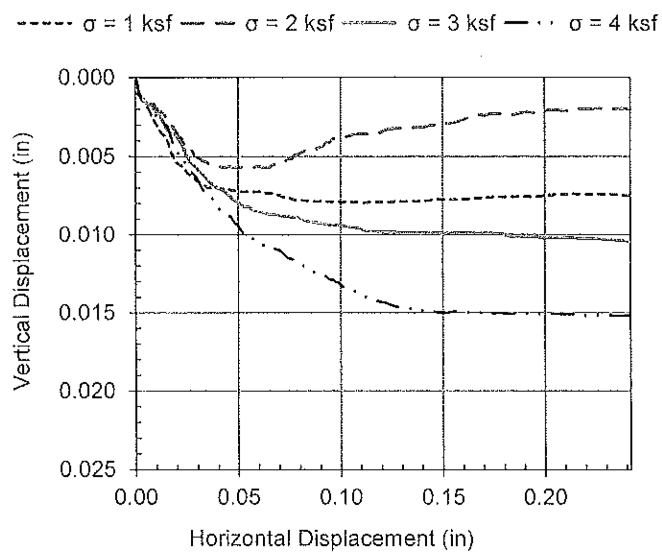
GeoSolutions, Inc.	DIRECT SHEAR TEST SUMMARY REPORT (ASTM D3080)	(805) 543-8539

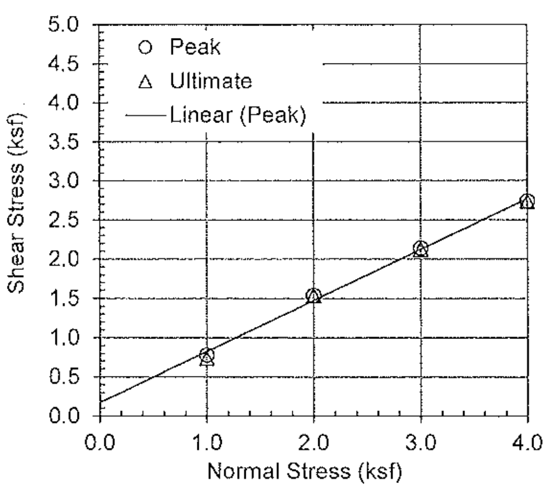
Project:	2535 Main Street - Cambria			Project No.:	SL10078-2
Client:				Date Tested:	1/31/2017
Sample No.:	B	Depth:	8.0 Feet	Lab No.:	16778
Location:	T-1			Checked By:	AE

MATERIAL DESCRIPTION	LL	PL	PI	% passing No. 200	Gs *	Sample Type
Olive Brown Clayey SAND with Gravel	nm	nm	nm	nm	2.57	in-situ (rings)

* Gs = assumed; nm = not measured







Angle of Internal Friction, ϕ_{peak} (degrees):	**33.0**
Cohesion, C_{peak} (psf)	**174**

Initial Conditions	Specimen No. 1	2	3	4
Dry Density	106.3	106.3	106.3	106.3
Water Content (%)	11.9	11.9	11.9	11.9
Diameter (in)	2.42	2.42	2.42	2.42
Sample Height (in)	1.00	1.00	1.00	1.00

Test Data	Specimen No. 1	2	3	4
Normal Stress (ksf)	1.00	2.00	3.00	4.00
Peak Shear Stress (ksf)	0.78	1.53	2.14	2.74
Horiz. Displacement at Peak Shear (in)	0.23	0.24	0.16	0.24
Ultimate Shear Stress (ksf)	0.74	1.53	2.13	2.74
Horiz. Displ. at Ult. Shear (in)	0.24	0.24	0.24	0.24
Rate of Deformation (in/min)	0.024	0.024	0.025	0.024

Remarks:

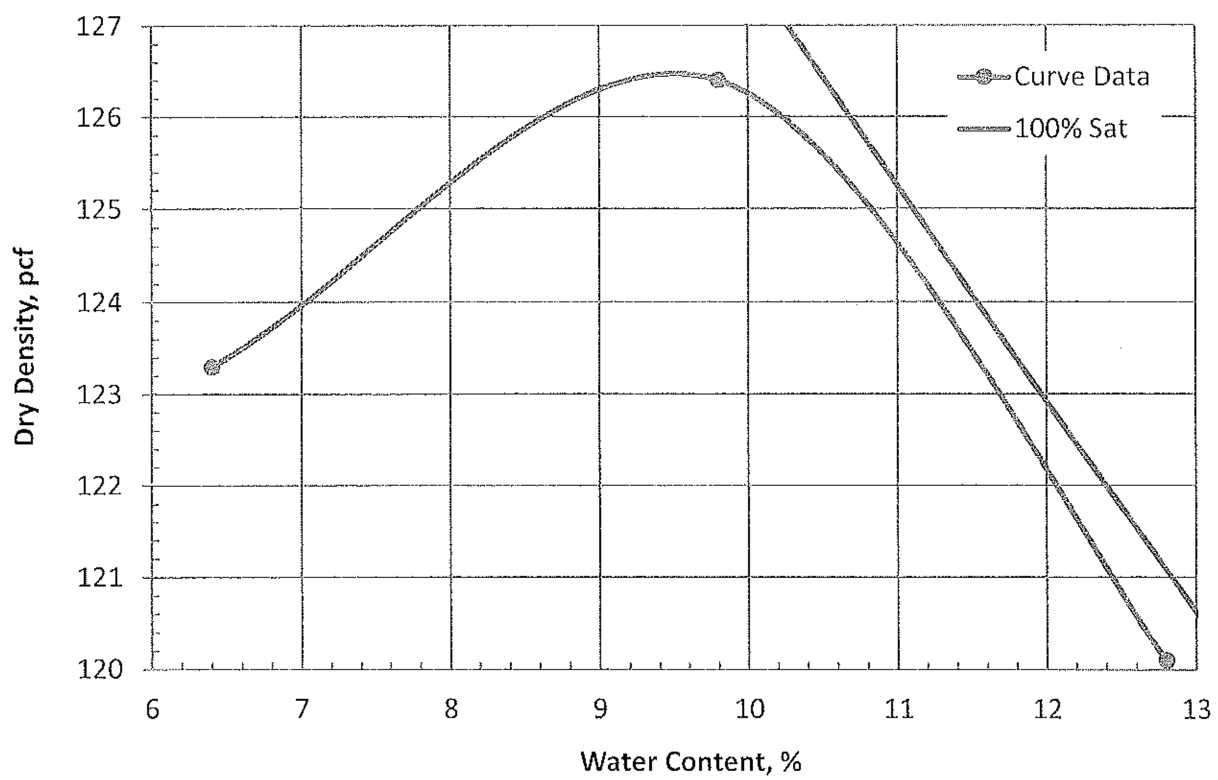
Samples were saturated prior to shearing

GeoSolutions, Inc.

LAB COMPACTION REPORT
ASTM D1557

(805) 543-8539

Project:	2535 Main Street - Cambria	Date Tested:	January 30, 2017
Client:		Project #:	SL10078-2
Sample #: B	Depth: 8.0 Feet	Lab #:	16778
Source:	T-1	Sample Date:	January 25, 2017
Material:	Olive Brown Clayey SAND with Gravel	Sampled By:	JK



ASTM Test Designation: [ ] D 698 [x] D 1557

Method (sieve size): [ ] A (#4) [x] B (3/8") [ ] C (3/4")

% Passing, Pf: ________ *% Retained, Pc:* ________ [x] Estimated [ ] Measured

Type of Rammer: [x] Mechanical [ ] Manual

Preparation Method [x] Moist [ ] Dry

100% Saturation Curve-Estimated Gs: 2.57

Laboratory Test Results

Trial #	1	2	3	4
Water Content,%	6.4	9.8	12.8	
Dry Density, pcf	123.3	126.4	120.1	

MAXIMUM DRY DENSITY, pcf:	**126.5**	**OPTIMUM MOISTURE, %:**	**9.5**

Report By: Aaron Eichman