29 February 2016

Ms. Archana Jain
Salvatore Caruso Design Corporation
980 El Camino Real, Suite 200
Santa Clara, California 95050

Re: Response to Preliminary Geologic/Seismic Hazard Review and Supplemental Geologic Investigation
Proposed Senior Housing Facility
4200 Dove Hill Road
San Jose, California
Langan Project No.: 770619902

Dear Ms. Jain:

INTRODUCTION

This letter presents our response to review comments by the San Jose Department of Public Works (SJDPW) dated 25 September 2015 regarding our Geotechnical Investigation and Geologic Hazard Evaluation report dated 30 June 2015 for the proposed senior Housing Facility project at 4200 Dove Hill Road in San Jose, California. SJDPW had several comments (designated 1 through 13 in their review letter) regarding geologic/seismic hazards evaluation and mitigation at the site; a copy of the review letter is included in Appendix D. The project will consist of two new buildings, designated as Buildings A and B; both buildings are proposed to be four stories above a podium level as shown on Figure 1.

SCOPE OF SERVICES

To address the comments by the SJDPW, we completed a supplemental geologic investigation by exploring the site with 9 test pits, 5 additional borings and additional geologic mapping conducted from 7 through 8 December 2015. Our updated engineering geologic map and 'idealized' subsurface profiles reflect data collected during this supplemental investigation (Figures 2 and 3). Our investigation included logging and sampling the subsurface conditions encountered from the geotechnical borings and test pits. Logs of the borings, designated as B-9 through B-13, and test pits, designated as TP-1 through TP-9, are attached in Appendix A with lab test results presented in Appendix B. The approximate locations of all of the borings and test pits are shown on Figure 2.

The previous boring locations complete by others and Langan Treadwell Rollo at the site are designated as ECB-1 through ECB-5 and B-1 through B-8, respectively; logs of these boring results are presented in our previous report.

RESPONSE TO COMMENTS

The following presents our responses to the SJDPW review comments (Appendix D).

Response to Comment 1:

SJDPW stated that:

- the steep slopes presented on "idealized" subsurface profiles (Figures 6-8 of our previous report) upslope of the proposed building sites may generate damaging soil slips, debris flows and slides, as well as earth flow type landslides.

- the existing landslides delineated on the Engineering Geologic Map, Figure 4, may be susceptible to re-mobilization and earthquake induced landslides.

We understand the concerns were over insufficient data to characterize the existing landslides shown on idealized (Profiles A-A' and C-C'), potentially unstable fill and colluvium (Profiles B-B' and D-D') of our previous report, and groundwater conditions within these slopes.

Our supplemental subsurface investigation explored the landslide deposits, colluvium and fill material throughout the site to better characterize the materials. Two landslide deposits were mapped on the southern portion of the site (Figure 2). The eastern landslide was composed of approximately 7 feet of silty sand and sandy gravel, while the western landslide was composed primary of sheared and polished serpentinite clasts with a maximum thickness of 12 feet (Boring 10). Based on supplemental mapping and subsurface exploration the two previously suspected landslide deposits at the northern portion of the site were reinterpreted, as discussed below in the Response to Comment 4.

The colluvium encountered in our recent exploration was composed of sandy clay to clay intercalated with sub-angular serpentinite clasts (B-11, B-12, B-13, TP-1, TP-4, TP-6 and TP-8). Colluvium thickness ranged from about 1foot to a maximum of 7 feet within the large west-facing swale.

Fill material situated south and southeast of proposed Building B was the focus of our fill characterization. Similar to the colluvium, the fill was composed of sandy clay to clay. Figure 3, Idealized Subsurface Profiles, depicts landslide, colluvium and fill thickness based on our supplemental subsurface investigation. Idealized subsurface profiles 1-1', 2-2', 3-3' and 4-4' correspond to the same locations as A-A', B-B', C-C' and D-D', respectively; however, we have revised the subsurface geology based on the additional exploration.

Based on field sampling and laboratory testing we provide a summary of engineering properties for the different material types used in our slope stability analysis in Table 1. These properties are based on the results of lab testing presented in Appendix B. The location of the critical slope failure surfaces for each of the slope stability analyses evaluated are provided on Figures 4 and 5.

TABLE 1

Engineering Properties used in Slope Stability Analyses

Material Description	Total Unit Weight (pcf)	Effective Strength Parameters	
		Effective Cohesion, C′ (psf)	Effective Internal Friction, ϕ′ (degrees)
Fill	125	650	30
Clay	117	2,770	0
Colluvium	125	650	30
Landslide Deposits	125	0	30
Bedrock	131	2,990	0

Response to Comment 2

SJDPW stated that the recommended 3:1 grading of the slope southeast of Building B to mitigate future slope instability is not shown on the proposed grading plan and that it is unclear whether this will completely remove the landslide on the cut slope. SJDPW recommended performing a supplemental subsurface exploration to determine the thickness of the landslide southeast of Building B.

The geometry of the landslide along the southern portion of the property is best depicted by Subsurface Profile 1-1′ (Figure 3). We recommend the landslide deposits be removed and the slope graded to an inclination of 3:1 (horizontal:vertical). This method would remove most of the landslide deposits. In addition, we recommend excavating a keyway into firm material at the toe and benching into the landslide deposits. Up to a 5 foot deep thick wedge of landslide deposits will remain. The depth of the keyway and benches will be determined during grading. It is our opinion that the remaining landslide deposits keyed and benched at a grade of 3:1 (horizontal:vertical) will pose a low risk of slope instability.

The grading plans have been updated and are presented on the figures presented in Appendix C. See response to comment 1 for additional details concerning the supplemental subsurface exploration.

Response to Comment 3

SJDPW was concerned that the undocumented fill may eventually mobilize down slope or may cause settlement of the proposed improvements and driveway.

We recommend that the existing fill, where encountered beneath proposed improvements and driveways, be over excavated at least 24 inches, moisture-conditioned to above optimum moisture content, and compacted to at least 90 percent relative compaction[1]. An exception to this general procedure is within any proposed vehicle pavement areas, where the upper six inches of the pavement subgrade should be compacted to at least 95 percent relative compaction

Response to Comment 4

SJDPW was concerned that the existing landslides on the northern and southern slopes of the site could mobilize and impact the proposed development under potential high groundwater seepage conditions. SJDPW requested that the landslides be characterized in greater detail and evaluated under these conditions.

Our supplemental geologic investigation provided an opportunity to update our initial geologic interpretation of the site with additional subsurface exploration and surface mapping. The previously suspected landslides on the northern slopes were reexamined via field mapping, aerial photo review, and subsurface exploration. More detailed field mapping indicates the previously designated and mapped northern-most landslide is in-place serpentinite boulders and cobbles cropping out on the hillslope. Structural attitudes were taken on several fracture and shear faces. The serpentinite is composed of coherent blocks within an internally sheared matrix. In addition, a geomorphic reexamination of the adjacent landslide combined with results of test boring 13, suggests it is not a landslide, but a small wedge of colluvium. Field mapping found no evidence of a headscarp, landslide margin or landslide toe. Instead it appears the irregular nature of the bedrock surface of the serpentinite allowed for the development of a colluvium basin on the hillside (see Idealized Subsurface Profile 3-3').

As discussed in comment 1, two landslides were identified and investigated on the southern portion of the site (Figure 2). Boring 10 and Test Pit 2 characterized the landslide materials. The proximity of the two landslides to each other indicates a similar failure trigger. Aerial photo reconnaissance, geomorphology, and subsurface investigation all indicate the southern steep hillslope was quarried and graded to incorporate several access roads. The upper access road demarcates the headscarp region of both landslides. Slope gradients upslope of the headscarps range from 47° to 37°, while gradients to the east range from 26° to 33°. Therefore, it appears the over-excavation of the quarry face in the region of landslides coupled with concentrated runoff from the access road were the primary triggers for these slope failures. See Figure 3 for the southern landslide deposits thickness and geometry.

1 Relative compaction refers to the in-place dry density of soil expressed as a percentage of the maximum dry density of the same material, as determined by the ASTM D1557-07 laboratory compaction procedure.

Our review of published maps[2] indicates the historic high groundwater in the project vicinity is approximately 20 feet below ground surface; despite the presence of surface seeps, groundwater was not encountered in our borings and test pits during both investigations.

We have analyzed the slope stability on the site using the newly acquired data. In our initial evaluation we conservatively modeled the groundwater along the surface of the bedrock, however we did not portray this on our figures. The location of the critical slope failure surfaces and the location of the modeled groundwater surface for each of the profiles evaluated are provided on Figures 4 (current conditions) and 5 (proposed grading)/.

The results of our analyses indicate most of the existing slopes are stable or may exhibit negligible permanent slope displacements upslope of the proposed improvements during a major earthquake. However, the landslide deposits above proposed Building B could exhibit significant permanent slope displacements, if not removed and regraded, as previously discussed. The results of our slope stability analyses and seismic slope displacements are summarized in Table 2, below for existing conditions. We used the same methodology to evaluate slope stability and potential slope deformations during a seismic event as discussed in our previous geotechnical report. The location of the critical slope failure surfaces for each of the profiles evaluated showing existing conditions are provided on Figure 4.

TABLE 2

Slope Stability Results – Existing Conditions

Section	Static Factor of Safety	Yield Acceleration (g's)	Estimated Deformation (centimeters)
1-1' lower slope	9.1	2.40	<1
1-1' middle slope	22.2	4.20	<1
1-1' upper slope	1.3	0.10	59
2-2'	3.9	0.83	<1
3-3'	3.2	1.00	<1
4-4' lower slope	9.4	2.50	<1
4-4' upper slope	3.4	0.70	<1

Current plans are to grade the proposed building pads and outlying access roads and sidewalks. Grading will consist of cut and fill to level out areas for the proposed buildings. If the development is graded as proposed including removal and regarding of the existing landslide south of building B, the results of our analyses indicate an adequate safety factor. The results

2 California Division of Mines and Geology (2002). "State of California Seismic Hazard Zone Report 044 prepared by the California Geologic Survey."

of our slope stability analyses and seismic slope displacements, which include the proposed grading, are summarized in Table 3. The location of the critical slope failure surfaces for each of the profiles evaluated are provided on Figure 5.

TABLE 3

Slope Stability Results with Proposed Grading

Section	**Depth of Cut (feet)**	**Static Factor of Safety**	**Yield Acceleration (g's)**	**Estimated Deformation (centimeters)**
1-1' lower slope	0 to 4	7.4	2.00	<1
1-1' middle slope	0 to 7	22.2	2.80	<1
1-1' upper slope	0 to 14	8.5	2.50	<1
2-2'	0 to 5	3.7	0.82	<1
3-3'	0 to 16	3.2	1.00	<1
4-4' lower slope	0 to 15	9.4	2.00	<1
4-4' upper slope	0 to 23	2.4	0.82	<1

Response to Comment 5

SJDPW commented that there are no recommendations to stabilize the two dormant landslides in the southern portion of the parcel (Section 1-1') immediately upslope of proposed improvements. They also stated that the landslides appear to be active based on the presence of fresh vegetation scars above the slide masses observed in recent aerial imagery of the site.

As stated in our previous geotechnical report on page 17, Section 6.3 the existing steep cut slope behind the existing residential structure and proposed Building B has experienced instability in the past. We recommended this slope be graded to an inclination of 3:1 or flatter. A retaining structure gaining support in the underlying bedrock could be used in lieu of a keyway and benching system to reduce the amount of earthwork necessary to flatten the existing slope.

As previously discussed in comment 4, the landslides at the southern portion of the property are the result of past grading for quarry operations combined with a poor drainage regime in the access road. The geomorphic expression of the landslide deposits on the southern portion of the property indicates recent activity. Aerial photo examination showed incipient tension cracks developing in the graded access road (headscarp region) in 1971. In the next series of photo, both landslides are present, indicating the landslides failed between 1971 and 1980. The eastern landslide does not appear to have reactivated since the initial failure. The western landslide, on the other hand, was stable until observed in the 1996 aerial photos at which time the landslide reactivated and the headscarp grew to the west south west. Therefore we have updated our landslide recency designation

Response to Comment 6

SJDPW commented that the slope stability analysis models may have to be modified based on further subsurface slope characterization and do not appear to incorporate piezometric surfaces.

See response to comments 1 and 4 for additional details concerning the supplemental subsurface exploration and groundwater conditions. A piezometric surface was assumed at the top of bedrock.

Response to Comment 7

The results of the slope stability analysis of Section 3-3' showed a static factor of safety of less than 1.5 and slope displacement of about 4 inches. SJDPW recommended that the stability of cross section 3-3' be reevaluated based on the supplemental subsurface exploration and potentially high groundwater levels.

See response to comments 1 and 4 for additional details concerning the supplemental subsurface exploration, groundwater conditions, and results of the slope stability analyses. The location of the critical slope failure surfaces and the location of the modeled groundwater surface for section 3-3' are provided Figures 4 and 5.

Response to Comment 8

SJDPW had comments on the strength parameters assigned to the soils used in our slope stability analyses and requested that the basis for the assigned shear strength parameters for each soil and geologic unit analyzed in our report be discussed in greater detail and additional laboratory tests and other data presented, as necessary.

As discussed in our response to comment 1, additional test pits and borings were completed to characterize the deposits and obtain samples for testing. The laboratory results are presented in Appendix B and Table 1 shows the engineering properties used in the slope stability analyses.

Response to Comment 9

SJDPW observed boulder outcrops of serpentinite on the upper site slopes above the building site.

Observed serpentinite on the steep southern cutslope was internally sheared with 1- to 6-inch diameter coherent angular wedge-shaped blocks. Distinct shear fabric orientations were noted, but shearing orientation was chaotic and anastomosing slope angles ranged from 33° to 47°.

The slope angles are sufficient to generate small rockfall events during seismic shaking. The size and shape of the potential rock fall fragments (angular and less than 6-inches diameter) suggests rockfall hazard at the proposed development site is low. However, to facilitate maintenance and address the potential impact damage of a 6-inch diameter rock fragment, we recommend installation of a conventional 5-feet high steel mesh storm fence along the base of the slope.

Response to Comment 10

SJDPW was concerned with seismic induced block or wedge failures along structural discontinuities such as shear or fracture surfaces in the serpentinite in the recommended 3:1 cut slope southeast of Building B.

The existing landslide was likely caused by runoff and poor surface drainage from the cut bench above the slides. Also, the structural discontinuities mentioned above are intensely sheared zones that are randomly oriented and discontinuous, therefore, unlikely to yield large fragments of rock. In addition, rock fragments do not tend to accelerate on slopes less steep than 2:1, horizontal to vertical. . Therefore we conclude that there is a low potential for seismic induced block or wedge failure in the serpentinite .

Response to Comment 11

SJDPW stated that large cut and fill slopes are not shown on the grading plan and that the proposed grades do not appear to have been incorporated into our slope stability analysis models. They requested that proposed cut/fill slopes and finished grades be shown on the grading plan and incorporated into the slope stability analyses and analyzed for static and seismic slope stability.

The grading plans have been updated and are presented on the figures presented in Appendix C. In our initial evaluation we modeled the slopes under the existing and post-grading conditions both statically and seismically; however, since the engineering properties and grades have changed, we reassessed the slope analysis as suggested in previous comments. The location of the critical slope failure surfaces for each of the profiles evaluated are provided on Figure 5.

Response to Comment 12

SJDPW stated that the northeastern portions of Buildings A and B are immediately adjacent to high existing slopes and the buildings need to be setback at least 15 feet from the toes of these slopes to be in conformance with the City's Grading Code, Section 17.04.410. The purpose of the setback is to allow for positive surface drainage around the perimeter of the buildings and to establish a buffer zone to mitigate potential impacts from surface water runoff, erosion, and slope instability.

The grading plans have been modified with a 15 foot setback zone and are shown on the figures presented in Appendix C.

Response to Comment 13

SJDPW was concerned with the existing water tank and access road approximately 600 feet above the proposed building site. Assuming the tank is operational; they requested that an evaluation of potential geologic/seismic hazards associated with the tank and access road be presented.

The results of our supplemental subsurface exploration, particularly at test pit TP-7, indicate that the tank appears to be founded on competent soil. Furthermore, the access road appears to have performed adequately to date. Therefore, we conclude that there are no geologic hazards in the vicinity of the tank that precludes its use or the access road.

We trust this letter responds to the comments. Should you have questions regarding our comments and conclusions, please contact us.

Sincerely yours,
Langan Treadwell Rollo

John Gouchon, GE
Principal

Lou Gilpin, CEG
Director Engineering Geology

REGISTERED GEOLOGIST L. M. GILPIN No. 1518 CERTIFIED ENGINEERING GEOLOGIST STATE OF CALIFORNIA

770619902.01_JG_letter addressing comments from City of San Jose

Attachments:

Figures 1, 2, 3, 4, 5

Appendix – Logs of Test Borings and Test Pits

Appendix B – Laboratory Data

Appendix C – Grading Plans

Appendix D – Comments from San Jose Department of Public Works (SJDPW)

FIGURES

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DOVE HILL ASSISTED LIVING COMMUNITY
4200 DOVE HILL ROAD
San Jose, California

SITE PLAN WITH PROPOSED DEVELOPEMENT

Date 02/24/16	Project No. 770619902	Figure 1

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EXPLANATION

Key

- B-3 — Langan Treadwell Rollo exploratory boring
- TP-1 — Langan Treadwell Rollo exploratory test pit
- E_2C-1 — Borings by E_2C Consultants
- 1 1' — Geologic cross section
- Geologic contact; solid where certain, dashed where approximate, dotted where concealed, queried where uncertain
- Fill/ Cut slope
- Landslide, scarp area hachured, arrow in direction of downslope movement, compressional toe with debris pushing over the original ground surface by a dash and semi-circle symbol
- Top of slope
- Bedrock outcrop
- Serpentinite foliations/sheared surfaces
- Slope inclination, as measured in field, with angle in degrees
- Soil creep, 3 feet or less in depth
- Phreatophytes
- Ground cracks
- Spring or seep, queried where uncertain
- Gully

Geologic Units

- **af** — Artificial fill, Qc/af undifferentiated colluvium and fill
- **Qls** — Landslide deposit
- **Qcl** — Colluvium
- **Fm** — Melange: blocks of franciscan sandstone, greenstone, serpentinite in sheared shale matrix
- **sp** — Serpentinite and serpentinized harzburgite and dunite, massive

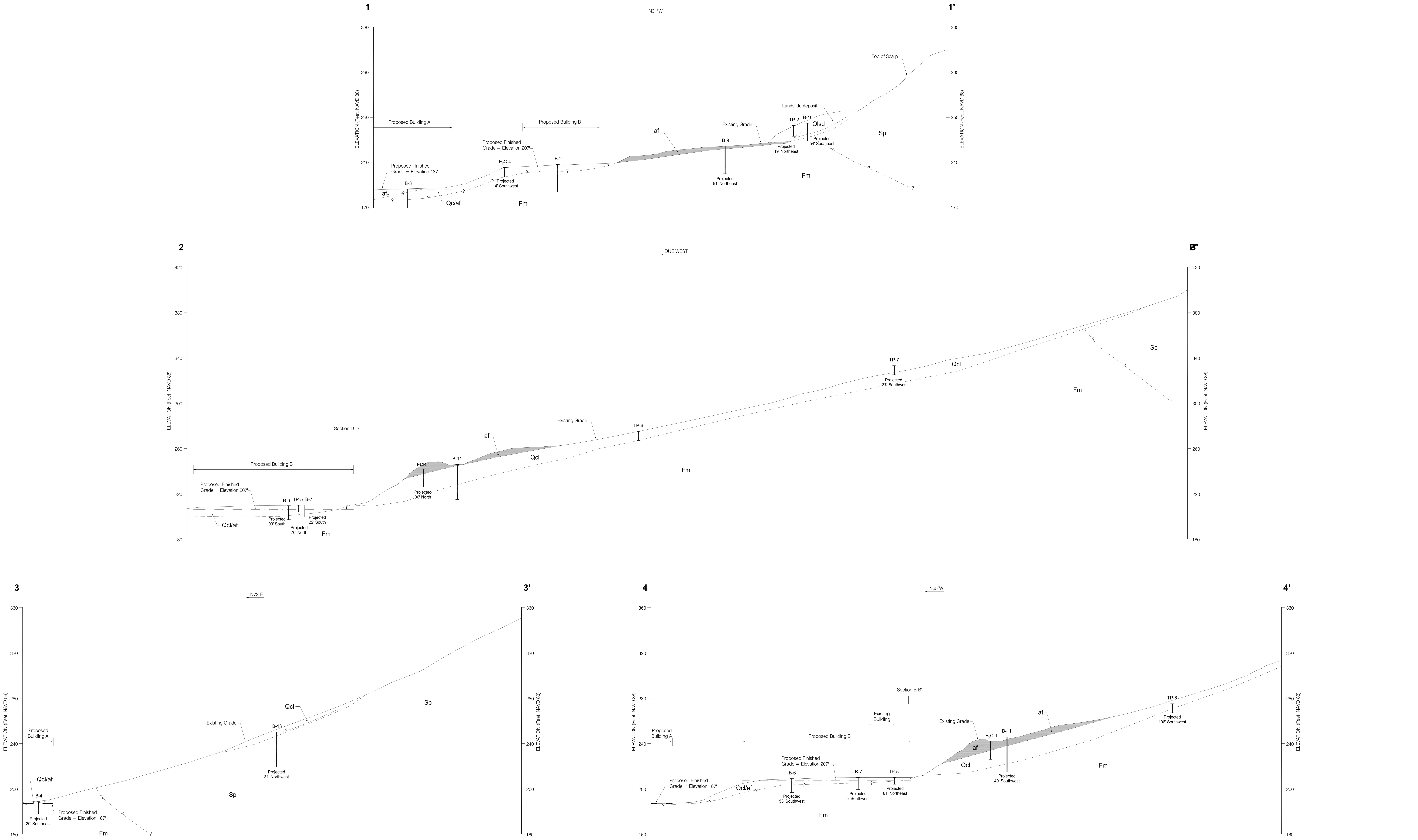
Notes:
1. Site conditions are those observed during reconnaissance mapping on - and - may have since changed.
2. Mapping performed using standard tape/pace and compass methods.
3. Cross sections shown on Figure 6.

DOVE HILL ASSISTED LIVING COMMUNITY
4200 DOVE HILL ROAD
San Jose, California

ENGINEERING GEOLOGIC MAP

Date 02/24/16	Project No. 770619902	Figure 2

LANGAN TREADWELL ROLLO



Notes:
1. The above profiles represents a generalized subsurface cross section interpreted from widely spaced borings. Earth materials may vary in type, strength, and other important properties between points of exploration.
2. See figure 2 for explanation.

SCALE IN FEET

DOVE HILL ASSISTED LIVING COMMUNITY
4200 DOVE HILL ROAD
San Jose, California

IDEALIZED SUBSURFACE PROFILES 1-1', 2-2', 3-3', AND 4-4'

Date 02/24/16	Project No. 770619902	Figure 3

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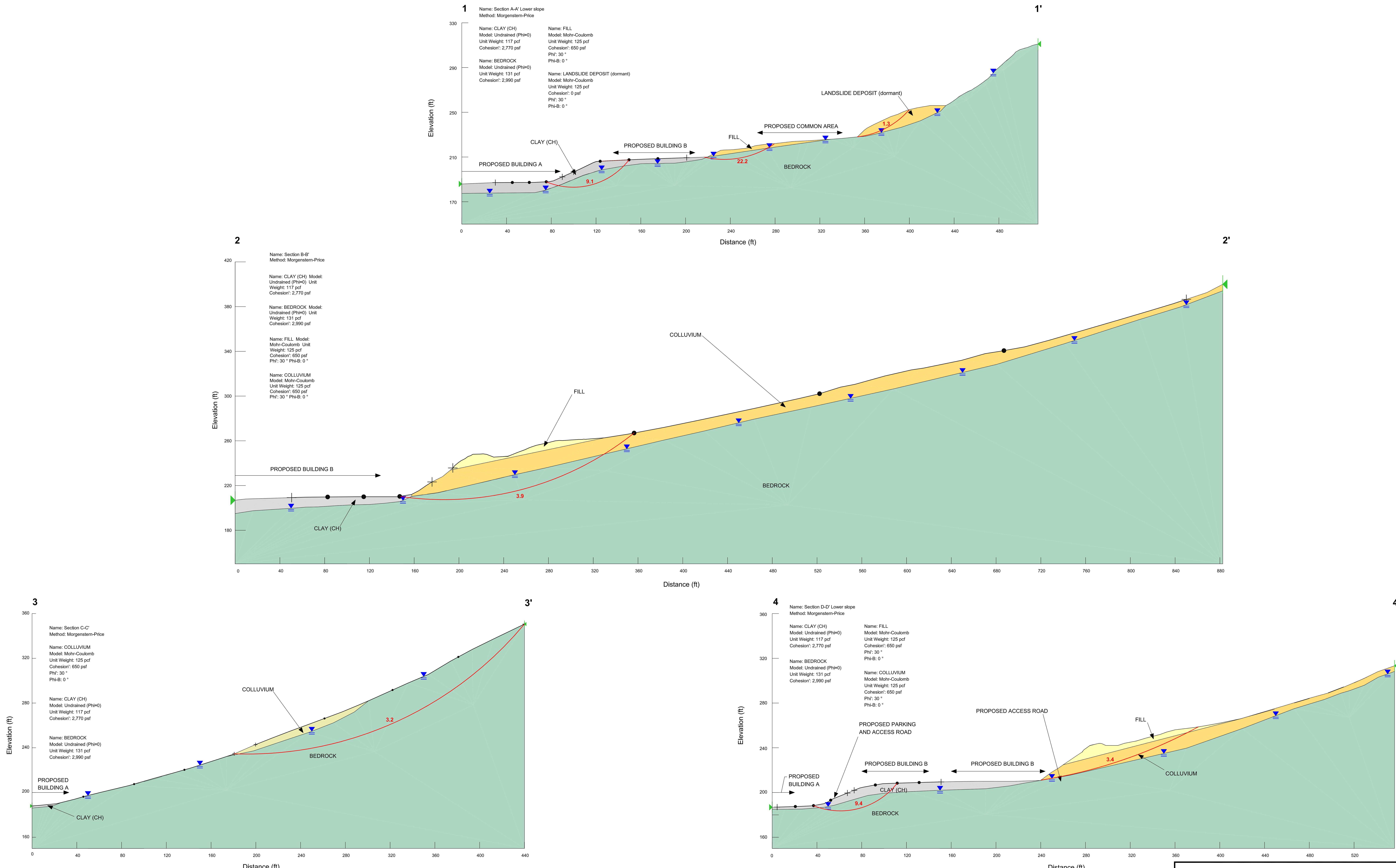

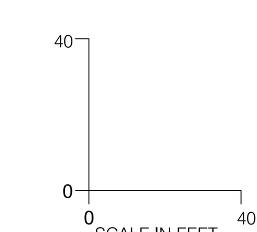

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4200 DOVE HILL ROAD
San Jose, California

SLOPE STABILITY ANALYSIS IDEALIZED SUBSURFACE PROFILES 1-1', 2-2', 3-3', AND 4-4' EXISTING CONDITIONS

Date 02/26/16	Project No. 770619902	Figure 4

LANGAN TREADWELL ROLLO

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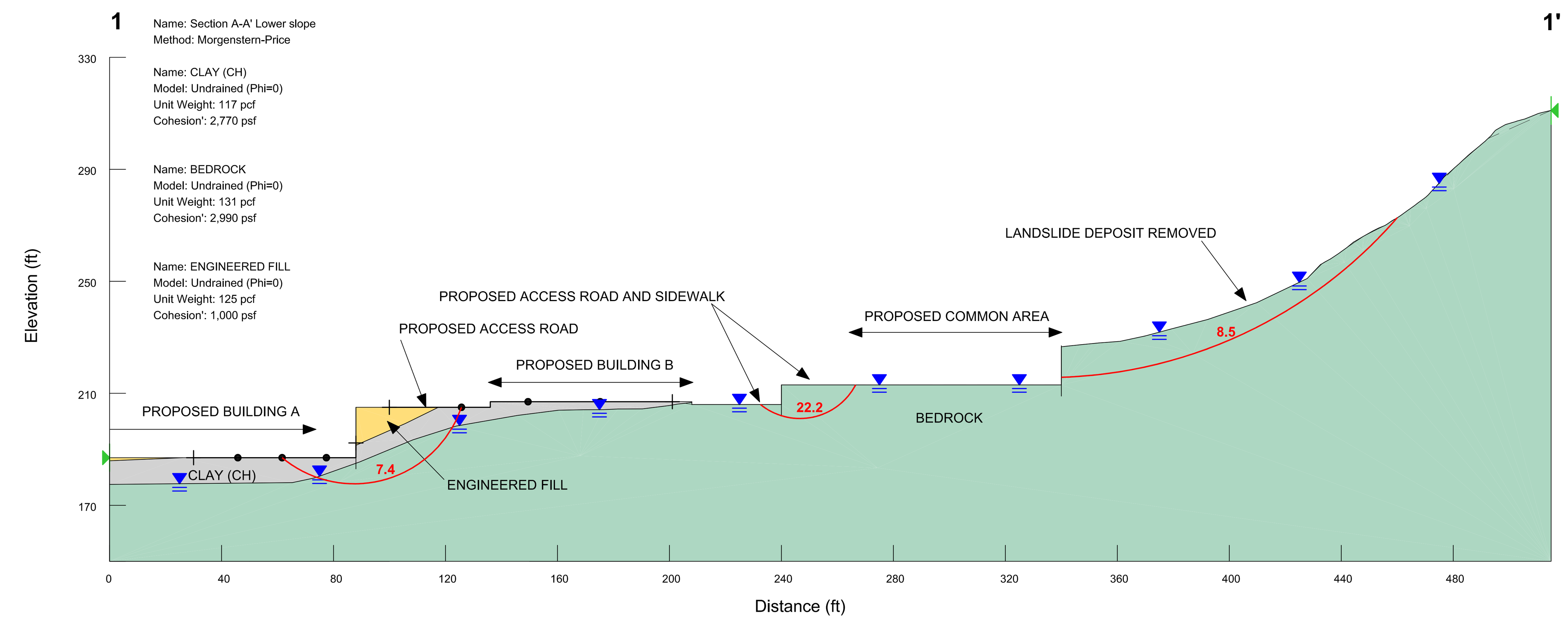

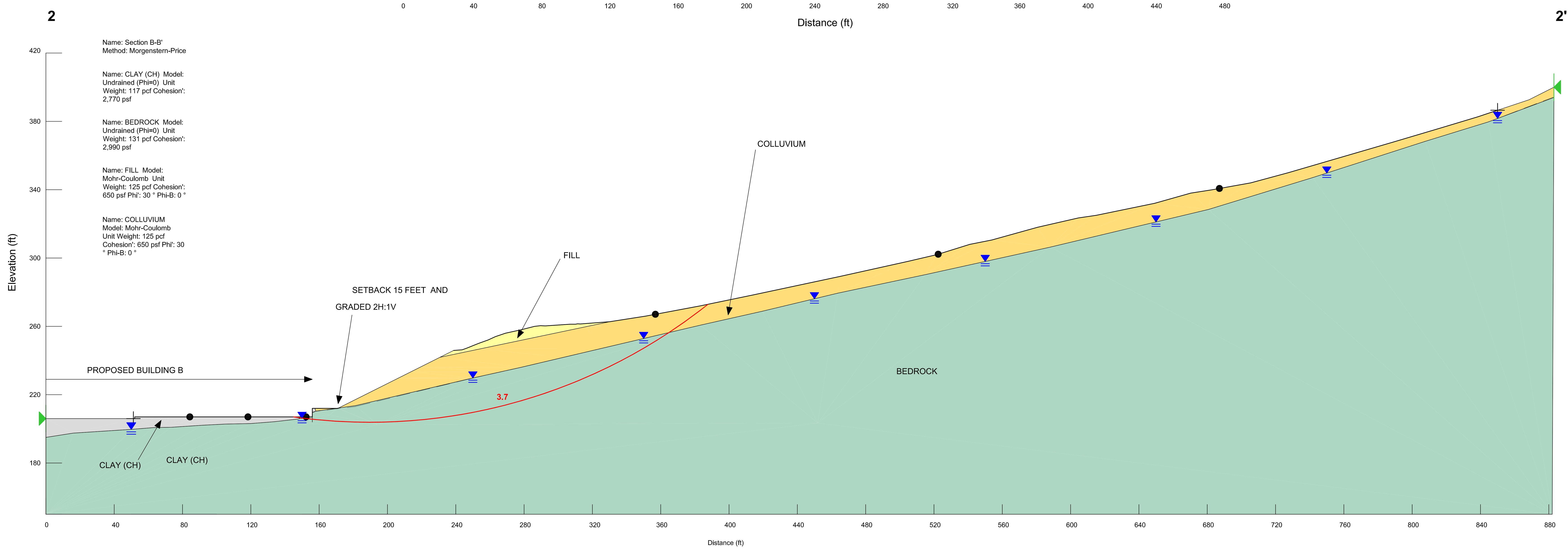

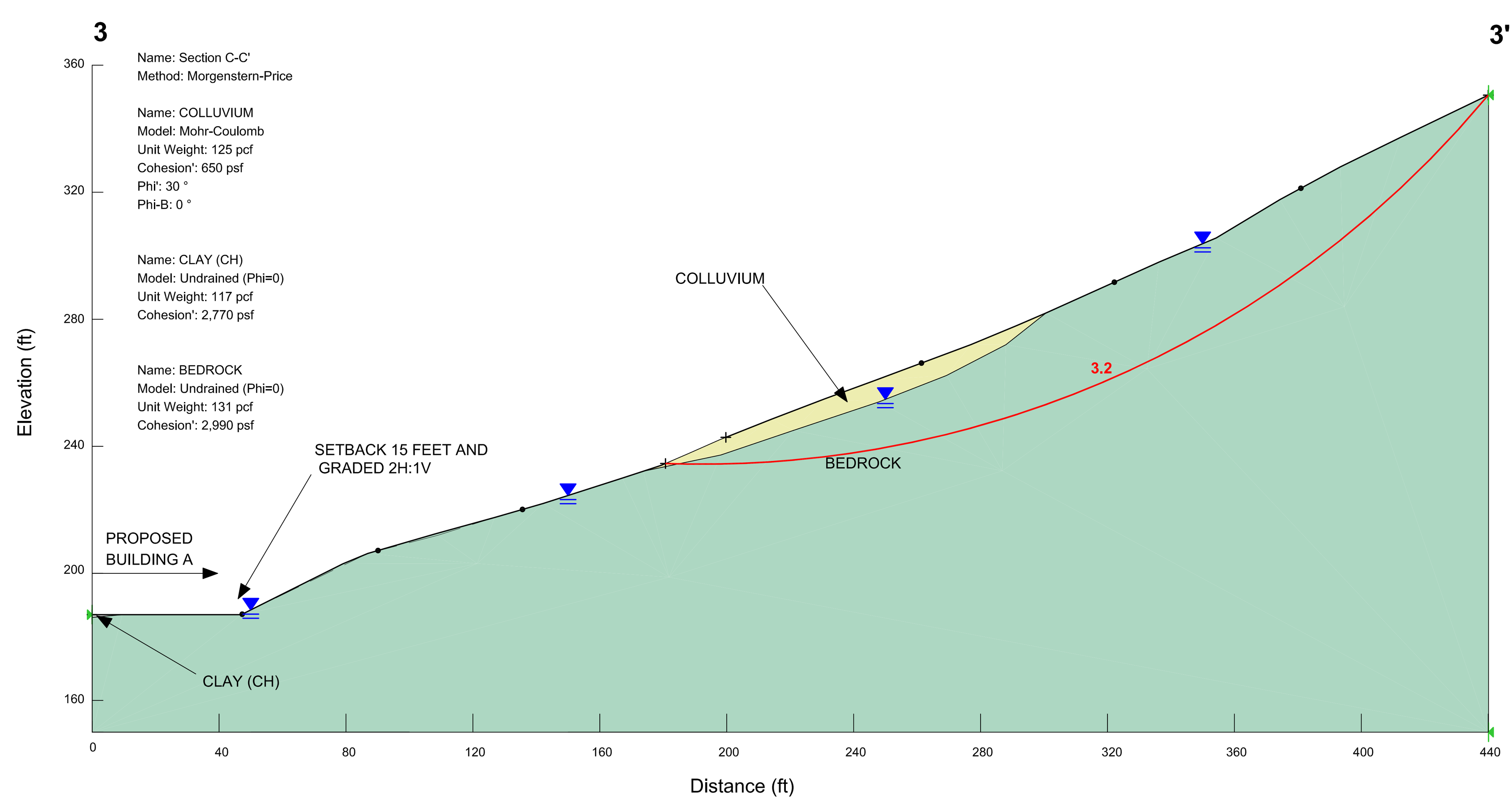

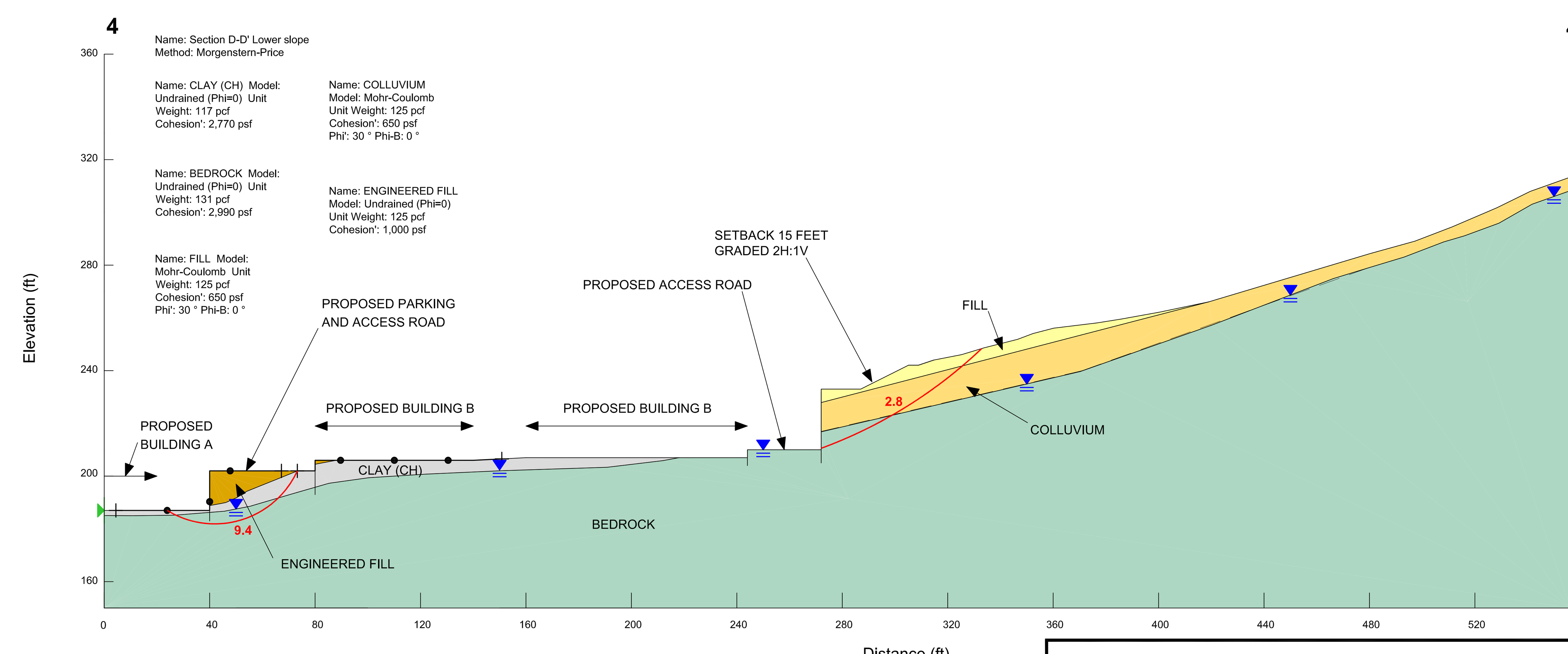

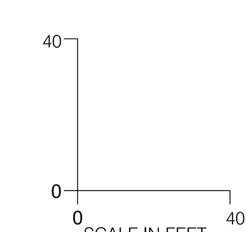

DOVE HILL ASSISTED LIVING COMMUNITY
4200 DOVE HILL ROAD
San Jose, California

SLOPE STABILITY ANALYSIS
IDEALIZED SUBSURFACE PROFILES
1-1', 2-2', 3-3', AND 4-4'
POST GRADING

Date 02/26/16	Project No. 770619902	Figure 5

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APPENDIX A

LOGS OF TEST BORINGS AND TEST PITS

PROJECT: **DOVE HILL ASSISTED LIVING COMMUNITY**
4200 DOVE HILL ROAD
San Jose, California

Log of Boring B-9

Boring location:	See Site Plan, Figure 2	Logged by:	S. Magallon
Date started:	12/7/15	Date finished:	12/7/15
Drilling method:	Hollow Stem Auger		
Hammer weight/drop:	140 lbs./30 inches	Hammer type:	Automatic
Samplers:	Sprague & Henwood (S&H), Standard Penetration Test (SPT)		

DEPTH (feet)	Sampler Type	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION (Ground Surface Elevation: 230 feet[2])	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
0–2				SM	SILTY SAND with GRAVEL (SM) olive-gray, medium dense, dry, with rock fragments (FILL)						
2					SERPENTINITE, GREENSTONE, GRAYWACKE olive with gray-brown and gray mottling, low hardness, friable, moderately to deeply weathered, bedrock breaks down to soil like consistency						
3	S&H	8 18 22	28							8.1	94
5.5	S&H	11 26 37	44								
6					Triaxial Test, see Figure B-1	TxUU	700	2,990		13.7	118
6.5					with yellow-brown mottling, with polished surfaces						
8	S&H	11 24 27	36								
10.5	S&H	10 21 29	35								
11.5					distinct olive-green layer, 1 inch thick						
12	S&H	11 20 24	31								
13					pockets of olive-green from layer above						
13.5	S&H	11 22 29	36		light yellow to white, fibrous, calcite						
14					pocket of olive-green from layer above						
15	S&H	7 27 33	42		dark gray, low hardness, friable, moderately to deeply weathered, polished surfaces, trace light brown to white pockets of calcite						
20.5	S&H	11 18 25	30		dark olive-gray to dark gray						
21					Triaxial Test, see Figure B-2	TxUU	2,400	2,990		12.3	119
25	S&H SPT	50/ 1.5" 50/ 4"	35/ 1.5" 60/ 4"								

Boring terminated at a depth of 25.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.7 and 1.2, respectively to account for sampler type and hammer energy.
[2] Elevations based on NAVD 88.

LANGAN TREADWELL ROLLO

Project No.: 770619902 | Figure: A-1

PROJECT: **DOVE HILL ASSISTED LIVING COMMUNITY**
4200 DOVE HILL ROAD
San Jose, California

Log of Boring B-10

Boring location: See Site Plan, Figure 2

Logged by: S. Magallon

Date started: 12/7/15 | Date finished: 12/7/15

Drilling method: Solid Flight Augers

Hammer weight/drop: 140 lbs./30 inches | Hammer type: Automatic

Samplers: Sprague & Henwood (S&H), Standard Penetration Test (SPT)

Ground Surface Elevation: 245 feet[2]

DEPTH (feet)	Sampler Type	Blows/6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
0–4.5				SM	SILTY SAND with GRAVEL (SM) light brown, loose, moist, fine- to medium subangular gravel, trace clay (LANDSLIDE DEPOSIT)						
3	S&H	4, 5, 7	8		Direct Shear Test, see Figure B-9	DS DS DS	1,000 3,000 5,000	1,180 2,420 3,590		19.3 19.3 16.0	105 112 118
4.5–7.5				GP	SANDY GRAVEL (GP) olive-gray to green-gray, medium dense, moist, fine-grained sand, fine to coarse angular to subangular gravel consisting of sandy serpentinite, trace silt (LANDSLIDE DEPOSIT)						
6	S&H	8, 11, 9	14								
7.5–10				SM	SILTY SAND with CLAY (SM) light brown, medium dense, moist, with fine subangular gravel consisting of serpentinite						
8	S&H	6, 7, 8	11		Direct Shear Test, see Figure B-10	DS DS	1,000 3,000	1,220 2,380		19.1	100
10–13.5				GM	GRAVEL with SILTY SAND (SM) light brown to olive, medium dense, moist, fine- to coarse angular to subangular gravel, fine-grained sand						
11	S&H	7, 9, 12	15								
13.5–15.5					SERPENTINITE, GREENSTONE, GRAYWACKE light gray, moderately hard to hard, moderately strong to strong, little weathered						
15	S&H SPT	50/2.5" 50/3"	35/2.5" 60/3"								

Boring terminated at a depth of 15.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.7 and 1.2, respectively to account for sampler type and hammer energy.
[2] Elevations based on NAVD 88.

LANGAN TREADWELL ROLLO

Project No.: 770619902 | Figure: A-2

Log of Boring B-11

PROJECT: **DOVE HILL ASSISTED LIVING COMMUNITY**
4200 DOVE HILL ROAD
San Jose, California

Boring location: See Site Plan, Figure 2
Date started: 12/7/15 | Date finished: 12/7/15
Drilling method: Hollow Stem Auger
Hammer weight/drop: 140 lbs./30 inches | Hammer type: Automatic
Samplers: Sprague & Henwood (S&H), Standard Penetration Test (SPT)

Logged by: S. Magallon

LABORATORY TEST DATA

DEPTH (feet)	Sampler Type	Sample	Blows/6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION Ground Surface Elevation: 245 feet[2]	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
0–2						CLAY with SAND (CL) dark gray-brown, stiff, moist, very fine-grained sand, occasional fine serpentinite gravel (FILL)						
3	S&H		6 6 8	10	CL	Triaxial Test, see Figure B-3	TxUU	400	1,280		19.0	86
6	S&H		6 6 7	9		Triaxial Test, see Figure B-4	TxUU	700	500		20.9	76
7–8						CLAY (CH) dark gray-brown, very stiff, moist, trace very fine-grained sand, occasional serpentinite gravel pieces						
8	S&H		6 7 9	11		Triaxial Test, see Figure B-5	TxUU	1,000	3,520		24.1	92
11	S&H		7 12 17	20	CH	Triaxial Test, see Figure B-6	TxUU	1,300	3,600		25.5	97
15–16						CLAY (CL) brown, very stiff, moist, trace silt						
16	S&H		7 13 17	21		Triaxial Test, see Figure B-7	TxUU	2,000	2,730		24.2	100
17	S&H		5 14 28	29	CL	trace serpentinite and sandy clasts serpentinite gravel red-brown gravel, angular, hard strong						
20	S&H		33 50/ 5"	35/ 5"								
21						SERPENTINITE, GREENSTONE, GRAYWACKE light brown to white, low hardness, friable, deeply weathered, dense silica carbonate deposit ~ 2 to 3 feet thick						
26	SPT		15 24 44	82		olive-brown						
30	SPT		26 50/ 3"	60/ 3"		orange oxidation						

Boring terminated at a depth of 30.8 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.7 and 1.2, respectively to account for sampler type and hammer energy.
[2] Elevations based on NAVD 88.

LANGAN TREADWELL ROLLO

Project No.: 770619902 | Figure: A-3

PROJECT:	DOVE HILL ASSISTED LIVING COMMUNITY 4200 DOVE HILL ROAD San Jose, California	**Log of Boring B-12** PAGE 1 OF 1

Boring location: See Site Plan, Figure 2

Logged by: S. Magallon

Date started: 12/8/15 | Date finished: 12/8/15

Drilling method: Solid Flight Augers

Hammer weight/drop: 140 lbs./30 inches | Hammer type: Automatic

Samplers: Sprague & Henwood (S&H), Standard Penetration Test (SPT)

DEPTH (feet)	SAMPLES: Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION Ground Surface Elevation: 240 feet[2]	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
1						SERPENTINITE, GREENSTONE, GRAYWACKE olive to olive-green with yellow, low hardness, friable, moderately to deeply weathered						
2												
3	S&H		21 50/ 3"	60/ 3"		Triaxial Test, see Figure B-8	TxUU	300	420		12.4	97
4												
5	SPT		25 50/ 5"	60/ 5"		olive to olive-brown						
6												
7												
8	SPT		38 50/ 3"	60/ 3"								
9												
10	SPT		50/ 5.5"	60/ 5.5"		olive-brown with calcite deposits						
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												

Boring terminated at a depth of 10.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.7 and 1.2, respectively to account for sampler type and hammer energy.
[2] Elevations based on NAVD 88.

LANGAN TREADWELL ROLLO

Project No.: 770619902 | Figure: A-4

PROJECT:	DOVE HILL ASSISTED LIVING COMMUNITY 4200 DOVE HILL ROAD San Jose, California	Log of Boring B-13

Boring location: See Site Plan, Figure 2

Logged by: S. Magallon

Date started: 12/8/15 | Date finished: 12/8/15

Drilling method: Solid Flight Augers

Hammer weight/drop: 140 lbs./30 inches | Hammer type: Automatic

Samplers: Sprague & Henwood (S&H), Standard Penetration Test (SPT)

LABORATORY TEST DATA

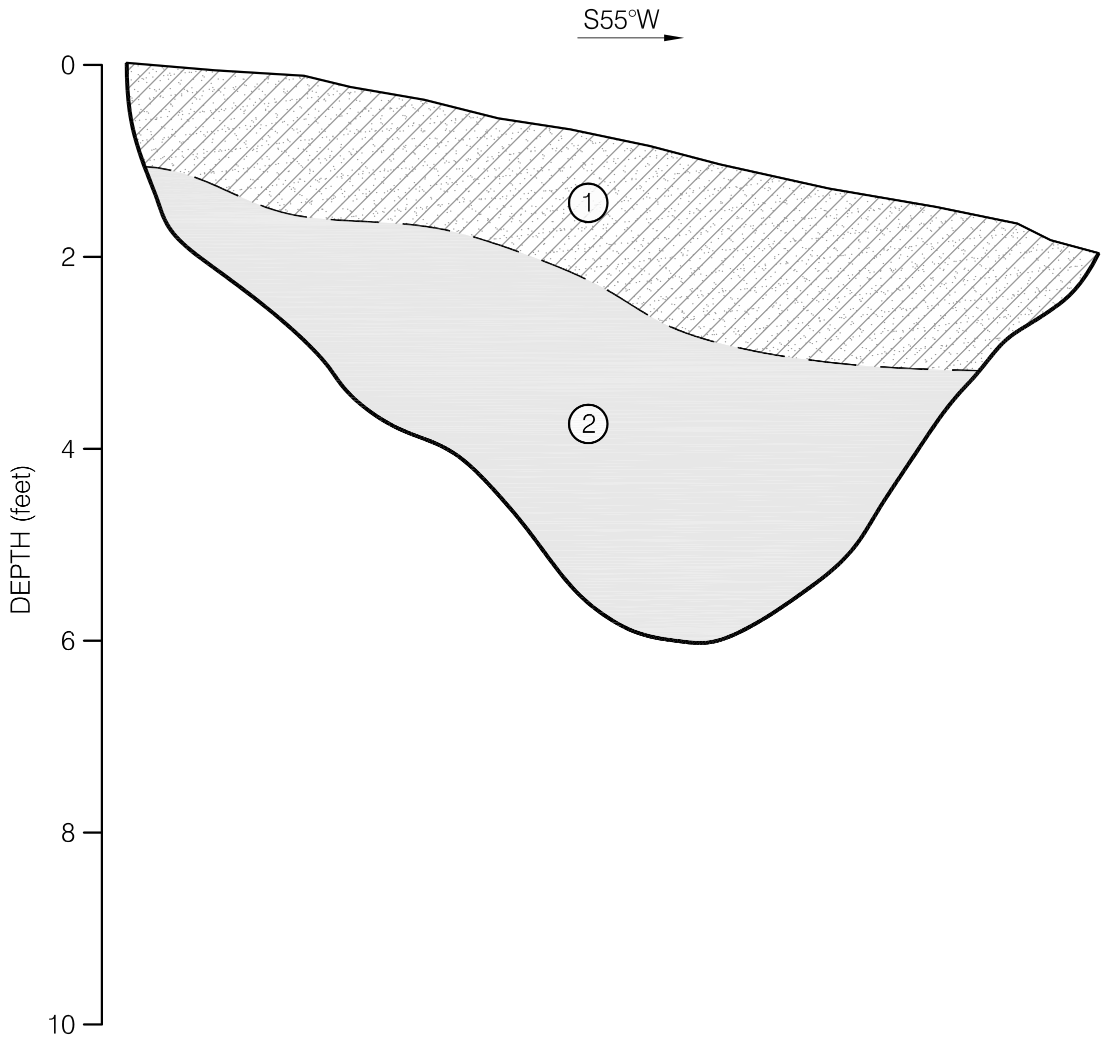
DEPTH (feet)	Sampler Type	Sample	Blows/6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION Ground Surface Elevation: 250 feet[2]	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
0–1						SANDY SILT (ML) brown, loose, moist, very fine- to fine-grained sand						
3–4	S&H		3 3 4	5	ML	Direct Shear Test, see Figure B-11	DS DS DS	1,000 3,000 5,000	600 1,840 2,830		43.4 38.3 35.9	70 80 84
5–7	S&H		5 10 17	19	SC	CLAYEY SAND (SC) brown to red-brown, medium dense, moist, fine- to medium-grained sand, trace silt					18.1	93
7.5–8	S&H		50/ 6"	35/ 6"		SERPENTINITE, GREENSTONE, GRAYWACKE olive-green with yellow-brown and green-gray, low hardness, friable, moderately to deeply weathered, with silty sand						
10–11	S&H SPT		50/ 4.5" 50/ 3"	35/ 4.5" 60/ 3"		yellow and olive					22.2	76
14–15.3	SPT		50/ 4"	60/ 4"		sample is crushed, intact pieces are hard, moderately strong to strong						

Boring terminated at a depth of 15.3 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.7 and 1.2, respectively to account for sampler type and hammer energy.
[2] Elevations based on NAVD 88.

LANGAN TREADWELL ROLLO

Project No.: 770619902 | Figure: A-5



(1) SANDY CLAY (CL)
brown, moist, fine-grained sand, trace coarse sand, trace roots
[COLLUVIUM]

(2) SERPENTINITE
olive-brown to olive-gray with green, white weathered surfaces and orange oxidation pockets, low to moderately hard, friable to weak (with plastic zones), moderately to deeply weathered

0 2 Feet
Approximate scale

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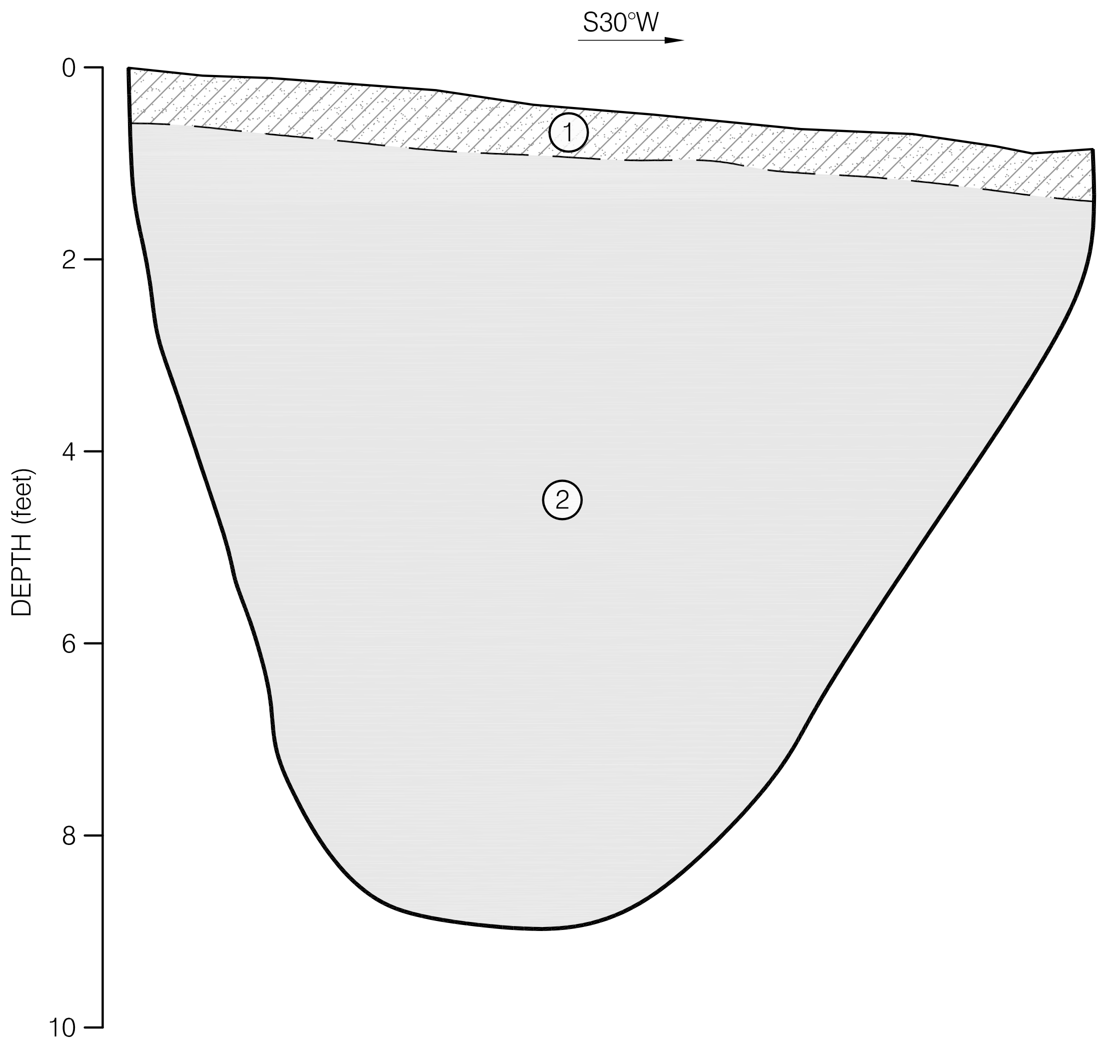
DOVE HILL ASSISTED LIVING COMMUNITY **4200 DOVE HILL ROAD** San Jose, California	**LOG OF TEST PIT** **TP-1**
LANGAN TREADWELL ROLLO	Date 12/21/15 | Project No. 770619902 | Figure A-6

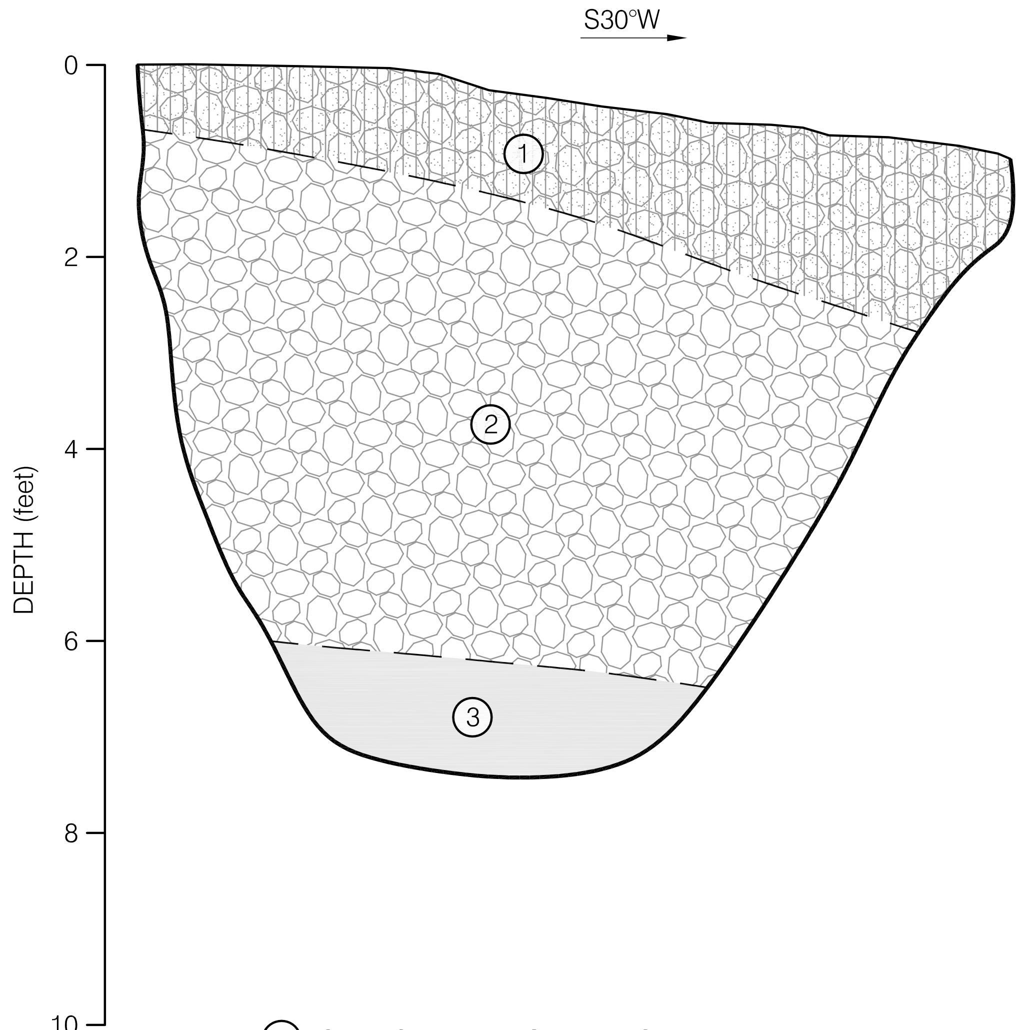


1 CLAYEY SAND (SC)
brown to yellow-brown, moist, fine-grained, with rootlets

2 SERPENTINITE
olive to olive-brown with yellow-brown, low hardness, friable to weak, moderately weathered, chaotic shearing with polished surfaces, scattered olive-green boulders
[LANDSLIDE DEPOSIT]

0 2 Feet
Approximate scale

DOVE HILL ASSISTED LIVING COMMUNITY **4200 DOVE HILL ROAD** San Jose, California	**LOG OF TEST PIT** **TP-2**
LANGAN TREADWELL ROLLO	Date 12/21/15 | Project No. 770619902 | Figure A-7



1. SILTY SAND with GRAVEL (SM)
brown to dark brown, moist, fine- to medium-grained sand, fine- to coarse subangular gravel, with roots *[FILL]*

2. GRAVEL (GP)
olive to yellow-brown with yellow mottling, moist, angular to subangular cobble to boulder sized, trace silty sand, gravel consists of metamorphosed sandstone and serpentinite melange that are low to moderately hard, friable to weak, moderately weathered, with orange oxidation surfaces *[FILL]*

3. SERPENTINITE
dark green-gray to dark olive-gray with pockets of green, moist, low hardness, friable, moderately to deeply weathered, chaotic shearing with polished surfaces

0 2 Feet
Approximate scale

DOVE HILL ASSISTED LIVING COMMUNITY
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San Jose, California

LANGAN TREADWELL ROLLO

LOG OF TEST PIT
TP-3

Date 12/21/15 | Project No. 770619902 | Figure A-8

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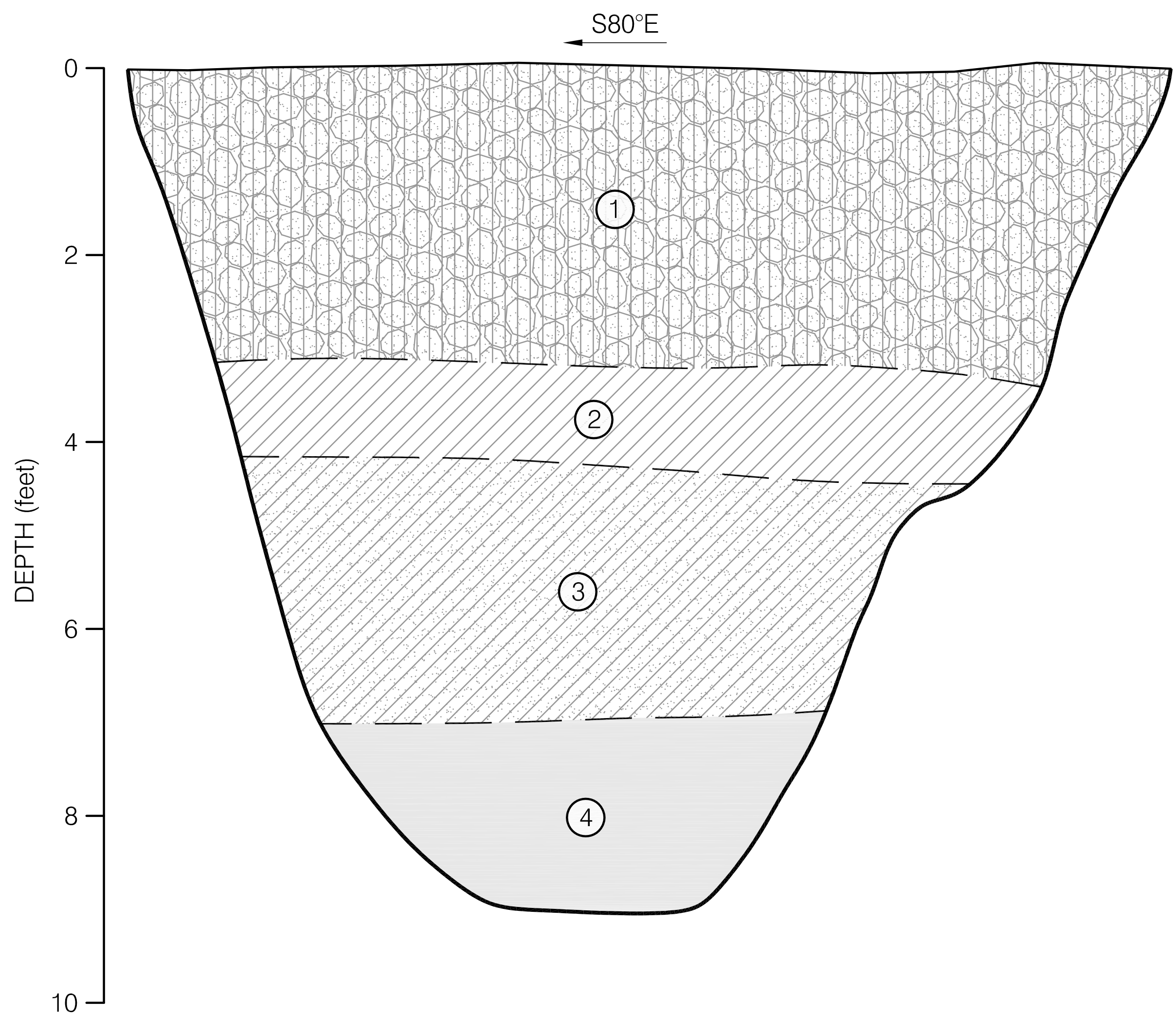


1 SILTY SAND with GRAVEL (SM)
brown to dark brown, moist, fine- to medium-grained sand, fine- to coarse subangular gravel with roots *[COLLUVIUM]*

2 CLAY (CH)
dark brown, moist, trace, rootlets, trace angular fine gravel *[COLLUVIUM]*

3 SANDY CLAY (CL)
olive-brown to brown, moist, trace serpentinite fragments, faint polished surfaces, trace silt, trace subangular serpentinite gravel *[COLLUVIUM]*

4 SERPENTINITE
dark olive-green with yellow mottling, moist, low hardness, friable, moderately to deeply weathered

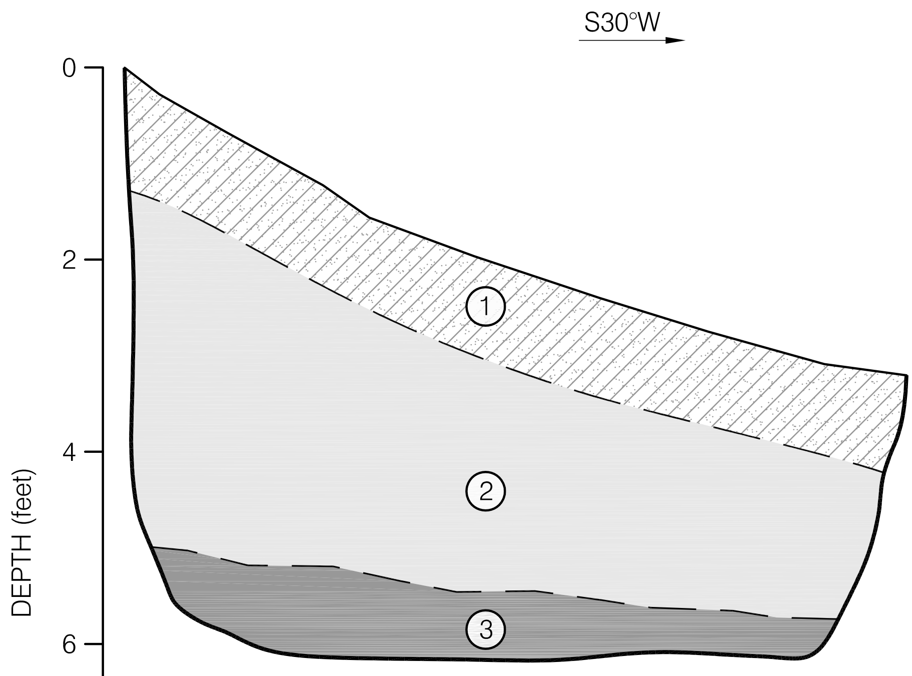
0 2 Feet
Approximate scale

DOVE HILL ASSISTED LIVING COMMUNITY
4200 DOVE HILL ROAD
San Jose, California

LOG OF TEST PIT
TP-4

LANGAN TREADWELL ROLLO

Date 12/21/15	Project No. 770619902	Figure A-9



1 CLAY with SAND (CL)
dark brown, moist, fine-grianed sand, trace rootlets, trace fine angular gravel *[COLLUVIUM]*

2 SERPENTINITE
olive with yellow-brown, moist, low to moderately hard, friable to weak, moderately to deeply weathered fragments in a clayey sand matrix

3 SANDSTONE (GREYWACKE)
gray-brown to olive-gray, low to moderately hard, weak to moderately strong, little to moderately weathered, trace visible mafic grains (biolite and pyroxene)

0 2 Feet
Approximate scale

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LANGAN TREADWELL ROLLO

LOG OF TEST PIT
TP-5A

Date 12/21/15 | Project No. 770619902 | Figure A-10

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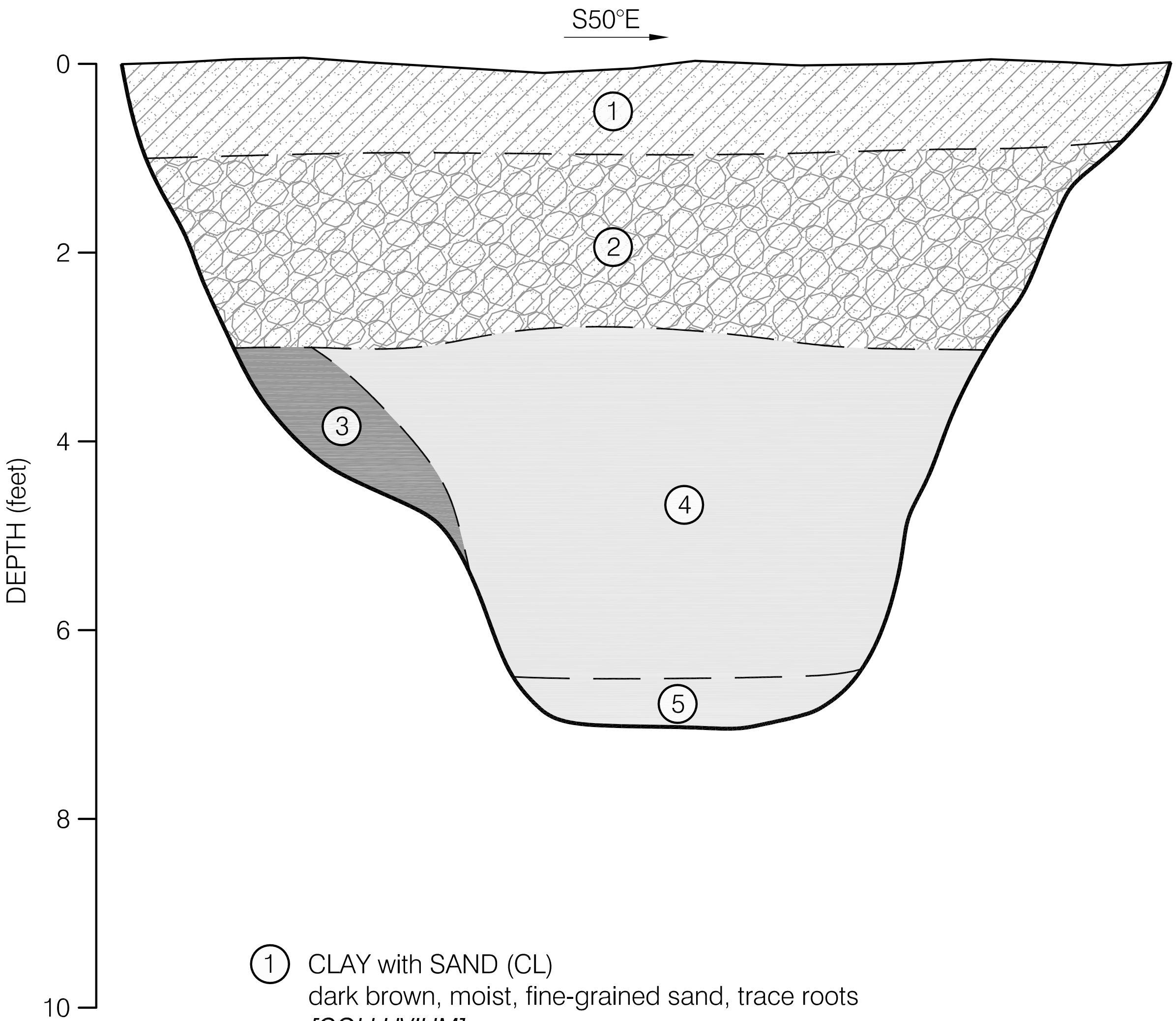

1. CLAY with SAND (CL)
dark brown, moist, fine-grained sand, trace roots
[COLLUVIUM]

2. CLAY with SAND and GRAVEL (CL)
dark brown to olive-brown, moist, fine-grained sand, fine- to coarse, subangular serpentinite gravel *[COLLUVIUM]*

3. SANDSTONE
olive, low to moderately hard, friable to weak, moderately weathered

4. SERPENTINITE
olive-brown, soft to low hardness, plastic to friable, deeply weathered, white weathering surfaces, waxy and some polished surfaces

5. SERPENTINITE
dark olive-gray, soft to low hardness, plastic to friable, moderately weathered (ultramafic origins)

0 2 Feet
Approximate scale

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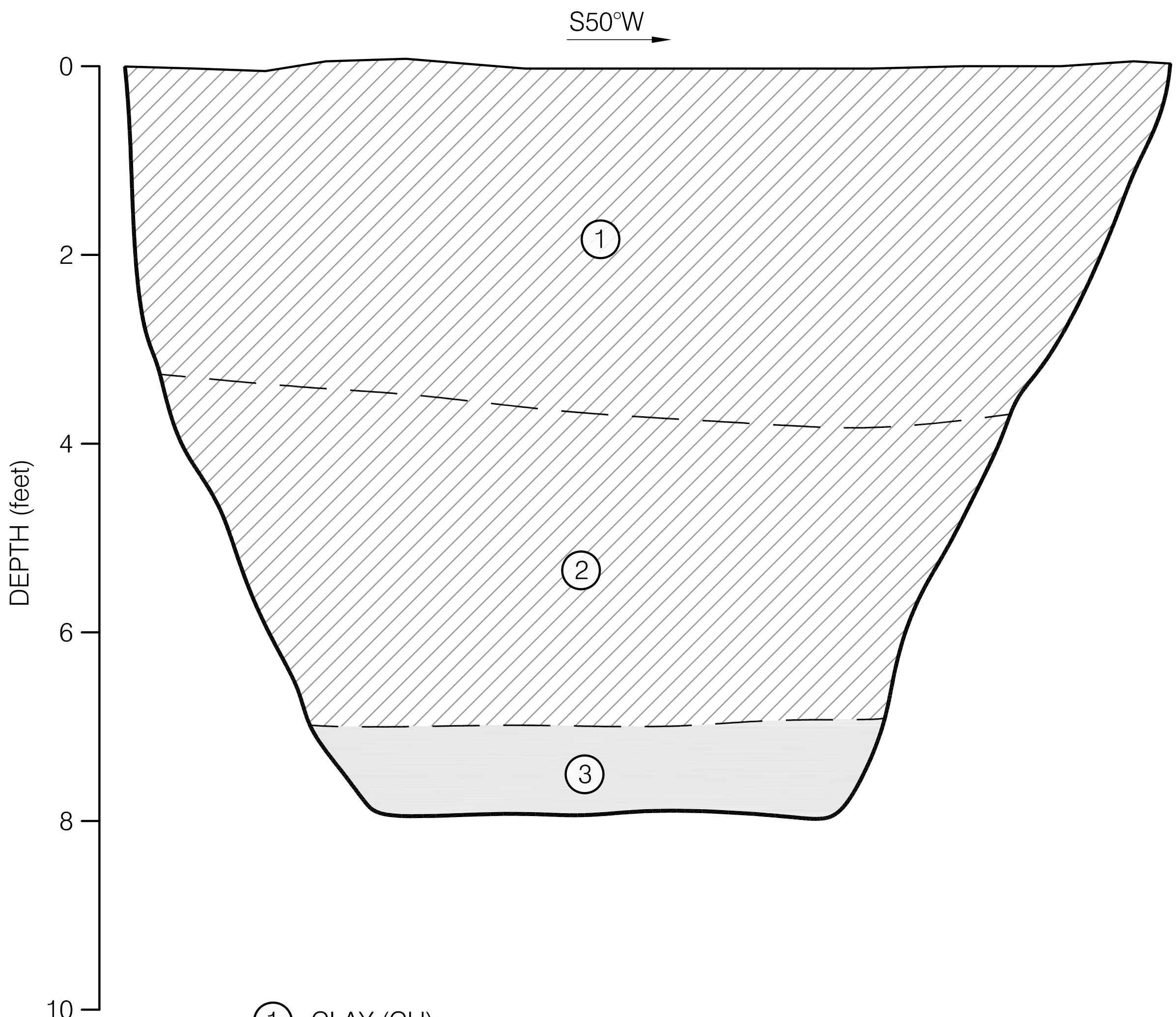
4200 DOVE HILL ROAD
San Jose, California

LANGAN TREADWELL ROLLO

LOG OF TEST PIT
TP-5B

Date 12/21/15	Project No. 770619902	Figure A-11



1 CLAY (CH)
dark brown, moist, signs of cracking possibly from shrink/swelling *[COLLLUVIUM]*

2 CLAY (CH)
brown to dark brown, moist, clay films/polished surfaces, no cracking *[COLLUVIUM]*

3 SERPENTINITE
olive with yellow and yellow-brown mottling and white and orange oxidation surfaces, low to moderately hard, friable to weak, little to moderately weathered, waxy surfaces, trace white/light pink planar silica carbonate deposits 1-3 mm thick

0 2 Feet
Approximate scale

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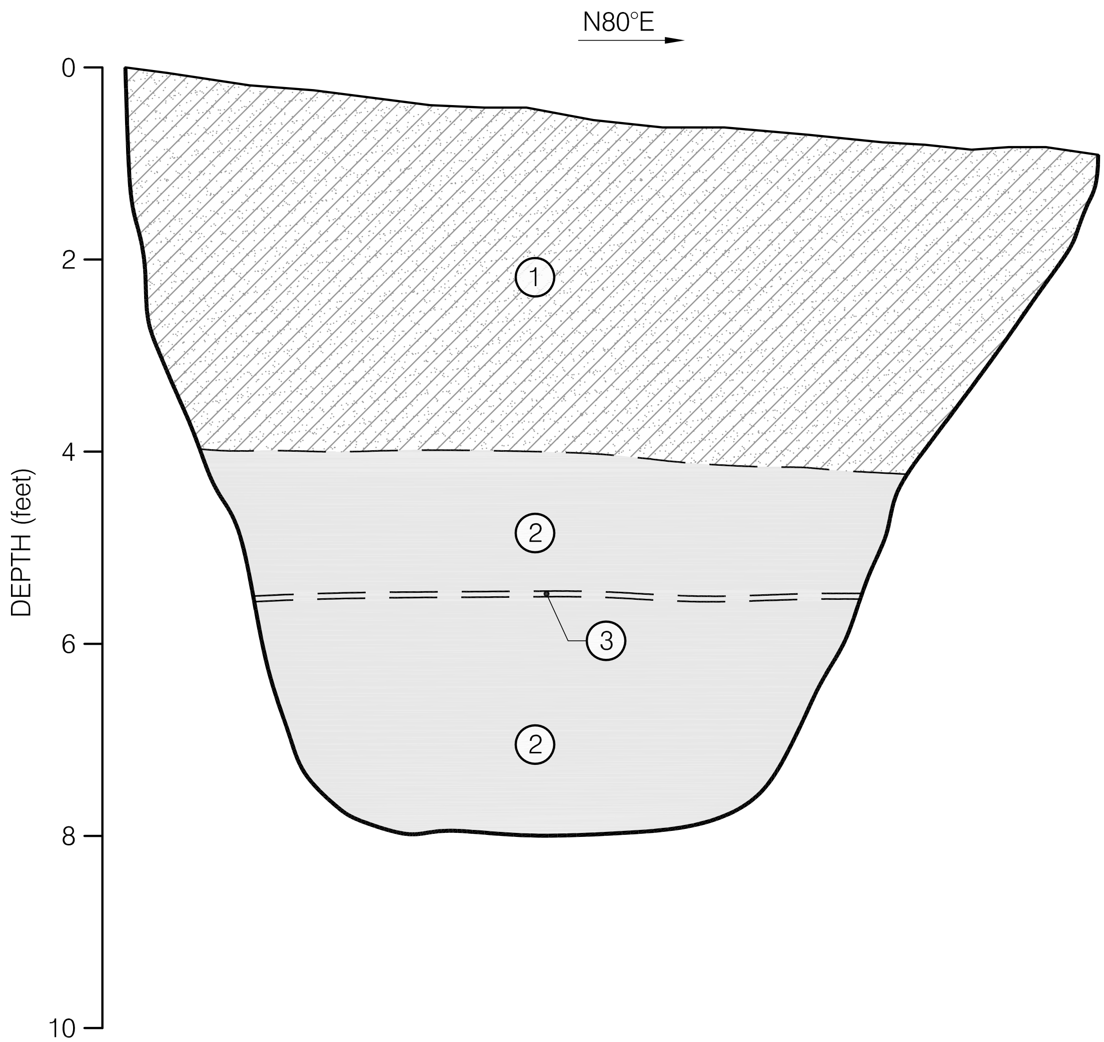
San Jose, California

LANGAN TREADWELL ROLLO

LOG OF TEST PIT
TP-6

Date 12/21/15	Project No. 770619902	Figure A-12



1 SANDY CLAY (CL)
brown, moist, fine- to medium-grained sand, trace fine subangular gravel, trace rootlets *[COLLUVIUM]*

2 SERPENTINITE
olive to yellow-brown, low hardness to soft, weak to plastic, deeply weathered, waxy surfaces

3 SERPENTINITE
1/2 inch thick layer of light brown to light pink silica carbonate deposit, horizontal to ground surface

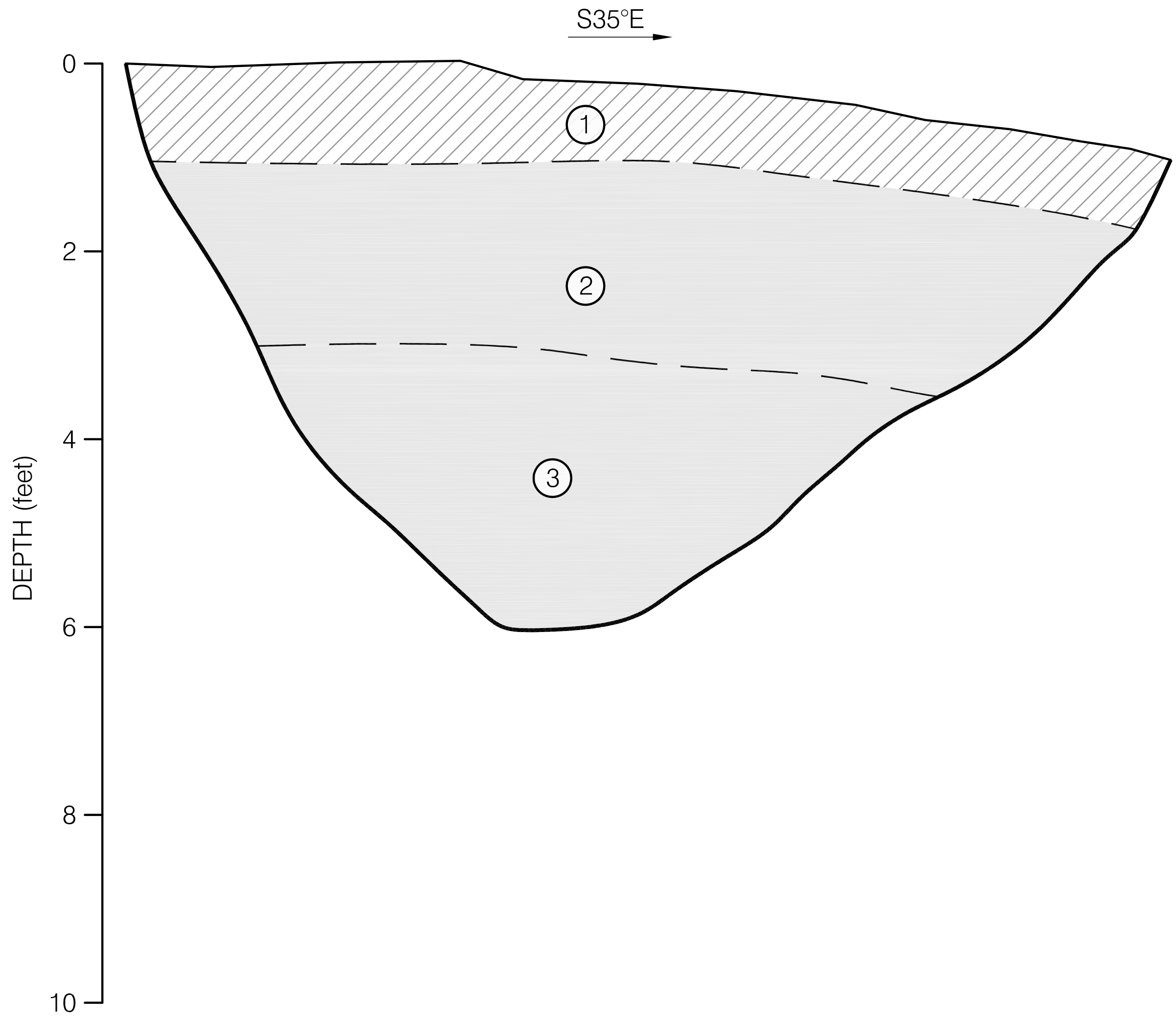
0 2 Feet
Approximate scale

DOVE HILL ASSISTED LIVING COMMUNITY
4200 DOVE HILL ROAD
San Jose, California

LANGAN TREADWELL ROLLO

LOG OF TEST PIT
TP-7

Date 12/21/15 | Project No. 770619902 | Figure A-13



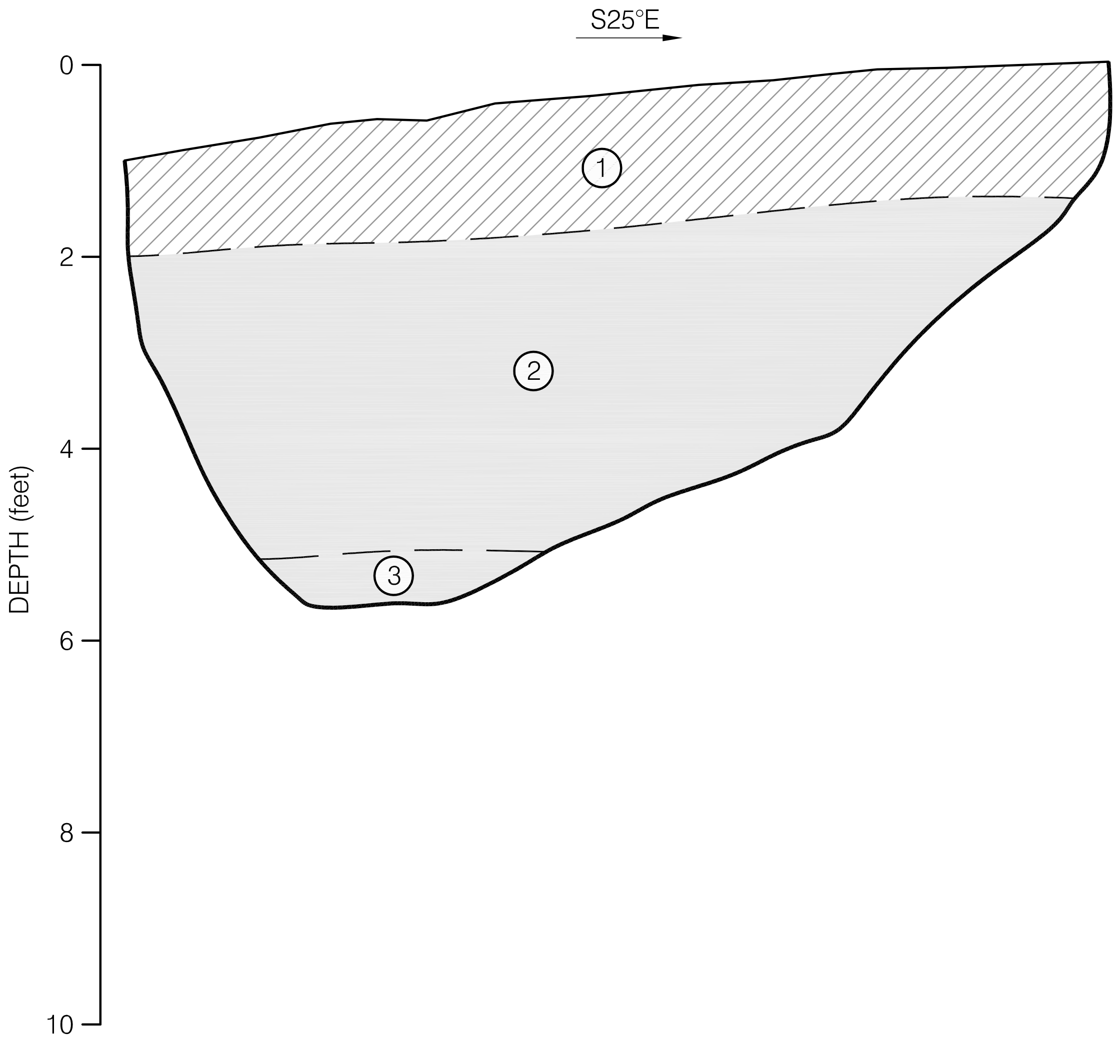
1 CLAY (CL)
dark brown, moist, trace fine-grained sand and gravel, trace roots *[COLLUVIUM]*

2 SERPENTINIZED DUNITE/HARZBURGITE
brown with red-brown and yellow oxidation staining, moderately hard to moderately strong, little to moderately weathered, sheared with faint polished surfaces

3 SERPENTINITE
olive-brown, moderately hard, moderately strong, moderately weathered, waxy and polished surfaces

0 2 Feet
Approximate scale

DOVE HILL ASSISTED LIVING COMMUNITY **4200 DOVE HILL ROAD** San Jose, California	**LOG OF TEST PIT** **TP-8**
LANGAN TREADWELL ROLLO	Date 12/21/15 | Project No. 770619902 | Figure A-14



1 CLAY (CL)
dark brown, moist, trace fine-grained sand and medium- to coarse gravel consisting of serpentinite, trace roots *[FILL]*

2 CLAY (CL)
dark brown, moist, trace roots, some shrink/swell cracking, trace fine gravel and coarse sand *[COLLUVIUM]*

3 SERPENTINIZED DUNITE/HARZBURGITE
brown with red-brown and yellow oxidation staining, moderately hard to hard, moderately strong to strong, little to moderately weathered, chaotic shearing with faint polished surfaces, ultramafic origins

0 2 Feet
Approximate scale

DOVE HILL ASSISTED LIVING COMMUNITY
4200 DOVE HILL ROAD
San Jose, California

LANGAN TREADWELL ROLLO

LOG OF TEST PIT
TP-9

Date 12/21/15 | Project No. 770619902 | Figure A-15

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions		Symbols	Typical Names
Coarse-Grained Soils (more than half of soil > no. 200 sieve size)	Gravels (More than half of coarse fraction > no. 4 sieve size)	GW	Well-graded gravels or gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	Sands (More than half of coarse fraction < no. 4 sieve size)	SW	Well-graded sands or gravelly sands, little or no fines
		SP	Poorly-graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
Fine -Grained Soils (more than half of soil < no. 200 sieve size)	Silts and Clays LL = < 50	ML	Inorganic silts and clayey silts of low plasticity, sandy silts, gravelly silts
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays
		OL	Organic silts and organic silt-clays of low plasticity
	Silts and Clays LL = > 50	MH	Inorganic silts of high plasticity
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic silts and clays of high plasticity
Highly Organic Soils		PT	Peat and other highly organic soils

GRAIN SIZE CHART

Classification	Range of Grain Sizes: U.S. Standard Sieve Size	Range of Grain Sizes: Grain Size in Millimeters
Boulders	Above 12"	Above 305
Cobbles	12" to 3"	305 to 76.2
Gravel	3" to No. 4	76.2 to 4.76
coarse	3" to 3/4"	76.2 to 19.1
fine	3/4" to No. 4	19.1 to 4.76
Sand	No. 4 to No. 200	4.76 to 0.075
coarse	No. 4 to No. 10	4.76 to 2.00
medium	No. 10 to No. 40	2.00 to 0.420
fine	No. 40 to No. 200	0.420 to 0.075
Silt and Clay	Below No. 200	Below 0.075

Unstabilized groundwater level

Stabilized groundwater level

SAMPLE DESIGNATIONS/SYMBOLS

Sample taken with Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter. Darkened area indicates soil recovered

Classification sample taken with Standard Penetration Test sampler

Undisturbed sample taken with thin-walled tube

Disturbed sample

Sampling attempted with no recovery

Core sample

Analytical laboratory sample, grab groundwater

Sample taken with Direct Push sampler

Sonic

SAMPLER TYPE

C	Core barrel
CA	California split-barrel sampler with 2.5-inch outside diameter and a 1.93-inch inside diameter
D&M	Dames & Moore piston sampler using 2.5-inch outside diameter, thin-walled tube
O	Osterberg piston sampler using 3.0-inch outside diameter, thin-walled Shelby tube
PT	Pitcher tube sampler using 3.0-inch outside diameter, thin-walled Shelby tube
S&H	Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter
SPT	Standard Penetration Test (SPT) split-barrel sampler with a 2.0-inch outside diameter and a 1.5-inch inside diameter
ST	Shelby Tube (3.0-inch outside diameter, thin-walled tube) advanced with hydraulic pressure

DOVE HILL ASSISTED LIVING COMMUNITY
4200 DOVE HILL ROAD
San Jose, California

LANGAN TREADWELL ROLLO

CLASSIFICATION CHART

Date 02/03/16 | Project No. 770619902 | Figure A-16

I FRACTURING

Intensity	Size of Pieces in Feet
Very little fractured	Greater than 4.0
Occasionally fractured	1.0 to 4.0
Moderately fractured	0.5 to 1.0
Closely fractured	0.1 to 0.5
Intensely fractured	0.05 to 0.1
Crushed	Less than 0.05

II HARDNESS

1. **Soft** - reserved for plastic material alone.
2. **Low hardness** - can be gouged deeply or carved easily with a knife blade.
3. **Moderately hard** - can be readily scratched by a knife blade; scratch leaves a heavy trace of dust and is readily visible after the powder has been blown away.
4. **Hard** - can be scratched with difficulty; scratch produced a little powder and is often faintly visible.
5. **Very hard** - cannot be scratched with knife blade; leaves a metallic streak.

III STRENGTH

1. **Plastic** or very low strength.
2. **Friable** - crumbles easily by rubbing with fingers.
3. **Weak** - an unfractured specimen of such material will crumble under light hammer blows.
4. **Moderately strong** - specimen will withstand a few heavy hammer blows before breaking.
5. **Strong** - specimen will withstand a few heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.
6. **Very strong** - specimen will resist heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.

IV WEATHERING - The physical and chemical disintegration and decomposition of rocks and minerals by natural processes such as oxidation, reduction, hydration, solution, carbonation, and freezing and thawing.

D. Deep - moderate to complete mineral decomposition; extensive disintegration; deep and thorough discoloration; many fractures, all extensively coated or filled with oxides, carbonates and/or clay or silt.
M. Moderate - slight change or partial decomposition of minerals; little disintegration; cementation little to unaffected. Moderate to occasionally intense discoloration. Moderately coated fractures.
L. Little - no megascopic decomposition of minerals; little of no effect on normal cementation. Slight and intermittent, or localized discoloration. Few stains on fracture surfaces.
F. Fresh - unaffected by weathering agents. No disintegration of discoloration. Fractures usually less numerous than joints.

ADDITIONAL COMMENTS:

V CONSOLIDATION OF SEDIMENTARY ROCKS: usually determined from unweathered samples. Largely dependent on cementation.

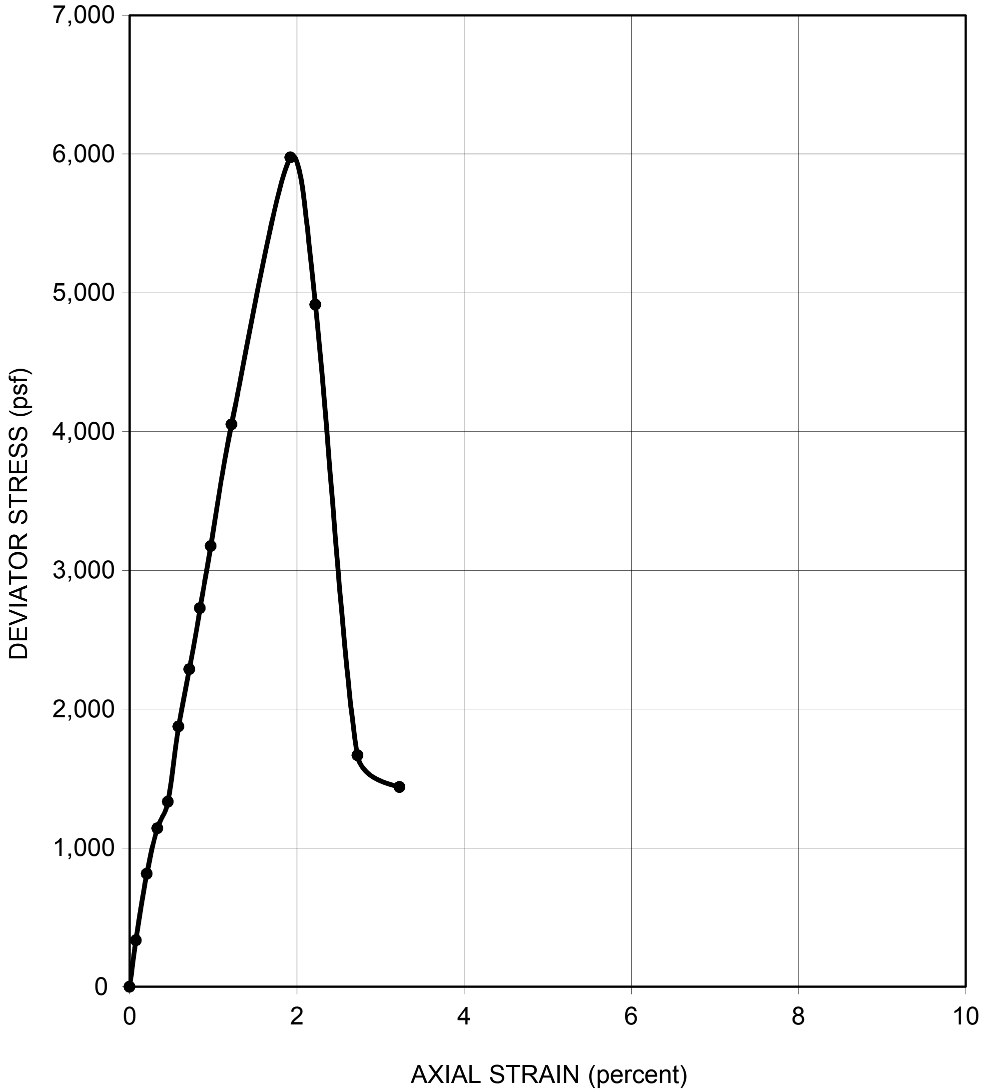
U = unconsolidated
P = poorly consolidated
M = moderately consolidated
W = well consolidated

VI BEDDING OF SEDIMENTARY ROCKS

Splitting Property	Thickness	Stratification
Massive	Greater than 4.0 ft.	very thick-bedded
Blocky	2.0 to 4.0 ft.	thick bedded
Slabby	0.2 to 2.0 ft.	thin bedded
Flaggy	0.05 to 0.2 ft.	very thin-bedded
Shaly or platy	0.01 to 0.05 ft.	laminated
Papery	less than 0.01	thinly laminated

APPENDIX B

LABORATORY DATA



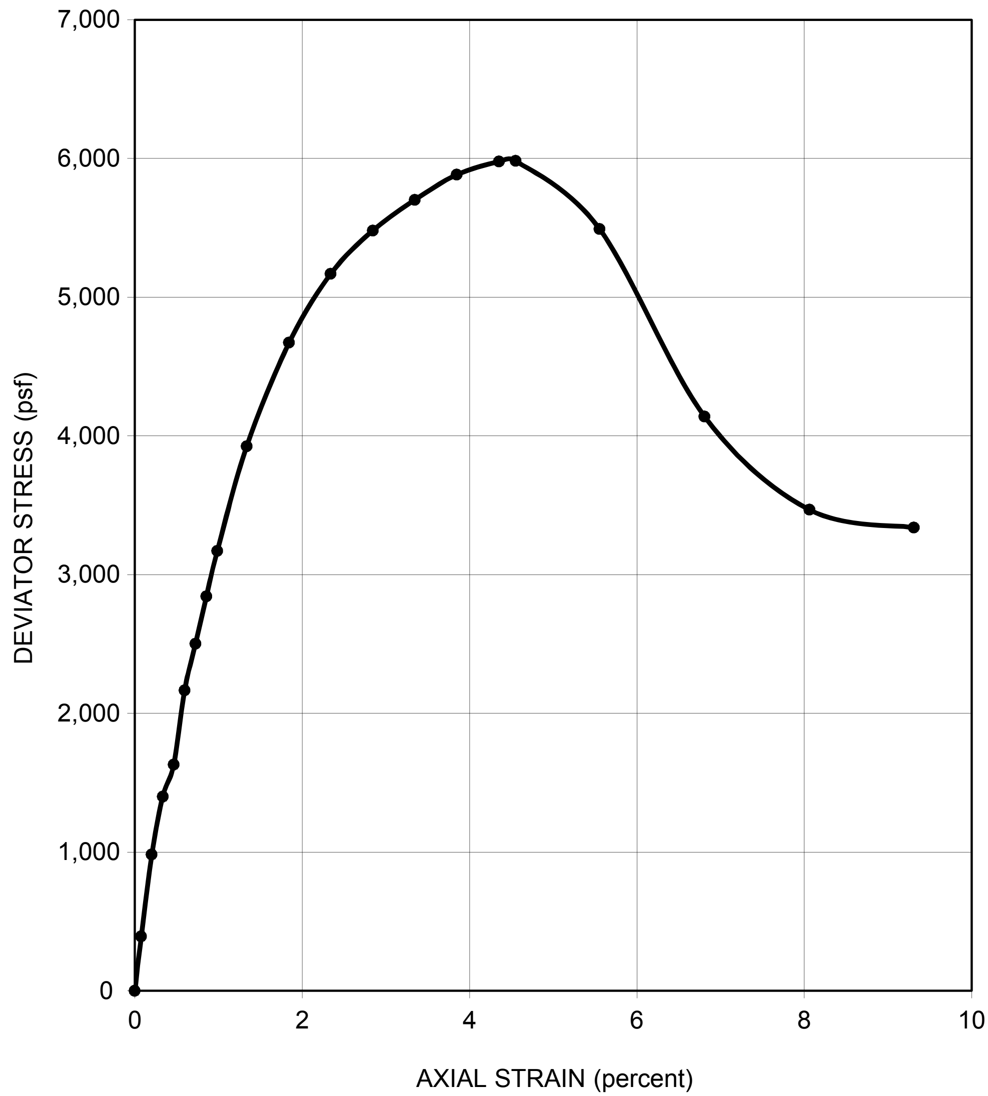
SAMPLER TYPE	Sprague & Henwood		SHEAR STRENGTH	2,990	psf
DIAMETER (in.) 2.40	HEIGHT (in.) 5.78		STRAIN AT FAILURE	1.9	%
MOISTURE CONTENT	13.7	%	CONFINING PRESSURE	700	psf
DRY DENSITY	118	pcf	STRAIN RATE	0.50	% / min
DESCRIPTION	SERPENTINITE, GREENSTONE, GRAYWACKE, olive with gray-brown and gray mottling		SOURCE	B-9 at 6 feet	

DOVE HILL ASSISTED LIVING COMMUNITY
4200 DOVE HILL ROAD
San Jose, California

UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST

LANGAN TREADWELL ROLLO

Date 02/04/16 | Project No. 770619902 | Figure B-1



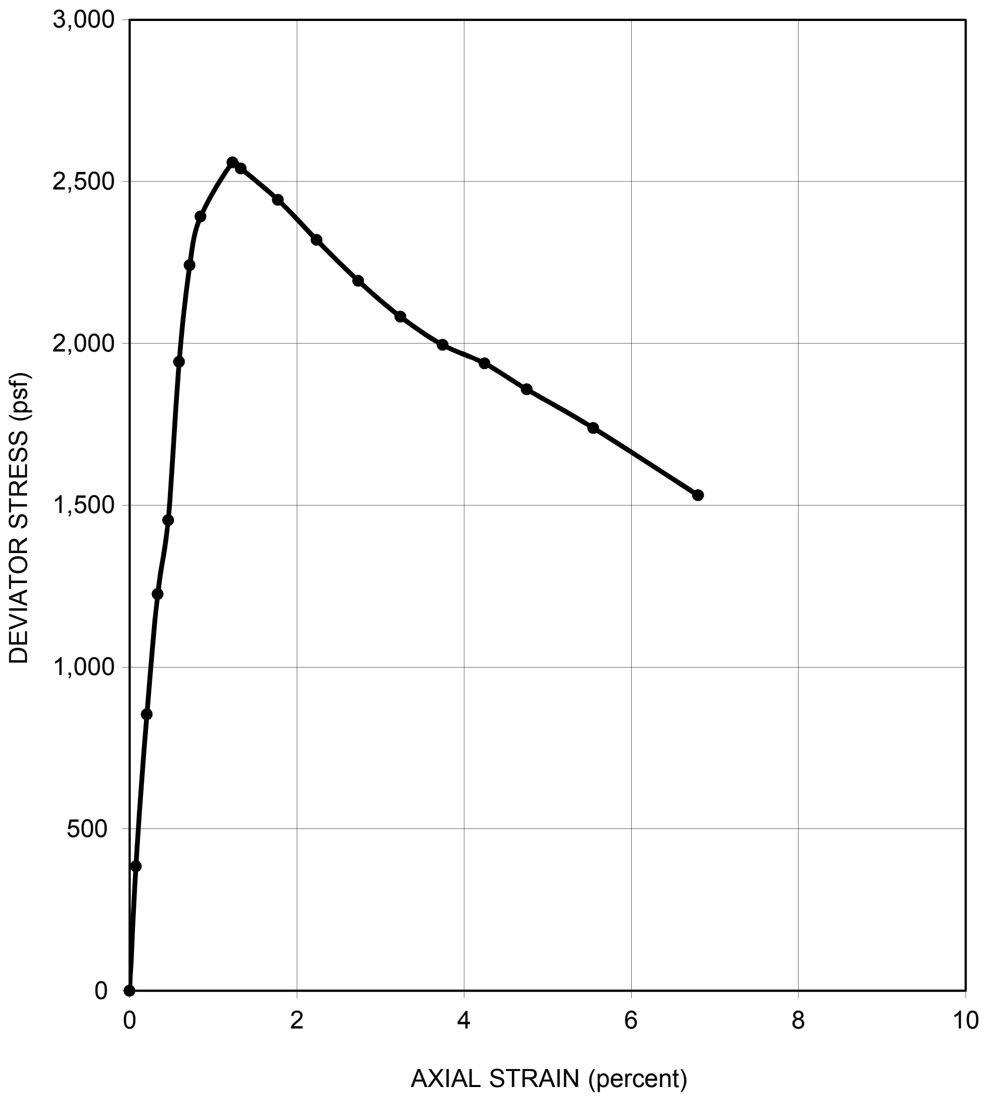
SAMPLER TYPE	Sprague & Henwood		SHEAR STRENGTH	2,990	psf
DIAMETER (in.) 2.40	HEIGHT (in.) 6.00		STRAIN AT FAILURE	4.5	%
MOISTURE CONTENT	12.3	%	CONFINING PRESSURE	2,400	psf
DRY DENSITY	119	pcf	STRAIN RATE	0.50	% / min
DESCRIPTION	SERPENTINITE, GREENSTONE, GRAYWACKE, dark olive-gray to dark gray		SOURCE	B-9 at 21 feet	

DOVE HILL ASSISTED LIVING COMMUNITY
4200 DOVE HILL ROAD
San Jose, California

UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST

LANGAN TREADWELL ROLLO

Date 02/04/16 | Project No. 770619902 | Figure B-2



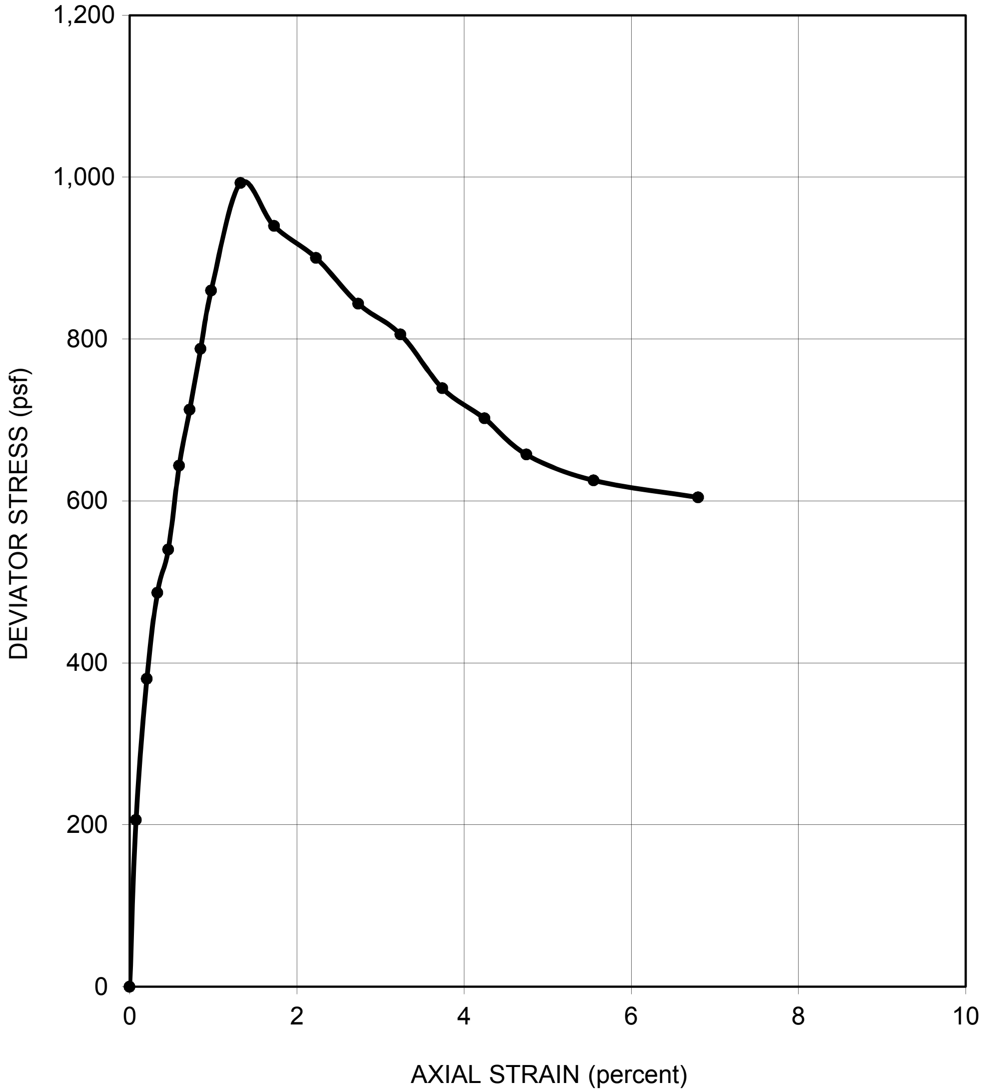
SAMPLER TYPE	Sprague & Henwood			SHEAR STRENGTH	1,280	psf
DIAMETER (in.)	2.39	HEIGHT (in.) 4.91		STRAIN AT FAILURE	1.2	%
MOISTURE CONTENT		19.0	%	CONFINING PRESSURE	400	psf
DRY DENSITY		86	pcf	STRAIN RATE	0.50	% / min
DESCRIPTION	CLAY with SAND (CL), dark gray-brown				SOURCE	B-11 at 3 feet

DOVE HILL ASSISTED LIVING COMMUNITY
4200 DOVE HILL ROAD
San Jose, California

LANGAN TREADWELL ROLLO

UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST

Date 02/04/16 | Project No. 770619902 | Figure B-3



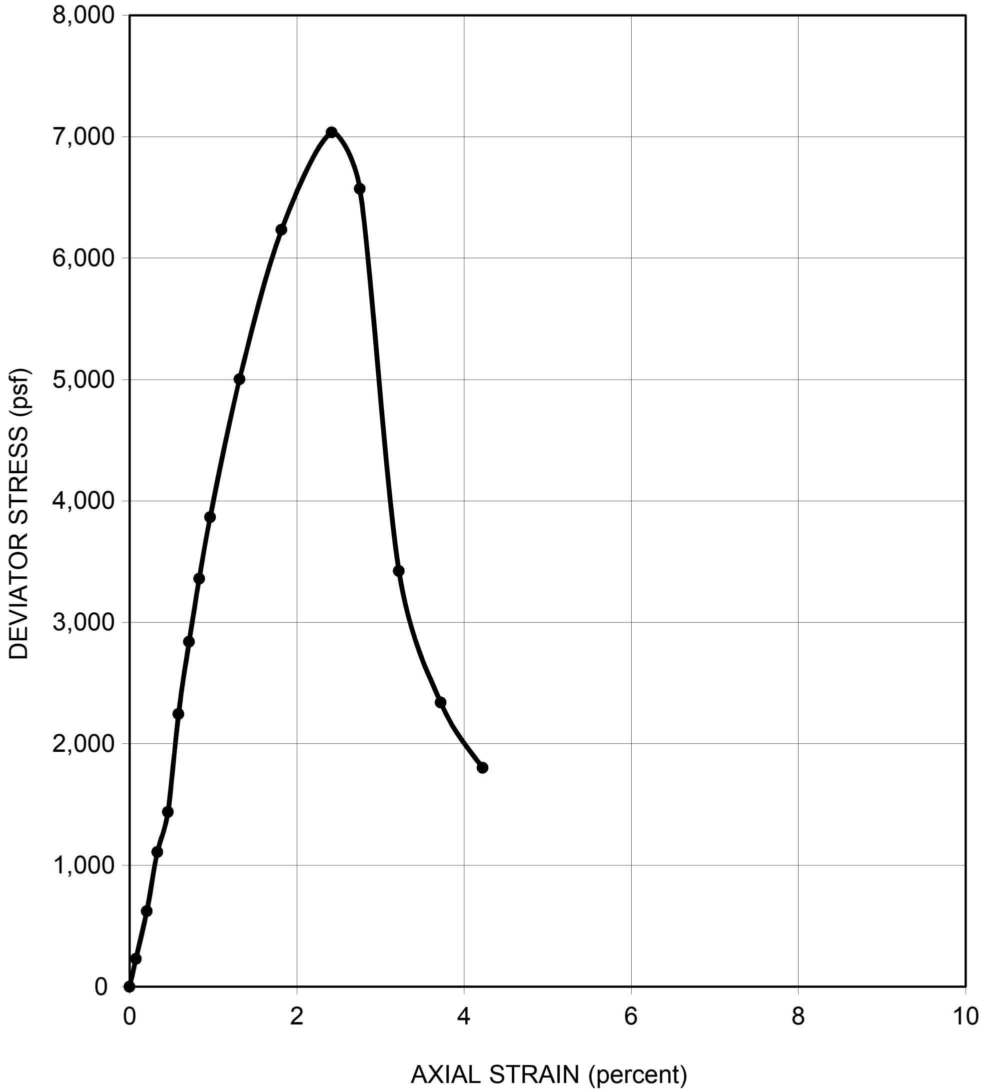
SAMPLER TYPE	Sprague & Henwood			SHEAR STRENGTH	500	psf
DIAMETER (in.)	2.40	HEIGHT (in.)	5.71	STRAIN AT FAILURE	1.3	%
MOISTURE CONTENT		20.9	%	CONFINING PRESSURE	700	psf
DRY DENSITY		76	pcf	STRAIN RATE	0.50	% / min
DESCRIPTION	CLAY with SAND (CL), dark gray-brown				SOURCE	B-11 at 6 feet

DOVE HILL ASSISTED LIVING COMMUNITY
4200 DOVE HILL ROAD
San Jose, California

UNCONSOLIDATED-UNDRAINED
TRIAXIAL COMPRESSION TEST

LANGAN TREADWELL ROLLO

Date 02/04/16 | Project No. 770619902 | Figure B-4



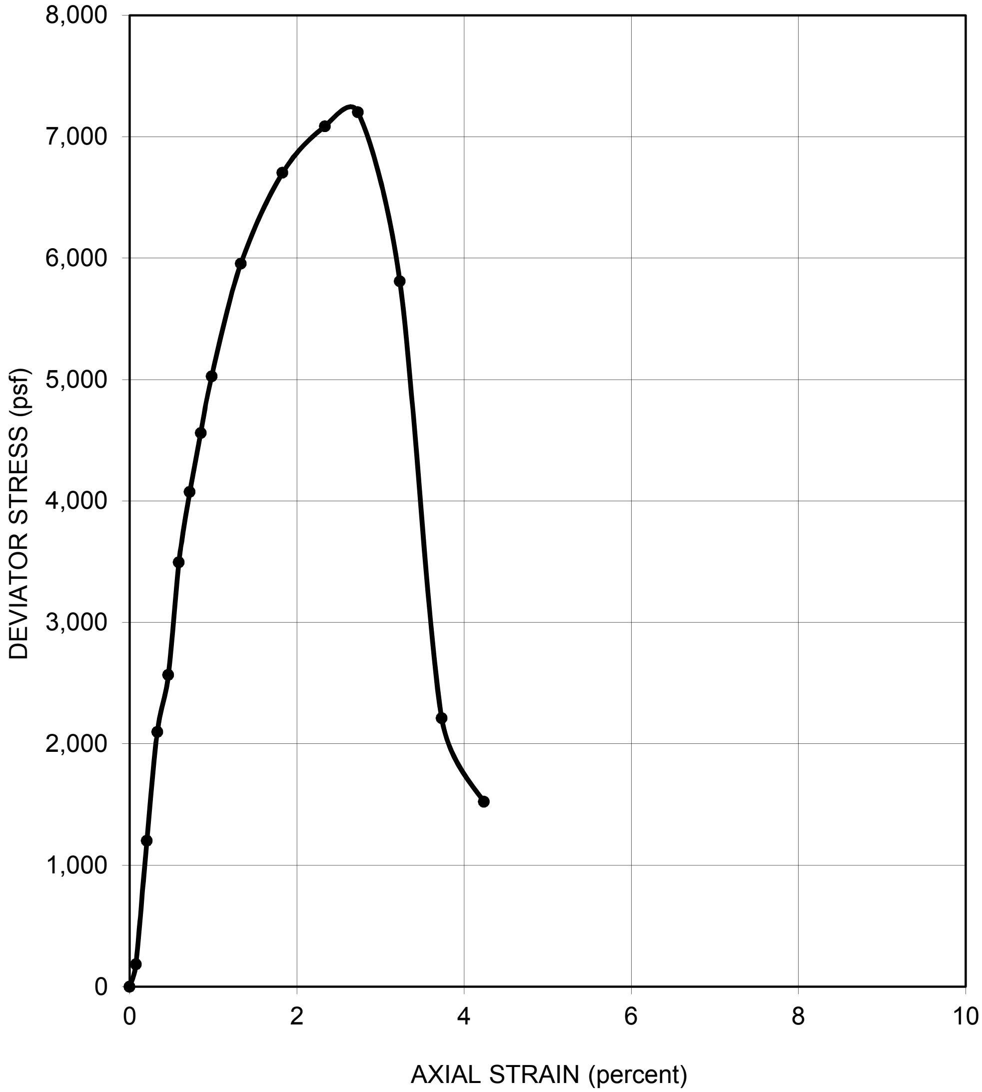
SAMPLER TYPE	Sprague & Henwood		SHEAR STRENGTH	3,520	psf
DIAMETER (in.) 2.39	HEIGHT (in.) 4.83		STRAIN AT FAILURE	2.4	%
MOISTURE CONTENT	24.1	%	CONFINING PRESSURE	1,000	psf
DRY DENSITY	92	pcf	STRAIN RATE	0.50	% / min
DESCRIPTION	CLAY (CH), dark gray-brown			SOURCE	B-11 at 8.5 feet

DOVE HILL ASSISTED LIVING COMMUNITY
4200 DOVE HILL ROAD
San Jose, California

UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST

LANGAN TREADWELL ROLLO

Date 02/04/16 | Project No. 770619902 | Figure B-5



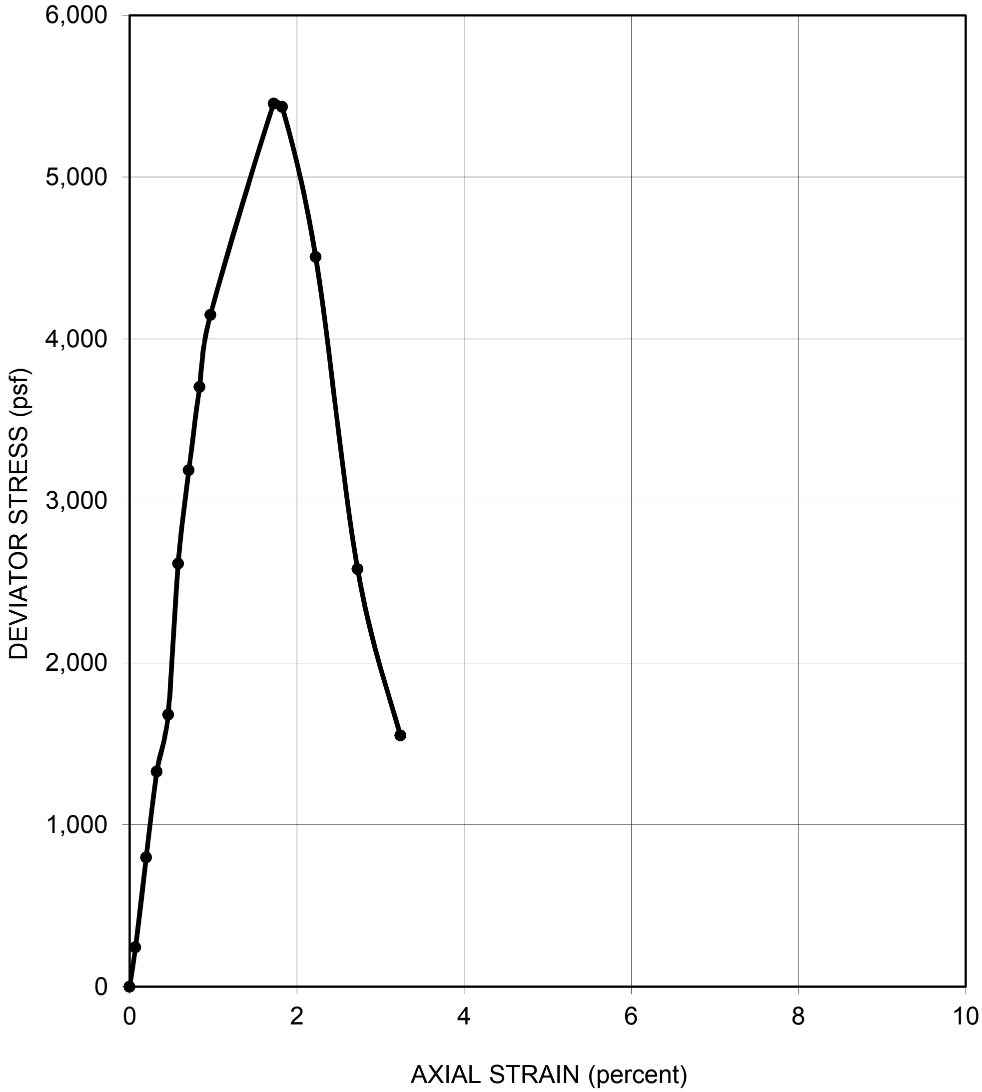
SAMPLER TYPE	Sprague & Henwood		SHEAR STRENGTH	3,600	psf
DIAMETER (in.) 2.40	HEIGHT (in.) 6.00		STRAIN AT FAILURE	2.7	%
MOISTURE CONTENT	25.5	%	CONFINING PRESSURE	1,300	psf
DRY DENSITY	97	pcf	STRAIN RATE	0.50	% / min
DESCRIPTION CLAY (CH), dark gray-brown				SOURCE	B-11 at 11 feet

DOVE HILL ASSISTED LIVING COMMUNITY
4200 DOVE HILL ROAD
San Jose, California

UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST

LANGAN TREADWELL ROLLO

Date 02/04/16 | Project No. 770619902 | Figure B-6



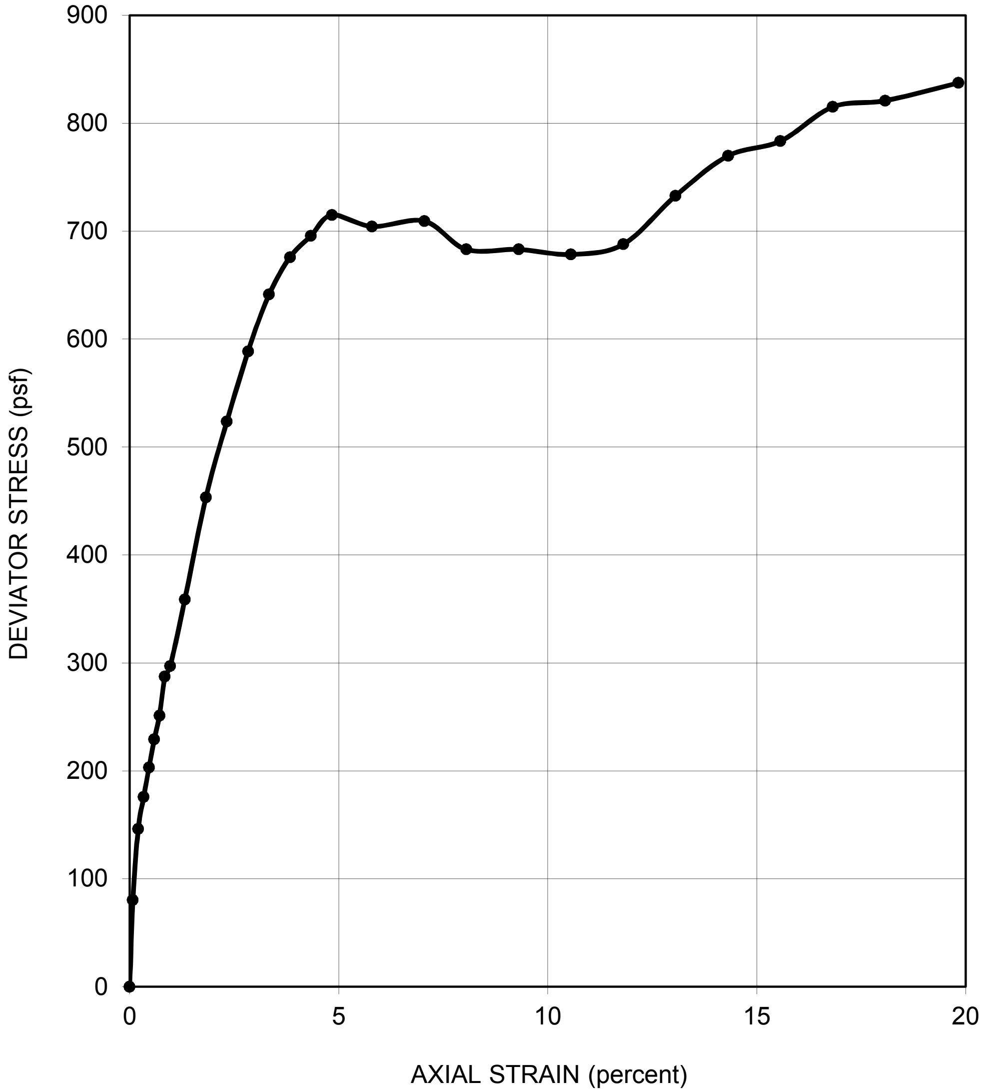
SAMPLER TYPE	Sprague & Henwood			SHEAR STRENGTH	2,730	psf
DIAMETER (in.) 2.40	HEIGHT (in.) 6			STRAIN AT FAILURE	1.7	%
MOISTURE CONTENT		24.2	%	CONFINING PRESSURE	2,000	psf
DRY DENSITY		100	pcf	STRAIN RATE	0.75	% / min
DESCRIPTION CLAY (CL), brown					SOURCE	B-11 at 16 feet

DOVE HILL ASSISTED LIVING COMMUNITY
4200 DOVE HILL ROAD
San Jose, California

UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST

LANGAN TREADWELL ROLLO

Date 02/04/16 | Project No. 770619902 | Figure B-7



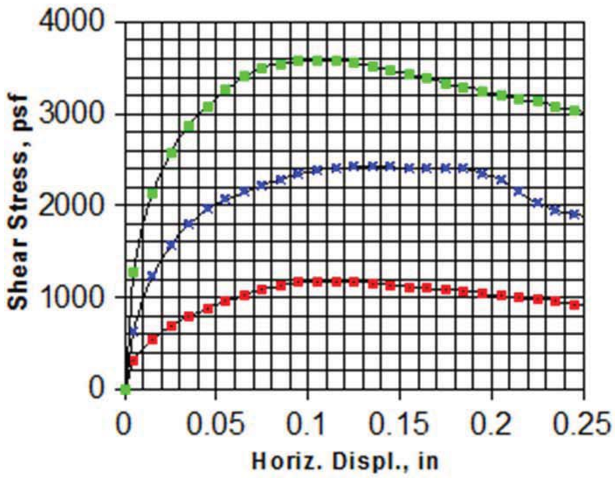
SAMPLER TYPE	Sprague & Henwood			SHEAR STRENGTH	420	psf
DIAMETER (in.)	2.42	HEIGHT (in.)	4.34	STRAIN AT FAILURE	19.8	%
MOISTURE CONTENT		12.4	%	CONFINING PRESSURE	300	psf
DRY DENSITY		97	pcf	STRAIN RATE	0.50	% / min
DESCRIPTION	SERPENTINITE, GREENSTONE, GRAYWACKE, olive to olive-green with yellow			SOURCE	B-12 at 2.5 feet	

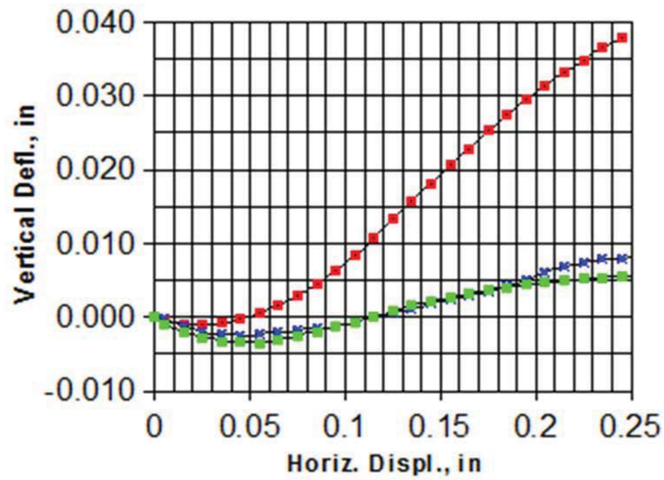
DOVE HILL ASSISTED LIVING COMMUNITY
4200 DOVE HILL ROAD
San Jose, California

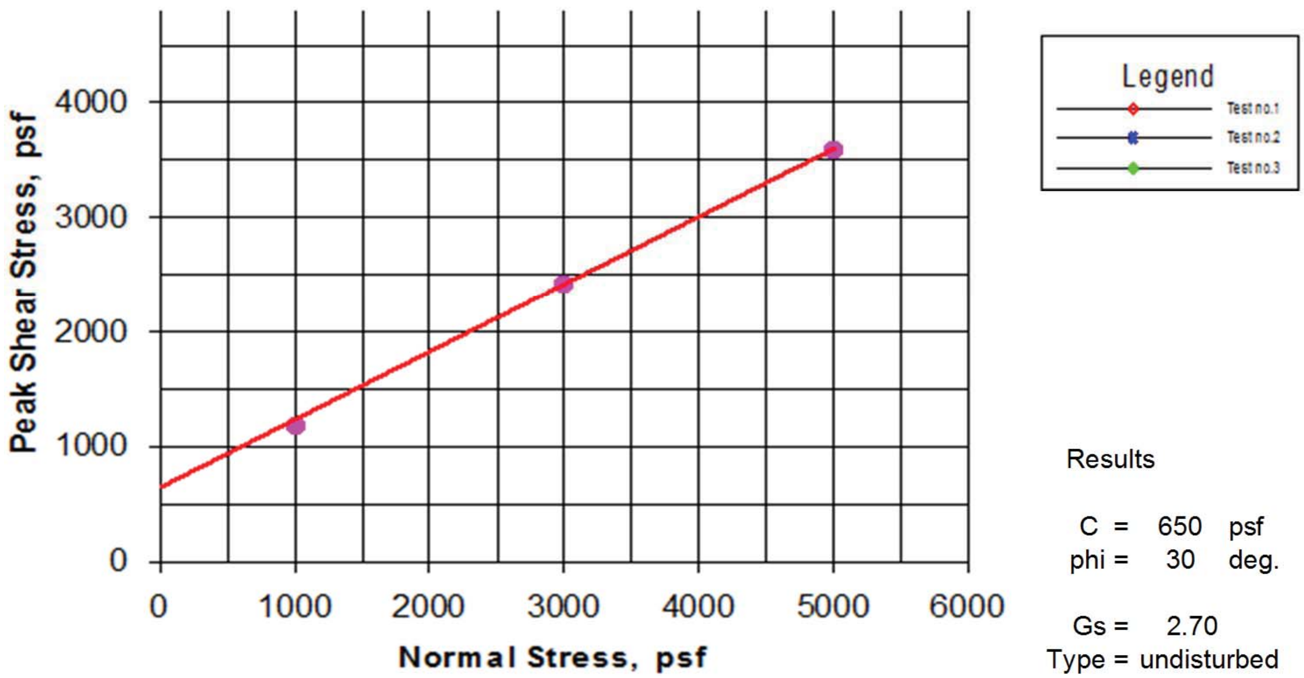
UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST

LANGAN TREADWELL ROLLO

Date 02/04/16 | Project No. 770619902 | Figure B-8







Results

C = 650 psf
phi = 30 deg.

Gs = 2.70
Type = undisturbed

Test no.	SigN psf	Peak Shear str., psf	Displ. in.	Strain Rate in./hr	Initial MC %	Initial DD pcf	Initial Sat. %	Initial Void Ratio	Initial Ht. in.	Initial Dia. in.	Final MC %	Final DD pcf	Final Sat. %	Final Void Ratio	Final Ht. in.
1	1000	1176	0.105	0.09	11.2	108.0	54	0.561	1.00	2.416	19.3	105.1	86	0.604	1.027
2	3000	2424	0.125	0.09	12.4	108.4	60	0.555	1.00	2.416	19.3	111.6	102	0.510	0.971
3	5000	3588	0.100	0.09	10.0	113.4	56	0.487	1.00	2.416	16.0	117.7	100	0.432	0.964

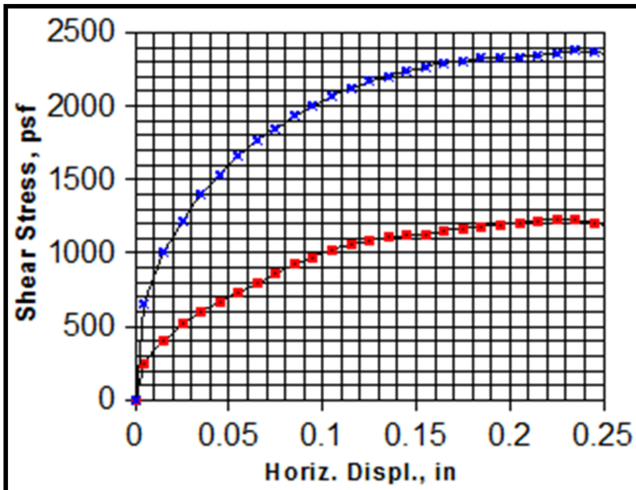
DESCRIPTION SILTY SAND with GRAVEL (SM), light brown | SOURCE B-10 at 3.5 feet

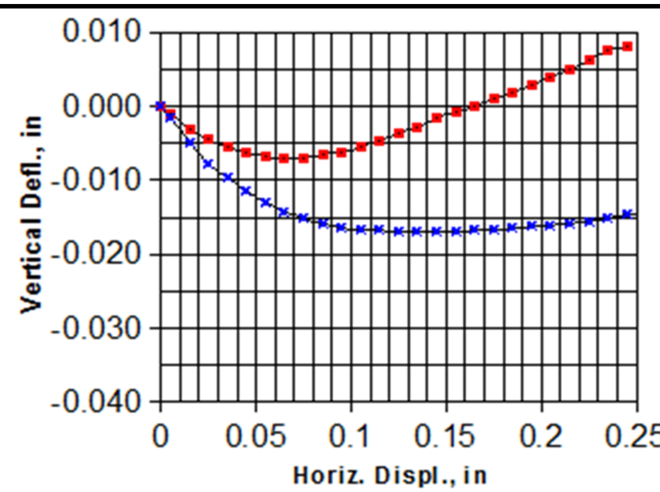
DOVE HILL ASSISTED LIVING COMMUNITY
4200 DOVE HILL ROAD
San Jose, California

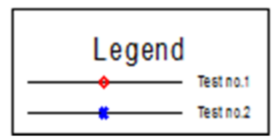
DIRECT SHEAR TEST

LANGAN TREADWELL ROLLO

Date 02/04/16 | Project No. 770619902 | Figure B-9







Results

C = 650 psf
phi = 30 deg.

Gs = 2.70
Type = undisturbed

Test no.	SigN psf	Peak Shear str., psf	Displ. in.	Strain Rate in./hr	Initial MC %	Initial DD pcf	Initial Sat. %	Initial Void Ratio	Initial Ht. in.	Initial Dia. in.	Final MC %	Final DD pcf	Final Sat. %	Final Void Ratio	Final Ht. in.
1	1000	1224	0.220	0.09	14.0	98.2	53	0.716	1.00	2.416	19.1	100.4	76	0.680	0.979
2	3000	2376	0.235	0.09	13.5	95.0	47	0.774	1.00	2.416	19.1	103.9	83	0.622	0.915

DESCRIPTION SILTY SAND with CLAY (SM), light brown

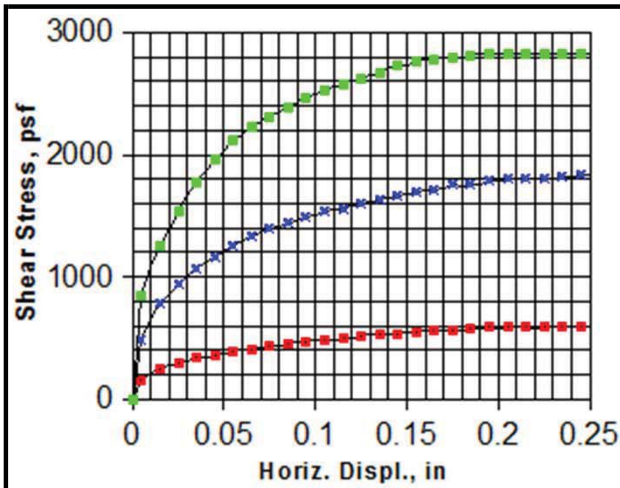
SOURCE B-10 at 8 feet

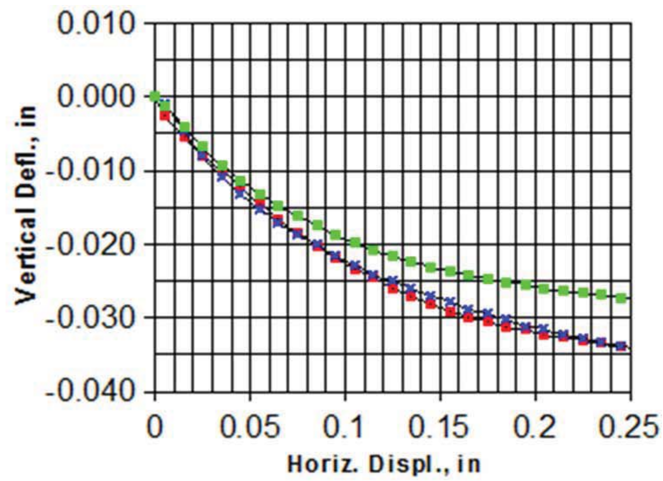
DOVE HILL ASSISTED LIVING COMMUNITY
4200 DOVE HILL ROAD
San Jose, California

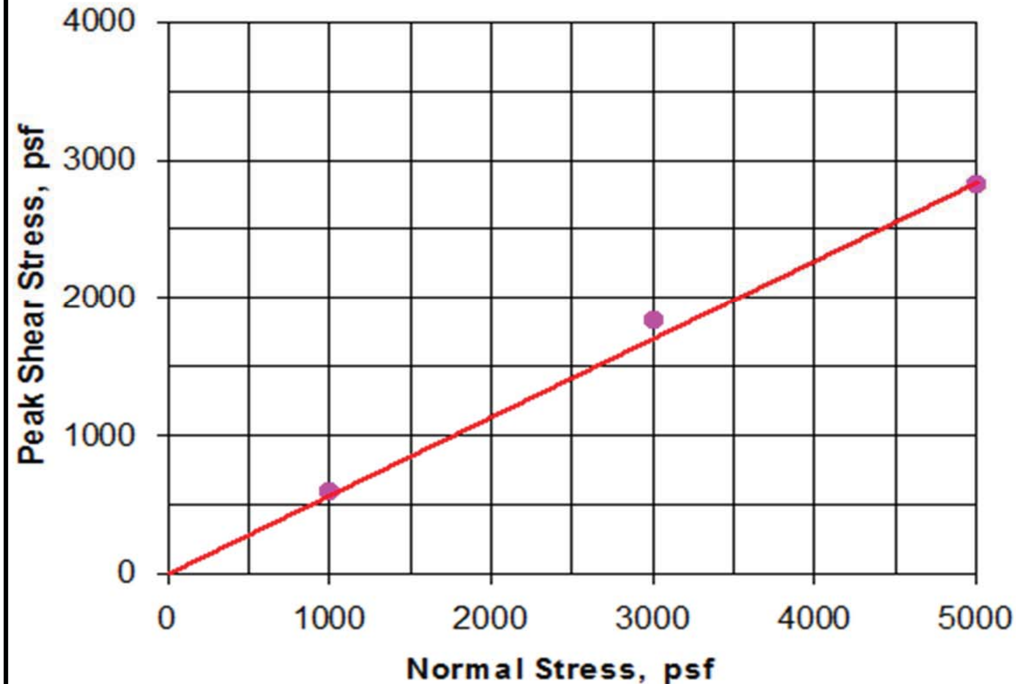
DIRECT SHEAR TEST

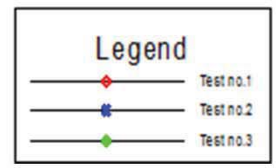
LANGAN TREADWELL ROLLO

Date 02/04/16 | Project No. 770619902 | Figure B-10









Results

C = 0 psf
phi = 30 deg.

Gs = 2.70
Type = undisturbed

Test no.	SigN psf	Peak Shear str., psf	Displ. in.	Strain Rate in./hr	Initial MC %	Initial DD pcf	Initial Sat. %	Initial Void Ratio	Initial Ht. in.	Initial Dia. in.	Final MC %	Final DD pcf	Final Sat. %	Final Void Ratio	Final Ht. in.
1	1000	600	0.245	0.09	22.8	59.8	34	1.817	1.00	2.416	43.4	70.3	84	1.397	0.851
2	3000	1836	0.245	0.09	22.7	61.5	35	1.740	1.00	2.416	38.3	79.9	93	1.108	0.770
3	5000	2832	0.215	0.09	23.0	62.5	37	1.698	1.00	2.416	35.9	84.1	97	1.004	0.743

DESCRIPTION SANDY SILTY (ML), brown

SOURCE B-13 at 3.5 feet

DOVE HILL ASSISTED LIVING COMMUNITY
4200 DOVE HILL ROAD
San Jose, California

DIRECT SHEAR TEST

LANGAN TREADWELL ROLLO

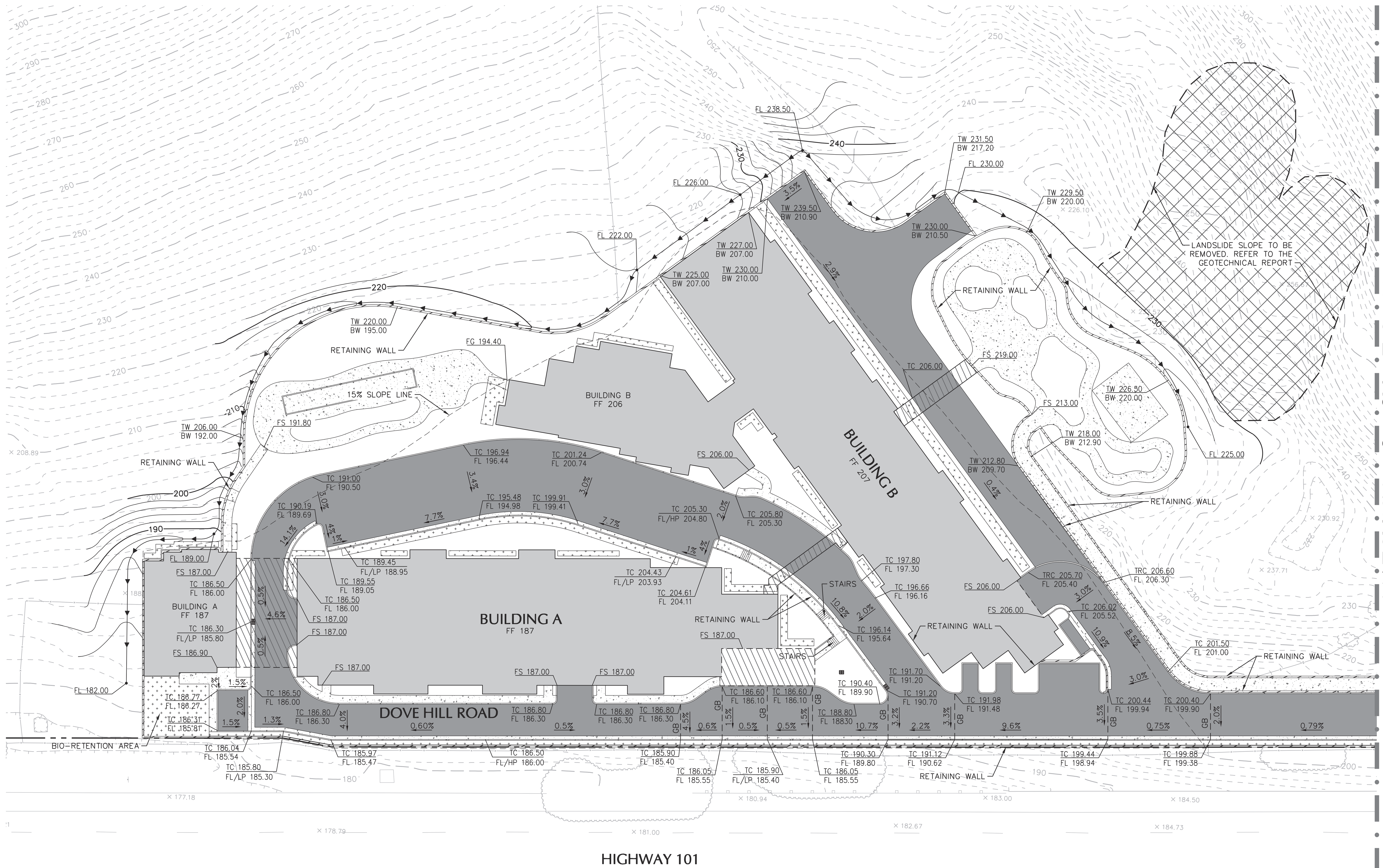
Date 02/04/16 | Project No. 770619902 | Figure B-11

APPENDIX C

GRADING PLANS

GRADING LEGEND

— — —	PROPERTY LINE
TC 200.50 / FL 200.00	ELEVATIONS
2.0%	SLOPES
—230—	CONTOURS
→→	GRADED SWALE
× 186.76	(E) ELEVATIONS
— 230 —	(E) CONTOURS



SCALE IN FEET 30 0 15 30

NOTE:

1. FOR ABBREVIATIONS AND GENERAL NOTES, SEE TITLE SHEET, SHEET C1.01.

PRELIMINARY DRAFT, NOT FOR CONSTRUCTION

Date	Description	No.
REVISIONS		

SIGNATURE DATE SIGNED
PROFESSIONAL CIVIL ENGINEER
STATE LIC. No. C78817

LANGAN
4030 Moorpark Avenue, Suite 210, San Jose, CA 95117
T: 408.551.6700 F: 408.551.0344 www.langan.com
NEW JERSEY NEW YORK CONNECTICUT PENNSYLVANIA OHIO WASHINGTON, DC FLORIDA TEXAS NORTH DAKOTA CALIFORNIA
ABU DHABI ATHENS DOHA DUBAI ISTANBUL PANAMA

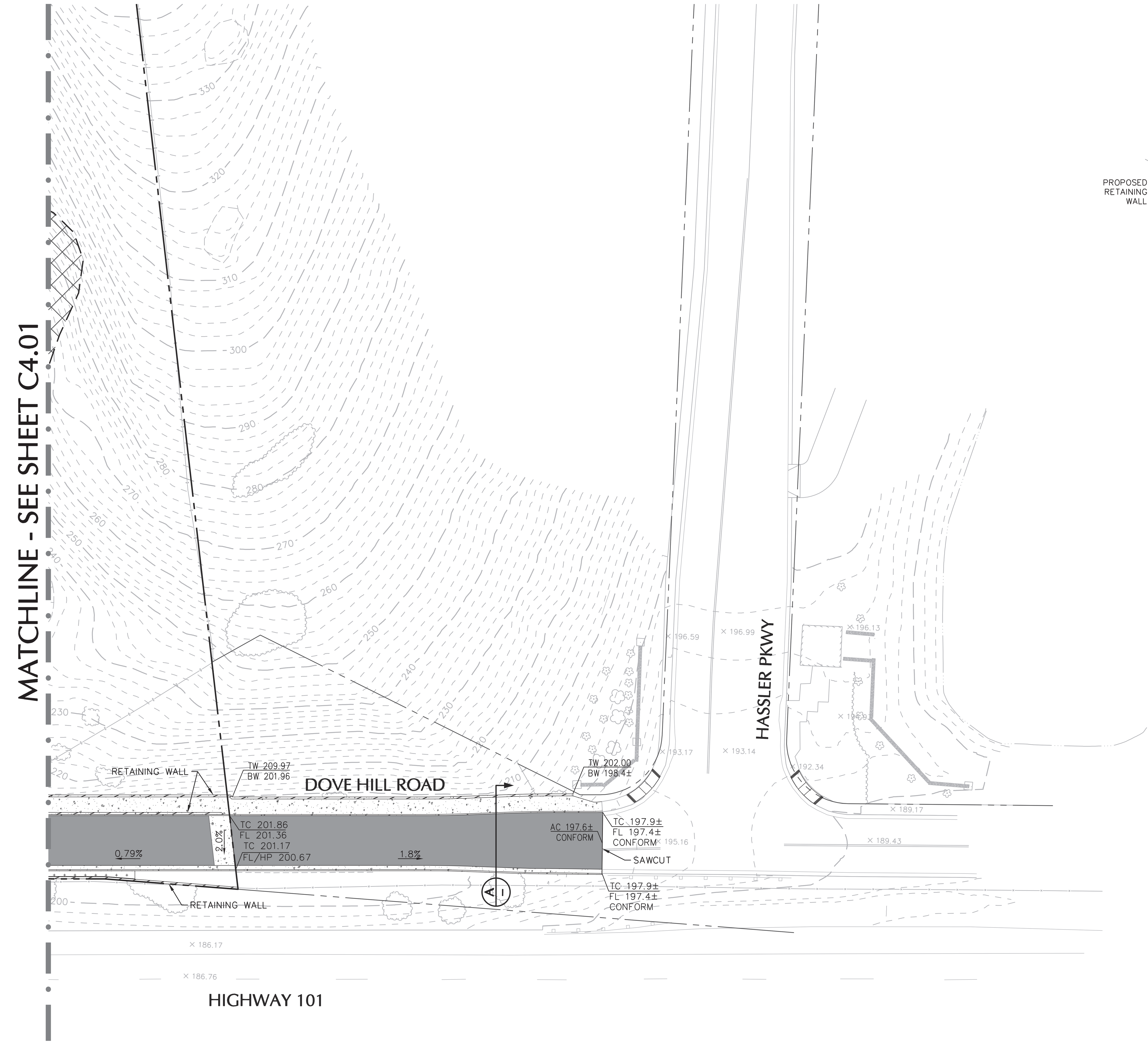
Project: 4200 DOVE HILL RD
SAN JOSE
SANTA CLARA COUNTY CALIFORNIA

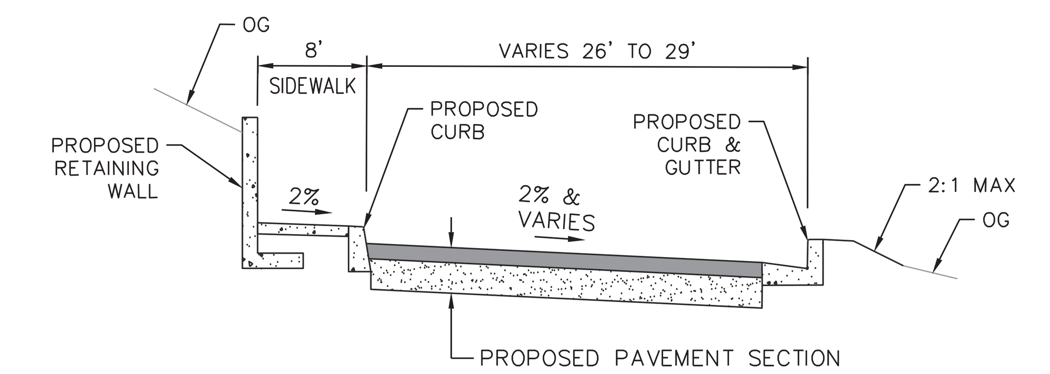
Drawing Title: GRADING PLAN

Project No.	770619901
Date	2/26/2016
Scale	1" = 30'
Drawn By	DKS
Checked By	DJH
Submission Date	X

Drawing No. C4.01

Sheet 5 of 12





SECTION A-A
NTS

30 0 15 30
SCALE IN FEET

PRELIMINARY DRAFT, NOT FOR CONSTRUCTION

NOTE:

1. FOR LEGEND, SEE SHEET C4.01. FOR ABBREVIATIONS AND GENERAL NOTES, SEE TITLE SHEET, SHEET C1.01.

Date	Description	No.
REVISIONS		

SIGNATURE DATE SIGNED
PROFESSIONAL CIVIL ENGINEER
STATE LIC. No. C78817

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NEW JERSEY NEW YORK CONNECTICUT PENNSYLVANIA OHIO WASHINGTON, DC FLORIDA TEXAS NORTH DAKOTA CALIFORNIA
ABU DHABI ATHENS DOHA DUBAI ISTANBUL PANAMA

Project
4200 DOVE HILL RD
SAN JOSE
SANTA CLARA COUNTY CALIFORNIA

Drawing Title
GRADING PLAN

Project No.	770619901
Date	2/26/2016
Scale	1" = 30'
Drawn By	DKS
Checked By	DJH
Submission Date	X

Drawing No.
C4.02

APPENDIX D

COMMENTS FROM SAN JOSE DEPARTMENT OF PUBLIC WORKS (SJDPW)

CITY OF
SAN JOSE
CAPITAL OF SILICON VALLEY

Department of Public Works
DEVELOPMENT SERVICES DIVISION

September 25, 2015

Salvatore Caruso Design Corporation
980 El Camino Real, Suite 200
Santa Clara, CA 95050

Gentlemen:

SUBJECT: PRELIMINARY GEOLOGIC/SEISMIC HAZARD REVIEW
PROPOSED SENIOR HOUSING FACILITY (PDC14-051)
4200 DOVE HILL ROAD
PROJECT NO: 15-029556-GC (3-18383)

We have reviewed the following documents submitted in support of your application for a Geologic Hazard Clearance for the above project:

1. *"Geotechnical Investigation and Geologic Hazard Evaluation, Dove Hill Assisted Living Community, 4200 Dove Hill Road, San Jose, California,"* by Langan Treadwell Rollo (LTR), June 30, 2015.

2. *"Dove Hill Assisted Living Community* (General Development Plan package)*, 4200 Dove Hill Road, San Jose CA"* by Salvatore Caruso Design Corporation dated September 2, 2014 Sheets 1-19, includes *"Grading Plan, 4200 Dove Hill Road, San Jose, Santa Clara County, California,"* by Langan, September 2, 2014, Sheets CG1.01 and CG1.02, Scale: 1 inch = 30 feet.

In addition, we have reviewed the City's Geotechnical, Seismic, and Fault Hazard maps, high resolution 3-D orthographic aerial and street view imagery, and available geotechnical information on file in our office. The City's engineering geologist visited the property on September 16, 2015.

Discussion

The project site is within the City of San Jose Geologic Hazard Zone (CSJ, 2006) and the State of California Seismic Hazard Zone of Required Investigation for both Earthquake Induced Landslides and Liquefaction (CGS, 2001).

The project consists of construction of a senior assisted living community comprised of two multi-story buildings with ground level parking, to house up to 340 bed units. The project will include a paved circular driveway from Hassler Parkway, landscaping including two gardens with recreational areas and minor buildings, various retaining walls, and a bioretention cell.

Our review found several items of concern regarding geologic/seismic hazards evaluation and mitigation. These concerns will require additional investigation, analysis, and evaluation to reasonably ensure the City that all potential geologic/seismic hazards have been satisfactorily characterized and will be mitigated to an acceptable degree. These items are as follows:

1. The LTR report, Reference 1, presents "idealized" subsurface profiles (Figures 6-8) of the steep hillside upslope of the proposed building sites. These slopes are steep enough to generate damaging soil slips, debris flows and slides, as well as earth flow type landslides. The existing landslides delineated on the Engineering Geologic Map, Figure 4, may be susceptible to re-mobilization. The location of the slopes within the State Seismic Hazard Zone of Required Investigation indicates that they may be susceptible to earthquake induced landslides. No subsurface exploration has been performed to characterize the existing landslides (Profiles A-A' and C-C'), potentially unstable uncontrolled fill and colluvium (Profiles B-B' and D-D'), and groundwater conditions within these slopes. We request that the subsurface soil, bedrock, and groundwater conditions underlying the slopes be characterized in greater detail by performing supplemental subsurface exploration.

2. The LTR report notes on p. 17, section 6.3, that the steep, 1:1 (H:V) cut slope southeast of Building B is unstable and should be graded to an inclination of 3:1 to mitigate future slope instability. We observed a large landslide on this cut slope on 2007 Google Earth imagery. The recommended remedial grading is not shown on the proposed grading plan, Reference 2. It is unclear whether the 3:1 slope will completely remove the landslide on the cut slope. Additional subsurface exploration should determine the thickness of this landslide.

3. Relatively extensive areas of undocumented fill exist on the site. We are concerned that, if not removed, these fills may eventually mobilize down slope or may cause settlement of the proposed improvements and driveway (see existing roadway cracking, Reference 1, Figure 4). Potential geologic hazards associated with the undocumented fills should be discussed and recommendations to remediate or remove the fills should be presented, as necessary.

4. Existing landslides on the northern and southern slopes of the site shown on Reference 1, Figure 4, are not recommended by LTR for remediation or stabilization. Potential high ground water seepage conditions (springs), surface creep, and steep slopes are indicated on the Engineering Geologic Map, Figure 4. We are concerned that under abundant rainfall conditions, i.e., conditions of perched or elevated groundwater, that these landslides could mobilize and impact the proposed development. We request that the landslides be characterized in greater detail and their potential for future mobilization under saturated soil, elevated groundwater, and groundwater seepage conditions be evaluated.

5. The two dormant landslides in the southern portion of the parcel (Profile A-A') are immediately up slope of proposed improvements including a private senior landscaped garden, 14-16 foot high sound/retaining wall, and a minor building structure (See Sheet CT1.01, Reference 2). No recommendations to stabilize these landslides are presented in the LTR report. The landslides appear to be active rather than dormant based on the presence of fresh vegetation scars above the slide masses observed in recent aerial imagery of the site. We request that these landslides be evaluated in greater detail with respect to the proposed

improvements, and recommendations to remediate potential future landslide movement presented, as necessary.

6. The quantitative slope stability analysis models, Reference 1, Appendix F, are based on the idealized profiles discussed in Item 1 above. The analyzed models may have to be modified based on further subsurface slope characterization. The analysis models do not appear to incorporate piezometric surfaces or ground water levels. Ground water conditions beneath the slopes are not well characterized. If subsurface water is included, it should be discussed, and the levels clearly delineated on the modeled sections. The lack of use of groundwater levels in the analyses does not appear to be justified based on the presence of springs, phreatophytes, and green vegetation zones on the slopes above the building site. We request that groundwater conditions be investigated in greater detail and the non-use of groundwater levels in the slope stability analyses justified with additional data.

7. The LTR quantitative slope stability analysis of cross section C-C' resulted in a static factor of safety of less than 1.5 and a calculated slope displacement of about 4 inches. The report, p. 21, states that, "because Building A is about 50 feet from the toe of slope, slope movement should not adversely impact the building." Our review of LTR Figure 3, however, indicates that the northern end of Building A will be located on the slope toe. This is consistent with the proposed grading plan, Reference 2. The analysis was apparently run with no ground water. Due to evidence that shallow groundwater and/or seepage (springs, phreatophytes, and green vegetation) may exist on the slopes above the building site, we are concerned that lower factors of safety and greater slope displacements than those calculated by LTR may result under conditions of above normal rainfall. We recommend that the stability of cross section C-C' be re-evaluated based on the supplemental subsurface exploration and potentially high groundwater levels, as discussed in Items 1, 4, and 6, above.

8. The angle of internal friction (phi) shear strength parameters assigned to surficial deposits and bedrock in the LTR quantitative slope stability analyses (Table 4, p. 18) generally exceed corresponding values published by CGS for the San Jose East and adjacent quadrangles. For example, the phi value assigned by CGS to the serpentinite in their analyses of the San Jose East Quadrangle is 26 degrees, however, the phi used for serpentinite in the LTR analysis is 34 degrees. A phi of 28 degrees is assigned to the on-site landslide deposits by LTR, while CGS found mean/median values ranging from only 11 to 14 degrees for landslides in the San Jose East and neighboring quadrangles. The use of the same cohesion and phi values of 240 psf and 28 degrees, respectively, for the on-site fill, colluvium, and landslide deposits suggests that the LTR analyses are preliminary, generalized, and may be un-conservative for the slope stability evaluation. LTR states that their assigned shear strengths were based on field exploration, laboratory testing, and published values by CGS (2000). Only one laboratory shear strength test is presented in the LTR report. This test resulted in a cohesion of 240 psf and a phi of 25 degrees for the fill (Boring E_2C-1, Reference 1, Figure 4). State guidelines require the soil properties used in seismic slope stability analyses, including unit weight, cohesion, and friction angle, to be determined by conventional laboratory and field tests. We request that the basis for the assigned shear strength parameters for each soil and geologic unit analyzed in the LTR report be discussed in greater detail and additional laboratory tests and other data presented, as necessary.

9. We observed abundant boulder outcrops of serpentinite on the high slopes above the building site. Some of the boulders appear to have the potential to become dislodged and roll down slope under seismic conditions. The potential for rock falls or slides should be addressed.

10. The stability of the serpentinite bedrock in the recommended 3:1 cut slope southeast of Building B and the potential for seismic induced block or wedge failures along structural discontinuities such as shear or fracture surfaces in the serpentinite, in all rock exposures should be addressed. Serpentinite bedrock exists at or near the ground surface in extensive areas of the highest steepest slopes in the northwestern and southern portions of the parcel, and in existing over-steepened cut slopes.

11. The LTR report, p. 18, para. 1, states that large cuts and fills are proposed for the project. Large proposed cut and fill slopes are not shown on the grading plan (Reference 2). The proposed grades also do not appear to have been incorporated into the LTR slope stability analysis models. We request that proposed cut/fill slopes and finished grades be shown on the grading plan, incorporated into the quantitative slope stability analysis models, and analyzed for static and seismic slope stability.

12. The northeastern portions of proposed Buildings A and B are immediately adjacent to high existing slopes (Reference 2, Grading Plan). The proposed buildings need to be setback a minimum distance of 15 feet from the toes of these slopes to be in conformance with the City's Grading Code, Section 17.04.410. The purpose of the setback is to allow for positive surface drainage around the perimeter of the buildings, and to establish a buffer zone between the building and slope to mitigate potential impacts from surface water runoff, erosion, and slope instability. The grading plan should be modified to include the 15 foot slope setbacks unless the slopes are specifically evaluated and smaller setbacks are recommended in writing by the engineering geologist and geotechnical engineer of record.

13. A water tank and access road exist in the steeply sloping southeastern portion of the parcel approximately 600 feet above the proposed building site (Reference 1, Figure 4). Details of the tank and road construction are not available. No records indicating that City permits were issued for the tank and road in the recent past are present in our files. We assume the tank is currently in operation and holds approximately 10,000 gallons of water. In the event of a tank failure, a slope wash out (debris flow) could occur, which would reach the proposed buildings and improvements. We request that an evaluation of potential geologic/seismic hazards associated with the tank and access road be presented, if the tank is to be operational on the site.

<u>Project Requirements</u>

Consequently, a Geologic Hazard Clearance may be issued for this project when it has been satisfactorily demonstrated that all potential geologic/seismic hazards have been adequately characterized and can be mitigated to an acceptable level of risk. It must also be demonstrated that the proposed development will not create a hazardous geologic condition. In order for us to complete our review of your application, it will be necessary for you to submit the following:

1. A supplemental, design level geologic/seismic hazard evaluation and geotechnical engineering investigation report addressing the above concerns. The report should include supporting data, analyses, evaluations, and recommendations for all geotechnical aspects of the project including mitigation of all potential geologic and seismic hazards. The investigation should include, but not be limited to, supplemental subsurface exploration, laboratory shear strength testing, quantitative slope stability analyses, and evaluations of slope stability, as discussed above. The supplemental subsurface exploration should be performed in areas of existing landslides, colluvium, fill, and bedrock, on the slopes above the building site. All landslide failure surfaces should be defined. The landslide on the cut slope at Building B should be characterized. Samples for laboratory testing should be collected and supplemental shear strength tests performed, as necessary. Evidence of past shallow groundwater and seepage conditions should be noted in the exploration. The potential for mobilization and settlement of existing undocumented fills should be evaluated. The investigation should address and approve the proposed building/slope setbacks if building setbacks less than 15 feet from the toe of slopes are proposed for Buildings A and B (see Discussion Item 12 and Project Requirement 2, below). The idealized subsurface profiles (Reference 1, Figures 6-9) and the modeled cross sections used in the quantitative slope stability analyses (Reference 1, Appendix F) should be modified, as necessary, to be consistent with actual subsurface conditions determined from the supplemental site exploration. The exploration should be shown on the modified profiles. Slope stability analyses should be run using adjusted soil properties, ground water levels, and proposed grades based on a revised grading plan (See Discussion Items 6, 7, and 8, above). If phi values of the serpentinite are adjusted for bimrock structure (Medley, 2001), the adjustments and all assigned shear strength parameters should be explained. Any mitigation measures needed to allow smaller building setback distances from slopes, such as retaining or debris walls, should be recommended. Potential impacts from landslides up slope of the proposed garden area south of Building B and up slope of Building A, should be re-evaluated and mitigation measures recommended, as necessary. If the existing water tank is to remain, potential wash out and debris flow hazards associated with a tank rupture should be addressed. The investigation should include revised design level geotechnical recommendations, as necessary, for earthwork including removal of existing undocumented fill, landslide mitigation/slope stabilization, retaining structures, subsurface and surface drainage, and other geotechnical aspects of the project. Recommended slope stabilization measures should be quantitatively analyzed for static and seismic slope stability to confirm effectiveness. The investigation should be consistent with State guidelines for the preparation of engineering geologic and seismic hazard reports (CGS Note 44, Special Publication 117A, 2008, and ASCE/SCEC, 2002). The report must be wet signed and stamped by both a Certified Engineering Geologist and Registered Geotechnical Civil Engineer.

2. A revised grading and drainage plan and details incorporating the recommendations of the above geotechnical report. All geotechnical recommendations for the design of geologic hazard mitigation and slope stabilization measures such as re-graded slopes, undocumented fill removal, landslide mitigation, subdrains, and retaining structures, should be included on the plan. The slope behind Building B should be re-graded to a 3:1 inclination, and a minimum setback of 15 feet for all buildings from the slope toe should be included, unless an alternate setback distance is otherwise recommended in the supplemental geotechnical report.

The plan should be consistent with the City's Grading Code, Section 17.04.410. The plan must be wet signed and stamped by a Registered Civil Engineer.

NOTE: *Prior to subsurface site exploration, you must obtain approval from the City Department of Planning, Building and Code Enforcement that the exploration will not have environmental impacts in accordance with Section 17.10.500 of the Geologic Hazard Regulations. For information, please contact Meenaxi Panakkal in the Planning Division at (408) 535-7895.*

Project Requirements 1 and 2 should be submitted to Chris De Guzman, (408) 975-7426 or Hayde Pacheco (408) 793-4166 of the Public Works Development Services Project Engineering Team, third floor City Hall Tower. A fee of $3,652 for review of your documents will be due and payable upon submittal.

If you have any questions, please contact me at mike.shimamoto@sanjoseca.gov or (408) 535-7646. You may also reach the Senior Engineer overseeing the project, Vivian Tom at vivian.tom@sanjoseca.gov or (408) 535-6819.

Sincerely,

Michael K. Shimamoto
Engineering Geologist
Development Services Division