



Construction Testing & Engineering, South, Inc.

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**GEOTECHNICAL INVESTIGATION
PROPOSED COMMERCIAL DEVELOPMENT
APN 283-280-020, 283-180-001, 283-180-002,
283-180-021, 283-180-020
TEMESCAL CANYON ROAD
COUNTY OF RIVERSIDE, CALIFORNIA**

PREPARED FOR:

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PREPARED BY:

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1.0 EXECUTIVE SUMMARY

This geotechnical report was performed to provide site-specific geotechnical information for the proposed development located between Lawson and Temescal Canyon Roads in the community Temescal Valley, an unincorporated area of Riverside County. The site location is shown on Figure 1.

The proposed project is understood to consist of commercial development. The buildings are anticipated to be multiple story structures. The structures will be founded on shallow footings with slab-on-grade base floors. Construction will also include exterior flatwork, pavements, underground utilities, runoff mitigation measures, and retaining walls. Grading will create level pads for the proposed structures.

The field investigation was conducted on August 10 and 16, 2018 and consisted of 15 subsurface borings. Based on our investigation and review of geologic maps, the site is underlain by Old Alluvial Fan Deposits of late to middle Pleistocene Age. In the western portion of the site stockpiled soil, disturbed surficial material and underlying observed porosity in the near surface will required removal and recompaction on the order of 6 to 12 feet, as recommended herein. The eastern portion of the site, developed by Mission Clay Products, and consists of level stepped pads produced by previous cut and fill grading operations. Artificial fills encountered at some boring locations were on the order of 5 feet. Groundwater was not encountered at the time of our investigation.

Based on our investigation and geologic literature review, Parcel APN 283-280-020 and a portion of APN 283-180-02 are located in an Alquist-Priolo earthquake fault study zone and County of Riverside fault zone. An evaluation of the fault rupture hazard is being performed including additional subsurface investigations, the results of which will be presented in a separate report.

Due to the proximity of the site to the Glen Ivy North Fault and the general seismicity of the region, ground shaking due to seismic activity on local and distant faults will be a significant geologic hazard at the site.

Based on our investigation, the proposed development at the site is considered feasible from a geotechnical standpoint, provided the recommendations herein are implemented during project design and construction.

2.0 INTRODUCTION AND SCOPE OF SERVICES

2.1 Introduction

CTE, South, Inc. has prepared this report for MCP Industries, Inc. Presented herein are the results of the subsurface investigation performed as well as recommendations regarding the geotechnical engineering and dynamic loading criteria for the proposed construction.

The proposed project is understood to consist of commercial development. The locations and types of structures have not been determined and may consist of multiple story steel framed, concrete tilt-up, and wood framed construction on the order of four to five stories. The structures will be founded on shallow footings with slab-on-grade base floor. Construction will also include exterior flatwork, pavements, underground utilities, runoff mitigation measures and retaining walls.

2.2 Scope of Services

Our scope of services included:

- Review of readily available geologic and geotechnical literature pertinent to the site.
- Explorations to determine subsurface soil, rock, and groundwater conditions to the depths influenced by the proposed development.
- Laboratory testing of representative soil samples to provide data to evaluate the geotechnical design characteristics of the site foundation soils.
- Definition of the general geology and evaluation of potential geologic hazards at the site.
- Preparation of this report detailing the investigation performed and providing conclusions and geotechnical engineering recommendations for design and construction. Included in the report are site geology and hazards, seismic effects and design parameters, earthwork recommendations, foundation design parameters including lateral resistance, retaining wall design parameters, and pavement section recommendations.

3.0 SITE DESCRIPTION AND PROPOSED CONSTRUCTION

The site is located in the community of Temescal Valley, California, an unincorporated area of Riverside County. The site is comprised of five parcels with APN numbers 283-180-001, 283-180-002, 283-180-020, 283-180-021, and 283-280-020. The approximate geographic center of

the site has coordinates of 33.77398N and 117.49133W. The site area is approximately 28.8 acres. Site elevations range from approximately 1100 feet on the west to 1064 feet on the east. The three easterly parcels of the site are developed by structures for a clay products company, on a relatively level, graded pad. The two westerly parcels are undeveloped. The ground surface there is sparsely vegetated with brush and grasses, and slopes gently downward generally to the north-northeast. A natural drainage channel exists within the northwestern portion of the site. The site is bounded by Temescal Canyon Road to the east and Lawson Road to the west. Undeveloped parcels border the site to the north, and residential and vacant parcels border the site to the south. We understand that the existing structures at the site will be demolished.

4.0 FIELD AND LABORATORY INVESTIGATION

4.1 Field Investigation

Our field investigation was performed on August 10 and 16, 2018 and included 15 exploratory borings identified as B-1 thru B-15. The exploration locations are shown on Figure 2.

The explorations were excavated to investigate and obtain samples of the subsurface soils. The borings were excavated using a truck-mounted, eight-inch diameter, hollow-stem auger drill rig to a maximum explored depth of 51½ feet below the existing surface.

Soils encountered within the explorations were classified in the field in accordance with the Unified Soil Classification System. The field descriptions were later modified (as appropriate) based on the results of our laboratory-testing program. In general, soil samples were obtained at

5-foot intervals with standard split spoon (SPT and California Modified) samplers. Specifics of the soils encountered can be found in the Exploration Logs, which are presented in Appendix A.

4.2 Laboratory Analyses

Laboratory tests were conducted on representative soil samples to evaluate their physical properties and engineering characteristics. Specific laboratory tests included: maximum dry density and optimum moisture content, in-place moisture and density, “R” value, expansion index, direct shear, consolidation/swell, gradation, Atterberg limits, and chemical analyses. These tests were conducted to determine the material strengths, physical properties, and corrosivity of the on-site soils. Test method descriptions and laboratory results are presented in Appendix B.

5.0 GEOLOGY

5.1 General Physiographic Setting

Geomorphically, the subject site is situated on the westerly margin of the Perris structural block. The Perris structural block lies within the Peninsular Ranges Geomorphic Province and is a relatively stable, rectangular area located between the Elsinore and San Jacinto fault zones. These faults are major components of the San Andreas Fault system which consists of a series of *en echelon* northwest-striking right-lateral faults and pull-apart basins. The Perris block consists of phyllite, schist, and gneiss of Mesozoic- to possible Paleozoic-age meta-sedimentary rocks intruded by plutonic rocks of the Cretaceous-age Peninsular Ranges batholith. Tertiary-age sediments, Miocene-age volcanics, and Quaternary-age sediments unconformably cap the older Mesozoic-age rocks in this portion of the Perris block.

5.2 Site Geologic Conditions

Based on our investigation and geologic mapping (Morton et al, 2001), the site is underlain by old alluvial fan deposits (Qof) of middle to late Pleistocene Age. Below is a brief description of the materials encountered during the investigation. More detailed descriptions are provided in the Exploration Logs in Appendix A.

5.2.1 Artificial Fill (Qaf)

Undocumented fill encountered at Boring locations B-7, B-10, and B-14 was observed to be on the order of 2 to 5 feet thick and consists of Clayey Sand, with gravel in a loose to medium dense condition. Undocumented fill, on the order of 2 ½ feet, was observed at boring location B-13, located outside of the clay plant on the western edge. Materials observed consisted of organics, block, pipe fragments, and clay fines from the clay products building.

Stockpiled soil material, located on Parcel APN 283-280-020, was observed to be on the order of 5 to 6 feet high and covers a significant portion of this parcel. Observations of the drainage on the northwest side of the parcel indicate that undocumented fill may be on the order of 10 feet in depth. These soils are considered unsuitable for the support of structures in their present condition.

5.2.2 Old Alluvial Fan Deposits (Qof)

Old alluvial fan deposits, locally underlie the artificial fill, but were typically encountered in the borings from the existing ground surface to the maximum explored of 51½ feet. The materials, in general, were found to consist of interbedded layers of silty and clayey sand, with gravel in a loose to dense, and dry to moist condition. Qof was observed to unconformably overlie the Silverado formation at Boring at B-1.

5.2.3 Silverado Formation (Tsi)

The Silverado formation was encountered in boring location B-1 at a depth of approximately 35 feet, and consisted of red brown lean clay and sandy lean clay in a stiff to hard condition and clayey sand with gravel in a dense and moist condition.

5.3 Groundwater Conditions

Groundwater was not encountered in the borings. Groundwater levels will likely fluctuate during periods of high precipitation. Groundwater is not expected to impact the proposed development, although grading or construction could be adversely affected if performed during or following periods of wet weather.

5.4 Geologic Hazards

From our investigation, it appears that geologic hazards at the site are limited primarily to those caused by strong shaking from earthquake-generated ground motions. Presented here are the geologic hazards that are considered for potential impacts to site development.

5.4.1 Surface Fault Rupture

As defined by the California Geological Survey, an active fault is one that has had surface displacement within the Holocene Epoch (roughly the last 11,000 years). This definition is used in delineating Earthquake Fault Zones as mandated by the Alquist-Priolo Special Studies Zones Act of 1972 and revised in 1994 as the Alquist-Priolo Earthquake Fault Zoning Act. The name Special Studies Zones was changed to Earthquake Fault Zones as a result of a 1993 amendment. Special Publication - 42 was most recently revised in 2007 and is subject to periodic amendments. The intent of this

act is to require fault investigations on sites located within Earthquake Fault Zones to preclude the construction of structures for human occupancy across the trace of an active fault.

The western portion of the site (specifically parcel APN 283-280-020 and a portion of APN 283-180-001) is located within an Alquist-Priolo Earthquake Fault Study Zone and a County of Riverside Fault Study Zone. A fault study is being performed to evaluate the potential for surface fault rupture and results will be presented in a separate report.

5.4.2 Local and Regional Faulting

The California Geological Survey broadly groups faults as “Class A” or “Class B” (Cao et al, 2003). Class A faults are identified based upon relatively well-defined paleoseismic activity, and a fault slip rate of more than 5 millimeters per year (mm/yr). In contrast Class B faults have comparatively less defined paleoseismic activity and are considered to have a fault slip rate less than 5 mm/yr. The following Table 1 presents the ten nearest active faults to the site and includes magnitude and fault classification.

TABLE 1 NEAR SITE FAULT PARAMETERS			
FAULT NAME	APPROXIMATE DISTANCE FROM SITE (mi)	MAXIMUM EARTHQUAKE MAGNITUDE	CLASSIFICATION
Elsinore-Glen Ivy	0	6.8	A
Chino-Central Ave. (Elsinore)	6.3	6.7	B
Whittier	10.2	6.8	A
Elsinore-Temecula	12.4	6.8	A
San Jacinto-San Bernardino	21.8	6.7	A
San Jacinto-San Jacinto Valley	22.3	6.9	A
Elysian Park Thrust	24.9	6.7	B
Newport-Inglewood (L.A. Basin)	25.5	7.1	B
Compton Thrust	26.1	6.4	B
Sierra Madre	27.5	7.1	B

A regional fault activity map is presented on Figure 3.

5.4.3 Liquefaction Evaluation

Liquefaction occurs when saturated fine sands, silts or low plasticity clays lose their physical strength during earthquake-induced shaking and behave as a liquid. This is due to loss of point-to-point grain contact and transfer of normal stress to the pore water. Liquefaction potential varies with groundwater level, soil type, material gradation, relative density, and the intensity and duration of ground shaking.

Based on the absence of groundwater within the top fifty feet of the site soil profile, the potential for liquefaction of site soils is considered very low.

5.4.4 Seismic Settlement Evaluation

Seismic settlement (dynamic densification) occurs when loose to medium dense granular soils densify during seismic events. The underlying site materials consisted predominantly of loose to dense silty clayey sand with gravel, and silty sand with gravel and clay. To evaluate potential for seismic settlement, a quantitative analysis was performed using the computer program LiquefyPro (CivilTech, 2006) and the data obtained from the boring logs. Two borings, B-1 and B-14, were used in the evaluation to determine potential differential settlement. A peak ground acceleration of 0.895g and earthquake magnitude of 6.8 were used. The output files for the analyses are presented in Appendix C. The analysis has estimated total seismically-induced settlement of approximately 2.76 to 4.35 inches near Boring B-14 and Boring B-1, respectively. Seismically-induced differential settlement will be approximately 1.6 inches.

Near surface loose, collapsible and disturbed materials present on the site will be mitigated through removal and replacement as compacted fill, as recommended herein, in order to facilitate the proposed construction. Therefore, in our opinion, the potential for seismic settlement of these materials is considered low.

5.4.5 Compressible and Expansive Soils

Based on laboratory testing, the soils within the upper six to eight feet of the ground surface are potentially collapsible. Fill encountered at the site is generally considered to be compressible under the proposed loading conditions. Surficial soils were also found to be locally disturbed and weathered. Therefore, it is recommended that the fill, disturbed soils and collapsible soils be over-excavated, processed and compacted. Based on the investigation data, underlying dense native material is not considered to be subject to significant compressibility under the proposed loads.

Based on geologic observation and laboratory testing, the near-surface materials at the site are anticipated to exhibit a very low expansion potential (Expansion Index of less than 20). Therefore, the recommendations provided herein are based upon the anticipated very low expansion potential of the site soils encountered. Additional evaluation of soil expansion potential should be conducted during grading and upon completion of rough grading and building pad construction.

5.4.6 Tsunami and Seiche Evaluation

Due to site elevation and distance from the Pacific Ocean, the site is not considered to be subject to damage from tsunamis. Based on the absence of large bodies of water in the area, seiche (oscillatory waves in standing bodies of water) damage is also not expected.

5.4.7 Landsliding

No features typically associated with landsliding were noted during the site investigation.

In the reference review, no evidence of landslides was found to have occurred within the

area of the site. Therefore, the potential for landsliding to affect the site is considered very low.

5.4.8 Flood Zones

Based on Federal Emergency Management Agency flood zone map (FEMA, 2008), site improvement areas are located in an “Area of Minimal Flood Hazard.” Therefore, the chance of flooding at the site is considered low.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 General

Based on our investigation, the proposed construction on the site is feasible from a geotechnical standpoint, provided the recommendations in this report are incorporated into design and construction of the project. Preliminary recommendations for the design and construction of the proposed development are included in the subsequent sections of this report. Additional recommendations could be required based on the actual conditions encountered during earthwork and/or improvement construction. Recommendations presented herein are based on foundation soil with a low expansion potential.

6.2 Site Preparation

6.2.1 General

Prior to grading, the site should be cleared of existing debris, factory residue and deleterious materials. Foundations and buried utilities from existing structures on the site

should be removed and replaced with compacted fill. In areas to receive structures or distress-sensitive improvements, expansive, surficial eroded, desiccated, burrowed, or otherwise loose or disturbed soils should be removed to the depth of competent material. Organic and other deleterious materials not suitable for use as structural backfill should be disposed of offsite at a legal disposal site.

6.2.2 Remedial Grading and Excavations

Due to the presence of disturbed and collapsible soils encountered in the upper approximately 8 feet of the explorations, remedial grading will be required. Where new construction is planned, the site should be excavated to a depth 8 or more feet below existing grade or finish grade, whichever is deeper. The soils exposed at the bottom of the over-excavations should be documented by a geotechnical representative of this office to determine their suitability.

Temporary, unsurcharged excavations up to four feet deep may be cut vertically. Deeper excavations should be sloped back or shored. Temporary sloped excavations should be cut at a slope of 1:1 (horizontal:vertical) or flatter. Permanent slopes should be no steeper than 2:1. Vehicles and storage loads should not be placed within 10 feet of the top of the excavation. If temporary slopes are to be maintained during the rainy season, berms are recommended along the tops of slopes to divert runoff water from entering the excavation and eroding the slope faces.

6.2.3 Preparation of Areas to Receive Fill

Exposed excavation bottoms and subgrade surfaces to receive fill should be scarified to a minimum depth of 12 inches, brought to 2 percent or more above optimum moisture

content and compacted to at least 90 percent of the maximum dry density as determined by ASTM D 1557.

6.2.4 Fill Placement and Compaction

Structural fill and backfill should be compacted to at least 90 percent of the maximum dry density (as determined by ASTM D 1557) at moisture content 2 percent or more above optimum. The upper 12-inches of pavement subgrade should be compacted to at least 95 percent of the maximum dry density (per ASTM D 1557). The optimum lift thickness for fill soils will be dependent on the type of compaction equipment being utilized. Generally, fill should be placed in uniform horizontal lifts not exceeding 8 inches in loose thickness. Placement and compaction of fill should be performed in general conformance with geotechnical recommendations and local ordinances.

Soils generated from on-site excavations are anticipated to be suitable for use as structural fill, provided they are free from deleterious material. Rocks or other soil fragments greater than four inches in size should not be used in the fills. Proposed import material should be evaluated by the project geotechnical engineer prior to being placed at the site. Import materials should consist of non-corrosive, granular material with an expansion index less than 20.

6.2.5 Utility Trenches

Utility trenches should be excavated in accordance with the recommendations presented in Section 6.2.2. Backfill should be placed in loose lifts no greater than eight inches and

mechanically compacted to a relative compaction of at least 90 percent of the maximum dry density (per ASTM D 1557) at a moisture content 2 or more percent above optimum.

6.3 Foundations and Slab Recommendations

6.3.1 General

Foundations and slabs for the proposed structures should be designed in accordance with structural considerations and the following minimum preliminary geotechnical recommendations. Foundations are expected to be supported in properly compacted fill materials. These recommendations assume that the fill soils will have a very low expansion potential (Expansion Index < 20).

6.3.2 Shallow Foundations

Following site grading, it is our opinion that the use of isolated and continuous footings will be geotechnically suitable for this project. We recommend that continuous footings be constructed following the criteria presented in Table 2 below. The values presented are CBC minimums. The structural engineer should provide footing dimensions and reinforcement based on the foundation design values presented in this report.

TABLE 2 MINIMUM FOOTING WIDTH AND EMBEDMENT DEPTH		
NUMBER OF FLOORS SUPPORTED BY THE FOOTING	MINIMUM WIDTH OF FOOTING(inches)	MINIMUM DEPTH OF FOOTING BELOW LOWEST ADJACENT SUBGRADE (inches)
1	12	18
2	15	18
3	18	18

Isolated footings should be a minimum of 24 inches in dimension and founded at least 18 inches below lowest adjacent rough grade elevation or top of slab.

Foundation dimensions should be based on an allowable bearing pressure of 2,000 pounds per square foot (psf) for the minimum footing dimensions noted above. The allowable bearing value may be increased by one-third for short-duration loading which includes the effects of wind or seismic forces.

Footing reinforcement within continuous footings should consist of a minimum of four number 4 bars, two located at the top of the footing and two located at the bottom. This minimum reinforcement is due to geotechnical conditions and is not to be used in lieu of that needed for structural considerations. Reinforcement for isolated footings should be determined by the structural engineer. Garage door grade beams should be at least 12 inches deep and reinforced as above.

Lateral loads for structures supported on spread footings may be resisted by soil friction and by the passive resistance of the soils. A coefficient of friction of 0.30 may be used between foundations or the floor slabs and the supporting soils. The allowable passive resistance of the soils may be assumed equal to the pressure developed by a fluid with a density of 250 pounds per square foot/foot. A one-third increase in the passive value may be used for wind or seismic loads. The frictional resistance and the passive resistance may be combined without reduction in determining the total lateral resistance.

6.3.3 Settlement of Shallow Foundations

We have analyzed settlement potential during construction and for long-term performance. Construction settlement is expected to occur as loads are applied and structures are brought to their operational weight. Long-term settlement is expected to occur over time as a result of compression of wetted or partially saturated soil. Anticipated settlements are related to an applied bearing pressure of 2,000 psf.

It is anticipated that shallow foundations designed and constructed as recommended will experience maximum total settlement of 1 inch or less and differential static settlement of 1/2 inch or less over a distance of 40 feet or more.

6.3.4 Concrete Slabs-On-Grade

Concrete slabs-on-grade should be designed for the anticipated loading. Lightly loaded concrete slabs should measure a minimum of 4.5 inches thick and be reinforced with a minimum of number 3 reinforcing bars placed on 18-inch centers, each way at mid-slab height. A modulus of subgrade reaction of 125 pci may be used for elastic design. Concrete slabs subjected to heavier loads may require thicker slab sections and/or increased reinforcement as per the project structural engineer. The correct placement of the reinforcement in the slab is vital for satisfactory performance under normal conditions. The floor slab and foundations should generally be tied together by extending the slab reinforcement into the footings, or as recommended by the structural engineer.

In areas to receive moisture-sensitive floor covering or used to store moisture-sensitive materials, a polyethylene or visqueen moisture vapor retarder (10-mil or thicker) should

be placed beneath the slab. A 4-inch layer of crushed stone should underlie the moisture vapor retarder. To protect the membrane during steel and concrete placement, a maximum two-inch layer of similar material may be placed over the moisture vapor retarder.

As an alternative, a post-tensioned slab may be constructed. Based on our analysis, the following design recommendations may be used:

Allowable Bearing Capacity- 2,000 psf

Building Pad Over-excavation- 8 feet

Friction Coefficient- 0.3

Lateral Load Resistance- 250 pcf

Modulus of Subgrade Reaction- 125 pci (uncorrected)

The following Table 3 presents our recommendations for a post-tensioned slab based on the methods of the Post Tensioning Institute:

Table 3 Post-Tension Recommendations		
Expansion Index		Low to Medium
Assumed Percent Clay		50
Clay Type		Montmorillonite
Approximate Depth of Constant Suction (feet)		7.0
Approximate Soil Suction (pF)		3.6
Approximate Velocity or Moisture Flow (Inches per Month)		0.7
Thornwaite Index		-20
Average Edge Moisture Variation Depth, em (Feet)	Center Lift	5.3
	Edge Lift	2.5
Anticipated Swell, ym (Inches)	Center Lift	3.2
	Edge Lift	0.8

It is recommended that a water-cement ratio of 0.5 or less be used for concrete, and that the slab be moist-cured for at least five days in accordance with methods recommended by the American Concrete Institute. On-site quality control should be used to confirm the design conditions.

6.3.5 Pipe Bedding and Thrust Blocks

We recommend that pipes be supported on a minimum of 6 inches of sand, gravel, or crushed rock. The pipe bedding material should be placed around the pipe, without

voids, and to an elevation of at least 12 inches above the top of the pipe. The pipe bedding material should be compacted in accordance with the recommendations in the earthwork section of this report.

Thrust forces may be resisted by thrust blocks and/or the friction between the pipe and adjacent soil. Thrust blocks may be designed using a passive resistance equal to the pressure developed by a fluid with a density of 250 pounds per cubic foot.

6.4 Seismic Design Criteria

The seismic ground motion values listed in the Table 4 below were derived in accordance with the ASCE 7-10 Standard. This was accomplished by establishing the Site Class based on the soil properties at the site, and then calculating the site coefficients and parameters using the United States Geological Survey Seismic Design Maps application. These values are intended for the design of structures to resist the effects of earthquake ground motions for the site coordinates 33.77398°N and 117.49133°W, as underlain by soils corresponding to Site Class D.

TABLE 4 SEISMIC GROUND MOTION VALUES		
PARAMETER	VALUE	CBC REFERENCE (2016)
Site Class	D	ASCE 7, Chapter 20
Mapped Spectral Response Acceleration Parameter, S_S	2.315g	Figure 1613.3.1 (1)
Mapped Spectral Response Acceleration Parameter, S_1	0.913g	Figure 1613.3.1 (2)
Seismic Coefficient, F_a	1.000	Table 1613.3.3 (1)
Seismic Coefficient, F_v	1.500	Table 1613.3.3 (2)
MCE Spectral Response Acceleration Parameter, S_{MS}	2.315g	Section 1613.3.3
MCE Spectral Response Acceleration Parameter, S_{M1}	1.370g	Section 1613.3.3
Design Spectral Response Acceleration Parameter, S_{DS}	1.543g	Section 1613.3.4
Design Spectral Response Acceleration Parameter, S_{D1}	0.913g	Section 1613.3.4
Peak Ground Acceleration, PGA_M	0.895g	ASCE 7, Equation 11.8-1
Seismic Design Category	E	ASCE 7, Chapter 11

6.5 Vehicular Pavements

Pavement sections were evaluated using a design ‘R’ value of 10, correlating to a modulus of subgrade reaction of approximately 125 pci for site subgrade soil. The pavement section recommendations are based on the assumption that the subgrade soil (the top 12-inches minimum) will be compacted to a minimum of 95 percent of the maximum dry density (per ASTM D 1557).

If concrete pavement is used, it should have a minimum modulus of rupture (flexural strength) of 600 psi. We estimate that a 4,500 psi 28-day compressive strength concrete would generally provide the minimum required flexural strength; however, other mix designs could also meet the

requirements. As such, we recommend that the contractor submit the proposed mix design with necessary documentation to offer a proper level of confidence in the proposed concrete materials.

Recommended concrete pavement sections are presented below in Table 5.

TABLE 5 PORTLAND CEMENT CONCRETE (PCC) PAVEMENT SECTION			
Traffic Area	Assumed Traffic Index	Design Modulus of Subgrade Reaction (pci)	PCC Thickness (inches)
Parking Lots	5.0	125	6
Drive Lanes	6.0	125	6

An unreinforced pavement with the minimum thickness indicated above should generally be constructed with maximum joint spacing of 24 times the pavement thickness, in both directions, and in nearly square patterns. As an alternative, the concrete pavement could be constructed with typical minimal reinforcement consisting of #4 bars at 18 inches, on-center, both ways, at or above mid-slab height and with proper concrete cover.

Recommended asphalt concrete pavement sections are presented below in Table 6.

TABLE 6 PRELIMINARY ASPHALT CONCRETE (AC) PAVEMENT SECTIONS				
Traffic Area	Assumed Traffic Index	Design 'R' Value	AC Thickness (inches)	Aggregate Base Thickness* (inches)
Parking Lots	5.0	10	3	9.0
Drive Lanes	6.0	10	3	12-1/2

* Minimum R Value of 78.

In addition, it is recommended that pavement areas conform to the following criteria:

- Placement and construction of the recommended pavement section should be performed in accordance with the Standard Specifications for Public Works Construction (Greenbook, latest edition).
- Aggregate base should conform to the specification for Caltrans Class 2 Aggregate Base (Caltrans, 2015) or Greenbook Crushed Aggregate Base.
- Pavement sections are prepared assuming that periodic maintenance will be done, including sealing of cracks and other measures.

6.6 Retaining Walls

If retaining walls are proposed, the following recommendations should be incorporated into design and construction. For the design of walls where the surface of the backfill is level, it may be assumed that the on-site sandy soils will exert an active lateral pressure equal to that developed by a fluid with a density of 40 pounds per cubic foot (pcf). The active pressure should be used for walls free to yield at the top at least 0.2 percent of the wall height. For walls restrained at the top so that such movement is not permitted, a pressure corresponding to an equivalent fluid density of 60 pcf should be used, based on at-rest soil conditions. These

pressures should be increased by 20 pcf for walls retaining soils inclined at 2:1 (horizontal:vertical).

For cantilever retaining walls (yielding walls) 6 feet or more in height, lateral pressures due to earthquake motions may be calculated based on work by Seed and Whitman (1970). The total lateral thrust against a properly drained and backfilled cantilever retaining wall above the groundwater level can be expressed as:

$$P_{AE} = P_A + \Delta P_{AE}$$

For non-yielding (or “restrained”) walls, the total lateral thrust may be similarly calculated based on work by Wood (1973):

$$P_{KE} = P_K + \Delta P_{KE}$$

Where:

P_A = Static Active Thrust

P_K = Static Restrained Wall Thrust

ΔP_{AE} = Dynamic Active Thrust Increment = $(3/8) k_h \gamma H^2$

ΔP_{KE} = Dynamic Restrained Thrust Increment = $k_h \gamma H^2$

k_h = 2/3 Peak Ground Acceleration = 2/3 (PGA_M) = 0.60g

H = Total Height of the Wall

γ = Total Unit Weight of Soil \approx 135 pounds per cubic foot

The increment of dynamic thrust in both cases should be distributed as an inverted triangle, with a resultant located at 0.6H above the bottom of the wall.

Recommendations for waterproofing the walls to reduce moisture infiltration should be provided by the project architect or structural engineer.

We recommend that walls be backfilled with soil having an expansion index of 20 or less with less than 30 percent passing the #200 sieve. The backfill area should include the zone defined by a 1:1 sloping plane, extended back from the base of the wall footing. Wall backfill should be compacted to at least 90 percent relative compaction, based on ASTM D 1557. Backfill should not be placed until walls have achieved adequate structural strength. Heavy compaction equipment, which could cause distress to walls, should not be used.

The recommended lateral earth pressures presented herein assume that drainage will be provided behind the walls to prevent the accumulation of hydrostatic pressures. A backdrain system (similar to that shown on Figure 4) should be provided to reduce the potential for the accumulation of hydrostatic pressures.

6.7 Corrosive Soils

Sulfate-containing solutions or soil can have a deleterious effect on the in-service performance of concrete. In order to evaluate the foundation environment, representative samples of site soils were laboratory tested for pH, resistivity, soluble sulfate and chloride. The results of the tests are summarized below in Table 7.

Sample Location	pH	Resistivity (ohm-cm)	Sulfate (mg/kg)	Chloride (mg/kg)
B-5 @ 0-3 ft.	5.4	7,000	ND*	ND*
B-9 @ 5-10 feet	6.0	2,600	21	9.2

*ND – Not Detected

Based on ACI 18 Building Code and Commentary Table 4.3.1, a sulfate exposure of 21 mg/kg considered *negligible*. We recommend that Type V cement be used. We further recommend that at least a 3-inch thick concrete cover be maintained over the reinforcing steel in concrete in contact with the soil.

Based on the results of the resistivity tests, site soil appears to be *moderately corrosive* to ferrous metals. We recommend plastic pipes be used. CTE does not practice in the field of corrosion engineering. Therefore, a corrosion engineer could be consulted to determine the appropriate protection for metallic improvements in contact with site soils.

6.8 Exterior Flatwork

Exterior concrete flatwork should have a minimum thickness of 4.5 inches, unless otherwise specified by the project architect. To reduce the potential for distress to exterior flatwork caused by minor settlement of foundation soils, we recommend that such flatwork be installed with

crack-control joints at appropriate spacing as recommended by the structural engineer. Flatwork, such as driveways, sidewalks, and architectural features, should be installed with crack control joints. Extra reinforcement is recommended at re-entrant corners and driveways. Subgrade should be prepared in accordance with the earthwork recommendations provided herein. Positive drainage should be established and maintained adjacent to all flatwork as per the recommendations of the project civil engineer of record.

6.9 Drainage

Positive drainage should be established around site structures and is defined as drainage away from structures and improvements as recommended by the project civil engineer of record. To facilitate this, the proper use of construction elements such as roof drains and gutters, downspouts, earthen and/or concrete swales, slopes, external slabs-on-grade, and sub-drains may be employed. The project civil engineer should thoroughly evaluate the on-site drainage and make provisions as necessary to keep surface water from entering structural areas.

6.10 Plan Review

CTE should be authorized to review project grading and foundation plans and the project specifications before the start of earthwork to identify potential conflicts with the recommendations contained in this report.

7.0 LIMITATIONS

The recommendations provided in this report are based on the anticipated construction and the subsurface conditions found in our explorations. The interpolated subsurface conditions should be checked in the field during construction to document that conditions are as anticipated.

Recommendations provided in this report are based on the understanding and assumption that CTE will provide the observation and testing services for the project. Earthwork should be observed and tested to document that grading activity has been performed according to the recommendations contained within this report. The project geotechnical engineer should evaluate footing excavations prior to placement of reinforcing steel.

The field evaluation, laboratory testing and geotechnical analysis presented in this report have been conducted according to current engineering practice and the standard of care exercised by reputable geotechnical consultants performing similar tasks in this area. No other warranty, expressed or implied, is made regarding the conclusions, recommendations and opinions expressed in this report. Variations may exist and conditions not observed or described in this report may be encountered during construction.

This report is applicable to the site for a period of three years after the issue date provided the project remains as described herein. Modifications to the standard of practice and regulatory requirements may necessitate an update to this report prior to the three years from issue.

Our conclusions and recommendations are based on an analysis of the observed conditions. If conditions different from those described in this report are encountered, our office should be notified and additional recommendations, if required, will be provided upon request. CTE

should review project specifications for all earthwork, foundation, and shoring-related activities prior to the solicitation of construction bids.

We appreciate this opportunity to be of service on this project. If you have any questions regarding this report, please do not hesitate to contact the undersigned

Respectfully submitted,
Construction Testing & Engineering, Inc.



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Senior Geotechnical Engineer



Vincent J. Patula, CEG #2057
Senior Engineering Geologist



Robert L. Ellerbusch
Staff Geologist



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9. Wood, J.H., 1973, Earthquake-Induced Soil Pressures on Structures, Report EERL 73-05. Pasadena: California Institute of Technology.



NO SCALE

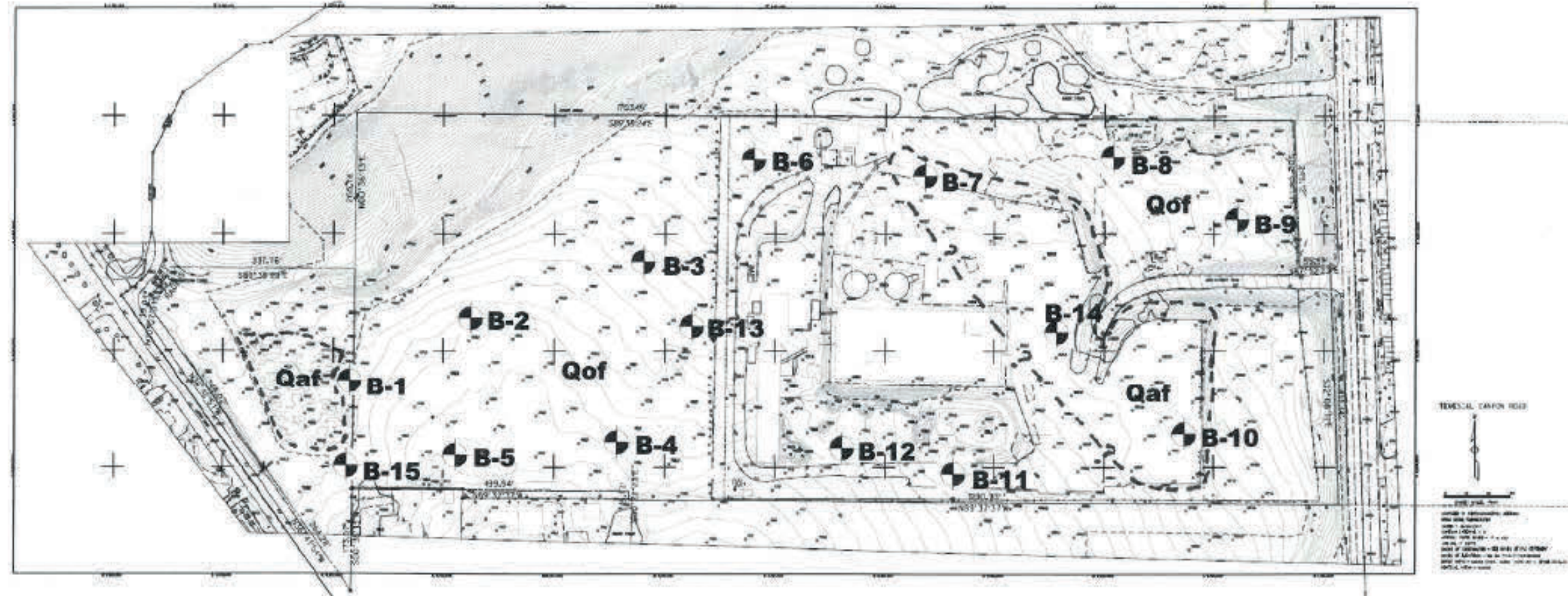


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SITE LOCATION MAP

PROPOSED COMMERCIAL DEVELOPMENT
 TEMESCAL CANYON ROAD, TEMESCAL VALLEY, CA

Job No.	Date	Figure
40-3639G	OCT 2018	1



GEOTECHNICAL LEGEND

-  B-1 Approximate Boring Location
- Qaf Quaternary Artificial Fill
- Qof Quaternary Old Alluvial Fan Deposits
- ? --- Approximate Geologic Contact (queried where uncertain)



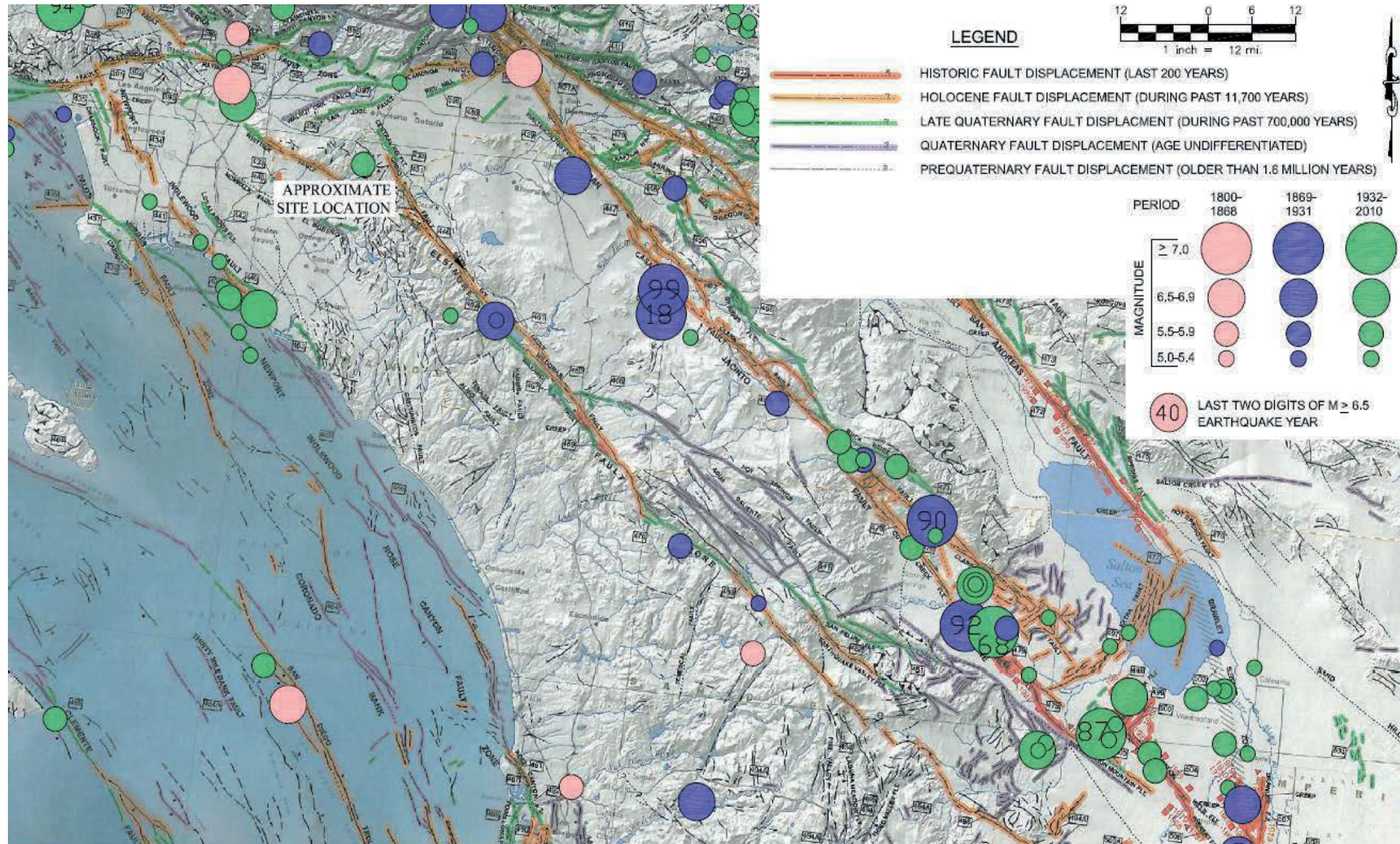
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SITE GEOLOGIC & EXPLORATION LOCATION MAP
PROPOSED COMMERCIAL DEVELOPMENT
TEMESCAL CANYON ROAD, TEMESCAL VALLEY, CA

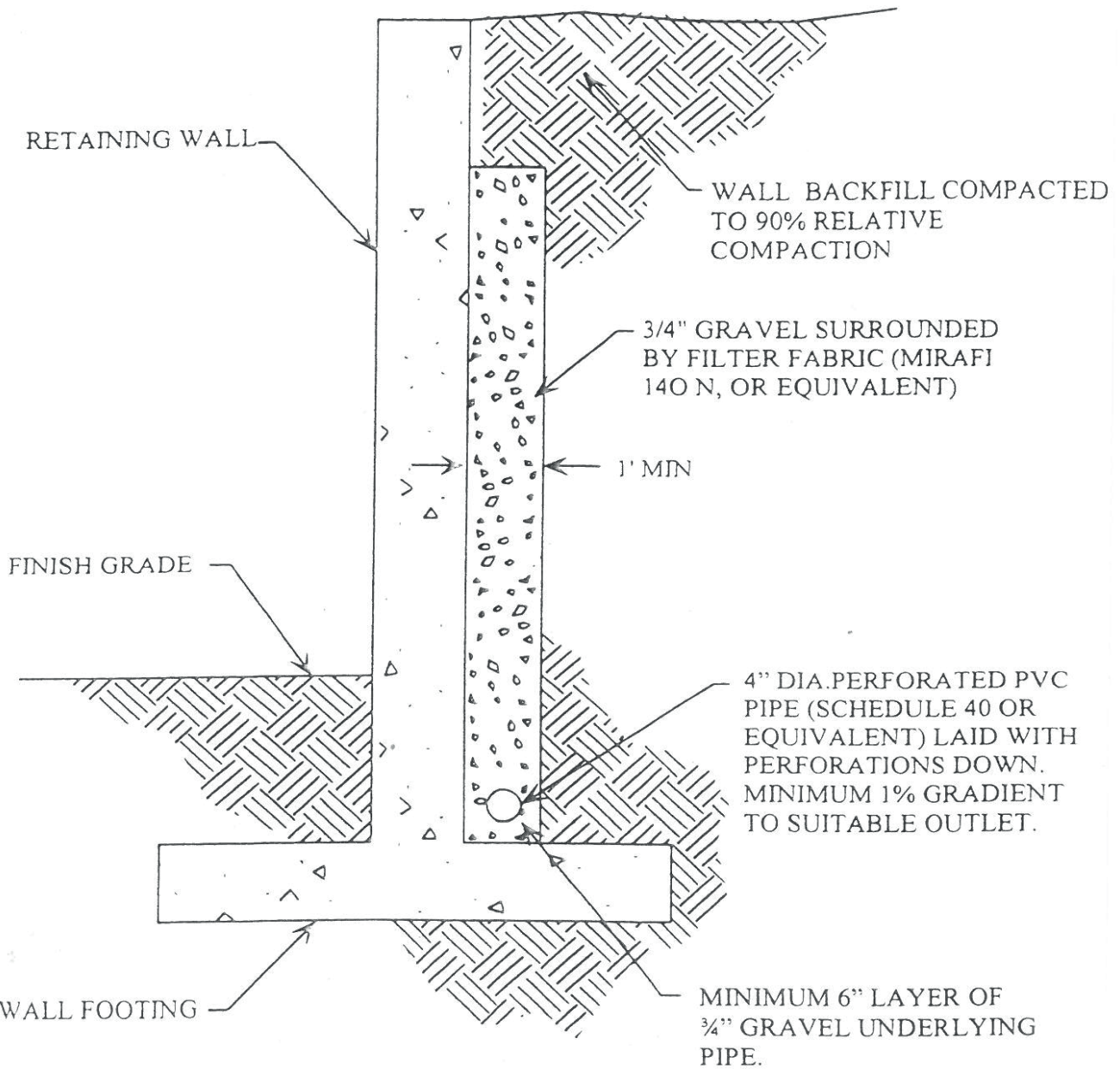
Job No.
40-3639G

Date
OCT 2018

Figure
2



NOTES: FAULT ACTIVITY MAP OF CALIFORNIA, 2010, CALIFORNIA GEOLOGIC DATA MAP SERIES MAP NO. 6;
 EPICENTERS OF AND AREAS DAMAGED BY $M > 5$ CALIFORNIA EARTHQUAKES, 1800-1999 ADAPTED
 AFTER TOPPOZADA, BRANUM, PETERSEN, HALLSTORM, CRAMER, AND REICHLER, 2000,
 CDMG MAP SHEET 49
 REFERENCE FOR ADDITIONAL EXPLANATION; MODIFIED WITH CISN AND USGS SEISMIC MAPS



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RETAINING WALL DRAIN DETAIL
 PROPOSED COMMERCIAL DEVELOPMENT
 TEMESCAL CANYON ROAD, TEMESCAL VALLEY, CA

Job No.
40-3639G

Date
OCT 2018

Figure
4

APPENDIX A

FIELD EXPLORATION METHODS AND EXPLORATION LOGS

APPENDIX A

FIELD EXPLORATION METHODS AND EXPLORATION LOGS

Soil Boring Methods

Relatively “Undisturbed” Soil Samples

Relatively “undisturbed” soil samples were collected using a modified California-drive sampler (2.4-inch inside diameter, 3-inch outside diameter) lined with sample rings. Drive sampling was conducted in general accordance with ASTM D-3550. The steel sampler was driven into the bottom of the borehole with successive drops of a 140-pound weight falling 30-inches. Blow counts (N) required for sampler penetration are shown on the boring logs in the column “Blows/Foot.” The soil was retained in brass rings (2.4 inches in diameter, 1.0 inch in height) and sealed in waterproof plastic containers for shipment to the CTE, South, Inc. geotechnical laboratory.

Disturbed Soil Sampling

Bulk soil samples were collected for laboratory analysis using two methods. Standard Penetration Tests (SPT) were performed according to ASTM D-1586 at selected depths in the borings using a standard (1.4-inches inside diameter, 2-inches outside diameter) split-barrel sampler. The steel sampler was driven into the bottom of the borehole with successive drops of a 140-pound weight falling 30-inches. Blow counts (N) required for sampler penetration are shown on the boring logs in the column “Blows/Foot.” Samples collected in this manner were placed in sealed plastic bags. Bulk soil samples of the drill cuttings were also collected in large plastic bags. The disturbed soil samples were returned to the CTE, South, Inc. geotechnical laboratory for analysis.



DEFINITION OF TERMS

PRIMARY DIVISIONS		SYMBOLS		SECONDARY DIVISIONS
COARSE GRAINED SOILS MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVELS MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS < 5% FINES	GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES LITTLE OR NO FINES
		GRAVELS WITH FINES	GP	POORLY GRADED GRAVELS OR GRAVEL SAND MIXTURES, LITTLE OF NO FINES
			GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES, NON-PLASTIC FINES
		GRAVELS WITH FINES	GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES, PLASTIC FINES
	SW		WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
	SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS < 5% FINES	SP	POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			SM	SILTY SANDS, SAND-SILT MIXTURES, NON-PLASTIC FINES
		SANDS WITH FINES	SC	CLAYEY SANDS, SAND-CLAY MIXTURES, PLASTIC FINES
			ML	INORGANIC SILTS, VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, SLIGHTLY PLASTIC CLAYEY SILTS
		SILTS AND CLAYS LIQUID LIMIT IS LESS THAN 50	CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY, SANDY, SILTS OR LEAN CLAYS
OL			ORGANIC SILTS AND ORGANIC CLAYS OF LOW PLASTICITY	
MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS			
CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS			
SILTS AND CLAYS LIQUID LIMIT IS GREATER THAN 50	OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTY CLAYS		
	PT	PEAT AND OTHER HIGHLY ORGANIC SOILS		
HIGHLY ORGANIC SOILS				

GRAIN SIZES

BOULDERS	COBBLES	GRAVEL		SAND			SILTS AND CLAYS
		COARSE	FINE	COARSE	MEDIUM	FINE	
12"	3"	3/4"	4	10	40	200	
CLEAR SQUARE SIEVE OPENING				U.S. STANDARD SIEVE SIZE			

ADDITIONAL TESTS

(OTHER THAN TEST PIT AND BORING LOG COLUMN HEADINGS)

MAX- Maximum Dry Density
 GS- Grain Size Distribution
 SE- Sand Equivalent
 EI- Expansion Index
 CHM- Sulfate and Chloride Content, pH, Resistivity
 COR - Corrosivity
 SD- Sample Disturbed

PM- Permeability
 SG- Specific Gravity
 HA- Hydrometer Analysis
 AL- Atterberg Limits
 RV- R-Value
 CN- Consolidation
 CP- Collapse Potential
 HC- Hydrocollapse
 RDS- Remolded Direct Shear

PP- Pocket Penetrometer
 WA- Wash Analysis
 DS- Direct Shear
 UC- Unconfined Compression
 MD- Moisture/Density
 M- Moisture
 SC- Swell Compression
 OI- Organic Impurities



PROJECT: DRILLER: SHEET: of
 CTE JOB NO: DRILL METHOD: DRILLING DATE:
 LOGGED BY: SAMPLE METHOD: ELEVATION:

Depth (Feet)	Bulk Sample	Driven Type	Blows/Foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING LEGEND	
								DESCRIPTION	Laboratory Tests
0								Block or Chunk Sample	
								Bulk Sample	
5									
								Standard Penetration Test	
-10								Modified Split-Barrel Drive Sampler (Cal Sampler)	
-15								Groundwater Table	
-20								Soil Type or Classification Change	
								? — ? — ? — ? — ? — ? — ? — ? — ? —	
								Formation Change [(Approximate boundaries queried (?))]	
-25						"SM"		Quotes are placed around classifications where the soils exist in situ as bedrock	



PROJECT: Proposed Commercial Development DRILLER: 2R Drilling CME 75 SHEET: 1 of 3
 CTE JOB NO: 40-3639G DRILL METHOD: 8" Hollow Stem Auger DRILLING DATE: 8/16/2018
 LOGGED BY: V.P. SAMPLE METHOD: 140 lb/30" Autohammer ELEVATION: ~1105 msl

Depth (Feet)	Bulk Sample Driven Type	Blows/6 inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-1	
							Laboratory Tests	
DESCRIPTION								
0					SM		Old Alluvial Fan Deposits(Qof) Silty SAND, with gravel, dry to damp, light brown, slight clay content	
5		8 11 12		5.0	SC-SM		Silty Clayey SAND with gravel, medium-dense, damp to moist, light brown, concentrations of coarse sand to fine gravel with fine grained matrix. Gravel content increase to 10 feet.	WA (25% fines) M
10		15 26 32	120.0	6.2	SC		dense Clayey SAND, with gravel, medium-dense to dense, moist, red brown. Coarse sand and fine gravel, angular, dark grey shale.	MD
15		9 7 11		5.3			Clayey SAND with Gravel, medium-dense, moist, red brown at 18' encountered layer of large gravel and cobbles	WA (16% fines) M
20		7 22 25	127.0	3.8	SW-SC		Well-graded SAND with clay and gravel, medium-dense, damp to moist, red brown, at 23 to 25 feet observed smaller, flatter, subangular, pebbles	WA (8% fines) MD
25					SC			

B-1




PROJECT: Proposed Commercial Development DRILLER: 2R Drilling CME 75 SHEET: 2 of 3
 CTE JOB NO: 40-3639G DRILL METHOD: 8" Hollow Stem Auger DRILLING DATE: 8/16/2018
 LOGGED BY: V.P. SAMPLE METHOD: 140 lb/30" Autohammer ELEVATION: ~1105"msl

Depth (Feet)	Bulk Sample Driven Type	Blows/6 inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-1 Cont'd.		Laboratory Tests
							DESCRIPTION		
25		11 26 28		3.3	SC		Clayey SAND with Gravel, very dense,damp,light grey	WA (14% fines) M	
30			108.7	3.6	SM		Silty SAND,damp,high brown, medium to coarse sand, iron staining.	MD	
					SC		Clayey SAND with gravel, dense,damp, light brown		
		10 14 19		5.0				WA (18% fines) M	
35		5 11 17		12.5	CL		Silverado Formation (Tsi) Lean CLAY,very stiff, moist, red brown	M	
		4 6 11		11.6			Lean CLAY,very stiff, moist, red brown	AL (LL=27, PI=11) M	
40		6 19 16		9.5			Sandy Lean CLAY,with gravel,hard,moist, red brown	M	
		14 35 43		5.8			Sandy Lean CLAY,with gravel,hard, red brown	M	
45		9 11 21			NR		Clayey,SAND,with gravel, dense,damp to moist,red brown		
		15 20 24		4.9	CL		Lean Clay, stiff, moist, red brown	WA (14% fines) M	
50									



PROJECT:	Proposed Commercial Development	DRILLER:	2R Drilling CME 75	SHEET:	3 of 3
CTE JOB NO:	40-3639G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	8/16/2018
LOGGED BY:	V.P.	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~1093' msl

Depth (Feet)	Bulk Sample Driven Type	Blows/6 inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-1 Cont'd.	
							Laboratory Tests	
DESCRIPTION								
50		3 5 8		13.4	CL		Lean Clay, stiff, moist, red brown	M
							Boring terminated at 51.5 feet bgs No groundwater encountered	
55								
60								
65								
70								
75								



PROJECT: Proposed Commercial Development DRILLER: 2R Drilling CME 75 SHEET: 1 of 1
 CTE JOB NO: 40-3639G DRILL METHOD: 8" Hollow Stem Auger DRILLING DATE: 8/16/2018
 LOGGED BY: V.P. SAMPLE METHOD: 140 lb/30" Autohammer ELEVATION: ~1109'msl

Depth (Feet)	Bulk Sample Driven Type	Blows/6 inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-2	
							Laboratory Tests	
DESCRIPTION								
0					SC		Old Alluvial Fan Deposits(Qof) Clayey SAND, with gravel, loose to medium-dense, dry to damp, red brown. Medium to large gravels encountered in upper five feet and are described as angular, iron stain surface, dark grey, shale.	
5		18 24 24	118.6	8.8			Clayey SAND with gravel, medium-dense, damp to moist, red brown,	AL (LL=30, PI=20) GS (28% fines) MD EI RV
10		6 8 10		6.4			Clayey SAND with gravel, medium-dense, damp to moist, brown, Concentrations of coarse sand observed.	M
15		14 25 25	118.6	6.4			Clayey SAND with gravel, medium-dense, damp to moist, red brown, weathered at 16 1/2 to 17 1/2 cobble layer encountered, iron staining, weathered	MD
20		9 14 18		5.3			Clayey SAND with gravel, dense, damp to moist, red brown, weathered	M
21.5							Boring terminated at 21.5 feet bgs No groundwater encountered	



PROJECT: Proposed Commercial Development DRILLER: 2R Drilling CME 75 SHEET: 1 of 1
 CTE JOB NO: 40-3639G DRILL METHOD: 8" Hollow Stem Auger DRILLING DATE: 8/16/2018
 LOGGED BY: V.P. SAMPLE METHOD: 140 lb/30" Autohammer ELEVATION: ~1101' msl

Depth (Feet)	Bulk Sample Driven Type	Blows/6 inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-3	
							DESCRIPTION	Laboratory Tests
0					SC		Old Alluvial Fan Deposits(Qof) Clayey SAND, with gravel, loose to medium-dense, dry to damp, red brown. Medium to large gravels encountered in upper five feet and are described as angular, iron stain surface, dark grey, shale.	
5		2 4 7		6.6			Clayey SAND with gravel, medium-dense, damp to moist, red brown,	M
10		50	NR		GW		Gravel layer, NR	
15		8 12 21		7.3	SC		Clayey SAND with gravel, dense, moist, red brown red brown, at 18 feet cobble layer encountered.	M
20		8 11 16		15.4			Clayey SAND with gravel, medium-dense, moist, red brown,	M
21.5							Boring terminated at 21.5 feet bgs No groundwater encountered	



PROJECT: Proposed Commercial Development DRILLER: 2R Drilling CME 75 SHEET: 1 of 1
 CTE JOB NO: 40-3639G DRILL METHOD: 8" Hollow Stem Auger DRILLING DATE: 8/16/2018
 LOGGED BY: V.P. SAMPLE METHOD: 140 lb/30" Autohammer ELEVATION: ~1108' msl

Depth (Feet)	Bulk Sample Driven Type	Blows/6 inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-4	
							Laboratory Tests	
DESCRIPTION								
0					SC		Old Alluvial Fan Deposits(Qof) Clayey SAND, with gravel, loose to medium-dense, dry to damp, brown to light brown.	EI
5		5 8 11	NR		SM		Silty SAND, medium dense	
10		18 43 17			SC		Clayey SAND, with gravel, dense, damp to moist brown to light brown to yellow brown. Iron staining present, fine to large gravel. Gravel described as dark grey shale, angular.	
15		7 9 9		9.2			Clayey SAND with gravel, medium-dense, moist, red brown, weathered.	M
20		8 16 26	110.6	11.6			Clayey SAND with gravel, medium-dense, moist, red brown, weathered, large gravel in shoe.	MD
21.5							Boring terminated at 21.5 feet bgs No groundwater encountered	



PROJECT: Proposed Commercial Development DRILLER: 2R Drilling CME 75 SHEET: 1 of 1
 CTE JOB NO: 40-3639G DRILL METHOD: 8" Hollow Stem Auger DRILLING DATE: 8/16/2018
 LOGGED BY: V.P. SAMPLE METHOD: 140 lb/30" Autohammer ELEVATION: ~1113' msl

Depth (Feet)	Bulk Sample Driven Type	Blows/6 inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-5	
							Laboratory Tests	
DESCRIPTION								
0					SC		Old Alluvial Fan Deposits(Qof) Clayey SAND, with gravel, loose to medium-dense,dry to damp, red brown.	CHM
5		5 10 14	114.6	6.2			Clayey SAND, with gravel, medium-dense, damp to moist red brown.	CN, MD
					GW		Gravel and cobble layer between 7 to 9 feet	
					SC			
10		9 13 12			SM		Silty SAND, with gravel, medium-dense,dry to damp, light grey	
				5.7	SC		Clayey SAND, with gravel, dense, damp to moist red brown. Fine gravel dark gray, angular	M
15		12 17 13	120.7	7.3	CL		Clayey SAND, with gravel,med-dense , damp to moist red brown.Coarse sand and fine gravel. Lean CLAY,stiff,moist,brown,ocasional fine to medium gravel.	MD
20		4 7 10		12.9				M
21.5							Boring terminated at 21.5 feet bgs No groundwater emounted	



PROJECT:	Proposed Commercial Development	DRILLER:	2R Drilling CME 75	SHEET:	1 of 1
CTE JOB NO:	40-3639G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	8/10/2018
LOGGED BY:	V.P.	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~1087' msl

Depth (Feet)	Bulk Sample Driven Type	Blows/6 inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-6	
							Laboratory Tests	
							DESCRIPTION	
0					SC		Old Alluvial Fan Deposits(Qof) Clayey SAND, with gravel, loose to medium-dense, dry to damp, red brown.	MAX RDS
5		14 9 11			GM		Silty Gravel, medium-dense, dry to damp, brown, observed flat subangular gravel	
					SC		Clayey SAND, with coarse sand and fine gravel, loose, dry to, damp, red brown	
10		4 6 9					Boring terminated at 11.5 feet bgs No groundwater encountered	
15								
20								
25								



PROJECT: Proposed Commercial Development DRILLER: 2R Drilling CME 75 SHEET: 1 of 1
 CTE JOB NO: 40-3639G DRILL METHOD: 8" Hollow Stem Auger DRILLING DATE: 8/16/2018
 LOGGED BY: V.P. SAMPLE METHOD: 140 lb/30" Autohammer ELEVATION: ~1086' msl

Depth (Feet)	Bulk Sample Driven Type	Blows/6 inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-7	
							Laboratory Tests	
							DESCRIPTION	
0					SC		Artificial Fill (Qaf) 3" of AC over 7 inches of Aggregate Base Clayey Sand, with gravel, yellow brown, fine gravel	
					SC		Old Alluvial Fan Deposits(Qof) Clayey SAND, with gravel, medium-dense, moist, light yellow brown, blocky	
5		9 11 14		7.7				M
10		7 9 13	106.6	6.3	SW-SM		Well-graded SAND with silt and gravel, medium-dense, moist, light brown,	GS (10% fines) MD
15		7 8 10		3.9			Well-graded SAND with silt and gravel, medium-dense, moist, light brown,	M
20		17 35 50	124.3	11.7	SC		Clayey SAND, with sand and gravel, very dense, moist, dark brown, iron staining contacts in sample, coarse sand and fine gravel, fractured shale, granite gravel is weathered in place, and exhibits iron staining.	photo MD
							Boring terminated at 21.5 feet bgs No groundwater encountered	
25								



PROJECT: Proposed Commercial Development DRILLER: 2R Drilling CME 75 SHEET: 1 of 1
 CTE JOB NO: 40-3639G DRILL METHOD: 8" Hollow Stem Auger DRILLING DATE: 8/10/2018
 LOGGED BY: V.P. SAMPLE METHOD: 140 lb/30" Autohammer ELEVATION: ~1069' msl

Depth (Feet)	Bulk Sample Driven Type	Blows/6 inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-8	
							Laboratory Tests	
							DESCRIPTION	
0					GP		6-inches of gravel cover	
					SC		Old Alluvial Fan Deposits(Qof) Clayey SAND, with gravel, loose to medium-dense, moist, dark brown.	
5		4 9 13		7.5			Clayey SAND, with gravel, medium-dense, moist, dark brown. Becomes light yellow brown at 6 feet.	M
10		7 7 12		4.7			Clayey SAND, with gravel, medium-dense, damp to moist, light yellow brown	M
							Boring terminated at 11.5 feet bgs No groundwater encountered	
15								
20								
25								

B-8





PROJECT:	Proposed Commercial Development	DRILLER:	2R Drilling CME 75	SHEET:	1 of 2
CTE JOB NO:	40-3639G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	8/16/2018
LOGGED BY:	V.P.	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~1063' msl

Depth (Feet)	Bulk Sample Driven Type	Blows/6 inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-9	
							Laboratory Tests	
DESCRIPTION								
0					SC		Old Alluvial Fan Deposits(Qof) Clayey SAND, with gravel, loose to medium-dense, moist, dark brown. Coarse sand and fine gravel to 5 feet	CHM MD
5		5 9 11	103.2	12.6			Clayey SAND, with gravel, medium-dense, moist, light brown. Coarse sand and fine gravel, angular, some iron staining to approximately 19 1/2ft	
10		5 6 50/3"	NR					
20		50/1"	NR		GM		Silty GRAVEL, medium-dense, light brown, increase in gravel to 24 feet.	
25					SC			



PROJECT:	Proposed Commercial Development	DRILLER:	2R Drilling CME 75	SHEET:	2 of 2
CTE JOB NO:	40-3639G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	8/16/2018
LOGGED BY:	V.P.	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~1063' msl

Depth (Feet)	Bulk Sample Driven Type	Blows/6 inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-9 Cont'd.	
							DESCRIPTION	Laboratory Tests
25	/	20		5.7	SC		Clayey SAND, with gravel, dense, moist, light brown.	M
25		GM						
30						rock in shoe		
		50/6"		2.4			Boring terminated at 30.5 feet bgs No groundwater encountered	M
35								
40								
45								
50								



PROJECT: Proposed Commercial Development DRILLER: 2R Drilling CME 75 SHEET: 1 of 1
 CTE JOB NO: 40-3639G DRILL METHOD: 8" Hollow Stem Auger DRILLING DATE: 8/10/2018
 LOGGED BY: V.P. SAMPLE METHOD: 140 lb/30" Autohammer ELEVATION: ~1085' msl

Depth (Feet)	Bulk Sample Driven Type	Blows/6 inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-10	
							Laboratory Tests	
							DESCRIPTION	
0							3" AC over 7" Base	
					SC		Artificial Fill (Qaf) Clayey SAND, with gravel, loose to medium-dense, moist, dark to reddish brown. small to large gravel, clay pipe fragments	
5		8 7 8	NR		SC		Old Alluvial Fan Deposits (Qof) Clayey SAND, with gravel, loose to medium-dense, moist, dark to reddish brown.	
					SM		Silty SAND with Gravel, gravel subrounded	
				8.0			GS (38% fines) M	
10		8 11 13	101.6	9.1	SC		Clayey SAND, with gravel, medium-dense, moist, brown.	
							MD MAX RDS	
					GW		Gravel layer 14 to 15 feet	
15		12 16 10		6.8	SC		-transition to lighter brown	
							M	
20		12 40 45	120.2	11.2			- matrix tightly surrounding gravel, iron staining, dense	
							M	
							Boring terminated at 21.5 feet bgs No groundwater encountered	
25								



PROJECT: Proposed Commercial Development DRILLER: 2R Drilling CME 75 SHEET: 1 of 1
 CTE JOB NO: 40-3639G DRILL METHOD: 8" Hollow Stem Auger DRILLING DATE: 8/10/2018
 LOGGED BY: V.P. SAMPLE METHOD: 140 lb/30" Autohammer ELEVATION: ~1100' msl

Depth (Feet)	Bulk Sample Driven Type	Blows/6 inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-11	
							Laboratory Tests	
DESCRIPTION								
0					SC		Old Alluvial Fan Deposits(Qof) Clayey SAND, with gravel, loose to medium-dense, dry to damp, dark brown.	
5		3 7 7		8.2			Clayey SAND, with gravel, medium-dense to dense, moist, brown.	RV M
10		15 27 35	127.1	6.0			-from 10 to 15 feet increase in gravel, iron staining observed,	MD
15		4 9 21		4.4	SM		Silty SAND, with gravel, medium-dense to dense, dry to damp, light brown	M
20		23 36 34	106.4	3.8 3.6			Boring terminated at 21.5 feet bgs No groundwater encountered	M MD
25								



PROJECT:	Proposed Commercial Development	DRILLER:	2R Drilling CME 75	SHEET:	1 of 1
CTE JOB NO:	40-3639G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	8/10/2018
LOGGED BY:	V.P.	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~1106' msl

Depth (Feet)	Bulk Sample Driven Type	Blows/6 inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-12	
							Laboratory Tests	
DESCRIPTION								
0					SC		Old Alluvial Fan Deposits(Qof) Clayey SAND, with gravel, medium-dense, dry to damp, brown.	
8 10 12			NR					
5		6 12 15		6.7				M
10		11 14 21		5.2	SM		Silty SAND with gravel, dense, dry to damp, small to medium gravel, iron staining	GS (18% fines) M
							Boring terminated at 11.5 feet bgs No groundwater encountered	
15								
20								
25								



PROJECT:	Proposed Commercial Development	DRILLER:	2R Drilling CME 75	SHEET:	1 of 1
CTE JOB NO:	40-3639G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	8/16/2018
LOGGED BY:	V.P.	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~1102' msl

Depth (Feet)	Bulk Sample Driven Type	Blows/6 inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-13	
							Laboratory Tests	
							DESCRIPTION	
0					SC		Artificial Fill (Qaf) Clayey SAND, with gravel, loose, dry, broken pipe , organics, block,	
2 6 8				9.3	SC		Old Alluvial Fan Deposits(Qof) Clayey SAND, with gravel, medium-dense, moist, brown to red brown. - cobble layer encountered at 4 to 5 feet	
5 7 8				10.4			Clayey SAND, with gravel, medium-dense, moist, brown, iron stained -cobble layer 8 to 9 feet	
10 26 32			126.0	5.7			Clayey SAND, with gravel, medium-dense, moist, red brown, iron stained. Intact sample exhibit granitic pebbles, weathered siltstone, clayey sand matrix.	
							Boring terminated at 11.5 feet bgs No groundwater encountered	



PROJECT: Proposed Commercial Development DRILLER: 2R Drilling CME 75 SHEET: 1 of 3
 CTE JOB NO: 40-3639G DRILL METHOD: 8" Hollow Stem Auger DRILLING DATE: 8/10/2018
 LOGGED BY: V.P. SAMPLE METHOD: 140 lb/30" Autohammer ELEVATION: ~1087' msl

Depth (Feet)	Bulk Sample Driven Type	Blows/6 inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-14	
							Laboratory Tests	
							DESCRIPTION	
0							3" AC over 7" Base	
					SC		Artificial Fill (af) Clayey SAND, with gravel, loose to medium-dense, moist, dark brown. small to large gravel, clay pipe fragments	
					SC-SM		Old Alluvial Fan Deposits(Qof) Silty Clayey SAND, with gravel, loose to medium-dense, moist, dark to reddish brown.	
5		8 10 10	113.3	8.4	SM		Silty SAND, with gravel, dense, damp to moist, light brown light brown.	
10		11 14 17		6.6			Silty SAND, with gravel, dense	
15		17 37 44					Silty SAND, with gravel, dense	
20		7 16 21					Silty SAND, with gravel, dense	
25					SP			

AL (LL=23, PI=6)
CN, MD

WA (23% fines)
M

WA (18% fines)



PROJECT:	Proposed Commercial Development	DRILLER:	2R Drilling CME 75	SHEET:	2 of 3
CTE JOB NO:	40-3639G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	8/10/2018
LOGGED BY:	V.P.	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~1087' msl

Depth (Feet)	Bulk Sample Driven Type	Blows/6 inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-14 Cont'd.	
							DESCRIPTION	
25		14 24 15			SP		Poorly Graded SAND, medium-dense, damp to moist light brown	Laboratory Tests
					SM		Silty SAND, with gravel, dense, damp to moist, light brown light brown.	
30		9 11 21		2.2				M
35		20 50/3"			GM		Silty Gravel with sand, very dense, dry to damp, light brown, some iron staining	
40		16 25 50/4"		3.2				M
45		13 21 27	110.8	15.3	SC		Clayey SAND, with gravel, medium-dense, moist, red brown, medium to coarse sand	MD
50								

B-14b



PROJECT:	Proposed Commercial Development	DRILLER:	2R Drilling CME 75	SHEET:	3 of 3
CTE JOB NO:	40-3639G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	8/10/2018
LOGGED BY:	V.P.	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~1087' msl

Depth (Feet)	Bulk Sample Driven Type	Blows/6 inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-14 Cont'd.	
							Laboratory Tests	
DESCRIPTION								
50		10 22 34		4.8	SC		Clayey SAND, with gravel, very-dense, damp to moist, red brown, medium to coarse sand	M
							Boring terminated at 51.5 feet bgs No groundwater encountered	
55								
60								
65								
70								
75								



PROJECT:	Proposed Commercial Development	DRILLER:	2R Drilling CME 75	SHEET:	1 of 1
CTE JOB NO:	40-3639G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	8/10/2018
LOGGED BY:	V.P.	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~1105' msl

Depth (Feet)	Bulk Sample Driven Type	Blows/6 inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-15	
							Laboratory Tests	
DESCRIPTION								
0					SC		Old Alluvial Fan Deposits(Qof) Clayey SAND, with gravel, moist, red brown.	
5		3 6 8		6.9			Clayey SAND, with gravel, medium-dense, damp to moist light brown, iron staining	M
10		5 5 12		5.7			Clayey SAND, with gravel, medium-dense, damp to moist light brown.	M
							Boring terminated at 11.5 feet bgs No groundwater encountered	
15								
20								
25								

APPENDIX B

LABORATORY METHODS AND RESULTS

APPENDIX B

LABORATORY METHODS AND RESULTS

Laboratory tests were performed on selected soil samples to evaluate their engineering properties. Tests were performed following test methods of the American Society for Testing and Materials (ASTM), or other accepted standards. The following presents a brief description of the various test methods used. Laboratory results are presented in the following section of this Appendix.

Atterberg Limits

The liquid limit and plasticity index were determined on selected soil samples in accordance with ASTM D4318.

Chemical Analysis

Soil materials were collected and tested for Sulfate and Chloride content, pH, and Resistivity by Caltrans Test Methods.

Classification

Soils were classified visually according to the Unified Soil Classification System. Visual classifications were supplemented by laboratory testing of selected samples according to ASTM D 2487.

Consolidation/Collapse

To assess compressibility and collapse potential when loaded and wetted, relatively undisturbed samples were subjected to consolidation/collapse in accordance with ASTM D 2435.

Direct Shear

Direct shear tests were performed on samples remolded to 90 percent of the maximum dry density at near optimum moisture content. Direct shear testing was performed in accordance with ASTM D 3080. The samples were inundated during shearing to represent adverse field conditions.

Expansion Index

Expansion Index testing was performed on a selected sample of the on-site soils according to ASTM D 4829.

In-Place Moisture/Density

The in-place moisture content and dry unit weight of selected relatively undisturbed samples in accordance with ASTM D 2216 and D 2937, respectively.

Moisture-Density Relations

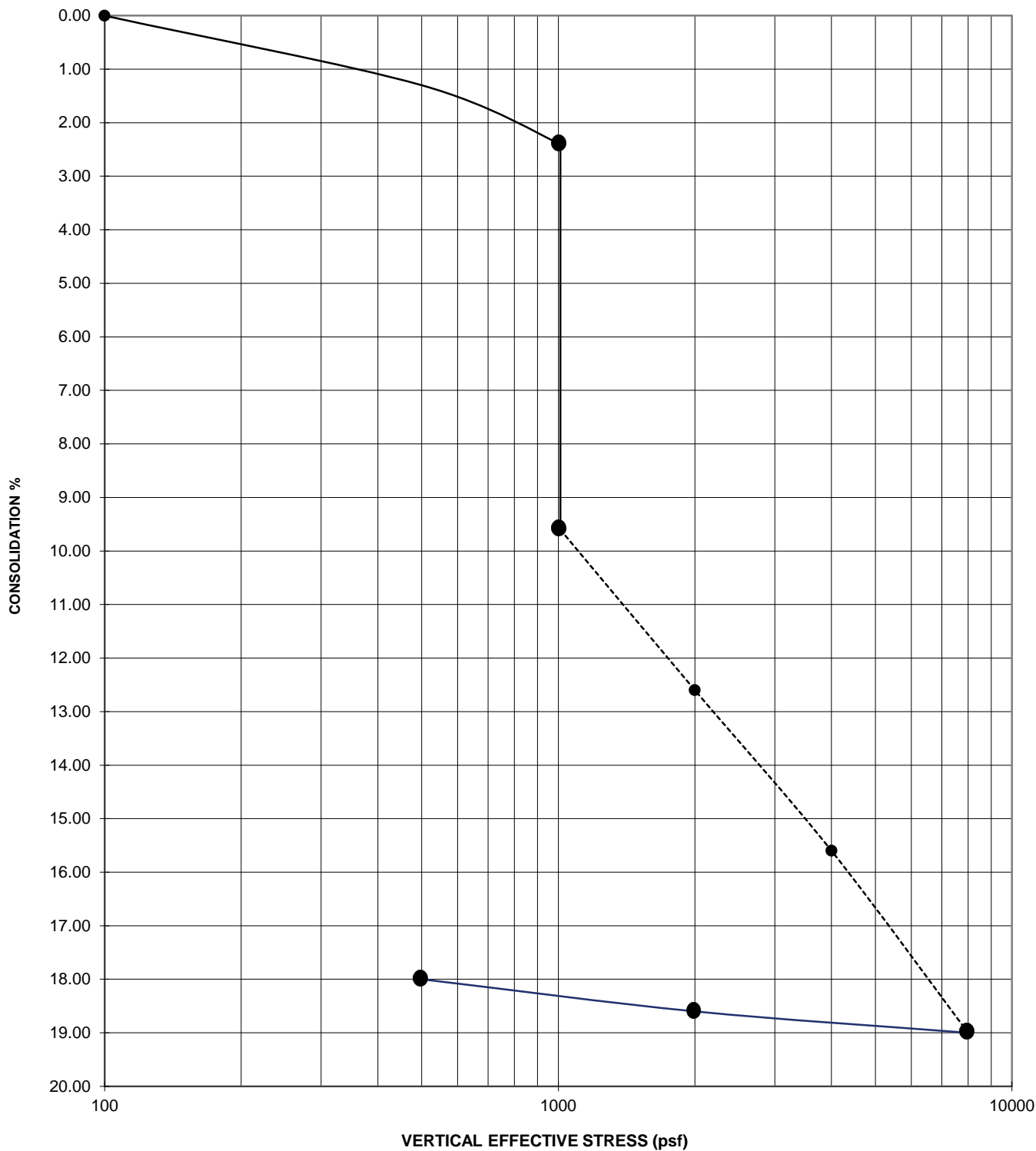
Laboratory maximum dry density and optimum moisture content were evaluated according to ASTM D 1557.

Resistance “R” Value

The resistance “R”-value was measured by CTM 301. The graphically determined “R” value at an exudation pressure of 300 pounds per square inch was determined and used for pavement section calculation.

Sieve Analysis (Gradation)

Sieve analyses and 200 washes were performed on selected representative samples according to ASTM C 136 and D 1140 to determine grain-size distribution.



SWELL/CONSOLIDATION TEST

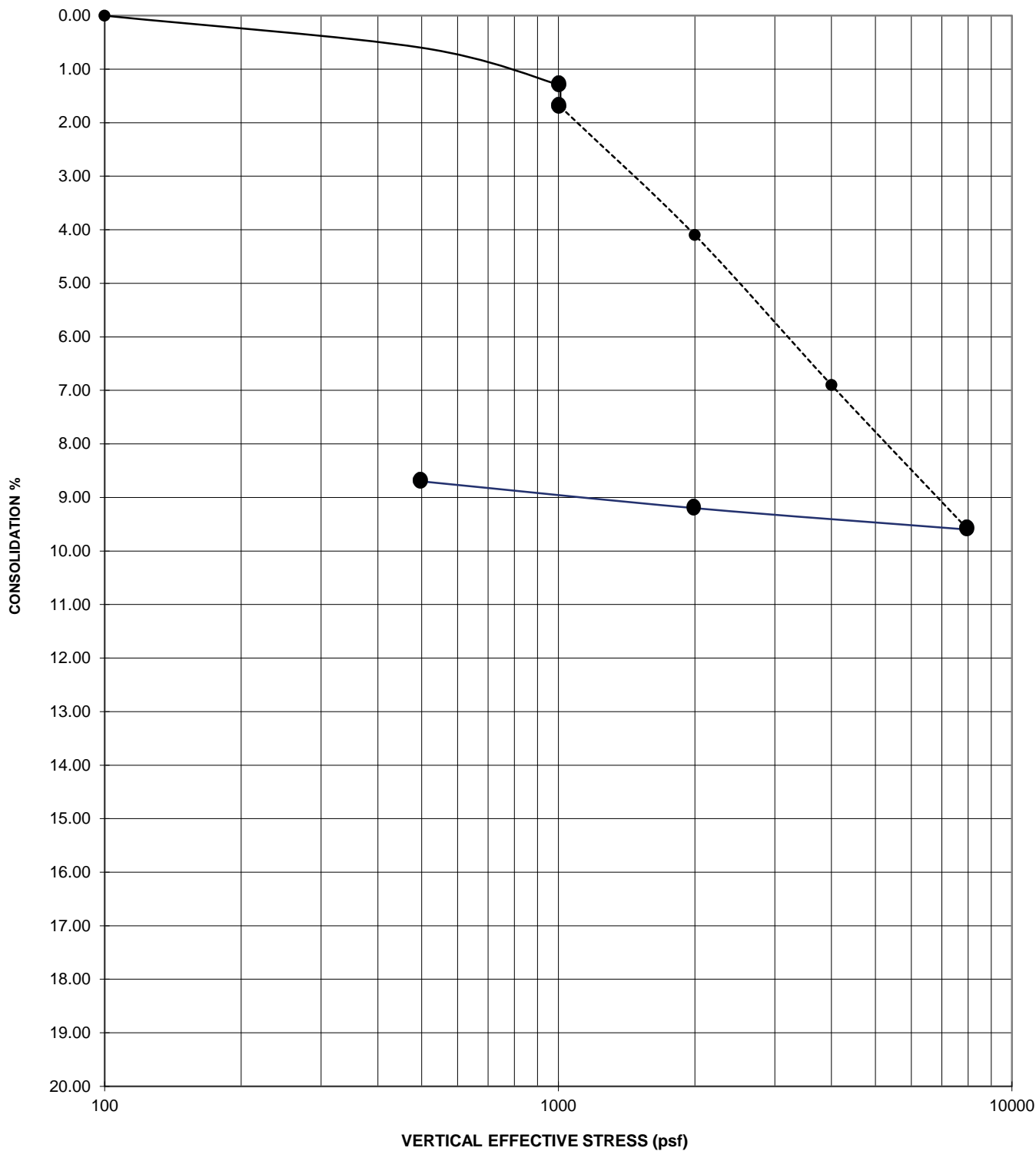
Sample Designation	Depth (ft)	Symbol	Legend
B-5	5.5-6	●	— FIELD MOISTURE
Initial Dry Density, pcf 114.6	Initial Moisture Content, % 6.2	Sample saturated at 1000 psf	- - - - - SAMPLE SATURATED
			— REBOUND



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CTE JOB NO: 40-3639

Proposed Commercial Dev.



SWELL/CONSOLIDATION TEST

Sample Designation	Depth (ft)	Symbol	Legend
B-14	6-6.5	●	— FIELD MOISTURE
Initial Dry Density, pcf 113.3	Initial Moisture Content, % 8.4	Sample saturated at 1000 psf	- - - - - SAMPLE SATURATED
			— REBOUND

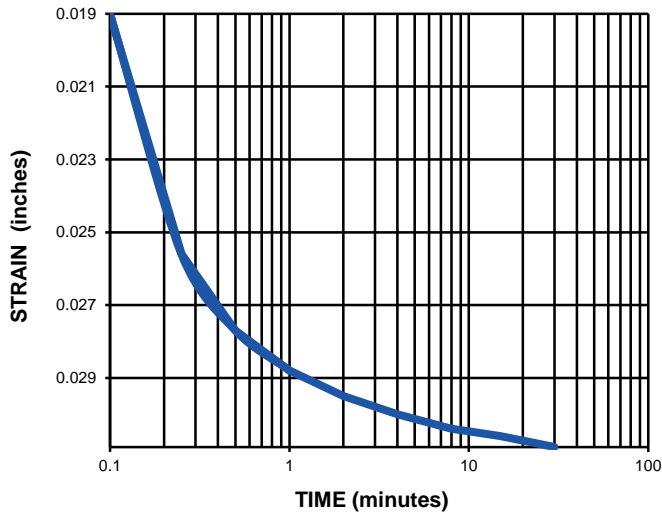


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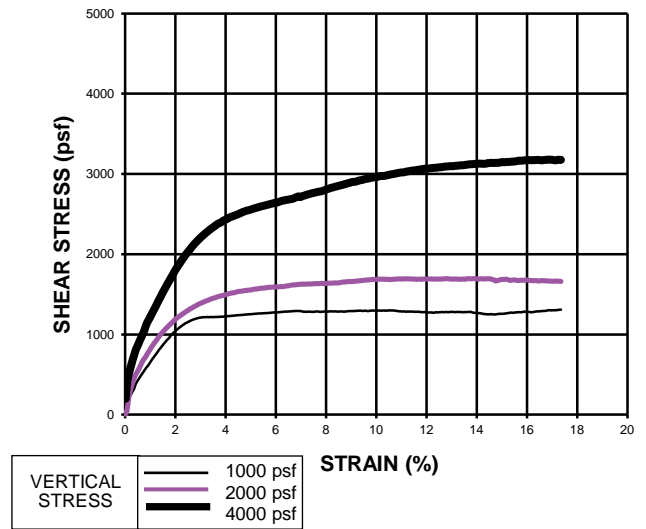
CTE JOB NO: 40-3639

Proposed Commercial Dev.

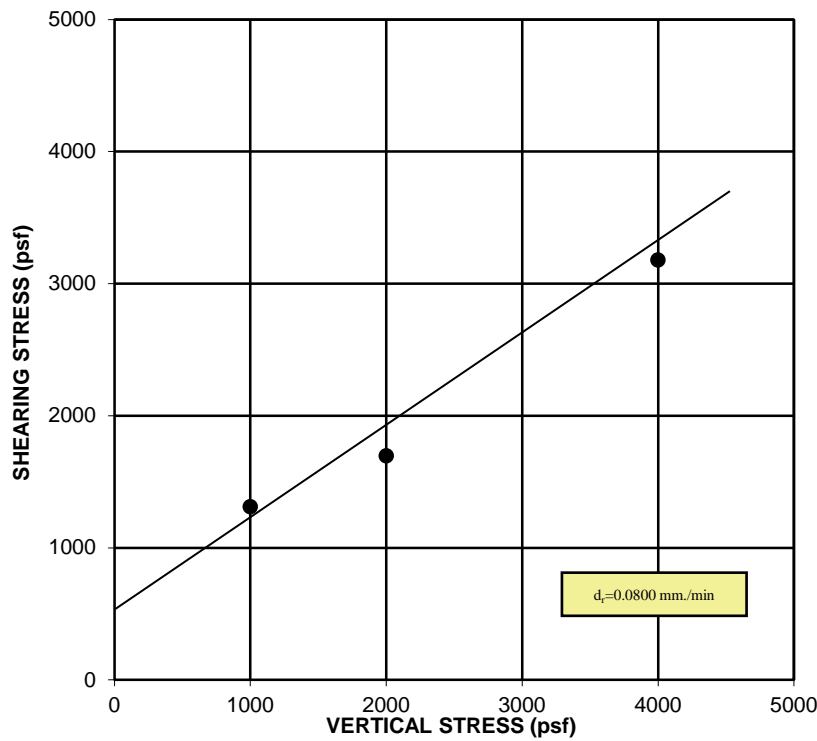
PRECONSOLIDATION



SHEARING DATA



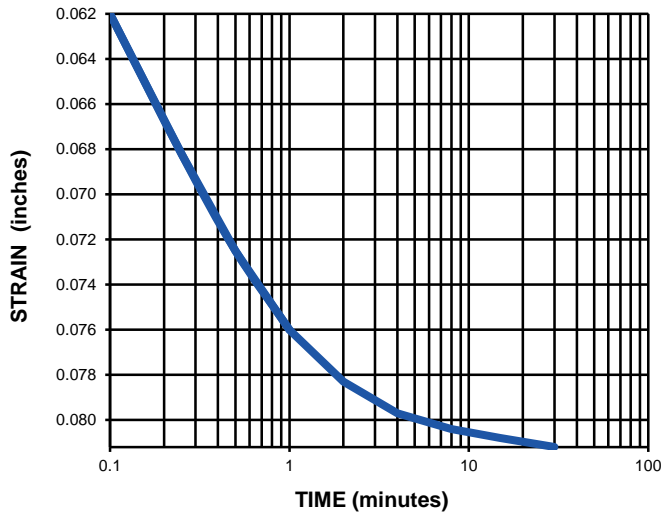
FAILURE ENVELOPE



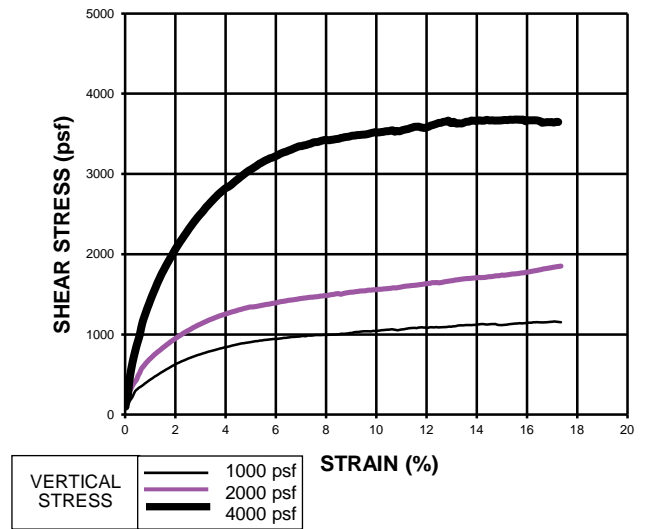
SHEAR STRENGTH TEST - ASTM D3080

Job Name: <u>Commercial Development - Temescal Canyon</u>	Initial Dry Density (pcf): <u>119.4</u>
Project Number: <u>40-3639G</u>	Sample Date: <u>8/16/2018</u>
Lab Number: <u>28778</u>	Test Date: <u>8/30/2018</u>
Sample Location: <u>B-6 @ 1-5'</u>	Tested by: <u>RCV</u>
Sample Description: <u>Moderate brown SC (Remolded @ 90%)</u>	Cohesion: <u>560 psf</u>
	Angle Of Friction: <u>32.6</u>

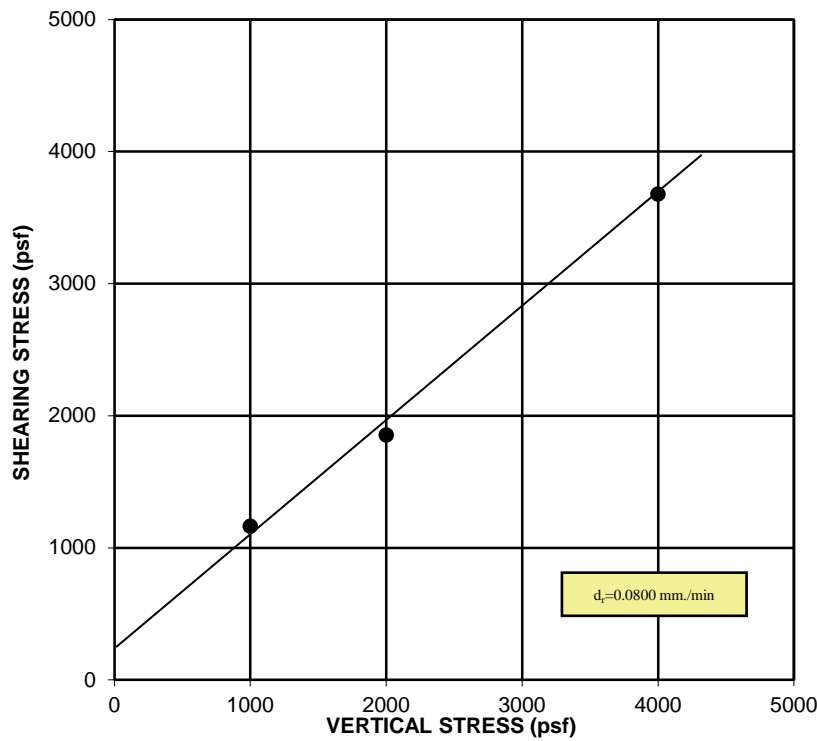
PRECONSOLIDATION



SHEARING DATA



FAILURE ENVELOPE



SHEAR STRENGTH TEST - ASTM D3080

Job Name: <u>Commercial Development - Temescal Canyon</u>	Initial Dry Density (pcf): <u>118.2</u>
Project Number: <u>40-3639G</u>	Sample Date: <u>8/16/2018</u>
Lab Number: <u>28778</u>	Test Date: <u>8/31/2018</u>
Sample Location: <u>B-10 @ 11-14'</u>	Tested by: <u>RCV</u>
Sample Description: <u>Moderate brown SC (Remolded @ 90%)</u>	Cohesion: <u>240 psf</u>
	Angle Of Friction: <u>40.4</u>



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REPORT OF RESISTANCE 'R' VALUE-EXPANSION PRESSURE

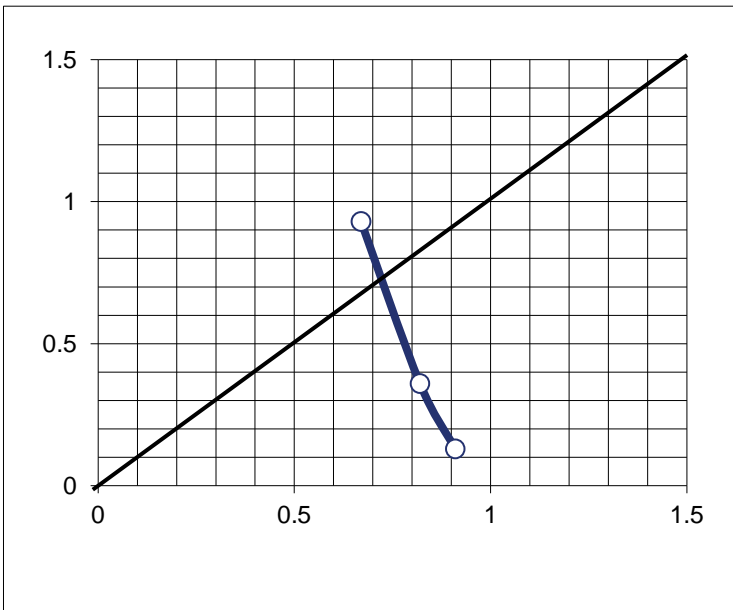
Project Name: Commercial Development - Temescal Canyon
Project No.: 40-3639G
Sample Location: B-2 @ 5-10'
Soil Description: Light brown SC w/ gravel
Test Procedure: Cal 301

Lab No.: 28778
Sampled By: V.P. **Date:** 8/16/2018
Submitted By: V.P. **Date:** 8/16/2018
Tested By: Larry Sachs **Date:** 8/30/2018
Reviewed By: Chase Velarde **Date:** 8/31/2018

Specimen/ Mold No.	1	2	3
Compactor Air Pressure, ft.lbs.	350	190	80
Initial Moisture, %	4.2	4.2	4.2
Wet Weight / Tare (g)	1950.7	1950.7	1950.7
Dry Weight / Tare (g)	1902.0	1902.0	1902.0
Tare (g)	750.1	750.1	750.1
Water Added, ml	90	100	115
Moisture at Compaction, %	12.0	12.9	14.2
Wt. Of Briquette and Mold, g	3238	3252	3230
Wt. Of Mold, g	2095	2110	2096
Wt. Of Briquette, g	1143	1142	1134
Height of Briquette, in	2.47	2.50	2.53
Dry Density, pcf	125.2	122.6	119.0
Stabilometer PH @ 1000 lbs	41	57	64
Stabilometer PH @ 2000 lbs	97	125	140
Displacement	3.75	4.05	6.05
R' Value	30	14	5
Corrected 'R' Value	30	14	5
Exudation Pressure, lbs	7250	4200	2450
Exudation Pressure, psi	580	336	196
Stabilometer Thickness - ft	0.67	0.82	0.91
Expansion Pressure	0.0028	0.0011	0.0004
Expansion Press, Thick-ft	0.93	0.36	0.13

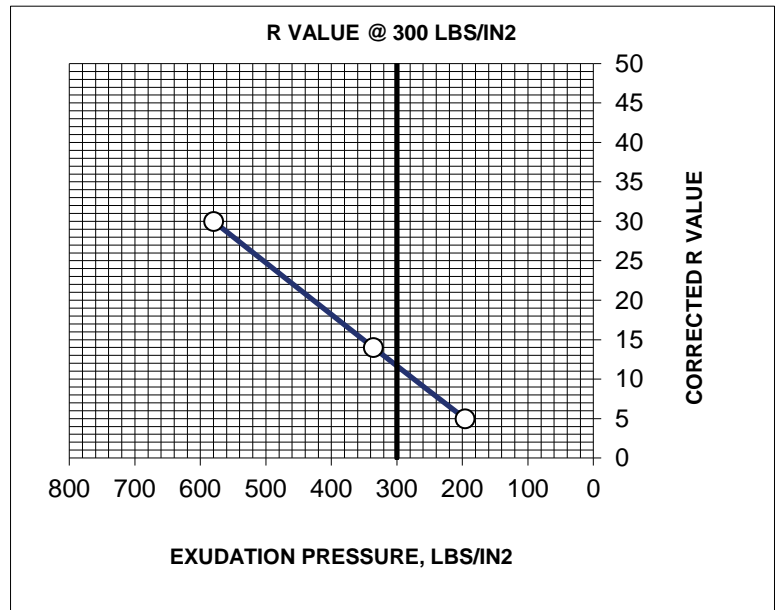
Exudation 11
Expansion 25
R-value 11

TI	4.5
Expansion	25



Cover Thickness by Expansion Pressure-Feet

Expansion From Graph: 0.72



Chase Velarde

Chase Velarde
 Laboratory Manager



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REPORT OF RESISTANCE 'R' VALUE-EXPANSION PRESSURE

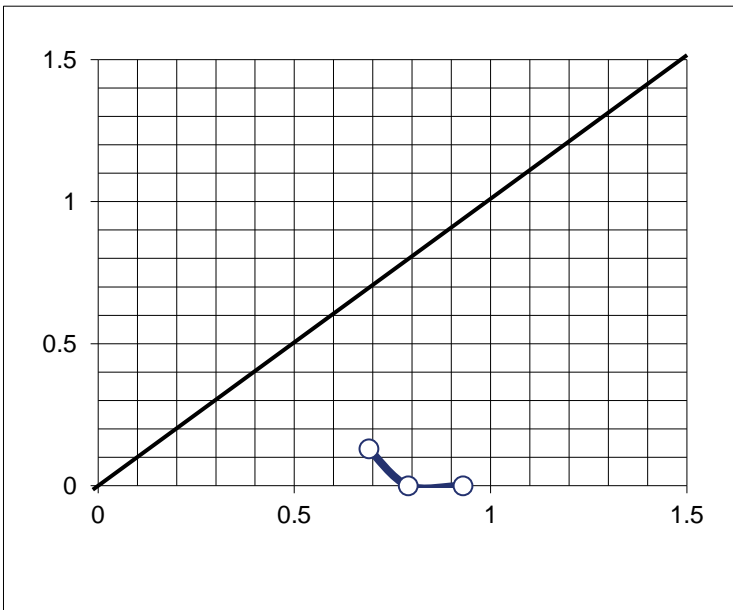
Project Name: Commercial Development - Temescal Canyon
Project No.: 40-3639G
Sample Location: B-11 @ 5-10'
Soil Description: Moderate brown SC w/ gravel
Test Procedure: Cal 301

Lab No.: 28778
Sampled By: V.P. **Date:** 8/16/2018
Submitted By: V.P. **Date:** 8/16/2018
Tested By: Larry Sachs **Date:** 8/30/2018
Reviewed By: Chase Velarde **Date:** 8/31/2018

Specimen/ Mold No.	7	8	9
Compactor Air Pressure, ft.lbs.	320	210	50
Initial Moisture, %	2.5	2.5	2.5
Wet Weight / Tare (g)	1471.3	1471.3	1471.3
Dry Weight / Tare (g)	1442.0	1442.0	1442.0
Tare (g)	271.0	271.0	271.0
Water Added, ml	90	100	115
Moisture at Compaction, %	10.2	11.0	12.3
Wt. Of Briquette and Mold, g	3245	3268	3264
Wt. Of Mold, g	2077	2077	2077
Wt. Of Briquette, g	1168	1191	1187
Height of Briquette, in	2.56	2.53	2.58
Dry Density, pcf	125.5	128.5	124.1
Stabilometer PH @ 1000 lbs	41	54	70
Stabilometer PH @ 2000 lbs	99	116	144
Displacement	3.95	4.55	6.81
R' Value	28	17	3
Corrected 'R' Value	28	17	3
Exudation Pressure, lbs	4700	2950	1200
Exudation Pressure, psi	376	236	96
Stabilometer Thickness - ft	0.69	0.79	0.93
Expansion Pressure	0.0004	0.0000	0.0000
Expansion Press, Thick-ft	0.13	0.00	0.00

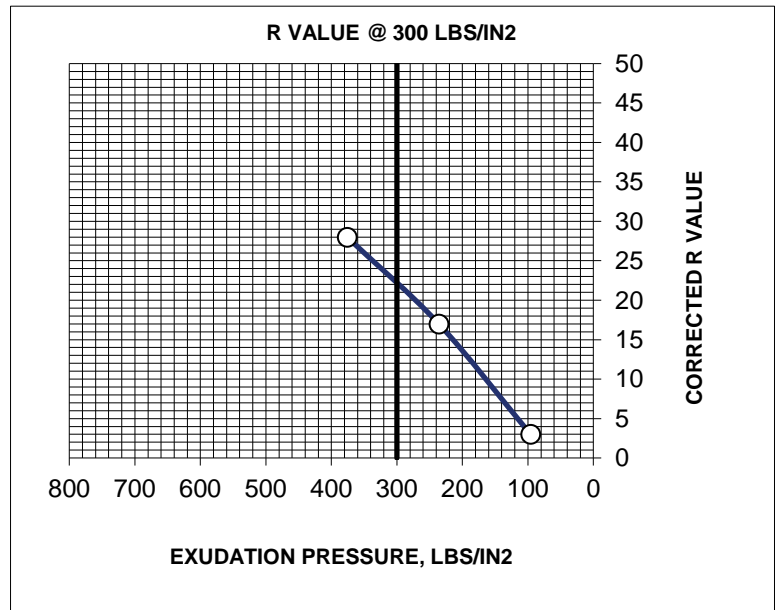
Exudation 22
Expansion 51
R-value 22

TI	4.5
Expansion	51



Cover Thickness by Expansion Pressure-Feet

Expansion From Graph: 0.47



Chase Velarde

Chase Velarde
 Laboratory Manager



EXPANSION INDEX TEST

ASTM D 4829

CTE Project Number: 40-3639G

Project Name: Proposed Commercial Development, Temescal Valley, CA

Sample ID: B-2 @ 5-10 ft.

Sample Description: Clayey Sand with Gravel

Test Start Date: 8-31-2018 Time: 7:53 am Initial Reading: 0.0091

Test Finish Date: 9-1-2018 Time: 7:53 am Final Reading: 0.0245

Specimen Moisture Content: 12.0 %
Specimen Dry Density: 104.5 pcf
Specimen Percent Saturation: 55.1 %

Expansion (inches): 0.0154

Expansion Index: 15

Expansion Potential: Very Low



EXPANSION INDEX TEST

ASTM D 4829

CTE Project Number: 40-3639G

Project Name: Proposed Commercial Development, Temescal Valley, CA

Sample ID: B-4 @ 2.5-5 ft.

Sample Description: Silty Clayey Sand with Gravel

Test Start Date: 8-30-2018 Time: 7:10 am Initial Reading: 0.0002

Test Finish Date: 8-31-2018 Time: 7:10 am Final Reading: 0.0055

Specimen Moisture Content: 9.0 %
Specimen Dry Density: 107.1 pcf
Specimen Percent Saturation: 45.1 %

Expansion (inches): 0.0053

Expansion Index: 5

Expansion Potential: Very Low



LABORATORY COMPACTION OF SOIL (MODIFIED PROCTOR)

ASTM D 1557

Project Name: Commercial Development
CTE Project No.: 40-3639G
Lab No.: 8772
Sample ID: B-6 @ 1-5'
Sample Description: Brown Silty Clayey Sand w/scattered gravel

Sampled By: VP **Date:** 8/16/18
Tested By: JF **Date:** 8/21/18
Reviewed By: RE **Date:** 8/21/18

TEST NO.	1	2	3	4
Wt. Comp. Soil + Mold (lbs)	16.628	16.796	16.430	16.188
Wt. of Mold (lbs)	5.967	5.967	5.967	5.967
Net Wt. of Soil (lbs)	10.661	10.829	10.463	10.221
Wet Wt. of Soil + Cont. (g)	1355.4	1331.9	1391.8	1288.8
Dry Wt. of Soil + Cont. (g)	1297.0	1262.3	1301.8	1248.8
Wt. of Container (g)	499.5	499.2	496.7	497.8
Moisture Content (%)	7.3	9.1	11.2	5.3
Wet Density (pcf)	142.0	144.2	139.3	136.1
Dry Density (pcf)	132.3	132.1	125.3	129.2

Preparation Method: Dry
 Moist

Mechanical Rammer
Manual Rammer

Hammer Weight: 10.0 lb.

Drop: 18 in.

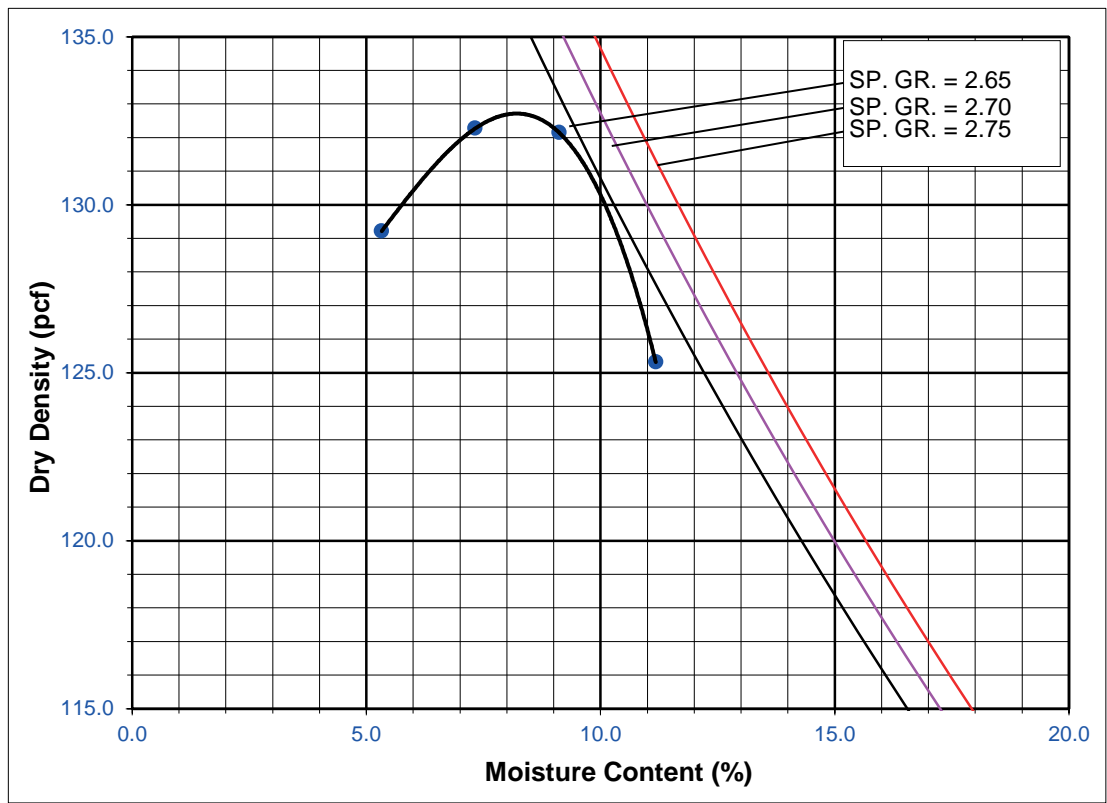
Mold Volume (ft.³): 0.07510

METHOD USED

Method A
 Soil Passing No. 4 (4.75 mm) Sieve
 Mold : 4 in. (101.6 mm) diameter
 Layers : 5 (Five)
 Blows per layer : 25 (twenty-five)
 May be used if No.4 retained =/< 25%

Method B
 Soil Passing 3/8 in. (9.5 mm) Sieve
 Mold : 4 in. (101.6 mm) diameter
 Layers : 5 (Five)
 Blows per layer : 25 (twenty-five)
 May be used if 3/8" retained =/< 25%

Method C
 Soil Passing 3/4 in. (19.0 mm) Sieve
 Mold : 6 in. (152.4 mm) diameter
 Layers : 5 (Five)
 Blows per layer : 56 (fifty-six)
 May be used if 3/4" retained =/< 30%



OVERSIZE FRACTION	
Total Sample Weight (g):	16037
Weight Retained (g)	Percent Retained
625	Plus 3/4" 3.9
	Plus 3/8"
	Plus #4

Maximum Dry Density (pcf) 132.7

Optimum Moisture Content (%) 8.2

Rock Correction Applied per ASTM D 4718

Maximum Dry Density (pcf) N/A

Optimum Moisture Content (%) N/A



LABORATORY COMPACTION OF SOIL (MODIFIED PROCTOR)

ASTM D 1557

Project Name: Commercial Development
CTE Project No.: 40-3639G
Lab No.: 8772
Sample ID: B-10 @ 11-14'
Sample Description: Brown Silty Clayey Sand w/Gravel

Sampled By: VP **Date:** 8/16/18
Tested By: JF **Date:** 8/21/18
Reviewed By: RE **Date:** 8/21/18

TEST NO.	1	2	3	4
Wt. Comp. Soil + Mold (lbs)	16.609	16.682	16.432	16.275
Wt. of Mold (lbs)	5.967	5.967	5.967	5.967
Net Wt. of Soil (lbs)	10.642	10.715	10.465	10.308
Wet Wt. of Soil + Cont. (g)	1301.5	1731.5	1447.2	1279.5
Dry Wt. of Soil + Cont. (g)	1242.2	1633.7	1365.0	1232.9
Wt. of Container (g)	499.5	650.4	655.4	497.8
Moisture Content (%)	8.0	9.9	11.6	6.3
Wet Density (pcf)	141.7	142.7	139.3	137.3
Dry Density (pcf)	131.2	129.8	124.9	129.1

Preparation Method: Dry
 Moist

Mechanical Rammer
Manual Rammer

Hammer Weight: 10.0 lb.

Drop: 18 in.

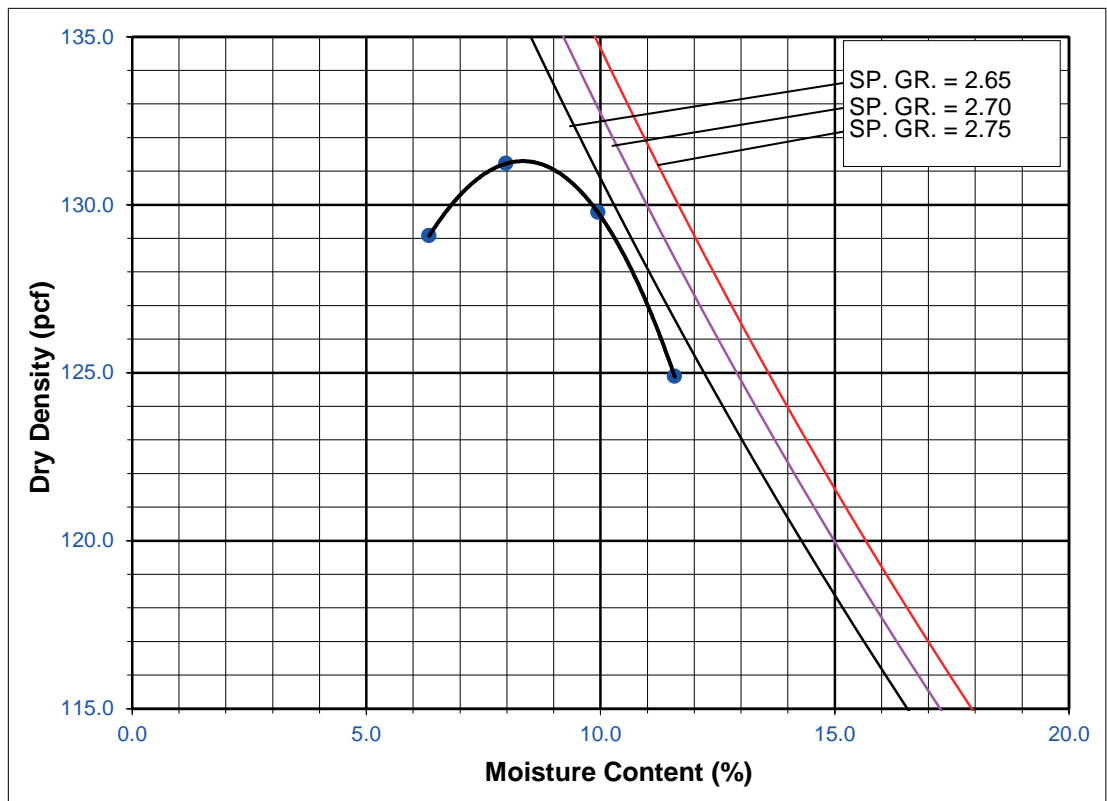
Mold Volume (ft.³): 0.07510

METHOD USED

Method A
 Soil Passing No. 4 (4.75 mm) Sieve
 Mold : 4 in. (101.6 mm) diameter
 Layers : 5 (Five)
 Blows per layer : 25 (twenty-five)
 May be used if No.4 retained =/< 25%

Method B
 Soil Passing 3/8 in. (9.5 mm) Sieve
 Mold : 4 in. (101.6 mm) diameter
 Layers : 5 (Five)
 Blows per layer : 25 (twenty-five)
 May be used if 3/8" retained =/< 25%

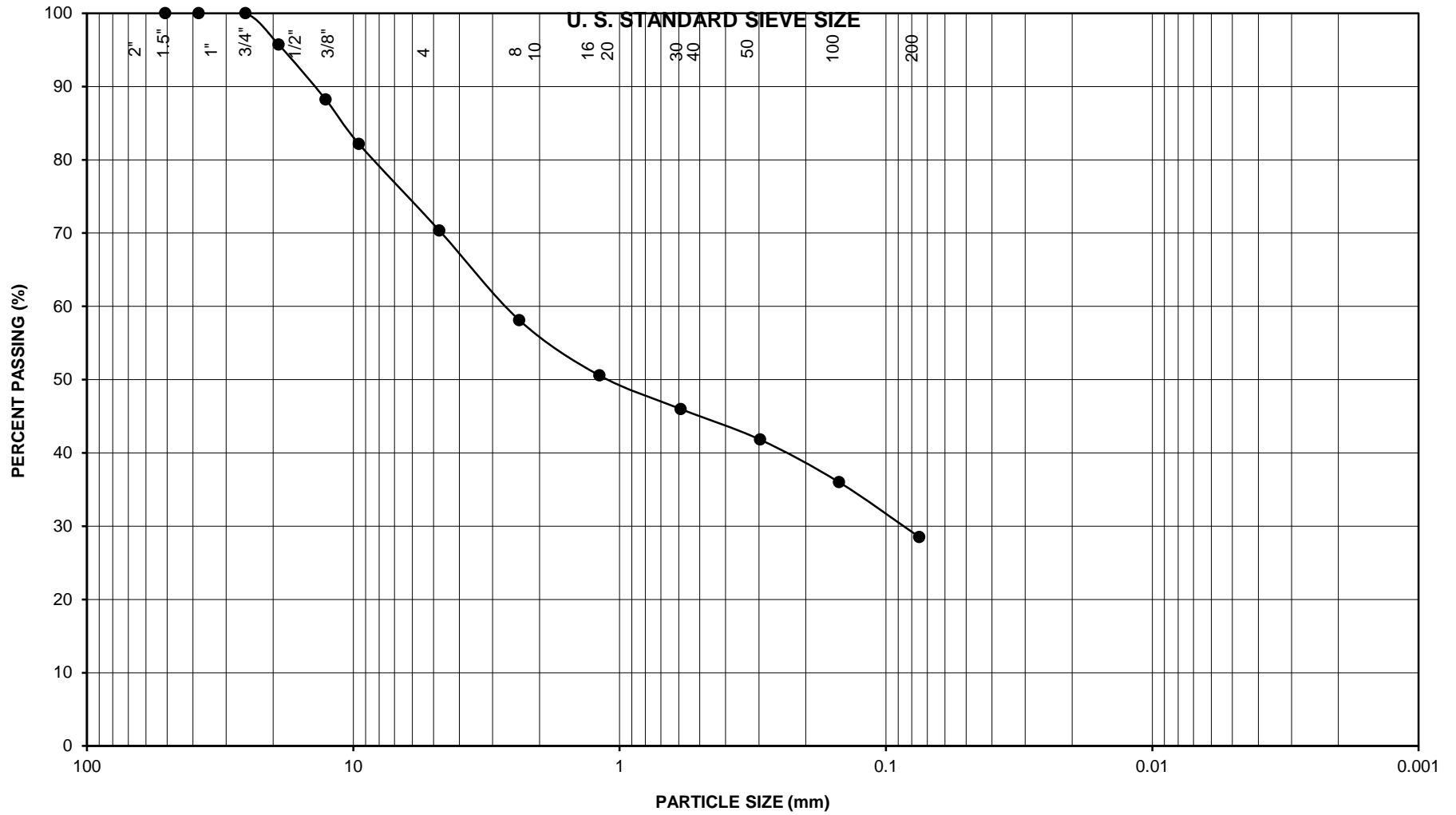
Method C
 Soil Passing 3/4 in. (19.0 mm) Sieve
 Mold : 6 in. (152.4 mm) diameter
 Layers : 5 (Five)
 Blows per layer : 56 (fifty-six)
 May be used if 3/4" retained =/< 30%



OVERSIZE FRACTION	
Total Sample Weight (g):	17350
Weight Retained (g)	Percent Retained
2896	Plus 3/4" 16.7
	Plus 3/8"
	Plus #4

Maximum Dry Density (pcf) 131.3
Optimum Moisture Content (%) 8.3

Rock Correction Applied per ASTM D 4718
Maximum Dry Density (pcf) 136.0
Optimum Moisture Content (%) 7.0

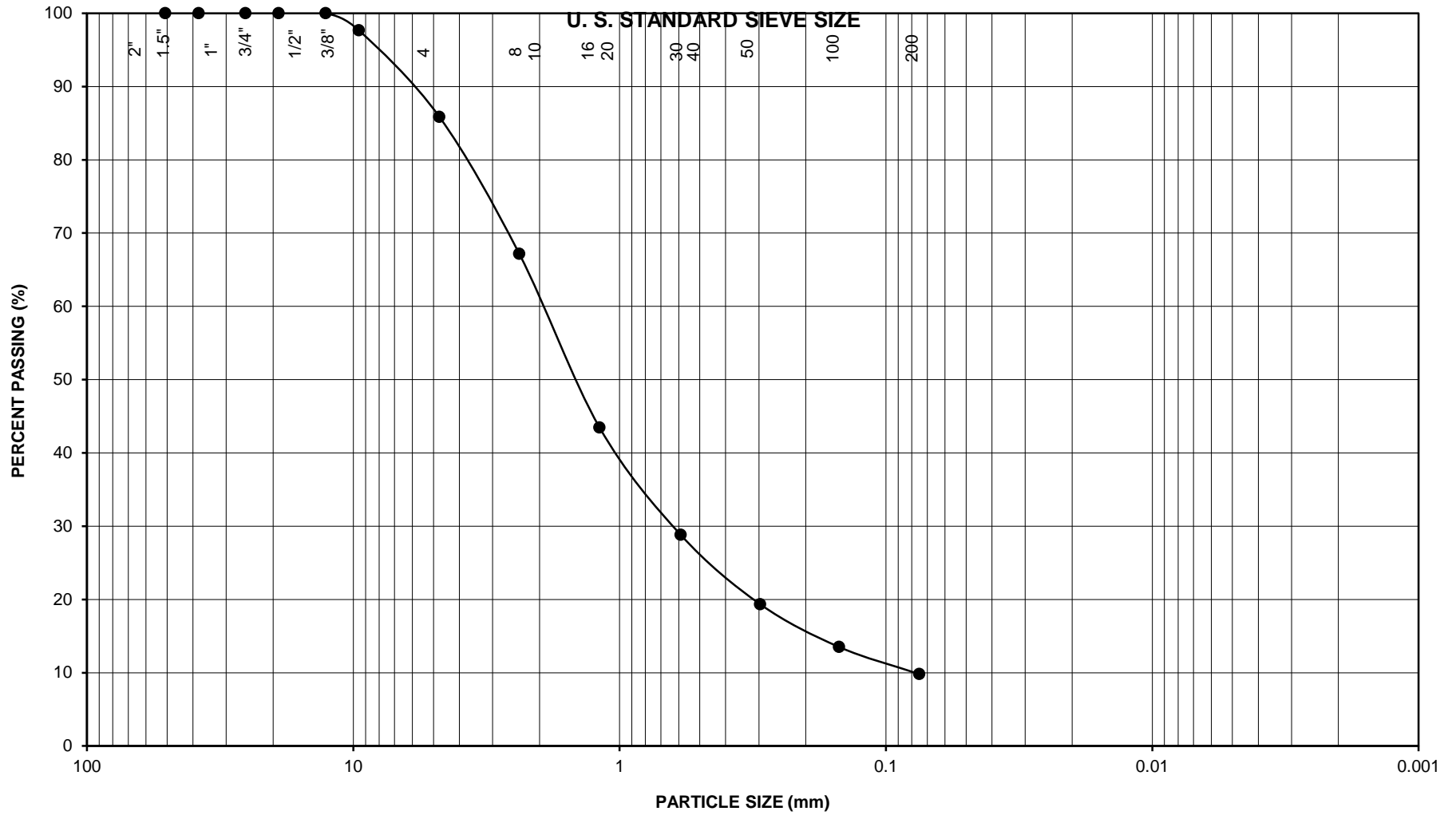


PARTICLE SIZE ANALYSIS



Sample Designation	Sample Depth (feet)	Symbol	Liquid Limit (%)	Plasticity Index	Classification
B-2	6-6.5	●			SC w/Gravel
		■			

CTE JOB NUMBER: 40-3639G Commercial Development

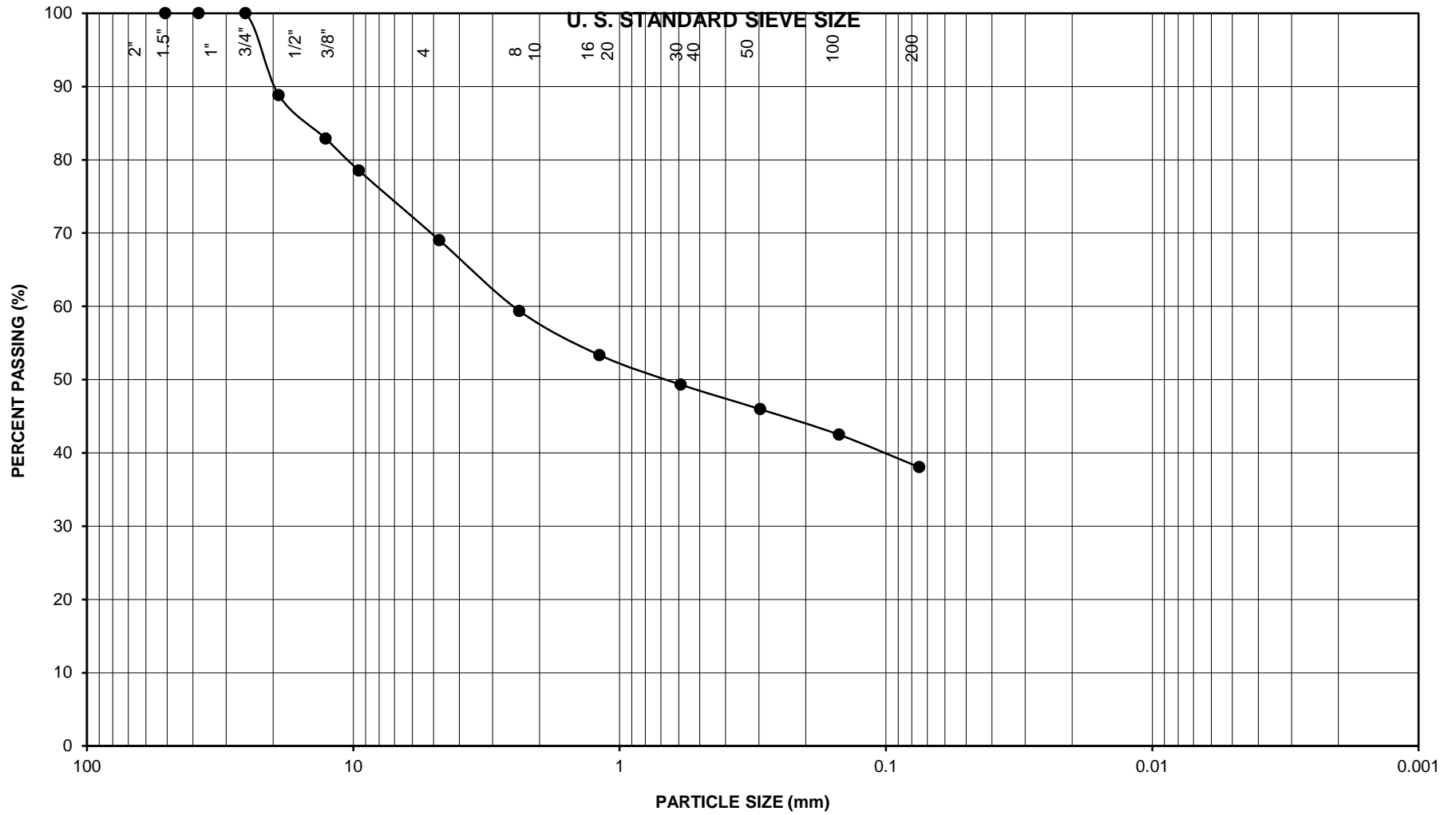


PARTICLE SIZE ANALYSIS



Sample Designation	Sample Depth (feet)	Symbol	Liquid Limit (%)	Plasticity Index	Classification
B-7	11-11.5	●			SW-SM w/Grav
		■			

CTE JOB NUMBER: 40-3639G Commercial Development

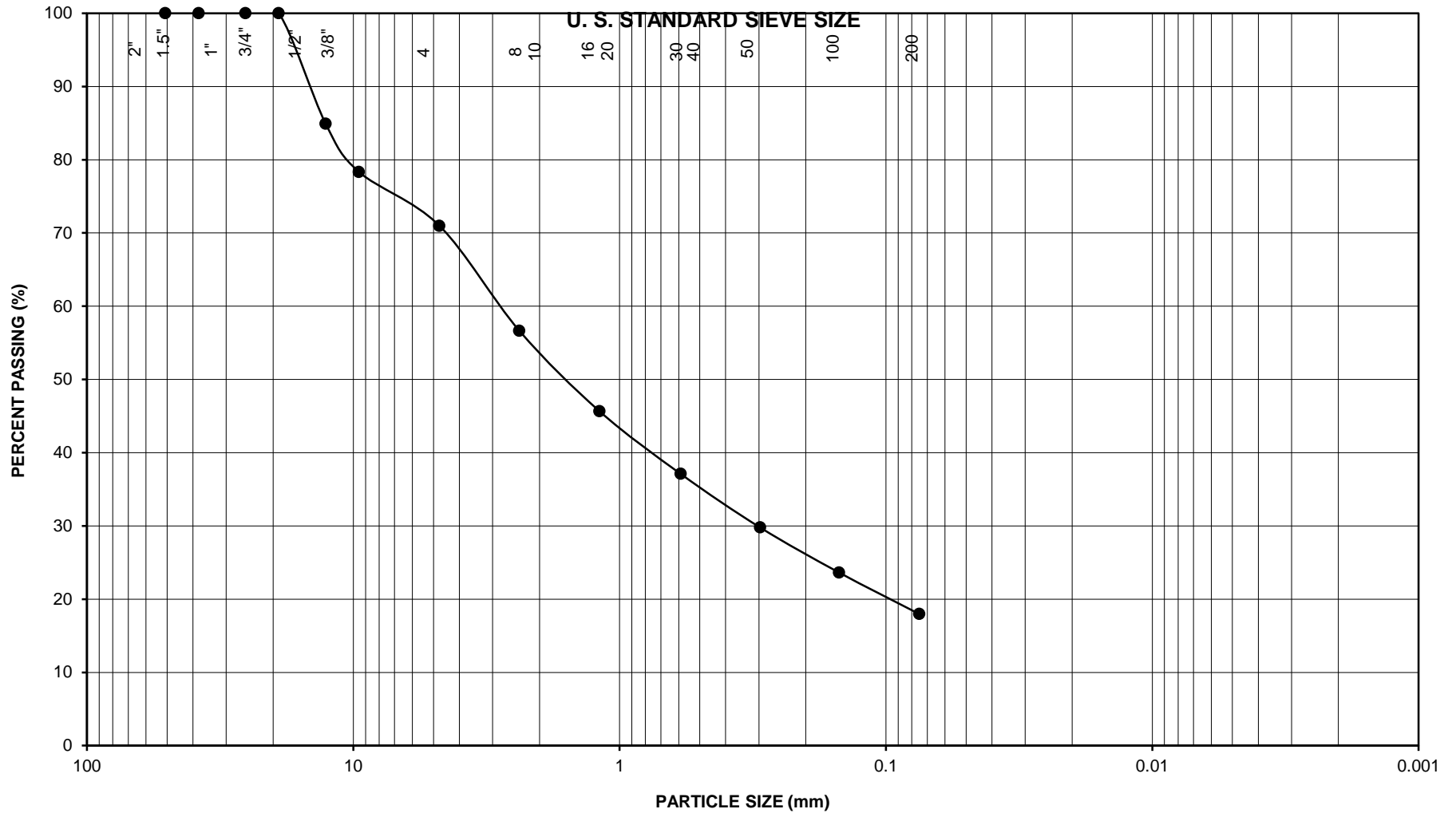


PARTICLE SIZE ANALYSIS



Sample Designation	Sample Depth (feet)	Symbol	Liquid Limit (%)	Plasticity Index	Classification
B-10	8-10	●			SC w/Gravel
		■			

CTE JOB NUMBER: 40-3639G Commercial Development



PARTICLE SIZE ANALYSIS



Sample Designation	Sample Depth (feet)	Symbol	Liquid Limit (%)	Plasticity Index	Classification
B-12	10-11.5	●			SC-SM w/Grav
		■			

CTE JOB NUMBER: 40-3639G Commercial Development



BABCOCK Laboratories, Inc.

The Standard of Excellence for Over 100 Years

Client Name: Construction Testing & Eng., Inc.
Contact: Robert Ellerbusch
Address: 14538 Meridian Parkway, Suite A
Riverside, CA 92518

Report Date: 30-Aug-2018

Analytical Report: Page 1 of 4
Project Name: Const. Test.-Soils

Project Number: Residential Dev. Temescal Cyn. -
Corona CA

Work Order Number: B8H3072

Received on Ice (Y/N): No Temp: 31 °C

Attached is the analytical report for the sample(s) received for your project. Below is a list of the individual sample descriptions with the corresponding laboratory number(s). Also, enclosed is a copy of the Chain of Custody document (if received with your sample(s)). Please note any unused portion of the sample(s) may be responsibly discarded after 30 days from the above report date, unless you have requested otherwise.

Thank you for the opportunity to serve your analytical needs. If you have any questions or concerns regarding this report please contact our client service department.

Sample Identification

<u>Lab Sample #</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>By</u>	<u>Date Submitted</u>	<u>By</u>
B8H3072-01	40-3639: B-5 @ 0-3'	Soil	08/16/18 00:00	Vincent J. Patula	08/24/18 13:57	Jason Collins
B8H3072-02	40-3639: B-9 @ 5-10'	Soil	08/16/18 00:00	Vincent J. Patula	08/24/18 13:57	Jason Collins



BABCOCK Laboratories, Inc.

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Client Name: Construction Testing & Eng., Inc.
Contact: Robert Ellerbusch
Address: 14538 Meridian Parkway, Suite A
Riverside, CA 92518

Report Date: 30-Aug-2018

Analytical Report: Page 2 of 4
Project Name: Const. Test.-Soils

Project Number: Residential Dev. Temescal Cyn. -
Corona CA

Work Order Number: B8H3072

Received on Ice (Y/N): No Temp: 31 °C

Laboratory Reference Number

B8H3072-01

<u>Sample Description</u>	<u>Matrix</u>	<u>Sampled Date/Time</u>	<u>Received Date/Time</u>
40-3639: B-5 @ 0-3'	Soil	08/16/18 00:00	08/24/18 13:57

<u>Analyte(s)</u>	<u>Result</u>	<u>RDL</u>	<u>Units</u>	<u>Method</u>	<u>Analysis Date</u>	<u>Analyst</u>	<u>Flag</u>
Anions							
Chloride	ND	5.0	mg/kg	Cal Trans 422	08/28/18 16:20	RER	
Sulfate	ND	5.0	mg/kg	Cal Trans 417	08/28/18 16:20	RER	
Saturated Paste							
pH	5.4	0.1	pH Units	S-1.10 W.S.	08/28/18 18:08	TML	
Minimum Resistivity	7000	10	ohm-cm	Cal Trans 643	08/28/18 18:08	TML	



BABCOCK Laboratories, Inc.

The Standard of Excellence for Over 100 Years

Client Name: Construction Testing & Eng., Inc.
Contact: Robert Ellerbusch
Address: 14538 Meridian Parkway, Suite A
Riverside, CA 92518

Analytical Report: Page 3 of 4
Project Name: Const. Test.-Soils

Project Number: Residential Dev. Temescal Cyn. -
Corona CA

Report Date: 30-Aug-2018

Work Order Number: B8H3072

Received on Ice (Y/N): No Temp: 31 °C

Laboratory Reference Number

B8H3072-02

<u>Sample Description</u>	<u>Matrix</u>	<u>Sampled Date/Time</u>	<u>Received Date/Time</u>
40-3639: B-9 @ 5-10'	Soil	08/16/18 00:00	08/24/18 13:57

Analyte(s)	Result	RDL	Units	Method	Analysis Date	Analyst	Flag
Anions							
Chloride	9.2	5.0	mg/kg	Cal Trans 422	08/28/18 14:54	RER	
Sulfate	21	5.0	mg/kg	Cal Trans 417	08/28/18 14:54	RER	
Saturated Paste							
pH	6.0	0.1	pH Units	S-1.10 W.S.	08/28/18 18:08	TML	
Minimum Resistivity	2600	10	ohm-cm	Cal Trans 643	08/28/18 18:08	TML	



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Client Name: Construction Testing & Eng., Inc.
Contact: Robert Ellerbusch
Address: 14538 Meridian Parkway, Suite A
Riverside, CA 92518

Report Date: 30-Aug-2018

Analytical Report: Page 4 of 4
Project Name: Const. Test.-Soils

Project Number: Residential Dev. Temescal Cyn. -
Corona CA

Work Order Number: B8H3072

Received on Ice (Y/N): No Temp: 31 °C

Notes and Definitions

- ND: Analyte NOT DETECTED at or above the Method Detection Limit (if MDL is reported), otherwise at or above the Reportable Detection Limit (RDL)
- NR: Not Reported
- RDL: Reportable Detection Limit
- MDL: Method Detection Limit
- * / " : NELAP does not offer accreditation for this analyte/method/matrix combination

Approval

Enclosed are the analytical results for the submitted sample(s). Babcock Laboratories certify the data presented as part of this report meet the minimum quality standards in the referenced analytical methods. Any exceptions have been noted.

KayeLani A. Marshall

cc:

e-Short_No Alias.rpt

This report applies only to the sample(s) analyzed. As a mutual protection to clients, the public, and Babcock Laboratories, Inc., this report is submitted and accepted for the exclusive use of the Client to whom it is addressed. Interpretation and use of the information contained within this report are the sole responsibility of the Client. Babcock Laboratories, Inc. is not responsible for any misinformation or consequences that may result from misinterpretation or improper use of this report. This report is not to be modified or abbreviated in any way. Additionally, this report is not to be used, in whole or in part, in any advertising or publicity matter without written authorization from Babcock Laboratories, Inc. The liability of Babcock Laboratories, Inc. is limited to the actual cost of the requested analyses, unless otherwise agreed upon in writing. There is no other warranty expressed or implied.

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EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119

APPENDIX C

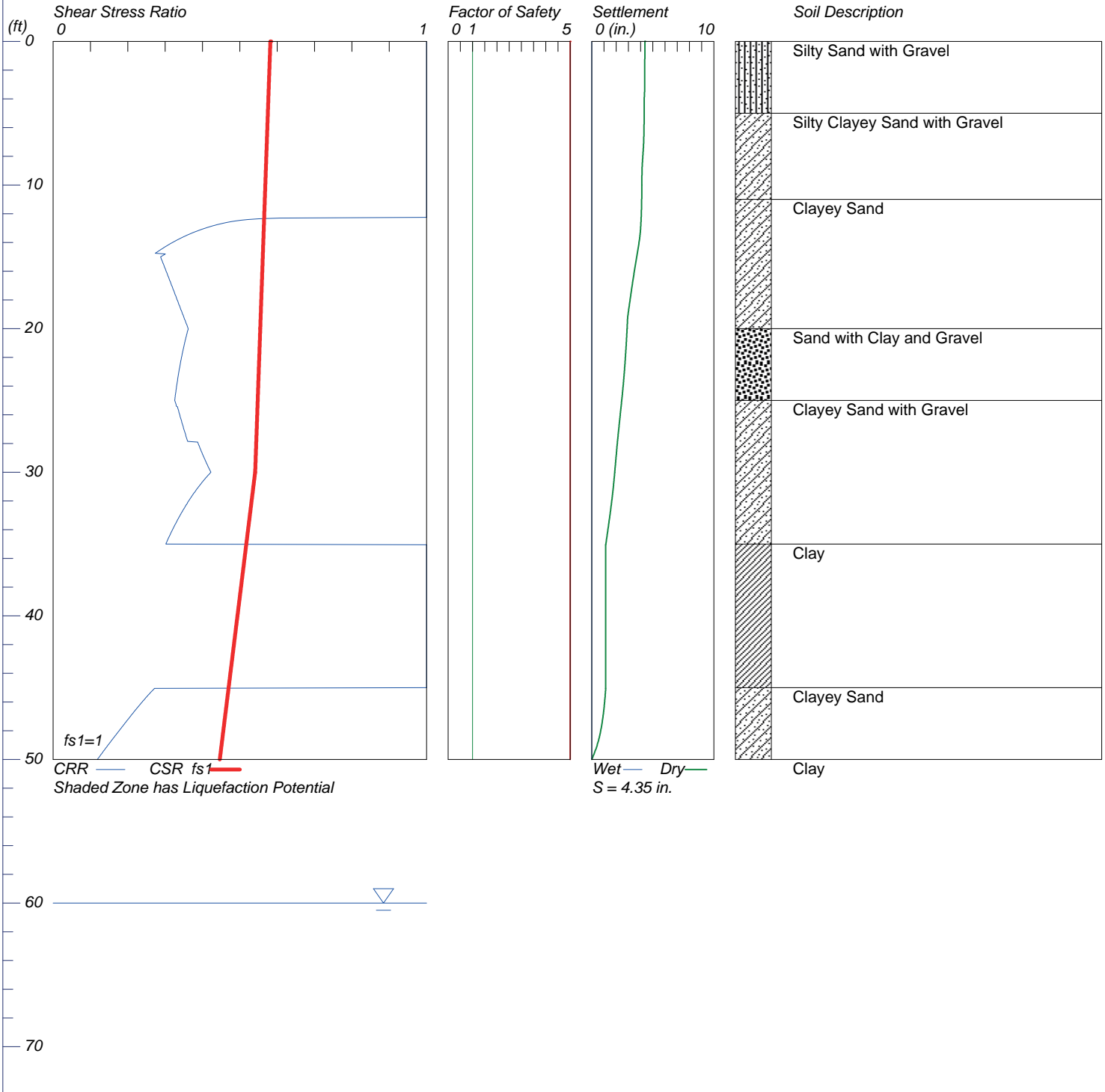
SEISMIC SETTLEMENT ANALYSIS

LIQUEFACTION ANALYSIS

Proposed Commercial Dev. Temescal Cyn

Hole No.=B-1 Water Depth=60 ft Surface Elev.=~1093

**Magnitude=6.8
Acceleration=0.895g**



LiquefyPro CivilTech Software USA www.civiltech.com

LIQUEFACTION ANALYSIS CALCULATION SHEET

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www.civiltech.com
(425) 453-6488 Fax (425) 453-5848

Li censed to , 11/6/2018 10: 36: 05 AM

Input File Name: \\Server\projects\40-3639G Proposed Residential
Development\B1. liq

Title: Proposed Commercial Dev. Temescal Cyn
Subti tle: 40-3639G

Surface El ev. =~1093
Hol e No. =B-1
Depth of Hol e= 50.0 ft
Water Table during Earthquake= 60.0 ft
Water Table during In-Si tu Testi ng= 60.0 ft
Max. Accel erati on= 0.89 g
Earthquake Magni tude= 6.8

Input Data:

Surface El ev. =~1093
Hol e No. =B-1
Depth of Hol e=50.0 ft
Water Table during Earthquake= 60.0 ft
Water Table during In-Si tu Testi ng= 60.0 ft
Max. Accel erati on=0.89 g
Earthquake Magni tude=6.8

Earthquake Magni tude=6.8

- 2. Settlement Analysis Method: Ishihara / Yoshimine*
- 3. Fines Correction for Liquefaction: Stark/Olson et al.*
- 4. Fine Correction for Settlement: During Liquefaction*
- 5. Settlement Calculation in: All zones*
- 6. Hammer Energy Ratio,
- 7. Borehole Diameter,
- 8. Sampling Method,
- 9. User request factor of safety (apply to CSR) , User= 1
Plot one CSR curve (fs1=1)
- 10. Use Curve Smoothing: Yes*

Ce = 1
Cb= 1
Cs= 1

* Recommended Opti ons

In-Si tu Test Data:

Depth ft	SPT	gamma pcf	Fines %
0.0	23.0	120.0	25.0
5.0	23.0	120.0	25.0
10.0	35.0	120.0	20.0
15.0	18.0	120.0	16.0
20.0	28.0	125.0	8.0
25.0	27.0	120.0	14.0
30.0	33.0	110.0	18.0
35.0	28.0	120.0	NoLi q
40.0	35.0	120.0	NoLi q
45.0	32.0	120.0	14.0

50.0 13.0 120.0 NoLi q B1. sum

Output Results:

Settlement of saturated sands=0.00 in.
 Settlement of dry sands=4.35 in.
 Total settlement of saturated and dry sands=4.35 in.
 Differential Settlement=2.173 to 2.868 in.

Depth ft	CRRm	CSRfs	F. S.	S_sat. in.	S_dry in.	S_all in.
0.00	2.57	0.58	5.00	0.00	4.35	4.35
0.05	2.57	0.58	5.00	0.00	4.35	4.35
0.10	2.57	0.58	5.00	0.00	4.35	4.35
0.15	2.57	0.58	5.00	0.00	4.34	4.34
0.20	2.57	0.58	5.00	0.00	4.34	4.34
0.25	2.57	0.58	5.00	0.00	4.34	4.34
0.30	2.57	0.58	5.00	0.00	4.34	4.34
0.35	2.57	0.58	5.00	0.00	4.34	4.34
0.40	2.57	0.58	5.00	0.00	4.34	4.34
0.45	2.57	0.58	5.00	0.00	4.34	4.34
0.50	2.57	0.58	5.00	0.00	4.34	4.34
0.55	2.57	0.58	5.00	0.00	4.34	4.34
0.60	2.57	0.58	5.00	0.00	4.34	4.34
0.65	2.57	0.58	5.00	0.00	4.34	4.34
0.70	2.57	0.58	5.00	0.00	4.34	4.34
0.75	2.57	0.58	5.00	0.00	4.34	4.34
0.80	2.57	0.58	5.00	0.00	4.34	4.34
0.85	2.57	0.58	5.00	0.00	4.34	4.34
0.90	2.57	0.58	5.00	0.00	4.34	4.34
0.95	2.57	0.58	5.00	0.00	4.34	4.34
1.00	2.57	0.58	5.00	0.00	4.34	4.34
1.05	2.57	0.58	5.00	0.00	4.34	4.34
1.10	2.57	0.58	5.00	0.00	4.34	4.34
1.15	2.57	0.58	5.00	0.00	4.34	4.34
1.20	2.57	0.58	5.00	0.00	4.34	4.34
1.25	2.57	0.58	5.00	0.00	4.34	4.34
1.30	2.57	0.58	5.00	0.00	4.34	4.34
1.35	2.57	0.58	5.00	0.00	4.34	4.34
1.40	2.57	0.58	5.00	0.00	4.34	4.34
1.45	2.57	0.58	5.00	0.00	4.34	4.34
1.50	2.57	0.58	5.00	0.00	4.34	4.34
1.55	2.57	0.58	5.00	0.00	4.34	4.34
1.60	2.57	0.58	5.00	0.00	4.34	4.34
1.65	2.57	0.58	5.00	0.00	4.34	4.34
1.70	2.57	0.58	5.00	0.00	4.34	4.34
1.75	2.57	0.58	5.00	0.00	4.34	4.34
1.80	2.57	0.58	5.00	0.00	4.34	4.34
1.85	2.57	0.58	5.00	0.00	4.34	4.34
1.90	2.57	0.58	5.00	0.00	4.34	4.34
1.95	2.57	0.58	5.00	0.00	4.34	4.34
2.00	2.57	0.58	5.00	0.00	4.34	4.34
2.05	2.57	0.58	5.00	0.00	4.34	4.34
2.10	2.57	0.58	5.00	0.00	4.34	4.34
2.15	2.57	0.58	5.00	0.00	4.34	4.34
2.20	2.57	0.58	5.00	0.00	4.34	4.34
2.25	2.57	0.58	5.00	0.00	4.34	4.34
2.30	2.57	0.58	5.00	0.00	4.34	4.34
2.35	2.57	0.58	5.00	0.00	4.34	4.34
2.40	2.57	0.58	5.00	0.00	4.34	4.34
2.45	2.57	0.58	5.00	0.00	4.34	4.34
2.50	2.57	0.58	5.00	0.00	4.34	4.34

				B1. sum		
5. 70	2. 57	0. 57	5. 00	0. 00	4. 29	4. 29
5. 75	2. 57	0. 57	5. 00	0. 00	4. 28	4. 28
5. 80	2. 57	0. 57	5. 00	0. 00	4. 28	4. 28
5. 85	2. 57	0. 57	5. 00	0. 00	4. 28	4. 28
5. 90	2. 57	0. 57	5. 00	0. 00	4. 28	4. 28
5. 95	2. 57	0. 57	5. 00	0. 00	4. 28	4. 28
6. 00	2. 57	0. 57	5. 00	0. 00	4. 28	4. 28
6. 05	2. 57	0. 57	5. 00	0. 00	4. 28	4. 28
6. 10	2. 57	0. 57	5. 00	0. 00	4. 28	4. 28
6. 15	2. 57	0. 57	5. 00	0. 00	4. 28	4. 28
6. 20	2. 57	0. 57	5. 00	0. 00	4. 28	4. 28
6. 25	2. 57	0. 57	5. 00	0. 00	4. 28	4. 28
6. 30	2. 57	0. 57	5. 00	0. 00	4. 27	4. 27
6. 35	2. 57	0. 57	5. 00	0. 00	4. 27	4. 27
6. 40	2. 57	0. 57	5. 00	0. 00	4. 27	4. 27
6. 45	2. 57	0. 57	5. 00	0. 00	4. 27	4. 27
6. 50	2. 57	0. 57	5. 00	0. 00	4. 27	4. 27
6. 55	2. 57	0. 57	5. 00	0. 00	4. 27	4. 27
6. 60	2. 57	0. 57	5. 00	0. 00	4. 27	4. 27
6. 65	2. 57	0. 57	5. 00	0. 00	4. 26	4. 26
6. 70	2. 57	0. 57	5. 00	0. 00	4. 26	4. 26
6. 75	2. 57	0. 57	5. 00	0. 00	4. 26	4. 26
6. 80	2. 57	0. 57	5. 00	0. 00	4. 26	4. 26
6. 85	2. 57	0. 57	5. 00	0. 00	4. 26	4. 26
6. 90	2. 57	0. 57	5. 00	0. 00	4. 26	4. 26
6. 95	2. 57	0. 57	5. 00	0. 00	4. 25	4. 25
7. 00	2. 57	0. 57	5. 00	0. 00	4. 25	4. 25
7. 05	2. 57	0. 57	5. 00	0. 00	4. 25	4. 25
7. 10	2. 57	0. 57	5. 00	0. 00	4. 25	4. 25
7. 15	2. 57	0. 57	5. 00	0. 00	4. 24	4. 24
7. 20	2. 57	0. 57	5. 00	0. 00	4. 24	4. 24
7. 25	2. 57	0. 57	5. 00	0. 00	4. 24	4. 24
7. 30	2. 57	0. 57	5. 00	0. 00	4. 23	4. 23
7. 35	2. 57	0. 57	5. 00	0. 00	4. 23	4. 23
7. 40	2. 57	0. 57	5. 00	0. 00	4. 23	4. 23
7. 45	2. 57	0. 57	5. 00	0. 00	4. 22	4. 22
7. 50	2. 57	0. 57	5. 00	0. 00	4. 22	4. 22
7. 55	2. 57	0. 57	5. 00	0. 00	4. 22	4. 22
7. 60	2. 57	0. 57	5. 00	0. 00	4. 21	4. 21
7. 65	2. 57	0. 57	5. 00	0. 00	4. 21	4. 21
7. 70	2. 57	0. 57	5. 00	0. 00	4. 21	4. 21
7. 75	2. 57	0. 57	5. 00	0. 00	4. 20	4. 20
7. 80	2. 57	0. 57	5. 00	0. 00	4. 20	4. 20
7. 85	2. 57	0. 57	5. 00	0. 00	4. 19	4. 19
7. 90	2. 57	0. 57	5. 00	0. 00	4. 19	4. 19
7. 95	2. 57	0. 57	5. 00	0. 00	4. 18	4. 18
8. 00	2. 57	0. 57	5. 00	0. 00	4. 18	4. 18
8. 05	2. 57	0. 57	5. 00	0. 00	4. 18	4. 18
8. 10	2. 57	0. 57	5. 00	0. 00	4. 17	4. 17
8. 15	2. 57	0. 57	5. 00	0. 00	4. 17	4. 17
8. 20	2. 57	0. 57	5. 00	0. 00	4. 16	4. 16
8. 25	2. 57	0. 57	5. 00	0. 00	4. 16	4. 16
8. 30	2. 57	0. 57	5. 00	0. 00	4. 16	4. 16
8. 35	2. 57	0. 57	5. 00	0. 00	4. 15	4. 15
8. 40	2. 57	0. 57	5. 00	0. 00	4. 15	4. 15
8. 45	2. 57	0. 57	5. 00	0. 00	4. 15	4. 15
8. 50	2. 57	0. 57	5. 00	0. 00	4. 14	4. 14
8. 55	2. 57	0. 57	5. 00	0. 00	4. 14	4. 14
8. 60	2. 57	0. 57	5. 00	0. 00	4. 14	4. 14
8. 65	2. 57	0. 57	5. 00	0. 00	4. 13	4. 13
8. 70	2. 57	0. 57	5. 00	0. 00	4. 13	4. 13
8. 75	2. 57	0. 57	5. 00	0. 00	4. 13	4. 13
8. 80	2. 57	0. 57	5. 00	0. 00	4. 12	4. 12

				B1. sum		
12.00	2.57	0.57	5.00	0.00	4.06	4.06
12.05	2.57	0.57	5.00	0.00	4.06	4.06
12.10	2.57	0.57	5.00	0.00	4.05	4.05
12.15	2.57	0.57	5.00	0.00	4.05	4.05
12.20	2.57	0.57	5.00	0.00	4.05	4.05
12.25	2.57	0.57	5.00	0.00	4.05	4.05
12.30	0.61	0.57	5.00	0.00	4.05	4.05
12.35	0.55	0.56	5.00	0.00	4.04	4.04
12.40	0.52	0.56	5.00	0.00	4.04	4.04
12.45	0.50	0.56	5.00	0.00	4.04	4.04
12.50	0.49	0.56	5.00	0.00	4.03	4.03
12.55	0.48	0.56	5.00	0.00	4.03	4.03
12.60	0.47	0.56	5.00	0.00	4.03	4.03
12.65	0.46	0.56	5.00	0.00	4.03	4.03
12.70	0.45	0.56	5.00	0.00	4.02	4.02
12.75	0.44	0.56	5.00	0.00	4.02	4.02
12.80	0.43	0.56	5.00	0.00	4.02	4.02
12.85	0.43	0.56	5.00	0.00	4.01	4.01
12.90	0.42	0.56	5.00	0.00	4.01	4.01
12.95	0.41	0.56	5.00	0.00	4.00	4.00
13.00	0.41	0.56	5.00	0.00	4.00	4.00
13.05	0.40	0.56	5.00	0.00	4.00	4.00
13.10	0.40	0.56	5.00	0.00	3.99	3.99
13.15	0.39	0.56	5.00	0.00	3.99	3.99
13.20	0.39	0.56	5.00	0.00	3.98	3.98
13.25	0.38	0.56	5.00	0.00	3.98	3.98
13.30	0.38	0.56	5.00	0.00	3.97	3.97
13.35	0.37	0.56	5.00	0.00	3.97	3.97
13.40	0.37	0.56	5.00	0.00	3.96	3.96
13.45	0.36	0.56	5.00	0.00	3.95	3.95
13.50	0.36	0.56	5.00	0.00	3.95	3.95
13.55	0.35	0.56	5.00	0.00	3.94	3.94
13.60	0.35	0.56	5.00	0.00	3.93	3.93
13.65	0.35	0.56	5.00	0.00	3.93	3.93
13.70	0.34	0.56	5.00	0.00	3.92	3.92
13.75	0.34	0.56	5.00	0.00	3.91	3.91
13.80	0.33	0.56	5.00	0.00	3.90	3.90
13.85	0.33	0.56	5.00	0.00	3.90	3.90
13.90	0.33	0.56	5.00	0.00	3.89	3.89
13.95	0.32	0.56	5.00	0.00	3.88	3.88
14.00	0.32	0.56	5.00	0.00	3.87	3.87
14.05	0.32	0.56	5.00	0.00	3.86	3.86
14.10	0.31	0.56	5.00	0.00	3.85	3.85
14.15	0.31	0.56	5.00	0.00	3.84	3.84
14.20	0.31	0.56	5.00	0.00	3.84	3.84
14.25	0.30	0.56	5.00	0.00	3.83	3.83
14.30	0.30	0.56	5.00	0.00	3.82	3.82
14.35	0.30	0.56	5.00	0.00	3.81	3.81
14.40	0.29	0.56	5.00	0.00	3.80	3.80
14.45	0.29	0.56	5.00	0.00	3.79	3.79
14.50	0.29	0.56	5.00	0.00	3.78	3.78
14.55	0.29	0.56	5.00	0.00	3.77	3.77
14.60	0.28	0.56	5.00	0.00	3.76	3.76
14.65	0.28	0.56	5.00	0.00	3.75	3.75
14.70	0.28	0.56	5.00	0.00	3.74	3.74
14.75	0.27	0.56	5.00	0.00	3.73	3.73
14.80	0.30	0.56	5.00	0.00	3.72	3.72
14.85	0.30	0.56	5.00	0.00	3.71	3.71
14.90	0.29	0.56	5.00	0.00	3.70	3.70
14.95	0.29	0.56	5.00	0.00	3.69	3.69
15.00	0.29	0.56	5.00	0.00	3.68	3.68
15.05	0.29	0.56	5.00	0.00	3.67	3.67
15.10	0.29	0.56	5.00	0.00	3.66	3.66

				B1. sum		
15. 15	0. 29	0. 56	5. 00	0. 00	3. 65	3. 65
15. 20	0. 29	0. 56	5. 00	0. 00	3. 64	3. 64
15. 25	0. 29	0. 56	5. 00	0. 00	3. 63	3. 63
15. 30	0. 29	0. 56	5. 00	0. 00	3. 62	3. 62
15. 35	0. 29	0. 56	5. 00	0. 00	3. 61	3. 61
15. 40	0. 29	0. 56	5. 00	0. 00	3. 60	3. 60
15. 45	0. 29	0. 56	5. 00	0. 00	3. 59	3. 59
15. 50	0. 30	0. 56	5. 00	0. 00	3. 58	3. 58
15. 55	0. 30	0. 56	5. 00	0. 00	3. 57	3. 57
15. 60	0. 30	0. 56	5. 00	0. 00	3. 56	3. 56
15. 65	0. 30	0. 56	5. 00	0. 00	3. 55	3. 55
15. 70	0. 30	0. 56	5. 00	0. 00	3. 54	3. 54
15. 75	0. 30	0. 56	5. 00	0. 00	3. 54	3. 54
15. 80	0. 30	0. 56	5. 00	0. 00	3. 53	3. 53
15. 85	0. 30	0. 56	5. 00	0. 00	3. 52	3. 52
15. 90	0. 30	0. 56	5. 00	0. 00	3. 51	3. 51
15. 95	0. 30	0. 56	5. 00	0. 00	3. 50	3. 50
16. 00	0. 30	0. 56	5. 00	0. 00	3. 49	3. 49
16. 05	0. 30	0. 56	5. 00	0. 00	3. 48	3. 48
16. 10	0. 30	0. 56	5. 00	0. 00	3. 47	3. 47
16. 15	0. 30	0. 56	5. 00	0. 00	3. 46	3. 46
16. 20	0. 31	0. 56	5. 00	0. 00	3. 45	3. 45
16. 25	0. 31	0. 56	5. 00	0. 00	3. 44	3. 44
16. 30	0. 31	0. 56	5. 00	0. 00	3. 43	3. 43
16. 35	0. 31	0. 56	5. 00	0. 00	3. 42	3. 42
16. 40	0. 31	0. 56	5. 00	0. 00	3. 41	3. 41
16. 45	0. 31	0. 56	5. 00	0. 00	3. 41	3. 41
16. 50	0. 31	0. 56	5. 00	0. 00	3. 40	3. 40
16. 55	0. 31	0. 56	5. 00	0. 00	3. 39	3. 39
16. 60	0. 31	0. 56	5. 00	0. 00	3. 38	3. 38
16. 65	0. 31	0. 56	5. 00	0. 00	3. 37	3. 37
16. 70	0. 31	0. 56	5. 00	0. 00	3. 36	3. 36
16. 75	0. 31	0. 56	5. 00	0. 00	3. 35	3. 35
16. 80	0. 31	0. 56	5. 00	0. 00	3. 34	3. 34
16. 85	0. 32	0. 56	5. 00	0. 00	3. 33	3. 33
16. 90	0. 32	0. 56	5. 00	0. 00	3. 33	3. 33
16. 95	0. 32	0. 56	5. 00	0. 00	3. 32	3. 32
17. 00	0. 32	0. 56	5. 00	0. 00	3. 31	3. 31
17. 05	0. 32	0. 56	5. 00	0. 00	3. 30	3. 30
17. 10	0. 32	0. 56	5. 00	0. 00	3. 29	3. 29
17. 15	0. 32	0. 56	5. 00	0. 00	3. 28	3. 28
17. 20	0. 32	0. 56	5. 00	0. 00	3. 27	3. 27
17. 25	0. 32	0. 56	5. 00	0. 00	3. 26	3. 26
17. 30	0. 32	0. 56	5. 00	0. 00	3. 26	3. 26
17. 35	0. 32	0. 56	5. 00	0. 00	3. 25	3. 25
17. 40	0. 32	0. 56	5. 00	0. 00	3. 24	3. 24
17. 45	0. 32	0. 56	5. 00	0. 00	3. 23	3. 23
17. 50	0. 32	0. 56	5. 00	0. 00	3. 22	3. 22
17. 55	0. 33	0. 56	5. 00	0. 00	3. 21	3. 21
17. 60	0. 33	0. 56	5. 00	0. 00	3. 20	3. 20
17. 65	0. 33	0. 56	5. 00	0. 00	3. 20	3. 20
17. 70	0. 33	0. 56	5. 00	0. 00	3. 19	3. 19
17. 75	0. 33	0. 56	5. 00	0. 00	3. 18	3. 18
17. 80	0. 33	0. 56	5. 00	0. 00	3. 17	3. 17
17. 85	0. 33	0. 56	5. 00	0. 00	3. 16	3. 16
17. 90	0. 33	0. 56	5. 00	0. 00	3. 15	3. 15
17. 95	0. 33	0. 56	5. 00	0. 00	3. 14	3. 14
18. 00	0. 33	0. 56	5. 00	0. 00	3. 14	3. 14
18. 05	0. 33	0. 56	5. 00	0. 00	3. 13	3. 13
18. 10	0. 33	0. 56	5. 00	0. 00	3. 12	3. 12
18. 15	0. 33	0. 56	5. 00	0. 00	3. 11	3. 11
18. 20	0. 34	0. 56	5. 00	0. 00	3. 10	3. 10
18. 25	0. 34	0. 56	5. 00	0. 00	3. 09	3. 09

				B1. sum		
18.30	0.34	0.56	5.00	0.00	3.09	3.09
18.35	0.34	0.56	5.00	0.00	3.08	3.08
18.40	0.34	0.56	5.00	0.00	3.07	3.07
18.45	0.34	0.56	5.00	0.00	3.06	3.06
18.50	0.34	0.56	5.00	0.00	3.05	3.05
18.55	0.34	0.56	5.00	0.00	3.04	3.04
18.60	0.34	0.56	5.00	0.00	3.04	3.04
18.65	0.34	0.56	5.00	0.00	3.03	3.03
18.70	0.34	0.56	5.00	0.00	3.02	3.02
18.75	0.34	0.56	5.00	0.00	3.01	3.01
18.80	0.34	0.56	5.00	0.00	3.00	3.00
18.85	0.34	0.56	5.00	0.00	3.00	3.00
18.90	0.35	0.56	5.00	0.00	2.99	2.99
18.95	0.35	0.56	5.00	0.00	2.98	2.98
19.00	0.35	0.56	5.00	0.00	2.97	2.97
19.05	0.35	0.56	5.00	0.00	2.96	2.96
19.10	0.35	0.56	5.00	0.00	2.96	2.96
19.15	0.35	0.56	5.00	0.00	2.95	2.95
19.20	0.35	0.56	5.00	0.00	2.94	2.94
19.25	0.35	0.56	5.00	0.00	2.94	2.94
19.30	0.35	0.56	5.00	0.00	2.93	2.93
19.35	0.35	0.56	5.00	0.00	2.93	2.93
19.40	0.35	0.56	5.00	0.00	2.93	2.93
19.45	0.35	0.56	5.00	0.00	2.93	2.93
19.50	0.35	0.56	5.00	0.00	2.92	2.92
19.55	0.36	0.56	5.00	0.00	2.92	2.92
19.60	0.36	0.56	5.00	0.00	2.92	2.92
19.65	0.36	0.56	5.00	0.00	2.91	2.91
19.70	0.36	0.56	5.00	0.00	2.91	2.91
19.75	0.36	0.55	5.00	0.00	2.91	2.91
19.80	0.36	0.55	5.00	0.00	2.90	2.90
19.85	0.36	0.55	5.00	0.00	2.90	2.90
19.90	0.36	0.55	5.00	0.00	2.90	2.90
19.95	0.36	0.55	5.00	0.00	2.90	2.90
20.00	0.36	0.55	5.00	0.00	2.89	2.89
20.05	0.36	0.55	5.00	0.00	2.89	2.89
20.10	0.36	0.55	5.00	0.00	2.89	2.89
20.15	0.36	0.55	5.00	0.00	2.88	2.88
20.20	0.36	0.55	5.00	0.00	2.88	2.88
20.25	0.36	0.55	5.00	0.00	2.88	2.88
20.30	0.36	0.55	5.00	0.00	2.87	2.87
20.35	0.36	0.55	5.00	0.00	2.87	2.87
20.40	0.36	0.55	5.00	0.00	2.87	2.87
20.45	0.36	0.55	5.00	0.00	2.87	2.87
20.50	0.36	0.55	5.00	0.00	2.86	2.86
20.55	0.36	0.55	5.00	0.00	2.86	2.86
20.60	0.36	0.55	5.00	0.00	2.86	2.86
20.65	0.36	0.55	5.00	0.00	2.85	2.85
20.70	0.35	0.55	5.00	0.00	2.85	2.85
20.75	0.35	0.55	5.00	0.00	2.85	2.85
20.80	0.35	0.55	5.00	0.00	2.84	2.84
20.85	0.35	0.55	5.00	0.00	2.84	2.84
20.90	0.35	0.55	5.00	0.00	2.84	2.84
20.95	0.35	0.55	5.00	0.00	2.83	2.83
21.00	0.35	0.55	5.00	0.00	2.83	2.83
21.05	0.35	0.55	5.00	0.00	2.83	2.83
21.10	0.35	0.55	5.00	0.00	2.82	2.82
21.15	0.35	0.55	5.00	0.00	2.82	2.82
21.20	0.35	0.55	5.00	0.00	2.81	2.81
21.25	0.35	0.55	5.00	0.00	2.81	2.81
21.30	0.35	0.55	5.00	0.00	2.81	2.81
21.35	0.35	0.55	5.00	0.00	2.80	2.80
21.40	0.35	0.55	5.00	0.00	2.80	2.80

				B1. sum		
21. 45	0. 35	0. 55	5. 00	0. 00	2. 80	2. 80
21. 50	0. 35	0. 55	5. 00	0. 00	2. 79	2. 79
21. 55	0. 35	0. 55	5. 00	0. 00	2. 79	2. 79
21. 60	0. 35	0. 55	5. 00	0. 00	2. 79	2. 79
21. 65	0. 35	0. 55	5. 00	0. 00	2. 78	2. 78
21. 70	0. 35	0. 55	5. 00	0. 00	2. 78	2. 78
21. 75	0. 35	0. 55	5. 00	0. 00	2. 77	2. 77
21. 80	0. 35	0. 55	5. 00	0. 00	2. 77	2. 77
21. 85	0. 34	0. 55	5. 00	0. 00	2. 77	2. 77
21. 90	0. 34	0. 55	5. 00	0. 00	2. 76	2. 76
21. 95	0. 34	0. 55	5. 00	0. 00	2. 76	2. 76
22. 00	0. 34	0. 55	5. 00	0. 00	2. 75	2. 75
22. 05	0. 34	0. 55	5. 00	0. 00	2. 75	2. 75
22. 10	0. 34	0. 55	5. 00	0. 00	2. 75	2. 75
22. 15	0. 34	0. 55	5. 00	0. 00	2. 74	2. 74
22. 20	0. 34	0. 55	5. 00	0. 00	2. 74	2. 74
22. 25	0. 34	0. 55	5. 00	0. 00	2. 73	2. 73
22. 30	0. 34	0. 55	5. 00	0. 00	2. 73	2. 73
22. 35	0. 34	0. 55	5. 00	0. 00	2. 73	2. 73
22. 40	0. 34	0. 55	5. 00	0. 00	2. 72	2. 72
22. 45	0. 34	0. 55	5. 00	0. 00	2. 72	2. 72
22. 50	0. 34	0. 55	5. 00	0. 00	2. 71	2. 71
22. 55	0. 34	0. 55	5. 00	0. 00	2. 71	2. 71
22. 60	0. 34	0. 55	5. 00	0. 00	2. 70	2. 70
22. 65	0. 34	0. 55	5. 00	0. 00	2. 70	2. 70
22. 70	0. 34	0. 55	5. 00	0. 00	2. 69	2. 69
22. 75	0. 34	0. 55	5. 00	0. 00	2. 69	2. 69
22. 80	0. 34	0. 55	5. 00	0. 00	2. 69	2. 69
22. 85	0. 34	0. 55	5. 00	0. 00	2. 68	2. 68
22. 90	0. 34	0. 55	5. 00	0. 00	2. 68	2. 68
22. 95	0. 34	0. 55	5. 00	0. 00	2. 67	2. 67
23. 00	0. 34	0. 55	5. 00	0. 00	2. 67	2. 67
23. 05	0. 34	0. 55	5. 00	0. 00	2. 66	2. 66
23. 10	0. 34	0. 55	5. 00	0. 00	2. 66	2. 66
23. 15	0. 34	0. 55	5. 00	0. 00	2. 65	2. 65
23. 20	0. 34	0. 55	5. 00	0. 00	2. 65	2. 65
23. 25	0. 34	0. 55	5. 00	0. 00	2. 64	2. 64
23. 30	0. 33	0. 55	5. 00	0. 00	2. 64	2. 64
23. 35	0. 33	0. 55	5. 00	0. 00	2. 63	2. 63
23. 40	0. 33	0. 55	5. 00	0. 00	2. 63	2. 63
23. 45	0. 33	0. 55	5. 00	0. 00	2. 62	2. 62
23. 50	0. 33	0. 55	5. 00	0. 00	2. 62	2. 62
23. 55	0. 33	0. 55	5. 00	0. 00	2. 61	2. 61
23. 60	0. 33	0. 55	5. 00	0. 00	2. 61	2. 61
23. 65	0. 33	0. 55	5. 00	0. 00	2. 60	2. 60
23. 70	0. 33	0. 55	5. 00	0. 00	2. 60	2. 60
23. 75	0. 33	0. 55	5. 00	0. 00	2. 59	2. 59
23. 80	0. 33	0. 55	5. 00	0. 00	2. 59	2. 59
23. 85	0. 33	0. 55	5. 00	0. 00	2. 58	2. 58
23. 90	0. 33	0. 55	5. 00	0. 00	2. 58	2. 58
23. 95	0. 33	0. 55	5. 00	0. 00	2. 57	2. 57
24. 00	0. 33	0. 55	5. 00	0. 00	2. 57	2. 57
24. 05	0. 33	0. 55	5. 00	0. 00	2. 56	2. 56
24. 10	0. 33	0. 55	5. 00	0. 00	2. 56	2. 56
24. 15	0. 33	0. 55	5. 00	0. 00	2. 55	2. 55
24. 20	0. 33	0. 55	5. 00	0. 00	2. 55	2. 55
24. 25	0. 33	0. 55	5. 00	0. 00	2. 54	2. 54
24. 30	0. 33	0. 55	5. 00	0. 00	2. 54	2. 54
24. 35	0. 33	0. 55	5. 00	0. 00	2. 53	2. 53
24. 40	0. 33	0. 55	5. 00	0. 00	2. 52	2. 52
24. 45	0. 33	0. 55	5. 00	0. 00	2. 52	2. 52
24. 50	0. 33	0. 55	5. 00	0. 00	2. 51	2. 51
24. 55	0. 33	0. 55	5. 00	0. 00	2. 51	2. 51

				B1. sum		
24. 60	0. 33	0. 55	5. 00	0. 00	2. 50	2. 50
24. 65	0. 33	0. 55	5. 00	0. 00	2. 50	2. 50
24. 70	0. 33	0. 55	5. 00	0. 00	2. 49	2. 49
24. 75	0. 33	0. 55	5. 00	0. 00	2. 48	2. 48
24. 80	0. 33	0. 55	5. 00	0. 00	2. 48	2. 48
24. 85	0. 33	0. 55	5. 00	0. 00	2. 47	2. 47
24. 90	0. 33	0. 55	5. 00	0. 00	2. 47	2. 47
24. 95	0. 33	0. 55	5. 00	0. 00	2. 46	2. 46
25. 00	0. 33	0. 55	5. 00	0. 00	2. 45	2. 45
25. 05	0. 33	0. 55	5. 00	0. 00	2. 45	2. 45
25. 10	0. 33	0. 55	5. 00	0. 00	2. 44	2. 44
25. 15	0. 33	0. 55	5. 00	0. 00	2. 43	2. 43
25. 20	0. 33	0. 55	5. 00	0. 00	2. 43	2. 43
25. 25	0. 33	0. 55	5. 00	0. 00	2. 42	2. 42
25. 30	0. 33	0. 55	5. 00	0. 00	2. 42	2. 42
25. 35	0. 33	0. 55	5. 00	0. 00	2. 41	2. 41
25. 40	0. 33	0. 55	5. 00	0. 00	2. 40	2. 40
25. 45	0. 33	0. 55	5. 00	0. 00	2. 40	2. 40
25. 50	0. 33	0. 55	5. 00	0. 00	2. 39	2. 39
25. 55	0. 33	0. 55	5. 00	0. 00	2. 39	2. 39
25. 60	0. 33	0. 55	5. 00	0. 00	2. 38	2. 38
25. 65	0. 34	0. 55	5. 00	0. 00	2. 37	2. 37
25. 70	0. 34	0. 55	5. 00	0. 00	2. 37	2. 37
25. 75	0. 34	0. 55	5. 00	0. 00	2. 36	2. 36
25. 80	0. 34	0. 55	5. 00	0. 00	2. 36	2. 36
25. 85	0. 34	0. 55	5. 00	0. 00	2. 35	2. 35
25. 90	0. 34	0. 55	5. 00	0. 00	2. 34	2. 34
25. 95	0. 34	0. 55	5. 00	0. 00	2. 34	2. 34
26. 00	0. 34	0. 55	5. 00	0. 00	2. 33	2. 33
26. 05	0. 34	0. 55	5. 00	0. 00	2. 32	2. 32
26. 10	0. 34	0. 55	5. 00	0. 00	2. 32	2. 32
26. 15	0. 34	0. 55	5. 00	0. 00	2. 31	2. 31
26. 20	0. 34	0. 55	5. 00	0. 00	2. 31	2. 31
26. 25	0. 34	0. 55	5. 00	0. 00	2. 30	2. 30
26. 30	0. 34	0. 55	5. 00	0. 00	2. 29	2. 29
26. 35	0. 34	0. 55	5. 00	0. 00	2. 29	2. 29
26. 40	0. 34	0. 55	5. 00	0. 00	2. 28	2. 28
26. 45	0. 34	0. 55	5. 00	0. 00	2. 28	2. 28
26. 50	0. 34	0. 55	5. 00	0. 00	2. 27	2. 27
26. 55	0. 35	0. 55	5. 00	0. 00	2. 26	2. 26
26. 60	0. 35	0. 55	5. 00	0. 00	2. 26	2. 26
26. 65	0. 35	0. 55	5. 00	0. 00	2. 25	2. 25
26. 70	0. 35	0. 55	5. 00	0. 00	2. 24	2. 24
26. 75	0. 35	0. 55	5. 00	0. 00	2. 24	2. 24
26. 80	0. 35	0. 55	5. 00	0. 00	2. 23	2. 23
26. 85	0. 35	0. 55	5. 00	0. 00	2. 23	2. 23
26. 90	0. 35	0. 55	5. 00	0. 00	2. 22	2. 22
26. 95	0. 35	0. 55	5. 00	0. 00	2. 21	2. 21
27. 00	0. 35	0. 55	5. 00	0. 00	2. 21	2. 21
27. 05	0. 35	0. 55	5. 00	0. 00	2. 20	2. 20
27. 10	0. 35	0. 54	5. 00	0. 00	2. 20	2. 20
27. 15	0. 35	0. 54	5. 00	0. 00	2. 19	2. 19
27. 20	0. 35	0. 54	5. 00	0. 00	2. 18	2. 18
27. 25	0. 35	0. 54	5. 00	0. 00	2. 18	2. 18
27. 30	0. 35	0. 54	5. 00	0. 00	2. 17	2. 17
27. 35	0. 35	0. 54	5. 00	0. 00	2. 17	2. 17
27. 40	0. 35	0. 54	5. 00	0. 00	2. 16	2. 16
27. 45	0. 36	0. 54	5. 00	0. 00	2. 15	2. 15
27. 50	0. 36	0. 54	5. 00	0. 00	2. 15	2. 15
27. 55	0. 36	0. 54	5. 00	0. 00	2. 14	2. 14
27. 60	0. 36	0. 54	5. 00	0. 00	2. 14	2. 14
27. 65	0. 36	0. 54	5. 00	0. 00	2. 13	2. 13
27. 70	0. 36	0. 54	5. 00	0. 00	2. 12	2. 12

				B1. sum		
27.75	0.36	0.54	5.00	0.00	2.12	2.12
27.80	0.36	0.54	5.00	0.00	2.11	2.11
27.85	0.36	0.54	5.00	0.00	2.10	2.10
27.90	0.39	0.54	5.00	0.00	2.10	2.10
27.95	0.39	0.54	5.00	0.00	2.09	2.09
28.00	0.39	0.54	5.00	0.00	2.09	2.09
28.05	0.39	0.54	5.00	0.00	2.08	2.08
28.10	0.39	0.54	5.00	0.00	2.08	2.08
28.15	0.39	0.54	5.00	0.00	2.07	2.07
28.20	0.39	0.54	5.00	0.00	2.07	2.07
28.25	0.39	0.54	5.00	0.00	2.06	2.06
28.30	0.39	0.54	5.00	0.00	2.06	2.06
28.35	0.39	0.54	5.00	0.00	2.05	2.05
28.40	0.39	0.54	5.00	0.00	2.05	2.05
28.45	0.40	0.54	5.00	0.00	2.04	2.04
28.50	0.40	0.54	5.00	0.00	2.04	2.04
28.55	0.40	0.54	5.00	0.00	2.03	2.03
28.60	0.40	0.54	5.00	0.00	2.03	2.03
28.65	0.40	0.54	5.00	0.00	2.02	2.02
28.70	0.40	0.54	5.00	0.00	2.02	2.02
28.75	0.40	0.54	5.00	0.00	2.01	2.01
28.80	0.40	0.54	5.00	0.00	2.00	2.00
28.85	0.40	0.54	5.00	0.00	2.00	2.00
28.90	0.40	0.54	5.00	0.00	1.99	1.99
28.95	0.40	0.54	5.00	0.00	1.99	1.99
29.00	0.40	0.54	5.00	0.00	1.98	1.98
29.05	0.41	0.54	5.00	0.00	1.98	1.98
29.10	0.41	0.54	5.00	0.00	1.97	1.97
29.15	0.41	0.54	5.00	0.00	1.97	1.97
29.20	0.41	0.54	5.00	0.00	1.96	1.96
29.25	0.41	0.54	5.00	0.00	1.96	1.96
29.30	0.41	0.54	5.00	0.00	1.95	1.95
29.35	0.41	0.54	5.00	0.00	1.95	1.95
29.40	0.41	0.54	5.00	0.00	1.94	1.94
29.45	0.41	0.54	5.00	0.00	1.94	1.94
29.50	0.41	0.54	5.00	0.00	1.93	1.93
29.55	0.41	0.54	5.00	0.00	1.93	1.93
29.60	0.42	0.54	5.00	0.00	1.92	1.92
29.65	0.42	0.54	5.00	0.00	1.92	1.92
29.70	0.42	0.54	5.00	0.00	1.91	1.91
29.75	0.42	0.54	5.00	0.00	1.91	1.91
29.80	0.42	0.54	5.00	0.00	1.90	1.90
29.85	0.42	0.54	5.00	0.00	1.90	1.90
29.90	0.42	0.54	5.00	0.00	1.89	1.89
29.95	0.42	0.54	5.00	0.00	1.89	1.89
30.00	0.42	0.54	5.00	0.00	1.88	1.88
30.05	0.42	0.54	5.00	0.00	1.88	1.88
30.10	0.42	0.54	5.00	0.00	1.87	1.87
30.15	0.42	0.54	5.00	0.00	1.87	1.87
30.20	0.42	0.54	5.00	0.00	1.86	1.86
30.25	0.41	0.54	5.00	0.00	1.85	1.85
30.30	0.41	0.54	5.00	0.00	1.85	1.85
30.35	0.41	0.54	5.00	0.00	1.84	1.84
30.40	0.41	0.54	5.00	0.00	1.84	1.84
30.45	0.41	0.54	5.00	0.00	1.83	1.83
30.50	0.41	0.54	5.00	0.00	1.83	1.83
30.55	0.40	0.54	5.00	0.00	1.82	1.82
30.60	0.40	0.54	5.00	0.00	1.82	1.82
30.65	0.40	0.54	5.00	0.00	1.81	1.81
30.70	0.40	0.54	5.00	0.00	1.80	1.80
30.75	0.40	0.54	5.00	0.00	1.80	1.80
30.80	0.40	0.54	5.00	0.00	1.79	1.79
30.85	0.39	0.54	5.00	0.00	1.79	1.79

				B1. sum		
30.90	0.39	0.54	5.00	0.00	1.78	1.78
30.95	0.39	0.54	5.00	0.00	1.78	1.78
31.00	0.39	0.54	5.00	0.00	1.77	1.77
31.05	0.39	0.54	5.00	0.00	1.76	1.76
31.10	0.39	0.54	5.00	0.00	1.76	1.76
31.15	0.39	0.54	5.00	0.00	1.75	1.75
31.20	0.38	0.54	5.00	0.00	1.74	1.74
31.25	0.38	0.54	5.00	0.00	1.74	1.74
31.30	0.38	0.53	5.00	0.00	1.73	1.73
31.35	0.38	0.53	5.00	0.00	1.73	1.73
31.40	0.38	0.53	5.00	0.00	1.72	1.72
31.45	0.38	0.53	5.00	0.00	1.71	1.71
31.50	0.38	0.53	5.00	0.00	1.71	1.71
31.55	0.37	0.53	5.00	0.00	1.70	1.70
31.60	0.37	0.53	5.00	0.00	1.69	1.69
31.65	0.37	0.53	5.00	0.00	1.69	1.69
31.70	0.37	0.53	5.00	0.00	1.68	1.68
31.75	0.37	0.53	5.00	0.00	1.67	1.67
31.80	0.37	0.53	5.00	0.00	1.67	1.67
31.85	0.37	0.53	5.00	0.00	1.66	1.66
31.90	0.37	0.53	5.00	0.00	1.65	1.65
31.95	0.36	0.53	5.00	0.00	1.64	1.64
32.00	0.36	0.53	5.00	0.00	1.64	1.64
32.05	0.36	0.53	5.00	0.00	1.63	1.63
32.10	0.36	0.53	5.00	0.00	1.62	1.62
32.15	0.36	0.53	5.00	0.00	1.62	1.62
32.20	0.36	0.53	5.00	0.00	1.61	1.61
32.25	0.36	0.53	5.00	0.00	1.60	1.60
32.30	0.36	0.53	5.00	0.00	1.59	1.59
32.35	0.35	0.53	5.00	0.00	1.59	1.59
32.40	0.35	0.53	5.00	0.00	1.58	1.58
32.45	0.35	0.53	5.00	0.00	1.57	1.57
32.50	0.35	0.53	5.00	0.00	1.56	1.56
32.55	0.35	0.53	5.00	0.00	1.55	1.55
32.60	0.35	0.53	5.00	0.00	1.55	1.55
32.65	0.35	0.53	5.00	0.00	1.54	1.54
32.70	0.35	0.53	5.00	0.00	1.53	1.53
32.75	0.35	0.53	5.00	0.00	1.52	1.52
32.80	0.34	0.53	5.00	0.00	1.52	1.52
32.85	0.34	0.53	5.00	0.00	1.51	1.51
32.90	0.34	0.53	5.00	0.00	1.50	1.50
32.95	0.34	0.53	5.00	0.00	1.49	1.49
33.00	0.34	0.53	5.00	0.00	1.48	1.48
33.05	0.34	0.53	5.00	0.00	1.48	1.48
33.10	0.34	0.53	5.00	0.00	1.47	1.47
33.15	0.34	0.53	5.00	0.00	1.46	1.46
33.20	0.34	0.53	5.00	0.00	1.45	1.45
33.25	0.33	0.53	5.00	0.00	1.45	1.45
33.30	0.33	0.53	5.00	0.00	1.44	1.44
33.35	0.33	0.53	5.00	0.00	1.43	1.43
33.40	0.33	0.52	5.00	0.00	1.42	1.42
33.45	0.33	0.52	5.00	0.00	1.41	1.41
33.50	0.33	0.52	5.00	0.00	1.40	1.40
33.55	0.33	0.52	5.00	0.00	1.40	1.40
33.60	0.33	0.52	5.00	0.00	1.39	1.39
33.65	0.33	0.52	5.00	0.00	1.38	1.38
33.70	0.33	0.52	5.00	0.00	1.37	1.37
33.75	0.32	0.52	5.00	0.00	1.36	1.36
33.80	0.32	0.52	5.00	0.00	1.36	1.36
33.85	0.32	0.52	5.00	0.00	1.35	1.35
33.90	0.32	0.52	5.00	0.00	1.34	1.34
33.95	0.32	0.52	5.00	0.00	1.33	1.33
34.00	0.32	0.52	5.00	0.00	1.32	1.32

				B1. sum		
34.05	0.32	0.52	5.00	0.00	1.31	1.31
34.10	0.32	0.52	5.00	0.00	1.31	1.31
34.15	0.32	0.52	5.00	0.00	1.30	1.30
34.20	0.32	0.52	5.00	0.00	1.29	1.29
34.25	0.32	0.52	5.00	0.00	1.28	1.28
34.30	0.31	0.52	5.00	0.00	1.27	1.27
34.35	0.31	0.52	5.00	0.00	1.26	1.26
34.40	0.31	0.52	5.00	0.00	1.26	1.26
34.45	0.31	0.52	5.00	0.00	1.25	1.25
34.50	0.31	0.52	5.00	0.00	1.24	1.24
34.55	0.31	0.52	5.00	0.00	1.23	1.23
34.60	0.31	0.52	5.00	0.00	1.22	1.22
34.65	0.31	0.52	5.00	0.00	1.21	1.21
34.70	0.31	0.52	5.00	0.00	1.20	1.20
34.75	0.31	0.52	5.00	0.00	1.20	1.20
34.80	0.31	0.52	5.00	0.00	1.19	1.19
34.85	0.30	0.52	5.00	0.00	1.18	1.18
34.90	0.30	0.52	5.00	0.00	1.17	1.17
34.95	0.30	0.52	5.00	0.00	1.16	1.16
35.00	0.30	0.52	5.00	0.00	1.15	1.15
35.05	2.00	0.52	5.00	0.00	1.14	1.14
35.10	2.00	0.52	5.00	0.00	1.14	1.14
35.15	2.00	0.52	5.00	0.00	1.14	1.14
35.20	2.00	0.52	5.00	0.00	1.14	1.14
35.25	2.00	0.52	5.00	0.00	1.14	1.14
35.30	2.00	0.52	5.00	0.00	1.14	1.14
35.35	2.00	0.52	5.00	0.00	1.14	1.14
35.40	2.00	0.52	5.00	0.00	1.14	1.14
35.45	2.00	0.52	5.00	0.00	1.14	1.14
35.50	2.00	0.51	5.00	0.00	1.14	1.14
35.55	2.00	0.51	5.00	0.00	1.14	1.14
35.60	2.00	0.51	5.00	0.00	1.14	1.14
35.65	2.00	0.51	5.00	0.00	1.14	1.14
35.70	2.00	0.51	5.00	0.00	1.14	1.14
35.75	2.00	0.51	5.00	0.00	1.14	1.14
35.80	2.00	0.51	5.00	0.00	1.14	1.14
35.85	2.00	0.51	5.00	0.00	1.14	1.14
35.90	2.00	0.51	5.00	0.00	1.14	1.14
35.95	2.00	0.51	5.00	0.00	1.14	1.14
36.00	2.00	0.51	5.00	0.00	1.14	1.14
36.05	2.00	0.51	5.00	0.00	1.14	1.14
36.10	2.00	0.51	5.00	0.00	1.14	1.14
36.15	2.00	0.51	5.00	0.00	1.14	1.14
36.20	2.00	0.51	5.00	0.00	1.14	1.14
36.25	2.00	0.51	5.00	0.00	1.14	1.14
36.30	2.00	0.51	5.00	0.00	1.14	1.14
36.35	2.00	0.51	5.00	0.00	1.14	1.14
36.40	2.00	0.51	5.00	0.00	1.14	1.14
36.45	2.00	0.51	5.00	0.00	1.14	1.14
36.50	2.00	0.51	5.00	0.00	1.14	1.14
36.55	2.00	0.51	5.00	0.00	1.14	1.14
36.60	2.00	0.51	5.00	0.00	1.14	1.14
36.65	2.00	0.51	5.00	0.00	1.14	1.14
36.70	2.00	0.51	5.00	0.00	1.14	1.14
36.75	2.00	0.51	5.00	0.00	1.14	1.14
36.80	2.00	0.51	5.00	0.00	1.14	1.14
36.85	2.00	0.51	5.00	0.00	1.14	1.14
36.90	2.00	0.51	5.00	0.00	1.14	1.14
36.95	2.00	0.51	5.00	0.00	1.14	1.14
37.00	2.00	0.51	5.00	0.00	1.14	1.14
37.05	2.00	0.51	5.00	0.00	1.14	1.14
37.10	2.00	0.51	5.00	0.00	1.14	1.14
37.15	2.00	0.51	5.00	0.00	1.14	1.14

				B1. sum		
43.50	2.00	0.48	5.00	0.00	1.14	1.14
43.55	2.00	0.48	5.00	0.00	1.14	1.14
43.60	2.00	0.48	5.00	0.00	1.14	1.14
43.65	2.00	0.48	5.00	0.00	1.14	1.14
43.70	2.00	0.48	5.00	0.00	1.14	1.14
43.75	2.00	0.48	5.00	0.00	1.14	1.14
43.80	2.00	0.48	5.00	0.00	1.14	1.14
43.85	2.00	0.48	5.00	0.00	1.14	1.14
43.90	2.00	0.48	5.00	0.00	1.14	1.14
43.95	2.00	0.47	5.00	0.00	1.14	1.14
44.00	2.00	0.47	5.00	0.00	1.14	1.14
44.05	2.00	0.47	5.00	0.00	1.14	1.14
44.10	2.00	0.47	5.00	0.00	1.14	1.14
44.15	2.00	0.47	5.00	0.00	1.14	1.14
44.20	2.00	0.47	5.00	0.00	1.14	1.14
44.25	2.00	0.47	5.00	0.00	1.14	1.14
44.30	2.00	0.47	5.00	0.00	1.14	1.14
44.35	2.00	0.47	5.00	0.00	1.14	1.14
44.40	2.00	0.47	5.00	0.00	1.14	1.14
44.45	2.00	0.47	5.00	0.00	1.14	1.14
44.50	2.00	0.47	5.00	0.00	1.14	1.14
44.55	2.00	0.47	5.00	0.00	1.14	1.14
44.60	2.00	0.47	5.00	0.00	1.14	1.14
44.65	2.00	0.47	5.00	0.00	1.14	1.14
44.70	2.00	0.47	5.00	0.00	1.14	1.14
44.75	2.00	0.47	5.00	0.00	1.14	1.14
44.80	2.00	0.47	5.00	0.00	1.14	1.14
44.85	2.00	0.47	5.00	0.00	1.14	1.14
44.90	2.00	0.47	5.00	0.00	1.14	1.14
44.95	2.00	0.47	5.00	0.00	1.14	1.14
45.00	2.00	0.47	5.00	0.00	1.14	1.14
45.05	0.27	0.47	5.00	0.00	1.14	1.14
45.10	0.27	0.47	5.00	0.00	1.14	1.14
45.15	0.27	0.47	5.00	0.00	1.13	1.13
45.20	0.27	0.47	5.00	0.00	1.13	1.13
45.25	0.26	0.47	5.00	0.00	1.13	1.13
45.30	0.26	0.47	5.00	0.00	1.12	1.12
45.35	0.26	0.47	5.00	0.00	1.12	1.12
45.40	0.26	0.47	5.00	0.00	1.11	1.11
45.45	0.26	0.47	5.00	0.00	1.11	1.11
45.50	0.26	0.47	5.00	0.00	1.10	1.10
45.55	0.25	0.47	5.00	0.00	1.10	1.10
45.60	0.25	0.47	5.00	0.00	1.09	1.09
45.65	0.25	0.47	5.00	0.00	1.09	1.09
45.70	0.25	0.47	5.00	0.00	1.08	1.08
45.75	0.25	0.47	5.00	0.00	1.08	1.08
45.80	0.24	0.47	5.00	0.00	1.07	1.07
45.85	0.24	0.47	5.00	0.00	1.07	1.07
45.90	0.24	0.47	5.00	0.00	1.06	1.06
45.95	0.24	0.47	5.00	0.00	1.06	1.06
46.00	0.24	0.47	5.00	0.00	1.05	1.05
46.05	0.24	0.46	5.00	0.00	1.05	1.05
46.10	0.24	0.46	5.00	0.00	1.04	1.04
46.15	0.23	0.46	5.00	0.00	1.04	1.04
46.20	0.23	0.46	5.00	0.00	1.03	1.03
46.25	0.23	0.46	5.00	0.00	1.02	1.02
46.30	0.23	0.46	5.00	0.00	1.02	1.02
46.35	0.23	0.46	5.00	0.00	1.01	1.01
46.40	0.23	0.46	5.00	0.00	1.01	1.01
46.45	0.22	0.46	5.00	0.00	1.00	1.00
46.50	0.22	0.46	5.00	0.00	0.99	0.99
46.55	0.22	0.46	5.00	0.00	0.99	0.99
46.60	0.22	0.46	5.00	0.00	0.98	0.98

				B1. sum		
46.65	0.22	0.46	5.00	0.00	0.97	0.97
46.70	0.22	0.46	5.00	0.00	0.97	0.97
46.75	0.21	0.46	5.00	0.00	0.96	0.96
46.80	0.21	0.46	5.00	0.00	0.95	0.95
46.85	0.21	0.46	5.00	0.00	0.94	0.94
46.90	0.21	0.46	5.00	0.00	0.94	0.94
46.95	0.21	0.46	5.00	0.00	0.93	0.93
47.00	0.21	0.46	5.00	0.00	0.92	0.92
47.05	0.21	0.46	5.00	0.00	0.91	0.91
47.10	0.20	0.46	5.00	0.00	0.91	0.91
47.15	0.20	0.46	5.00	0.00	0.90	0.90
47.20	0.20	0.46	5.00	0.00	0.89	0.89
47.25	0.20	0.46	5.00	0.00	0.88	0.88
47.30	0.20	0.46	5.00	0.00	0.87	0.87
47.35	0.20	0.46	5.00	0.00	0.86	0.86
47.40	0.19	0.46	5.00	0.00	0.85	0.85
47.45	0.19	0.46	5.00	0.00	0.85	0.85
47.50	0.19	0.46	5.00	0.00	0.84	0.84
47.55	0.19	0.46	5.00	0.00	0.83	0.83
47.60	0.19	0.46	5.00	0.00	0.82	0.82
47.65	0.19	0.46	5.00	0.00	0.81	0.81
47.70	0.19	0.46	5.00	0.00	0.80	0.80
47.75	0.18	0.46	5.00	0.00	0.79	0.79
47.80	0.18	0.46	5.00	0.00	0.78	0.78
47.85	0.18	0.46	5.00	0.00	0.77	0.77
47.90	0.18	0.46	5.00	0.00	0.75	0.75
47.95	0.18	0.46	5.00	0.00	0.74	0.74
48.00	0.18	0.46	5.00	0.00	0.73	0.73
48.05	0.18	0.46	5.00	0.00	0.72	0.72
48.10	0.17	0.46	5.00	0.00	0.71	0.71
48.15	0.17	0.46	5.00	0.00	0.70	0.70
48.20	0.17	0.45	5.00	0.00	0.68	0.68
48.25	0.17	0.45	5.00	0.00	0.67	0.67
48.30	0.17	0.45	5.00	0.00	0.66	0.66
48.35	0.17	0.45	5.00	0.00	0.65	0.65
48.40	0.16	0.45	5.00	0.00	0.63	0.63
48.45	0.16	0.45	5.00	0.00	0.62	0.62
48.50	0.16	0.45	5.00	0.00	0.60	0.60
48.55	0.16	0.45	5.00	0.00	0.59	0.59
48.60	0.16	0.45	5.00	0.00	0.57	0.57
48.65	0.16	0.45	5.00	0.00	0.56	0.56
48.70	0.16	0.45	5.00	0.00	0.54	0.54
48.75	0.15	0.45	5.00	0.00	0.53	0.53
48.80	0.15	0.45	5.00	0.00	0.51	0.51
48.85	0.15	0.45	5.00	0.00	0.49	0.49
48.90	0.15	0.45	5.00	0.00	0.48	0.48
48.95	0.15	0.45	5.00	0.00	0.46	0.46
49.00	0.15	0.45	5.00	0.00	0.44	0.44
49.05	0.15	0.45	5.00	0.00	0.42	0.42
49.10	0.14	0.45	5.00	0.00	0.41	0.41
49.15	0.14	0.45	5.00	0.00	0.39	0.39
49.20	0.14	0.45	5.00	0.00	0.37	0.37
49.25	0.14	0.45	5.00	0.00	0.35	0.35
49.30	0.14	0.45	5.00	0.00	0.32	0.32
49.35	0.14	0.45	5.00	0.00	0.30	0.30
49.40	0.14	0.45	5.00	0.00	0.28	0.28
49.45	0.13	0.45	5.00	0.00	0.26	0.26
49.50	0.13	0.45	5.00	0.00	0.24	0.24
49.55	0.13	0.45	5.00	0.00	0.22	0.22
49.60	0.13	0.45	5.00	0.00	0.19	0.19
49.65	0.13	0.45	5.00	0.00	0.17	0.17
49.70	0.13	0.45	5.00	0.00	0.15	0.15
49.75	0.13	0.45	5.00	0.00	0.12	0.12

				B1. sum		
49.80	0.12	0.45	5.00	0.00	0.10	0.10
49.85	0.12	0.45	5.00	0.00	0.07	0.07
49.90	0.12	0.45	5.00	0.00	0.05	0.05
49.95	0.12	0.45	5.00	0.00	0.03	0.03
50.00	0.12	0.45	5.00	0.00	0.00	0.00

* F. S. <1, Liquefaction Potential Zone
(F. S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units Depth = ft, Stress or Pressure = tsf (atm), Unit Weight =
pcf, Settlement = in.

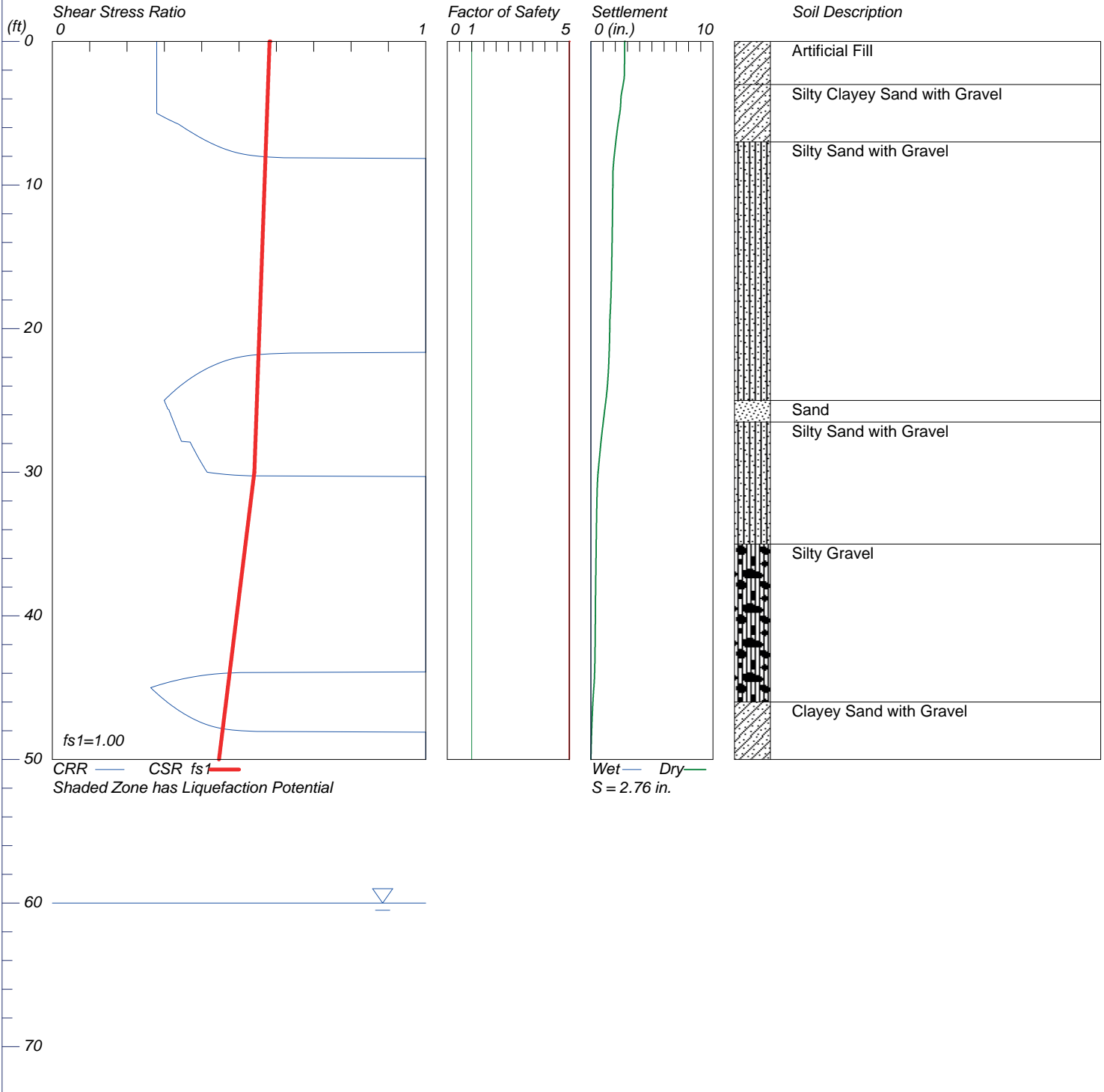
CRRm	Cyclic resistance ratio from soils
CSRfs	Cyclic stress ratio induced by a given earthquake (with user
request factor of safety)	
F. S.	Factor of Safety against Liquefaction, F. S. =CRRm/CSRfs
S_sat	Settlement from saturated sands
S_dry	Settlement from dry sands
S_all	Total settlement from saturated and dry sands
NoLiq	No-Liquefy Soils

LIQUEFACTION ANALYSIS

Proposed Commercial Dev. Temescal Cyn

Hole No.=B-14 Water Depth=60 ft Surface Elev.=~1075

**Magnitude=6.8
Acceleration=.895g**



LIQUEFACTION ANALYSIS CALCULATION SHEET

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Input File Name: \\Server\projects\40-3639G Proposed Residential
Development\B14.liq
Title: Proposed Commercial Dev. Temescal Cyn
Subti tle: 40-3639G

Surface El ev. =~1075
Hole No. =B-14
Depth of Hole= 50.0 ft
Water Table during Earthquake= 60.0 ft
Water Table during In-Si tu Testi ng= 60.0 ft
Max. Accel erati on= 0.89 g
Earthquake Magni tude= 6.8

Input Data:

Surface El ev. =~1075
Hole No. =B-14
Depth of Hole=50.0 ft
Water Table during Earthquake= 60.0 ft
Water Table during In-Si tu Testi ng= 60.0 ft
Max. Accel erati on=0.89 g
Earthquake Magni tude=6.8

- Earthquake Magni tude=6.8
- 2. Settlement Analysis Method: Ishihara / Yoshimine*
- 3. Fines Correction for Liquefaction: Stark/Olson et al.*
- 4. Fine Correction for Settlement: During Liquefaction*
- 5. Settlement Calculation in: All zones*
- 6. Hammer Energy Ratio, Ce = 1
- 7. Borehole Diameter, Cb= 1
- 8. Sampling Method, Cs= 1
- 9. User request factor of safety (apply to CSR) , User= 1
- Plot one CSR curve (fs1=User)
- 10. Use Curve Smoothing: Yes*
- * Recommended Options

In-Si tu Test Data:

Depth ft	SPT	gamma pcf	Fines %
0.0	12.0	120.0	25.0
5.0	12.0	120.0	25.0
10.0	31.0	120.0	23.0
15.0	48.0	120.0	20.0
20.0	37.0	120.0	18.0
25.0	23.0	120.0	20.0
30.0	32.0	120.0	20.0
35.0	100.0	130.0	10.0
40.0	100.0	130.0	10.0
45.0	29.0	125.0	20.0

50.0 56.0 125.0 20.0 B14. sum

Output Results:

Settlement of saturated sands=0.00 in.
 Settlement of dry sands=2.76 in.
 Total settlement of saturated and dry sands=2.76 in.
 Differential Settlement=1.381 to 1.823 in.

Depth ft	CRRm	CSRfs	F. S.	S_sat. in.	S_dry in.	S_all in.
0.00	0.28	0.58	5.00	0.00	2.76	2.76
0.05	0.28	0.58	5.00	0.00	2.76	2.76
0.10	0.28	0.58	5.00	0.00	2.76	2.76
0.15	0.28	0.58	5.00	0.00	2.76	2.76
0.20	0.28	0.58	5.00	0.00	2.76	2.76
0.25	0.28	0.58	5.00	0.00	2.76	2.76
0.30	0.28	0.58	5.00	0.00	2.76	2.76
0.35	0.28	0.58	5.00	0.00	2.76	2.76
0.40	0.28	0.58	5.00	0.00	2.76	2.76
0.45	0.28	0.58	5.00	0.00	2.76	2.76
0.50	0.28	0.58	5.00	0.00	2.76	2.76
0.55	0.28	0.58	5.00	0.00	2.76	2.76
0.60	0.28	0.58	5.00	0.00	2.76	2.76
0.65	0.28	0.58	5.00	0.00	2.76	2.76
0.70	0.28	0.58	5.00	0.00	2.76	2.76
0.75	0.28	0.58	5.00	0.00	2.76	2.76
0.80	0.28	0.58	5.00	0.00	2.76	2.76
0.85	0.28	0.58	5.00	0.00	2.76	2.76
0.90	0.28	0.58	5.00	0.00	2.76	2.76
0.95	0.28	0.58	5.00	0.00	2.76	2.76
1.00	0.28	0.58	5.00	0.00	2.76	2.76
1.05	0.28	0.58	5.00	0.00	2.76	2.76
1.10	0.28	0.58	5.00	0.00	2.76	2.76
1.15	0.28	0.58	5.00	0.00	2.76	2.76
1.20	0.28	0.58	5.00	0.00	2.76	2.76
1.25	0.28	0.58	5.00	0.00	2.76	2.76
1.30	0.28	0.58	5.00	0.00	2.76	2.76
1.35	0.28	0.58	5.00	0.00	2.76	2.76
1.40	0.28	0.58	5.00	0.00	2.76	2.76
1.45	0.28	0.58	5.00	0.00	2.76	2.76
1.50	0.28	0.58	5.00	0.00	2.76	2.76
1.55	0.28	0.58	5.00	0.00	2.76	2.76
1.60	0.28	0.58	5.00	0.00	2.75	2.75
1.65	0.28	0.58	5.00	0.00	2.75	2.75
1.70	0.28	0.58	5.00	0.00	2.75	2.75
1.75	0.28	0.58	5.00	0.00	2.75	2.75
1.80	0.28	0.58	5.00	0.00	2.75	2.75
1.85	0.28	0.58	5.00	0.00	2.75	2.75
1.90	0.28	0.58	5.00	0.00	2.75	2.75
1.95	0.28	0.58	5.00	0.00	2.75	2.75
2.00	0.28	0.58	5.00	0.00	2.75	2.75
2.05	0.28	0.58	5.00	0.00	2.75	2.75
2.10	0.28	0.58	5.00	0.00	2.75	2.75
2.15	0.28	0.58	5.00	0.00	2.75	2.75
2.20	0.28	0.58	5.00	0.00	2.74	2.74
2.25	0.28	0.58	5.00	0.00	2.74	2.74
2.30	0.28	0.58	5.00	0.00	2.74	2.74
2.35	0.28	0.58	5.00	0.00	2.74	2.74
2.40	0.28	0.58	5.00	0.00	2.74	2.74
2.45	0.28	0.58	5.00	0.00	2.73	2.73
2.50	0.28	0.58	5.00	0.00	2.73	2.73

				B14. sum		
2.55	0.28	0.58	5.00	0.00	2.72	2.72
2.60	0.28	0.58	5.00	0.00	2.72	2.72
2.65	0.28	0.58	5.00	0.00	2.71	2.71
2.70	0.28	0.58	5.00	0.00	2.70	2.70
2.75	0.28	0.58	5.00	0.00	2.69	2.69
2.80	0.28	0.58	5.00	0.00	2.68	2.68
2.85	0.28	0.58	5.00	0.00	2.67	2.67
2.90	0.28	0.58	5.00	0.00	2.66	2.66
2.95	0.28	0.58	5.00	0.00	2.65	2.65
3.00	0.28	0.58	5.00	0.00	2.64	2.64
3.05	0.28	0.58	5.00	0.00	2.63	2.63
3.10	0.28	0.58	5.00	0.00	2.62	2.62
3.15	0.28	0.58	5.00	0.00	2.61	2.61
3.20	0.28	0.58	5.00	0.00	2.60	2.60
3.25	0.28	0.58	5.00	0.00	2.59	2.59
3.30	0.28	0.58	5.00	0.00	2.58	2.58
3.35	0.28	0.58	5.00	0.00	2.57	2.57
3.40	0.28	0.58	5.00	0.00	2.56	2.56
3.45	0.28	0.58	5.00	0.00	2.55	2.55
3.50	0.28	0.58	5.00	0.00	2.54	2.54
3.55	0.28	0.58	5.00	0.00	2.53	2.53
3.60	0.28	0.58	5.00	0.00	2.52	2.52
3.65	0.28	0.58	5.00	0.00	2.51	2.51
3.70	0.28	0.58	5.00	0.00	2.50	2.50
3.75	0.28	0.58	5.00	0.00	2.49	2.49
3.80	0.28	0.58	5.00	0.00	2.48	2.48
3.85	0.28	0.58	5.00	0.00	2.47	2.47
3.90	0.28	0.58	5.00	0.00	2.46	2.46
3.95	0.28	0.58	5.00	0.00	2.46	2.46
4.00	0.28	0.58	5.00	0.00	2.46	2.46
4.05	0.28	0.58	5.00	0.00	2.46	2.46
4.10	0.28	0.58	5.00	0.00	2.46	2.46
4.15	0.28	0.58	5.00	0.00	2.45	2.45
4.20	0.28	0.58	5.00	0.00	2.45	2.45
4.25	0.28	0.58	5.00	0.00	2.45	2.45
4.30	0.28	0.58	5.00	0.00	2.44	2.44
4.35	0.28	0.58	5.00	0.00	2.44	2.44
4.40	0.28	0.58	5.00	0.00	2.44	2.44
4.45	0.28	0.58	5.00	0.00	2.43	2.43
4.50	0.28	0.58	5.00	0.00	2.43	2.43
4.55	0.28	0.58	5.00	0.00	2.42	2.42
4.60	0.28	0.58	5.00	0.00	2.42	2.42
4.65	0.28	0.58	5.00	0.00	2.41	2.41
4.70	0.28	0.58	5.00	0.00	2.41	2.41
4.75	0.28	0.58	5.00	0.00	2.40	2.40
4.80	0.28	0.58	5.00	0.00	2.40	2.40
4.85	0.28	0.58	5.00	0.00	2.39	2.39
4.90	0.28	0.58	5.00	0.00	2.38	2.38
4.95	0.28	0.58	5.00	0.00	2.37	2.37
5.00	0.28	0.57	5.00	0.00	2.36	2.36
5.05	0.28	0.57	5.00	0.00	2.35	2.35
5.10	0.29	0.57	5.00	0.00	2.34	2.34
5.15	0.29	0.57	5.00	0.00	2.33	2.33
5.20	0.29	0.57	5.00	0.00	2.32	2.32
5.25	0.30	0.57	5.00	0.00	2.31	2.31
5.30	0.30	0.57	5.00	0.00	2.30	2.30
5.35	0.30	0.57	5.00	0.00	2.30	2.30
5.40	0.31	0.57	5.00	0.00	2.29	2.29
5.45	0.31	0.57	5.00	0.00	2.28	2.28
5.50	0.32	0.57	5.00	0.00	2.27	2.27
5.55	0.32	0.57	5.00	0.00	2.26	2.26
5.60	0.32	0.57	5.00	0.00	2.25	2.25
5.65	0.33	0.57	5.00	0.00	2.24	2.24

				B14. sum		
5. 70	0. 33	0. 57	5. 00	0. 00	2. 23	2. 23
5. 75	0. 34	0. 57	5. 00	0. 00	2. 22	2. 22
5. 80	0. 34	0. 57	5. 00	0. 00	2. 22	2. 22
5. 85	0. 34	0. 57	5. 00	0. 00	2. 21	2. 21
5. 90	0. 35	0. 57	5. 00	0. 00	2. 20	2. 20
5. 95	0. 35	0. 57	5. 00	0. 00	2. 19	2. 19
6. 00	0. 35	0. 57	5. 00	0. 00	2. 18	2. 18
6. 05	0. 36	0. 57	5. 00	0. 00	2. 18	2. 18
6. 10	0. 36	0. 57	5. 00	0. 00	2. 17	2. 17
6. 15	0. 36	0. 57	5. 00	0. 00	2. 16	2. 16
6. 20	0. 36	0. 57	5. 00	0. 00	2. 15	2. 15
6. 25	0. 37	0. 57	5. 00	0. 00	2. 15	2. 15
6. 30	0. 37	0. 57	5. 00	0. 00	2. 14	2. 14
6. 35	0. 37	0. 57	5. 00	0. 00	2. 13	2. 13
6. 40	0. 38	0. 57	5. 00	0. 00	2. 12	2. 12
6. 45	0. 38	0. 57	5. 00	0. 00	2. 12	2. 12
6. 50	0. 38	0. 57	5. 00	0. 00	2. 11	2. 11
6. 55	0. 39	0. 57	5. 00	0. 00	2. 10	2. 10
6. 60	0. 39	0. 57	5. 00	0. 00	2. 09	2. 09
6. 65	0. 39	0. 57	5. 00	0. 00	2. 09	2. 09
6. 70	0. 40	0. 57	5. 00	0. 00	2. 08	2. 08
6. 75	0. 40	0. 57	5. 00	0. 00	2. 07	2. 07
6. 80	0. 40	0. 57	5. 00	0. 00	2. 06	2. 06
6. 85	0. 41	0. 57	5. 00	0. 00	2. 06	2. 06
6. 90	0. 41	0. 57	5. 00	0. 00	2. 05	2. 05
6. 95	0. 41	0. 57	5. 00	0. 00	2. 04	2. 04
7. 00	0. 42	0. 57	5. 00	0. 00	2. 04	2. 04
7. 05	0. 42	0. 57	5. 00	0. 00	2. 03	2. 03
7. 10	0. 43	0. 57	5. 00	0. 00	2. 02	2. 02
7. 15	0. 43	0. 57	5. 00	0. 00	2. 02	2. 02
7. 20	0. 43	0. 57	5. 00	0. 00	2. 01	2. 01
7. 25	0. 44	0. 57	5. 00	0. 00	2. 00	2. 00
7. 30	0. 44	0. 57	5. 00	0. 00	2. 00	2. 00
7. 35	0. 45	0. 57	5. 00	0. 00	1. 99	1. 99
7. 40	0. 45	0. 57	5. 00	0. 00	1. 98	1. 98
7. 45	0. 46	0. 57	5. 00	0. 00	1. 98	1. 98
7. 50	0. 46	0. 57	5. 00	0. 00	1. 97	1. 97
7. 55	0. 47	0. 57	5. 00	0. 00	1. 96	1. 96
7. 60	0. 47	0. 57	5. 00	0. 00	1. 96	1. 96
7. 65	0. 48	0. 57	5. 00	0. 00	1. 95	1. 95
7. 70	0. 49	0. 57	5. 00	0. 00	1. 95	1. 95
7. 75	0. 49	0. 57	5. 00	0. 00	1. 94	1. 94
7. 80	0. 50	0. 57	5. 00	0. 00	1. 93	1. 93
7. 85	0. 51	0. 57	5. 00	0. 00	1. 93	1. 93
7. 90	0. 52	0. 57	5. 00	0. 00	1. 92	1. 92
7. 95	0. 54	0. 57	5. 00	0. 00	1. 92	1. 92
8. 00	0. 55	0. 57	5. 00	0. 00	1. 91	1. 91
8. 05	0. 58	0. 57	5. 00	0. 00	1. 90	1. 90
8. 10	0. 62	0. 57	5. 00	0. 00	1. 90	1. 90
8. 15	2. 57	0. 57	5. 00	0. 00	1. 89	1. 89
8. 20	2. 57	0. 57	5. 00	0. 00	1. 89	1. 89
8. 25	2. 57	0. 57	5. 00	0. 00	1. 88	1. 88
8. 30	2. 57	0. 57	5. 00	0. 00	1. 87	1. 87
8. 35	2. 57	0. 57	5. 00	0. 00	1. 87	1. 87
8. 40	2. 57	0. 57	5. 00	0. 00	1. 87	1. 87
8. 45	2. 57	0. 57	5. 00	0. 00	1. 86	1. 86
8. 50	2. 57	0. 57	5. 00	0. 00	1. 86	1. 86
8. 55	2. 57	0. 57	5. 00	0. 00	1. 85	1. 85
8. 60	2. 57	0. 57	5. 00	0. 00	1. 85	1. 85
8. 65	2. 57	0. 57	5. 00	0. 00	1. 84	1. 84
8. 70	2. 57	0. 57	5. 00	0. 00	1. 84	1. 84
8. 75	2. 57	0. 57	5. 00	0. 00	1. 83	1. 83
8. 80	2. 57	0. 57	5. 00	0. 00	1. 83	1. 83

				B14. sum		
8.85	2.57	0.57	5.00	0.00	1.82	1.82
8.90	2.57	0.57	5.00	0.00	1.82	1.82
8.95	2.57	0.57	5.00	0.00	1.81	1.81
9.00	2.57	0.57	5.00	0.00	1.81	1.81
9.05	2.57	0.57	5.00	0.00	1.81	1.81
9.10	2.57	0.57	5.00	0.00	1.81	1.81
9.15	2.57	0.57	5.00	0.00	1.81	1.81
9.20	2.57	0.57	5.00	0.00	1.81	1.81
9.25	2.57	0.57	5.00	0.00	1.81	1.81
9.30	2.57	0.57	5.00	0.00	1.81	1.81
9.35	2.57	0.57	5.00	0.00	1.81	1.81
9.40	2.57	0.57	5.00	0.00	1.81	1.81
9.45	2.57	0.57	5.00	0.00	1.80	1.80
9.50	2.57	0.57	5.00	0.00	1.80	1.80
9.55	2.57	0.57	5.00	0.00	1.80	1.80
9.60	2.57	0.57	5.00	0.00	1.80	1.80
9.65	2.57	0.57	5.00	0.00	1.80	1.80
9.70	2.57	0.57	5.00	0.00	1.80	1.80
9.75	2.57	0.57	5.00	0.00	1.80	1.80
9.80	2.57	0.57	5.00	0.00	1.80	1.80
9.85	2.57	0.57	5.00	0.00	1.80	1.80
9.90	2.57	0.57	5.00	0.00	1.80	1.80
9.95	2.57	0.57	5.00	0.00	1.80	1.80
10.00	2.57	0.57	5.00	0.00	1.80	1.80
10.05	2.57	0.57	5.00	0.00	1.80	1.80
10.10	2.57	0.57	5.00	0.00	1.80	1.80
10.15	2.57	0.57	5.00	0.00	1.80	1.80
10.20	2.57	0.57	5.00	0.00	1.79	1.79
10.25	2.57	0.57	5.00	0.00	1.79	1.79
10.30	2.57	0.57	5.00	0.00	1.79	1.79
10.35	2.57	0.57	5.00	0.00	1.79	1.79
10.40	2.57	0.57	5.00	0.00	1.79	1.79
10.45	2.57	0.57	5.00	0.00	1.79	1.79
10.50	2.57	0.57	5.00	0.00	1.79	1.79
10.55	2.57	0.57	5.00	0.00	1.79	1.79
10.60	2.57	0.57	5.00	0.00	1.79	1.79
10.65	2.57	0.57	5.00	0.00	1.79	1.79
10.70	2.57	0.57	5.00	0.00	1.79	1.79
10.75	2.57	0.57	5.00	0.00	1.79	1.79
10.80	2.57	0.57	5.00	0.00	1.79	1.79
10.85	2.57	0.57	5.00	0.00	1.79	1.79
10.90	2.57	0.57	5.00	0.00	1.79	1.79
10.95	2.57	0.57	5.00	0.00	1.78	1.78
11.00	2.57	0.57	5.00	0.00	1.78	1.78
11.05	2.57	0.57	5.00	0.00	1.78	1.78
11.10	2.57	0.57	5.00	0.00	1.78	1.78
11.15	2.57	0.57	5.00	0.00	1.78	1.78
11.20	2.57	0.57	5.00	0.00	1.78	1.78
11.25	2.57	0.57	5.00	0.00	1.78	1.78
11.30	2.57	0.57	5.00	0.00	1.78	1.78
11.35	2.57	0.57	5.00	0.00	1.78	1.78
11.40	2.57	0.57	5.00	0.00	1.78	1.78
11.45	2.57	0.57	5.00	0.00	1.78	1.78
11.50	2.57	0.57	5.00	0.00	1.78	1.78
11.55	2.57	0.57	5.00	0.00	1.78	1.78
11.60	2.57	0.57	5.00	0.00	1.78	1.78
11.65	2.57	0.57	5.00	0.00	1.77	1.77
11.70	2.57	0.57	5.00	0.00	1.77	1.77
11.75	2.57	0.57	5.00	0.00	1.77	1.77
11.80	2.57	0.57	5.00	0.00	1.77	1.77
11.85	2.57	0.57	5.00	0.00	1.77	1.77
11.90	2.57	0.57	5.00	0.00	1.77	1.77
11.95	2.57	0.57	5.00	0.00	1.77	1.77

				B14. sum		
18.30	2.57	0.56	5.00	0.00	1.62	1.62
18.35	2.57	0.56	5.00	0.00	1.62	1.62
18.40	2.57	0.56	5.00	0.00	1.61	1.61
18.45	2.57	0.56	5.00	0.00	1.61	1.61
18.50	2.57	0.56	5.00	0.00	1.61	1.61
18.55	2.57	0.56	5.00	0.00	1.61	1.61
18.60	2.57	0.56	5.00	0.00	1.60	1.60
18.65	2.57	0.56	5.00	0.00	1.60	1.60
18.70	2.57	0.56	5.00	0.00	1.60	1.60
18.75	2.57	0.56	5.00	0.00	1.59	1.59
18.80	2.57	0.56	5.00	0.00	1.59	1.59
18.85	2.57	0.56	5.00	0.00	1.59	1.59
18.90	2.57	0.56	5.00	0.00	1.58	1.58
18.95	2.57	0.56	5.00	0.00	1.58	1.58
19.00	2.57	0.56	5.00	0.00	1.58	1.58
19.05	2.57	0.56	5.00	0.00	1.57	1.57
19.10	2.57	0.56	5.00	0.00	1.57	1.57
19.15	2.57	0.56	5.00	0.00	1.57	1.57
19.20	2.57	0.56	5.00	0.00	1.56	1.56
19.25	2.57	0.56	5.00	0.00	1.56	1.56
19.30	2.57	0.56	5.00	0.00	1.56	1.56
19.35	2.57	0.56	5.00	0.00	1.56	1.56
19.40	2.57	0.56	5.00	0.00	1.56	1.56
19.45	2.57	0.56	5.00	0.00	1.56	1.56
19.50	2.57	0.56	5.00	0.00	1.56	1.56
19.55	2.57	0.56	5.00	0.00	1.56	1.56
19.60	2.57	0.56	5.00	0.00	1.55	1.55
19.65	2.57	0.56	5.00	0.00	1.55	1.55
19.70	2.57	0.56	5.00	0.00	1.55	1.55
19.75	2.57	0.55	5.00	0.00	1.55	1.55
19.80	2.57	0.55	5.00	0.00	1.55	1.55
19.85	2.57	0.55	5.00	0.00	1.55	1.55
19.90	2.57	0.55	5.00	0.00	1.55	1.55
19.95	2.57	0.55	5.00	0.00	1.55	1.55
20.00	2.57	0.55	5.00	0.00	1.55	1.55
20.05	2.57	0.55	5.00	0.00	1.54	1.54
20.10	2.57	0.55	5.00	0.00	1.54	1.54
20.15	2.57	0.55	5.00	0.00	1.54	1.54
20.20	2.57	0.55	5.00	0.00	1.54	1.54
20.25	2.57	0.55	5.00	0.00	1.54	1.54
20.30	2.57	0.55	5.00	0.00	1.54	1.54
20.35	2.57	0.55	5.00	0.00	1.54	1.54
20.40	2.57	0.55	5.00	0.00	1.54	1.54
20.45	2.57	0.55	5.00	0.00	1.54	1.54
20.50	2.57	0.55	5.00	0.00	1.53	1.53
20.55	2.57	0.55	5.00	0.00	1.53	1.53
20.60	2.57	0.55	5.00	0.00	1.53	1.53
20.65	2.57	0.55	5.00	0.00	1.53	1.53
20.70	2.57	0.55	5.00	0.00	1.53	1.53
20.75	2.57	0.55	5.00	0.00	1.53	1.53
20.80	2.57	0.55	5.00	0.00	1.53	1.53
20.85	2.57	0.55	5.00	0.00	1.52	1.52
20.90	2.57	0.55	5.00	0.00	1.52	1.52
20.95	2.57	0.55	5.00	0.00	1.52	1.52
21.00	2.57	0.55	5.00	0.00	1.52	1.52
21.05	2.57	0.55	5.00	0.00	1.52	1.52
21.10	2.57	0.55	5.00	0.00	1.52	1.52
21.15	2.57	0.55	5.00	0.00	1.52	1.52
21.20	2.57	0.55	5.00	0.00	1.51	1.51
21.25	2.57	0.55	5.00	0.00	1.51	1.51
21.30	2.57	0.55	5.00	0.00	1.51	1.51
21.35	2.57	0.55	5.00	0.00	1.51	1.51
21.40	2.57	0.55	5.00	0.00	1.51	1.51

					B14. sum		
21.45	2.57	0.55	5.00	0.00	1.50	1.50	
21.50	2.57	0.55	5.00	0.00	1.50	1.50	
21.55	2.57	0.55	5.00	0.00	1.50	1.50	
21.60	2.57	0.55	5.00	0.00	1.50	1.50	
21.65	2.57	0.55	5.00	0.00	1.50	1.50	
21.70	0.64	0.55	5.00	0.00	1.50	1.50	
21.75	0.58	0.55	5.00	0.00	1.49	1.49	
21.80	0.55	0.55	5.00	0.00	1.49	1.49	
21.85	0.53	0.55	5.00	0.00	1.49	1.49	
21.90	0.52	0.55	5.00	0.00	1.49	1.49	
21.95	0.51	0.55	5.00	0.00	1.48	1.48	
22.00	0.50	0.55	5.00	0.00	1.48	1.48	
22.05	0.49	0.55	5.00	0.00	1.48	1.48	
22.10	0.48	0.55	5.00	0.00	1.48	1.48	
22.15	0.47	0.55	5.00	0.00	1.48	1.48	
22.20	0.47	0.55	5.00	0.00	1.47	1.47	
22.25	0.46	0.55	5.00	0.00	1.47	1.47	
22.30	0.46	0.55	5.00	0.00	1.47	1.47	
22.35	0.45	0.55	5.00	0.00	1.47	1.47	
22.40	0.45	0.55	5.00	0.00	1.46	1.46	
22.45	0.44	0.55	5.00	0.00	1.46	1.46	
22.50	0.44	0.55	5.00	0.00	1.46	1.46	
22.55	0.43	0.55	5.00	0.00	1.46	1.46	
22.60	0.43	0.55	5.00	0.00	1.45	1.45	
22.65	0.42	0.55	5.00	0.00	1.45	1.45	
22.70	0.42	0.55	5.00	0.00	1.45	1.45	
22.75	0.42	0.55	5.00	0.00	1.44	1.44	
22.80	0.41	0.55	5.00	0.00	1.44	1.44	
22.85	0.41	0.55	5.00	0.00	1.44	1.44	
22.90	0.41	0.55	5.00	0.00	1.44	1.44	
22.95	0.40	0.55	5.00	0.00	1.43	1.43	
23.00	0.40	0.55	5.00	0.00	1.43	1.43	
23.05	0.39	0.55	5.00	0.00	1.43	1.43	
23.10	0.39	0.55	5.00	0.00	1.42	1.42	
23.15	0.39	0.55	5.00	0.00	1.42	1.42	
23.20	0.39	0.55	5.00	0.00	1.42	1.42	
23.25	0.38	0.55	5.00	0.00	1.41	1.41	
23.30	0.38	0.55	5.00	0.00	1.41	1.41	
23.35	0.38	0.55	5.00	0.00	1.40	1.40	
23.40	0.37	0.55	5.00	0.00	1.40	1.40	
23.45	0.37	0.55	5.00	0.00	1.40	1.40	
23.50	0.37	0.55	5.00	0.00	1.39	1.39	
23.55	0.36	0.55	5.00	0.00	1.39	1.39	
23.60	0.36	0.55	5.00	0.00	1.39	1.39	
23.65	0.36	0.55	5.00	0.00	1.38	1.38	
23.70	0.36	0.55	5.00	0.00	1.38	1.38	
23.75	0.35	0.55	5.00	0.00	1.37	1.37	
23.80	0.35	0.55	5.00	0.00	1.37	1.37	
23.85	0.35	0.55	5.00	0.00	1.36	1.36	
23.90	0.35	0.55	5.00	0.00	1.36	1.36	
23.95	0.34	0.55	5.00	0.00	1.35	1.35	
24.00	0.34	0.55	5.00	0.00	1.35	1.35	
24.05	0.34	0.55	5.00	0.00	1.34	1.34	
24.10	0.34	0.55	5.00	0.00	1.34	1.34	
24.15	0.33	0.55	5.00	0.00	1.33	1.33	
24.20	0.33	0.55	5.00	0.00	1.33	1.33	
24.25	0.33	0.55	5.00	0.00	1.32	1.32	
24.30	0.33	0.55	5.00	0.00	1.32	1.32	
24.35	0.33	0.55	5.00	0.00	1.31	1.31	
24.40	0.32	0.55	5.00	0.00	1.31	1.31	
24.45	0.32	0.55	5.00	0.00	1.30	1.30	
24.50	0.32	0.55	5.00	0.00	1.30	1.30	
24.55	0.32	0.55	5.00	0.00	1.29	1.29	

				B14. sum		
24. 60	0. 32	0. 55	5. 00	0. 00	1. 28	1. 28
24. 65	0. 31	0. 55	5. 00	0. 00	1. 28	1. 28
24. 70	0. 31	0. 55	5. 00	0. 00	1. 27	1. 27
24. 75	0. 31	0. 55	5. 00	0. 00	1. 27	1. 27
24. 80	0. 31	0. 55	5. 00	0. 00	1. 26	1. 26
24. 85	0. 31	0. 55	5. 00	0. 00	1. 25	1. 25
24. 90	0. 30	0. 55	5. 00	0. 00	1. 24	1. 24
24. 95	0. 30	0. 55	5. 00	0. 00	1. 24	1. 24
25. 00	0. 30	0. 55	5. 00	0. 00	1. 23	1. 23
25. 05	0. 30	0. 55	5. 00	0. 00	1. 22	1. 22
25. 10	0. 30	0. 55	5. 00	0. 00	1. 21	1. 21
25. 15	0. 30	0. 55	5. 00	0. 00	1. 21	1. 21
25. 20	0. 30	0. 55	5. 00	0. 00	1. 20	1. 20
25. 25	0. 30	0. 55	5. 00	0. 00	1. 19	1. 19
25. 30	0. 30	0. 55	5. 00	0. 00	1. 19	1. 19
25. 35	0. 31	0. 55	5. 00	0. 00	1. 18	1. 18
25. 40	0. 31	0. 55	5. 00	0. 00	1. 17	1. 17
25. 45	0. 31	0. 55	5. 00	0. 00	1. 16	1. 16
25. 50	0. 31	0. 55	5. 00	0. 00	1. 16	1. 16
25. 55	0. 31	0. 55	5. 00	0. 00	1. 15	1. 15
25. 60	0. 31	0. 55	5. 00	0. 00	1. 14	1. 14
25. 65	0. 31	0. 55	5. 00	0. 00	1. 13	1. 13
25. 70	0. 31	0. 55	5. 00	0. 00	1. 13	1. 13
25. 75	0. 31	0. 55	5. 00	0. 00	1. 12	1. 12
25. 80	0. 31	0. 55	5. 00	0. 00	1. 11	1. 11
25. 85	0. 32	0. 55	5. 00	0. 00	1. 11	1. 11
25. 90	0. 32	0. 55	5. 00	0. 00	1. 10	1. 10
25. 95	0. 32	0. 55	5. 00	0. 00	1. 09	1. 09
26. 00	0. 32	0. 55	5. 00	0. 00	1. 08	1. 08
26. 05	0. 32	0. 55	5. 00	0. 00	1. 08	1. 08
26. 10	0. 32	0. 55	5. 00	0. 00	1. 07	1. 07
26. 15	0. 32	0. 55	5. 00	0. 00	1. 06	1. 06
26. 20	0. 32	0. 55	5. 00	0. 00	1. 06	1. 06
26. 25	0. 32	0. 55	5. 00	0. 00	1. 05	1. 05
26. 30	0. 32	0. 55	5. 00	0. 00	1. 04	1. 04
26. 35	0. 32	0. 55	5. 00	0. 00	1. 03	1. 03
26. 40	0. 32	0. 55	5. 00	0. 00	1. 03	1. 03
26. 45	0. 32	0. 55	5. 00	0. 00	1. 02	1. 02
26. 50	0. 32	0. 55	5. 00	0. 00	1. 01	1. 01
26. 55	0. 33	0. 55	5. 00	0. 00	1. 01	1. 01
26. 60	0. 33	0. 55	5. 00	0. 00	1. 00	1. 00
26. 65	0. 33	0. 55	5. 00	0. 00	0. 99	0. 99
26. 70	0. 33	0. 55	5. 00	0. 00	0. 99	0. 99
26. 75	0. 33	0. 55	5. 00	0. 00	0. 98	0. 98
26. 80	0. 33	0. 55	5. 00	0. 00	0. 97	0. 97
26. 85	0. 33	0. 55	5. 00	0. 00	0. 96	0. 96
26. 90	0. 33	0. 55	5. 00	0. 00	0. 96	0. 96
26. 95	0. 33	0. 55	5. 00	0. 00	0. 95	0. 95
27. 00	0. 33	0. 55	5. 00	0. 00	0. 94	0. 94
27. 05	0. 33	0. 55	5. 00	0. 00	0. 94	0. 94
27. 10	0. 33	0. 54	5. 00	0. 00	0. 93	0. 93
27. 15	0. 33	0. 54	5. 00	0. 00	0. 92	0. 92
27. 20	0. 34	0. 54	5. 00	0. 00	0. 92	0. 92
27. 25	0. 34	0. 54	5. 00	0. 00	0. 91	0. 91
27. 30	0. 34	0. 54	5. 00	0. 00	0. 90	0. 90
27. 35	0. 34	0. 54	5. 00	0. 00	0. 90	0. 90
27. 40	0. 34	0. 54	5. 00	0. 00	0. 89	0. 89
27. 45	0. 34	0. 54	5. 00	0. 00	0. 88	0. 88
27. 50	0. 34	0. 54	5. 00	0. 00	0. 88	0. 88
27. 55	0. 34	0. 54	5. 00	0. 00	0. 87	0. 87
27. 60	0. 34	0. 54	5. 00	0. 00	0. 86	0. 86
27. 65	0. 34	0. 54	5. 00	0. 00	0. 86	0. 86
27. 70	0. 34	0. 54	5. 00	0. 00	0. 85	0. 85

				B14. sum		
27.75	0.34	0.54	5.00	0.00	0.84	0.84
27.80	0.35	0.54	5.00	0.00	0.84	0.84
27.85	0.35	0.54	5.00	0.00	0.83	0.83
27.90	0.37	0.54	5.00	0.00	0.82	0.82
27.95	0.37	0.54	5.00	0.00	0.82	0.82
28.00	0.37	0.54	5.00	0.00	0.81	0.81
28.05	0.37	0.54	5.00	0.00	0.81	0.81
28.10	0.37	0.54	5.00	0.00	0.80	0.80
28.15	0.37	0.54	5.00	0.00	0.79	0.79
28.20	0.37	0.54	5.00	0.00	0.79	0.79
28.25	0.38	0.54	5.00	0.00	0.78	0.78
28.30	0.38	0.54	5.00	0.00	0.78	0.78
28.35	0.38	0.54	5.00	0.00	0.77	0.77
28.40	0.38	0.54	5.00	0.00	0.77	0.77
28.45	0.38	0.54	5.00	0.00	0.76	0.76
28.50	0.38	0.54	5.00	0.00	0.76	0.76
28.55	0.38	0.54	5.00	0.00	0.75	0.75
28.60	0.38	0.54	5.00	0.00	0.74	0.74
28.65	0.38	0.54	5.00	0.00	0.74	0.74
28.70	0.39	0.54	5.00	0.00	0.73	0.73
28.75	0.39	0.54	5.00	0.00	0.73	0.73
28.80	0.39	0.54	5.00	0.00	0.72	0.72
28.85	0.39	0.54	5.00	0.00	0.72	0.72
28.90	0.39	0.54	5.00	0.00	0.71	0.71
28.95	0.39	0.54	5.00	0.00	0.71	0.71
29.00	0.39	0.54	5.00	0.00	0.70	0.70
29.05	0.39	0.54	5.00	0.00	0.69	0.69
29.10	0.39	0.54	5.00	0.00	0.69	0.69
29.15	0.39	0.54	5.00	0.00	0.68	0.68
29.20	0.40	0.54	5.00	0.00	0.68	0.68
29.25	0.40	0.54	5.00	0.00	0.67	0.67
29.30	0.40	0.54	5.00	0.00	0.67	0.67
29.35	0.40	0.54	5.00	0.00	0.66	0.66
29.40	0.40	0.54	5.00	0.00	0.66	0.66
29.45	0.40	0.54	5.00	0.00	0.65	0.65
29.50	0.40	0.54	5.00	0.00	0.65	0.65
29.55	0.40	0.54	5.00	0.00	0.64	0.64
29.60	0.41	0.54	5.00	0.00	0.64	0.64
29.65	0.41	0.54	5.00	0.00	0.63	0.63
29.70	0.41	0.54	5.00	0.00	0.62	0.62
29.75	0.41	0.54	5.00	0.00	0.62	0.62
29.80	0.41	0.54	5.00	0.00	0.61	0.61
29.85	0.41	0.54	5.00	0.00	0.61	0.61
29.90	0.41	0.54	5.00	0.00	0.60	0.60
29.95	0.41	0.54	5.00	0.00	0.60	0.60
30.00	0.41	0.54	5.00	0.00	0.59	0.59
30.05	0.43	0.54	5.00	0.00	0.59	0.59
30.10	0.44	0.54	5.00	0.00	0.58	0.58
30.15	0.46	0.54	5.00	0.00	0.58	0.58
30.20	0.49	0.54	5.00	0.00	0.57	0.57
30.25	0.53	0.54	5.00	0.00	0.57	0.57
30.30	2.51	0.54	5.00	0.00	0.56	0.56
30.35	2.51	0.54	5.00	0.00	0.56	0.56
30.40	2.51	0.54	5.00	0.00	0.56	0.56
30.45	2.51	0.54	5.00	0.00	0.55	0.55
30.50	2.51	0.54	5.00	0.00	0.55	0.55
30.55	2.51	0.54	5.00	0.00	0.55	0.55
30.60	2.51	0.54	5.00	0.00	0.54	0.54
30.65	2.51	0.54	5.00	0.00	0.54	0.54
30.70	2.51	0.54	5.00	0.00	0.54	0.54
30.75	2.51	0.54	5.00	0.00	0.54	0.54
30.80	2.51	0.54	5.00	0.00	0.53	0.53
30.85	2.50	0.54	5.00	0.00	0.53	0.53

				B14. sum		
30.90	2.50	0.54	5.00	0.00	0.53	0.53
30.95	2.50	0.54	5.00	0.00	0.53	0.53
31.00	2.50	0.54	5.00	0.00	0.52	0.52
31.05	2.50	0.54	5.00	0.00	0.52	0.52
31.10	2.50	0.54	5.00	0.00	0.52	0.52
31.15	2.50	0.54	5.00	0.00	0.52	0.52
31.20	2.50	0.54	5.00	0.00	0.52	0.52
31.25	2.50	0.54	5.00	0.00	0.51	0.51
31.30	2.50	0.53	5.00	0.00	0.51	0.51
31.35	2.50	0.53	5.00	0.00	0.51	0.51
31.40	2.50	0.53	5.00	0.00	0.51	0.51
31.45	2.50	0.53	5.00	0.00	0.51	0.51
31.50	2.49	0.53	5.00	0.00	0.51	0.51
31.55	2.49	0.53	5.00	0.00	0.50	0.50
31.60	2.49	0.53	5.00	0.00	0.50	0.50
31.65	2.49	0.53	5.00	0.00	0.50	0.50
31.70	2.49	0.53	5.00	0.00	0.50	0.50
31.75	2.49	0.53	5.00	0.00	0.50	0.50
31.80	2.49	0.53	5.00	0.00	0.50	0.50
31.85	2.49	0.53	5.00	0.00	0.50	0.50
31.90	2.49	0.53	5.00	0.00	0.50	0.50
31.95	2.49	0.53	5.00	0.00	0.49	0.49
32.00	2.49	0.53	5.00	0.00	0.49	0.49
32.05	2.49	0.53	5.00	0.00	0.49	0.49
32.10	2.49	0.53	5.00	0.00	0.49	0.49
32.15	2.48	0.53	5.00	0.00	0.49	0.49
32.20	2.48	0.53	5.00	0.00	0.49	0.49
32.25	2.48	0.53	5.00	0.00	0.49	0.49
32.30	2.48	0.53	5.00	0.00	0.49	0.49
32.35	2.48	0.53	5.00	0.00	0.48	0.48
32.40	2.48	0.53	5.00	0.00	0.48	0.48
32.45	2.48	0.53	5.00	0.00	0.48	0.48
32.50	2.48	0.53	5.00	0.00	0.48	0.48
32.55	2.48	0.53	5.00	0.00	0.48	0.48
32.60	2.48	0.53	5.00	0.00	0.48	0.48
32.65	2.48	0.53	5.00	0.00	0.48	0.48
32.70	2.48	0.53	5.00	0.00	0.48	0.48
32.75	2.48	0.53	5.00	0.00	0.48	0.48
32.80	2.47	0.53	5.00	0.00	0.47	0.47
32.85	2.47	0.53	5.00	0.00	0.47	0.47
32.90	2.47	0.53	5.00	0.00	0.47	0.47
32.95	2.47	0.53	5.00	0.00	0.47	0.47
33.00	2.47	0.53	5.00	0.00	0.47	0.47
33.05	2.47	0.53	5.00	0.00	0.47	0.47
33.10	2.47	0.53	5.00	0.00	0.47	0.47
33.15	2.47	0.53	5.00	0.00	0.47	0.47
33.20	2.47	0.53	5.00	0.00	0.47	0.47
33.25	2.47	0.53	5.00	0.00	0.47	0.47
33.30	2.47	0.53	5.00	0.00	0.47	0.47
33.35	2.47	0.53	5.00	0.00	0.46	0.46
33.40	2.47	0.52	5.00	0.00	0.46	0.46
33.45	2.46	0.52	5.00	0.00	0.46	0.46
33.50	2.46	0.52	5.00	0.00	0.46	0.46
33.55	2.46	0.52	5.00	0.00	0.46	0.46
33.60	2.46	0.52	5.00	0.00	0.46	0.46
33.65	2.46	0.52	5.00	0.00	0.46	0.46
33.70	2.46	0.52	5.00	0.00	0.46	0.46
33.75	2.46	0.52	5.00	0.00	0.46	0.46
33.80	2.46	0.52	5.00	0.00	0.46	0.46
33.85	2.46	0.52	5.00	0.00	0.45	0.45
33.90	2.46	0.52	5.00	0.00	0.45	0.45
33.95	2.46	0.52	5.00	0.00	0.45	0.45
34.00	2.46	0.52	5.00	0.00	0.45	0.45

				B14. sum		
34.05	2.46	0.52	5.00	0.00	0.45	0.45
34.10	2.46	0.52	5.00	0.00	0.45	0.45
34.15	2.45	0.52	5.00	0.00	0.45	0.45
34.20	2.45	0.52	5.00	0.00	0.45	0.45
34.25	2.45	0.52	5.00	0.00	0.45	0.45
34.30	2.45	0.52	5.00	0.00	0.45	0.45
34.35	2.45	0.52	5.00	0.00	0.45	0.45
34.40	2.45	0.52	5.00	0.00	0.45	0.45
34.45	2.45	0.52	5.00	0.00	0.44	0.44
34.50	2.45	0.52	5.00	0.00	0.44	0.44
34.55	2.45	0.52	5.00	0.00	0.44	0.44
34.60	2.45	0.52	5.00	0.00	0.44	0.44
34.65	2.45	0.52	5.00	0.00	0.44	0.44
34.70	2.45	0.52	5.00	0.00	0.44	0.44
34.75	2.45	0.52	5.00	0.00	0.44	0.44
34.80	2.44	0.52	5.00	0.00	0.44	0.44
34.85	2.44	0.52	5.00	0.00	0.44	0.44
34.90	2.44	0.52	5.00	0.00	0.44	0.44
34.95	2.44	0.52	5.00	0.00	0.44	0.44
35.00	2.44	0.52	5.00	0.00	0.44	0.44
35.05	2.44	0.52	5.00	0.00	0.44	0.44
35.10	2.44	0.52	5.00	0.00	0.43	0.43
35.15	2.44	0.52	5.00	0.00	0.43	0.43
35.20	2.44	0.52	5.00	0.00	0.43	0.43
35.25	2.44	0.52	5.00	0.00	0.43	0.43
35.30	2.44	0.52	5.00	0.00	0.43	0.43
35.35	2.44	0.52	5.00	0.00	0.43	0.43
35.40	2.44	0.52	5.00	0.00	0.43	0.43
35.45	2.43	0.52	5.00	0.00	0.43	0.43
35.50	2.43	0.51	5.00	0.00	0.43	0.43
35.55	2.43	0.51	5.00	0.00	0.43	0.43
35.60	2.43	0.51	5.00	0.00	0.43	0.43
35.65	2.43	0.51	5.00	0.00	0.43	0.43
35.70	2.43	0.51	5.00	0.00	0.43	0.43
35.75	2.43	0.51	5.00	0.00	0.42	0.42
35.80	2.43	0.51	5.00	0.00	0.42	0.42
35.85	2.43	0.51	5.00	0.00	0.42	0.42
35.90	2.43	0.51	5.00	0.00	0.42	0.42
35.95	2.43	0.51	5.00	0.00	0.42	0.42
36.00	2.43	0.51	5.00	0.00	0.42	0.42
36.05	2.43	0.51	5.00	0.00	0.42	0.42
36.10	2.42	0.51	5.00	0.00	0.42	0.42
36.15	2.42	0.51	5.00	0.00	0.42	0.42
36.20	2.42	0.51	5.00	0.00	0.42	0.42
36.25	2.42	0.51	5.00	0.00	0.42	0.42
36.30	2.42	0.51	5.00	0.00	0.42	0.42
36.35	2.42	0.51	5.00	0.00	0.42	0.42
36.40	2.42	0.51	5.00	0.00	0.41	0.41
36.45	2.42	0.51	5.00	0.00	0.41	0.41
36.50	2.42	0.51	5.00	0.00	0.41	0.41
36.55	2.42	0.51	5.00	0.00	0.41	0.41
36.60	2.42	0.51	5.00	0.00	0.41	0.41
36.65	2.42	0.51	5.00	0.00	0.41	0.41
36.70	2.42	0.51	5.00	0.00	0.41	0.41
36.75	2.42	0.51	5.00	0.00	0.41	0.41
36.80	2.41	0.51	5.00	0.00	0.41	0.41
36.85	2.41	0.51	5.00	0.00	0.41	0.41
36.90	2.41	0.51	5.00	0.00	0.41	0.41
36.95	2.41	0.51	5.00	0.00	0.41	0.41
37.00	2.41	0.51	5.00	0.00	0.40	0.40
37.05	2.41	0.51	5.00	0.00	0.40	0.40
37.10	2.41	0.51	5.00	0.00	0.40	0.40
37.15	2.41	0.51	5.00	0.00	0.40	0.40

				B14. sum		
40.35	2.36	0.49	5.00	0.00	0.36	0.36
40.40	2.36	0.49	5.00	0.00	0.36	0.36
40.45	2.36	0.49	5.00	0.00	0.36	0.36
40.50	2.36	0.49	5.00	0.00	0.36	0.36
40.55	2.36	0.49	5.00	0.00	0.36	0.36
40.60	2.36	0.49	5.00	0.00	0.36	0.36
40.65	2.36	0.49	5.00	0.00	0.36	0.36
40.70	2.36	0.49	5.00	0.00	0.36	0.36
40.75	2.36	0.49	5.00	0.00	0.36	0.36
40.80	2.36	0.49	5.00	0.00	0.36	0.36
40.85	2.36	0.49	5.00	0.00	0.36	0.36
40.90	2.36	0.49	5.00	0.00	0.36	0.36
40.95	2.35	0.49	5.00	0.00	0.36	0.36
41.00	2.35	0.49	5.00	0.00	0.36	0.36
41.05	2.35	0.49	5.00	0.00	0.36	0.36
41.10	2.35	0.49	5.00	0.00	0.36	0.36
41.15	2.35	0.49	5.00	0.00	0.36	0.36
41.20	2.35	0.49	5.00	0.00	0.36	0.36
41.25	2.35	0.49	5.00	0.00	0.36	0.36
41.30	2.35	0.49	5.00	0.00	0.35	0.35
41.35	2.35	0.49	5.00	0.00	0.35	0.35
41.40	2.35	0.49	5.00	0.00	0.35	0.35
41.45	2.35	0.49	5.00	0.00	0.35	0.35
41.50	2.35	0.49	5.00	0.00	0.35	0.35
41.55	2.35	0.49	5.00	0.00	0.35	0.35
41.60	2.35	0.49	5.00	0.00	0.35	0.35
41.65	2.35	0.49	5.00	0.00	0.35	0.35
41.70	2.34	0.49	5.00	0.00	0.35	0.35
41.75	2.34	0.49	5.00	0.00	0.35	0.35
41.80	2.34	0.49	5.00	0.00	0.35	0.35
41.85	2.34	0.48	5.00	0.00	0.35	0.35
41.90	2.34	0.48	5.00	0.00	0.35	0.35
41.95	2.34	0.48	5.00	0.00	0.35	0.35
42.00	2.34	0.48	5.00	0.00	0.35	0.35
42.05	2.34	0.48	5.00	0.00	0.34	0.34
42.10	2.34	0.48	5.00	0.00	0.34	0.34
42.15	2.34	0.48	5.00	0.00	0.34	0.34
42.20	2.34	0.48	5.00	0.00	0.34	0.34
42.25	2.34	0.48	5.00	0.00	0.34	0.34
42.30	2.34	0.48	5.00	0.00	0.34	0.34
42.35	2.34	0.48	5.00	0.00	0.34	0.34
42.40	2.34	0.48	5.00	0.00	0.34	0.34
42.45	2.33	0.48	5.00	0.00	0.34	0.34
42.50	2.33	0.48	5.00	0.00	0.34	0.34
42.55	2.33	0.48	5.00	0.00	0.34	0.34
42.60	2.33	0.48	5.00	0.00	0.34	0.34
42.65	2.33	0.48	5.00	0.00	0.34	0.34
42.70	2.33	0.48	5.00	0.00	0.34	0.34
42.75	2.33	0.48	5.00	0.00	0.33	0.33
42.80	2.33	0.48	5.00	0.00	0.33	0.33
42.85	2.33	0.48	5.00	0.00	0.33	0.33
42.90	2.33	0.48	5.00	0.00	0.33	0.33
42.95	2.33	0.48	5.00	0.00	0.33	0.33
43.00	2.33	0.48	5.00	0.00	0.33	0.33
43.05	2.33	0.48	5.00	0.00	0.33	0.33
43.10	2.33	0.48	5.00	0.00	0.33	0.33
43.15	2.33	0.48	5.00	0.00	0.33	0.33
43.20	2.32	0.48	5.00	0.00	0.33	0.33
43.25	2.32	0.48	5.00	0.00	0.33	0.33
43.30	2.32	0.48	5.00	0.00	0.32	0.32
43.35	2.32	0.48	5.00	0.00	0.32	0.32
43.40	2.32	0.48	5.00	0.00	0.32	0.32
43.45	2.32	0.48	5.00	0.00	0.32	0.32

				B14. sum		
43.50	2.32	0.48	5.00	0.00	0.32	0.32
43.55	2.32	0.48	5.00	0.00	0.32	0.32
43.60	2.32	0.48	5.00	0.00	0.32	0.32
43.65	2.32	0.48	5.00	0.00	0.31	0.31
43.70	2.32	0.48	5.00	0.00	0.31	0.31
43.75	2.32	0.48	5.00	0.00	0.31	0.31
43.80	2.32	0.48	5.00	0.00	0.31	0.31
43.85	2.32	0.48	5.00	0.00	0.31	0.31
43.90	2.32	0.48	5.00	0.00	0.31	0.31
43.95	0.50	0.47	5.00	0.00	0.30	0.30
44.00	0.46	0.47	5.00	0.00	0.30	0.30
44.05	0.43	0.47	5.00	0.00	0.30	0.30
44.10	0.42	0.47	5.00	0.00	0.30	0.30
44.15	0.40	0.47	5.00	0.00	0.30	0.30
44.20	0.39	0.47	5.00	0.00	0.29	0.29
44.25	0.38	0.47	5.00	0.00	0.29	0.29
44.30	0.37	0.47	5.00	0.00	0.29	0.29
44.35	0.36	0.47	5.00	0.00	0.29	0.29
44.40	0.35	0.47	5.00	0.00	0.28	0.28
44.45	0.34	0.47	5.00	0.00	0.28	0.28
44.50	0.33	0.47	5.00	0.00	0.28	0.28
44.55	0.32	0.47	5.00	0.00	0.28	0.28
44.60	0.32	0.47	5.00	0.00	0.27	0.27
44.65	0.31	0.47	5.00	0.00	0.27	0.27
44.70	0.30	0.47	5.00	0.00	0.27	0.27
44.75	0.29	0.47	5.00	0.00	0.26	0.26
44.80	0.29	0.47	5.00	0.00	0.26	0.26
44.85	0.28	0.47	5.00	0.00	0.26	0.26
44.90	0.27	0.47	5.00	0.00	0.25	0.25
44.95	0.27	0.47	5.00	0.00	0.25	0.25
45.00	0.26	0.47	5.00	0.00	0.24	0.24
45.05	0.27	0.47	5.00	0.00	0.24	0.24
45.10	0.27	0.47	5.00	0.00	0.23	0.23
45.15	0.27	0.47	5.00	0.00	0.23	0.23
45.20	0.27	0.47	5.00	0.00	0.23	0.23
45.25	0.27	0.47	5.00	0.00	0.22	0.22
45.30	0.28	0.47	5.00	0.00	0.22	0.22
45.35	0.28	0.47	5.00	0.00	0.21	0.21
45.40	0.28	0.47	5.00	0.00	0.21	0.21
45.45	0.28	0.47	5.00	0.00	0.20	0.20
45.50	0.28	0.47	5.00	0.00	0.20	0.20
45.55	0.29	0.47	5.00	0.00	0.20	0.20
45.60	0.29	0.47	5.00	0.00	0.19	0.19
45.65	0.29	0.47	5.00	0.00	0.19	0.19
45.70	0.29	0.47	5.00	0.00	0.19	0.19
45.75	0.30	0.47	5.00	0.00	0.18	0.18
45.80	0.30	0.47	5.00	0.00	0.18	0.18
45.85	0.30	0.47	5.00	0.00	0.17	0.17
45.90	0.30	0.47	5.00	0.00	0.17	0.17
45.95	0.30	0.47	5.00	0.00	0.17	0.17
46.00	0.31	0.47	5.00	0.00	0.16	0.16
46.05	0.31	0.46	5.00	0.00	0.16	0.16
46.10	0.31	0.46	5.00	0.00	0.16	0.16
46.15	0.31	0.46	5.00	0.00	0.15	0.15
46.20	0.32	0.46	5.00	0.00	0.15	0.15
46.25	0.32	0.46	5.00	0.00	0.15	0.15
46.30	0.32	0.46	5.00	0.00	0.15	0.15
46.35	0.33	0.46	5.00	0.00	0.14	0.14
46.40	0.33	0.46	5.00	0.00	0.14	0.14
46.45	0.33	0.46	5.00	0.00	0.14	0.14
46.50	0.33	0.46	5.00	0.00	0.13	0.13
46.55	0.34	0.46	5.00	0.00	0.13	0.13
46.60	0.34	0.46	5.00	0.00	0.13	0.13

				B14. sum		
46.65	0.34	0.46	5.00	0.00	0.12	0.12
46.70	0.35	0.46	5.00	0.00	0.12	0.12
46.75	0.35	0.46	5.00	0.00	0.12	0.12
46.80	0.35	0.46	5.00	0.00	0.12	0.12
46.85	0.35	0.46	5.00	0.00	0.11	0.11
46.90	0.36	0.46	5.00	0.00	0.11	0.11
46.95	0.36	0.46	5.00	0.00	0.11	0.11
47.00	0.36	0.46	5.00	0.00	0.11	0.11
47.05	0.37	0.46	5.00	0.00	0.10	0.10
47.10	0.37	0.46	5.00	0.00	0.10	0.10
47.15	0.38	0.46	5.00	0.00	0.10	0.10
47.20	0.38	0.46	5.00	0.00	0.10	0.10
47.25	0.38	0.46	5.00	0.00	0.09	0.09
47.30	0.39	0.46	5.00	0.00	0.09	0.09
47.35	0.39	0.46	5.00	0.00	0.09	0.09
47.40	0.40	0.46	5.00	0.00	0.09	0.09
47.45	0.40	0.46	5.00	0.00	0.08	0.08
47.50	0.41	0.46	5.00	0.00	0.08	0.08
47.55	0.41	0.46	5.00	0.00	0.08	0.08
47.60	0.42	0.46	5.00	0.00	0.08	0.08
47.65	0.42	0.46	5.00	0.00	0.08	0.08
47.70	0.43	0.46	5.00	0.00	0.07	0.07
47.75	0.44	0.46	5.00	0.00	0.07	0.07
47.80	0.44	0.46	5.00	0.00	0.07	0.07
47.85	0.45	0.46	5.00	0.00	0.07	0.07
47.90	0.47	0.46	5.00	0.00	0.07	0.07
47.95	0.48	0.46	5.00	0.00	0.06	0.06
48.00	0.51	0.46	5.00	0.00	0.06	0.06
48.05	0.55	0.46	5.00	0.00	0.06	0.06
48.10	2.26	0.46	5.00	0.00	0.06	0.06
48.15	2.26	0.46	5.00	0.00	0.06	0.06
48.20	2.26	0.45	5.00	0.00	0.05	0.05
48.25	2.26	0.45	5.00	0.00	0.05	0.05
48.30	2.26	0.45	5.00	0.00	0.05	0.05
48.35	2.26	0.45	5.00	0.00	0.05	0.05
48.40	2.26	0.45	5.00	0.00	0.05	0.05
48.45	2.26	0.45	5.00	0.00	0.05	0.05
48.50	2.26	0.45	5.00	0.00	0.04	0.04
48.55	2.26	0.45	5.00	0.00	0.04	0.04
48.60	2.26	0.45	5.00	0.00	0.04	0.04
48.65	2.26	0.45	5.00	0.00	0.04	0.04
48.70	2.26	0.45	5.00	0.00	0.04	0.04
48.75	2.26	0.45	5.00	0.00	0.04	0.04
48.80	2.26	0.45	5.00	0.00	0.03	0.03
48.85	2.25	0.45	5.00	0.00	0.03	0.03
48.90	2.25	0.45	5.00	0.00	0.03	0.03
48.95	2.25	0.45	5.00	0.00	0.03	0.03
49.00	2.25	0.45	5.00	0.00	0.03	0.03
49.05	2.25	0.45	5.00	0.00	0.03	0.03
49.10	2.25	0.45	5.00	0.00	0.02	0.02
49.15	2.25	0.45	5.00	0.00	0.02	0.02
49.20	2.25	0.45	5.00	0.00	0.02	0.02
49.25	2.25	0.45	5.00	0.00	0.02	0.02
49.30	2.25	0.45	5.00	0.00	0.02	0.02
49.35	2.25	0.45	5.00	0.00	0.02	0.02
49.40	2.25	0.45	5.00	0.00	0.02	0.02
49.45	2.25	0.45	5.00	0.00	0.01	0.01
49.50	2.25	0.45	5.00	0.00	0.01	0.01
49.55	2.25	0.45	5.00	0.00	0.01	0.01
49.60	2.25	0.45	5.00	0.00	0.01	0.01
49.65	2.25	0.45	5.00	0.00	0.01	0.01
49.70	2.24	0.45	5.00	0.00	0.01	0.01
49.75	2.24	0.45	5.00	0.00	0.01	0.01

				B14. sum			
49.80	2.24	0.45	5.00	0.00	0.00	0.00	0.00
49.85	2.24	0.45	5.00	0.00	0.00	0.00	0.00
49.90	2.24	0.45	5.00	0.00	0.00	0.00	0.00
49.95	2.24	0.45	5.00	0.00	0.00	0.00	0.00
50.00	2.24	0.45	5.00	0.00	0.00	0.00	0.00

* F. S. <1, Liquefaction Potential Zone
(F. S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units Depth = ft, Stress or Pressure = tsf (atm), Unit Weight =
pcf, Settlement = in.

CRRm	Cyclic resistance ratio from soils
CSRfs	Cyclic stress ratio induced by a given earthquake (with user
request factor of safety)	
F. S.	Factor of Safety against Liquefaction, F. S. =CRRm/CSRfs
S_sat	Settlement from saturated sands
S_dry	Settlement from dry sands
S_all	Total settlement from saturated and dry sands
NoLiq	No-Liquefy Soils