Appendix E

Geotechnical Investigation Proposed Desalination Project APN 731-170-001

South of Coachella Canal Road Salton Sea Area

Riverside County, California

GEOTECHNICAL INVESTIGATION
PROPOSED DESALINATION PROJECT
APN 731-170-001
SOUTH OF COACHELLA CANAL ROAD
SALTON SEA AREA
RIVERSIDE COUNTY, CALIFORNIA

-Prepared By-

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June 9, 2020

Project No. 544-20151
20-05-290

Global Water Farms
77935 Calle Tampico
La Quinta, California 92253

Subject: Geotechnical Investigation

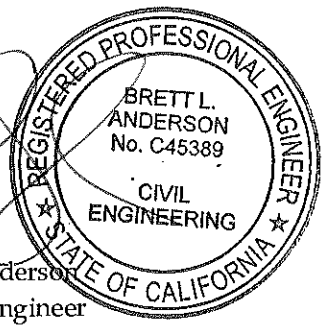
Project: Proposed Desalination Project
APN 731-170-001
South of Coachella Canal Road
Salton Sea Area
Riverside County, California

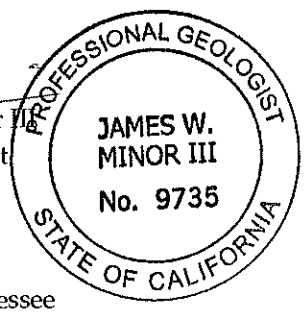
Sladden Engineering is pleased to present the results of the geotechnical investigation performed for the desalination project proposed for the northeast ¼ of APN 731-170-001 located in the Salton Sea area of Riverside County, California. Our services were completed in accordance with our revised proposal for geotechnical engineering services dated May 13, 2020 and your authorization to proceed with the work. The purpose of our investigation was to explore the subsurface conditions at the site in order to provide recommendations for foundation design and the design of the various site improvements. Evaluation of environmental issues and hazardous wastes was not included within the scope of services provided.

The opinions, recommendations and design criteria presented in this report are based on our field exploration program, laboratory testing and engineering analyses. Based on the results of our investigation, it is our professional opinion that the proposed project should be feasible from a geotechnical perspective provided that the recommendations presented in this report are implemented in design and carried out through construction.

We appreciate the opportunity to provide service to you on this project. If you have any questions regarding this report, please contact the undersigned.

Respectfully submitted,
SLADDEN ENGINEERING





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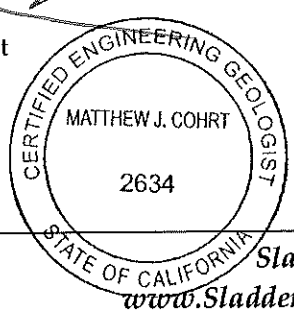

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GEOTECHNICAL INVESTIGATION
PROPOSED DESALINATION PROJECT
APN 731-170-001
SOUTH OF COACHELLA CANAL ROAD
SALTON SEA AREA
RIVERSIDE COUNTY, CALIFORNIA

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INTRODUCTION

This report presents the results of the geotechnical investigation performed by Sladden Engineering (Sladden) for the pilot desalination project proposed for the subject site formally identified by the County of Riverside as APN 731-170-001. The site is located on the south side of Coachella Canal Road in the Salton Sea area of Riverside County, California. The approximate location of the site is indicated on the Site Location Map (Figure 1).

Our investigation was conducted in order to evaluate the engineering properties of the subsurface materials, to evaluate their *in-situ* characteristics, and to provide engineering recommendations and design criteria for site preparation, foundation design and the design of various site improvements. This study also includes a review of published and unpublished geotechnical and geological literature regarding seismicity at and near the subject site.

PROJECT DESCRIPTION

Based on preliminary plans provided (RMT, 2020), it is our understanding that the proposed project will consist of constructing a desalination facility. The plans indicate that the building will include a subterranean level. The preliminary plans indicate that the subterranean level will extend to a depth of approximately 10 feet below the existing ground surface. Sladden anticipates that the project will also include exterior concrete flatwork, underground utilities, landscape areas and various other improvements. For our analyses we expect that the upper level of the proposed building will consist of lightweight steel-frame construction and the subterranean level will consist of cast in place reinforced concrete construction. We expect that the building will be supported on conventional shallow spread footings.

Based on the relatively level nature of the site, it is apparent that grading within the "at-grade' portions of the site will consist of minor cuts and fill placement in order to achieve the final surface elevations and to provide adequate gradients for site drainage. The subterranean level will require excavations in excess of 10+/- feet below existing grade. Upon completion of the project plans, Sladden should be retained in order to ensure that the recommendations presented within in this report are incorporated into the design of the proposed project.

Structural foundation loads were not available at the time of this report. Based on our experience with relatively lightweight steel-frame structures and subterranean concrete structures, we expect that isolated column loads will be less than 50 kips and continuous wall loads will be less than 10.0 kips per linear foot. If these assumed loads vary significantly from the actual loads, we should be consulted to verify the applicability of the recommendations provided.

SCOPE OF SERVICES

The purpose of our investigation was to determine specific engineering characteristics of the surface and near surface soil in order to develop foundation design criteria and recommendations for site preparation. Specifically, our site characterization consisted of the following tasks:

- Site reconnaissance to assess the existing surface conditions on and adjacent to the site.
- Drilling three (3) exploratory bores to depths between approximately 16 feet and 51 feet bgs in order to characterize the subsurface soil conditions. Representative samples of the soil were classified in the field and retained for laboratory testing and engineering analyses.
- Performing laboratory testing on selected samples to evaluate their engineering characteristics.
- Reviewing geologic literature and discussing geologic hazards.
- Performing site-specific ground motion procedures for the subject project.
- Performing engineering analyses to develop recommendations for foundation design and site preparation.
- The preparation of this report summarizing our work at the site.

SITE CONDITIONS

The project site is located on the south side of of Coachella Canal Road in the Salton Sea area of Riverside County, California. The site is undeveloped and is formally identified by the County of Riverside as APN APN 731-170-001. At the time of our investigation the proposed building area was generally cleared of surface vegetation. The site is bounded by undeveloped property to the east, south and west and Coachella Canal Road to the immediate north.

Based on our review of the Frink NW 7.5-Minute Quadrangle Map (USGS, 2004), the site is situated at an approximate elevation of 55 feet above mean sea level (MSL).

No natural ponding of water or surface seeps were observed at or near the site during our field investigation conducted on May 20, 2020. Site drainage appears to be controlled via sheet flow, and surface infiltration. Regional drainage is provided by the Whitewater River storm channel located approximately ½ mile northeast of the project site.

GEOLOGIC SETTING

The project site is located within the Colorado Desert Physiographic Province (also referred to as the Salton Trough) that is characterized as a northwest-southeast trending structural depression extending from the Gulf of California to the Banning Pass. The Salton Trough is dominated by several northwest trending faults, most notably the San Andreas Fault system. The Salton Trough is bounded by the Santa Rosa – San Jacinto Mountains on the southwest, the San Bernardino Mountains on the north, the Little San Bernardino - Chocolate – Orocopia Mountains on the east and extends through the Imperial Valley into the Gulf of California on the south.

A relatively thick sequence (20,000 feet) of sediment has been deposited in the Coachella Valley portion of the Salton Trough from Miocene to present times. These sediments are predominately terrestrial in nature with some lacustrian (lake) and minor marine deposits. The major contributor of these sediments has been the Colorado River. The mountains surrounding the Coachella Valley are composed primarily of Precambrian metamorphic and Mesozoic "granitic" rock.

The Salton Trough is an internally draining area with no readily available outlet to Gulf of California and with portions well below sea level (-253' msl). The region is intermittently blocked from the Gulf of California by the damming effects of the Colorado River delta (current elevation +30'msl). Between about 300AD and 1600 AD (to 1700) the Salton Trough has been inundated by the River's water, forming ancient Lake Cahuilla (max. elevation +58' msl). Since that time the floor of the Trough has been repeatedly flooded with other "fresh" water lakes (1849, 1861, and 1891), the most recent and historically long lived being the current Salton Sea (1905). The sole outlet for these waters is evaporation, leaving behind vast amounts of terrestrial sediment materials and evaporite minerals.

The site has been mapped by Jennings (1967) to be immediately underlain by Quaternary-age lake deposits (Ql) and alluvium (Qal). The regional geologic setting for the site vicinity is presented on the Regional Geologic Map (Figure 2).

SUBSURFACE CONDITIONS

The subsurface conditions at the site were investigated by excavating three (3) exploratory boreholes to depths between approximately 16 and 51 feet bgs. The approximate locations of the boreholes are illustrated on the Exploration Location Photograph (Figure 3). The boreholes were advanced using a Mobil B-61 drill rig equipped with 8-inch outside diameter hollow-stem augers. A representative of Sladden was on-site to log the materials encountered and retrieve samples for laboratory testing and engineering analysis.

During our field investigation disturbed soil was encountered to depths generally less than one (1) foot bgs within the area of our bores. Immediately underlying the disturbed soil, native alluvial materials were encountered. Generally, native materials consisted of olive brown silty clay (CL) with minor portions of sand (SW) and clayey silt (ML) encountered. Granular horizons appeared dense to very dense and dry. The cohesive/clay soil encountered appeared very stiff to hard and exhibited characteristics indicative of low to high plasticity soil.

The final logs represent our interpretation of the contents of the field logs, and the results of the laboratory observations and tests of the field samples. The final logs are included in Appendix A of this report. The stratification lines represent the approximate boundaries between soil types although the transitions may be gradual and variable across the site.

Groundwater was not encountered within our bores to a maximum depth explored of approximately 51 feet bgs. Based upon our review of groundwater levels within the vicinity of the site (CDWR, 2020), it is our opinion that groundwater should not be a controlling factor during construction of the proposed building.

SEISMICITY AND FAULTING

The southwestern United States is a tectonically active and structurally complex region, dominated by northwest trending dextral faults. The faults of the region are often part of complex fault systems, composed of numerous subparallel faults which splay or step from main fault traces. Strong seismic shaking could be produced by any of these faults during the design life of the proposed project.

We consider the most significant geologic hazard to the project to be the potential for moderate to strong seismic shaking that is likely to occur during the design life of the project. The proposed project is located in the highly seismic Southern California region within the influence of several fault systems that are considered to be active or potentially active. An active fault is defined by the State of California as a "sufficiently active and well defined fault" that has exhibited surface displacement within the Holocene epoch (about the last 11,000 years). A potentially active fault is defined by the State as a fault with a history of movement within Pleistocene time (between 11,000 and 1.6 million years ago).

As previously stated, the site has been subjected to strong seismic shaking related to active faults that traverse through the region. Some of the more significant seismic events near the subject site within recent times include: M6.0 North Palm Springs (1986), M6.1 Joshua Tree (1992), M7.3 Landers (1992), M6.2 Big Bear (1992), M7.1 Hector Mine (1999), M7.2 Baja California (2010) and M7.1 Ridgecrest (2019).

Based on our research (CDMG, 1988), the property is located within a State of California designated earthquake fault zone. It is Sladden Engineering's understanding that proposed desalination project will not include habitable structures. If future habitable structures are proposed within the fault zone, fault trenching will need to be conducted prior to development per the Alquist-Priolo Act.

Table 1 lists the closest known potentially active faults that was generated in part using the EZ FRISK computer program (Fugro, 2020) and the Fault and Fold Database of the United States (USGS, 2006). This table does not identify the probability of reactivation or the on-site effects from earthquakes occurring on any faults in the region.

TABLE 1
SEISMIC SOURCE SUMMARY TABLE

Fault Name	Closest Distance (Km)	Fault Mechanism	Deterministic Magnitude
Hot Springs	0.00	Strike Slip	Unpublished
Southern San Andreas	7.72	Strike Slip	8.2
Elmore Ranch	23.53	Strike Slip	6.7
San Jacinto	42.49	Strike Slip	7.875
Superstition Hills	48.55	Strike Slip	6.8
Imperial	58.72	Strike Slip	7.0
Elsinore	76.6	Strike Slip	7.849

BACKGROUND INFORMATION RELATIVE TO THE ALQUIST-PRIOLO ACT

The objective of the Alquist-Priolo Act (Act) is to regulate development near active faults so as to mitigate the hazard of surface fault rupture (CGS, 2018). Current law prohibits construction of habitable structures across active fault traces. Therefore, the evaluation of the potential ground rupture hazard to establish building setbacks is required by reviewing agencies. In addition, the Act mandates that structures intended for human occupancy of over 2,000 person hours per year not be built over known active faults. An active fault is defined by the California Geological Survey as a sufficiently active and well-defined fault that exhibits surface displacement within the Holocene Epoch (approximately the last 11,000 years). In areas of known or suspected active or potentially active faults, and prior to site development, the actual location of an active fault(s) needs to be ascertained, such that appropriate setbacks from the fault(s) can be determined and Restricted Use Zones (RUZs) or no building areas established. Not only is it important to identify the fault location, it is equally important to verify areas where no faults exist.

In order to evaluate on-site fault hazards, subsurface exploration by excavation of trenches is performed to expose the soil and rock profiles and to allow for the direct observation of existing shallow/near-surface faults. Trenches are oriented generally perpendicular to the regional fault trends and are logged in detail by Geologists experienced in fault rupture hazard studies. Trench depths are controlled by the age of the surficial sediments or rocks exposed within the trench. In general, it is desirable to have exposed soil profiles spanning at least the last 11,000 years, or Holocene Epoch. Soil profiles with Holocene and older profiles can then allow for the determination of the relative age of the encountered fault. If the fault disrupts Holocene sediments, then the fault is determined active and building setbacks are established accordingly.

Conversely, if the fault is buried by pre-Holocene sediments or rock, then the fault can be deemed inactive or potentially active, with construction of non-critical structures allowed over or immediately adjacent to the fault. In many cases, the sediments exposed may only cover a portion of the Holocene, such that judgment and risk assessments are professed relative to the age of the faults and suitability of the site for development. The success of the risk assessments is dependent upon the quality of the data collected, local agency requirements, and the experience of the Professional Geologists performing the work.

Building setback distances from the fault, generally mandated by the Act to be approximately 50 feet, are dependent upon the confidence or degree of accuracy of the fault location across the site: the higher the degree of confidence, the lesser the setback requirements. The size of the property, number of faults, number of exploration trenches defining the fault location(s), survey quality, and local regulatory agency requirements, affect the setback distance requirements.

The requirement for fault trenching prior to new development on the site will ultimately depend of the local regulatory/reviewing agency requirements and owner expectations.

SITE SPECIFIC GROUND MOTION PARAMETERS

Sladden has reviewed the 2019 California Building Code (CBC) and ASCE7-16 and developed site specific ground motion parameters for the subject site. The project Seismic Design Maps and site-specific ground motion parameters are summarized in the following table and included within Appendix C. The project Structural Engineer should verify that all design parameters provided are applicable for the subject project.

TABLE 2
GROUND MOTION PARAMETERS

Latitude / Longitude	33.4397/ -115.6977
Risk Category	II
Site Class	D
Code Reference Documents	ASCE 7-16; Chapter 11 & 21

Description	Type	Map Based	Site-Specific
MCE_R Ground Motion (0.2 second period)	S_S	1.669	---
MCE_R Ground Motion (1.0 second period)	S_1	0.689	---
Site-Modified Spectral Acceleration Value	S_{MS}	1.669	1.466
Site-Modified Spectral Acceleration Value	S_{M1}	Null	1.800
Numeric Seismic Design Value at 0.2 second SA	S_{DS}	1.113	0.977
Numeric Seismic Design Value at 1.0 second SA	S_{D1}	Null	1.200
Site Amplification Factor at 0.2 second	F_a	1	1.0
Site Amplification Factor at 1.0 second	F_v	Null	2.5
Site Peak Ground Acceleration	PGA_M	0.801	0.764

GEOLOGIC HAZARDS

The proposed project site is located within a State of California Alquist Priolo Earthquake Fault Zone (Figure 4) and will likely experience strong seismic shaking during the design life of the proposed project. In general, the intensity of ground shaking will depend on several factors including: the distance to the earthquake focus, the earthquake magnitude, the response characteristics of the underlying materials, and the quality and type of construction. Geologic hazards and their relationship to the site are discussed below.

I. Surface Rupture. Surface rupture is expected to occur along preexisting, known active fault traces. However, surface rupture could potentially splay or step from known active faults or rupture along unidentified traces. Based on our review of Jennings (1994), Jennings (1967) and CDMG (1988), the site is currently located within a State of California fault zone.

As previously stated, the site is located within a State of California designated fault zone (Figure 4). Based on our understanding of the intended use of the proposed structure (non-habitable), and our review of Special Publication 42, the proposed desalination facility may be considered exempt from fault trenching requirements (CGS, 2018). However, the requirement for fault trenching prior to new development on the site will ultimately depend of the local regulatory/reviewing agency requirements and owner expectations.

II. Ground Shaking. The site has been subjected to past ground shaking by faults that traverse through the region. Strong seismic shaking from nearby active faults is expected to produce strong seismic shaking during the design life of the proposed project. The site modified peak ground acceleration is estimated to be 0.746g.

III. Liquefaction. Liquefaction is the process in which loose, saturated granular soil loses strength as a result of cyclic loading. The strength loss is a result of a decrease in granular sand volume and a positive increase in pore pressures. Generally, liquefaction can occur if all of the following conditions apply; liquefaction-susceptible soil, groundwater within a depth of 50 feet or less, and strong seismic shaking.

We have performed seismic settlement calculations utilizing the deterministic magnitude of 8.2 (Fugro, 2020) and the site-specific peak ground acceleration developed for the project (PGAm=0.764g). Historic high and anticipated high groundwater depths were determined to be approximately 5 feet bgs. Calculations indicate potential total seismic settlements of up to 0.01 inches for BH-1. The potential seismically related differential settlements are expected to be less than half of the potential total seismic settlement value (nil). Based upon the general uniformity of the soil and groundwater conditions underlying the site, we expect the maximum differential settlement to occur over a horizontal distance of approximately 100 feet (angular distortion of 1:2400). The seismic settlement calculations are included within Appendix D.

IV. Tsunamis and Seiches. Because the site is situated at an inland location and is not immediately adjacent to any impounded bodies of water, risks associated with tsunamis and seiches are considered negligible.

V. Slope Failure, Landsliding, Rock Falls. Slope instability in the form of landslides and rock falls were not observed at or near the subject site. The site is situated on relatively flat ground and is not located immediately adjacent to any slopes. As such, risks associated with slope instability (landslides, mass wasting and rock falls) are considered negligible.

VI. Expansive Soil. Generally, the near surface soil consists of sandy silt. Based on the results of our laboratory testing (EI = 5), the near surface soil underlying the site is considered to have a "very low" expansion potential. However, the underlying clayey soil may be potentially expansive. Expansion potential should be reevaluated during site grading.

VII. Static Settlement. Static settlement resulting from the anticipated foundation loads should be tolerable provided that the recommendations included in this report are considered in foundation design and construction. The estimated ultimate static settlement is estimated to be less than 1 inch when using the recommended bearing pressures. As a practical matter, differential static settlement between footings can be assumed as one-half of the total settlement.

VIII. Subsidence. Land subsidence can occur in valleys where aquifer systems have been subjected to extensive groundwater pumping, such that groundwater pumping exceeds groundwater recharge. Generally, pore water reduction can result in a rearrangement of skeletal grains and could result in elastic (recoverable) or inelastic (unrecoverable) deformation of an aquifer system. Locally, no fissures or other surficial evidence of subsidence were observed at or near the subject site.

IX. Debris Flows. Debris flows are viscous flows consisting of poorly sorted mixtures of sediment and water and are generally initiated on slopes steeper than approximately six horizontal to one vertical (6H:1V) (Boggs, 2001). Based on the flat nature of the site and the composition of the surface soil, we judge that risks associated with debris flows should be considered remote.

X. Flooding and Erosion. No signs of flooding or erosion were observed during our field investigation. Risks associated with flooding and erosion should be evaluated and mitigated by the project design Civil Engineer.

CONCLUSIONS

Based on the results of our investigation, it is our professional opinion that the project should be feasible from a geotechnical perspective provided that the recommendations included in this report are incorporated into design and carried out through construction. The main geotechnical concerns in the construction of the proposed project is the location of the proposed desalination plant being located in a State of California designated fault zone and the presence of highly corrosive and potentially expansive nature of the native soil at the planned subterranean level elevation.

As previously indicated, the project site is located within a State of California designated fault zone. Based on the intended use of the proposed structure (non-habitable), and our review of Special Publication 42, the desalination facility may be considered exempt from fault trenching requirements (CGS, 2018). However, the requirement for fault trenching prior to new development on the site will ultimately depend of the local regulatory/reviewing agency requirements and owner expectations.

We recommend that remedial grading work within the proposed building areas include over-excavation and re-compaction of the primary foundation bearing soil to provide uniform foundation support. Specific recommendations for foundation area preparation are presented in the Earthwork and Grading section of this report.

Caving did occur to varying degrees within each of our exploratory bores and the surface soil may be susceptible to caving within deeper excavations. All excavations should be constructed in accordance with the normal CalOSHA excavation criteria. Based on our observations of the materials encountered, we anticipate that the subsoil will conform to that described by CalOSHA as Type B or C. Soil conditions should be verified in the field by a "Competent person" employed by the Contractor.

The following recommendations present more detailed design criteria that have been developed based on our field and laboratory investigation.

EARTHWORK AND GRADING

All earthwork including excavation, backfill and preparation of the primary foundation and/or slab bearing soil should be performed in accordance with the geotechnical recommendations presented in this report and portions of the local regulatory requirements, as applicable. All earthwork should be performed under the observation and testing of a qualified soil engineer. The following geotechnical engineering recommendations for the proposed project are based on observations from the field investigation program, laboratory testing and geotechnical engineering analyses.

a. Stripping: Areas to be graded should be cleared of vegetation, associated root systems and debris. All areas scheduled to receive fill should be cleared of old fills and any irreducible matter. The unsuitable materials should be removed off-site, or stockpiled for later use in landscape areas. Existing fill soil should be removed and replaced as engineered fill. Voids left by obstructions should be properly backfilled in accordance with the compaction recommendations of this report.

b. Preparation of Building Areas: In order to achieve firm and uniform foundation bearing conditions, we recommend over-excavation and re-compaction throughout the proposed building areas. All low density near surface soil should be removed to a depth of at least 3 feet below existing grade or 2 feet below the bottom of the footings, whichever is deeper. Remedial grading should extend laterally, a minimum of five feet beyond the building perimeter. The native soil exposed by over-excavation should be scarified, moisture conditioned to over optimum moisture content and compacted to at least 90 percent relative compaction. The previously removed soil may then be replaced as engineered fill as recommended below.

c. Compaction: Soil to be used as engineered fill should be free of organic material, debris, and other deleterious substances, and should not contain irreducible matter greater than three inches in maximum dimension. All fill materials should be placed in thin lifts, not exceeding six inches in a loose condition. If import fill is required, the material should be of a low to non-expansive nature and should meet the following criteria:

Plastic Index	Less than 12
Liquid Limit	Less than 35
Percent Soil Passing #200 Sieve	Between 15% and 35%
Maximum Aggregate Size	3 inches

The subgrade and all fill should be compacted with acceptable compaction equipment, to at least 90 percent relative compaction. The bottom of the exposed subgrade should be observed by a representative of Sladden Engineering prior to fill placement. Compaction testing should be performed on all lifts in order to ensure proper placement of the fill materials. Table 3 provides a summary of the excavation and compaction recommendations.

TABLE 3
SUMMARY OF RECOMMENDATIONS

*Remedial Grading	Over-excavation and re-compaction within the building envelope and extending laterally 5 feet beyond the building limits and to a minimum depth of 3 feet below existing grade or 2 feet below the bottom of the footings, whichever is deeper.
Native / Import Engineered Fill	Place in thin lifts not exceeding 6 inches in a loose condition, at over optimum moisture content and compact to a minimum of 90 percent relative compaction.
Asphalt Concrete Sections	Compact the top 12 inches to at least 95 percent compaction at near optimum moisture content.

*Actual depth may vary and should be determined by a representative of Sladden Engineering in the field during construction.

d. Shrinkage and Subsidence: Volumetric shrinkage of the material that is excavated and replaced as controlled compacted fill should be anticipated. We expect that this shrinkage should be between 10 and 20 percent. Subsidence of the surfaces that are scarified and compacted should be between 1 tenth and 2 tenths of a foot. This will vary depending upon the type of equipment used, the moisture content of the soil at the time of grading and the actual degree of compaction attained.

CONVENTIONAL SHALLOW SPREAD FOOTINGS

Conventional shallow spread footings are expected to provide adequate support for the proposed structure. All footings should be founded upon properly compacted engineered fill soil and should have a minimum embedment depth of 18 inches measured from the lowest adjacent finished grade. Continuous and isolated pad footings should have minimum widths of 12 inches and 24 inches, respectively. Continuous and isolated pad footings supported upon properly compacted engineered fill soil may be designed using allowable (net) bearing pressures of 1800 and 2000 pounds per square foot (psf), respectively. Allowable increases of 200 psf for each additional 1 foot of width and 250 psf for each additional 6 inches of depth may be used if desired. The maximum allowable bearing pressure should be 3000 psf for "at-grade" structures. The maximum allowable bearing pressure may be increased to 4000 psf for subterranean level foundations. The allowable bearing pressures apply to combined dead and sustained live loads. The allowable bearing pressures may be increased by one-third when considering transient live loads, including seismic and wind forces.

Based on the recommended allowable bearing pressures, the total static settlement of conventional shallow spread footings is expected to be less than one-inch, provided foundation preparation conforms to the recommendations described in this report. Static differential settlement is anticipated to be approximately one-half of the total static settlement for similarly loaded footings spaced up to approximately 50 feet apart.

Lateral load resistance for the spread footings will be developed by passive pressure against the sides of the footings below grade and by friction acting at the base of the footings. An allowable passive pressure of 250 psf per foot of depth may be used for design purposes. An allowable coefficient of friction 0.40 may be used for dead and sustained live loads to compute the frictional resistance of the footing placed directly on compacted fill. Under seismic and wind loading conditions, the passive pressure and frictional resistance may be increased by one-third.

All footing excavations should be observed by a representative of the project geotechnical consultant to verify adequate embedment depths prior to placement of forms, steel reinforcement or concrete. The excavations should be trimmed neat, level and square. All loose, disturbed, sloughed or moisture-softened soils and/or any construction debris should be removed prior to concrete placement. Excavated soil generated from footing and/or utility trenches should not be stockpiled within the building envelope or in areas of exterior concrete flatwork. All footings should be reinforced in accordance with the project Structural Engineer's recommendations.

SLABS-ON-GRADE

In order to provide uniform and adequate support, concrete slabs-on-grade must be placed on properly compacted engineered fill soil as outlined in the previous sections of this report. The slab subgrade should remain over optimum moisture content and should not be permitted to dry prior to concrete placement. Slab subgrade should be firm and unyielding. Disturbed soil should be removed and replaced with engineered fill soil compacted to a minimum of 90 percent relative compaction.

Slab thickness and reinforcement should be determined by the Structural Engineer. We recommend a minimum slab thickness of 4.0 inches and minimum reinforcement of #3 bars at 18 inches on center in both directions. All slab reinforcement should be supported on concrete chairs to ensure that reinforcement is placed at slab mid-height. Final floor slab design and reinforcement should be determined by the Structural Engineer.

Slabs with moisture sensitive surfaces should be underlain with a moisture vapor retarder consisting of a polyvinyl chloride membrane such as 10-mil visqueen, or equivalent. All laps within the membrane should be sealed and at least 2 inches of clean sand should be placed over the membrane to promote uniform curing of the concrete. To reduce the potential for punctures, the membrane should be placed on a pad surface that has been graded smooth without any sharp protrusions. If a smooth surface can not be achieved by grading, consideration should be given to placing a 1-inch thick leveling course of sand across the pad surface prior to placement of the membrane.

ON-SITE PAVEMENT DESIGN

Asphalt concrete pavements should be designed in accordance with the Caltrans Highway Design Manual based on R-Value and Traffic Index. The R-Value of the near surface soil was determined to be 7 by exudation pressure and 33 by expansion pressure. On-site soil and any imported soil should be tested after grading for R-Value prior to establishing final pavement design sections. For preliminary pavement design, Traffic Indices (TI) of 5.0 and 6.5 were used for the light duty and heavy duty pavements, respectively. We assumed Asphalt Concrete (AC) over Class II Aggregate Base (AB). The preliminary flexible pavement layer thickness is as follows:

TABLE 4
RECOMMENDED ASPHALT PAVEMENT SECTION LAYER THICKNESS

Pavement Material	Recommended Thickness	
	TI = 5.0	TI = 6.5
Asphalt Concrete Surface Course	3.0 inches	4.0 inches
Class II Aggregate Base Course	6.0 inches	8.0 inches
Compacted Subgrade Soil	12.0 inches	12.0 inches

Asphalt concrete and Class II aggregate base should conform to the latest edition of the Standard Specifications for Public Works Construction ("Greenbook") or CalTrans Standard Specifications. The aggregate base course should be compacted to at least 95 percent of the maximum dry density as determined by ASTM Method D 1557.

We expect that concrete pavement may also be considered for on-site pavement areas. A concrete pavement section of 6.0 inches of Portland Cement Concrete (PCC) on compacted native soil should be adequate for the on-site concrete pavement limited to light truck traffic. In areas where heavy truck traffic is expected, the concrete pavement section should be increased to 8.0 inches of PCC on compacted native soil. Properly spaced and constructed control joints including expansion joints and contraction joints should be incorporated into concrete pavement design to accommodate temperature and shrinkage related cracking. Joint spacing and joint patterns should be established based upon Portland Cement Association (PCA) and American Concrete Institute (ACI) guidelines.

RETAINING WALLS

Cantilever retaining walls may be designed using "active" pressures. Active pressures may be estimated using an equivalent fluid weight of 40 pcf for level drained native backfill soil acting in a triangular pressure distribution. "At Rest" pressures should be utilized for restrained walls. At rest pressures may be estimated using an equivalent fluid weight of 60 pcf for native backfill soil with level drained backfill conditions. Back drains should be provided for the full retained height of the wall. Proper water proofing should be provided the full retained height of the wall. According to the 2019 California Building Code CBC, seismic loads should be considered in the design of walls with retained heights in excess of six (6) feet. The potential seismic pressures for cantilever retaining walls with drained level backfill conditions may be estimated using a uniform pressure distribution of 15H psf (where H is in feet). The seismic pressures should be increased to uniform pressure distribution of 20H psf for restrained walls. The seismic pressures should be applied as a point load acting at a height of approximately 0.6H from the bottom of the wall.

CORROSION SERIES

The soluble sulfate concentrations of the surface soil were determined to be 14,000 parts per million (ppm). The soil is considered to have a "severe" corrosion potential with respect to concrete. The use of Type V cement and special sulfate resistant concrete mixes will be necessary for structural concrete in contact with the native soil. The soluble sulfate content of the surface soil should be reevaluated after grading and appropriate concrete mix designs should be established based upon post-grading test results.

The pH level of the surface soil was 8.4. Based on soluble chloride concentration testing (14,700 ppm) the soil is considered to have "very severe" corrosive potential with respect to normal grade steel. The minimum resistivity of the surface soil was found to be 37 ohm-cm that suggests the site soil is considered to have "very severe" corrosion potential with respect to ferrous metal installations. A corrosion expert should be consulted regarding appropriate corrosion protection measures for corrosion sensitive installations.

UTILITY TRENCH BACKFILL

All utility trench backfill should be compacted to a minimum relative compaction of 90 percent. Trench backfill materials should be placed in lifts no greater than six inches in a loose condition, moisture conditioned (or air-dried) as necessary to achieve near optimum moisture content, and mechanically compacted to a minimum relative compaction of 90 percent. A representative of the project soil engineer should test the backfill to verify adequate compaction.

EXTERIOR CONCRETE FLATWORK

In order to provide uniform support and minimize settlement related cracking of concrete flatwork, the subgrade soil within concrete flatwork areas should be compacted to a minimum of 90 percent relative compaction. A representative of the project geotechnical consultant should observe and verify the density and moisture content of the soil prior to concrete placement.

DRAINAGE

All final grades should be provided with positive gradients away from foundations to provide rapid removal of surface water runoff to an adequate discharge point. No water should be allowed to be pond on or immediately adjacent to foundation elements. In order to reduce water infiltration into the subgrade soil, surface water should be directed away from building foundations to an adequate discharge point. Subgrade drainage should be evaluated upon completion of the precise grading plans and in the field during grading.

LIMITATIONS

The findings and recommendations presented in this report are based upon an interpolation of the soil conditions between the exploratory bore locations and extrapolation of these conditions throughout the proposed building areas. Should conditions encountered during grading appear different than those indicated in this report, this office should be notified.

The use of this report by other parties or for other projects is not authorized. The recommendations of this report are contingent upon monitoring of the construction operation by a representative of Sladden Engineering. All recommendations are considered to be tentative pending our review of the grading operations and additional testing, if indicated. If others are employed to perform any soil testing, this office should be notified prior to such testing in order to coordinate any required site visits by our representative and to assure indemnification of Sladden Engineering.

We recommend that a pre-job conference be held on the site prior to the initiation of site grading. The purpose of this meeting will be to ensure a complete understanding of the recommendations presented in this report as they apply to the actual grading performed.

ADDITIONAL SERVICES

Once completed, final project plans and specifications should be reviewed by use prior to construction to confirm that the full intent of the recommendations presented herein have been applied to design and construction. Following review of plans and specifications, observation should be performed by the Soil Engineer during construction to document that foundation elements are founded on/or extend into the properly compacted soil, and that suitable backfill soil is placed upon competent materials and properly compacted at the recommended moisture content.

Tests and observations should be performed during grading by the Soil Engineer or his representative in order to verify that the grading is being performed in accordance with the project specifications. Field density testing shall be performed in accordance with acceptable ASTM test methods. The minimum acceptable degree of compaction should be 90 percent for engineered fill soil and 95 percent for Class II aggregate base as obtained by ASTM Test Method D1557. Where testing indicates insufficient density, additional compactive effort shall be applied until retesting indicates satisfactory compaction.

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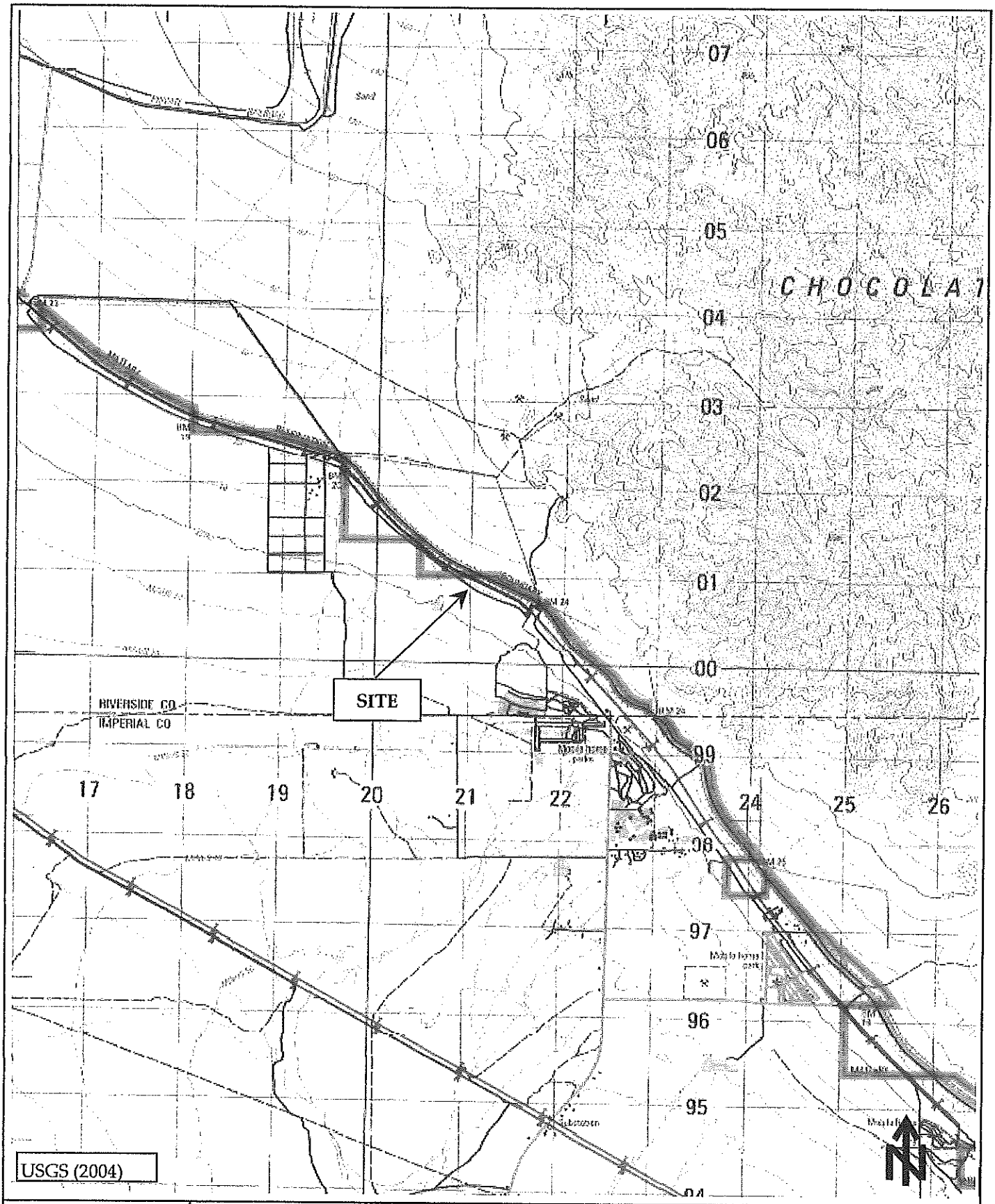
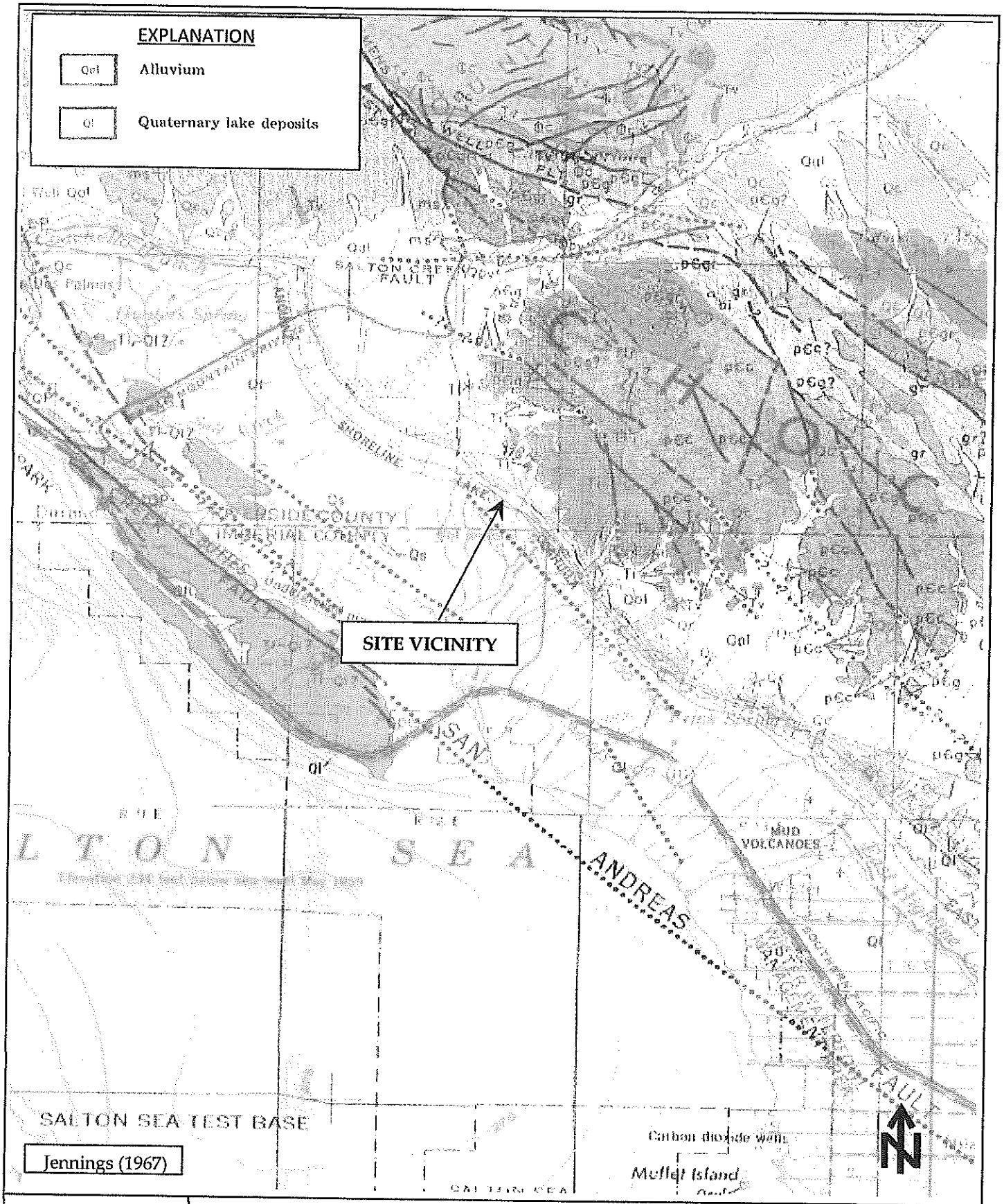
FIGURES

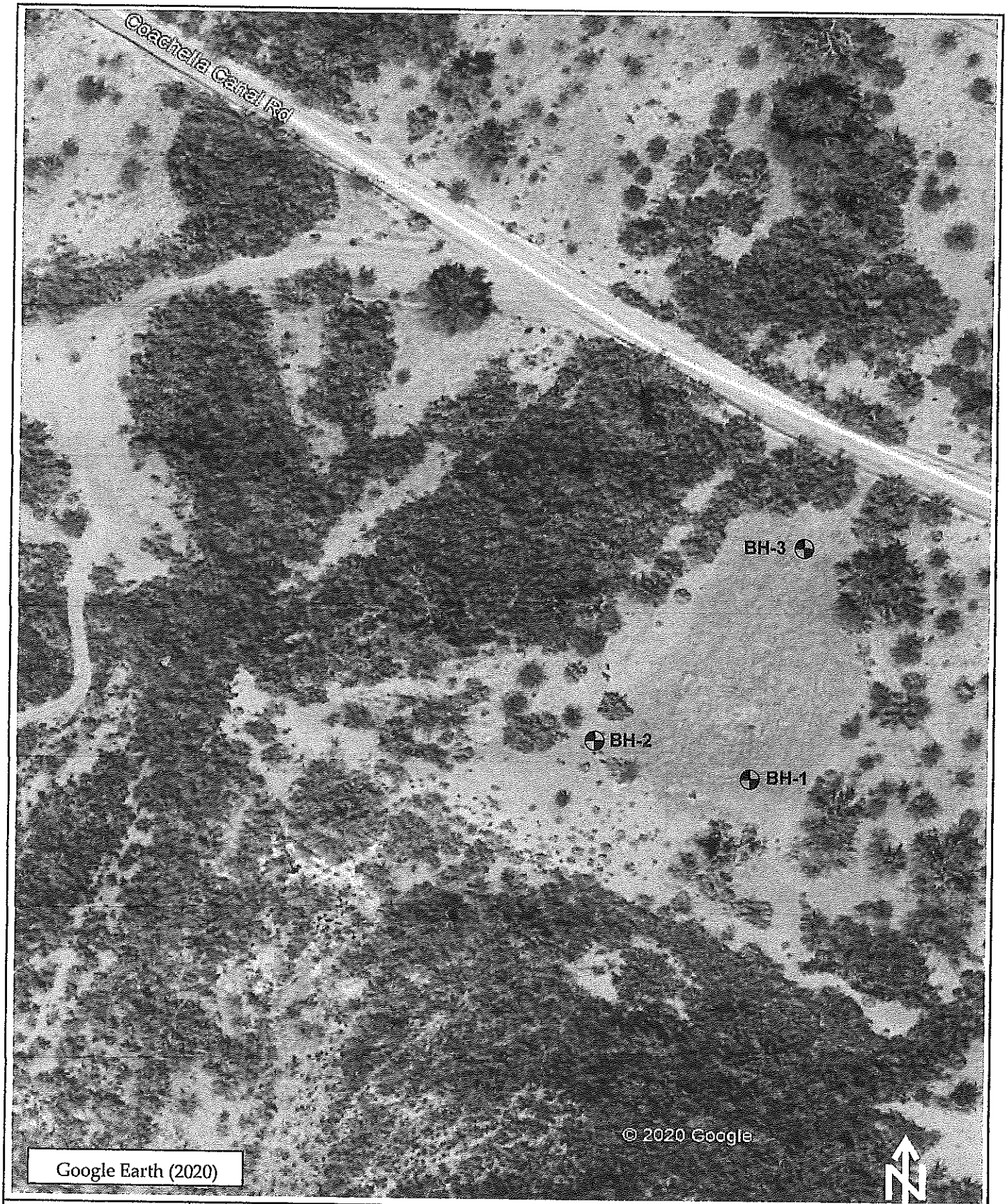
SITE LOCATION MAP
REGIONAL GEOLOGIC MAP
EXPLORATION LOCATION PLAN
FAULT ZONE MAP



Sladden Engineering	SITE LOCATION MAP	FIGURE 1
	Project Number: 544-20151	
	Report Number: 20-05-290	
	Date: June 8, 2020	



Sladden Engineering	REGIONAL GEOLOGIC MAP		FIGURE
	Project Number:	544-20151	2
	Report Number:	20-05-290	
	Date:	June 8, 2020	



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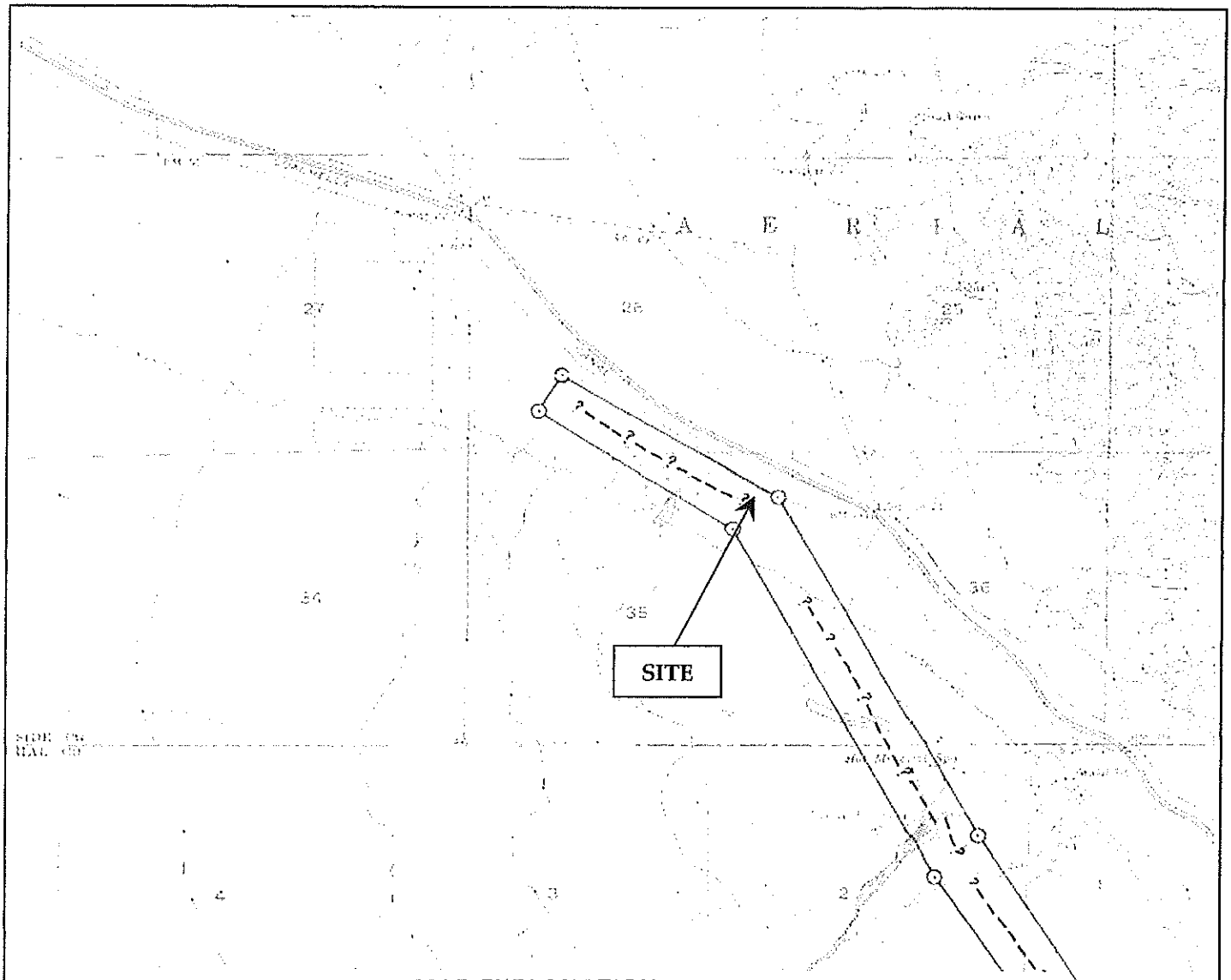
BOREHOLE LOCATION PHOTOGRAPH

FIGURE 3

Project Number:	544-20151
Report Number:	20-05-290
Date:	June 8, 2020



MAP EXPLANATION

Potentially Active Faults

1906 C

Faults considered to have been active during Holocene time and to have a relatively high potential for surface rupture; solid line where accurately located, long dash where approximately located, short dash where inferred, dotted where concealed; query (?) indicates additional uncertainty. Evidence of historic offset indicated by year of earthquake-associated event or C for displacement caused by creep or possible creep.

Special Studies Zone Boundaries

These are delineated as straight-line segments that connect encircled turning points so as to define special studies zone segments.

Seaward projection of zone boundary.

CDMG (1988)

N

Sladden Engineering

FAULT ZONE MAP

Project Number:	544-20151
Report Number:	20-05-290
Date:	June 8, 2020

FIGURE

4

APPENDIX A

FIELD EXPLORATION

APPENDIX A

FIELD EXPLORATION

For our field investigation three (3) exploratory boreholes were excavated on May 20, 2020 utilizing a truck mounted hollow stem auger rig (Mobile B-61). Continuous logs of the materials encountered were made by a representative of Sladden Engineering. Materials encountered in the boreholes were classified in accordance with the Unified Soil Classification System which is presented in this appendix.

Representative undisturbed samples were obtained within our borings by driving a thin-walled steel penetration sampler (California split spoon sampler) or a Standard Penetration Test (SPT) sampler with a 140 pound automatic-trip hammer dropping approximately 30 inches (ASTM D1586). The number of blows required to drive the samplers 18 inches was recorded in 6-inch increments and blowcounts are indicated on the boring logs.

The California samplers are 3.0 inches in diameter, carrying brass sample rings having inner diameters of 2.5 inches. The standard penetration samplers are 2.0 inches in diameter with an inner diameter of 1.5 inches. Undisturbed samples were removed from the sampler and placed in moisture sealed containers in order to preserve the natural soil moisture content. Bulk samples were obtained from the excavation spoils and samples were then transported to our laboratory for further observations and testing.

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BORE LOG

Equipment:	Mobil-B-61	Date Drilled:	5/20/2020
Elevation:	55 Ft. MSL	Boring No:	BH-1

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Density, pcf	Depth (Feet)	Graphic Lithology	Description
							2		Clayey Gravel (GC); yellowish brown, dry, fine- to coarse-grained (Qal/Ql).
	15 26 32			11.4	2.3		6		Sand (SW) with gravel; yellowish brown, dry, very dense, fine- to coarse-grained (Qal/Ql).
	16 20 23			99.3	21.5	109.6	10		Silty Clay (CL); olive brown, dry to slightly moist, very stiff, low plasticity (Qal/Ql).
	7 10 13			99.1	24.3		16		Silty Clay (CL); olive brown, dry to slightly moist, very stiff, low plasticity (Qal/Ql).
	15 31 50-5			89.1	12.0	105.5	20		Silty Clay (CL); olive brown, moist, hard, low plasticity (Qal/Ql).
	9 15 19			99.0	18.8		26		Clayey Silt (ML); yellowish brown, dry to slightly moist, hard, low plasticity (Qal/Ql).
	11 23 34			99.7	26.2	101.8	30		Silty Clay (CL); olive brown, moist, hard, low to medium plasticity (Qal/Ql).
	7 12 16			99.3	23.8		36		Clayey Silt (ML); yellowish brown, moist, very stiff, low plasticity (Qal/Ql).
	12 18 32			99.7	26.6	99.9	40		Silty Clay (CL); olive brown, moist, hard, medium plasticity (Qal/Ql).
	9 12 18			98.5	25.6		46		Clayey Silt (ML); yellowish brown, moist, very stiff, low plasticity (Qal/Ql).
	15 22 30			99.2	26.4	98.6	50		Silty Clay (CL); olive brown, moist, hard, medium plasticity (Qal/Ql).

Completion Notes:
Terminated at 51.5 Feet bgs.
No Bedrock Encountered.
No Groundwater or Seepage Encountered.

PROPOSED PILOT DESALINATION PLANT
SOUTH OF COACHELLA CANAL ROAD, SALTON SEA AREA

Project No: 544-20151
Report No: 20-05-290

Sladden Engineering

BORE LOG

Equipment:	Mobil-B-61	Date Drilled:	5/20/2020
Elevation:	55 Ft. MSL	Boring No:	BH-2

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Density, pcf	Depth (Feet)	Graphic Lithology	Description
							0		Clayey Gravel (GC); yellowish brown, dry, fine- to coarse-grained (Qal/Ql).
	16 50-6			10.5	2.0		6		Sand (SW) with gravel (SW/SP); yellowish brown, dry, very dense, fine- to coarse-grained (Qal/Ql).
	33 50-4			18.7	3.2		10		Clayey Sand (SC); yellowihs brown, dry, very dense, fine to coarse-grained (Qal/Ql).
	18 27 27			72.4	12.0	119.4	16		Sandy Clay (CL); olive brown, slightly moist, hard, low plasticity (Qal/Ql).
	15 22 30			91.7	14.1		20		Clayey Silt (ML); yellowish brown to olive brown, dry to slightly moist, hard, low plasticity (Qal/Ql).
							22		Terminated at ~21.5 Feet bgs. No Bedrock Encountered. No Groundwater or Seepage Encountered.

Completion Notes:

PROPOSED PILOT DESALINATION PLANT
SOUTH OF COACHELLA CANAL ROAD, SALTON SEA AREA

Project No: 544-20151
Report No: 20-05-290

Sladden Engineering

BORE LOG

Equipment:	Mobil-B-61	Date Drilled:	5/20/2020
Elevation:	55 Ft. MSL	Boring No:	BH-3

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Density, pcf	Depth (Feet)	Graphic Lithology	Description
							0		Clayey Gravel (GC); yellowish brown, dry, fine- to coarse-grained (Qal/Ql).
	27 28 50-2			16.7	2.9		5		Clayey Sand (SC); yellowish brown, dry, very dense, fine- to coarse-grained (Qal/Ql).
	24 34 39			82.0	6.4	108.7	10		Sandy Silt (ML); grayish brown, dry, hard, low plasticity (Qal/Ql).
	9 11 16			98.9	20.9		15		Silty Clay (CL); olive brown, moist, very stiff, low plasticity (Qal/Ql).
									Terminated at ~16.5 Feet bgs. No Bedrock Encountered. No Groundwater or Seepage Encountered.

Completion Notes:

PROPOSED PILOT DESALINATION PLANT
SOUTH OF COACHELLA CANAL ROAD, SALTON SEA AREA

Project No: 544-20151
Report No: 20-05-290

APPENDIX B

LABORATORY TESTING

APPENDIX B

LABORATORY TESTING

Representative bulk and relatively undisturbed soil samples were obtained in the field and returned to our laboratory for additional observations and testing. Laboratory testing was generally performed in two phases. The first phase consisted of testing in order to determine the compaction of the existing natural soil and the general engineering classifications of the soils underlying the site. This testing was performed in order to estimate the engineering characteristics of the soil and to serve as a basis for selecting samples for the second phase of testing. The second phase consisted of soil mechanics testing. This testing including consolidation, shear strength and expansion testing was performed in order to provide a means of developing specific design recommendations based on the mechanical properties of the soil.

CLASSIFICATION AND COMPACTION TESTING

Unit Weight and Moisture Content Determinations: Each undisturbed sample was weighed and measured in order to determine its unit weight. A small portion of each sample was then subjected to testing in order to determine its moisture content. This was used in order to determine the dry density of the soil in its natural condition. The results of this testing are shown on the Boring Logs.

Maximum Density-Optimum Moisture Determinations: Representative soil types were selected for maximum density determinations. This testing was performed in accordance with the ASTM Standard D1557-91, Test Method A. Graphic representations of the results of this testing are presented in this appendix. The maximum densities are compared to the field densities of the soil in order to determine the existing relative compaction to the soil.

Classification Testing: Soil samples were selected for classification testing. This testing consists of mechanical grain size analyses. This provides information for developing classifications for the soil in accordance with the Unified Soil Classification System which is presented in the preceding appendix. This classification system categorizes the soil into groups having similar engineering characteristics. The results of this testing is very useful in detecting variations in the soil and in selecting samples for further testing.

SOIL MECHANIC'S TESTING

Expansion Testing: One (1) bulk sample was selected for Expansion testing. Expansion testing was performed in accordance with the UBC Standard 18-2. This testing consists of remolding 4-inch diameter by 1-inch thick test specimens to a moisture content and dry density corresponding to approximately 50 percent saturation. The samples are subjected to a surcharge of 144 pounds per square foot and allowed to reach equilibrium. At that point the specimens are inundated with distilled water. The linear expansion is then measured until complete.

Direct Shear Testing: One (1) bulk sample was selected for Direct Shear testing. This test measures the shear strength of the soil under various normal pressures and is used to develop parameters for foundation design and lateral design. Tests were performed using a recompacted test specimen that was saturated prior to tests. Tests were performed using a strain controlled test apparatus with normal pressures ranging from 800 to 2300 pounds per square foot.

Consolidation/Hydro-Collapse Testing: Two (2) relatively undisturbed samples were selected for consolidation testing. For this test, a one-inch thick test specimen was subjected to vertical loads varying from 575 psf to 11520 psf applied progressively. The consolidation at each load increment was recorded prior to placement of each subsequent load.

Corrosion Series Testing: The soluble sulfate concentrations of the surface soil were determined in accordance with California Test Method Number (CA) 417. The pH and Minimum Resistivity were determined in accordance with CA 643. The soluble chloride concentrations were determined in accordance with CA 422.

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Maximum Density/Optimum Moisture

ASTM D698/D1557

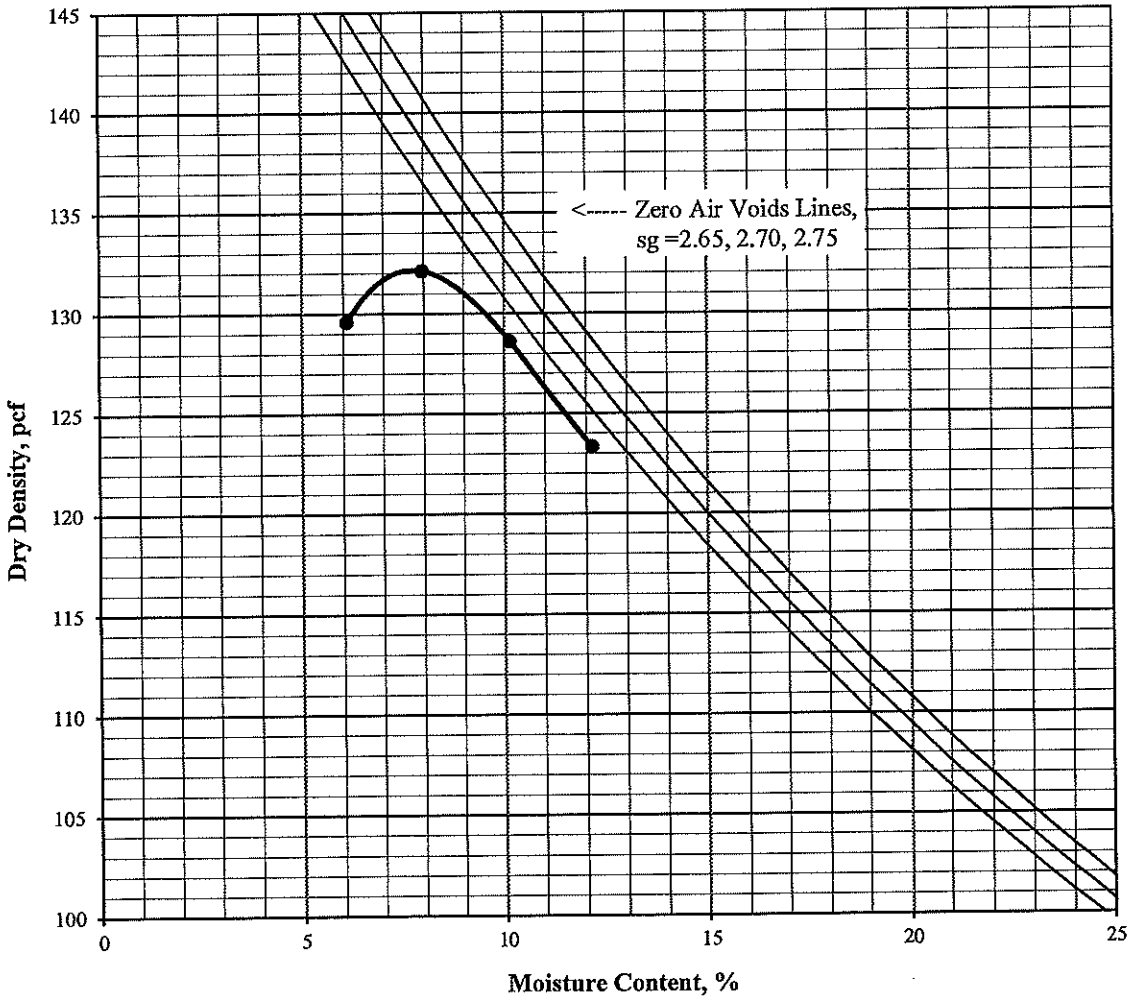
Project Number: 544-20151
Project Name: Pilot Desalination Project
Lab ID Number: LN6-20250
Sample Location: BH-1 Bulk 1 @ 0-5'
Description: Red Brown Clayey Gravel w/Sand (GC)

June 2, 2020

ASTM D-1557 A
Rammer Type: Machine

Maximum Density: **145.5 pcf**
Optimum Moisture: **5%**
Corrected for Oversize (ASTM D4718)

Sieve Size	% Retained
3/4"	
3/8"	
#4	47.8



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Expansion Index

ASTM D 4829

June 2, 2020

Job Number: 544-20151
Job Name: Pilot Desalination Project
Lab ID Number: LN6-20250
Sample ID: BH-1 Bulk 1 @ 0-5'
Soil Description: Red Brown Clayey Gravel w/Sand (GC)

Wt of Soil + Ring:	600.7
Weight of Ring:	191.1
Wt of Wet Soil:	409.6
Percent Moisture:	7.3%
Sample Height, in	0.95
Wet Density, pcf:	131.1
Dry Denstiy, pcf:	122.2

% Saturation:	52.0

Expansion **Rack # 3**

Date/Time	5/27/2020	12:00 PM
Initial Reading	0.0000	
Final Reading	0.0050	

Expansion Index **5**

(Final - Initial) x 1000

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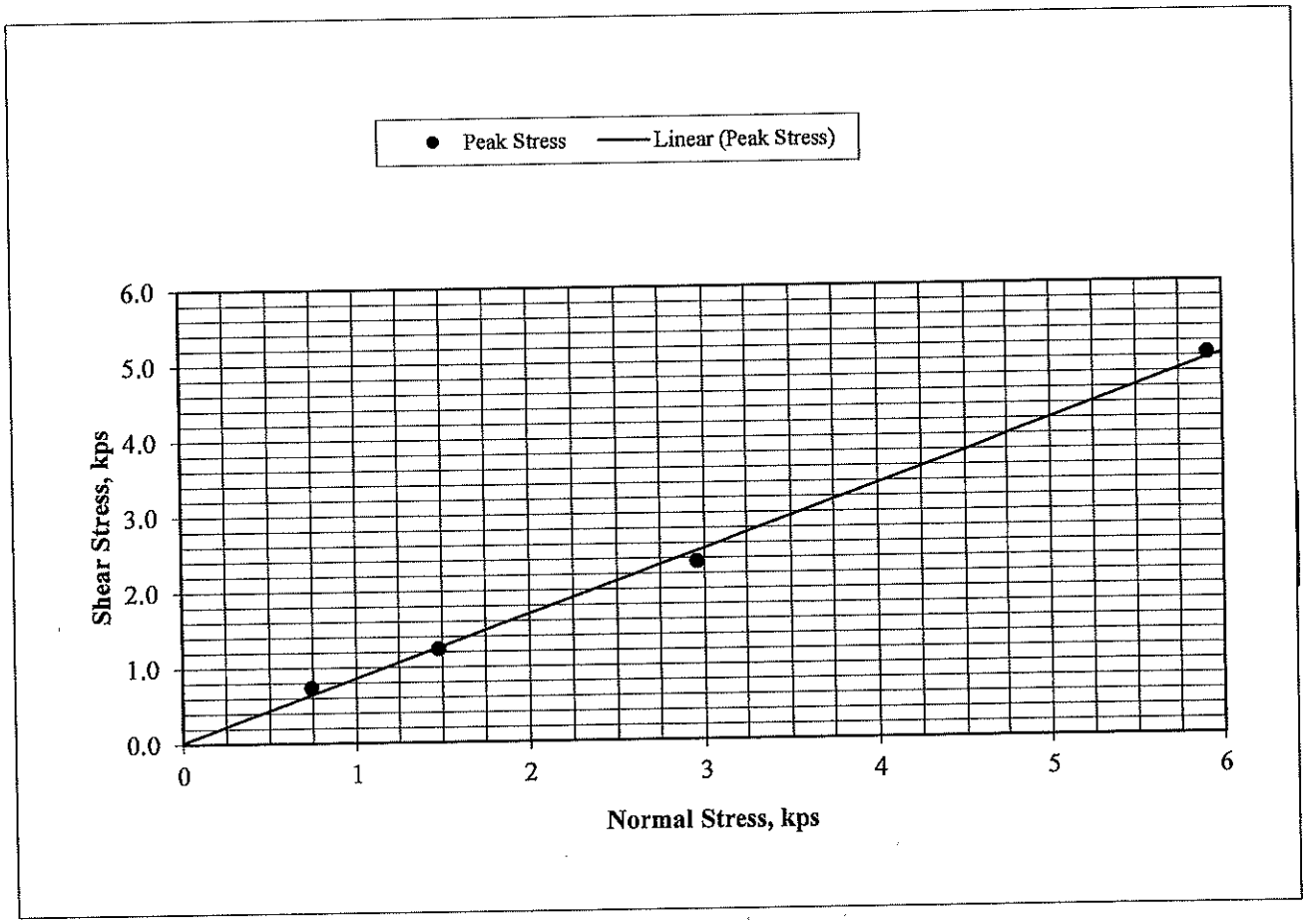
Direct Shear ASTM D 3080-04
(modified for unconsolidated condition)

Job Number: 544-20151
Job Name Pilot Desalination Project
Lab ID No. LN6-20250
Sample ID BH-1 Bulk 1 @ 0-5'
Classification Red Brown Clayey Gravel w/Sand (GC)
Sample Type Remolded @ 90% of Maximum Density

June 2, 2020
Initial Dry Density: 119.3 pcf
Initial Mosture Content: 8.5 %
Peak Friction Angle (Ø): 40°
Cohesion (c): 20 psf

Test Results	1	2	3	4	Average
Moisture Content, %	10.0	10.0	10.0	10.0	10.0
Saturation, %	65.2	65.2	65.2	65.2	65.2
Normal Stress, kps	0.739	1.479	2.958	5.916	
Peak Stress, kps	0.741	1.243	2.354	5.036	



Job Number: 544-20151
Job Name: Pilot Desalination Project
Date: 6/2/2020

Moisture Adjustment	
Wt of Soil:	1,000
Moist As Is:	4.0
Moist Wanted:	8.5
ml of Water to Add:	43.3

Remolded Shear Weight	
Max Dry Density:	132.5
Optimum Moisture:	8.5
Wt Soil per Ring, g:	155.6

UBC

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Gradation

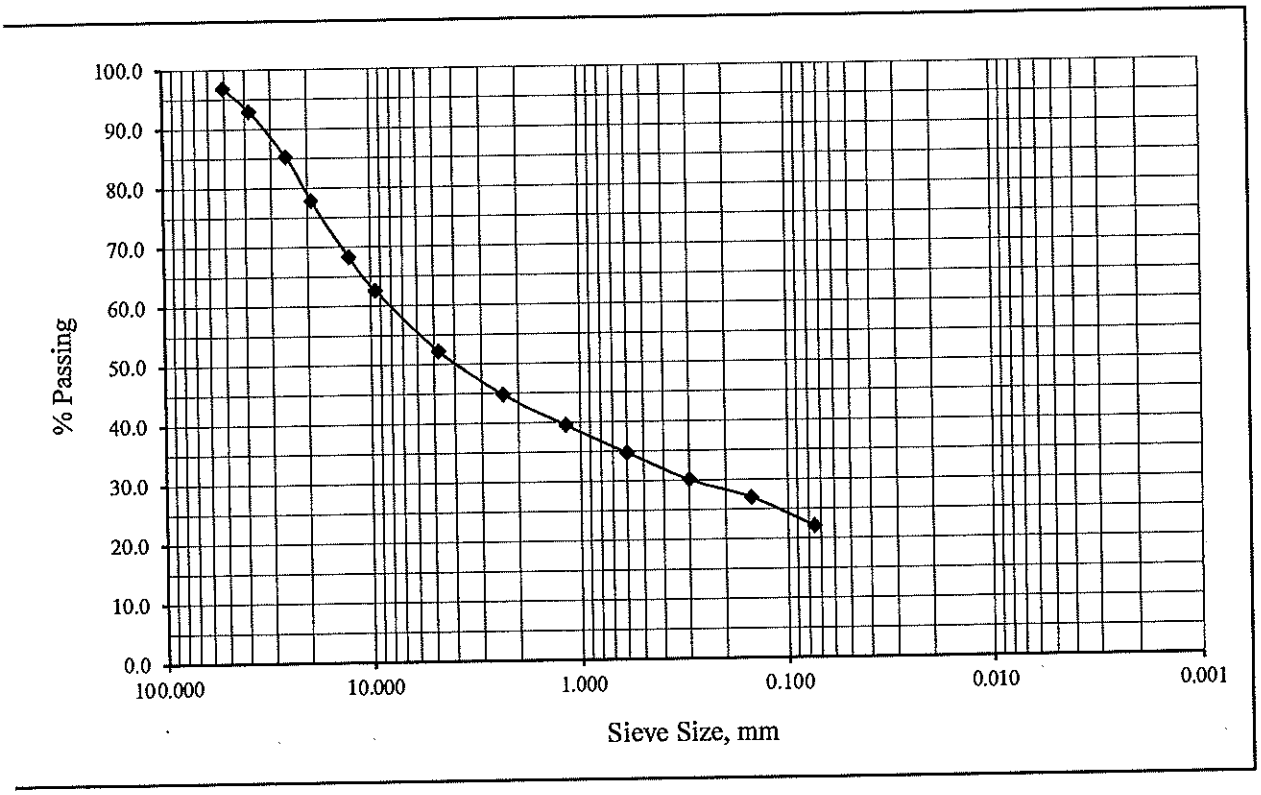
ASTM C117 & C136

June 2, 2020

Project Number: 544-20151
Project Name: Pilot Desalination Project
Lab ID Number: LN6-20250
Sample ID: BH-1 Bulk 1 @ 0-5'

Soil Classification: GC

Sieve Size, in	Sieve Size, mm	Percent Passing
2"	50.8	96.9
1 1/2"	38.1	93.0
1"	25.4	85.3
3/4"	19.1	77.9
1/2"	12.7	68.3
3/8"	9.53	62.6
#4	4.75	52.2
#8	2.36	44.8
#16	1.18	39.5
#30	0.60	34.8
#50	0.30	30.1
#100	0.15	27.0
#200	0.075	22.1



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Gradation

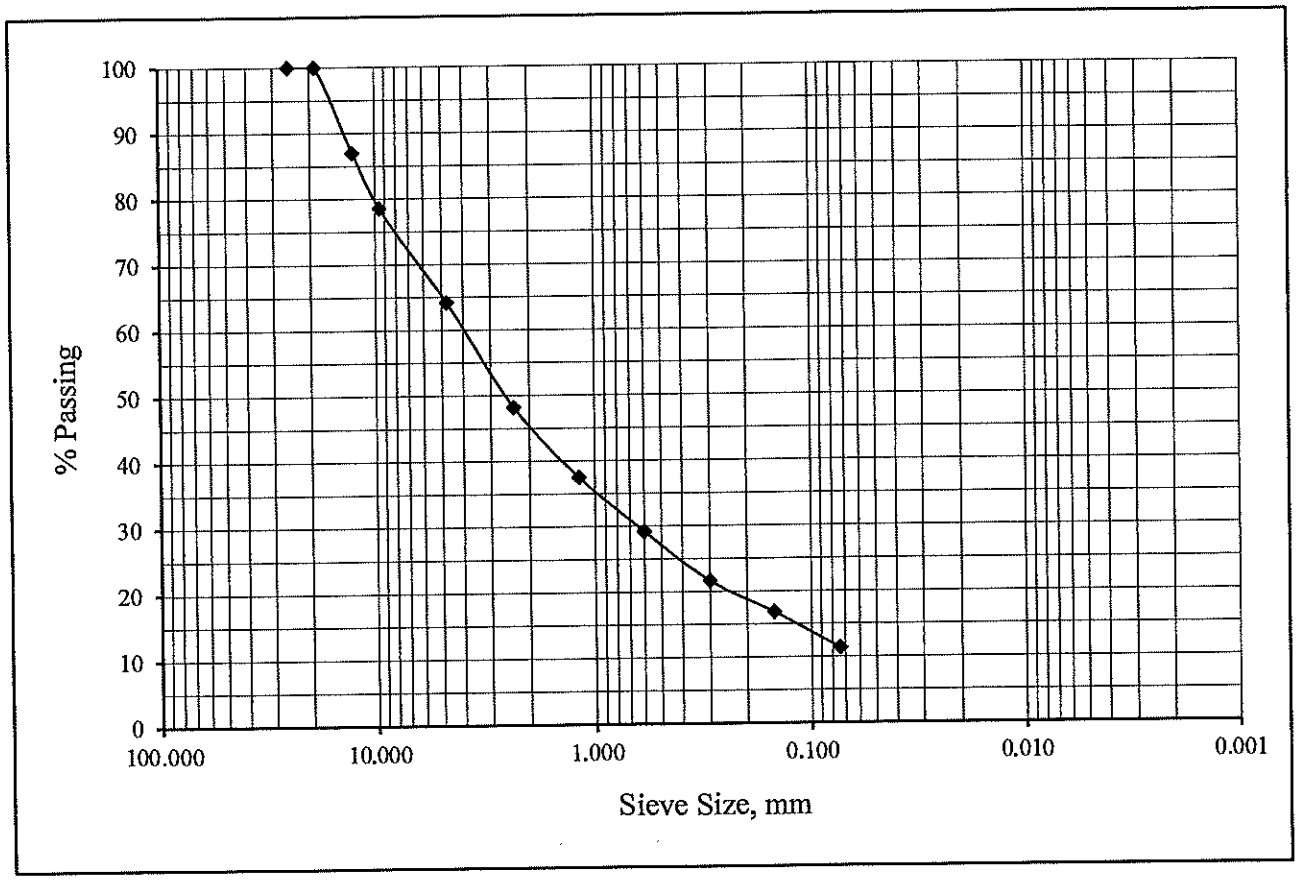
ASTM C117 & C136

June 2, 2020

Project Number: 544-20151
Project Name: Pilot Desalination Project
Lab ID Number: LN6-20250
Sample ID: BH-1 S-1 @ 5'

Soil Classification: SW-SC

Sieve Size, in	Sieve Size, mm	Percent Passing
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	87.0
3/8"	9.53	78.6
#4	4.75	64.2
#8	2.36	48.2
#16	1.18	37.5
#30	0.60	29.2
#50	0.30	21.7
#100	0.15	16.8
#200	0.074	11.4



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Gradation

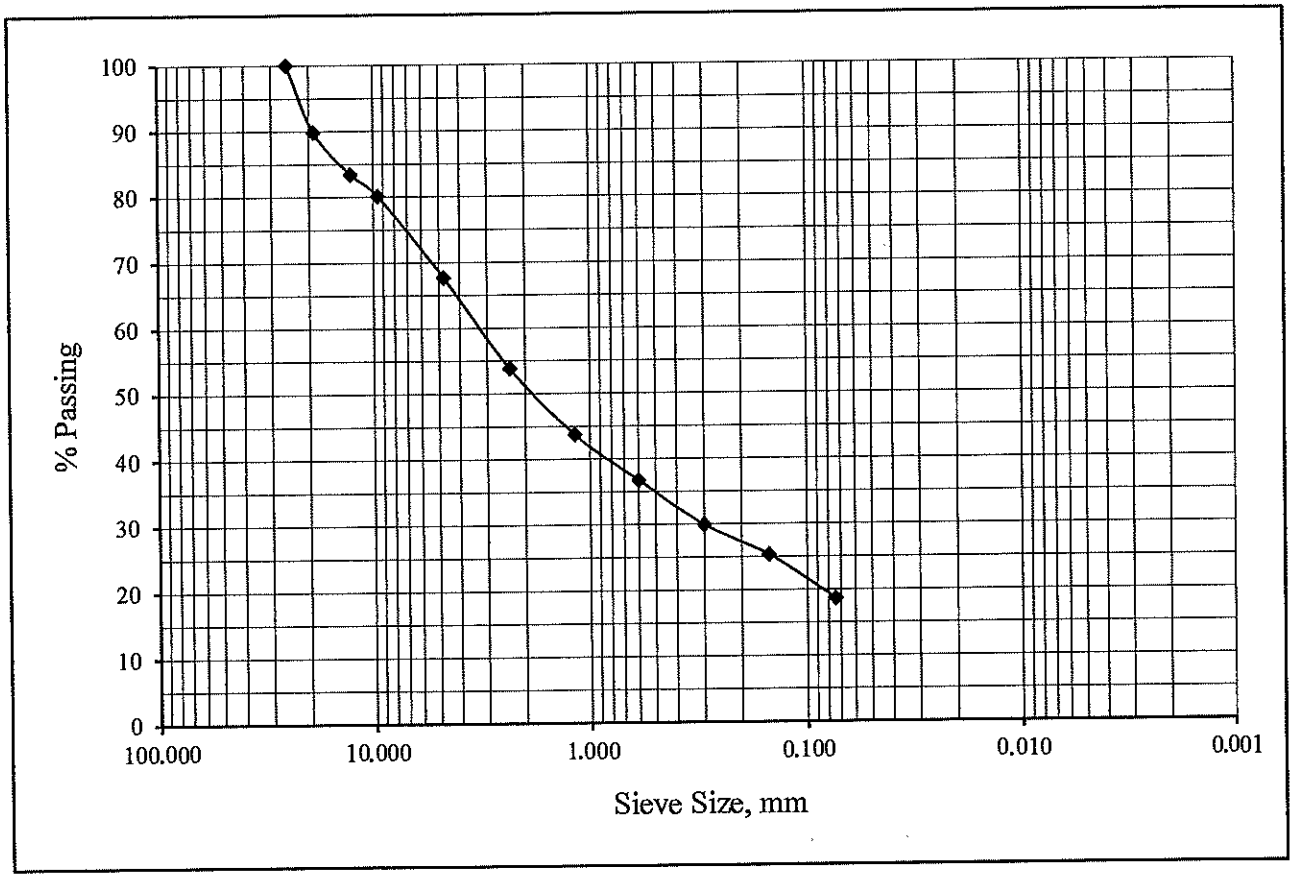
ASTM C117 & C136

June 2, 2020

Project Number: 544-20151
Project Name: Pilot Desalination Project
Lab ID Number: LN6-20250
Sample ID: BH-2 S-2 @ 10'

Soil Classification: SC

Sieve Size, in	Sieve Size, mm	Percent Passing
1"	25.4	100.0
3/4"	19.1	89.8
1/2"	12.7	83.4
3/8"	9.53	80.1
#4	4.75	67.7
#8	2.36	53.9
#16	1.18	43.8
#30	0.60	36.7
#50	0.30	30.0
#100	0.15	25.3
#200	0.074	18.7



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One Dimensional Consolidation

ASTM D2435 & D5333

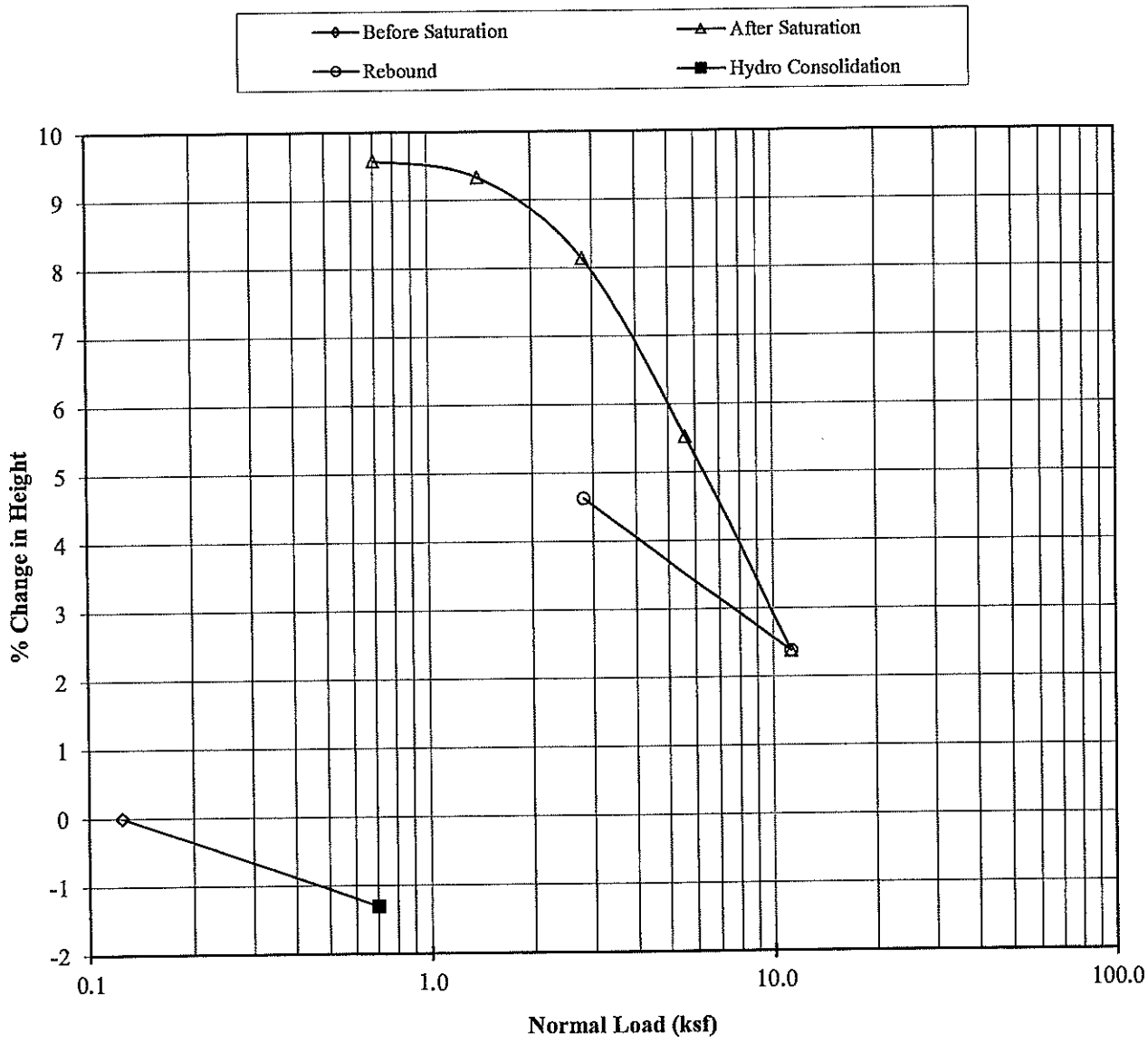
June 2, 2020

Job Number: 544-20151
Job Name: Pilot Desalination Project

Lab ID Number: LN6-20250
Sample ID: BH-1 R-2 @ 10'
Soil Description: Red Brown Clay (CL)

Initial Dry Density, pcf:	108.3
Initial Moisture, %:	21.5
Initial Void Ratio:	0.539
Specific Gravity:	2.67

% Change in Height vs Normal Presssure Diagram



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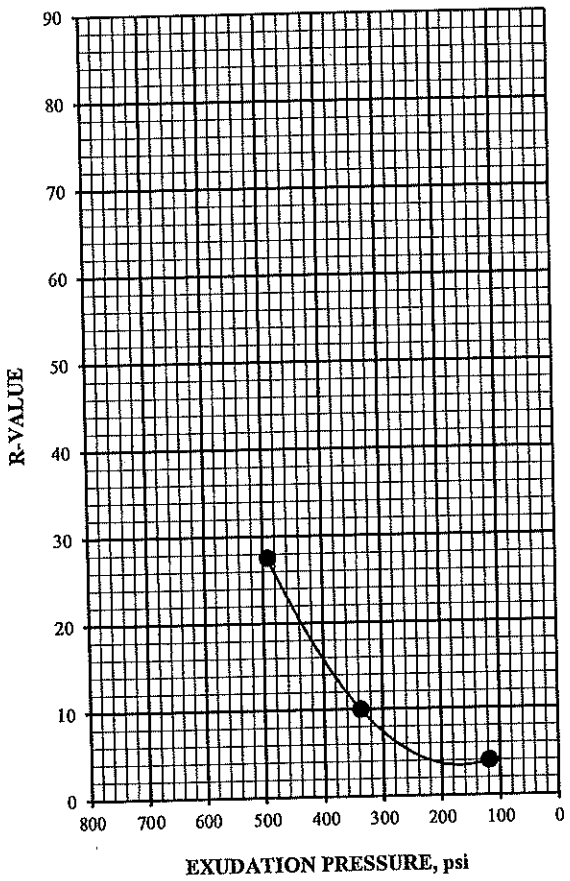
RESISTANCE '*R*' VALUE AND EXPANSION PRESSURE

CTM 301
June 2, 2020

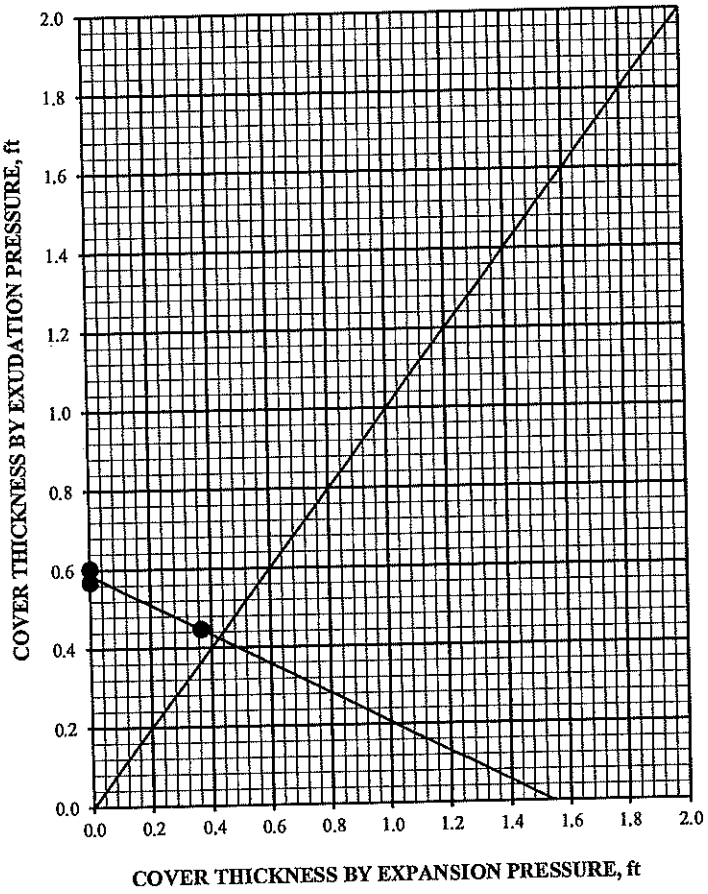
Project Number: 544-20151
Project Name: Pilot Desalination Project
Lab ID Number: LN6-20250
Sample ID: BH-1 Bulk 1 @ 0-5'
Sample Description: Red Brown Clayey Gravel with Sand (GC)
Specified Traffic Index: 5.0

Dry Density @ 300 psi Exudation Pressure: 125.7-pcf
%Moisture @ 300 psi Exudation Pressure: 10.8%
R-Value - Exudation Pressure: 7
R-Value - Expansion Pressure: 33
R-Value @ Equilibrium: 7

EXUDATION PRESSURE CHART



EXPANSION PRESSURE CHART



Sladden Engineering

6782 Stanton Ave., Suite C, Buena Park, CA 90621 (714) 523-0952 Fax (714) 523-1369
45090 Golf Center Pkwy, Suite F, Indio, CA 92201 (760) 863-0713 Fax (760) 863-0847
450 Egan Avenue, Beaumont, CA 92223 (951) 845-7743 Fax (951) 845-8863

Date: June 2, 2020

Account No.: 544-20151

Customer: Global Water Farms

Location: APN 731-170-001, NEC Chick Road & Vaughn Road, Salton Sea Area

Analytical Report

Corrosion Series

	pH per CA 643	Soluble Sulfates per CA 417 ppm	Soluble Chloride per CA 422 ppm	Min. Resistivity per CA 643 ohm-cm
BH-1 @ 0-5'	8.4	1600	14,700	37

APPENDIX C

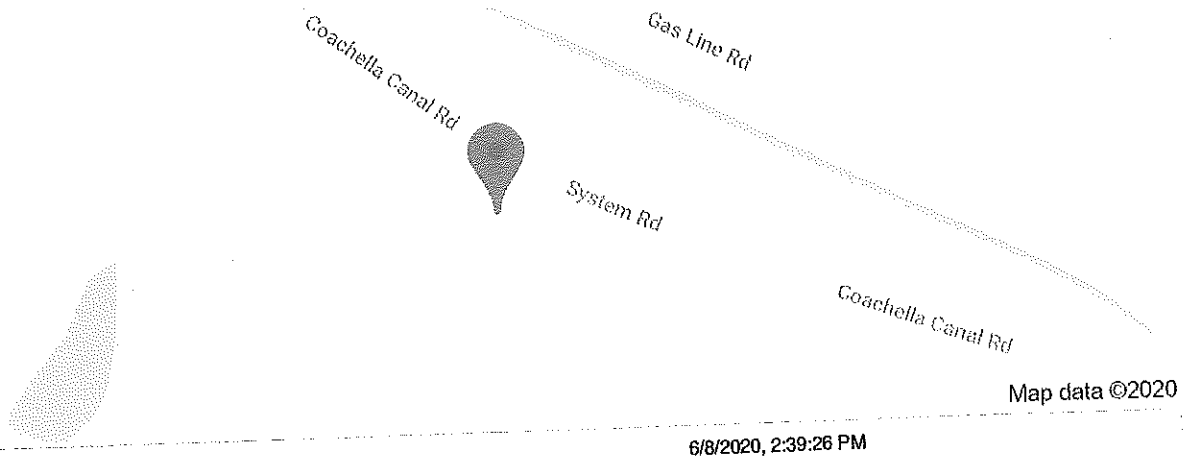
SEISMIC DESIGN MAP AND REPORT
SEISMIC HAZARD ANALYSIS (SHA)

Seismic Design Maps

OSHPD

Pilot Desalination Plant

Latitude, Longitude: 33.439758, -115.697711



Date	6/8/2020, 2:39:26 PM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	D - Stiff Soil

Type	Value	Description
S_S	1.669	MCE_R ground motion. (for 0.2 second period)
S_1	0.689	MCE_R ground motion. (for 1.0s period)
S_{MS}	1.669	Site-modified spectral acceleration value
S_{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{DS}	1.113	Numeric seismic design value at 0.2 second SA
S_{D1}	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
F_a	1	Site amplification factor at 0.2 second
F_v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.728	MCE_G peak ground acceleration
F_{PGA}	1.1	Site amplification factor at PGA
PGA_M	0.801	Site modified peak ground acceleration
T_L	8	Long-period transition period in seconds
SsRT	2.07	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	2.275	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.669	Factored deterministic acceleration value. (0.2 second)
S1RT	0.786	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.883	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.689	Factored deterministic acceleration value. (1.0 second)
PGAd	0.728	Factored deterministic acceleration value. (Peak Ground Acceleration)
C_{RS}	0.91	Mapped value of the risk coefficient at short periods

Seismic Design Maps

Type	Value	Description
C_{R1}	0.89	Mapped value of the risk coefficient at a period of 1 s

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Project: Pilot Desalination Plant
Project Number: S44-20151
Client: Global Water Farms
Site Lat/Long: 33.4397/-115.6977
Controlling Seismic Source: Southern San Andreas

REFERENCE	NOTATION	VALUE
Site Class	C, D, D default, or E	D measured
Site Class D - Table 11.4-1	F_a	1.0
Site Class D - 21.3(ii)	F_v	2.5
$0.2*(S_{D1}/S_{DS})$	T_0	0.140
S_{D1}/S_{DS}	T_S	0.702
Fundamental Period (12.8.2)	T	Period
Seismic Design Maps or Fig 22-14	T_L	8
Equation 11.4-4 - $2/3*S_{M1}$	S_{D1}	0.781
Equation 11.4-2 - F_V*S_1	S_{M1}	1.171

Cr - At Perods <=0.2, Cr=C_{RS}	C_{RS}	0.910
Cr - At Periods >=1.0, Cr=C_{R1}	C_{R1}	0.89

REFERENCE	NOTATION	VALUE
Fv (Table 11.4-2)[Used for General Spectrum]	F_v	1.7
Design Maps	S_s	1.669
Design Maps	S_1	0.689
Equation 11.4-1 - F_A*S_S	S_{MS}	1.669
Equation 11.4-3 - $2/3*S_{MS}$	S_{DS}	1.113
Design Maps	PGA	0.728
Table 11.8-1	F_{PGA}	1.1
Equation 11.8-1 - F_{PGA}*PGA	PGA_M	0.801
Section 21.S.3	80% of PGA_M	0.641
Design Maps	C_{RS}	0.910
Design Maps	C_{R1}	0.89

RISK COEFFICIENT

Cr - At Periods between 0.2 and 1.0 use trendline formula to complete

Period	Cr
0.200	0.910
0.300	0.908
0.400	0.905
0.500	0.903
0.600	0.900
0.680	0.898
1.000	0.89

PROBABILISTIC SPECTRA
2% in 50 year Exceedence

Period	B - A	C - B	C - Y	Mean	Risk Coefficient (C_R)	Probabilistic MCE
0.005	0.941	0.916	1.091	0.998	0.910	0.908
0.020	0.962	0.923	1.110	1.012	0.910	0.921
0.030	1.011	0.963	1.156	1.052	0.910	0.957
0.040	1.057	1.029	1.209	1.103	0.910	1.004
0.050	1.095	1.077	1.281	1.157	0.910	1.053
0.060	1.188	1.156	1.356	1.238	0.910	1.127
0.080	1.370	1.307	1.540	1.410	0.910	1.283
0.090	1.467	1.389	1.639	1.502	0.910	1.367
0.100	1.563	1.469	1.741	1.595	0.910	1.451
0.120	1.718	1.590	1.936	1.753	0.910	1.595
0.136	1.840	1.683	2.045	1.866	0.910	1.698
0.200	2.053	1.906	2.228	2.075	0.910	1.888
0.300	2.104	1.880	2.244	2.093	0.908	1.899
0.400	2.112	1.820	2.146	2.048	0.905	1.853
0.500	2.083	1.797	2.020	1.982	0.903	1.789
0.600	1.972	1.701	1.881	1.853	0.900	1.668
0.680	1.885	1.644	1.787	1.773	0.898	1.592
1.000	1.463	1.469	1.567	1.501	0.890	1.336
1.200	1.305	1.335	1.391	1.345	0.890	1.197
2.000	0.891	1.013	0.947	0.952	0.890	0.847
3.000	0.636	0.691	0.639	0.655	0.890	0.583
4.000	0.482	0.528	0.468	0.494	0.890	0.440
5.000	0.400	0.462	0.340	0.405	0.890	0.360

B-A - Boore-Atkinson (2008) NGA USGS 2008 MRC

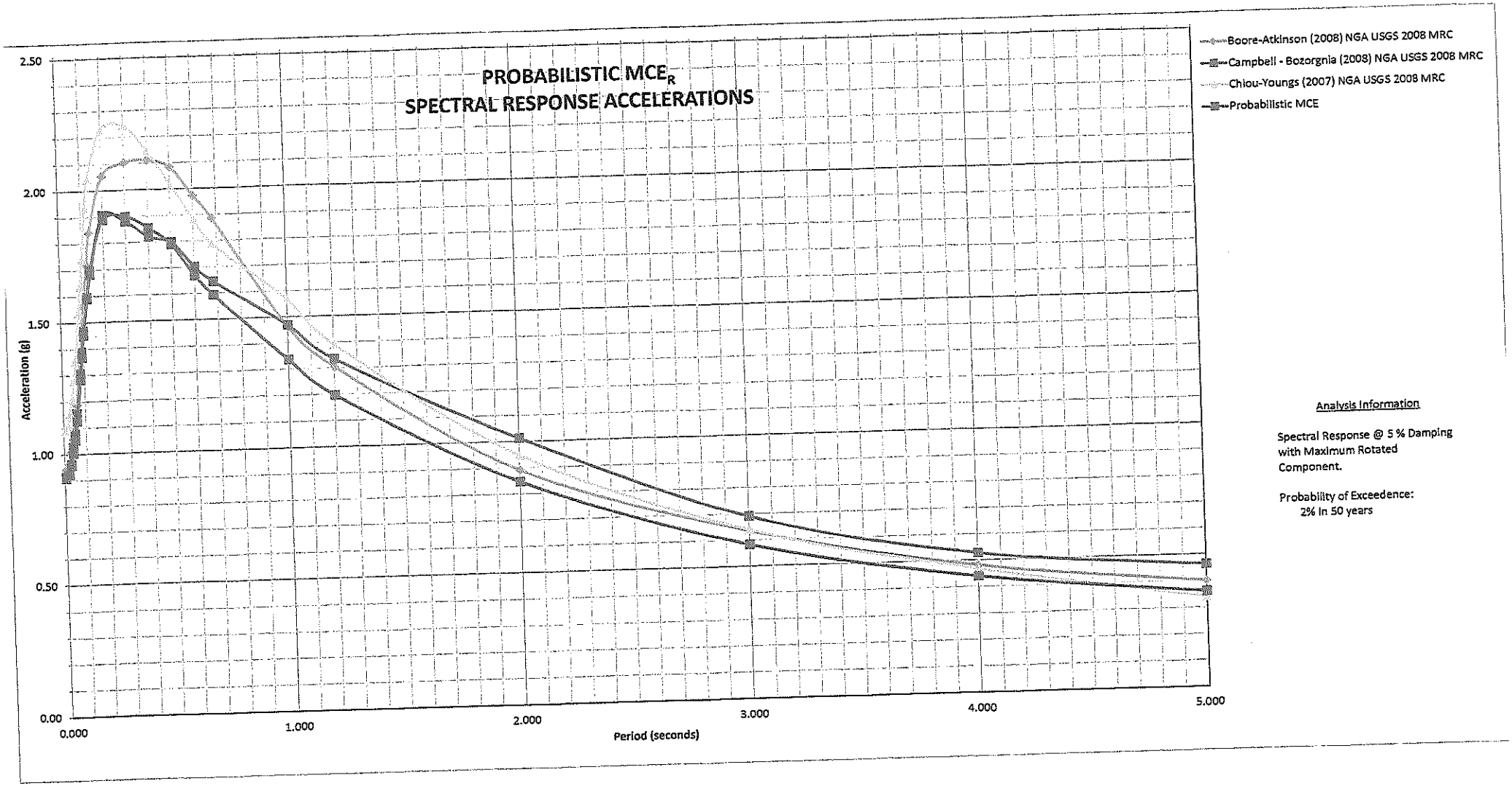
C-B - Campbell-Bozorgnia (2008) NGA USGS 2008 MRC

C-Y - Chiou-Youngs (2007) NGA USGS 2008 MRC

Probabilistic PGA: 0.908

Is Probabilistic $5a_{(max)} < 1.2F_a$? NO

Project No: 544-20151


PROBABILISTIC MCE$_R$
SPECTRAL RESPONSE ACCELERATIONS
Boore-Atkinson (2008) NGA USGS 2008 MRC
Campbell - Bozorgnia (2008) NGA USGS 2008 MRC
Chiou-Youngs (2007) NGA USGS 2008 MRC
Probabilistic MCE
Acceleration (g)
2.50
2.00
1.50
1.00
0.50
0.00
0.000
1.000
2.000
3.000
4.000
5.000
Period (seconds)
Analysis Information
Spectral Response @ 5 % Damping with Maximum Rotated Component.
Probability of Exceedence:
2% in 50 years

DETERMINISTIC SPECTRUM

Largest Amplitudes of Ground Motions Considering All Sources Calculated using Weighted Mean of Attenuation Equations*

Controlling Source: Southern San Andreas

Period	DETERMINISTIC (RAW)	DETERMINISTIC MCE 84 FRACTILE
0.005	0.764	0.764
0.020	0.777	0.777
0.030	0.814	0.814
0.040	0.857	0.857
0.050	0.899	0.899
0.060	0.964	0.964
0.080	1.091	1.091
0.090	1.156	1.156
0.100	1.219	1.219
0.120	1.326	1.326
0.136	1.400	1.400
0.200	1.562	1.562
0.300	1.619	1.619
0.400	1.629	1.629
0.500	1.613	1.613
0.600	1.603	1.603
0.680	1.596	1.596
1.000	1.475	1.475
1.200	1.382	1.382
2.000	1.071	1.071
3.000	0.837	0.837
4.000	0.651	0.651
5.000	0.511	0.511

Is Probabilistic $Sa_{(max)}$<1.2Fa? NO

Is Determinstic $Sa_{(max)}$<1.5*Fa? NO

Deterministic PGA: 0.764

Is Deterministic PGA >=1.1*0.5? YES

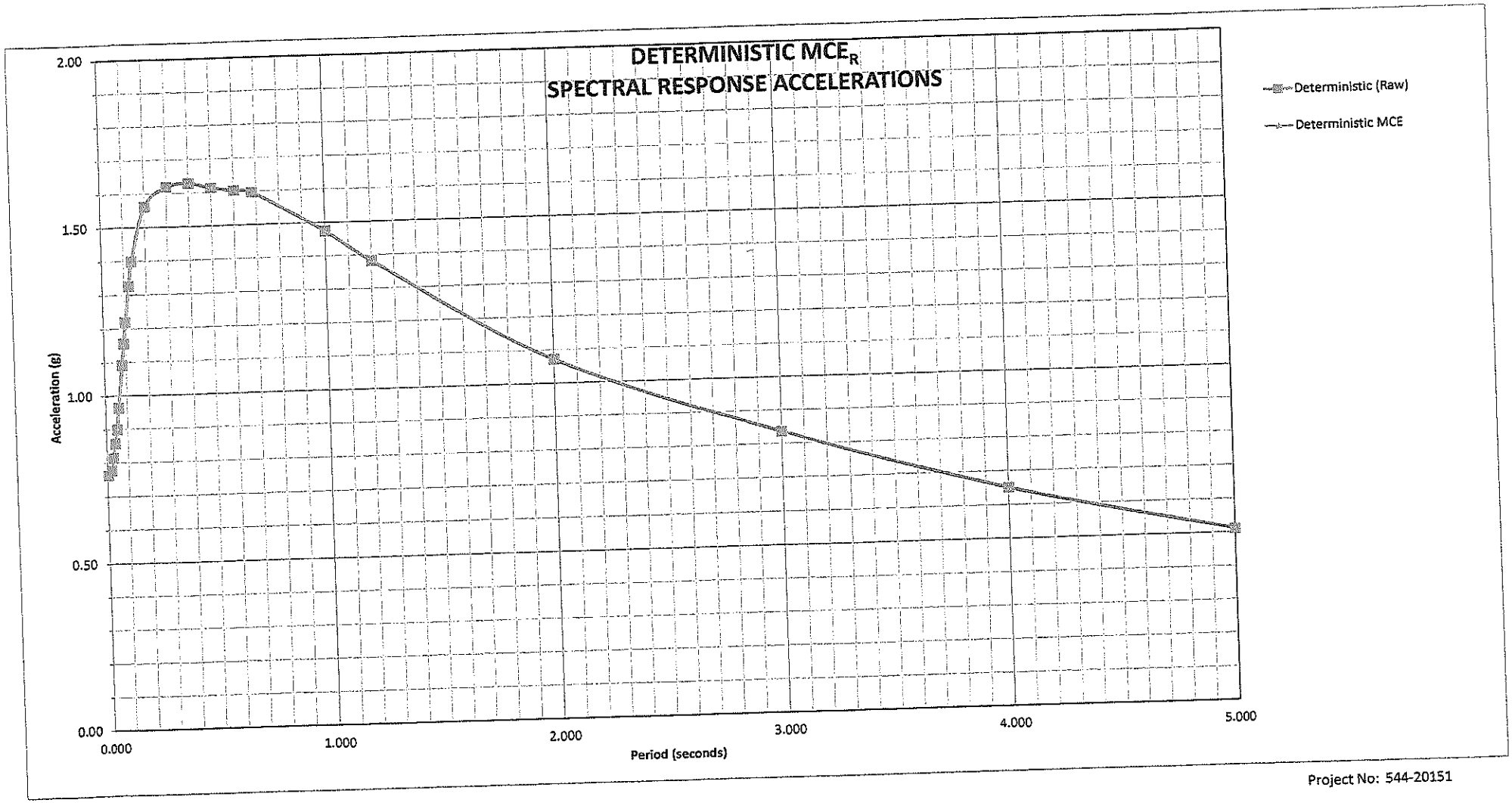
*Attenuation Equations

Boore - Atkinson (2008) NGA USGS 2008 MRC

Campbell - Bozorgnia (2008) NGA USGS 2008 MRC

Chiou - Youngs (2007) NGA USGS 2008 MRC

Project No: 544-201S1



Project No: 544-20151

SITE SPECIFIC SPECTRA

Period	Probabilistic MCE	Deterministic MCE	Site-Specific MCE	Design Response Spectrum (Sa)
0.005	0.908	0.764	0.764	0.509
0.020	0.921	0.777	0.777	0.518
0.030	0.957	0.814	0.814	0.543
0.040	1.004	0.857	0.857	0.571
0.050	1.053	0.899	0.899	0.599
0.060	1.127	0.964	0.964	0.642
0.080	1.283	1.091	1.091	0.727
0.090	1.367	1.156	1.156	0.771
0.100	1.451	1.219	1.219	0.813
0.120	1.595	1.326	1.326	0.884
0.136	1.698	1.400	1.400	0.933
0.200	1.888	1.562	1.562	1.041
0.300	1.899	1.619	1.619	1.079
0.400	1.853	1.629	1.629	1.086
0.500	1.789	1.613	1.613	1.075
0.600	1.668	1.603	1.603	1.069
0.680	1.592	1.596	1.592	1.061
1.000	1.336	1.475	1.336	0.891
1.200	1.197	1.382	1.197	0.798
2.000	0.847	1.071	0.847	0.565
3.000	0.583	0.837	0.583	0.389
4.000	0.440	0.651	0.440	0.293
5.000	0.360	0.511	0.360	0.240

ASCE 7-16: Section 21.4

	Calculated Value	Design Value
SDS:	0.977	0.977
SD1:	1.200	1.200
SMS:	1.466	1.466
SM1:	1.800	1.800
Site Specific PGAm:	0.764	0.764
Site Class:	D measured	

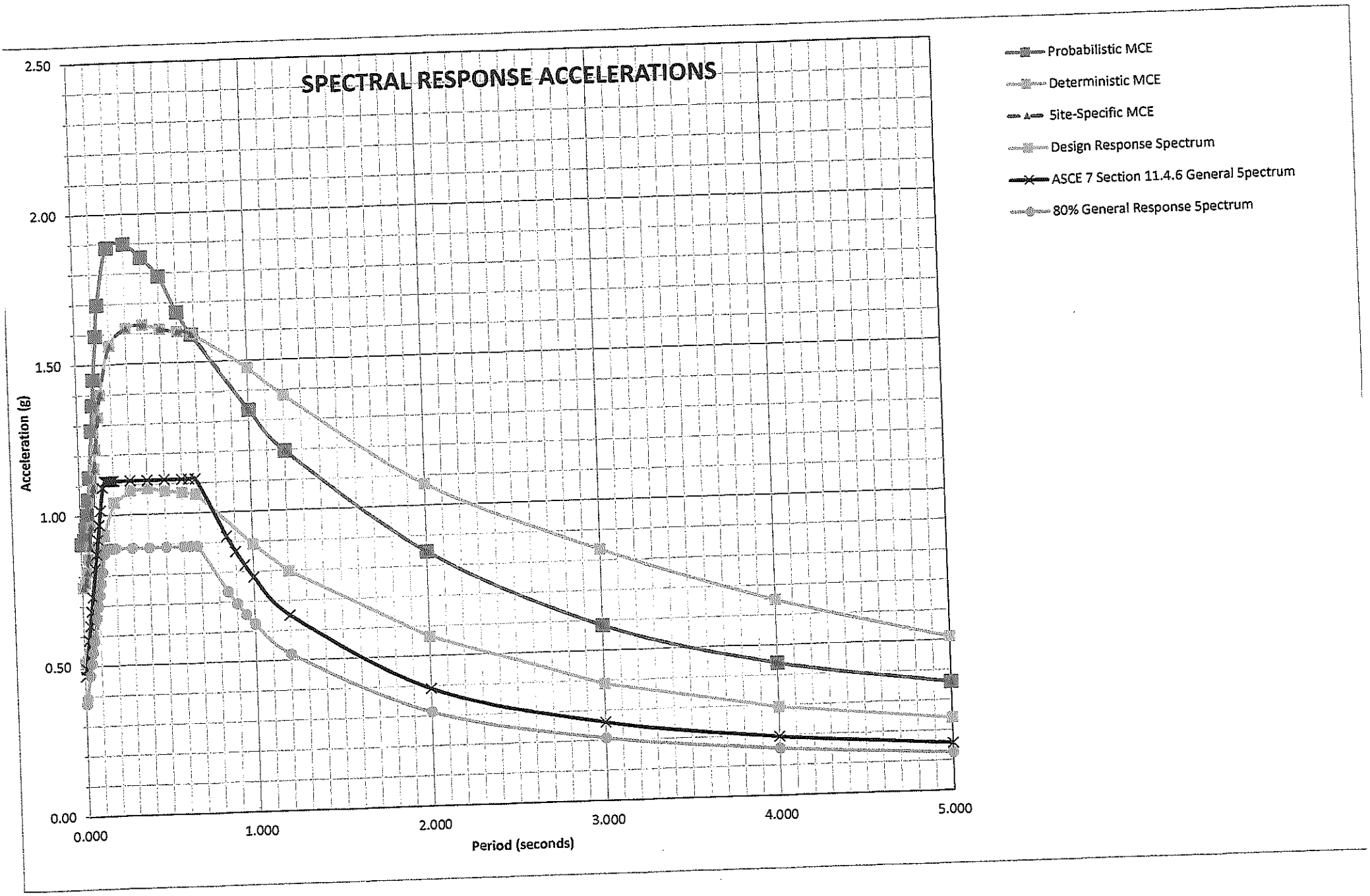
Seismic Design Category - Short* D

Seismic Design Category - 1s* D

* Risk Categories I, II, or III

Period	ASCE 7 SECTION 11.4.6 General Spectrum	80% General Response Spectrum
0.005	0.469	0.375
0.010	0.493	0.394
0.030	0.588	0.470
0.040	0.635	0.508
0.050	0.683	0.546
0.060	0.730	0.584
0.080	0.826	0.660
0.090	0.873	0.699
0.100	0.921	0.737
0.110	0.968	0.775
0.120	1.016	0.813
0.136	1.092	0.874
0.150	1.113	0.890
0.160	1.113	0.890
0.170	1.113	0.890
0.180	1.113	0.890
0.190	1.113	0.890
0.200	1.113	0.890
0.300	1.113	0.890
0.400	1.113	0.890
0.500	1.113	0.890
0.600	1.113	0.890
0.640	1.113	0.890
0.680	1.113	0.890
0.850	0.919	0.735
0.900	0.868	0.694
0.950	0.822	0.658
1.000	0.781	0.625
1.200	0.651	0.521
2.000	0.390	0.312
3.000	0.260	0.208
4.000	0.195	0.156
5.000	0.156	0.125

Project No: 544-20151


SPECTRAL RESPONSE ACCELERATIONS
Probabilistic MCE
Deterministic MCE
Site-Specific MCE
Design Response Spectrum
ASCE 7 Section 11.4.6 General Spectrum
80% General Response Spectrum
Acceleration (g)
2.50
2.00
1.50
1.00
0.50
0.00
0.000
1.000
2.000
3.000
4.000
5.000
Period (seconds)

APPENDIX D

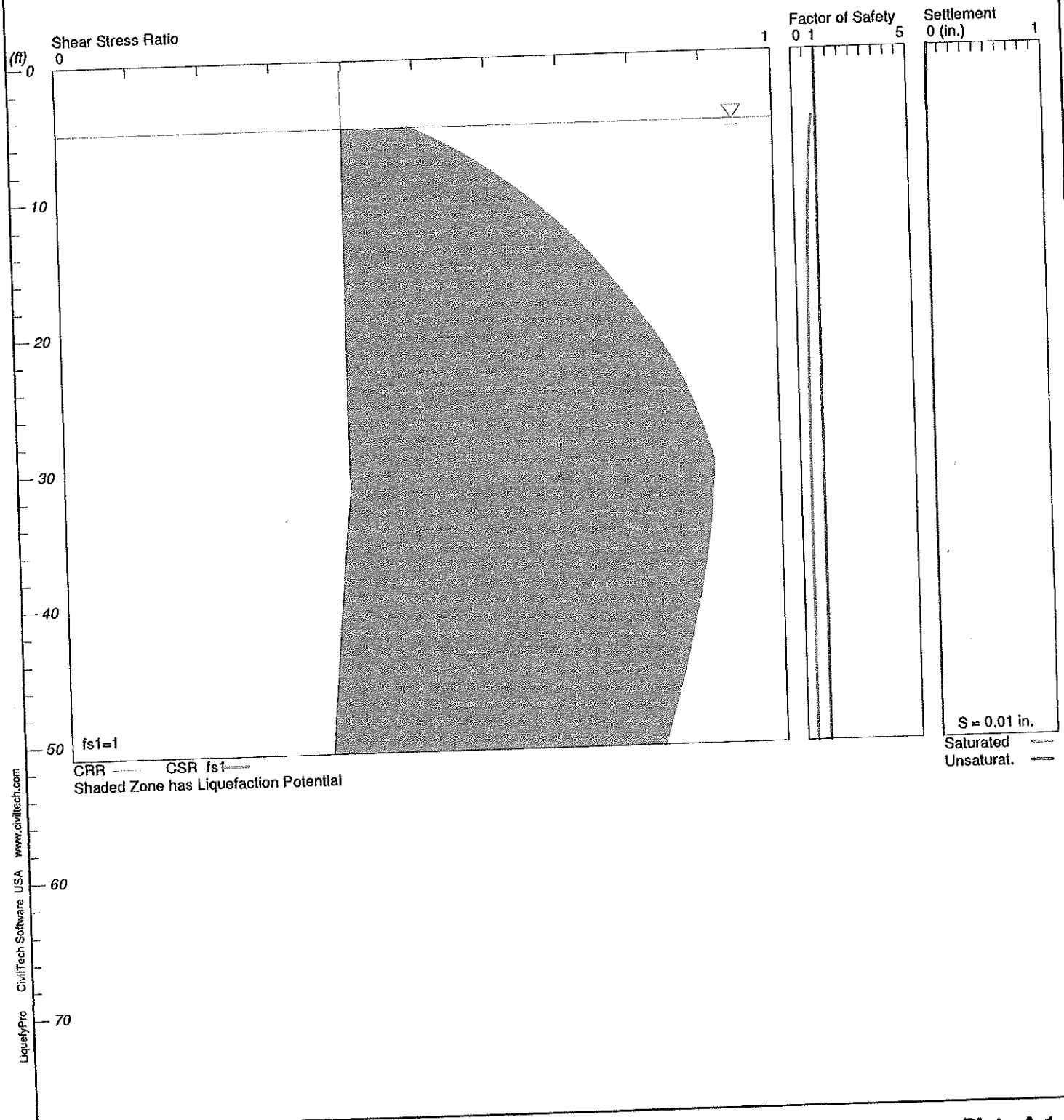
SEISMIC SETTLEMENT ANALYSIS

Dry Sand Settlement

Pilot Desalination Project

Hole No.=BH-1 Water Depth=5 ft Surface Elev.=55

Magnitude=8.2
Acceleration=0.764g



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LIQUEFACTION ANALYSIS SUMMARY

****
****

Font: Courier New, Regular, Size 8 is recommended for this report.
Licensed to , 6/11/2020 9:S0:4S AM

Input File Name: E:\LiquefyS\S44-201S1 Desalination Plant.liq
Title: Pilot Desalination Project
Subtitle: S44-201S1

Surface Elev.=SS
Hole No.=BH-1
Depth of Hole= S1.00 ft
Water Table during Earthquake= S.00 ft
Water Table during In-Situ Testing= S2.00 ft
Max. Acceleration= 0.76 g
Earthquake Magnitude= 8.20

Input Data:
Surface Elev.=SS
Hole No.=8H-1
Depth of Hole=S1.00 ft
Water Table during Earthquake= S.00 ft
Water Table during In-Situ Testing= S2.00 ft
Max. Acceleration=0.76 g
Earthquake Magnitude=8.20
No-Liquefiable Soils: 8ased on Analysis

1. SPT or 8PT Calculation.
2. Settlement Analysis Method: Tokimatsu, M-correction
3. Fines Correction for Liquefaction: Modify Stark/Dlson
4. Fine Correction for Settlement: During Liquefaction*
S. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = 1.2S
7. 8orehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1.3
Plot one CSR curve (fs1=1)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:
Depth SPT gamma Fines

ft		pcf	%
0.00	58.00	133.10	11.40
2.00	58.00	133.10	11.40
5.00	58.00	133.10	11.40
10.00	28.66	99.30	99.30
15.00	23.00	99.10	99.10
20.00	66.66	89.10	89.10
25.00	34.00	99.00	99.00
30.00	38.00	99.70	99.70
35.00	28.00	99.30	99.30
40.00	33.33	99.70	99.70
45.00	30.00	98.50	98.50
50.00	34.66	99.20	99.20

Output Results:

Settlement of Saturated Sands=0.00 in.
Settlement of Unsaturated Sands=0.01 in.
Total Settlement of Saturated and Unsaturated Sands=0.01 in.
Differential Settlement=0.005 to 0.006 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
0.00	0.40	0.50	5.00	0.00	0.01	0.01
0.05	0.40	0.50	5.00	0.00	0.01	0.01
0.10	0.40	0.50	5.00	0.00	0.01	0.01
0.15	0.40	0.50	5.00	0.00	0.01	0.01
0.20	0.40	0.50	5.00	0.00	0.01	0.01
0.25	0.40	0.50	5.00	0.00	0.01	0.01
0.30	0.40	0.50	5.00	0.00	0.01	0.01
0.35	0.40	0.50	5.00	0.00	0.01	0.01
0.40	0.40	0.50	5.00	0.00	0.01	0.01
0.45	0.40	0.50	5.00	0.00	0.01	0.01
0.50	0.40	0.50	5.00	0.00	0.01	0.01
0.55	0.40	0.50	5.00	0.00	0.01	0.01
0.60	0.40	0.50	5.00	0.00	0.01	0.01
0.65	0.40	0.50	5.00	0.00	0.01	0.01
0.70	0.40	0.50	5.00	0.00	0.01	0.01
0.75	0.40	0.50	5.00	0.00	0.01	0.01
0.80	0.40	0.50	5.00	0.00	0.01	0.01
0.85	0.40	0.50	5.00	0.00	0.01	0.01
0.90	0.40	0.50	5.00	0.00	0.01	0.01
0.95	0.40	0.50	5.00	0.00	0.01	0.01
1.00	0.40	0.50	5.00	0.00	0.01	0.01
1.05	0.40	0.50	5.00	0.00	0.01	0.01
1.10	0.40	0.50	5.00	0.00	0.01	0.01
1.15	0.40	0.50	5.00	0.00	0.01	0.01
1.20	0.40	0.50	5.00	0.00	0.01	0.01

1.25	0.40	0.50	5.00	0.00	0.01	0.01
1.30	0.40	0.50	5.00	0.00	0.01	0.01
1.35	0.40	0.50	5.00	0.00	0.01	0.01
1.40	0.40	0.49	5.00	0.00	0.01	0.01
1.45	0.40	0.49	5.00	0.00	0.01	0.01
1.50	0.40	0.49	5.00	0.00	0.01	0.01
1.55	0.40	0.49	5.00	0.00	0.01	0.01
1.60	0.40	0.49	5.00	0.00	0.01	0.01
1.65	0.40	0.49	5.00	0.00	0.01	0.01
1.70	0.40	0.49	5.00	0.00	0.01	0.01
1.75	0.40	0.49	5.00	0.00	0.01	0.01
1.80	0.40	0.49	5.00	0.00	0.01	0.01
1.85	0.40	0.49	5.00	0.00	0.01	0.01
1.90	0.40	0.49	5.00	0.00	0.01	0.01
1.95	0.40	0.49	5.00	0.00	0.01	0.01
2.00	0.40	0.49	5.00	0.00	0.01	0.01
2.05	0.40	0.49	5.00	0.00	0.01	0.01
2.10	0.40	0.49	5.00	0.00	0.01	0.01
2.15	0.40	0.49	5.00	0.00	0.01	0.01
2.20	0.40	0.49	5.00	0.00	0.01	0.01
2.25	0.40	0.49	5.00	0.00	0.01	0.01
2.30	0.40	0.49	5.00	0.00	0.01	0.01
2.35	0.40	0.49	5.00	0.00	0.01	0.01
2.40	0.40	0.49	5.00	0.00	0.01	0.01
2.45	0.40	0.49	5.00	0.00	0.01	0.01
2.50	0.40	0.49	5.00	0.00	0.01	0.01
2.55	0.40	0.49	5.00	0.00	0.01	0.01
2.60	0.40	0.49	5.00	0.00	0.01	0.01
2.65	0.40	0.49	5.00	0.00	0.01	0.01
2.70	0.40	0.49	5.00	0.00	0.01	0.01
2.75	0.40	0.49	5.00	0.00	0.01	0.01
2.80	0.40	0.49	5.00	0.00	0.01	0.01
2.85	0.40	0.49	5.00	0.00	0.01	0.01
2.90	0.40	0.49	5.00	0.00	0.01	0.01
2.95	0.40	0.49	5.00	0.00	0.01	0.01
3.00	0.40	0.49	5.00	0.00	0.00	0.00
3.05	0.40	0.49	5.00	0.00	0.00	0.00
3.10	0.40	0.49	5.00	0.00	0.00	0.00
3.15	0.40	0.49	5.00	0.00	0.00	0.00
3.20	0.40	0.49	5.00	0.00	0.00	0.00
3.25	0.40	0.49	5.00	0.00	0.00	0.00
3.30	0.40	0.49	5.00	0.00	0.00	0.00
3.35	0.40	0.49	5.00	0.00	0.00	0.00
3.40	0.40	0.49	5.00	0.00	0.00	0.00
3.45	0.40	0.49	5.00	0.00	0.00	0.00
3.50	0.40	0.49	5.00	0.00	0.00	0.00
3.55	0.40	0.49	5.00	0.00	0.00	0.00
3.60	0.40	0.49	5.00	0.00	0.00	0.00
3.65	0.40	0.49	5.00	0.00	0.00	0.00
3.70	0.40	0.49	5.00	0.00	0.00	0.00

3.75	0.40	0.49	5.00	0.00	0.00	0.00
3.80	0.40	0.49	5.00	0.00	0.00	0.00
3.85	0.40	0.49	5.00	0.00	0.00	0.00
3.90	0.40	0.49	5.00	0.00	0.00	0.00
3.95	0.40	0.49	5.00	0.00	0.00	0.00
4.00	0.40	0.49	5.00	0.00	0.00	0.00
4.05	0.40	0.49	5.00	0.00	0.00	0.00
4.10	0.40	0.49	5.00	0.00	0.00	0.00
4.15	0.40	0.49	5.00	0.00	0.00	0.00
4.20	0.40	0.49	5.00	0.00	0.00	0.00
4.25	0.40	0.49	5.00	0.00	0.00	0.00
4.30	0.40	0.49	5.00	0.00	0.00	0.00
4.35	0.40	0.49	5.00	0.00	0.00	0.00
4.40	0.40	0.49	5.00	0.00	0.00	0.00
4.45	0.40	0.49	5.00	0.00	0.00	0.00
4.50	0.40	0.49	5.00	0.00	0.00	0.00
4.55	0.40	0.49	5.00	0.00	0.00	0.00
4.60	0.40	0.49	5.00	0.00	0.00	0.00
4.65	0.40	0.49	5.00	0.00	0.00	0.00
4.70	0.40	0.49	5.00	0.00	0.00	0.00
4.75	0.40	0.49	5.00	0.00	0.00	0.00
4.80	0.40	0.49	5.00	0.00	0.00	0.00
4.85	0.40	0.49	5.00	0.00	0.00	0.00
4.90	0.40	0.49	5.00	0.00	0.00	0.00
4.95	0.40	0.49	5.00	0.00	0.00	0.00
5.00	0.40	0.49	0.81*	0.00	0.00	0.00
5.05	0.40	0.49	0.81*	0.00	0.00	0.00
5.10	0.40	0.50	0.80*	0.00	0.00	0.00
5.15	0.40	0.50	0.80*	0.00	0.00	0.00
5.20	0.40	0.50	0.80*	0.00	0.00	0.00
5.25	0.40	0.50	0.79*	0.00	0.00	0.00
5.30	0.40	0.50	0.79*	0.00	0.00	0.00
5.35	0.40	0.51	0.79*	0.00	0.00	0.00
5.40	0.40	0.51	0.78*	0.00	0.00	0.00
5.45	0.40	0.51	0.78*	0.00	0.00	0.00
5.50	0.40	0.51	0.78*	0.00	0.00	0.00
5.55	0.40	0.51	0.77*	0.00	0.00	0.00
5.60	0.40	0.52	0.77*	0.00	0.00	0.00
5.65	0.40	0.52	0.77*	0.00	0.00	0.00
5.70	0.40	0.52	0.76*	0.00	0.00	0.00
5.75	0.40	0.52	0.76*	0.00	0.00	0.00
5.80	0.40	0.52	0.76*	0.00	0.00	0.00
5.85	0.40	0.53	0.76*	0.00	0.00	0.00
5.90	0.40	0.53	0.75*	0.00	0.00	0.00
5.95	0.40	0.53	0.75*	0.00	0.00	0.00
6.00	0.40	0.53	0.75*	0.00	0.00	0.00
6.05	0.40	0.53	0.75*	0.00	0.00	0.00
6.10	0.40	0.53	0.74*	0.00	0.00	0.00
6.15	0.40	0.54	0.74*	0.00	0.00	0.00
6.20	0.40	0.54	0.74*	0.00	0.00	0.00

6.25	0.40	0.54	0.74*	0.00	0.00	0.00
6.30	0.40	0.54	0.73*	0.00	0.00	0.00
6.35	0.40	0.54	0.73*	0.00	0.00	0.00
6.40	0.40	0.55	0.73*	0.00	0.00	0.00
6.45	0.40	0.55	0.73*	0.00	0.00	0.00
6.50	0.40	0.55	0.72*	0.00	0.00	0.00
6.55	0.40	0.55	0.72*	0.00	0.00	0.00
6.60	0.40	0.55	0.72*	0.00	0.00	0.00
6.65	0.40	0.55	0.72*	0.00	0.00	0.00
6.70	0.40	0.56	0.72*	0.00	0.00	0.00
6.75	0.40	0.56	0.71*	0.00	0.00	0.00
6.80	0.40	0.56	0.71*	0.00	0.00	0.00
6.85	0.40	0.56	0.71*	0.00	0.00	0.00
6.90	0.40	0.56	0.71*	0.00	0.00	0.00
6.95	0.40	0.56	0.71*	0.00	0.00	0.00
7.00	0.40	0.57	0.70*	0.00	0.00	0.00
7.05	0.40	0.57	0.70*	0.00	0.00	0.00
7.10	0.40	0.57	0.70*	0.00	0.00	0.00
7.15	0.40	0.57	0.70*	0.00	0.00	0.00
7.20	0.40	0.57	0.70*	0.00	0.00	0.00
7.25	0.40	0.57	0.69*	0.00	0.00	0.00
7.30	0.40	0.57	0.69*	0.00	0.00	0.00
7.35	0.40	0.58	0.69*	0.00	0.00	0.00
7.40	0.40	0.58	0.69*	0.00	0.00	0.00
7.45	0.40	0.58	0.69*	0.00	0.00	0.00
7.50	0.40	0.58	0.69*	0.00	0.00	0.00
7.55	0.40	0.58	0.68*	0.00	0.00	0.00
7.60	0.40	0.58	0.68*	0.00	0.00	0.00
7.65	0.40	0.58	0.68*	0.00	0.00	0.00
7.70	0.40	0.59	0.68*	0.00	0.00	0.00
7.75	0.40	0.59	0.68*	0.00	0.00	0.00
7.80	0.40	0.59	0.67*	0.00	0.00	0.00
7.85	0.40	0.59	0.67*	0.00	0.00	0.00
7.90	0.40	0.59	0.67*	0.00	0.00	0.00
7.95	0.40	0.59	0.67*	0.00	0.00	0.00
8.00	0.40	0.59	0.67*	0.00	0.00	0.00
8.05	0.40	0.60	0.67*	0.00	0.00	0.00
8.10	0.40	0.60	0.67*	0.00	0.00	0.00
8.15	0.40	0.60	0.66*	0.00	0.00	0.00
8.20	0.40	0.60	0.66*	0.00	0.00	0.00
8.25	0.40	0.60	0.66*	0.00	0.00	0.00
8.30	0.40	0.60	0.66*	0.00	0.00	0.00
8.35	0.40	0.60	0.66*	0.00	0.00	0.00
8.40	0.40	0.61	0.66*	0.00	0.00	0.00
8.45	0.40	0.61	0.65*	0.00	0.00	0.00
8.50	0.40	0.61	0.65*	0.00	0.00	0.00
8.55	0.40	0.61	0.65*	0.00	0.00	0.00
8.60	0.40	0.61	0.65*	0.00	0.00	0.00
8.65	0.40	0.61	0.65*	0.00	0.00	0.00
8.70	0.40	0.61	0.65*	0.00	0.00	0.00

8.75	0.40	0.62	0.65*	0.00	0.00	0.00
8.80	0.40	0.62	0.65*	0.00	0.00	0.00
8.85	0.40	0.62	0.64*	0.00	0.00	0.00
8.90	0.40	0.62	0.64*	0.00	0.00	0.00
8.95	0.40	0.62	0.64*	0.00	0.00	0.00
9.00	0.40	0.62	0.64*	0.00	0.00	0.00
9.05	0.40	0.62	0.64*	0.00	0.00	0.00
9.10	0.40	0.62	0.64*	0.00	0.00	0.00
9.15	0.40	0.63	0.64*	0.00	0.00	0.00
9.20	0.40	0.63	0.63*	0.00	0.00	0.00
9.25	0.40	0.63	0.63*	0.00	0.00	0.00
9.30	0.40	0.63	0.63*	0.00	0.00	0.00
9.35	0.40	0.63	0.63*	0.00	0.00	0.00
9.40	0.40	0.63	0.63*	0.00	0.00	0.00
9.45	0.40	0.63	0.63*	0.00	0.00	0.00
9.50	0.40	0.63	0.63*	0.00	0.00	0.00
9.55	0.40	0.64	0.63*	0.00	0.00	0.00
9.60	0.40	0.64	0.62*	0.00	0.00	0.00
9.65	0.40	0.64	0.62*	0.00	0.00	0.00
9.70	0.40	0.64	0.62*	0.00	0.00	0.00
9.75	0.40	0.64	0.62*	0.00	0.00	0.00
9.80	0.40	0.64	0.62*	0.00	0.00	0.00
9.85	0.40	0.64	0.62*	0.00	0.00	0.00
9.90	0.40	0.64	0.62*	0.00	0.00	0.00
9.95	0.40	0.65	0.62*	0.00	0.00	0.00
10.00	0.40	0.65	0.61*	0.00	0.00	0.00
10.05	0.40	0.65	0.61*	0.00	0.00	0.00
10.10	0.40	0.65	0.61*	0.00	0.00	0.00
10.15	0.40	0.65	0.61*	0.00	0.00	0.00
10.20	0.40	0.65	0.61*	0.00	0.00	0.00
10.25	0.40	0.65	0.61*	0.00	0.00	0.00
10.30	0.40	0.65	0.61*	0.00	0.00	0.00
10.35	0.40	0.66	0.61*	0.00	0.00	0.00
10.40	0.40	0.66	0.61*	0.00	0.00	0.00
10.45	0.40	0.66	0.60*	0.00	0.00	0.00
10.50	0.40	0.66	0.60*	0.00	0.00	0.00
10.55	0.40	0.66	0.60*	0.00	0.00	0.00
10.60	0.40	0.66	0.60*	0.00	0.00	0.00
10.65	0.40	0.66	0.60*	0.00	0.00	0.00
10.70	0.40	0.66	0.60*	0.00	0.00	0.00
10.75	0.40	0.66	0.60*	0.00	0.00	0.00
10.80	0.40	0.67	0.60*	0.00	0.00	0.00
10.85	0.40	0.67	0.60*	0.00	0.00	0.00
10.90	0.40	0.67	0.60*	0.00	0.00	0.00
10.95	0.40	0.67	0.59*	0.00	0.00	0.00
11.00	0.40	0.67	0.59*	0.00	0.00	0.00
11.05	0.40	0.67	0.59*	0.00	0.00	0.00
11.10	0.40	0.67	0.59*	0.00	0.00	0.00
11.15	0.40	0.67	0.59*	0.00	0.00	0.00
11.20	0.40	0.67	0.59*	0.00	0.00	0.00

11.25	0.40	0.68	0.59*	0.00	0.00	0.00
11.30	0.40	0.68	0.59*	0.00	0.00	0.00
11.35	0.40	0.68	0.59*	0.00	0.00	0.00
11.40	0.40	0.68	0.59*	0.00	0.00	0.00
11.45	0.40	0.68	0.58*	0.00	0.00	0.00
11.50	0.40	0.68	0.58*	0.00	0.00	0.00
11.55	0.40	0.68	0.58*	0.00	0.00	0.00
11.60	0.40	0.68	0.58*	0.00	0.00	0.00
11.65	0.40	0.68	0.58*	0.00	0.00	0.00
11.70	0.40	0.69	0.58*	0.00	0.00	0.00
11.75	0.40	0.69	0.58*	0.00	0.00	0.00
11.80	0.40	0.69	0.58*	0.00	0.00	0.00
11.85	0.40	0.69	0.58*	0.00	0.00	0.00
11.90	0.40	0.69	0.58*	0.00	0.00	0.00
11.95	0.40	0.69	0.58*	0.00	0.00	0.00
12.00	0.40	0.69	0.58*	0.00	0.00	0.00
12.05	0.40	0.69	0.57*	0.00	0.00	0.00
12.10	0.40	0.69	0.57*	0.00	0.00	0.00
12.15	0.40	0.69	0.57*	0.00	0.00	0.00
12.20	0.40	0.70	0.57*	0.00	0.00	0.00
12.25	0.40	0.70	0.57*	0.00	0.00	0.00
12.30	0.40	0.70	0.57*	0.00	0.00	0.00
12.35	0.40	0.70	0.57*	0.00	0.00	0.00
12.40	0.40	0.70	0.57*	0.00	0.00	0.00
12.45	0.40	0.70	0.57*	0.00	0.00	0.00
12.50	0.40	0.70	0.57*	0.00	0.00	0.00
12.55	0.40	0.70	0.57*	0.00	0.00	0.00
12.60	0.40	0.70	0.57*	0.00	0.00	0.00
12.65	0.40	0.70	0.56*	0.00	0.00	0.00
12.70	0.40	0.71	0.56*	0.00	0.00	0.00
12.75	0.40	0.71	0.56*	0.00	0.00	0.00
12.80	0.40	0.71	0.56*	0.00	0.00	0.00
12.85	0.40	0.71	0.56*	0.00	0.00	0.00
12.90	0.40	0.71	0.56*	0.00	0.00	0.00
12.95	0.40	0.71	0.56*	0.00	0.00	0.00
13.00	0.40	0.71	0.56*	0.00	0.00	0.00
13.05	0.40	0.71	0.56*	0.00	0.00	0.00
13.10	0.40	0.71	0.56*	0.00	0.00	0.00
13.15	0.40	0.71	0.56*	0.00	0.00	0.00
13.20	0.40	0.72	0.56*	0.00	0.00	0.00
13.25	0.40	0.72	0.56*	0.00	0.00	0.00
13.30	0.40	0.72	0.55*	0.00	0.00	0.00
13.35	0.40	0.72	0.55*	0.00	0.00	0.00
13.40	0.40	0.72	0.55*	0.00	0.00	0.00
13.45	0.40	0.72	0.55*	0.00	0.00	0.00
13.50	0.40	0.72	0.55*	0.00	0.00	0.00
13.55	0.40	0.72	0.55*	0.00	0.00	0.00
13.60	0.40	0.72	0.55*	0.00	0.00	0.00
13.65	0.40	0.72	0.55*	0.00	0.00	0.00
13.70	0.40	0.72	0.55*	0.00	0.00	0.00

13.75	0.40	0.73	0.55*	0.00	0.00	0.00
13.80	0.40	0.73	0.55*	0.00	0.00	0.00
13.85	0.40	0.73	0.55*	0.00	0.00	0.00
13.90	0.40	0.73	0.55*	0.00	0.00	0.00
13.95	0.40	0.73	0.55*	0.00	0.00	0.00
14.00	0.40	0.73	0.55*	0.00	0.00	0.00
14.05	0.40	0.73	0.54*	0.00	0.00	0.00
14.10	0.40	0.73	0.54*	0.00	0.00	0.00
14.15	0.40	0.73	0.54*	0.00	0.00	0.00
14.20	0.40	0.73	0.54*	0.00	0.00	0.00
14.25	0.40	0.73	0.54*	0.00	0.00	0.00
14.30	0.40	0.73	0.54*	0.00	0.00	0.00
14.35	0.40	0.74	0.54*	0.00	0.00	0.00
14.40	0.40	0.74	0.54*	0.00	0.00	0.00
14.45	0.40	0.74	0.54*	0.00	0.00	0.00
14.50	0.40	0.74	0.54*	0.00	0.00	0.00
14.55	0.40	0.74	0.54*	0.00	0.00	0.00
14.60	0.40	0.74	0.54*	0.00	0.00	0.00
14.65	0.40	0.74	0.54*	0.00	0.00	0.00
14.70	0.40	0.74	0.54*	0.00	0.00	0.00
14.75	0.40	0.74	0.54*	0.00	0.00	0.00
14.80	0.40	0.74	0.54*	0.00	0.00	0.00
14.85	0.40	0.74	0.53*	0.00	0.00	0.00
14.90	0.40	0.74	0.53*	0.00	0.00	0.00
14.95	0.40	0.75	0.53*	0.00	0.00	0.00
15.00	0.40	0.75	0.53*	0.00	0.00	0.00
15.05	0.40	0.75	0.53*	0.00	0.00	0.00
15.10	0.40	0.75	0.53*	0.00	0.00	0.00
15.15	0.40	0.75	0.53*	0.00	0.00	0.00
15.20	0.40	0.75	0.53*	0.00	0.00	0.00
15.25	0.40	0.75	0.53*	0.00	0.00	0.00
15.30	0.40	0.75	0.53*	0.00	0.00	0.00
15.35	0.40	0.75	0.53*	0.00	0.00	0.00
15.40	0.40	0.75	0.53*	0.00	0.00	0.00
15.45	0.40	0.75	0.53*	0.00	0.00	0.00
15.50	0.40	0.75	0.53*	0.00	0.00	0.00
15.55	0.40	0.76	0.53*	0.00	0.00	0.00
15.60	0.40	0.76	0.53*	0.00	0.00	0.00
15.65	0.40	0.76	0.53*	0.00	0.00	0.00
15.70	0.40	0.76	0.53*	0.00	0.00	0.00
15.75	0.40	0.76	0.52*	0.00	0.00	0.00
15.80	0.40	0.76	0.52*	0.00	0.00	0.00
15.85	0.40	0.76	0.52*	0.00	0.00	0.00
15.90	0.40	0.76	0.52*	0.00	0.00	0.00
15.95	0.40	0.76	0.52*	0.00	0.00	0.00
16.00	0.40	0.76	0.52*	0.00	0.00	0.00
16.05	0.40	0.76	0.52*	0.00	0.00	0.00
16.10	0.40	0.76	0.52*	0.00	0.00	0.00
16.15	0.40	0.76	0.52*	0.00	0.00	0.00
16.20	0.40	0.77	0.52*	0.00	0.00	0.00

16.25	0.40	0.77	0.52*	0.00	0.00	0.00
16.30	0.40	0.77	0.52*	0.00	0.00	0.00
16.35	0.40	0.77	0.52*	0.00	0.00	0.00
16.40	0.40	0.77	0.52*	0.00	0.00	0.00
16.45	0.40	0.77	0.52*	0.00	0.00	0.00
16.50	0.40	0.77	0.52*	0.00	0.00	0.00
16.55	0.40	0.77	0.52*	0.00	0.00	0.00
16.60	0.40	0.77	0.52*	0.00	0.00	0.00
16.65	0.40	0.77	0.52*	0.00	0.00	0.00
16.70	0.40	0.77	0.51*	0.00	0.00	0.00
16.75	0.40	0.77	0.51*	0.00	0.00	0.00
16.80	0.40	0.77	0.51*	0.00	0.00	0.00
16.85	0.40	0.78	0.51*	0.00	0.00	0.00
16.90	0.40	0.78	0.51*	0.00	0.00	0.00
16.95	0.40	0.78	0.51*	0.00	0.00	0.00
17.00	0.40	0.78	0.51*	0.00	0.00	0.00
17.05	0.40	0.78	0.51*	0.00	0.00	0.00
17.10	0.40	0.78	0.51*	0.00	0.00	0.00
17.15	0.40	0.78	0.51*	0.00	0.00	0.00
17.20	0.40	0.78	0.51*	0.00	0.00	0.00
17.25	0.40	0.78	0.51*	0.00	0.00	0.00
17.30	0.40	0.78	0.51*	0.00	0.00	0.00
17.35	0.40	0.78	0.51*	0.00	0.00	0.00
17.40	0.40	0.78	0.51*	0.00	0.00	0.00
17.45	0.40	0.78	0.51*	0.00	0.00	0.00
17.50	0.40	0.78	0.51*	0.00	0.00	0.00
17.55	0.40	0.79	0.51*	0.00	0.00	0.00
17.60	0.40	0.79	0.51*	0.00	0.00	0.00
17.65	0.40	0.79	0.51*	0.00	0.00	0.00
17.70	0.40	0.79	0.51*	0.00	0.00	0.00
17.75	0.40	0.79	0.50*	0.00	0.00	0.00
17.80	0.40	0.79	0.50*	0.00	0.00	0.00
17.85	0.40	0.79	0.50*	0.00	0.00	0.00
17.90	0.40	0.79	0.50*	0.00	0.00	0.00
17.95	0.40	0.79	0.50*	0.00	0.00	0.00
18.00	0.40	0.79	0.50*	0.00	0.00	0.00
18.05	0.40	0.79	0.50*	0.00	0.00	0.00
18.10	0.40	0.79	0.50*	0.00	0.00	0.00
18.15	0.40	0.79	0.50*	0.00	0.00	0.00
18.20	0.40	0.79	0.50*	0.00	0.00	0.00
18.25	0.40	0.80	0.50*	0.00	0.00	0.00
18.30	0.40	0.80	0.50*	0.00	0.00	0.00
18.35	0.40	0.80	0.50*	0.00	0.00	0.00
18.40	0.40	0.80	0.50*	0.00	0.00	0.00
18.45	0.40	0.80	0.50*	0.00	0.00	0.00
18.50	0.40	0.80	0.50*	0.00	0.00	0.00
18.55	0.40	0.80	0.50*	0.00	0.00	0.00
18.60	0.40	0.80	0.50*	0.00	0.00	0.00
18.65	0.40	0.80	0.50*	0.00	0.00	0.00
18.70	0.40	0.80	0.50*	0.00	0.00	0.00

18.75	0.40	0.80	0.50*	0.00	0.00	0.00
18.80	0.40	0.80	0.50*	0.00	0.00	0.00
18.85	0.40	0.80	0.49*	0.00	0.00	0.00
18.90	0.40	0.80	0.49*	0.00	0.00	0.00
18.95	0.40	0.81	0.49*	0.00	0.00	0.00
19.00	0.40	0.81	0.49*	0.00	0.00	0.00
19.05	0.40	0.81	0.49*	0.00	0.00	0.00
19.10	0.40	0.81	0.49*	0.00	0.00	0.00
19.15	0.40	0.81	0.49*	0.00	0.00	0.00
19.20	0.40	0.81	0.49*	0.00	0.00	0.00
19.25	0.40	0.81	0.49*	0.00	0.00	0.00
19.30	0.40	0.81	0.49*	0.00	0.00	0.00
19.35	0.40	0.81	0.49*	0.00	0.00	0.00
19.40	0.40	0.81	0.49*	0.00	0.00	0.00
19.45	0.40	0.81	0.49*	0.00	0.00	0.00
19.50	0.40	0.81	0.49*	0.00	0.00	0.00
19.55	0.40	0.81	0.49*	0.00	0.00	0.00
19.60	0.40	0.81	0.49*	0.00	0.00	0.00
19.65	0.40	0.82	0.49*	0.00	0.00	0.00
19.70	0.40	0.82	0.49*	0.00	0.00	0.00
19.75	0.40	0.82	0.49*	0.00	0.00	0.00
19.80	0.40	0.82	0.49*	0.00	0.00	0.00
19.85	0.40	0.82	0.49*	0.00	0.00	0.00
19.90	0.40	0.82	0.49*	0.00	0.00	0.00
19.95	0.40	0.82	0.49*	0.00	0.00	0.00
20.00	0.40	0.82	0.48*	0.00	0.00	0.00
20.05	0.40	0.82	0.48*	0.00	0.00	0.00
20.10	0.40	0.82	0.48*	0.00	0.00	0.00
20.15	0.40	0.82	0.48*	0.00	0.00	0.00
20.20	0.40	0.82	0.48*	0.00	0.00	0.00
20.25	0.40	0.82	0.48*	0.00	0.00	0.00
20.30	0.40	0.82	0.48*	0.00	0.00	0.00
20.35	0.40	0.82	0.48*	0.00	0.00	0.00
20.40	0.40	0.83	0.48*	0.00	0.00	0.00
20.45	0.40	0.83	0.48*	0.00	0.00	0.00
20.50	0.40	0.83	0.48*	0.00	0.00	0.00
20.55	0.40	0.83	0.48*	0.00	0.00	0.00
20.60	0.40	0.83	0.48*	0.00	0.00	0.00
20.65	0.40	0.83	0.48*	0.00	0.00	0.00
20.70	0.40	0.83	0.48*	0.00	0.00	0.00
20.75	0.40	0.83	0.48*	0.00	0.00	0.00
20.80	0.40	0.83	0.48*	0.00	0.00	0.00
20.85	0.40	0.83	0.48*	0.00	0.00	0.00
20.90	0.40	0.83	0.48*	0.00	0.00	0.00
20.95	0.40	0.83	0.48*	0.00	0.00	0.00
21.00	0.40	0.83	0.48*	0.00	0.00	0.00
21.05	0.40	0.83	0.48*	0.00	0.00	0.00
21.10	0.40	0.83	0.48*	0.00	0.00	0.00
21.15	0.40	0.84	0.48*	0.00	0.00	0.00
21.20	0.40	0.84	0.48*	0.00	0.00	0.00

21.25	0.40	0.84	0.48*	0.00	0.00	0.00
21.30	0.40	0.84	0.48*	0.00	0.00	0.00
21.35	0.40	0.84	0.47*	0.00	0.00	0.00
21.40	0.40	0.84	0.47*	0.00	0.00	0.00
21.45	0.40	0.84	0.47*	0.00	0.00	0.00
21.50	0.40	0.84	0.47*	0.00	0.00	0.00
21.55	0.40	0.84	0.47*	0.00	0.00	0.00
21.60	0.40	0.84	0.47*	0.00	0.00	0.00
21.65	0.40	0.84	0.47*	0.00	0.00	0.00
21.70	0.40	0.84	0.47*	0.00	0.00	0.00
21.75	0.40	0.84	0.47*	0.00	0.00	0.00
21.80	0.40	0.84	0.47*	0.00	0.00	0.00
21.85	0.40	0.84	0.47*	0.00	0.00	0.00
21.90	0.40	0.84	0.47*	0.00	0.00	0.00
21.95	0.40	0.84	0.47*	0.00	0.00	0.00
22.00	0.40	0.85	0.47*	0.00	0.00	0.00
22.05	0.40	0.85	0.47*	0.00	0.00	0.00
22.10	0.40	0.85	0.47*	0.00	0.00	0.00
22.15	0.40	0.85	0.47*	0.00	0.00	0.00
22.20	0.40	0.85	0.47*	0.00	0.00	0.00
22.25	0.40	0.85	0.47*	0.00	0.00	0.00
22.30	0.40	0.85	0.47*	0.00	0.00	0.00
22.35	0.40	0.85	0.47*	0.00	0.00	0.00
22.40	0.40	0.85	0.47*	0.00	0.00	0.00
22.45	0.40	0.85	0.47*	0.00	0.00	0.00
22.50	0.40	0.85	0.47*	0.00	0.00	0.00
22.55	0.40	0.85	0.47*	0.00	0.00	0.00
22.60	0.40	0.85	0.47*	0.00	0.00	0.00
22.65	0.40	0.85	0.47*	0.00	0.00	0.00
22.70	0.40	0.85	0.47*	0.00	0.00	0.00
22.75	0.40	0.85	0.47*	0.00	0.00	0.00
22.80	0.40	0.85	0.47*	0.00	0.00	0.00
22.85	0.40	0.85	0.47*	0.00	0.00	0.00
22.90	0.40	0.86	0.47*	0.00	0.00	0.00
22.95	0.40	0.86	0.46*	0.00	0.00	0.00
23.00	0.40	0.86	0.46*	0.00	0.00	0.00
23.05	0.40	0.86	0.46*	0.00	0.00	0.00
23.10	0.40	0.86	0.46*	0.00	0.00	0.00
23.15	0.40	0.86	0.46*	0.00	0.00	0.00
23.20	0.40	0.86	0.46*	0.00	0.00	0.00
23.25	0.40	0.86	0.46*	0.00	0.00	0.00
23.30	0.40	0.86	0.46*	0.00	0.00	0.00
23.35	0.40	0.86	0.46*	0.00	0.00	0.00
23.40	0.40	0.86	0.46*	0.00	0.00	0.00
23.45	0.40	0.86	0.46*	0.00	0.00	0.00
23.50	0.40	0.86	0.46*	0.00	0.00	0.00
23.55	0.40	0.86	0.46*	0.00	0.00	0.00
23.60	0.40	0.86	0.46*	0.00	0.00	0.00
23.65	0.40	0.86	0.46*	0.00	0.00	0.00
23.70	0.40	0.86	0.46*	0.00	0.00	0.00

23.75	0.40	0.86	0.46*	0.00	0.00	0.00
23.80	0.40	0.86	0.46*	0.00	0.00	0.00
23.85	0.40	0.86	0.46*	0.00	0.00	0.00
23.90	0.40	0.86	0.46*	0.00	0.00	0.00
23.95	0.40	0.87	0.46*	0.00	0.00	0.00
24.00	0.40	0.87	0.46*	0.00	0.00	0.00
24.05	0.40	0.87	0.46*	0.00	0.00	0.00
24.10	0.40	0.87	0.46*	0.00	0.00	0.00
24.15	0.40	0.87	0.46*	0.00	0.00	0.00
24.20	0.40	0.87	0.46*	0.00	0.00	0.00
24.25	0.40	0.87	0.46*	0.00	0.00	0.00
24.30	0.40	0.87	0.46*	0.00	0.00	0.00
24.35	0.40	0.87	0.46*	0.00	0.00	0.00
24.40	0.40	0.87	0.46*	0.00	0.00	0.00
24.45	0.40	0.87	0.46*	0.00	0.00	0.00
24.50	0.40	0.87	0.46*	0.00	0.00	0.00
24.55	0.40	0.87	0.46*	0.00	0.00	0.00
24.60	0.40	0.87	0.46*	0.00	0.00	0.00
24.65	0.40	0.87	0.46*	0.00	0.00	0.00
24.70	0.40	0.87	0.46*	0.00	0.00	0.00
24.75	0.40	0.87	0.46*	0.00	0.00	0.00
24.80	0.40	0.87	0.46*	0.00	0.00	0.00
24.85	0.40	0.87	0.46*	0.00	0.00	0.00
24.90	0.40	0.87	0.46*	0.00	0.00	0.00
24.95	0.40	0.87	0.46*	0.00	0.00	0.00
25.00	0.40	0.87	0.46*	0.00	0.00	0.00
25.05	0.40	0.87	0.45*	0.00	0.00	0.00
25.10	0.40	0.87	0.45*	0.00	0.00	0.00
25.15	0.40	0.88	0.45*	0.00	0.00	0.00
25.20	0.40	0.88	0.45*	0.00	0.00	0.00
25.25	0.40	0.88	0.45*	0.00	0.00	0.00
25.30	0.40	0.88	0.45*	0.00	0.00	0.00
25.35	0.40	0.88	0.45*	0.00	0.00	0.00
25.40	0.40	0.88	0.45*	0.00	0.00	0.00
25.45	0.40	0.88	0.45*	0.00	0.00	0.00
25.50	0.40	0.88	0.45*	0.00	0.00	0.00
25.55	0.40	0.88	0.45*	0.00	0.00	0.00
25.60	0.40	0.88	0.45*	0.00	0.00	0.00
25.65	0.40	0.88	0.45*	0.00	0.00	0.00
25.70	0.40	0.88	0.45*	0.00	0.00	0.00
25.75	0.40	0.88	0.45*	0.00	0.00	0.00
25.80	0.40	0.88	0.45*	0.00	0.00	0.00
25.85	0.40	0.88	0.45*	0.00	0.00	0.00
25.90	0.40	0.88	0.45*	0.00	0.00	0.00
25.95	0.40	0.88	0.45*	0.00	0.00	0.00
26.00	0.40	0.88	0.45*	0.00	0.00	0.00
26.05	0.40	0.88	0.45*	0.00	0.00	0.00
26.10	0.40	0.88	0.45*	0.00	0.00	0.00
26.15	0.40	0.88	0.45*	0.00	0.00	0.00
26.20	0.40	0.88	0.45*	0.00	0.00	0.00

26.25	0.40	0.88	0.45*	0.00	0.00	0.00
26.30	0.40	0.88	0.45*	0.00	0.00	0.00
26.35	0.40	0.88	0.45*	0.00	0.00	0.00
26.40	0.40	0.88	0.45*	0.00	0.00	0.00
26.45	0.40	0.88	0.45*	0.00	0.00	0.00
26.50	0.40	0.89	0.45*	0.00	0.00	0.00
26.55	0.40	0.89	0.45*	0.00	0.00	0.00
26.60	0.40	0.89	0.45*	0.00	0.00	0.00
26.65	0.40	0.89	0.45*	0.00	0.00	0.00
26.70	0.40	0.89	0.45*	0.00	0.00	0.00
26.75	0.40	0.89	0.45*	0.00	0.00	0.00
26.80	0.40	0.89	0.45*	0.00	0.00	0.00
26.85	0.40	0.89	0.45*	0.00	0.00	0.00
26.90	0.40	0.89	0.45*	0.00	0.00	0.00
26.95	0.40	0.89	0.45*	0.00	0.00	0.00
27.00	0.40	0.89	0.45*	0.00	0.00	0.00
27.05	0.40	0.89	0.45*	0.00	0.00	0.00
27.10	0.40	0.89	0.45*	0.00	0.00	0.00
27.15	0.40	0.89	0.45*	0.00	0.00	0.00
27.20	0.40	0.89	0.45*	0.00	0.00	0.00
27.25	0.40	0.89	0.45*	0.00	0.00	0.00
27.30	0.40	0.89	0.45*	0.00	0.00	0.00
27.35	0.40	0.89	0.45*	0.00	0.00	0.00
27.40	0.40	0.89	0.45*	0.00	0.00	0.00
27.45	0.40	0.89	0.45*	0.00	0.00	0.00
27.50	0.40	0.89	0.45*	0.00	0.00	0.00
27.55	0.40	0.89	0.45*	0.00	0.00	0.00
27.60	0.40	0.89	0.45*	0.00	0.00	0.00
27.65	0.40	0.89	0.45*	0.00	0.00	0.00
27.70	0.40	0.89	0.45*	0.00	0.00	0.00
27.75	0.40	0.89	0.45*	0.00	0.00	0.00
27.80	0.40	0.89	0.45*	0.00	0.00	0.00
27.85	0.40	0.89	0.44*	0.00	0.00	0.00
27.90	0.40	0.89	0.44*	0.00	0.00	0.00
27.95	0.40	0.89	0.44*	0.00	0.00	0.00
28.00	0.40	0.89	0.44*	0.00	0.00	0.00
28.05	0.40	0.90	0.44*	0.00	0.00	0.00
28.10	0.40	0.90	0.44*	0.00	0.00	0.00
28.15	0.40	0.90	0.44*	0.00	0.00	0.00
28.20	0.40	0.90	0.44*	0.00	0.00	0.00
28.25	0.40	0.90	0.44*	0.00	0.00	0.00
28.30	0.40	0.90	0.44*	0.00	0.00	0.00
28.35	0.40	0.90	0.44*	0.00	0.00	0.00
28.40	0.40	0.90	0.44*	0.00	0.00	0.00
28.45	0.40	0.90	0.44*	0.00	0.00	0.00
28.50	0.40	0.90	0.44*	0.00	0.00	0.00
28.55	0.40	0.90	0.44*	0.00	0.00	0.00
28.60	0.40	0.90	0.44*	0.00	0.00	0.00
28.65	0.40	0.90	0.44*	0.00	0.00	0.00
28.70	0.40	0.90	0.44*	0.00	0.00	0.00

28.75	0.40	0.90	0.44*	0.00	0.00	0.00
28.80	0.40	0.90	0.44*	0.00	0.00	0.00
28.85	0.40	0.90	0.44*	0.00	0.00	0.00
28.90	0.40	0.90	0.44*	0.00	0.00	0.00
28.95	0.40	0.90	0.44*	0.00	0.00	0.00
29.00	0.40	0.90	0.44*	0.00	0.00	0.00
29.05	0.40	0.90	0.44*	0.00	0.00	0.00
29.10	0.40	0.90	0.44*	0.00	0.00	0.00
29.15	0.40	0.90	0.44*	0.00	0.00	0.00
29.20	0.40	0.90	0.44*	0.00	0.00	0.00
29.25	0.40	0.90	0.44*	0.00	0.00	0.00
29.30	0.40	0.90	0.44*	0.00	0.00	0.00
29.35	0.40	0.90	0.44*	0.00	0.00	0.00
29.40	0.40	0.90	0.44*	0.00	0.00	0.00
29.45	0.40	0.90	0.44*	0.00	0.00	0.00
29.50	0.40	0.90	0.44*	0.00	0.00	0.00
29.55	0.40	0.90	0.44*	0.00	0.00	0.00
29.60	0.40	0.90	0.44*	0.00	0.00	0.00
29.65	0.40	0.90	0.44*	0.00	0.00	0.00
29.70	0.40	0.90	0.44*	0.00	0.00	0.00
29.75	0.40	0.91	0.44*	0.00	0.00	0.00
29.80	0.40	0.91	0.44*	0.00	0.00	0.00
29.85	0.40	0.91	0.44*	0.00	0.00	0.00
29.90	0.40	0.91	0.44*	0.00	0.00	0.00
29.95	0.40	0.91	0.44*	0.00	0.00	0.00
30.00	0.40	0.91	0.44*	0.00	0.00	0.00
30.05	0.40	0.91	0.44*	0.00	0.00	0.00
30.10	0.40	0.91	0.44*	0.00	0.00	0.00
30.15	0.40	0.91	0.44*	0.00	0.00	0.00
30.20	0.40	0.91	0.44*	0.00	0.00	0.00
30.25	0.40	0.91	0.44*	0.00	0.00	0.00
30.30	0.40	0.91	0.44*	0.00	0.00	0.00
30.35	0.40	0.91	0.44*	0.00	0.00	0.00
30.40	0.40	0.91	0.44*	0.00	0.00	0.00
30.45	0.40	0.91	0.44*	0.00	0.00	0.00
30.50	0.40	0.91	0.44*	0.00	0.00	0.00
30.55	0.40	0.91	0.44*	0.00	0.00	0.00
30.60	0.40	0.91	0.44*	0.00	0.00	0.00
30.65	0.40	0.91	0.44*	0.00	0.00	0.00
30.70	0.40	0.91	0.44*	0.00	0.00	0.00
30.75	0.40	0.91	0.44*	0.00	0.00	0.00
30.80	0.40	0.91	0.44*	0.00	0.00	0.00
30.85	0.40	0.91	0.44*	0.00	0.00	0.00
30.90	0.40	0.91	0.44*	0.00	0.00	0.00
30.95	0.40	0.91	0.44*	0.00	0.00	0.00
31.00	0.40	0.91	0.44*	0.00	0.00	0.00
31.05	0.40	0.91	0.44*	0.00	0.00	0.00
31.10	0.40	0.91	0.44*	0.00	0.00	0.00
31.15	0.40	0.91	0.44*	0.00	0.00	0.00
31.20	0.40	0.91	0.44*	0.00	0.00	0.00

31.25	0.40	0.91	0.44*	0.00	0.00	0.00
31.30	0.40	0.91	0.44*	0.00	0.00	0.00
31.35	0.40	0.91	0.44*	0.00	0.00	0.00
31.40	0.40	0.91	0.44*	0.00	0.00	0.00
31.45	0.40	0.91	0.44*	0.00	0.00	0.00
31.50	0.40	0.91	0.44*	0.00	0.00	0.00
31.55	0.40	0.91	0.44*	0.00	0.00	0.00
31.60	0.40	0.91	0.44*	0.00	0.00	0.00
31.65	0.40	0.90	0.44*	0.00	0.00	0.00
31.70	0.40	0.90	0.44*	0.00	0.00	0.00
31.75	0.40	0.90	0.44*	0.00	0.00	0.00
31.80	0.40	0.90	0.44*	0.00	0.00	0.00
31.85	0.40	0.90	0.44*	0.00	0.00	0.00
31.90	0.40	0.90	0.44*	0.00	0.00	0.00
31.95	0.40	0.90	0.44*	0.00	0.00	0.00
32.00	0.40	0.90	0.44*	0.00	0.00	0.00
32.05	0.40	0.90	0.44*	0.00	0.00	0.00
32.10	0.40	0.90	0.44*	0.00	0.00	0.00
32.15	0.40	0.90	0.44*	0.00	0.00	0.00
32.20	0.40	0.90	0.44*	0.00	0.00	0.00
32.25	0.40	0.90	0.44*	0.00	0.00	0.00
32.30	0.40	0.90	0.44*	0.00	0.00	0.00
32.35	0.40	0.90	0.44*	0.00	0.00	0.00
32.40	0.40	0.90	0.44*	0.00	0.00	0.00
32.45	0.40	0.90	0.44*	0.00	0.00	0.00
32.50	0.40	0.90	0.44*	0.00	0.00	0.00
32.55	0.40	0.90	0.44*	0.00	0.00	0.00
32.60	0.40	0.90	0.44*	0.00	0.00	0.00
32.65	0.40	0.90	0.44*	0.00	0.00	0.00
32.70	0.40	0.90	0.44*	0.00	0.00	0.00
32.75	0.40	0.90	0.44*	0.00	0.00	0.00
32.80	0.40	0.90	0.44*	0.00	0.00	0.00
32.85	0.40	0.90	0.44*	0.00	0.00	0.00
32.90	0.40	0.90	0.44*	0.00	0.00	0.00
32.95	0.40	0.90	0.44*	0.00	0.00	0.00
33.00	0.40	0.90	0.44*	0.00	0.00	0.00
33.05	0.40	0.90	0.44*	0.00	0.00	0.00
33.10	0.40	0.90	0.44*	0.00	0.00	0.00
33.15	0.40	0.90	0.44*	0.00	0.00	0.00
33.20	0.40	0.90	0.44*	0.00	0.00	0.00
33.25	0.40	0.90	0.44*	0.00	0.00	0.00
33.30	0.40	0.90	0.44*	0.00	0.00	0.00
33.35	0.40	0.90	0.44*	0.00	0.00	0.00
33.40	0.40	0.90	0.44*	0.00	0.00	0.00
33.45	0.40	0.90	0.44*	0.00	0.00	0.00
33.50	0.39	0.90	0.44*	0.00	0.00	0.00
33.55	0.39	0.90	0.44*	0.00	0.00	0.00
33.60	0.39	0.90	0.44*	0.00	0.00	0.00
33.65	0.39	0.90	0.44*	0.00	0.00	0.00
33.70	0.39	0.90	0.44*	0.00	0.00	0.00

33.75	0.39	0.90	0.44*	0.00	0.00	0.00
33.80	0.39	0.90	0.44*	0.00	0.00	0.00
33.85	0.39	0.90	0.44*	0.00	0.00	0.00
33.90	0.39	0.90	0.44*	0.00	0.00	0.00
33.95	0.39	0.90	0.44*	0.00	0.00	0.00
34.00	0.39	0.90	0.44*	0.00	0.00	0.00
34.05	0.39	0.90	0.44*	0.00	0.00	0.00
34.10	0.39	0.90	0.44*	0.00	0.00	0.00
34.15	0.39	0.90	0.44*	0.00	0.00	0.00
34.20	0.39	0.90	0.44*	0.00	0.00	0.00
34.25	0.39	0.90	0.44*	0.00	0.00	0.00
34.30	0.39	0.90	0.44*	0.00	0.00	0.00
34.35	0.39	0.90	0.44*	0.00	0.00	0.00
34.40	0.39	0.90	0.44*	0.00	0.00	0.00
34.45	0.39	0.90	0.44*	0.00	0.00	0.00
34.50	0.39	0.90	0.44*	0.00	0.00	0.00
34.55	0.39	0.90	0.44*	0.00	0.00	0.00
34.60	0.39	0.90	0.44*	0.00	0.00	0.00
34.65	0.39	0.90	0.44*	0.00	0.00	0.00
34.70	0.39	0.90	0.44*	0.00	0.00	0.00
34.75	0.39	0.90	0.44*	0.00	0.00	0.00
34.80	0.39	0.90	0.44*	0.00	0.00	0.00
34.85	0.39	0.90	0.44*	0.00	0.00	0.00
34.90	0.39	0.90	0.44*	0.00	0.00	0.00
34.95	0.39	0.90	0.44*	0.00	0.00	0.00
35.00	0.39	0.90	0.44*	0.00	0.00	0.00
35.05	0.39	0.90	0.44*	0.00	0.00	0.00
35.10	0.39	0.90	0.44*	0.00	0.00	0.00
35.15	0.39	0.90	0.44*	0.00	0.00	0.00
35.20	0.39	0.90	0.44*	0.00	0.00	0.00
35.25	0.39	0.90	0.44*	0.00	0.00	0.00
35.30	0.39	0.90	0.44*	0.00	0.00	0.00
35.35	0.39	0.90	0.44*	0.00	0.00	0.00
35.40	0.39	0.90	0.44*	0.00	0.00	0.00
35.45	0.39	0.90	0.44*	0.00	0.00	0.00
35.50	0.39	0.90	0.44*	0.00	0.00	0.00
35.55	0.39	0.90	0.44*	0.00	0.00	0.00
35.60	0.39	0.90	0.44*	0.00	0.00	0.00
35.65	0.39	0.90	0.44*	0.00	0.00	0.00
35.70	0.39	0.90	0.44*	0.00	0.00	0.00
35.75	0.39	0.90	0.44*	0.00	0.00	0.00
35.80	0.39	0.90	0.44*	0.00	0.00	0.00
35.85	0.39	0.90	0.44*	0.00	0.00	0.00
35.90	0.39	0.90	0.44*	0.00	0.00	0.00
35.95	0.39	0.90	0.44*	0.00	0.00	0.00
36.00	0.39	0.90	0.44*	0.00	0.00	0.00
36.05	0.39	0.90	0.44*	0.00	0.00	0.00
36.10	0.39	0.90	0.44*	0.00	0.00	0.00
36.15	0.39	0.90	0.44*	0.00	0.00	0.00
36.20	0.39	0.90	0.44*	0.00	0.00	0.00

36.25	0.39	0.90	0.44*	0.00	0.00	0.00
36.30	0.39	0.90	0.44*	0.00	0.00	0.00
36.35	0.39	0.90	0.44*	0.00	0.00	0.00
36.40	0.39	0.90	0.43*	0.00	0.00	0.00
36.45	0.39	0.90	0.43*	0.00	0.00	0.00
36.50	0.39	0.90	0.43*	0.00	0.00	0.00
36.55	0.39	0.90	0.43*	0.00	0.00	0.00
36.60	0.39	0.90	0.43*	0.00	0.00	0.00
36.65	0.39	0.89	0.43*	0.00	0.00	0.00
36.70	0.39	0.89	0.43*	0.00	0.00	0.00
36.75	0.39	0.89	0.43*	0.00	0.00	0.00
36.80	0.39	0.89	0.43*	0.00	0.00	0.00
36.85	0.39	0.89	0.43*	0.00	0.00	0.00
36.90	0.39	0.89	0.43*	0.00	0.00	0.00
36.95	0.39	0.89	0.43*	0.00	0.00	0.00
37.00	0.39	0.89	0.43*	0.00	0.00	0.00
37.05	0.39	0.89	0.43*	0.00	0.00	0.00
37.10	0.39	0.89	0.43*	0.00	0.00	0.00
37.15	0.39	0.89	0.43*	0.00	0.00	0.00
37.20	0.39	0.89	0.43*	0.00	0.00	0.00
37.25	0.39	0.89	0.43*	0.00	0.00	0.00
37.30	0.39	0.89	0.43*	0.00	0.00	0.00
37.35	0.39	0.89	0.43*	0.00	0.00	0.00
37.40	0.39	0.89	0.43*	0.00	0.00	0.00
37.45	0.39	0.89	0.43*	0.00	0.00	0.00
37.50	0.39	0.89	0.43*	0.00	0.00	0.00
37.55	0.39	0.89	0.43*	0.00	0.00	0.00
37.60	0.39	0.89	0.43*	0.00	0.00	0.00
37.65	0.39	0.89	0.43*	0.00	0.00	0.00
37.70	0.39	0.89	0.43*	0.00	0.00	0.00
37.75	0.39	0.89	0.43*	0.00	0.00	0.00
37.80	0.39	0.89	0.43*	0.00	0.00	0.00
37.85	0.39	0.89	0.43*	0.00	0.00	0.00
37.90	0.39	0.89	0.43*	0.00	0.00	0.00
37.95	0.39	0.89	0.43*	0.00	0.00	0.00
38.00	0.39	0.89	0.43*	0.00	0.00	0.00
38.05	0.39	0.89	0.43*	0.00	0.00	0.00
38.10	0.39	0.89	0.43*	0.00	0.00	0.00
38.15	0.39	0.89	0.43*	0.00	0.00	0.00
38.20	0.39	0.89	0.43*	0.00	0.00	0.00
38.25	0.39	0.89	0.43*	0.00	0.00	0.00
38.30	0.39	0.89	0.43*	0.00	0.00	0.00
38.35	0.39	0.89	0.43*	0.00	0.00	0.00
38.40	0.39	0.89	0.43*	0.00	0.00	0.00
38.45	0.39	0.89	0.43*	0.00	0.00	0.00
38.50	0.39	0.89	0.43*	0.00	0.00	0.00
38.55	0.39	0.89	0.43*	0.00	0.00	0.00
38.60	0.39	0.89	0.43*	0.00	0.00	0.00
38.65	0.39	0.89	0.43*	0.00	0.00	0.00
38.70	0.39	0.89	0.43*	0.00	0.00	0.00

38.75	0.39	0.89	0.43*	0.00	0.00	0.00
38.80	0.39	0.89	0.43*	0.00	0.00	0.00
38.85	0.39	0.89	0.43*	0.00	0.00	0.00
38.90	0.39	0.89	0.43*	0.00	0.00	0.00
38.95	0.38	0.89	0.43*	0.00	0.00	0.00
39.00	0.38	0.89	0.43*	0.00	0.00	0.00
39.05	0.38	0.89	0.43*	0.00	0.00	0.00
39.10	0.38	0.89	0.43*	0.00	0.00	0.00
39.15	0.38	0.89	0.43*	0.00	0.00	0.00
39.20	0.38	0.89	0.43*	0.00	0.00	0.00
39.25	0.38	0.89	0.43*	0.00	0.00	0.00
39.30	0.38	0.89	0.43*	0.00	0.00	0.00
39.35	0.38	0.89	0.43*	0.00	0.00	0.00
39.40	0.38	0.89	0.43*	0.00	0.00	0.00
39.45	0.38	0.89	0.43*	0.00	0.00	0.00
39.50	0.38	0.89	0.43*	0.00	0.00	0.00
39.55	0.38	0.89	0.43*	0.00	0.00	0.00
39.60	0.38	0.88	0.43*	0.00	0.00	0.00
39.65	0.38	0.88	0.43*	0.00	0.00	0.00
39.70	0.38	0.88	0.43*	0.00	0.00	0.00
39.75	0.38	0.88	0.43*	0.00	0.00	0.00
39.80	0.38	0.88	0.43*	0.00	0.00	0.00
39.85	0.38	0.88	0.43*	0.00	0.00	0.00
39.90	0.38	0.88	0.43*	0.00	0.00	0.00
39.95	0.38	0.88	0.43*	0.00	0.00	0.00
40.00	0.38	0.88	0.43*	0.00	0.00	0.00
40.05	0.38	0.88	0.43*	0.00	0.00	0.00
40.10	0.38	0.88	0.43*	0.00	0.00	0.00
40.15	0.38	0.88	0.43*	0.00	0.00	0.00
40.20	0.38	0.88	0.43*	0.00	0.00	0.00
40.25	0.38	0.88	0.43*	0.00	0.00	0.00
40.30	0.38	0.88	0.43*	0.00	0.00	0.00
40.35	0.38	0.88	0.43*	0.00	0.00	0.00
40.40	0.38	0.88	0.43*	0.00	0.00	0.00
40.45	0.38	0.88	0.43*	0.00	0.00	0.00
40.50	0.38	0.88	0.43*	0.00	0.00	0.00
40.55	0.38	0.88	0.43*	0.00	0.00	0.00
40.60	0.38	0.88	0.43*	0.00	0.00	0.00
40.65	0.38	0.88	0.43*	0.00	0.00	0.00
40.70	0.38	0.88	0.43*	0.00	0.00	0.00
40.75	0.38	0.88	0.43*	0.00	0.00	0.00
40.80	0.38	0.88	0.43*	0.00	0.00	0.00
40.85	0.38	0.88	0.43*	0.00	0.00	0.00
40.90	0.38	0.88	0.43*	0.00	0.00	0.00
40.95	0.38	0.88	0.43*	0.00	0.00	0.00
41.00	0.38	0.88	0.43*	0.00	0.00	0.00
41.05	0.38	0.88	0.43*	0.00	0.00	0.00
41.10	0.38	0.88	0.43*	0.00	0.00	0.00
41.15	0.38	0.88	0.43*	0.00	0.00	0.00
41.20	0.38	0.88	0.43*	0.00	0.00	0.00

41.25	0.38	0.88	0.43*	0.00	0.00	0.00
41.30	0.38	0.88	0.43*	0.00	0.00	0.00
41.35	0.38	0.88	0.43*	0.00	0.00	0.00
41.40	0.38	0.88	0.43*	0.00	0.00	0.00
41.45	0.38	0.88	0.43*	0.00	0.00	0.00
41.50	0.38	0.88	0.43*	0.00	0.00	0.00
41.55	0.38	0.88	0.43*	0.00	0.00	0.00
41.60	0.38	0.88	0.43*	0.00	0.00	0.00
41.65	0.38	0.88	0.43*	0.00	0.00	0.00
41.70	0.38	0.88	0.43*	0.00	0.00	0.00
41.75	0.38	0.88	0.43*	0.00	0.00	0.00
41.80	0.38	0.88	0.43*	0.00	0.00	0.00
41.85	0.38	0.88	0.43*	0.00	0.00	0.00
41.90	0.38	0.88	0.43*	0.00	0.00	0.00
41.95	0.38	0.88	0.43*	0.00	0.00	0.00
42.00	0.38	0.88	0.43*	0.00	0.00	0.00
42.05	0.38	0.87	0.43*	0.00	0.00	0.00
42.10	0.38	0.87	0.43*	0.00	0.00	0.00
42.15	0.38	0.87	0.43*	0.00	0.00	0.00
42.20	0.38	0.87	0.43*	0.00	0.00	0.00
42.25	0.38	0.87	0.43*	0.00	0.00	0.00
42.30	0.38	0.87	0.43*	0.00	0.00	0.00
42.35	0.38	0.87	0.43*	0.00	0.00	0.00
42.40	0.38	0.87	0.43*	0.00	0.00	0.00
42.45	0.38	0.87	0.43*	0.00	0.00	0.00
42.50	0.38	0.87	0.43*	0.00	0.00	0.00
42.55	0.38	0.87	0.43*	0.00	0.00	0.00
42.60	0.38	0.87	0.43*	0.00	0.00	0.00
42.65	0.38	0.87	0.43*	0.00	0.00	0.00
42.70	0.38	0.87	0.43*	0.00	0.00	0.00
42.75	0.38	0.87	0.43*	0.00	0.00	0.00
42.80	0.38	0.87	0.43*	0.00	0.00	0.00
42.85	0.38	0.87	0.43*	0.00	0.00	0.00
42.90	0.38	0.87	0.43*	0.00	0.00	0.00
42.95	0.38	0.87	0.43*	0.00	0.00	0.00
43.00	0.38	0.87	0.43*	0.00	0.00	0.00
43.05	0.38	0.87	0.43*	0.00	0.00	0.00
43.10	0.38	0.87	0.43*	0.00	0.00	0.00
43.15	0.38	0.87	0.43*	0.00	0.00	0.00
43.20	0.38	0.87	0.43*	0.00	0.00	0.00
43.25	0.38	0.87	0.43*	0.00	0.00	0.00
43.30	0.38	0.87	0.43*	0.00	0.00	0.00
43.35	0.38	0.87	0.43*	0.00	0.00	0.00
43.40	0.38	0.87	0.43*	0.00	0.00	0.00
43.45	0.38	0.87	0.43*	0.00	0.00	0.00
43.50	0.38	0.87	0.43*	0.00	0.00	0.00
43.55	0.38	0.87	0.43*	0.00	0.00	0.00
43.60	0.38	0.87	0.43*	0.00	0.00	0.00
43.65	0.38	0.87	0.43*	0.00	0.00	0.00
43.70	0.38	0.87	0.43*	0.00	0.00	0.00

43.75	0.38	0.87	0.43*	0.00	0.00	0.00
43.80	0.38	0.87	0.43*	0.00	0.00	0.00
43.85	0.38	0.87	0.43*	0.00	0.00	0.00
43.90	0.38	0.87	0.43*	0.00	0.00	0.00
43.95	0.38	0.87	0.43*	0.00	0.00	0.00
44.00	0.38	0.87	0.43*	0.00	0.00	0.00
44.05	0.38	0.87	0.43*	0.00	0.00	0.00
44.10	0.38	0.87	0.43*	0.00	0.00	0.00
44.15	0.38	0.87	0.43*	0.00	0.00	0.00
44.20	0.38	0.87	0.43*	0.00	0.00	0.00
44.25	0.38	0.86	0.43*	0.00	0.00	0.00
44.30	0.38	0.86	0.43*	0.00	0.00	0.00
44.35	0.38	0.86	0.43*	0.00	0.00	0.00
44.40	0.38	0.86	0.43*	0.00	0.00	0.00
44.45	0.38	0.86	0.43*	0.00	0.00	0.00
44.50	0.38	0.86	0.43*	0.00	0.00	0.00
44.55	0.38	0.86	0.43*	0.00	0.00	0.00
44.60	0.38	0.86	0.43*	0.00	0.00	0.00
44.65	0.38	0.86	0.43*	0.00	0.00	0.00
44.70	0.38	0.86	0.43*	0.00	0.00	0.00
44.75	0.37	0.86	0.43*	0.00	0.00	0.00
44.80	0.37	0.86	0.43*	0.00	0.00	0.00
44.85	0.37	0.86	0.43*	0.00	0.00	0.00
44.90	0.37	0.86	0.43*	0.00	0.00	0.00
44.95	0.37	0.86	0.43*	0.00	0.00	0.00
45.00	0.37	0.86	0.43*	0.00	0.00	0.00
45.05	0.37	0.86	0.43*	0.00	0.00	0.00
45.10	0.37	0.86	0.43*	0.00	0.00	0.00
45.15	0.37	0.86	0.43*	0.00	0.00	0.00
45.20	0.37	0.86	0.43*	0.00	0.00	0.00
45.25	0.37	0.86	0.43*	0.00	0.00	0.00
45.30	0.37	0.86	0.43*	0.00	0.00	0.00
45.35	0.37	0.86	0.43*	0.00	0.00	0.00
45.40	0.37	0.86	0.43*	0.00	0.00	0.00
45.45	0.37	0.86	0.44*	0.00	0.00	0.00
45.50	0.37	0.86	0.44*	0.00	0.00	0.00
45.55	0.37	0.86	0.44*	0.00	0.00	0.00
45.60	0.37	0.86	0.44*	0.00	0.00	0.00
45.65	0.37	0.86	0.44*	0.00	0.00	0.00
45.70	0.37	0.86	0.44*	0.00	0.00	0.00
45.75	0.37	0.86	0.44*	0.00	0.00	0.00
45.80	0.37	0.86	0.44*	0.00	0.00	0.00
45.85	0.37	0.86	0.44*	0.00	0.00	0.00
45.90	0.37	0.86	0.44*	0.00	0.00	0.00
45.95	0.37	0.86	0.44*	0.00	0.00	0.00
46.00	0.37	0.86	0.44*	0.00	0.00	0.00
46.05	0.37	0.86	0.44*	0.00	0.00	0.00
46.10	0.37	0.86	0.44*	0.00	0.00	0.00
46.15	0.37	0.86	0.44*	0.00	0.00	0.00
46.20	0.37	0.86	0.44*	0.00	0.00	0.00

46.25	0.37	0.86	0.44*	0.00	0.00	0.00
46.30	0.37	0.85	0.44*	0.00	0.00	0.00
46.35	0.37	0.85	0.44*	0.00	0.00	0.00
46.40	0.37	0.85	0.44*	0.00	0.00	0.00
46.45	0.37	0.85	0.44*	0.00	0.00	0.00
46.50	0.37	0.85	0.44*	0.00	0.00	0.00
46.55	0.37	0.85	0.44*	0.00	0.00	0.00
46.60	0.37	0.85	0.44*	0.00	0.00	0.00
46.65	0.37	0.85	0.44*	0.00	0.00	0.00
46.70	0.37	0.85	0.44*	0.00	0.00	0.00
46.75	0.37	0.85	0.44*	0.00	0.00	0.00
46.80	0.37	0.85	0.44*	0.00	0.00	0.00
46.85	0.37	0.85	0.44*	0.00	0.00	0.00
46.90	0.37	0.85	0.44*	0.00	0.00	0.00
46.95	0.37	0.85	0.44*	0.00	0.00	0.00
47.00	0.37	0.85	0.44*	0.00	0.00	0.00
47.05	0.37	0.85	0.44*	0.00	0.00	0.00
47.10	0.37	0.85	0.44*	0.00	0.00	0.00
47.15	0.37	0.85	0.44*	0.00	0.00	0.00
47.20	0.37	0.85	0.44*	0.00	0.00	0.00
47.25	0.37	0.85	0.44*	0.00	0.00	0.00
47.30	0.37	0.85	0.44*	0.00	0.00	0.00
47.35	0.37	0.85	0.44*	0.00	0.00	0.00
47.40	0.37	0.85	0.44*	0.00	0.00	0.00
47.45	0.37	0.85	0.44*	0.00	0.00	0.00
47.50	0.37	0.85	0.44*	0.00	0.00	0.00
47.55	0.37	0.85	0.44*	0.00	0.00	0.00
47.60	0.37	0.85	0.44*	0.00	0.00	0.00
47.65	0.37	0.85	0.44*	0.00	0.00	0.00
47.70	0.37	0.85	0.44*	0.00	0.00	0.00
47.75	0.37	0.85	0.44*	0.00	0.00	0.00
47.80	0.37	0.85	0.44*	0.00	0.00	0.00
47.85	0.37	0.85	0.44*	0.00	0.00	0.00
47.90	0.37	0.85	0.44*	0.00	0.00	0.00
47.95	0.37	0.85	0.44*	0.00	0.00	0.00
48.00	0.37	0.85	0.44*	0.00	0.00	0.00
48.05	0.37	0.85	0.44*	0.00	0.00	0.00
48.10	0.37	0.85	0.44*	0.00	0.00	0.00
48.15	0.37	0.85	0.44*	0.00	0.00	0.00
48.20	0.37	0.84	0.44*	0.00	0.00	0.00
48.25	0.37	0.84	0.44*	0.00	0.00	0.00
48.30	0.37	0.84	0.44*	0.00	0.00	0.00
48.35	0.37	0.84	0.44*	0.00	0.00	0.00
48.40	0.37	0.84	0.44*	0.00	0.00	0.00
48.45	0.37	0.84	0.44*	0.00	0.00	0.00
48.50	0.37	0.84	0.44*	0.00	0.00	0.00
48.55	0.37	0.84	0.44*	0.00	0.00	0.00
48.60	0.37	0.84	0.44*	0.00	0.00	0.00
48.65	0.37	0.84	0.44*	0.00	0.00	0.00
48.70	0.37	0.84	0.44*	0.00	0.00	0.00

48.75	0.37	0.84	0.44*	0.00	0.00	0.00
48.80	0.37	0.84	0.44*	0.00	0.00	0.00
48.85	0.37	0.84	0.44*	0.00	0.00	0.00
48.90	0.37	0.84	0.44*	0.00	0.00	0.00
48.95	0.37	0.84	0.44*	0.00	0.00	0.00
49.00	0.37	0.84	0.44*	0.00	0.00	0.00
49.05	0.37	0.84	0.44*	0.00	0.00	0.00
49.10	0.37	0.84	0.44*	0.00	0.00	0.00
49.15	0.37	0.84	0.44*	0.00	0.00	0.00
49.20	0.37	0.84	0.44*	0.00	0.00	0.00
49.25	0.37	0.84	0.44*	0.00	0.00	0.00
49.30	0.37	0.84	0.44*	0.00	0.00	0.00
49.35	0.37	0.84	0.44*	0.00	0.00	0.00
49.40	0.37	0.84	0.44*	0.00	0.00	0.00
49.45	0.37	0.84	0.44*	0.00	0.00	0.00
49.50	0.37	0.84	0.44*	0.00	0.00	0.00
49.55	0.37	0.84	0.44*	0.00	0.00	0.00
49.60	0.37	0.84	0.44*	0.00	0.00	0.00
49.65	0.37	0.84	0.44*	0.00	0.00	0.00
49.70	0.37	0.84	0.44*	0.00	0.00	0.00
49.75	0.37	0.84	0.44*	0.00	0.00	0.00
49.80	0.37	0.84	0.44*	0.00	0.00	0.00
49.85	0.37	0.84	0.44*	0.00	0.00	0.00
49.90	0.37	0.84	0.44*	0.00	0.00	0.00
49.95	0.37	0.83	0.44*	0.00	0.00	0.00
50.00	0.37	0.83	0.44*	0.00	0.00	0.00
50.05	0.37	0.83	0.44*	0.00	0.00	0.00
50.10	0.37	0.83	0.44*	0.00	0.00	0.00
50.15	0.37	0.83	0.44*	0.00	0.00	0.00
50.20	0.37	0.83	0.44*	0.00	0.00	0.00
50.25	0.37	0.83	0.44*	0.00	0.00	0.00
50.30	0.37	0.83	0.44*	0.00	0.00	0.00
50.35	0.37	0.83	0.44*	0.00	0.00	0.00
50.40	0.37	0.83	0.44*	0.00	0.00	0.00
50.45	0.37	0.83	0.44*	0.00	0.00	0.00
50.50	0.37	0.83	0.44*	0.00	0.00	0.00
50.55	0.37	0.83	0.44*	0.00	0.00	0.00
50.60	0.37	0.83	0.44*	0.00	0.00	0.00
50.65	0.37	0.83	0.44*	0.00	0.00	0.00
50.70	0.37	0.83	0.44*	0.00	0.00	0.00
50.75	0.37	0.83	0.44*	0.00	0.00	0.00
50.80	0.37	0.83	0.44*	0.00	0.00	0.00
50.85	0.37	0.83	0.44*	0.00	0.00	0.00
50.90	0.37	0.83	0.44*	0.00	0.00	0.00
50.95	0.36	0.83	0.44*	0.00	0.00	0.00
51.00	0.36	0.83	0.44*	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, C5R is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0S81tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

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1 atm (atmosphere) = 1 tsf (ton/ft2)

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