



Geotechnical & Environmental Services, Inc.

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**GEOTECHNICAL EVALUATION
SILVER DOLLAR ELEMENTARY SCHOOL
SILVER DOLLAR LANE, RENO, NEVADA
APN: 086-030-57**

**PROJECT NO. R20236851E2r
JUNE 18, 2024**



Prepared for:



Washoe County School District
425 East 9th Street
Reno, Nevada, 89512



June 18, 2024
Project No. R20236851E2r

Mr. Eddy Chacon
Washoe County School District
425 East 9th Street
Reno, Nevada, 89512

RE: *Geotechnical Evaluation*
Silver Dollar Elementary School
Silver Dollar Lane, Reno, Nevada
APN: 086-030-57

Dear Mr. Chacon:

Geotechnical & Environmental Services, Inc. (GES) is pleased to present the Geotechnical Evaluation report for the proposed Silver Dollar Elementary School Project in Reno, Nevada.

The content of this report encompasses the findings of the geologic review, the results of the field exploration and laboratory testing programs, conclusions, and recommendations for the site development.

We appreciate this opportunity to provide our professional services. If you have any questions or comments regarding this information, please feel free to contact our office.

Sincerely,

Geotechnical & Environmental Services, Inc.

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TABLE OF CONTENTS

1. INTRODUCTION	3
1.1. PURPOSE AND RESOURCES.....	3
1.2. PROJECT DESCRIPTION	3
1.3. SITE DESCRIPTION	4
2. GEOTECHNICAL SITE CHARACTERIZATION	4
2.1. GEOLOGY.....	4
2.2. SEISMICITY	5
2.3. LIQUEFACTION	5
2.4. GROUNDWATER.....	6
2.5. FIELD EXPLORATION.....	7
2.5.1. REFRACTION MICRO-TREMOR TESTING	8
2.6. LABORATORY TESTING	9
2.7. FROST SUSCEPTIBILITY.....	9
2.8. SUBSURFACE MATERIALS AND CONDITIONS.....	9
2.8.1. FILL.....	9
2.8.2. NATIVE SOIL.....	10
3. FINDINGS.....	10
4. RECOMMENDATIONS	11
4.1. EARTHWORK.....	11
4.1.1. SITE PREPARATION	11
4.1.2. STRUCTURAL FILL AND BACKFILL SUITABILITY.....	12
4.1.3. FILL PLACEMENT.....	13
4.1.4. OBSERVATION AND TESTING.....	13
4.2. EXCAVATION CONSIDERATIONS	14
4.2.1. TEMPORARY EXCAVATIONS.....	14
4.2.2. SUBGRADE STABILIZATION	15
4.3. SHALLOW FOOTINGS	16
4.4. CONVENTIONALLY REINFORCED SLABS-ON-GRADE	17
4.5. EXTERIOR CONCRETE FLATWORK CONSTRUCTION	18
4.6. ON-SITE FLEXIBLE PAVEMENT SECTIONS	18
4.7. SEISMIC SITE CLASS	19
4.8. LATERAL EARTH PRESSURES ON RETAINING WALLS	20
4.9. SOIL CORROSIVITY.....	21
4.10. FOUNDATION CONSTRUCTION MONITORING.....	22
4.11. DRAINAGE AND MOISTURE PROTECTION.....	22
4.12. PLAN REVIEW	23
4.13. PRE-CONSTRUCTION MEETING.....	23
4.14. CONTINUITY.....	23
5. LIMITATIONS	24
6. REFERENCES	25

TABLES

Table 2.2 Nearby Faults.....	5
Table 2.5 Project Site Boring Summary	8
Table 4.1.2 Imported and/or On-site Structural Fill Recommendations.....	12
Table 4.6 Recommended Minimum Asphalt Concrete Pavement Sections.....	19
Table 4.7 Spectral Response Accelerations and Site Coefficients – Site Class D	20
Table 4.9 Concrete Recommendations for Negligible Sulfate Exposure.....	21

FIGURES

Figure 1.3 Project Site	4
Figure 2.3 Geological Map.....	4
Figure 2.5 On-site Drilling	7

APPENDICES

APPENDIX A – SUBSURFACE STUDY
APPENDIX B – LABORATORY TEST RESULTS
APPENDIX C – DESIGN FIGURES
APPENDIX D – LIQUEFACTION
APPENDIX E – GEOPHYSICAL DATA
APPENDIX F – DESKTOP FAULT INVESTIGATION

EXECUTIVE SUMMARY
SILVER DOLLAR ELEMENTARY SCHOOL
SILVER DOLLAR LANE, RENO, NEVADA
APN: 086-030-57

This Executive Summary is for reference only and is not fully comprehensive of the **findings** and **recommendations** specified in this Geotechnical Evaluation. Select the topics and underlined subjects to go to the appropriate section of the report. GES will not be held responsible for interpretations made by others based solely on the information presented in the Executive Summary. We encourage a full reading and a clear understanding of the conclusions and recommendations presented in the full report.

Topic	Overview
Project Description	The development of an approximate 86,000 square foot, two story elementary school on an approximately 8-acre parcel including multiple parking areas with landscaping, bus lanes, play areas and underground utilities located on Silver Dollar Lane within assessor's parcel number (APN) 086-030-57. The foundation loads are anticipated to be on the order of 5 kips per lineal foot for wall loads and 100 kips for column loads. Final design grades are not known at this time but are anticipated to generally be within 5 feet of existing site grades.
Geotechnical Site Characterization	<u>Groundwater</u> was encountered between 10-feet and 25-feet below existing grade in some of our borings. Based on our analysis of soil properties and calculations discussed in this report the <u>liquefaction potential</u> is low. <u>Seismic Site Class: D.</u>
Earthwork	Excavate deleterious material, topsoil, soft, loose or disturbed native soils from improvement areas. The excavated onsite material is recommended to be removed from the site or processed to meet the recommendations outlined in this report. <i>Periodic</i> observation is recommended for earthwork placement and grading. Import fill or on-site soils may be suitable for <u>structural backfill</u> .
Spread Footing Foundations	Shallow footings are acceptable. Maximum allowable bearing pressure = 3,000 psf Potential total settlement 1 inch or less
Lateral Earth Pressures	If needed, design based on recommendations in this geotechnical report.
Concrete Flatwork	4-inch minimum concrete thickness with 6-inch minimum aggregate base thickness. Concrete should have a design compressive strength of 2,500 psi.

Topic	Overview
Drainage	Positive drainage should be established and maintained away from the proposed structure and existing building.

GEOTECHNICAL EVALUATION
SILVER DOLLAR ELEMENTARY SCHOOL
SILVER DOLLAR LANE, RENO, NEVADA
APN: 086-030-57

1. INTRODUCTION

This report presents the results of a geotechnical evaluation performed by Geotechnical & Environmental Services, Inc. (GES) for the proposed Elementary School in Washoe County, Nevada. Figure A-1 presents a vicinity map showing the approximate location of the site within Reno, Nevada. Figure A-2 present the exploration location map within the project site. The following sections present the purpose and scope of our geotechnical exploration, project and site descriptions, field exploration, and laboratory testing.

1.1. PURPOSE AND RESOURCES

The purpose of our geotechnical study is to evaluate subsurface soils within the proposed project site and provide a design level geotechnical evaluation to aid in the design and construction of the proposed project improvements. The scope of this study included a review of referenced geologic literature and maps, subsurface exploration, soil sampling, laboratory testing of selected soil samples, engineering evaluations, and preparation of this report. The scope of work contained herein is provided in general accordance with our proposal, dated January 10, 2024.

1.2. PROJECT DESCRIPTION

Our understanding of the project is based on correspondence with the client, a review of aerial photographs and documents, and our experience with similar projects. Our design recommendations are based on the 2018 International Building Code (IBC), 2018 Northern Nevada Amendments to the IBC and the Standard Specification for Public Works Construction, (SSPWC) (RTC, 2016 Revision 9).

We understand that the proposed project will include the development of an approximate 86,000-square-foot two story elementary school on an approximately 8-acre parcel, including multiple parking areas with landscaping, bus lanes, play areas and underground utilities located on Silver Dollar Lane within assessor's parcel number (APN) 086-030-57. The foundation loads are anticipated to be on the order of 5 kips per lineal foot for wall loads and 100 kips for column loads. Final design grades are not known at this time but are anticipated to generally be within 5 feet of existing site grades.

1.3. SITE DESCRIPTION

The project site consists of approximately 8 acres of vacant land. The project site is currently undeveloped and consists of dense native brush. The site lies within a residential neighborhood with Silver Dollar Lane to the south, Cloudburst Drive to the west, Desert Sunrise Court to the north, and a natural drainage and walking trail to the east. There are residential houses located in each direction from the site.



Figure 1.3 Project Site

2. GEOTECHNICAL SITE CHARACTERIZATION

The following sections describe the geology, seismicity, liquefaction, mapped soil conditions, field exploration, laboratory testing, and subsurface materials and conditions for the project site.

2.1. GEOLOGY

According to the Preliminary Revised Geologic Maps of the Reno Urban Area, Nevada (Ramelli, A.R., 2011), the project area is within the southwestern portion of the Lemmon Valley and lies northeast of Peavine Peak. Lemmon Valley is physiographically characteristic of the Basin and Range Province with generally northwest-trending parallel mountain ranges and an intervening basin. Quaternary unconsolidated alluvial deposits, derived from the surrounding mountain ranges, fill the valley with sand and gravel sloping down from the mountain fronts towards the valley floor. As described on the referenced map, the project area lies within Older Fan Deposits (Qfo) consisting of Alluvial Deposits.

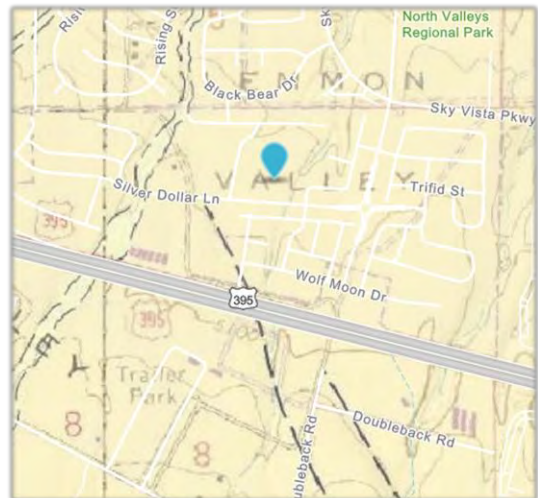


Figure 2.1 Geological Map

2.2. SEISMICITY

Based on a review of the USGS Quaternary Fault Database, accessed on March 28, 2024, the nearest Quaternary-age (last 2.6 million years) fault is located approximately 0.05 miles southwest of the site. Some other nearby mapped Quaternary-age tectonic faults are shown below in Table 2.2.

Table 2.2 Nearby Faults

Fault Name	Approximate Distance from Project Site	Slip Rate (mm/yr)
Peavine Peak Fault Zone	0.05 miles	1.0 to 5.0
Fred's Mountain Fault	0.6 miles	0.2
Unnamed Fault in Lemmon Valley	0.9 miles	0.2

Due to the proximity of the Peavine Peak Fault Zone to the project site, GES performed a desktop fault investigation. During field explorations on May 17, 2024, a GES representative performed a site reconnaissance for this desktop fault investigation. During this time, GES personnel looked for indicators of onsite faulting. The results are provided in a letter which is included as Appendix F.

2.3. LIQUEFACTION

Liquefaction is a phenomenon in which loose, saturated soils lose shear strength under short-term (dynamic) loading conditions. Ground shaking of sufficient duration results in the loss of grain-to-grain contact in potentially liquefiable soils due to a rapid increase in pore water pressure causing the soil to behave as a fluid for a short period of time.

To be potentially liquefiable, a soil is typically cohesionless with a grain-size distribution generally consisting of sand and silt. It is generally loose to medium dense and has a relatively high moisture content, which is typical near or below groundwater level. The potential for liquefaction decreases with increasing clay and gravel content but increases as the ground acceleration and duration of shaking increase. Potentially liquefiable soils need to be subjected to sufficient magnitude and duration of ground shaking for liquefaction to occur.

Effects of liquefaction include relatively large total and differential settlements, flotation of subsurface structures, slope failures, lateral ground displacements (lateral spreading), surface subsidence, ground cracking, and sand boils.

A liquefaction analysis was performed in general accordance with the guidance provided by “Guidelines for Evaluating Liquefaction Hazards in Nevada” as recommended by the 2018 Northern Nevada Amendments to the IBC. The analyses utilized a peak ground acceleration and modal magnitude determined from the United States Geological Survey (USGS) 2014 Interactive Deaggregations Website and the OSHPD Seismic Design Maps, and analyzing exceedance probably of 10% in 50 years for a site class D. The depth of groundwater for the model was selected to be 10 feet based on the groundwater levels observed at the site. The analysis utilized the software LiquifyPro by CivilTech version 5.8 to calculate the Factor of Safety (F.S) against liquefaction triggering and a F.S. of 1.3 (critical structure) was selected based on the guidance provided by the referenced liquefaction hazards document. The results of the analysis indicate the F.S. against liquefaction is greater than 1.3 and therefore liquefaction is not anticipated to occur at the site. The results are presented in Appendix D.

2.4. GROUNDWATER

At the project site, groundwater was encountered in the explorations B-2, B-4 through B-8, and B-11 through B-13 at depths ranging from 10-feet to 25-feet below ground surface (bgs). Groundwater was observed in some borings to rise to depths of 6 feet below current grade after drilling.

Groundwater levels should be anticipated to fluctuate due to seasonal precipitation, groundwater withdrawal and recharge, irrigation practices, and potential future dewatering efforts within and/or near the subject site. A detailed evaluation of possible groundwater fluctuations is beyond the scope of this study. Based on the encountered depth to groundwater, depending on grade changes, it is likely that construction equipment may need special considerations.

2.5. FIELD EXPLORATION

GES evaluated the subsurface conditions within the project site, by drilling 10 borings (B-1 through B-10) on March 12th and March 13th, 2024 and 3 borings on May 17th. Borings B-1, B-3, B-9 and B-10 were drilled to a total depth of approximately 6.5-feet below existing surface, borings B-4, B-5, B-7, B-11 and B-13 were drilled to approximately 31.5-feet below existing surface, and borings B-2, B-6, B-8 and B-12 were drilled to a total depth of approximately 51.5-feet below existing surface. The total depth drilled was approximately 389.5 lineal feet.



Figure 2.5 On-site Drilling

Figure A-2, in Appendix A of this report, shows the approximate drilling locations within the project area. The boring location coordinates (datum NAD 1983 HARN) were recorded by GES staff using a handheld GPS unit and approximate surface elevation estimated from Google Earth. Coordinates and elevations are provided on the exploration logs included in Appendix A.

Borings B-1 through B-13 were drilled with a track mounted CME 55 rig using 6- and 8-inch hollow stem augers. Borings B-9 and the first 26.5-feet of B-6 were drilled using an 8-inch hollow stem auger. Boring B-6 was moved 5-feet east and redrilled to 26.5-feet, with sampling continuing from 30-feet down to 51.5-feet with a 6-inch hollow stem auger due to groundwater being encountered. Boring B-12 was drilled with a 4-inch solid stem auger and then switched to mud rotary drilling. The remainder of the borings were drilled with a 6-inch hollow stem auger. Table 2.5 presents information on each boring conducted at the project site location.

Table 2.5 Project Site Boring Summary

Exploration ID	Depth (ft)	Latitude	Longitude	Ground Elevation (ft)	Equipment	Exploration Size / Type
B-1	6.5	39.620858	-119.871372	5066	CME 55 Track Rig	6-inch Hollow Stem Auger
B-2	51.5	39.620514	-119.871414	5067	CME 55 Track Rig	6-inch Hollow Stem Auger
B-3	6.5	39.620597	-119.870719	5065	CME 55 Track Rig	6-inch Hollow Stem Auger
B-4	31.5	39.620317	-119.871403	5068	CME 55 Track Rig	6-inch Hollow Stem Auger
B-5	31.5	39.620219	-119.870786	5069	CME 55 Track Rig	6-inch Hollow Stem Auger
B-6	51.5	39.620092	-119.8714014	5070	CME 55 Track Rig	8-inch/6-inch Hollow Stem Auger
B-7	31.5	39.620069	-119.871078	5069	CME 55 Track Rig	6-inch Hollow Stem Auger
B-8	51.5	39.620094	-119.870594	5068	CME 55 Track Rig	6-inch Hollow Stem Auger
B-9	6.5	39.619728	-119.871914	5073	CME 55 Track Rig	8-inch Hollow Stem Auger
B-10	6.5	39.619572	-119.870628	5073	CME 55 Track Rig	6-inch Hollow Stem Auger
B-11	31.5	39.6203069	-119.870989	5067	CME 55 Track Rig	6-inch Hollow Stem Auger
B-12	51.5	39.620667	-119.870983	5063	CME 55 Track Rig	4-inch Solid Stem Auger/Mud Rotary
B-13	31.5	39.6207289	-119.8705618	5063	CME 55 Track Rig	6-inch Hollow Stem Auger

A GES representative directed and supervised the subsurface explorations, while maintaining detailed logs of the subsurface conditions, classifying the soils encountered, and obtaining soil samples. The soils encountered were classified in general accordance with the Unified Soil Classification System (USCS). A Key to Symbols and Terms utilized on the exploration logs is presented on Figure No. A-3. The borings are presented in Appendix A.

2.5.1. REFRACTION MICRO-TREMOR TESTING

GES performed one Refraction Microtremor (ReMi) geophysical test on April 16, 2024, to evaluate the seismic site class. The ReMi survey is a non-destructive, geophysical, surface-based test utilized to characterize the shear-wave velocity profile of the subsurface materials to a depth of approximately 100 feet or more. The test uses passive energy wave sources of vibrations from traffic, construction, airplanes, etc.

Figure A-2 in Appendix A presents a site map showing the approximate location of the ReMi survey. The average shear wave velocity to a depth of 100 feet for each test is provided below. Figure E-1 in Appendix E present the graphical results of the survey.

The test results indicate an average shear wave velocity of 978.3 ft/s at the test location which would correlate to a Seismic Site Class D as defined in Table 20.3-1 of ASCE 7-16.

2.6. LABORATORY TESTING

The laboratory testing program consisted of tests to classify the on-site soils and to evaluate engineering and physical properties. The test results are presented on the exploration log in Appendix A and on test reports presented in Appendix B. Detailed descriptions of the laboratory tests performed are also presented in Appendix B.

2.7. FROST SUSCEPTIBILITY

According to the 2018 Northern Nevada Amendments to the International Building Code section 1809.5, soils in Carson, Douglas, Storey, and Washoe counties are susceptible to frost and thaw in the upper 24-inches of soil. It is our recommendation that structural foundations be embedded at least 24-inches below finished grade to avoid movement due to exterior soils freezing and thawing. This is due to a soils ability to heave when moisture in it freezes and expands, increasing pressure.

2.8. SUBSURFACE MATERIALS AND CONDITIONS

The following sections describe the native soils encountered at the site. Detailed information regarding subsurface materials and conditions is presented on the boring logs in Appendix A.

2.8.1. FILL

Fill material was not encountered in the explorations to the depths explored. Fill placed without documentation to indicate that the fill soils were placed under the supervision of a Geotechnical Engineer are considered uncontrolled. The term uncontrolled fill soils refer to artificial fill which was placed without engineering observation, testing, or documentation and is considered unsuitable for the support of project improvements. Our scope did not include an evaluation of existing fill soils or certification of existing fill or improvements.

2.8.2. NATIVE SOIL

At the project site, native soils mainly consisted of moist to wet clayey sands, silty sands, and sandy silts with varying amounts of gravel. The surface material at all boring locations was observed to be silty sand with varying amounts of gravel. Soils encountered in our explorations varied throughout our borings. A detailed description of all soil layers encountered are presented on our boring logs in Appendix A.

3. FINDINGS

Based on the results of our field exploration and laboratory testing programs, it is our opinion that there are no known geologic or geotechnical conditions that would prevent development of the project. It is also our opinion that there are some geotechnical considerations that may affect site development, including the presence of shallow groundwater and clay. A summary of geotechnical considerations is described below.

- Based on our explorations, depth to groundwater may be encountered as shallow as 6-feet below ground surface. Considerations should be given to dewatering for excavations extending 2 feet above groundwater levels.
- The tested onsite soils at the project site have soluble soil chloride content of less than 50 ppm, as evaluated by EPA 9056.
- The tested soils at the project site have a sulfate exposure class S0 as defined in Table 19.3.1.1 of American Concrete Institute (ACI) Publication 318-14.
- The tested soils had a solubility content of 0.06 to 0.1 percent. Based on our experience, soils having solubility laboratory test results less than 2 percent by dry weight soluble solids as determined by American Water Works Association (AWWA) standard test method 2540 C are considered as having a low solubility.
- A desktop fault study has been previously prepared and is included in Appendix F.
- Based on the refraction microtremor data (ReMi), the seismic site class for the project, Seismic Site Class D may be used for design per the 2018 International Building Code (IBC) and in conjunction with ASC 7-16 Table 20.3-1.
- Based on soil properties and geophysical properties at the project site, the potential for liquefaction is low.
- Based on the results of our laboratory testing and our understanding of the subject project, it is our opinion that the level of verification and inspection, should be **periodic** observation during grading.

4. RECOMMENDATIONS

The following sections present recommendations concerning the proposed improvements at the project site. These recommendations are based upon our understanding of the project, the engineering properties of the tested on-site soils, the geologic conditions that are presented in this report, and the assumption that an adequate number of tests and observations will be made during construction to evaluate compliance with these recommendations.

4.1. EARTHWORK

Based on the results of our field exploration and laboratory testing programs, and our stated understanding of the proposed project, it is our opinion that the following earthwork recommendations are applicable to the project.

4.1.1. SITE PREPARATION

If and where encountered, we recommend that the full depth of any on-site undocumented fill, and surficial loose and/or disturbed soils be removed from proposed structure and improvement areas, including building, block retaining/screen wall, pavement, and exterior flatwork areas. These excavated soils may be stockpiled for later use as structural fill or backfill pending evaluation of compliance with the recommendations for structural fill provided in this report. Vegetation and organic topsoil should be excavated and hauled off site.

The geotechnical consultant during construction should observe exposed materials after needed removals of unsuitable materials to evaluate whether additional removal down to competent materials is needed. After removal of materials, the exposed soils should be scarified to 8-inches or more, moisture conditioned to above optimum moisture content and compacted to 90 percent relative compaction as evaluated by ASTM D1557 or be firm and unyielding as determined by the geotechnical consultant by the use of a soil probe with less than 2 inches of penetration. Scarification may terminate on very hard and dense soil if encountered, as evaluated by the geotechnical consultant. The soil preparation area should extend laterally a minimum of 5 feet beyond the edges of buildings and exterior foundations, where practical. For exterior concrete flatwork or asphaltic concrete sections, the soil preparation area should extend laterally at least 2 feet beyond the edges. The vertical and lateral extent of the recommended excavations should be evaluated under the direction of the geotechnical consultant.

4.1.2. STRUCTURAL FILL AND BACKFILL SUITABILITY

Samples of materials proposed for use as structural fill should be submitted to the geotechnical consultant for testing and evaluation prior to being transported to the site. Import material or soil materials used for structural fill for **off-site** improvements should conform to Section 200.01.09 of the Standard Specifications of Public Works Construction (SSPWC). Import material or soil materials used for structural fill for **on-site** improvements should conform to Section 200.01.09 of the Standard Specifications of Public Works Construction (SSPWC) **or** the following requirements:

Table 4.1.2 Imported and/or On-site Structural Fill Recommendations

Description*	Recommendation
4-inch Sieve Gradation**	100 Percent Passing
No. 200 Sieve Gradation**	<35 Passing
Liquid Limit	<35
Plasticity Index	<12
Resistance (R) Value	30 Minimum
Dry Weight Soluble Solids	<2.0% as determined by American Water Works Association (AWWA) Standard Method (SM) 2540 C
Dry Weight Soluble Sulfate	<0.2 % by dry weight soluble sulfate as determined by AWWA SM 4500 SO4 E
Soluble Soil Chloride Content	<500 ppm as determined by AWWA SM 4500-CL B unless appropriate corrosion protection is utilized in the design of proposed structures

* Imported fill materials and excavated on-site material should be free of debris, organic materials, and other deleterious materials.

**Materials used as retaining wall backfill, which should have 10 percent, or less, of material passing the No. 200 sieve and 100 percent passing the 4-inch sieve.

4.1.3. FILL PLACEMENT

Areas to receive structural fill should be prepared prior to fill placement as described in Section 4.1.1 of this report. Fill should be uniformly moisture conditioned to above optimum moisture content, placed in horizontal, loose lifts up to 8 inches thick, and compacted to at least 90 percent of the maximum dry density, as determined by ASTM D1557. The optimal lift thickness of fill will depend on the type of soil and compaction equipment used. Fill placed onto existing slopes of 5:1 (horizontal to vertical) or steeper should be benched into dense to very dense native soil. Fill should not be placed on loose, soft, disturbed or otherwise unsuitable materials left on the slope face. The height of benches and keys should not exceed 3 feet, and the width of benches should be no less than the height. Keys excavated at the bottom of slopes should be at least 6 feet in width to permit the use of suitable compaction equipment and should be excavated down to suitable dense to very dense native soil. Keying and benching operations should be observed by the Geotechnical Engineer or their representative, prior to placement of additional fill.

4.1.4. OBSERVATION AND TESTING

A qualified geotechnical consultant should perform appropriate observation and testing services during grading and construction operations. These services should include observation of removal of soft, loose, or otherwise unsuitable soils, evaluation of subgrade conditions where soil removals are performed, and performance of observation and testing services during placement and compaction of structural fill and backfill soils. In-place density and moisture tests should be performed in accordance with ASTM D6938 or, alternatively, in accordance with ASTM D1556. The test frequency should be at least one test per 500 cubic yards or at least 2 tests per lift of fill material placed, whichever is more. Additional field tests may also be performed in structural and non-structural areas at the discretion of the geotechnical consultant.

Based on the results of our laboratory testing and our understanding of the subject project, it is our opinion that the level of verification and inspection should be periodic observations during earthwork operations.

4.2. EXCAVATION CONSIDERATIONS

The following sections provide recommendations to aid in the successful performance of excavations at the project site and include recommendations regarding temporary excavations. It is the responsibility of the contractor to perform the independent investigations necessary to determine the type of equipment required to perform the work. The contractor should perform a pre-construction survey to establish a baseline survey prior to excavating.

4.2.1. TEMPORARY EXCAVATIONS

Temporary slope surfaces should be kept moist to retard raveling and sloughing. Water should not be allowed to flow over the top of excavations in an uncontrolled manner. Stockpiled material and/or equipment should be kept back from the top of excavations a distance equivalent to the depth of the excavation or more. Workers should be protected from falling debris, sloughing, and raveling in accordance with Occupational Safety and Health Administration (OSHA) regulations. Temporary excavations should be observed by the project's geotechnical consultant so that appropriate additional recommendations may be provided based on the actual field conditions. Temporary excavations are time sensitive, and failures are possible.

Excavations greater than 4 feet in depth into uncemented soils are not anticipated to stand vertically. Excavations greater than 4 feet in depth should be sloped back in accordance with the maximum allowable slope ratios presented in Appendix B to Subpart P of OSHA for the Construction Industry 29 Code of Federal Regulations (CFR), State of Nevada, Division of Occupational Safety and Health, Part 1926. The soil type definitions in Appendix A to Subpart P of OSHA 29 CFR, Part 1926 should be applied to soils encountered in excavations to determine the maximum allowable slope ratio. As an alternative to sloped excavation sidewalls, excavations could be shored and braced. Shoring and bracing should be designed in accordance with Appendices C and D to Subpart P of OSHA 29 CFR, Part 1926. Safety of construction personnel is the responsibility of the contractor.

4.2.2. SUBGRADE STABILIZATION

Groundwater levels were observed in some borings starting at 6 feet below current grade. Excavations to this depth could result in soft unstable subgrade. Dewatering should be considered if excavations extend within 2 feet of groundwater levels. Groundwater elevation should be temporarily lowered at least 2 feet below groundwater elevation, where possible. Temporary dewatering could be accomplished in strategically located trenches with sumps or point wells where water can collect and be pumped into a storage tank or drained away from the site. Consideration for reusing the stored water for on-site moisture conditioning of the structural fill and for dust control is an option provided environmental characterization data is acceptable for reuse.

After dewatering, if unsuitable subgrades are encountered, soils can be stabilized with one or more of the following:

One option, after the water level is lowered and where unstable subgrade conditions are encountered, the subgrade may be stabilized by pushing or tracking rock into the subgrade until stable to provide support of construction equipment. The clean rock should be angular and between 4 inches and 8 inches in nominal size and have less than 5 percent passing the No. 200 sieve. Vibrations, vibratory, and rubber-tired equipment should be avoided at the project site as vibrations tend to bring moisture towards the surface, increasing pore water pressures. Sheep foot rollers should be used, and smooth drums avoided. Rock should be pushed into the subgrade in a manner that allows the subgrade soil to infill voids and avoid nesting of the clean rock. A minimum thickness of 12 inches of clean rock would be anticipated to be needed for subgrade stabilization. The final thickness of stabilization rock needed should be evaluated during construction dependent upon the soil types and subgrade conditions present. After stabilization is achieved, if voids or nesting is observed at the surface, placement of 3/8-inch pea-gravel can be used to fill the voids. The pea-gravel will create a natural filter where filter fabric is not necessary. Structural fill should be placed above the stabilized subgrade in accordance with this Geotechnical Evaluation Report.

As a second option to stabilize subgrade soils, a geogrid such as Tensar TX7 or equivalent can be implemented. If geogrid is used, geogrid placed on wet, soft, pumping subgrade should overlain by 12 inches of crushed rock, riprap, or Class III aggregate. Efforts to reduce moisture in the subgrade and recompact to the maximum possible should still be considered when using geogrid as a subgrade stabilization method.

A third option would include scarifying 12 inches and allowing the subgrade to dry to approximately optimum moisture content before recompacting. There are multiple concerns with this approach that need to be factored into project decisions. It is likely that inclement weather could impact the site and further saturate the soils while they are scarified, greatly increasing the time to dry. It should also be noted that this method at its best case requires additional time compared to the previous options and dewatering should continue while the soils dry.

4.3. SHALLOW FOOTINGS

Shallow footings (e.g. spread and continuous footings) supporting the proposed structure should be supported entirely on native soils or entirely on a zone of properly moisture conditioned and compacted structural fill. All footings rest on similar material. If some footings rest on layers of structural fill then an over excavation requirement will be needed. A 3:1 ratio should be used, rounded up to the nearest 6 inches. For example, if the maximum fill thickness is 3.5 feet for one footing, then a minimum fill blanket of 18 inches (rounded up from 14 inches) would be needed under all other footings. It is anticipated that column loads will be up to 100 kips. Based on these expected loads, spread footings should be at least 12-inches wide and founded at least 24 inches below the lowest adjacent final compacted subgrade and should be reinforced in accordance with the project structural engineer's recommendations. If these design loads are not accurate or smaller spread footings are required, GES should be given the opportunity to re-evaluate our design recommendations.

Footings may be designed based on an allowable net dead plus sustained live load bearing pressure of 2,000 pounds per square foot (psf). The allowable bearing pressure for conventional spread footings may be increased by 600 psf for each additional foot of embedment and/or 300 psf for each additional foot of width up to a maximum allowable pressure of 3,000 psf. The allowable bearing pressures may be increased by one-third for temporary wind or seismic loads. The allowable bearing pressure presented above includes a factor of safety against generalized bearing capacity failure of 3.0.

Resistance to lateral loads may be estimated using both passive lateral earth support and friction developing between footings and underlying soil. Passive resistance may be used if foundation backfill soils in front of the foundation are level and compacted to 90 percent, or more, of the maximum laboratory dry density (ASTM D1557). The upper 12 inches below the ground surface should be neglected if passive resistance is used. The passive lateral earth support for subsurface walls and footings may be estimated based on an equivalent fluid density of 350 pcf up to a maximum passive lateral pressure of 2,000 psf. A coefficient of friction of 0.39 may be used for the interface between the wall footing and underlying properly compacted structural fill. The values for the equivalent fluid density and coefficient of friction presented above do not include a specific factor of safety.

Provided that the earthwork recommendations presented are followed and foundation loads are on the order of 5 kips per lineal foot for wall loads and 100 kips for column loads, settlement is estimated to be less than 1-inch. If structural loads exceed these values, GES should be provided the opportunity to re-evaluate our settlement estimates. Structural loads in excess of these estimates may result in increased settlement that could exceed the design tolerance of the structure.

4.4. CONVENTIONALLY REINFORCED SLABS-ON-GRADE

Unless specifically designed and evaluated by the project structural engineer, we recommend the concrete be a minimum of 6 inches thick and reinforced with No. 3 steel reinforcing bars placed on 18 inches or No. 4 bars placed on 24 inches center-to-center spacing each way, placed at mid-slab depth or ultimately as designed by the project structural engineer. Crack control joints should be spaced at intervals not greater than 10 feet and should be constructed using saw-cuts, or other methods as soon as practical following concrete placement. Crack control joints should extend a minimum depth of one-fourth the slab thickness. The actual reinforcing should be designed by an experienced Structural Engineer based on the anticipated curing, joint spacing and loading conditions.

Aggregate base course materials beneath the floor slab-on-grade should be 6-inches and should consist of Type 2, Class B Aggregate Base materials, or other similar material acceptable to the geotechnical consultant, and be uniformly placed and compacted. The conventionally reinforced slab-on-grade foundation supported on Type 2 Aggregate Base may be designed using a vertical modulus of subgrade reaction (k_{v1}) of 150 pounds per cubic inch. These recommendations are only valid with the assumption that approved structural fill with an R-value greater than 36 is used.

4.5. EXTERIOR CONCRETE FLATWORK CONSTRUCTION

Concrete flatwork should be at least 4 inches in thickness. Aggregate base course materials beneath concrete flatwork should be at least 6 inches in thickness and should consist of Type 2 Aggregate Base or other similar material approved by the Geotechnical Engineer. Aggregate base should be uniformly placed and compacted to at least 95 percent of the maximum dry density.

The existing on-site subgrade soils beneath concrete flatwork should be prepared as described in this report, including moisture-conditioning above optimum moisture, and compacting to at least 90 percent, of the maximum dry density as determined by ASTM D1557 prior to the placement of supportive aggregate base.

Excessive slump (due to a high water-cement ratio) of the concrete and/or improper curing procedures could lead to excessive shrinkage, cracking or curling of slabs and other flatwork. Concrete placement and curing operations should be performed in accordance with the American Concrete Institute (ACI) Manual of Concrete Practice (ACI, 2014).

4.6. ON-SITE FLEXIBLE PAVEMENT SECTIONS

The following sections present non-dedicated pavement sections for the project. Our pavement section design is based on the 2007 publication of the Regional Transportation Commission (RTC) of Washoe County. To form a basis for design of passenger vehicle lanes and parking and school bus loading and parking, we have assumed the following:

- The site will primarily be used by passenger vehicles and school buses. Based on this assumption, a design Equivalent Single Axle Load (ESAL) value of 144,526 is being used for the pavement design assuming 1,000 passenger vehicles and 20 buses per day.
- 20-year design period.
- 85 percent reliability.
- 0.45 standard deviation.

- 4.2 initial serviceability.
- 2.0 terminal serviceability.
- Resilient modulus (MR) of 9,997 pounds per square inch (psi) for a design R-value of 25.
- Structural coefficients of 0.39 for asphalt and 0.12 for aggregate base.

Table 4.6 Recommended Minimum Asphalt Concrete Pavement Sections

Roadway Condition	Asphalt Thickness (Inches)	Type 2 Untreated Aggregate Base Thickness (Inches)
Passenger Vehicle Lanes/Parking	3	6
School Bus Loading/Parking	4	6

The recommended pavement sections assume that exposed on-site soils will consist of suitable native soils and structural fill with an R-value greater than or equal to 25. If soils with R-values less than that described above are observed, GES should be given the opportunity to reevaluate. If traffic loadings are not representative of anticipated traffic, the recommended pavement sections will need to be reevaluated.

Asphaltic concrete material and placement procedures should conform to appropriate sections of the SSPWC. Aggregate materials for asphalt concrete should conform to the requirements for Plant Mix Bituminous Pavements of the SSPWC. The compacted thickness of the asphalt concrete should be as shown on the plans. The Contractor should submit a proposed asphalt concrete mix design to the appropriate jurisdiction for review and evaluation prior to paving.

4.7. SEISMIC SITE CLASS

The following seismic design parameters based on ASCE 7-16 per the 2018 IBC for a Seismic Site Class D may be utilized using representative site coordinates of 39.620069 degrees latitude and -119.871078 degrees longitude with an assumed Risk Category of III:

Table 4.7 Spectral Response Accelerations and Site Coefficients – Site Class D

Spectral Response Acceleration at Short Periods, S_s	Spectral Response Acceleration at 1-Second Period, S_1	Spectral Response Coefficient at Short Periods, SD_s	Spectral Response Coefficient at 1-Second Period, SD_1	MCE_G Peak Ground Acceleration, PGA	Site Modified Peak Ground Acceleration, PGA_M
1.526g	0.519g	1.017g	N/A*	0.65	0.715

*Calculate per Section 11.4.8 of ASCE 7-16

4.8. LATERAL EARTH PRESSURES ON RETAINING WALLS

Retaining elements, if needed for the project, should be designed according to the recommendations in this report. Lateral active earth pressures induced by adjacent uniform surface surcharge loads should be estimated as a uniformly distributed lateral load with a magnitude equal to the magnitude of the surface surcharge load multiplied by an appropriate earth pressure coefficient. GES is presenting earth pressure coefficients for “active” and “at-rest” wall conditions. In the “active” condition the wall is able to deflect such that stresses from the retained soils are lessened. The “at rest” condition considers the walls to be rigid, or restrained, such that the walls do not deflect to lessen stresses from retained soils. Retaining walls with level backfill should be designed to resist the lateral earth pressures for the appropriate conditions presented in Figure C-1.

The values presented in Figure C-1 assume that the build-up of hydrostatic pressure will be prevented. To reduce the build-up of hydrostatic pressure, a wall drainage system, including weep-holes or a footing drainage system, daylighting to an appropriate outlet should be installed behind retaining walls. The wall drainage system should consist of a non-woven geotextile fabric having a maximum average Apparent Opening Size less than 0.43 mm (US Sieve #40) by ASTM D4751 and a minimum grab tensile strength of 120 pounds or more by ASTM D4632 wrapped around drain rock. Alternately, the wall drainage system may include a drain board (e.g., DrainStar Drain Board or equivalent) used in conjunction with a strip drain (e.g., DrainStar Stripdrain by Tremco Barrier Solutions, Inc., or equivalent). The strip drain should be a minimum of 12 inches in height and placed continuously along the bottom of the retaining wall. Figure C-2 presents a diagram of the wall drainage systems described herein.

Resistance to lateral loads for retaining wall foundations may be estimated using both passive lateral earth support and friction developing between the wall footing and underlying soil, as described in this report.

Materials used as retaining wall backfill which should have 10 percent, or less, of material passing the No. 200 sieve and 100 percent passing the 4-inch sieve. Backfill placed behind retaining walls or subsurface walls should consist of structural fill meeting the criteria presented in this report. Backfill placed behind retaining walls should be placed in 8-inch maximum vertical lifts and should be compacted to between 90 and 95 percent of the maximum laboratory dry density as determined per ASTM D1557. Over-compaction adjacent to retaining walls or subsurface walls should be avoided. The lateral earth pressures shown on Figure C-1 assume that compaction behind retaining walls or subsurface walls will be accomplished with relatively light compaction equipment.

4.9. SOIL CORROSIVITY

Based on the results of the reviewed chemical testing, the tested on-site soils have a negligible sulfate exposure as described in Table 19.3.1.1 of American Concrete Institute (ACI) Publication 318-14. In accordance with ACI 318-14, concrete in contact with on-site soils along with subsurface walls up to 12 inches above finished grade be designed as follows:

Table 4.9 Concrete Recommendations for Negligible Sulfate Exposure

Description	Recommendation per ACI 318-14
28- Day Design Compressive Strength	2,500 psi
Maximum water cement ratio	N/A
Cement Type	N/A

If other parameters such as frost exposure require additional concrete parameters, the more conservative value should govern.

In addition, it is recommended that reinforcing bars in cast-against-grade concrete, except for slab-on-grade floors and exterior concrete flatwork, be covered by approximately 3 inches or more of concrete. Structural concrete should be placed in accordance with American Concrete Institute and project specifications.

We recommend that a Corrosion Engineer be consulted for protection recommendations for any buried metal pipe. Metal pipe may be protected by using cathodic protection or pipe coatings and wrappings, or, as an alternative, PVC pipe may be used if allowed by jurisdictional building codes.

4.10. FOUNDATION CONSTRUCTION MONITORING

The performance of the foundation for the proposed structures are dependent upon the quality of construction. Thus, we recommend that the subgrade preparation be monitored by an experienced construction technician with oversight from a licensed Nevada professional civil engineer.

4.11. DRAINAGE AND MOISTURE PROTECTION

Infiltration of water into subsurface soils can lead to soil movement and associated distress, and chemically and physically related deterioration of concrete structures. To reduce the potential for infiltration of moisture into subsurface soils at the site, we recommend the following:

- Positive drainage should be established and maintained away from the proposed building(s). drainage may be established by sloping the ground immediately adjacent to foundations away from building(s) with a slope of at least 5 percent for a distance of at least 10 feet measured perpendicular to the building wall from building foundations. Where physical obstructions prohibit 10-feet of horizontal distance from foundations, a 5 percent slope should be provided to an alternate method of diverting water away from foundations such as swales parallel to the foundations with a flow line slope of at least 1 percent. Impervious surfaces should have a surface gradient of 2 percent or more. Adequate surface drainage should be provided to channel surface water away from on-site structures and to a suitable outlet such as a storm drain or the street. Adequate surface drainage may be enhanced by utilization of graded swales, area drains, and other drainage devices. Surface run-off should not be allowed to pond near structures.
- Adequate surface drainage should be provided to channel surface water away from on-site structures and to a suitable outlet such as a storm drain or the street. Adequate surface drainage may be enhanced by utilization of graded swales, area drains, and other drainage devices. Surface run-off should not be allowed to pond near structures.
- Building roof drains should have downspouts tight lined to an appropriate outlet, such as a storm drain or the street. If tight lining of the downspouts is not practicable, they should discharge 5 feet or more away from the building or onto concrete flatwork or asphalt that slopes away from the structure. Downspouts should not be allowed to discharge onto the ground surface adjacent to building foundations.
- Low-water use (drip irrigated) landscaping is recommended for use on-site, particularly within 5 feet of the building and exterior site improvements, including areas of concrete flatwork and masonry block walls.
- Irrigation heads should be oriented so that they spray away from building and block wall surfaces.
- A relatively impermeable barrier should be placed against retaining structures where retained soil is in contact with the retaining wall so that unsightly staining of the exposed wall face and potential for degradation of the wall will be reduced.

- Graded slopes may be subject to erosion, surface runoff over slopes should be controlled. To reduce the potential for erosion caused by surficial drainage over slopes, swales and/or interceptor drains as described in Section J109 of the 2018 IBC (ICC, 2017) may be placed at the top of the slope.
- The face of slopes should be prepared and maintained to control erosion. Erosion controls should be installed as soon as practical after grading. Erosion control may include ground cover, hardscaping, and/or lightweight, deep rooted landscaping requiring low water use. Whether erosion control measures are used or not, continuous maintenance of slopes will likely be required.
- Paved areas should have a surface gradient of 2 percent, or more. In addition, surface runoff from surrounding areas should be intercepted, collected, and not permitted to flow onto the pavement or to infiltrate the base and subgrade. We recommend that perimeter swales, edge drains, curbs and gutters, or combination of drainage devices, be construed to reduce the adverse effects of surface water runoff.

4.12. PLAN REVIEW

The recommendations presented in this report are based on preliminary design information for the proposed project and on the findings of our geotechnical evaluation. When finished, project grading and foundation plans should be reviewed by the Geotechnical Engineer to evaluate whether the project grading and foundation plans are consistent with the geotechnical design criteria presented in this report. GES would be happy to provide a quote to perform this service.

4.13. PRE-CONSTRUCTION MEETING

We recommend that a pre-construction meeting be held. The owner or the owner's representative, the architect/engineer of record, the contractor, material testing firm, and the geotechnical consultant should be in attendance to discuss the plans and the project.

4.14. CONTINUITY

GES, Inc. is an IAS Accredited Special Inspection Agency that can provide construction materials testing and observations services during the construction of this project. Consideration should be given to the benefit from continuity in service that is provided when the owner's geotechnical consultant is involved in both the design and construction of the project.

5. LIMITATIONS

The recommendations contained in this report are based on field exploration, laboratory testing, research of pertinent maps and literature, and our understanding of the proposed construction. The soil data used in the preparation of this report were obtained from 13 borings performed at the site. It is possible that variation in the soil conditions will exist between the locations explored. Therefore, if any soil conditions are encountered at the site that are different from those outlined in this report, Geotechnical & Environmental Services, Inc. should be immediately notified so that we may review the situation that exists and make supplementary recommendations as needed. In addition, if the scope of the proposed construction, including the types of structures, anticipated loads and maximum cut and fill depths, changes from what is described in this report, our firm should be notified. A detailed excavatability or rippability evaluation is beyond the scope of this study.

The recommendations presented in this report assume that an adequate number of tests and observations will be made during site construction to evaluate compliance with the recommendations. These tests and observations should be provided under the direction of a qualified Geotechnical Engineer. Such testing and observations should include but not be limited to the following:

- Review of site construction plans for conformance with the soils investigation.
- Observation and testing during site preparation, grading, footing and other excavations, and placement of fill, aggregate base, and concrete.
- Consultation as may be required during construction.

Our services were performed using that degree of care and skill ordinarily exercised under similar circumstances by reputable engineering firms in this or similar localities. No other warranties, either express or implied, are included or intended in this report.

6. REFERENCES

American Concrete Institute (ACI), 2014, ACI Manual of Concrete Practice.

American Society for Testing and Materials (ASTM), 2011, Annual Book of ASTM Standards, Section 4 – Construction Volumes 04.02, 04.08, and 04.09

Geotechnical & Environmental Services, Inc., proprietary in-house data

Google Earth, at approximate location 39.620069° latitude and -119.871078° longitude, accessed on March 27, 2024.

International Code Council, 2018 International Building Code (IBC)

Occupational Safety and Health Administration (OSHA), 2002, OSHA Standards for the Construction Industry, 29 CFR Part 1926.

OSHPD Seismic Design Maps; <https://seismicmaps.org/>

Ramelli, A.R., et. al., 2011, Preliminary Revised Geologic Maps of the Reno Urban Area, Nevada, Nevada Bureau of Mines and Geology, 1: 24,000.

State of Nevada Department of Conservation & Natural Resources, Division of Water Resources, 2019, Well Log Database: <http://water.nv.gov/data/welllog/index.cfm>

United States Geological Survey (USGS), Quaternary Faults and Folds Database of the United States:

2018 Northern Nevada Amendments to the IBC

Standard Specifications for Public Works Construction (SSPWC), Regional Transportation Commission of Washoe County, Revision No. 9. 2016.

Regional Transportation Commission of Washoe County (RTC), Flexible Pavement Design Manual, 2007.

APPENDIX A – SUBSURFACE STUDY



Legend

0 37.5 75 150 225 300 Feet



B-11

Approximate Boring Locations - May 2024



Approximate Site Boundary



B-1

Approximate Boring Locations - March 2024



ReMi Line



**GEOTECHNICAL &
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7150 Placid St.
Las Vegas, NV 89119

702-365-1001
www.gesnevada.com

NOTE: Data presented on this map is a compilation of GIS Metadata extracted from a variety of sources. Major Streets, Airports, and Railroads is data obtained from the Southern Nevada GIS Management Office. This data is downloaded by GES for incorporation into drawings generated by GES. Data contained within this page is to be used for informational purposes only. GES has not modified the data contained herein and uses it as it is acquired from the respective agency.

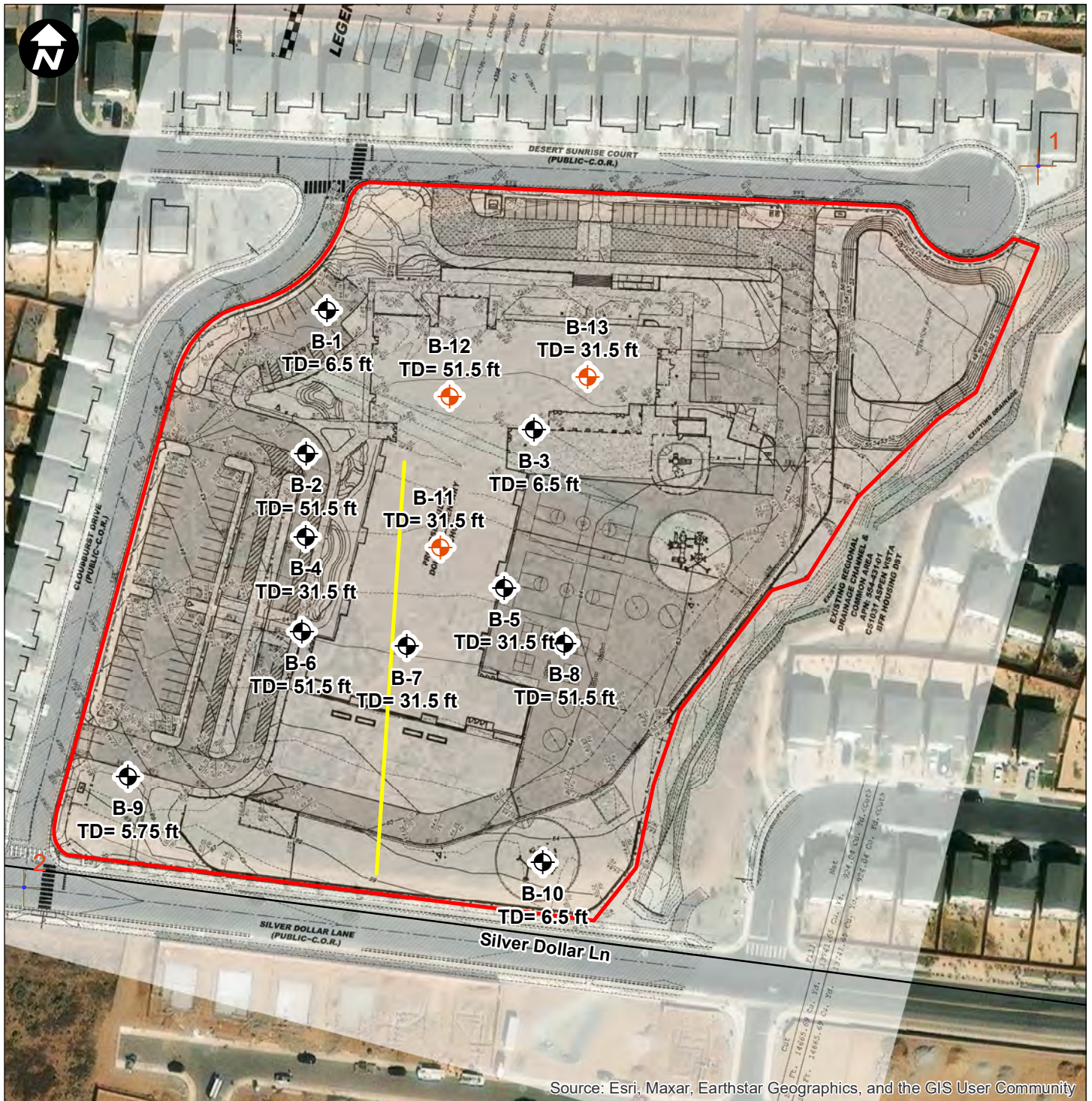
EXPLORATION LOCATION MAP
SILVER DOLLAR ELEMENTARY SCHOOL
SILVER DOLLAR LANE, APN: 086-030-57
RENO, NEVADA

Drawn By:
CDM

Date Drawn:
6/6/2024

Project No.
R20236851E2

Figure No.
A-2



Legend

0 37.5 75 150 225 300 Feet



B-11
Approximate Boring Locations - May 2024



Approximate Site Boundary



B-1
Approximate Boring Locations - March 2024

ReMi Line



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EXPLORATION LOCATION MAP WITH SITE PLAN
SILVER DOLLAR ELEMENTARY SCHOOL
SILVER DOLLAR LANE, APN: 086-030-57
RENO, NEVADA

Drawn By:
CDM

Date Drawn:
6/6/2024

Project No.
R20236851E2

Figure No.
A-2.1

KEY TO SYMBOLS AND TERMS

Terms used according to the Unified Soil Classification System

Consistency or Condition of Soils

Fine-Grained Soils (Silt and Clay): Major portion passing #200 sieve

California Sampler* (blows/foot)	SPT** (blows/foot)	Relative Consistency	Unconfined Compressive Strength (tsf)	Manual Manipulation
< 2	< 2	Very Soft	< 0.25	Thumb will penetrate soil more than 1 in.
2-5	2-4	Soft	0.25-0.50	Thumb will penetrate soil about 1 in.
5-10	4-8	Firm	0.50-1.00	Thumb will penetrate soil about ¼ in.
10-20	8-15	Stiff	1.00-2.00	Thumb will not indent soil but readily indented with thumbnail.
20-40	15-30	Very Stiff	>2.00	Thumbnail will not indent soil.
>40	>30	Hard	>2.00	Thumbnail will not indent soil.

*ASTM D3550 using a 140-pound hammer falling 30 inches.

**ASTM D1586-18

Coarse-Grained Soils (Sand and Gravel): Major portion retained on #200 sieve

California Sampler* (blows/foot)	SPT** (blows/foot)	Relative Density	Behavior of ½-inch Diameter Probe Rod
0-7	0-4	Very Loose	Easily penetrated when pushed by hand.
7-18	4-10	Loose	Firmly penetrated when pushed by hand.
18-50	10-30	Medium Dense	Easily penetrated when driven by 1 lb. hammer.
50-70	30-50	Dense	Penetrated less than 1 inch when driven with a 1 lb. hammer.
>70	>50	Very Dense	Penetrated less than ¼ inch when driven with a 1 lb. hammer.

*ASTM D3550 using a 140-pound hammer falling 30 inches.

**ASTM D1586-18

Cementation	Characteristic
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

Hardness	Characteristic
Moderately Hard	Can be readily scratched by a knife blade; scratch leaves a heavy trace of dust and scratch is readily visible after the powder has been blown away.
Hard	Can be scratched with difficulty; scratch produces little powder and is often faintly visible; traces of the knife steel may be visible.
Very Hard	Cannot be scratched with pocket knife. Leave knife steel marks on surface.

Laboratory Testing Acronyms & Abbreviations

AL = Atterberg Limits
Consol = Consolidation
CBR = California Bearing Ratio




Corr = Corrosion Suite
DS = Direct Shear
MC = Moisture Content

MD = Moisture Content/ Dry Density
OC = Organic Content
PROC = Proctor

R-Val = R-Value
SA = Sieve Analysis
SPG = Specific Gravity

UU = Unconsolidated Undrained Triaxial Test

Misc. Symbols

	Exploration continues
	Initial groundwater depth
	Measured groundwater depth (after 24 hours or more)

Constituent Percentages

Trace - < 5%
Few - 5 to 10%
Little - 15-25%
Some - 30-45%
Mostly - 50-100%


















Moisture Condition

Dry - Visible absence of moisture, dusty, dry to the touch
Moist - Damp but no visible water
Wet - Visible free water, usually soil is below water table







Notes

1. Subsurface explorations were performed using the equipment listed on the exploration logs.
2. Subsurface explorations were performed on the date(s) shown on the exploration logs.
3. Soil sampler(s) were driven with a 140 pound hammer falling 30 inches (unless otherwise noted in the text of this report).
4. The transitions between soil types shown on the exploration logs as occurring abruptly at particular depths in actuality may be a gradual progression from one soil type to the next.
5. Exploration logs are subject to the limitations, conclusions, and recommendations presented in this report.
6. DR = Drilling Rate (min/ft)

Strata Group Symbols

	AC - Asphalt Concrete
	PCC - Portland Cement Concrete
	CL - Low plasticity clay
	CH - High plasticity clay
	CL-ML - Silty low plasticity clay
	ML - Silt
	MH - Elastic silt
	SC - Clayey sand
	SM - Silty sand
	SP - Poorly graded sand
	SW - Well - graded sand
	GC - Clayey Gravel
	GM - Silty gravel
	GP - Poorly graded gravel
	GW - Well - graded gravel
	CSG - Cemented sand and gravel
	CALI - Caliche

Soil Sampler Symbols

	Air Knife
	Bulk Sample
	California Sampler
	Standard Penetration Test
	Core Barrel
	Shelby Tube



Disclaimer

This Key to Symbols and Terms is part of a report prepared by Geotechnical & Environmental Services, Inc. and should be used with the report. The descriptions on the exploration logs apply only at the specific exploration locations and at the time the explorations were made. They are not warranted to be representative of subsurface conditions at other locations or times.

Figure No. A-3



PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E1

PROJECT LOCATION Silver Dollar Lane, Reno NV

DATE STARTED 3/13/24

COMPLETED 3/13/24

GROUND ELEVATION 5066 ft

HOLE SIZE 6 inches

DRILLING CONTRACTOR Taber Drilling

GROUND WATER LEVELS:

DRILLING METHOD Hollow-Stem Auger

AT TIME OF DRILLING Not Encountered

LOGGED BY J. Roybal

DRILLER Taber

AT END OF DRILLING N/A

LAT. 39.620858

LONG. -119.871372

AFTER DRILLING N/A

DEPTH (ft)	SAMPLER TYPE	RECOVERY %	BLOW COUNTS	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0							
					SM		NATIVE: Dark brown silty SAND with gravel, moist, medium dense; roots present. Scattered sagebrush and grass across surface.
		100	9 16 27	MC = 11% LL = 30 PL = 20 Fines = 38%			
5					SC		Light brown clayey SAND with gravel, gravel is approximately 3/4" in size, moist, medium dense; roots and iron oxidation present.
		94	10 10 16				... medium brown, slight decrease in fines.

Bottom of borehole at 6.5 feet.

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made. It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-4



**GEOTECHNICAL &
ENVIRONMENTAL
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BORING NUMBER B-2

PAGE 1 OF 3

PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E1

PROJECT LOCATION Silver Dollar Lane, Reno NV

DATE STARTED 3/12/24

COMPLETED 3/12/24

GROUND ELEVATION 5067 ft

HOLE SIZE 6 inches

DRILLING CONTRACTOR Taber Drilling

GROUND WATER LEVELS:

DRILLING METHOD Hollow-Stem Auger

▽ AT TIME OF DRILLING 10.00 ft / Elev 5057.00 ft

LOGGED BY J. Roybal

DRILLER Taber

AT END OF DRILLING ---

LAT. 39.620514

LONG. -119.871414

AFTER DRILLING ---

GENERAL BH/TP/WELL - GES - GEOTECHNICAL STD GDT - 4/17/24 13:38 - J:\GES\CLIENTS\RENO OFFICE\PROJECTS\2023\36851E1\GINT\20236851E1.GPJ

DEPTH (ft)	SAMPLER TYPE	RECOVERY %	BLOW COUNTS	TESTS AND REMARKS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0							
					SM		NATIVE: Dark brown silty SAND with gravel, trace cobbles, moist, medium dense. Scattered sagebrush and grass across surface.
		100	16 17 19				... with clay, roots present.
5					SC		Light brown clayey SAND, trace gravel, moist, medium dense.
		89	7 7 10				... fine grained, roots present.
10							
		100	18 23 25	MC = 13% LL = 35 PL = 25 Fines = 53% Consolidation	ML		Light brown sandy SILT, moist, hard; iron oxidation present. ... wet.
15							
		100	14 12 18				
					SW		Light brown well-graded SAND with gravel, wet, dense.
20							... increasing gravel, approximately 3/4" in size, angular.

Soils were classified in general accordance with ASTM D2488
The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made.
It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-5



PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E1

PROJECT LOCATION Silver Dollar Lane, Reno NV

GENERAL BH/TP/WELL - GES - GES_GEOTECHNICAL_STD.GDT - 4/17/24 13:38 - J:\GES\CLIENTS\RENO OFFICE\PROJECTS\2023\R20236851E1\GINT\R20236851E1.GPJ

DEPTH (ft)	SAMPLER TYPE	RECOVERY %	BLOW COUNTS	TESTS AND REMARKS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
20							
		100	21 31 50	MC = 14% DD = 120 pcf LL = 35 PL = 17 Fines = 40% Consolidation			Light brown to orange-ish brown clayey SAND with gravel, moist, very dense; iron oxidation present.
25		100	7 16 24		SC		... increasing sand. ... peat present.
30		100	11 17 32				
							31.0 5036.0 Light brown well-graded SAND, wet, dense.
35		100	29 42 46		SW		35.5 ... very dense. 5031.5
							Reddish-brown lean CLAY with sand, trace gravel, moist, hard; iron oxidation present.
40		100	10 7 11		CL		... wet, peat present.

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made.
It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-5



PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E1

PROJECT LOCATION Silver Dollar Lane, Reno NV

DEPTH (ft)	SAMPLER TYPE	RECOVERY %	BLOW COUNTS	TESTS AND REMARKS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
45					CL		Reddish-brown lean CLAY with sand, trace gravel, moist, hard; iron oxidation present. (continued)
		100	22 43 50/3"				... with gravel.
					SW		Light brown well-graded SAND, trace gravel, wet, very dense.
50							
		100	15 18 18		SC		Light brown clayey SAND, trace gravel, wet, dense.

Bottom of borehole at 51.5 feet.

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made.
It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-5



PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E1

PROJECT LOCATION Silver Dollar Lane, Reno NV

DATE STARTED 3/13/24

COMPLETED 3/13/24

GROUND ELEVATION 5065 ft

HOLE SIZE 6 inches

DRILLING CONTRACTOR Taber Drilling

GROUND WATER LEVELS:

DRILLING METHOD Hollow-Stem Auger

AT TIME OF DRILLING Not Encountered

LOGGED BY J. Roybal

DRILLER Taber

AT END OF DRILLING N/A

LAT. 39.620597

LONG. -119.870719

AFTER DRILLING N/A

DEPTH (ft)	BULK SAMPLE SAMPLER TYPE	RECOVERY %	BLOW COUNTS	REMARKS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0							
				R-value = 36	SM	0.5	NATIVE: Dark brown silty SAND with gravel, moist, medium dense. Scattered sagebrush and grass across surface.
					CL		Dark brown lean CLAY with sand, trace gravel, moist, medium dense; roots present.
		100	6 13 28			2.5	Light brown clayey SAND with gravel, weathered gravel, moist, dense; roots and iron oxidation present.
5					SC		
		89				6.5	

Bottom of borehole at 6.5 feet.

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made.
It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-6



PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E1

PROJECT LOCATION Silver Dollar Lane, Reno NV

DATE STARTED 3/12/24

COMPLETED 3/12/24

GROUND ELEVATION 5068 ft

HOLE SIZE 6 inches

DRILLING CONTRACTOR Taber Drilling

GROUND WATER LEVELS:

DRILLING METHOD Hollow-Stem Auger

▽ AT TIME OF DRILLING 20.00 ft / Elev 5048.00 ft

LOGGED BY J. Roybal

DRILLER Taber

AT END OF DRILLING ---

LAT. 39.620317

LONG. -119.871403

AFTER DRILLING ---

GENERAL BH/TP/WELL - GES - GES_GEOTECHNICAL_STD.GDT - 4/17/24 13:39 - J:\GES\CLIENTS\RENO OFFICE\PROJECTS\2023\B-4\1\INGINT\B-4\1\GES\20236851E1.GPJ

DEPTH (ft)	BULK SAMPLE	SAMPLER TYPE	RECOVERY %	BLOW COUNTS	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0								
					MC = 10%	SM	0.5	NATIVE: Dark brown silty SAND with gravel, moist, medium dense. Scattered sagebrush across surface.
						CL		Dark brown lean CLAY, trace gravel, moist, stiff.
			94	11 11 16			3.0	Light brown silty SAND with gravel, moist, dense; iron oxidation present.
5					MC = 10% LL = NP PL = NP Fines = 28%			... no iron oxidation.
			100	6 21 31		SM		
10								... reddish-brown, medium dense.
			100	8 8 11				
15					MC = 19% LL = 31 PL = 20 Fines = 48%		15.0	Reddish-brown clayey SAND, trace gravel, moist, medium dense.
			100	13 17 23		SC		
20								

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made. It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-7



PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E1

PROJECT LOCATION Silver Dollar Lane, Reno NV

DEPTH (ft)	BULK SAMPLE	SAMPLER TYPE	RECOVERY %	BLOW COUNTS	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
20								
			89	13 18 26		SC		Reddish-brown clayey SAND, trace gravel, moist, medium dense. <i>(continued)</i> ... light brown.
25			100	14 16 18				
						SW		
30			89	12 13 18		SC		

25.5 5042.5
Light brown well-graded SAND, wet, dense.

30.5 5037.5
Light brown clayey SAND, trace gravel, moist, dense.

31.5 5036.5

Bottom of borehole at 31.5 feet.

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made.
It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-7



**GEOTECHNICAL &
ENVIRONMENTAL
SERVICES, INC.**

BORING NUMBER B-5

PAGE 1 OF 2

PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E1

PROJECT LOCATION Silver Dollar Lane, Reno NV

DATE STARTED 3/13/24

COMPLETED 3/13/24

GROUND ELEVATION 5069 ft

HOLE SIZE 6 inches

DRILLING CONTRACTOR Taber Drilling

GROUND WATER LEVELS:

DRILLING METHOD Hollow-Stem Auger

▽ AT TIME OF DRILLING 10.00 ft / Elev 5059.00 ft

LOGGED BY J. Roybal

DRILLER Taber

AT END OF DRILLING ---

LAT. 39.620219

LONG. -119.870786

AFTER DRILLING ---

GENERAL BH/TP/WELL - GES - GES_GEOTECHNICAL_STD.GDT - 4/17/24 13:39 - J:\GES\CLIENTS\RENO OFFICE\PROJECTS\2023\B-5\1E1\GINT\B-5\1E1.GPJ

DEPTH (ft)	SAMPLER TYPE	RECOVERY %	BLOW COUNTS	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0							
					SM	0.5	NATIVE: Dark brown silty SAND with gravel, moist, medium dense. Scattered sagebrush across surface.
							Light brown clayey SAND, trace gravel, weathered gravel, moist, medium dense; roots and iron oxidation present.
		100	5 7 8				
5							... increasing gravel, approximately 3/4" in size.
		100	8 15 23		SC		
10						▽	... wet, increasing fines, increasing plasticity.
		89	7 10 13				
15				MC = 19% LL = 31 PL = 23 Fines = 38%		15.0	5054.0
		100	10 12 17		SM		Reddish-brown silty SAND, trace gravel, moist to wet, medium dense; peat and iron oxidation present.
20						20.0	5049.0

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made.
It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-8



PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E1

PROJECT LOCATION Silver Dollar Lane, Reno NV

DEPTH (ft)	SAMPLER TYPE	RECOVERY %	BLOW COUNTS	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
20							
		100	6 9 11				Light brown clayey SAND, trace gravel, wet, medium dense; iron oxidation present.
25							
		94	8 14 19		SC		... increasing gravel, fine to medium grained sand, dense.
30							
		100	7 9 10				... light brown to reddish-brown, medium dense.
31.5							5037.5

Bottom of borehole at 31.5 feet.

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made.
It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-8



**GEOTECHNICAL &
ENVIRONMENTAL
SERVICES, INC.**

BORING NUMBER B-6

PAGE 1 OF 3

PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E1

PROJECT LOCATION Silver Dollar Lane, Reno NV

DATE STARTED 3/12/24

COMPLETED 3/12/24

GROUND ELEVATION 5070 ft

HOLE SIZE 8 inches

DRILLING CONTRACTOR Taber Drilling

GROUND WATER LEVELS:

DRILLING METHOD Hollow-Stem Auger

▽ AT TIME OF DRILLING 10.00 ft / Elev 5060.00 ft

LOGGED BY J. Roybal

DRILLER Taber

AT END OF DRILLING ---

LAT. 39.620092

LONG. -119.8714014

AFTER DRILLING ---

GENERAL BH/TP/WELL - GES - GEOTECHNICAL - STD GDT - 4/17/24 13:39 - J:\GES\CLIENTS\RENO OFFICE\PROJECTS\2023\B-6\1E1\NGINT\B-6\1E1\GPJ

DEPTH (ft)	BULK SAMPLE	SAMPLER TYPE	RECOVERY %	BLOW COUNTS	TESTS AND REMARKS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0								
					R-value = 25	SM	0.5	NATIVE: Brown silty SAND, moist, medium dense. Scattered sagebrush across surface. Brown clayey SAND, moist, medium dense; roots and iron oxidation present.
			100	8 11 15	MC = 17% DD = 114 pcf LL = 28 PL = 16 Fines = 34%			
5			100	8 17 34		SC		... orange-ish brown, dense. ... with gravel.
10			78	11 16 26	MC = 19% LL = 39 PL = 26 Fines = 54%		10.0	Brown sandy SILT, trace gravel, wet and hard; iron oxidation present.
						ML		
15			100	18 21 27			15.0	Brown silty SAND, trace gravel, wet and very dense; iron oxidation present.
						SM		
20								

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made.
It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-9



PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E1

PROJECT LOCATION Silver Dollar Lane, Reno NV

DEPTH (ft)	BULK SAMPLE	SAMPLER TYPE	RECOVERY %	BLOW COUNTS	TESTS AND REMARKS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
20								
			44	6 15 16				Brown silty SAND, trace gravel, wet and very dense; iron oxidation present. (continued)
25			100	11 25 35				... trace gravel.
								... moved boring 5 feet east and switched to 6" HSA.
30			100	10 13 16		SM		... medium dense, increasing grain size.
35			100	14 23 29				... moist, dense.
40			100	7 15 19		CL		Orange-ish brown sandy lean CLAY, trace gravel, wet, dense; iron oxidation present.

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made.
It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-9



PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E1

PROJECT LOCATION Silver Dollar Lane, Reno NV

DEPTH (ft)	BULK SAMPLE	SAMPLER TYPE	RECOVERY %	BLOW COUNTS	TESTS AND REMARKS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
45						CL		Orange-ish brown sandy lean CLAY, trace gravel, wet, dense; iron oxidation present. (continued)
			100	21 17 20				
50						SC		Reddish-brown clayey SAND, trace gravel, moist, dense; increase in grain size.
			83	26 38 50				... brown, very dense, increase in gravel size.

Bottom of borehole at 51.5 feet.

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made.
It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-9



PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E1

PROJECT LOCATION Silver Dollar Lane, Reno NV

DATE STARTED 3/13/24

COMPLETED 3/13/24

GROUND ELEVATION 5069 ft

HOLE SIZE 6 inches

DRILLING CONTRACTOR Taber Drilling

GROUND WATER LEVELS:

DRILLING METHOD Hollow-Stem Auger

▽ AT TIME OF DRILLING 17.00 ft / Elev 5052.00 ft

LOGGED BY J. Roybal

DRILLER Taber

AT END OF DRILLING ---

LAT. 39.620069

LONG. -119.871078

AFTER DRILLING ---

GENERAL BH/TP/WELL - GES - GEOTECHNICAL - STD GDT - 4/17/24 13:39 - J:\GES\CLIENTS\RENO OFFICE\PROJECTS\2023\1R20236851E1\GINT\TR20236851E1.GPJ

DEPTH (ft)	BULK SAMPLE	SAMPLER TYPE	RECOVERY %	BLOW COUNTS	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0								
					MC = 10%	SM		NATIVE: Brown to dark brown silty SAND, moist, medium dense. Scattered sagebrush across surface.
								... with gravel.
			100	5 12 21				3.0 5066.0
								Light brown clayey SAND with gravel, moist, medium dense; iron oxidation present.
5			89	8 9 12				... increasing grain size, increasing sand and weathered gravel present.
10			100	20 27 24		SC		... light brown to reddish-brown, dense, decreasing sand, increasing fines, increasing gravel approximately 3/4" in size.
15			100	10 13 17				... decreasing gravel, decayed vegetation present.
20								▽

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made. It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-10



PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E1

PROJECT LOCATION Silver Dollar Lane, Reno NV

DEPTH (ft)	BULK SAMPLE	SAMPLER TYPE	RECOVERY %	BLOW COUNTS	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
20								
			94	9 9 12	MC = 17% LL = 28 PL = 17 Fines = 25%			Light brown clayey SAND with gravel, moist, medium dense; iron oxidation present. (continued) ... wet, medium dense.
25			100	10 14 17		SC		
30			100	9 15 16				
						SW		
							31.0	5038.0
							31.5	5037.5
								Light brown well-graded SAND, trace clay, wet, dense.
								Bottom of borehole at 31.5 feet.

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made.
It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-10



**GEOTECHNICAL &
ENVIRONMENTAL
SERVICES, INC.**

BORING NUMBER B-8

PAGE 1 OF 3

PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E1

PROJECT LOCATION Silver Dollar Lane, Reno NV

DATE STARTED 3/13/24

COMPLETED 3/13/24

GROUND ELEVATION 5068 ft

HOLE SIZE 6 inches

DRILLING CONTRACTOR Taber Drilling

GROUND WATER LEVELS:

DRILLING METHOD Hollow-Stem Auger

▽ AT TIME OF DRILLING 25.00 ft / Elev 5043.00 ft

LOGGED BY J. Roybal

DRILLER Taber

AT END OF DRILLING ---

LAT. 39.620094

LONG. -119.870594

AFTER DRILLING ---

GENERAL BH/TP/WELL - GES - GES_GEOTECHNICAL_STD.GDT - 4/17/24 13:39 - J:\GES\CLIENTS\RENO OFFICE\PROJECTS\2023\B-8\B-8_1E1.GPJ

DEPTH (ft)	BULK SAMPLE SAMPLER TYPE	RECOVERY %	BLOW COUNTS	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0							
				MC = 9%	SM	0.5	NATIVE: Dark brown silty SAND, moist, medium dense. Scattered sagebrush across surface. 5067.5
		56	7 4 6	MC = 12% LL = 30 PL = 22 Fines = 35%			Dark brown clayey SAND, trace gravel, trace cobbles, moist, medium dense; decayed vegetation present.
5		100	8 15 19				... light brown, iron oxidation present.
10		100	8 13 14		SC		... decayed vegetation and weathered gravel present.
15		100	8 16 23				
20							

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made. It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-11



PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E1

PROJECT LOCATION Silver Dollar Lane, Reno NV

DEPTH (ft)	BULK SAMPLE	SAMPLER TYPE	RECOVERY %	BLOW COUNTS	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
20								
			100	7 6 8	MC = 13% LL = 28 PL = 17 Fines = 41%			Dark brown clayey SAND, trace gravel, trace cobbles, moist, medium dense; decayed vegetation present. (<i>continued</i>)
25			100	17 13 14				... wet, increasing gravel size.
30			89	6 11 14				
35			94	7 8 10				
40			100	10 10 13	MC = 19% LL = 32 PL = 16 Fines = 38%			... medium dense.

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made.
It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-11



PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E1

PROJECT LOCATION Silver Dollar Lane, Reno NV

DEPTH (ft)	BULK SAMPLE	SAMPLER TYPE	RECOVERY %	BLOW COUNTS	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
45								Dark brown clayey SAND, trace gravel, trace cobbles, moist, medium dense; decayed vegetation present. (<i>continued</i>)
			100	8 11 11		SC		
50								
			100	4 7 9	MC = 15% LL = NP PL = 30 Fines = 63%	ML		50.0 5018.0 Reddish-brown sandy SILT, moist, medium dense; iron oxidation present. 51.5 5016.5

Bottom of borehole at 51.5 feet.

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made.
It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-11



CLIENT Washoe County School District

PROJECT LOCATION Silver Dollar Lane, Reno NV

HOLE SIZE 8 inches

DRILLING CONTRACTOR Taber Drilling

GROUND WATER LEVELS:

DRILLING METHOD Hollow-Stem Auger

AT TIME OF DRILLING Not Encountered

LOGGED BY J. Roybal

DRILLER Taber

AT END OF DRILLING N/A

LAT. 39.619728

LONG. -119.871914

AFTER DRILLING N/A

[illegible]

Bottom of borehole at 5.8 feet.

5067.3

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made. It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-12

GENERAL BH/TPWELL - GES - GES - GEOTECHNICAL STD.GDT - 4/17/24 13:39 - J:\GES\CLIENTS\SIRENO OFFICE\PROJECTS\2023\R20233685\1E1\GINT\R20233685\1E1.GPJ



PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E1

PROJECT LOCATION Silver Dollar Lane, Reno NV

DATE STARTED 3/13/24

COMPLETED 3/13/24

GROUND ELEVATION 5073 ft

HOLE SIZE 6 inches

DRILLING CONTRACTOR Taber Drilling

GROUND WATER LEVELS:

DRILLING METHOD Hollow-Stem Auger

AT TIME OF DRILLING Not Encountered

LOGGED BY J. Roybal

DRILLER Taber

AT END OF DRILLING N/A

LAT. 39.619572

LONG. -119.870628

AFTER DRILLING N/A

DEPTH (ft)	BULK SAMPLE SAMPLER TYPE	RECOVERY %	BLOW COUNTS	TESTS AND REMARKS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0							
				R-value = 46	SM	1.0	NATIVE: Dark brown silty SAND with gravel, moist, medium dense; roots present. Scattered sagebrush across surface. 5072.0
					CL	3.0	Dark brown lean CLAY, trace gravel, moist, very stiff; roots present. 5070.0
		100	7 11 24				... light to dark brown.
5					SC	6.5	Light brown clayey SAND, trace gravel, moist, dense; roots and iron oxidation present. 5066.5
		83	12 17 20	MC = 13% LL = 29 PL = 21 Fines = 40%			... increasing sand, medium grained, weathered gravel present.

Bottom of borehole at 6.5 feet.

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made. It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-13



CLIENT Washoe County School District

PROJECT LOCATION Silver Dollar Lane, Reno Nevada

GROUND ELEVATION 5067 ft **HOLE SIZE** 6 inches

GROUND WATER LEVELS:

▽ AT TIME OF DRILLING 20.00 ft / Elev 5047.00 ft

AT END OF DRILLING ---

 AFTER DRILLING 6.00 ft / Elev 5061.00 ft

GENERAL BH/TPWELL - GES - GES GEOTECHNICAL STD.GDT - 6/10/24 10:46 - J:\GES\CLIENTS\RENO OFFICE\PROJECTS\2023\R20236885\I\E2 - REVISED GEO EVAL\GINT\IR20236885\I\E2.GPJ

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made. It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-14



PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E2

PROJECT LOCATION Silver Dollar Lane, Reno Nevada

DEPTH (ft)	SAMPLER TYPE	RECOVERY %	BLOW COUNTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
20						
		100	4 6 9	CL		Brown sandy lean CLAY, moist, stiff. (continued) ... wet.
						22.5 5044.5
						Brown clayey SAND with gravel, coarse sand and gravel, wet, medium dense.
25		100	8 11 15	SC		
30		100	7 8 12			... approximately 30% clay.
						31.5 5035.5

Bottom of borehole at 31.5 feet.

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made.
It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-14



PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E2

PROJECT LOCATION Silver Dollar Lane, Reno Nevada

DATE STARTED 5/17/24 COMPLETED 5/17/24

GROUND ELEVATION 5063 ft HOLE SIZE 4 inches

DRILLING CONTRACTOR Taber Drilling

GROUND WATER LEVELS:

DRILLING METHOD Solid-Stem Auger/Mud Rotary

▽ AT TIME OF DRILLING 15.00 ft / Elev 5048.00 ft

LOGGED BY Z. Bower DRILLER Taber

AT END OF DRILLING ---

LAT. 39.620667 LONG. -119.870983

▽ AFTER DRILLING 6.00 ft / Elev 5057.00 ft

GENERAL BH/TPWELL - GES - GES - GEOTECHNICAL - STD.GDT - 6/10/24 10:46 - J:\GES\CLIENTS\RENO OFFICE\PROJECTS\2023\R20236851E2 - REVISED GEO EVAL\GINT\R20236851E2.GPJ

DEPTH (ft)	BULK SAMPLE	SAMPLER TYPE	RECOVERY %	BLOW COUNTS	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0								
						SM		NATIVE: Tan silty SAND with gravel, moist, medium dense.
					MC = 11%		1.0	5062.0 Brown clayey SAND with gravel, fine gravel, moist, medium dense.
			100	3 6 8				
5			100	10 11 13		SC	▽	
10			100	6 14 11	MC = 13% LL = 31 PL = 18 Fines = 26%		11.0	5052.0 Brown clayey SAND with gravel, coarse gravel, moist, medium dense.
								... fine gravel, moist, dense.
15			100	9 15 19		SC	▽	... dense.
20								

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made.
It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-15



PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E2

PROJECT LOCATION Silver Dollar Lane, Reno Nevada

DEPTH (ft)	BULK SAMPLE	SAMPLER TYPE	RECOVERY %	BLOW COUNTS	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
20								
			78	8 12 17	MC = 20% LL = 35 PL = 18 Fines = 44%			Brown clayey SAND with gravel, coarse gravel, moist, medium dense. (continued) ... medium dense.
								... gray gravel.
25			83	5 9 12				
30			83	6 11 14				
35			83	15 16 10				
40			89	7 12 16	MC = 17% LL = 38 PL = 17 Fines = 27%			

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made.
It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-15



PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E2

PROJECT LOCATION Silver Dollar Lane, Reno Nevada

DEPTH (ft)	BULK SAMPLE	SAMPLER TYPE	RECOVERY %	BLOW COUNTS	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
45								Brown clayey SAND with gravel, coarse gravel, moist, medium dense. (continued)
			100	5 8 10		SC		
50								
			100	5 8 12				
51.5								5011.5

Bottom of borehole at 51.5 feet.

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made.
It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-15



CLIENT Washoe County School District

PROJECT LOCATION Silver Dollar Lane, Reno Nevada

HOLE SIZE 6 inches

GROUND WATER LEVELS:

 AT TIME OF DRILLING 15.00 ft / Elev 5048.00 ft

AT END OF DRILLING ---

LONG. -119.8705618

▽ AFTER DRILLING 6.00 ft / Elev 5057.00 ft

[illegible]

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made. It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-16



PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E2

PROJECT LOCATION Silver Dollar Lane, Reno Nevada

DEPTH (ft)	SAMPLER TYPE	RECOVERY %	BLOW COUNTS	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
20							
		100	6 8 16	MC = 18% LL = 32 PL = 17 Fines = 41%	SC		Brown clayey SAND with gravel, moist, medium dense. <i>(continued)</i> ... moist.
							23.0 5040.0
25					CL		Brown sandy lean CLAY with gravel, fine gravel, moist, very stiff.
		100	4 7 12				27.5 5035.5
30					SC		Brown clayey SAND with gravel, coarse gravel, wet, medium dense.
		100	14 16 12				31.5 5031.5

Bottom of borehole at 31.5 feet.

Soils were classified in general accordance with ASTM D2488

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made.
It is not intended to be representative of subsurface conditions at other locations or times.

Figure No. A-16

APPENDIX B – LABORATORY TEST RESULTS

GEOTECHNICAL EVALUATION
SILVER DOLLAR ELEMENTARY SCHOOL
SILVER DOLLAR LANE, RENO, NEVADA
APN: 086-030-57

Laboratory tests were conducted on representative soil samples for the purpose of classification and to evaluate their engineering and physical properties. The amount and selection of the types of testing for a given study are based on the geotechnical conditions of the project. A summary of the various laboratory tests conducted for this project are presented below.

1. IN-PLACE MOISTURE CONTENT AND DENSITY

The in-place moisture contents and the in-place dry densities of selected soil samples obtained from a thick-walled ring-lined sampler were evaluated. For each sample, the volume and wet weight of the sample were recorded. The samples were then oven-dried. After drying, the dry weight of each sample was measured, and the moisture contents and the subsequent dry densities were calculated. The in-place moisture content and dry density is a qualitative measure of consistency and compressibility. The moisture contents and dry densities of the sampled soils are presented at the respective sampling depth on the exploration logs in Appendix A and on Figures B-1 and B-2.

2. GRAIN SIZE DISTRIBUTION

Twenty (20) grain size distribution tests were performed by sieve analysis in general accordance with ASTM D6913. Soil samples were oven dried to a constant weight and sorted by a number of different sized sieves. The amount of material retained on each sieve is measured and the percent of material passing each sieve is computed. The test results are presented as particle size distribution curves on Figures B-3 through B-6.

3. ATTERBERG LIMITS

Twenty (20) samples were tested to evaluate Atterberg limits in general accordance with ASTM D4318. The liquid limit (LL) and plastic limit (PL) of tested samples were evaluated. The difference between the liquid limit and the plastic limit is the plasticity index (PI) and represents the range of water content over which the soil behaves in a plastic state. The term NP refers to non-plastic and the term NV refers to no value. Test results are presented on the boring logs in Appendix A and on Figures B-7 and B-8.

4. CONSOLIDATION TEST

Two soil samples were tested to evaluate one-dimensional consolidation in general accordance with ASTM D2435. Soil was obtained from a thick-walled ring-lined sampler and trimmed to a height of 1 inch. After preparing each sample, the sample was placed in a consolidometer, saturated, and then loaded incrementally. The sample was unloaded at an appropriate load increment in order to evaluate rebound characteristics. Sample deformation was measured during each load increment. Consolidation test results are presented on Figure B-9 and B-10.

5. EXPANSION INDEX

Three soil samples were tested to evaluate expansion potential in general accordance with ASTM D4829. A soil sample was moisture conditioned to a degree of saturation of approximately 50% and then compacted in to a 4-inch diameter mold in two lifts to produce a compacted sample with a height of about two inches. After preparing each sample, the sample was placed in a consolidometer, and subjected to a 1-pound per square inch (psi) load. An initial reading of sample height was obtained and then the sample was inundated with water. A final reading was taken after expansion of the sample had occurred. Expansion Index test results are presented on Figures B-1 and B-2.

6. R-VALUE

Three R-Value tests were performed on selected soil samples to evaluate subgrade resistance to wheel loads. Testing was performed in general accordance with ASTM D2844. The R-value of a material is obtained when the material is in a state of saturation such that water will be exuded from the compacted test specimen when a 300 psi load (16.8 kN or 2.07 MPa) is applied. A series of specimens prepared at different moisture contents are tested, the data graphed, and the resulting R value at an exudation pressure of 300 psi is estimated. Test results are presented on Figures B-11 through B-13.

7. CHEMICAL TESTS

Three tests were performed on selected soil samples to determine the contents of soluble sulfate, total soluble solids (i.e. solubility), and soluble soil chlorides. The tests were performed by Silver State Analytical, Inc. The results of the tests are shown on Figures B-14 through B-16.



PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E1

PROJECT LOCATION Silver Dollar Lane, Reno NV

Borehole	Depth	Liquid Limit	Plastic Limit	Plasticity Index	Maximum Size (mm)	%<#200 Sieve	Classification	Water Content (%)	Expansion Index
B-1	2.5	30	20	10	25	38	SC	11	--
B-2	10.0	35	25	10	12.5	53	ML	13	--
B-2	20.0	35	17	18	37.5	40	SC	14	--
B-4	0.0	--	--	--	--	--	--	10	5.9
B-4	5.0	NV	NP	NP	37.5	28	SM	10	--
B-4	15.0	31	20	11	19	48	SC	19	--
B-5	15.0	31	23	8	19	38	SM	19	--
B-6	2.5	28	16	12	19	34	SC	17	--
B-6	10.0	39	26	13	25	54	ML	19	--
B-7	0.0	--	--	--	--	--	--	10	2.6
B-7	20.0	28	17	11	25	25	SC	17	--
B-8	0.0	--	--	--	--	--	--	9	2.3
B-8	2.5	30	22	8	25	35	SC	12	--
B-8	20.0	28	17	11	19	41	SC	13	--
B-8	40.0	32	16	16	19	38	SC	19	--
B-8	50.0	NV	30	NP	9.5	63	ML	15	--
B-9	2.5	29	16	13	25	17	SC	9	--
B-10	5.0	29	21	8	12.5	40	SC	13	--

LAB SUMMARY_FOR ZACH - GES_GEO TECHNICAL_STD.GDT - 4/3/24 10:34 - J:\GES\CLIENTS\RENO OFFICE\PROJECTS\R20236851E1\GINTR20236851E1.GPJ

SUMMARY OF LABORATORY RESULTS



GEOTECHNICAL &
ENVIRONMENTAL
SERVICES, INC.

PROJECT NAME Silver Dollar Elementary School

CLIENT Washoe County School District

PROJECT NUMBER R20236851E2

PROJECT LOCATION Silver Dollar Lane, Reno Nevada

Borehole	Depth	Liquid Limit	Plastic Limit	Plasticity Index	Maximum Size (mm)	%<#200 Sieve	Class-ification	Water Content (%)	Expansion (%)
B-12	1.0	--	--	--	--	--	--	11	22.8
B-12	10.0	31	18	13	19	26	SC	13	--
B-12	20.0	35	18	17	19	44	SC	20	--
B-12	40.0	38	17	21	12.5	27	SC	17	--
B-13	10.0	34	17	17	4.75	42	SC	19	--
B-13	20.0	32	17	15	4.75	41	SC	18	--

LAB SUMMARY_FOR ZACH - GES_GEOTECHNICAL_STD.GDT - 6/5/24 21:30 - J:\GES\CLIENTS\RENO OFFICE\PROJECTS\2023\R20236851E2 - REVISED GEO EVAL\GINT\R20236851E2.GPJ

Las Vegas
7150 Placid Street
Las Vegas, NV 89119
702.365.1001

Reno
5301 Longley Lane, Bldg. H, Ste 116
Reno, NV 89511
775.622.38544

Mesquite
530 Commerce Circle
Mesquite, NV 89027
702.346.4489

Figure No. B-2

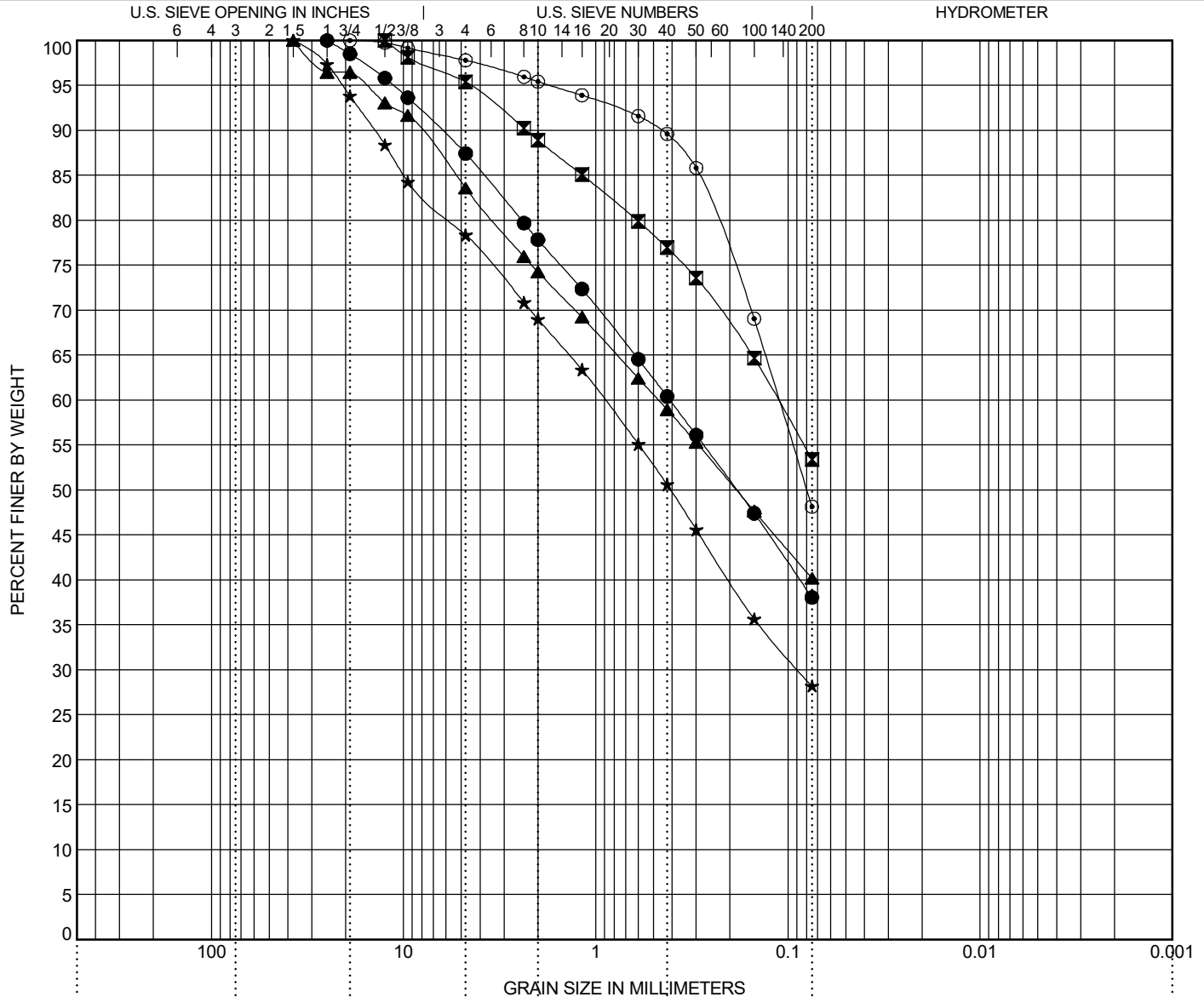


CLIENT Washoe County School District

PROJECT NAME Silver Dollar Elementary School

PROJECT NUMBER R20236851E1

PROJECT LOCATION Silver Dollar Lane, Reno NV



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Location			Classification							LL	PL	PI
●	B-1	2.5'	CLAYEY SAND (SC)							30	20	10
☒	B-2	10.0'	SANDY SILT (ML)							35	25	10
▲	B-2	20.0'	CLAYEY SAND with GRAVEL (SC)							35	17	18
★	B-4	5.0'	SILTY SAND with GRAVEL (SM)							NV	NP	NP
◎	B-4	15.0'	CLAYEY SAND (SC)							31	20	11
Location			D100	D60	D30	D10	Cc	Cu	%Gravel	%Sand	%Silt	%Clay
●	B-1	2.5'	25	0.411	--	--	--	--	12.6	49.4	38.1	
☒	B-2	10.0'	12.5	0.112	--	--	--	--	4.6	42.0	53.4	
▲	B-2	20.0'	37.5	0.472	--	--	--	--	16.4	43.4	40.2	
★	B-4	5.0'	37.5	0.895	--	--	--	--	21.6	50.2	28.2	
◎	B-4	15.0'	19	0.111	--	--	--	--	2.2	49.6	48.2	

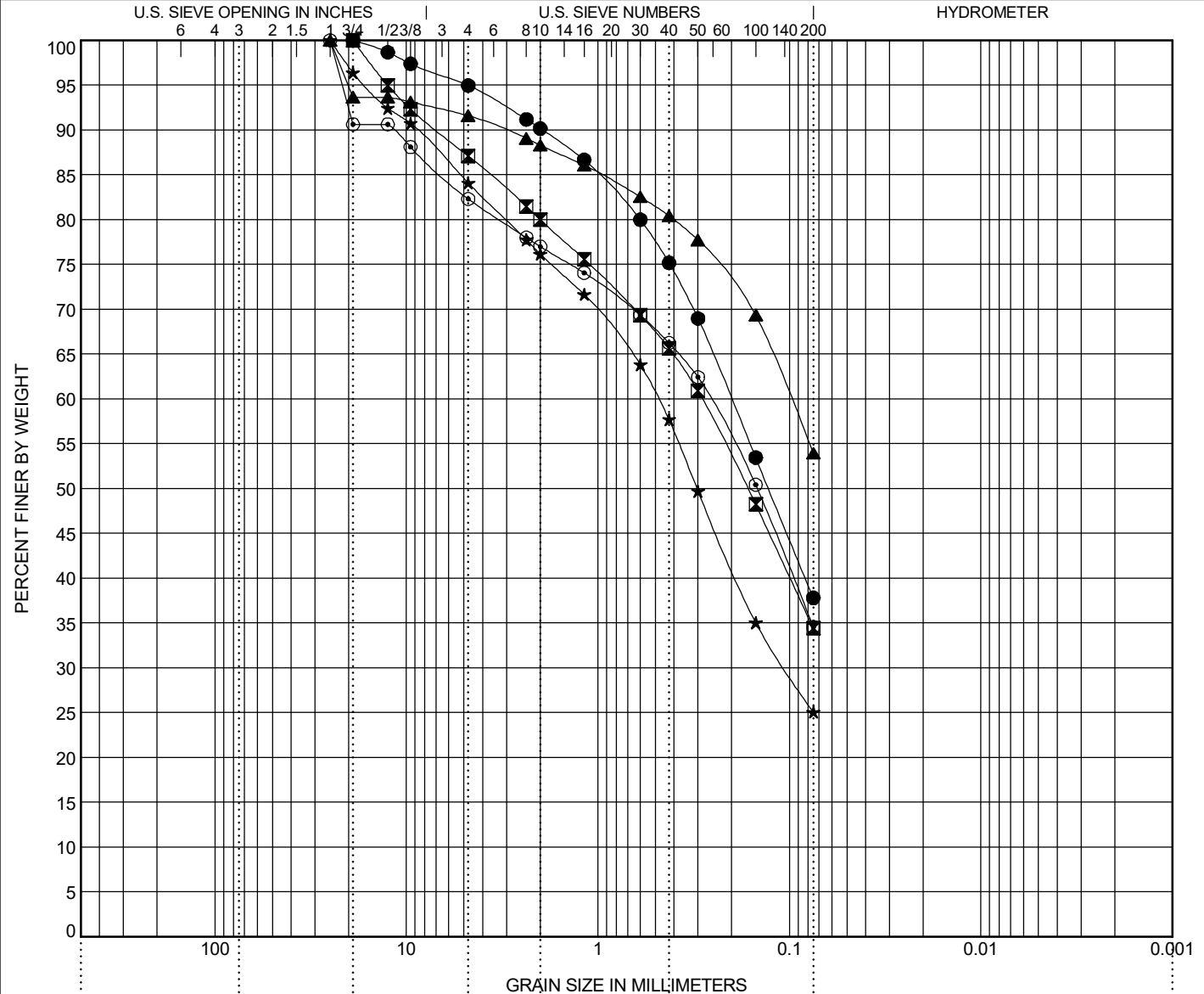


CLIENT Washoe County School District

PROJECT NAME Silver Dollar Elementary School

PROJECT NUMBER R20236851E1

PROJECT LOCATION Silver Dollar Lane, Reno NV

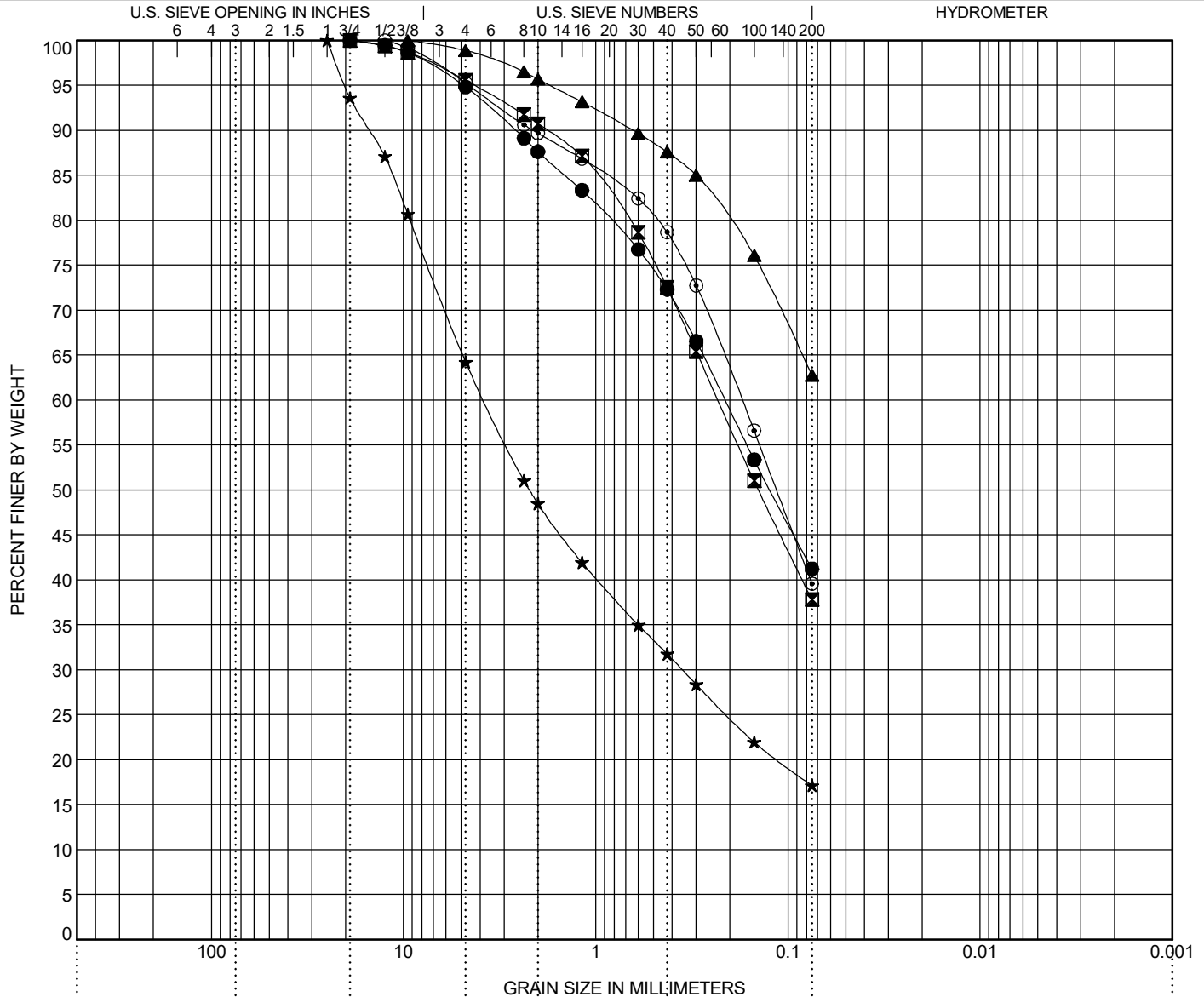


COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Location			Classification							LL	PL	PI
●	B-5	15.0'	SILTY SAND (SM)							31	23	8
⊠	B-6	2.5'	CLAYEY SAND (SC)							28	16	12
▲	B-6	10.0'	SANDY SILT (ML)							39	26	13
★	B-7	20.0'	CLAYEY SAND with GRAVEL (SC)							28	17	11
⊙	B-8	2.5'	CLAYEY SAND with GRAVEL (SC)							30	22	8
Location			D100	D60	D30	D10	Cc	Cu	%Gravel	%Sand	%Silt	%Clay
●	B-5	15.0'	19	0.201	--	--	--	--	5.0	57.2	37.8	
⊠	B-6	2.5'	19	0.286	--	--	--	--	12.9	52.7	34.4	
▲	B-6	10.0'	25	0.099	--	--	--	--	8.4	37.7	53.9	
★	B-7	20.0'	25	0.484	--	--	--	--	15.9	59.0	25.1	
⊙	B-8	2.5'	25	0.261	--	--	--	--	17.7	47.7	34.6	



GRAIN SIZE DISTRIBUTION

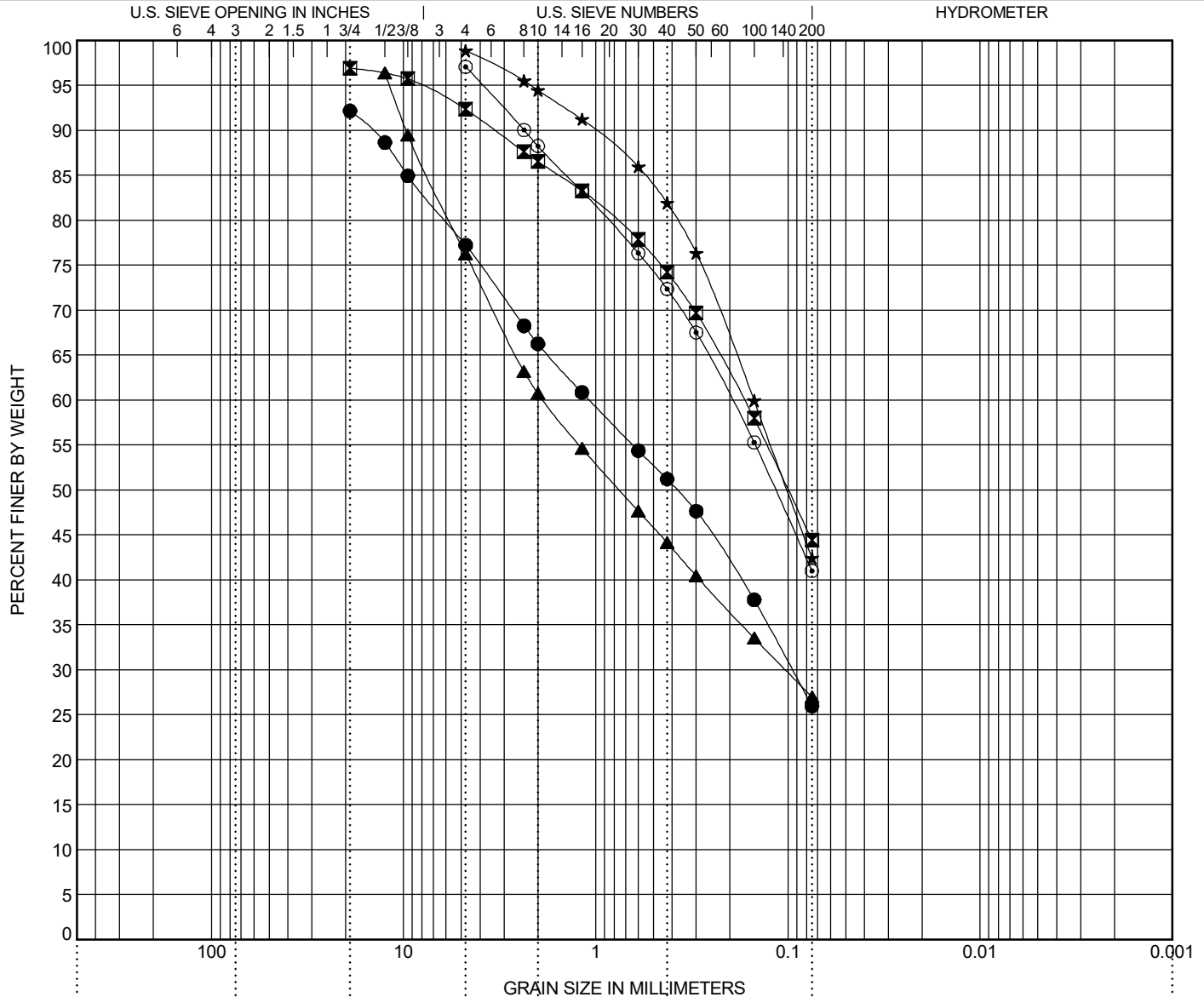


COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Location			Classification								LL	PL	PI
●	B-8	20.0'	CLAYEY SAND (SC)								28	17	11
☒	B-8	40.0'	CLAYEY SAND (SC)								32	16	16
▲	B-8	50.0'	SANDY SILT (ML)								NV	30	NP
★	B-9	2.5'	CLAYEY SAND with GRAVEL (SC)								29	16	13
◎	B-10	5.0'	CLAYEY SAND (SC)								29	21	8
Location			D100	D60	D30	D10	Cc	Cu	%Gravel	%Sand	%Silt	%Clay	
●	B-8	20.0'	19	0.213	--	--	--	--	5.2	53.6	41.2		
☒	B-8	40.0'	19	0.231	--	--	--	--	4.4	57.8	37.8		
▲	B-8	50.0'	9.5		--	--	--	--	1.1	36.1	62.7		
★	B-9	2.5'	25	3.794	--	--	--	--	35.8	47.1	17.1		
◎	B-10	5.0'	12.5	0.173	--	--	--	--	4.7	55.7	39.6		



GRAIN SIZE DISTRIBUTION



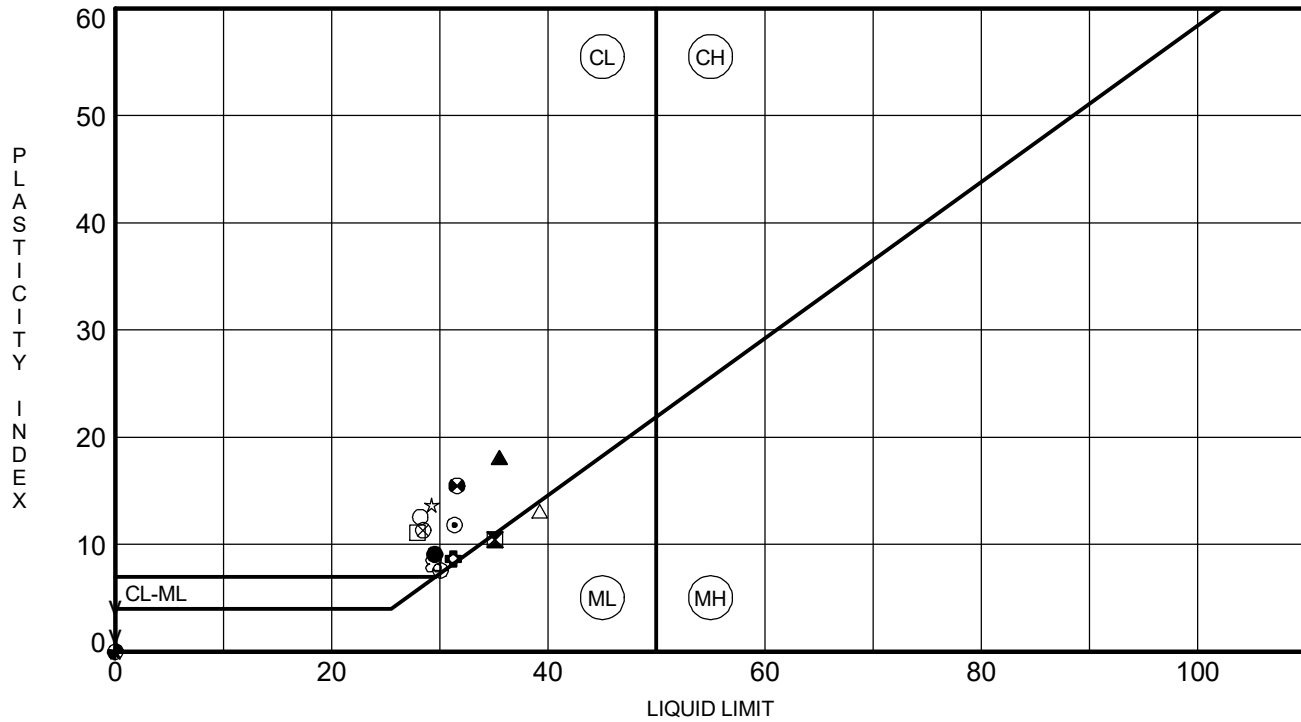


CLIENT Washoe County School District

PROJECT NAME Silver Dollar Elementary School

PROJECT NUMBER R20236851E1

PROJECT LOCATION Silver Dollar Lane, Reno NV

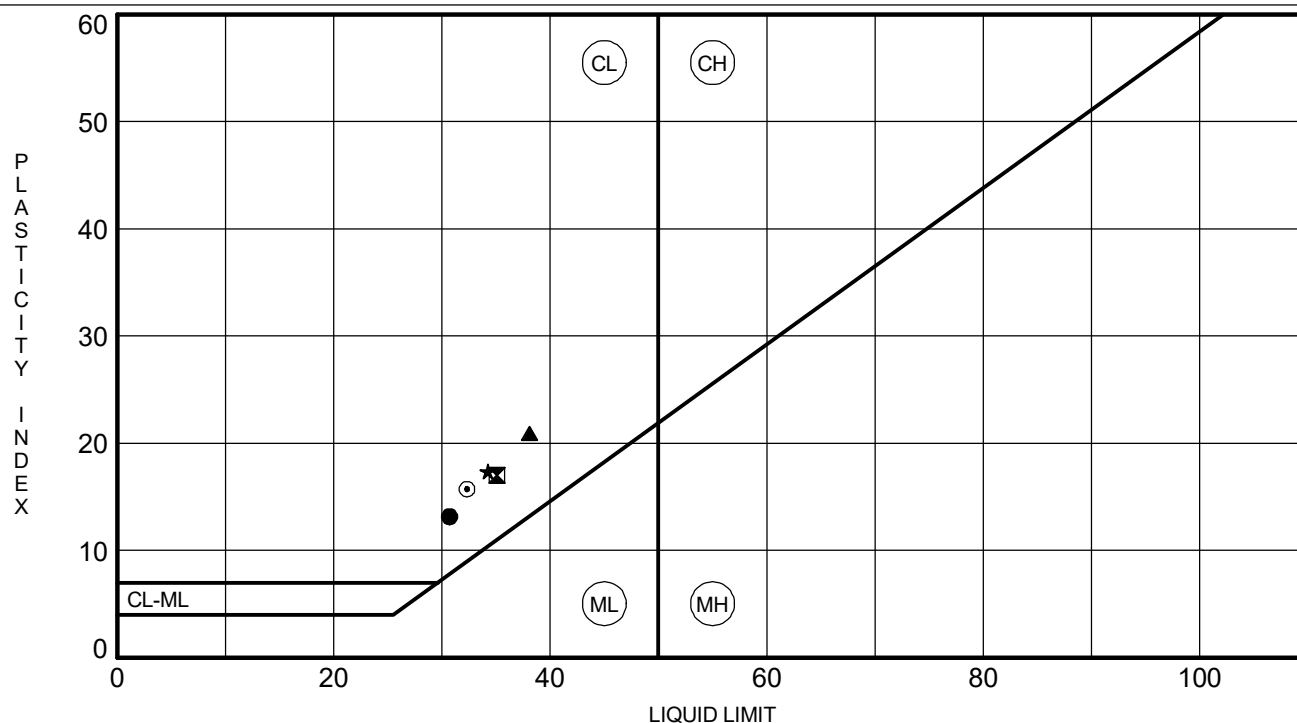


ATTERBERG LIMITS - GES_CM STD GDT - 4/2/24 11:36 - J:\GES\CLIENTS\RENO OFFICE\PROJECTS\2023\1E1\GINTR20236851E1.GPJ

Location		Classification	LL	PL	PI	Fines
● B-1	2.5'	CLAYEY SAND (SC)	30	20	10	38
▣ B-2	10'	SANDY SILT (ML)	35	25	10	53
▲ B-2	20'	CLAYEY SAND with GRAVEL (SC)	35	17	18	40
★ B-4	5'	SILTY SAND with GRAVEL (SM)	NV	NP	NP	28
⊙ B-4	15'	CLAYEY SAND (SC)	31	20	11	48
⊕ B-5	15'	SILTY SAND (SM)	31	23	8	38
○ B-6	2.5'	CLAYEY SAND (SC)	28	16	12	34
△ B-6	10'	SANDY SILT (ML)	39	26	13	54
⊗ B-7	20'	CLAYEY SAND with GRAVEL (SC)	28	17	11	25
⊕ B-8	2.5'	CLAYEY SAND with GRAVEL (SC)	30	22	8	35
□ B-8	20'	CLAYEY SAND (SC)	28	17	11	41
⊕ B-8	40'	CLAYEY SAND (SC)	32	16	16	38
⊕ B-8	50'	SANDY SILT (ML)	NV	30	NP	63
★ B-9	2.5'	CLAYEY SAND with GRAVEL (SC)	29	16	13	17
⊗ B-10	5'	CLAYEY SAND (SC)	29	21	8	40

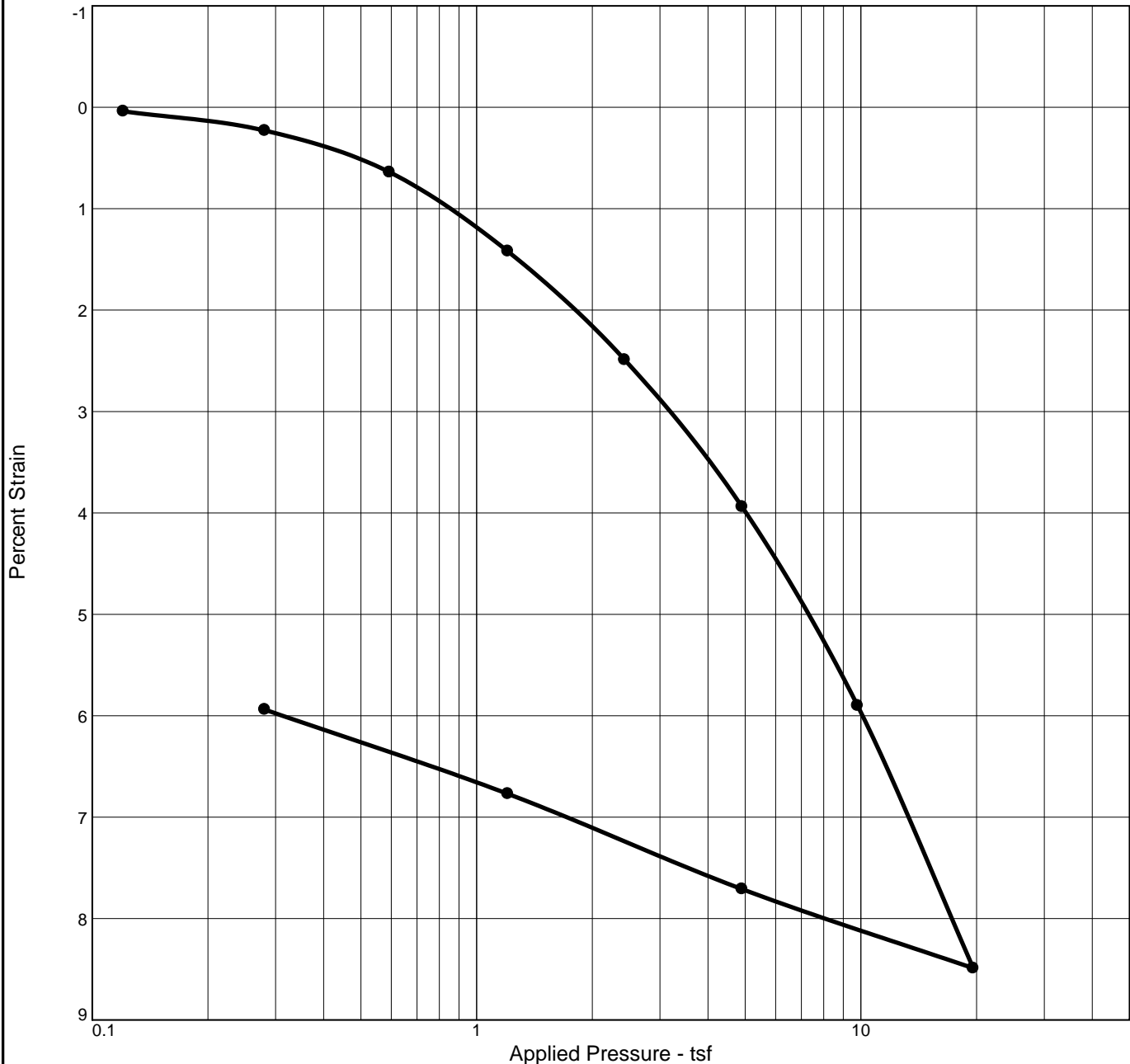


PROJECT LOCATION Silver Dollar Lane, Reno Nevada

[illegible]

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Consolidations



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	USCS	AASHTO	Initial Void Ratio
Saturation	Moisture							
100.0%	18.0 %	110.7	35	10	2.67	ML	-	0.48

MATERIAL DESCRIPTION

SANDY SILY (ML)

Project No. R20236851E1 **Client:** WASHOE COUNTY SCHOOL DISTRICT
Project: SILVER DOLLAR ELEMENTARY SCHOOL

Location: B-2 @ 11'-11.5' **Depth:** 11' **Sample Number:** 24-005



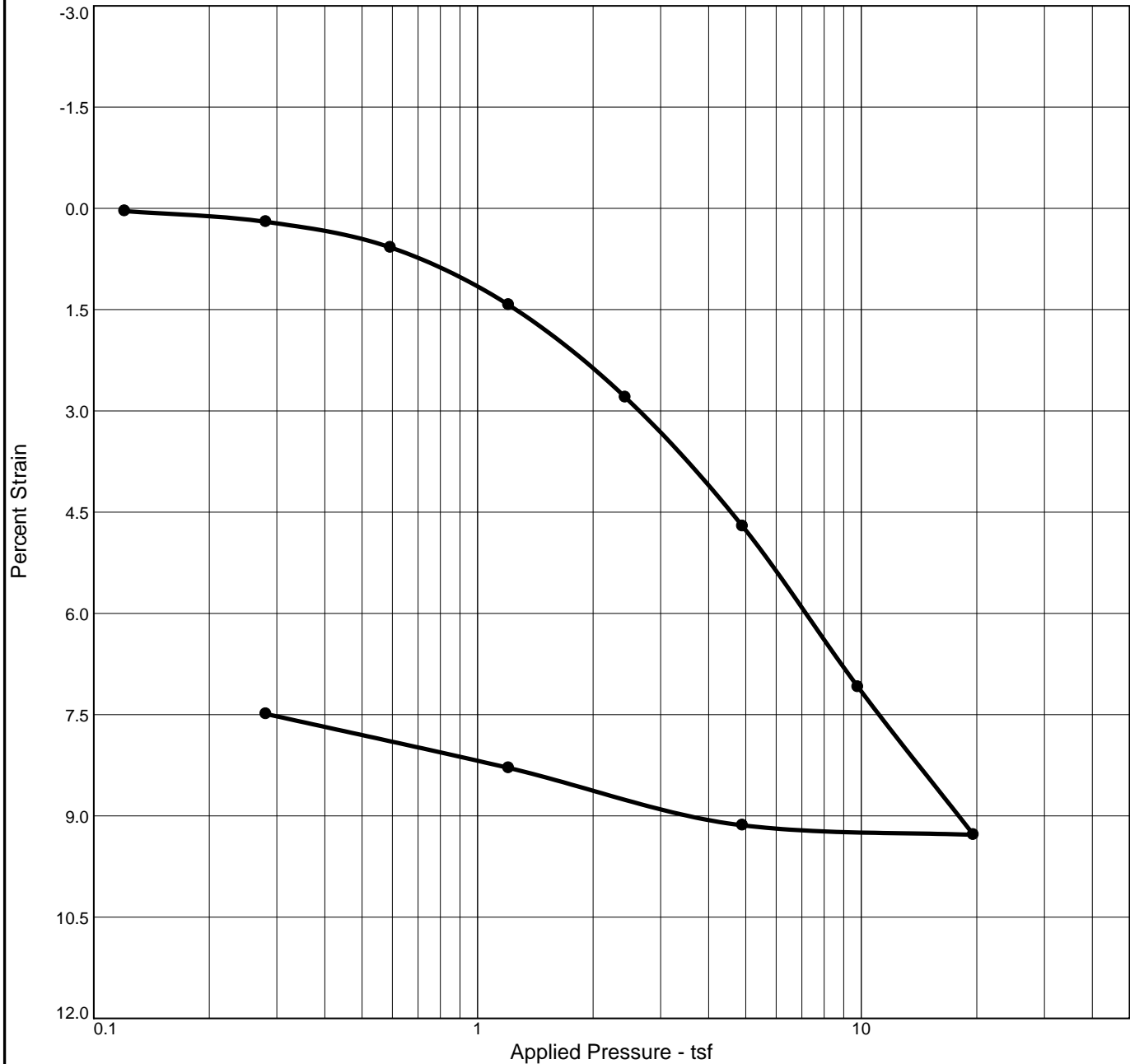
GEOTECHNICAL &
ENVIRONMENTAL
SERVICES, INC.

Remarks:

Figure B-9

Tested By: CT/AS **Checked By:** CT/ZB

Consolidations



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	USCS	AASHTO	Initial Void Ratio
Saturation	Moisture							
100.0%	12.8 %	118.3	35	18	2.67	SC	-	0.32

MATERIAL DESCRIPTION

CLAYEY SAND WITH GRAVEL (SC)

Project No. R20236851E1 **Client:** WASHOE COUNTY SCHOOL DISTRICT
Project: SILVER DOLLAR ELEMENTARY SCHOOL

Location: B-2 @ 21'-21.5' **Depth:** 21' **Sample Number:** 24-005



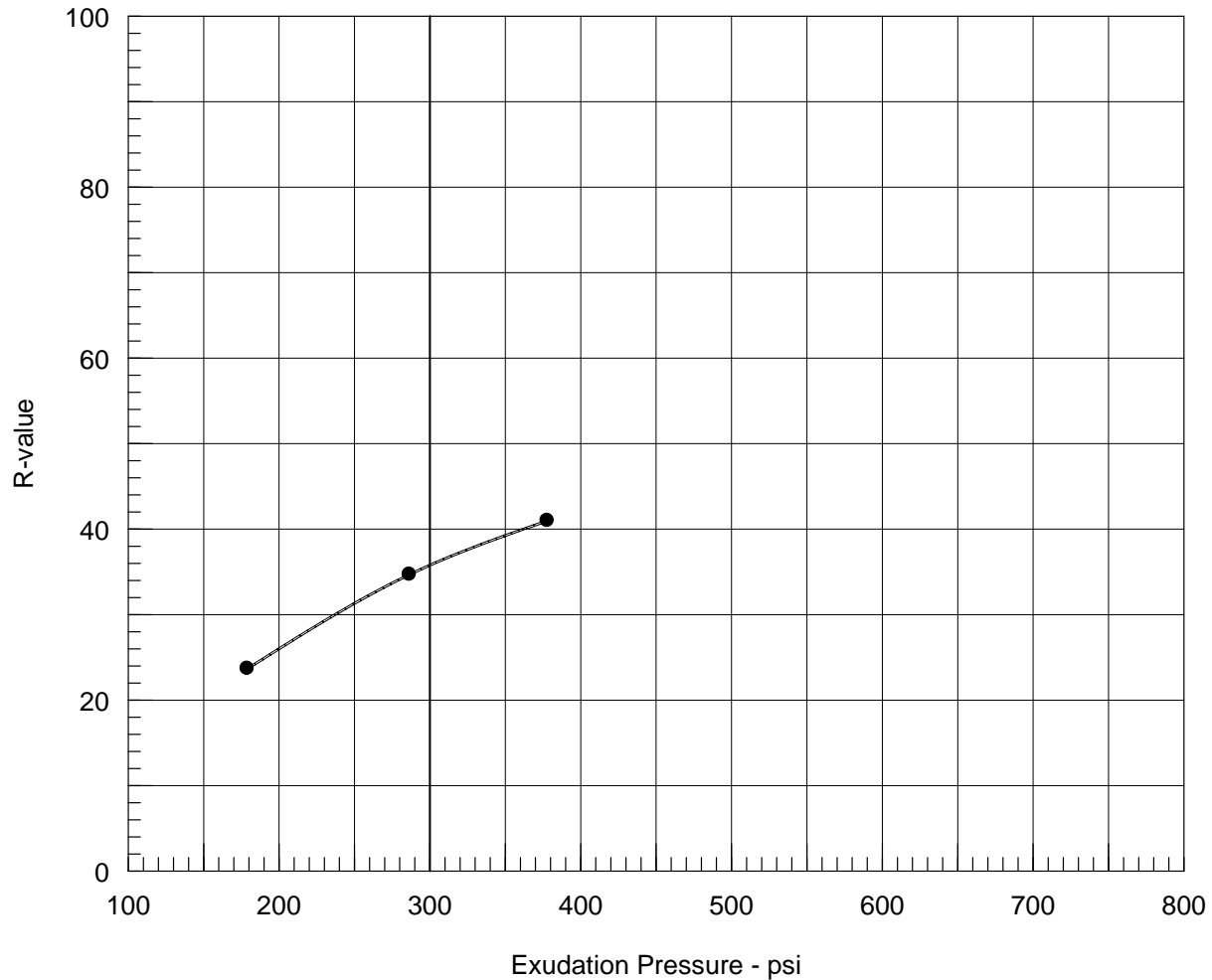
GEOTECHNICAL &
ENVIRONMENTAL
SERVICES, INC.

Remarks:

Figure B-10


Tested By: CT/AS **Checked By:** CT/ZB

R-VALUE TEST REPORT

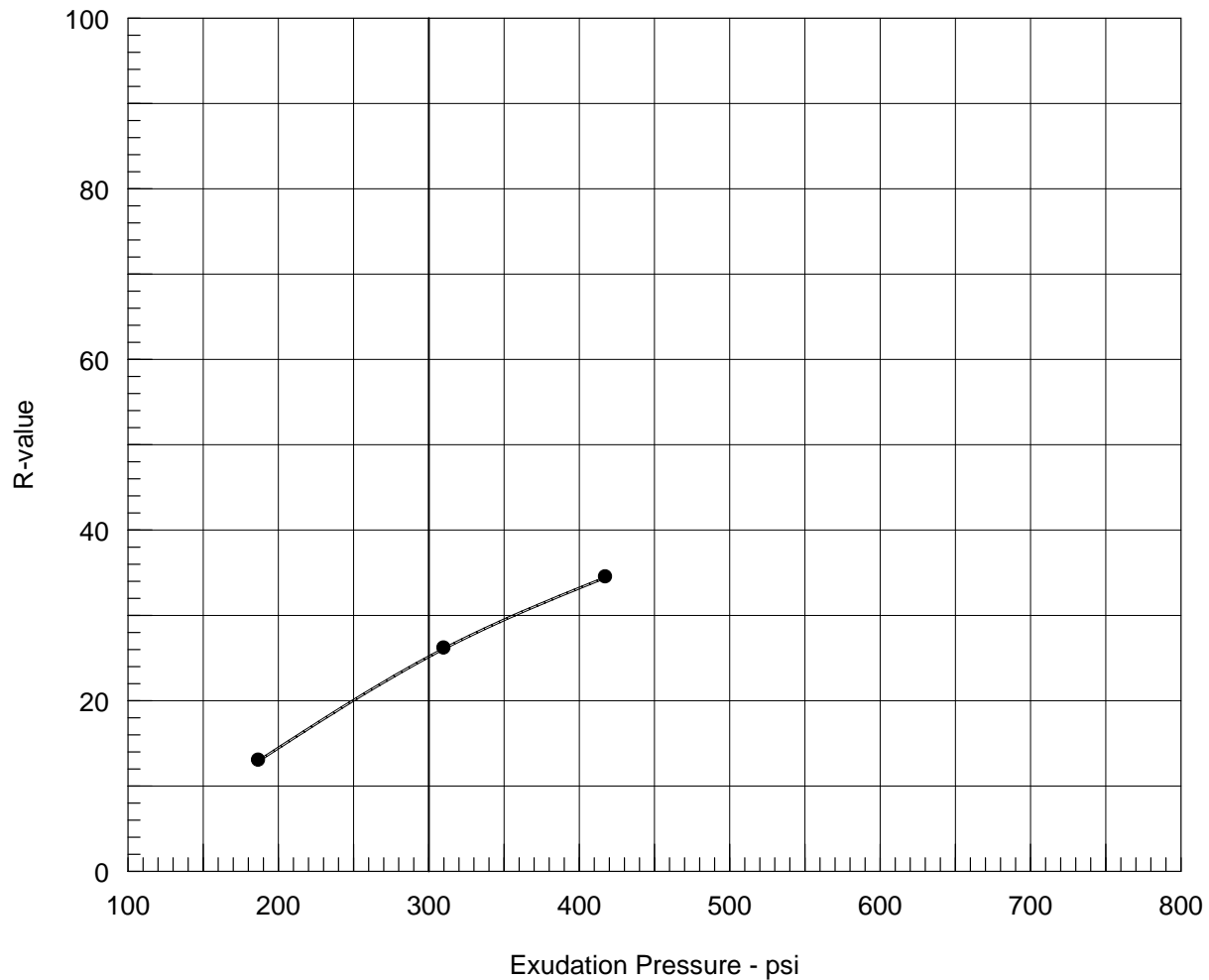


Resistance R-Value and Expansion Pressure - ASTM D2844

No.	Compact. Pressure psi	Density pcf	Moist. %	Expansion Pressure psi	Horizontal Press. psi @ 160 psi	Sample Height in.	Exud. Pressure psi	R Value	R Value Corr.
1	200	127.3	14.8	0.00	75	2.51	378	41	41
2	150	127.3	15.8	0.00	86	2.51	286	35	35
3	150	127.7	16.7	0.00	105	2.50	179	24	24

Test Results	Material Description
R-value at 300 psi exudation pressure = 36	Dark, Gravel w/ Clay
Project No.: R20236851E1 Project: Silver Dollar Elementary School Location: B-3 @ 0' Date: 3/27/2024	Tested by: JF Checked by: Remarks: N/A
 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.	Figure B-11

R-VALUE TEST REPORT



Resistance R-Value and Expansion Pressure - ASTM D2844

No.	Compact. Pressure psi	Density pcf	Moist. %	Expansion Pressure psi	Horizontal Press. psi @ 160 psi	Sample Height in.	Exud. Pressure psi	R Value	R Value Corr.
1	150	125.2	15.4	0.00	86	2.52	418	34	34
2	100	125.2	16.4	0.00	101	2.52	310	26	26
3	100	124.9	17.4	0.00	128	2.52	187	13	13


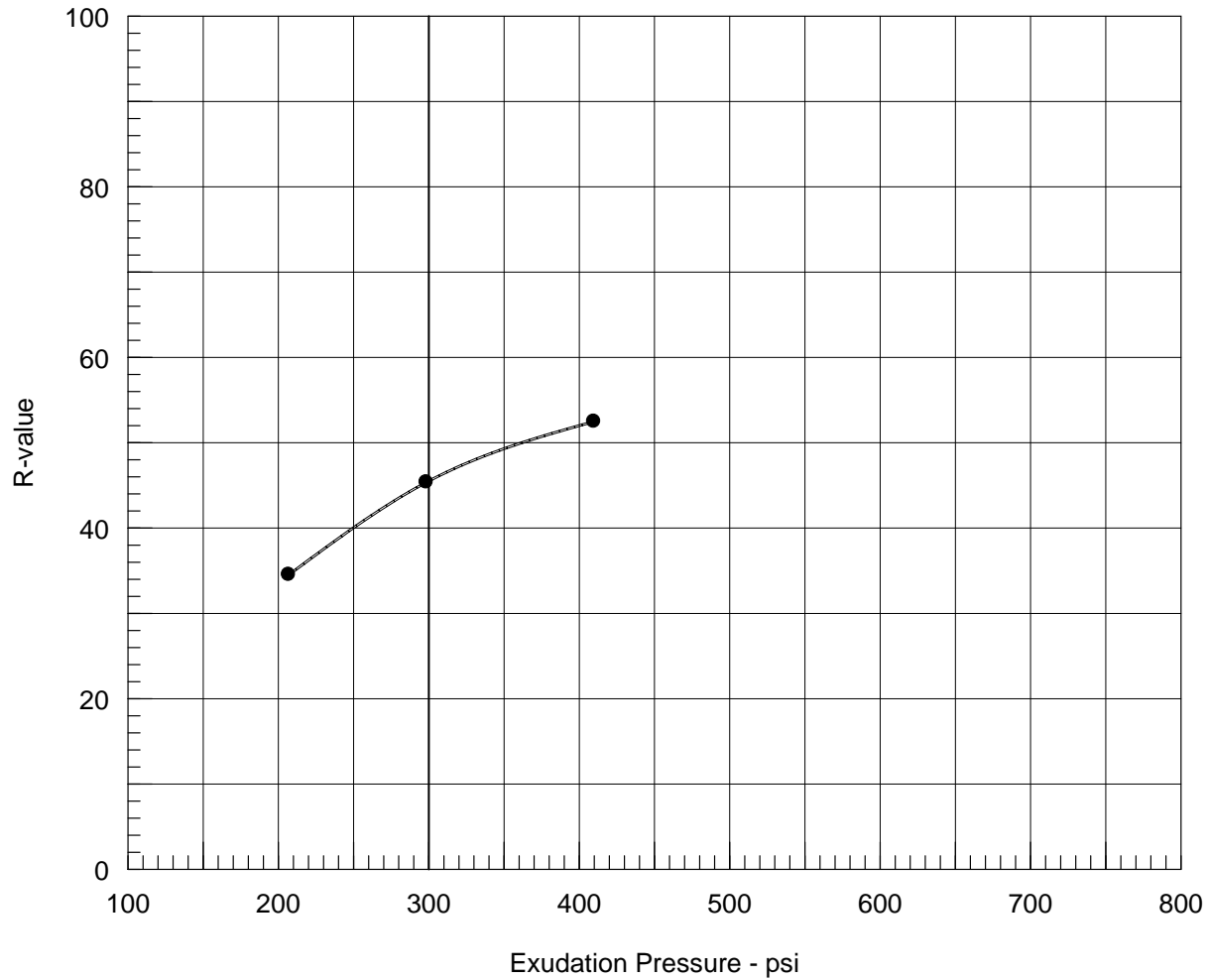
Test Results	Material Description
R-value at 300 psi exudation pressure = 25	Dark, Gravel w/ Clay
Project No.: R20236851E1 Project: Silver Dollar Elementary School Location: B-6 @ 0' Date: 3/27/2024	Tested by: JF Checked by: Remarks: N/A
 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.	


Figure B-12

R-VALUE TEST REPORT



Resistance R-Value and Expansion Pressure - ASTM D2844

No.	Compact. Pressure psi	Density pcf	Moist. %	Expansion Pressure psi	Horizontal Press. psi @ 160 psi	Sample Height in.	Exud. Pressure psi	R Value	R Value Corr.
1	250	131.0	13.2	0.00	58	2.49	410	52	52
2	200	131.3	14.1	0.00	69	2.49	298	45	45
3	200	130.0	15.0	0.00	86	2.51	207	35	35

Test Results	Material Description
R-value at 300 psi exudation pressure = 46	Dark, Gravel w/ Silty Sand
Project No.: R20236851E1 Project: Silver Dollar Elementary School Location: B-10 @ 0' Date: 3/27/2024	Tested by: JF Checked by: Remarks: N/A
 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.	Figure B-13



SGS Silver State Analytical Laboratories
3626 E. Sunset Road, Suite 100
Las Vegas, NV 89120
(702) 873-4478
www.ssalabs.com

Analytical Report

WO#: 24031121

Date Reported: 3/25/2024

CLIENT: GES
Project: R20236851E1
Lab ID: 24031121-01
Client Sample ID: 24-005 B-1 @ 5'-6.5'

Collection Date:

Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SOIL 4. SULFATE, SOLUBILITY & CHLORIDE CHLORIDE - SOILS						
				SM 4500CL B	Analyst: LJ	
Chloride	ND	50		mg/Kg	5	3/25/2024 10:34:00 AM
SOIL 4. SULFATE, SOLUBILITY & CHLORIDE WATER SOLUBLE SULFATE (SO4)						
				SM 4500 SO4 E	Analyst: LJ	
Sulfate	0.0200	0.0100		%	1	3/25/2024 10:34:00 AM
SOIL 4. SULFATE, SOLUBILITY & CHLORIDE TOTAL SALTS (SOLUBILITY)						
				SM 2540 C	Analyst: LJ	
Solubility	0.0600	0.0100		%	1	3/25/2024 10:34:00 AM

Qualifiers:
(Qual)

DF Dilution Factor.
MCL Maximum Contaminant Level.
PQL Practical Quantitation Limit.

H Holding times for preparation or analysis exceeded.
ND Not Detected at the PQL.

Original

Figure B-14



SGS Silver State Analytical Laboratories
3626 E. Sunset Road, Suite 100
Las Vegas, NV 89120
(702) 873-4478
www.ssalabs.com

Analytical Report

WO#: 24031121

Date Reported: 3/25/2024

CLIENT: GES
Project: R20236851E1
Lab ID: 24031121-02
Client Sample ID: 24-005 B-4 @ 0'-2'

Collection Date:

Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SOIL 4. SULFATE, SOLUBILITY & CHLORIDE CHLORIDE - SOILS						
				SM 4500CL B	Analyst: LJ	
Chloride	ND	50		mg/Kg	5	3/25/2024 10:34:00 AM
SOIL 4. SULFATE, SOLUBILITY & CHLORIDE WATER SOLUBLE SULFATE (SO4)						
				SM 4500 SO4 E	Analyst: LJ	
Sulfate	0.0200	0.0100		%	1	3/25/2024 10:34:00 AM
SOIL 4. SULFATE, SOLUBILITY & CHLORIDE TOTAL SALTS (SOLUBILITY)						
				SM 2540 C	Analyst: LJ	
Solubility	0.0700	0.0100		%	1	3/25/2024 10:34:00 AM

Qualifiers:
(Qual)

DF Dilution Factor.
MCL Maximum Contaminant Level.
PQL Practical Quantitation Limit.

H Holding times for preparation or analysis exceeded.
ND Not Detected at the PQL.

Original

Figure B-15



SGS Silver State Analytical Laboratories
3626 E. Sunset Road, Suite 100
Las Vegas, NV 89120
(702) 873-4478
www.ssalabs.com

Analytical Report

WO#: 24031121

Date Reported: 3/25/2024

CLIENT: GES
Project: R20236851E1
Lab ID: 24031121-03
Client Sample ID: 24-005 B-7 @ 0'-2'

Collection Date:

Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SOIL 4. SULFATE, SOLUBILITY & CHLORIDE CHLORIDE - SOILS						
				SM 4500CL B	Analyst: LJ	
Chloride	ND	50		mg/Kg	5	3/25/2024 10:34:00 AM
SOIL 4. SULFATE, SOLUBILITY & CHLORIDE WATER SOLUBLE SULFATE (SO4)						
				SM 4500 SO4 E	Analyst: LJ	
Sulfate	ND	0.0100		%	1	3/25/2024 10:34:00 AM
SOIL 4. SULFATE, SOLUBILITY & CHLORIDE TOTAL SALTS (SOLUBILITY)						
				SM 2540 C	Analyst: LJ	
Solubility	0.100	0.0100		%	1	3/25/2024 10:34:00 AM

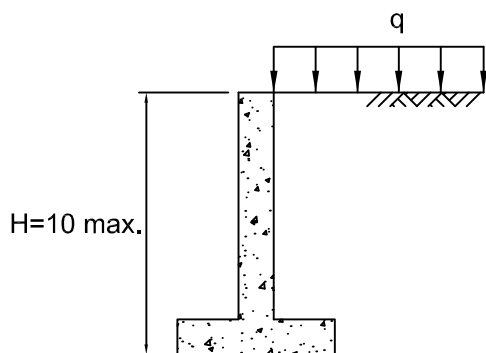
Qualifiers:
(Qual)

DF Dilution Factor.
MCL Maximum Contaminant Level.
PQL Practical Quantitation Limit.

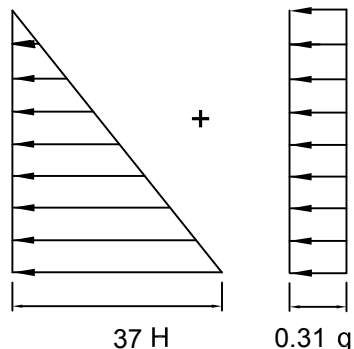
H Holding times for preparation or analysis exceeded.
ND Not Detected at the PQL.

Original
Figure B-16

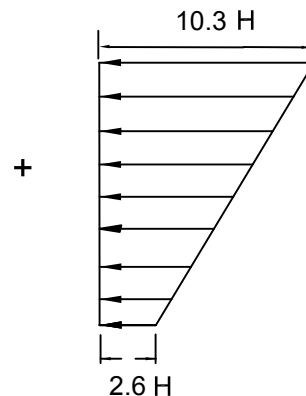
APPENDIX C – DESIGN FIGURES



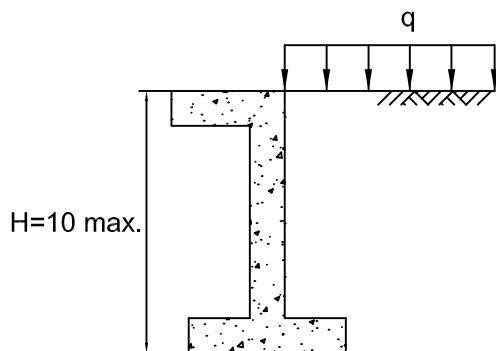
Static Earth Pressure



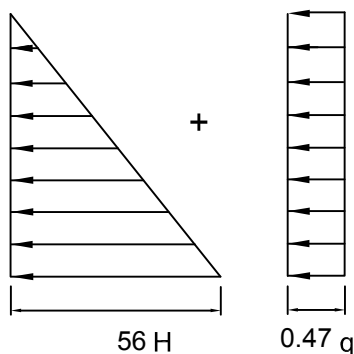
Seismic Earth Pressure



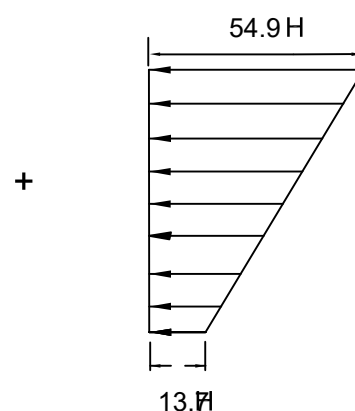
Active Condition



Static Earth Pressure



Seismic Earth Pressure



At-Rest Condition

Notes:

H is height of wall in feet.

q is magnitude of uniform surcharge load in pounds per square foot (psf).

Earth pressures are in psf.

Earth pressures shown assume that no hydrostatic pressure is exerted on the wall.

NOT TO SCALE

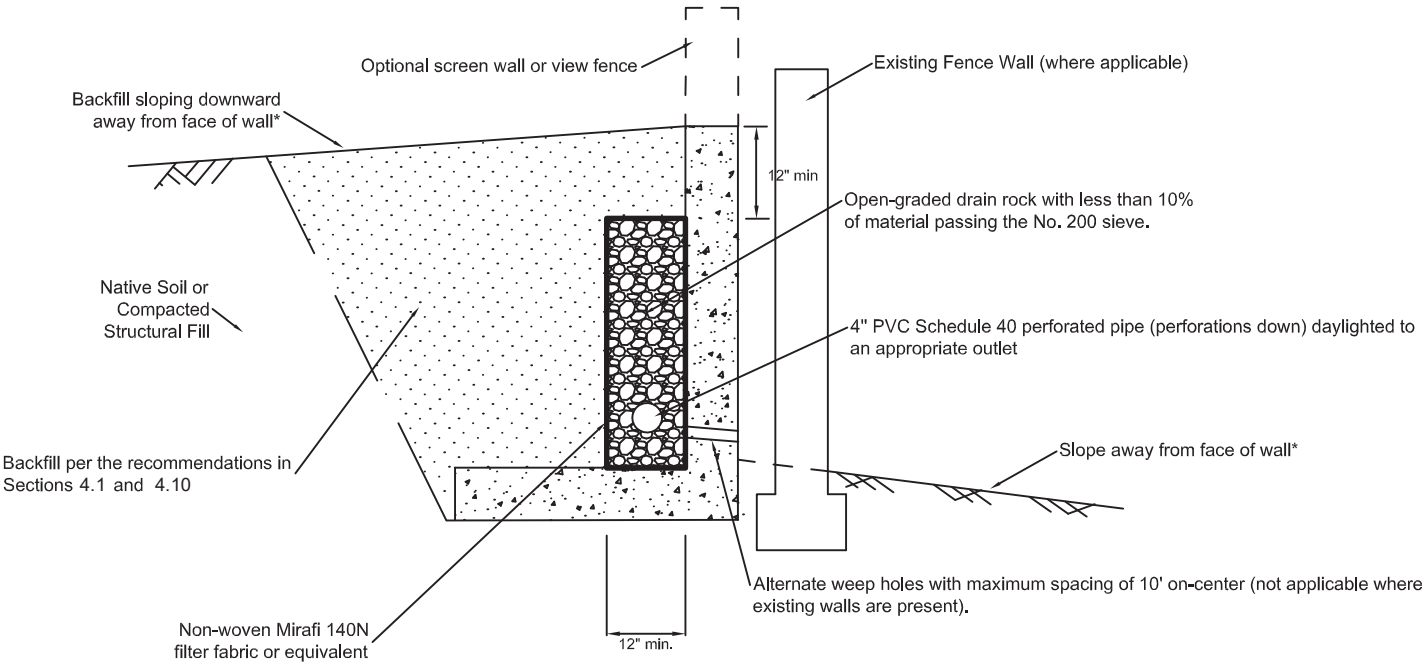


**GEOTECHNICAL &
ENVIRONMENTAL
SERVICES, INC.**
(702) 365-1001
7150 Placid Street
Las Vegas, NV 89119
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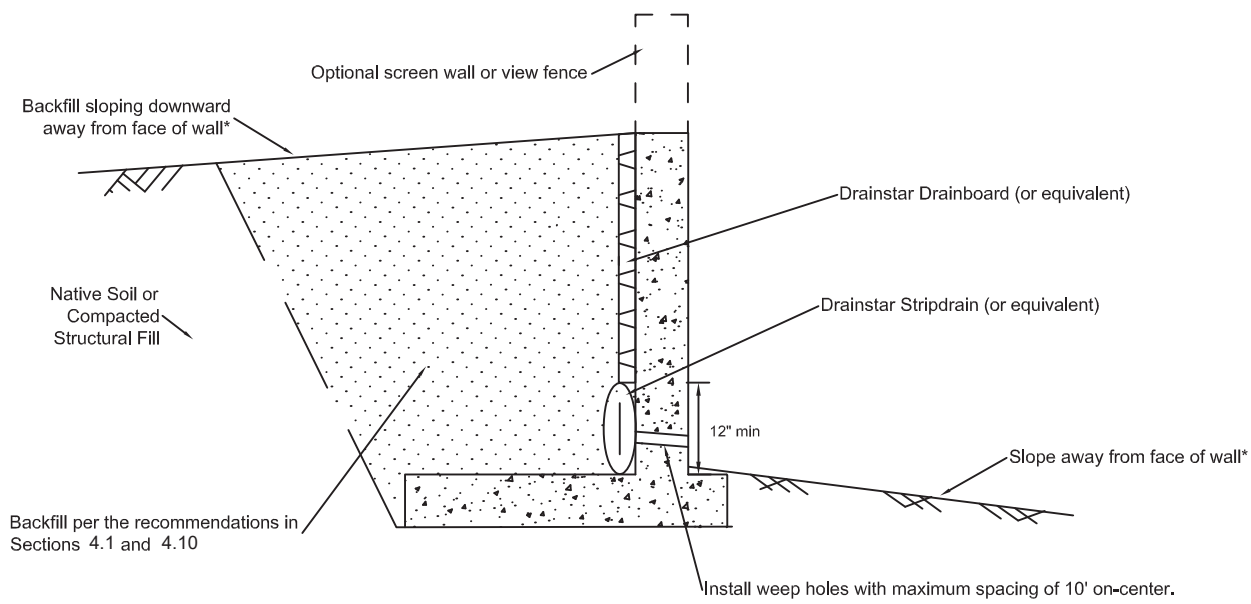
LATERAL EARTH PRESSURE DIAGRAM
SILVER DOLLAR ELEMENTARY SCHOOL
RENO NEVADA

DRAWN BY:	REVIEWED BY:	DATE DRAWN:
JR	ZB	4/3/2024
PROJECT NO.		FIGURE NO.
R20236851E1		C-1

TYPICAL RETAINING WALL DRAINAGE DETAIL INCLUDING NEW WALLS AT EXISTING FENCE WALLS



ALTERNATE TYPICAL RETAINING WALL DRAINAGE DETAIL



*Per the recommendations in Section 4.12

NOT TO SCALE



GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

(702) 365-1001

7150 Placid Street
Las Vegas, NV 89119
www.gesnevada.com

RETAINING WALL DRAINAGE DETAIL
SILVER DOLLAR ELEMENTARY SCHOOL
RENO, NEVADA

DRAWN BY:	REVIEWED BY:	DATE DRAWN:
JR	ZB	4/3/24
PROJECT NO.:		FIGURE NO.:
R20236851E1		C-2

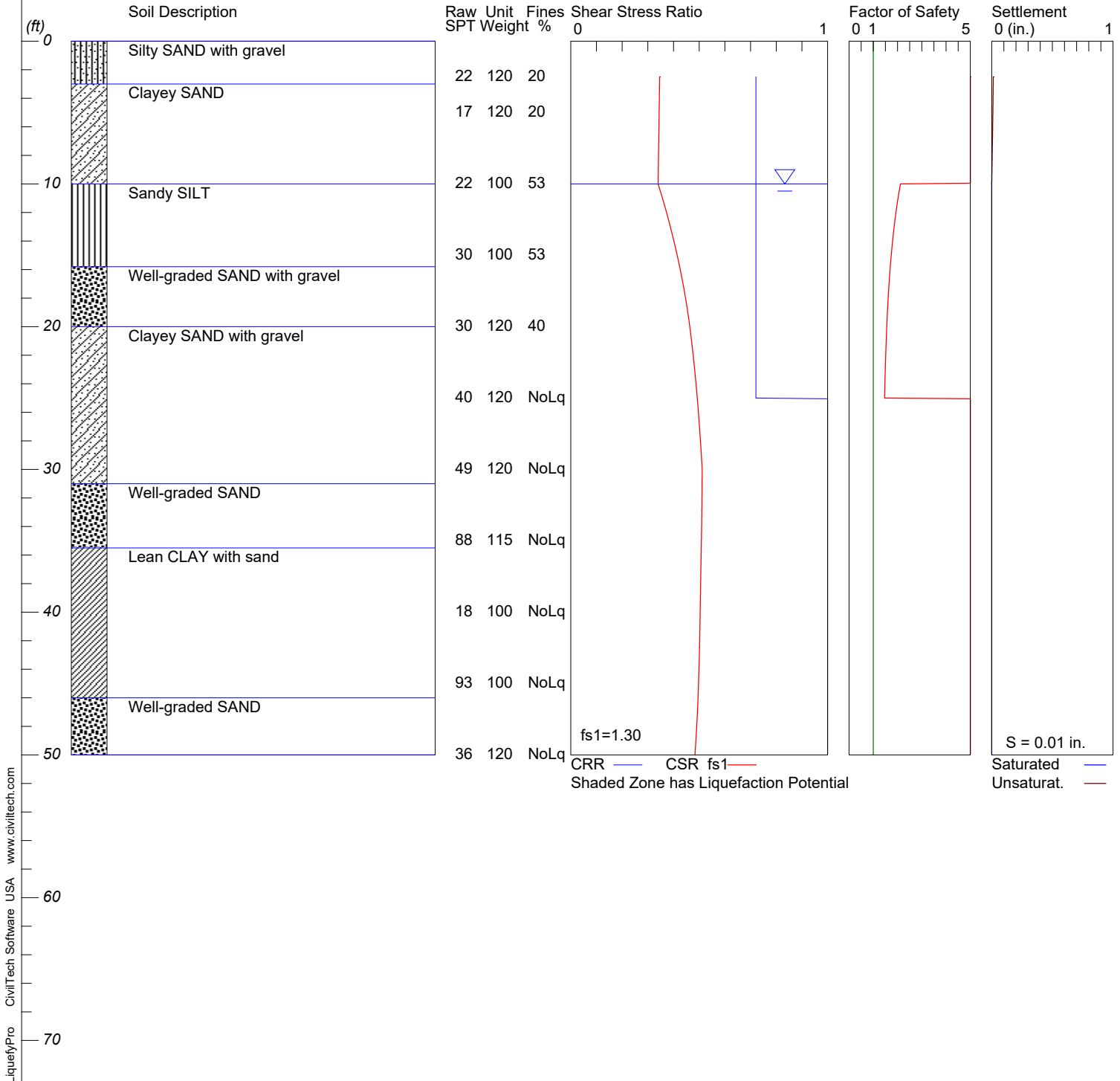
APPENDIX D – LIQUEFACTION

LIQUEFACTION ANALYSIS

Silver Dollar Elementary School

Hole No.=B-2 Water Depth=10 ft

Magnitude=6.5
Acceleration=0.412g

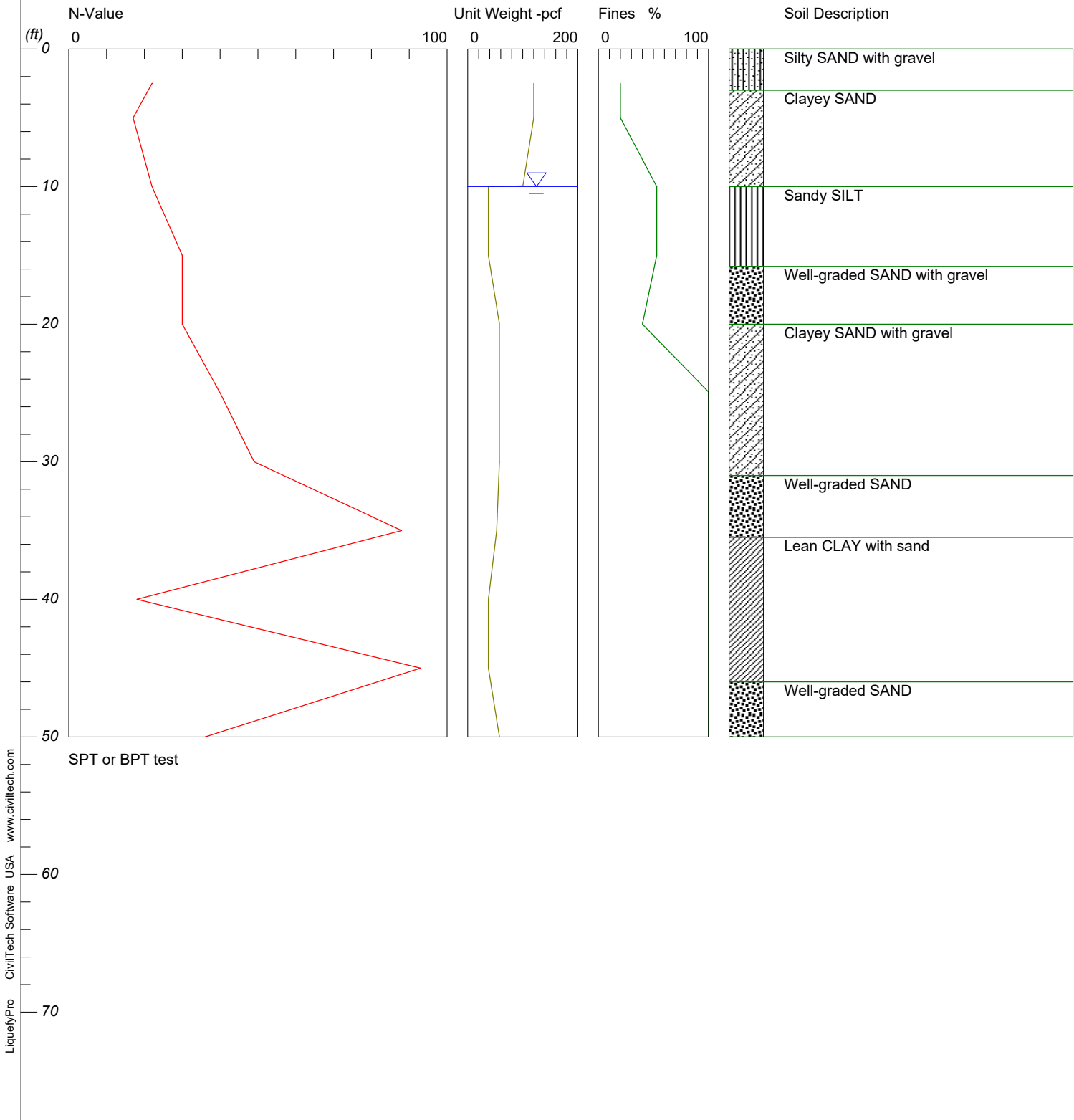


LIQUEFACTION ANALYSIS

Silver Dollar Elementary School

Hole No.=B-2 Water Depth=10 ft

Magnitude=6.5
Acceleration=0.412g



LIQUEFACTION ANALYSIS CALCULATION DETAILS

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Font: Courier New, Regular, Size 8 is recommended for this report.

Licensed to , 4/10/2024 3:42:51 PM

Input File Name: J:\GES\Clients\Reno Office\Projects\2023\R20236851\E1\liquefaction\first run.liq

Title: Silver Dollar Elementary School

Subtitle:

Input Data:

Surface Elev.=

Hole No.=B-2

Depth of Hole=50.00 ft

Water Table during Earthquake= 10.00 ft

Water Table during In-Situ Testing= 10.00 ft

Max. Acceleration=0.41 g

Earthquake Magnitude=6.50

No-Liquefiable Soils: CL, OL are Non-Liq. Soil

1. SPT or BPT Calculation.

2. Settlement Analysis Method: Tokimatsu/Seed

3. Fines Correction for Liquefaction: Stark/Olson et al.*

4. Fine Correction for Settlement: During Liquefaction*

5. Settlement Calculation in: All zones*

6. Hammer Energy Ratio, Ce = 1.25

7. Borehole Diameter, Cb= 1.05

8. Sampling Method, Cs= 1.2

9. User request factor of safety (apply to CSR) , User= 1.3

Plot one CSR curve (fs1=User)

10. Average two input data between two Depths: Yes*

* Recommended Options

In-Situ Test Data:

Depth	SPT	Gamma	Fines
ft	pcf	%	

2.50	22.00	120.00	20.00
5.00	17.00	120.00	20.00
10.00	22.00	100.00	53.00
15.00	30.00	100.00	53.00
20.00	30.00	120.00	40.00
25.00	40.00	120.00	NoLiq
30.00	49.00	120.00	NoLiq
35.00	88.00	115.00	NoLiq
40.00	18.00	100.00	NoLiq
45.00	93.00	100.00	NoLiq
50.00	36.00	120.00	NoLiq

Output Results:

Calculation segment, dz=0.050 ft

User defined Print Interval, dp=0.10 ft

Peak Ground Acceleration (PGA), a_max = 0.41g

CSR Calculation:

Depth	gamma	sigma	gamma'	sigma'	rd	mZ	a(z)	CSR x	fs1=CSRfs
ft	pcf	atm	pcf	atm					
			g	g					

2.50	120.00	0.142	120.00	0.142	0.99	0.000	0.412	0.27	1.30 0.35
2.60	120.00	0.147	120.00	0.147	0.99	0.000	0.412	0.27	1.30 0.35
2.70	120.00	0.153	120.00	0.153	0.99	0.000	0.412	0.27	1.30 0.35
2.80	120.00	0.159	120.00	0.159	0.99	0.000	0.412	0.27	1.30 0.35
2.90	120.00	0.164	120.00	0.164	0.99	0.000	0.412	0.27	1.30 0.35
3.00	120.00	0.170	120.00	0.170	0.99	0.000	0.412	0.27	1.30 0.35
3.10	120.00	0.176	120.00	0.176	0.99	0.000	0.412	0.27	1.30 0.35
3.20	120.00	0.181	120.00	0.181	0.99	0.000	0.412	0.27	1.30 0.35
3.30	120.00	0.187	120.00	0.187	0.99	0.000	0.412	0.27	1.30 0.35
3.40	120.00	0.193	120.00	0.193	0.99	0.000	0.412	0.27	1.30 0.35
3.50	120.00	0.198	120.00	0.198	0.99	0.000	0.412	0.27	1.30 0.35
3.60	120.00	0.204	120.00	0.204	0.99	0.000	0.412	0.27	1.30 0.35
3.70	120.00	0.210	120.00	0.210	0.99	0.000	0.412	0.27	1.30 0.35
3.80	120.00	0.215	120.00	0.215	0.99	0.000	0.412	0.27	1.30 0.35
3.90	120.00	0.221	120.00	0.221	0.99	0.000	0.412	0.27	1.30 0.34
4.00	120.00	0.227	120.00	0.227	0.99	0.000	0.412	0.27	1.30 0.34
4.10	120.00	0.232	120.00	0.232	0.99	0.000	0.412	0.27	1.30 0.34
4.20	120.00	0.238	120.00	0.238	0.99	0.000	0.412	0.27	1.30 0.34
4.30	120.00	0.244	120.00	0.244	0.99	0.000	0.412	0.27	1.30 0.34
4.40	120.00	0.250	120.00	0.250	0.99	0.000	0.412	0.27	1.30 0.34
4.50	120.00	0.255	120.00	0.255	0.99	0.000	0.412	0.26	1.30 0.34
4.60	120.00	0.261	120.00	0.261	0.99	0.000	0.412	0.26	1.30 0.34
4.70	120.00	0.267	120.00	0.267	0.99	0.000	0.412	0.26	1.30 0.34
4.80	120.00	0.272	120.00	0.272	0.99	0.000	0.412	0.26	1.30 0.34
4.90	120.00	0.278	120.00	0.278	0.99	0.000	0.412	0.26	1.30 0.34
5.00	120.00	0.284	120.00	0.284	0.99	0.000	0.412	0.26	1.30 0.34
5.10	119.60	0.289	119.60	0.289	0.99	0.000	0.412	0.26	1.30 0.34
5.20	119.20	0.295	119.20	0.295	0.99	0.000	0.412	0.26	1.30 0.34
5.30	118.80	0.300	118.80	0.300	0.99	0.000	0.412	0.26	1.30 0.34
5.40	118.40	0.306	118.40	0.306	0.99	0.000	0.412	0.26	1.30 0.34
5.50	118.00	0.312	118.00	0.312	0.99	0.000	0.412	0.26	1.30 0.34
5.60	117.60	0.317	117.60	0.317	0.99	0.000	0.412	0.26	1.30 0.34
5.70	117.20	0.323	117.20	0.323	0.99	0.000	0.412	0.26	1.30 0.34
5.80	116.80	0.328	116.80	0.328	0.99	0.000	0.412	0.26	1.30 0.34
5.90	116.40	0.334	116.40	0.334	0.99	0.000	0.412	0.26	1.30 0.34
6.00	116.00	0.339	116.00	0.339	0.99	0.000	0.412	0.26	1.30 0.34
6.10	115.60	0.345	115.60	0.345	0.99	0.000	0.412	0.26	1.30 0.34
6.20	115.20	0.350	115.20	0.350	0.99	0.000	0.412	0.26	1.30 0.34
6.30	114.80	0.356	114.80	0.356	0.99	0.000	0.412	0.26	1.30 0.34
6.40	114.40	0.361	114.40	0.361	0.99	0.000	0.412	0.26	1.30 0.34
6.50	114.00	0.367	114.00	0.367	0.98	0.000	0.412	0.26	1.30 0.34

6.60	113.60	0.372	113.60	0.372	0.98 0.000	0.412	0.26 1.30 0.34
6.70	113.20	0.377	113.20	0.377	0.98 0.000	0.412	0.26 1.30 0.34
6.80	112.80	0.383	112.80	0.383	0.98 0.000	0.412	0.26 1.30 0.34
6.90	112.40	0.388	112.40	0.388	0.98 0.000	0.412	0.26 1.30 0.34
7.00	112.00	0.393	112.00	0.393	0.98 0.000	0.412	0.26 1.30 0.34
7.10	111.60	0.399	111.60	0.399	0.98 0.000	0.412	0.26 1.30 0.34
7.20	111.20	0.404	111.20	0.404	0.98 0.000	0.412	0.26 1.30 0.34
7.30	110.80	0.409	110.80	0.409	0.98 0.000	0.412	0.26 1.30 0.34
7.40	110.40	0.414	110.40	0.414	0.98 0.000	0.412	0.26 1.30 0.34
7.50	110.00	0.420	110.00	0.420	0.98 0.000	0.412	0.26 1.30 0.34
7.60	109.60	0.425	109.60	0.425	0.98 0.000	0.412	0.26 1.30 0.34
7.70	109.20	0.430	109.20	0.430	0.98 0.000	0.412	0.26 1.30 0.34
7.80	108.80	0.435	108.80	0.435	0.98 0.000	0.412	0.26 1.30 0.34
7.90	108.40	0.440	108.40	0.440	0.98 0.000	0.412	0.26 1.30 0.34
8.00	108.00	0.445	108.00	0.445	0.98 0.000	0.412	0.26 1.30 0.34
8.10	107.60	0.450	107.60	0.450	0.98 0.000	0.412	0.26 1.30 0.34
8.20	107.20	0.455	107.20	0.455	0.98 0.000	0.412	0.26 1.30 0.34
8.30	106.80	0.461	106.80	0.461	0.98 0.000	0.412	0.26 1.30 0.34
8.40	106.40	0.466	106.40	0.466	0.98 0.000	0.412	0.26 1.30 0.34
8.50	106.00	0.471	106.00	0.471	0.98 0.000	0.412	0.26 1.30 0.34
8.60	105.60	0.476	105.60	0.476	0.98 0.000	0.412	0.26 1.30 0.34
8.70	105.20	0.481	105.20	0.481	0.98 0.000	0.412	0.26 1.30 0.34
8.80	104.80	0.486	104.80	0.486	0.98 0.000	0.412	0.26 1.30 0.34
8.90	104.40	0.490	104.40	0.490	0.98 0.000	0.412	0.26 1.30 0.34
9.00	104.00	0.495	104.00	0.495	0.98 0.000	0.412	0.26 1.30 0.34
9.10	103.60	0.500	103.60	0.500	0.98 0.000	0.412	0.26 1.30 0.34
9.20	103.20	0.505	103.20	0.505	0.98 0.000	0.412	0.26 1.30 0.34
9.30	102.80	0.510	102.80	0.510	0.98 0.000	0.412	0.26 1.30 0.34
9.40	102.40	0.515	102.40	0.515	0.98 0.000	0.412	0.26 1.30 0.34
9.50	102.00	0.520	102.00	0.520	0.98 0.000	0.412	0.26 1.30 0.34
9.60	101.60	0.525	101.60	0.525	0.98 0.000	0.412	0.26 1.30 0.34
9.70	101.20	0.529	101.20	0.529	0.98 0.000	0.412	0.26 1.30 0.34
9.80	100.80	0.534	100.80	0.534	0.98 0.000	0.412	0.26 1.30 0.34
9.90	100.40	0.539	100.40	0.539	0.98 0.000	0.412	0.26 1.30 0.34
10.00	100.00	0.544	37.60	0.544	0.98 0.000	0.412	0.26 1.30 0.34
10.10	100.00	0.548	37.60	0.545	0.98 0.000	0.412	0.26 1.30 0.34
10.20	100.00	0.553	37.60	0.547	0.98 0.000	0.412	0.26 1.30 0.34
10.30	100.00	0.558	37.60	0.549	0.98 0.000	0.412	0.27 1.30 0.35
10.40	100.00	0.563	37.60	0.551	0.98 0.000	0.412	0.27 1.30 0.35
10.50	100.00	0.567	37.60	0.553	0.98 0.000	0.412	0.27 1.30 0.35
10.60	100.00	0.572	37.60	0.554	0.98 0.000	0.412	0.27 1.30 0.35
10.70	100.00	0.577	37.60	0.556	0.98 0.000	0.412	0.27 1.30 0.35
10.80	100.00	0.581	37.60	0.558	0.97 0.000	0.412	0.27 1.30 0.35
10.90	100.00	0.586	37.60	0.560	0.97 0.000	0.412	0.27 1.30 0.36
11.00	100.00	0.591	37.60	0.561	0.97 0.000	0.412	0.27 1.30 0.36
11.10	100.00	0.596	37.60	0.563	0.97 0.000	0.412	0.28 1.30 0.36
11.20	100.00	0.600	37.60	0.565	0.97 0.000	0.412	0.28 1.30 0.36
11.30	100.00	0.605	37.60	0.567	0.97 0.000	0.412	0.28 1.30 0.36
11.40	100.00	0.610	37.60	0.569	0.97 0.000	0.412	0.28 1.30 0.36
11.50	100.00	0.615	37.60	0.570	0.97 0.000	0.412	0.28 1.30 0.37
11.60	100.00	0.619	37.60	0.572	0.97 0.000	0.412	0.28 1.30 0.37
11.70	100.00	0.624	37.60	0.574	0.97 0.000	0.412	0.28 1.30 0.37
11.80	100.00	0.629	37.60	0.576	0.97 0.000	0.412	0.28 1.30 0.37
11.90	100.00	0.633	37.60	0.577	0.97 0.000	0.412	0.29 1.30 0.37

12.00	100.00	0.638	37.60	0.579	0.97 0.000	0.412	0.29 1.30 0.37
12.10	100.00	0.643	37.60	0.581	0.97 0.000	0.412	0.29 1.30 0.37
12.20	100.00	0.648	37.60	0.583	0.97 0.000	0.412	0.29 1.30 0.38
12.30	100.00	0.652	37.60	0.585	0.97 0.000	0.412	0.29 1.30 0.38
12.40	100.00	0.657	37.60	0.586	0.97 0.000	0.412	0.29 1.30 0.38
12.50	100.00	0.662	37.60	0.588	0.97 0.000	0.412	0.29 1.30 0.38
12.60	100.00	0.667	37.60	0.590	0.97 0.000	0.412	0.29 1.30 0.38
12.70	100.00	0.671	37.60	0.592	0.97 0.000	0.412	0.29 1.30 0.38
12.80	100.00	0.676	37.60	0.593	0.97 0.000	0.412	0.30 1.30 0.38
12.90	100.00	0.681	37.60	0.595	0.97 0.000	0.412	0.30 1.30 0.39
13.00	100.00	0.685	37.60	0.597	0.97 0.000	0.412	0.30 1.30 0.39
13.10	100.00	0.690	37.60	0.599	0.97 0.000	0.412	0.30 1.30 0.39
13.20	100.00	0.695	37.60	0.601	0.97 0.000	0.412	0.30 1.30 0.39
13.30	100.00	0.700	37.60	0.602	0.97 0.000	0.412	0.30 1.30 0.39
13.40	100.00	0.704	37.60	0.604	0.97 0.000	0.412	0.30 1.30 0.39
13.50	100.00	0.709	37.60	0.606	0.97 0.000	0.412	0.30 1.30 0.39
13.60	100.00	0.714	37.60	0.608	0.97 0.000	0.412	0.30 1.30 0.40
13.70	100.00	0.719	37.60	0.609	0.97 0.000	0.412	0.31 1.30 0.40
13.80	100.00	0.723	37.60	0.611	0.97 0.000	0.412	0.31 1.30 0.40
13.90	100.00	0.728	37.60	0.613	0.97 0.000	0.412	0.31 1.30 0.40
14.00	100.00	0.733	37.60	0.615	0.97 0.000	0.412	0.31 1.30 0.40
14.10	100.00	0.737	37.60	0.617	0.97 0.000	0.412	0.31 1.30 0.40
14.20	100.00	0.742	37.60	0.618	0.97 0.000	0.412	0.31 1.30 0.40
14.30	100.00	0.747	37.60	0.620	0.97 0.000	0.412	0.31 1.30 0.41
14.40	100.00	0.752	37.60	0.622	0.97 0.000	0.412	0.31 1.30 0.41
14.50	100.00	0.756	37.60	0.624	0.97 0.000	0.412	0.31 1.30 0.41
14.60	100.00	0.761	37.60	0.625	0.97 0.000	0.412	0.31 1.30 0.41
14.70	100.00	0.766	37.60	0.627	0.97 0.000	0.412	0.32 1.30 0.41
14.80	100.00	0.770	37.60	0.629	0.97 0.000	0.412	0.32 1.30 0.41
14.90	100.00	0.775	37.60	0.631	0.97 0.000	0.412	0.32 1.30 0.41
15.00	100.00	0.780	37.60	0.633	0.97 0.000	0.412	0.32 1.30 0.41
15.10	100.40	0.785	38.00	0.634	0.96 0.000	0.412	0.32 1.30 0.42
15.20	100.80	0.789	38.40	0.636	0.96 0.000	0.412	0.32 1.30 0.42
15.30	101.20	0.794	38.80	0.638	0.96 0.000	0.412	0.32 1.30 0.42
15.40	101.60	0.799	39.20	0.640	0.96 0.000	0.412	0.32 1.30 0.42
15.50	102.00	0.804	39.60	0.642	0.96 0.000	0.412	0.32 1.30 0.42
15.60	102.40	0.809	40.00	0.643	0.96 0.000	0.412	0.32 1.30 0.42
15.70	102.80	0.813	40.40	0.645	0.96 0.000	0.412	0.33 1.30 0.42
15.80	103.20	0.818	40.80	0.647	0.96 0.000	0.412	0.33 1.30 0.42
15.90	103.60	0.823	41.20	0.649	0.96 0.000	0.412	0.33 1.30 0.43
16.00	104.00	0.828	41.60	0.651	0.96 0.000	0.412	0.33 1.30 0.43
16.10	104.40	0.833	42.00	0.653	0.96 0.000	0.412	0.33 1.30 0.43
16.20	104.80	0.838	42.40	0.655	0.96 0.000	0.412	0.33 1.30 0.43
16.30	105.20	0.843	42.80	0.657	0.96 0.000	0.412	0.33 1.30 0.43
16.40	105.60	0.848	43.20	0.659	0.96 0.000	0.412	0.33 1.30 0.43
16.50	106.00	0.853	43.60	0.661	0.96 0.000	0.412	0.33 1.30 0.43
16.60	106.40	0.858	44.00	0.663	0.96 0.000	0.412	0.33 1.30 0.43
16.70	106.80	0.863	44.40	0.665	0.96 0.000	0.412	0.33 1.30 0.43
16.80	107.20	0.868	44.80	0.667	0.96 0.000	0.412	0.33 1.30 0.43
16.90	107.60	0.873	45.20	0.670	0.96 0.000	0.412	0.34 1.30 0.44
17.00	108.00	0.878	45.60	0.672	0.96 0.000	0.412	0.34 1.30 0.44
17.10	108.40	0.883	46.00	0.674	0.96 0.000	0.412	0.34 1.30 0.44
17.20	108.80	0.888	46.40	0.676	0.96 0.000	0.412	0.34 1.30 0.44
17.30	109.20	0.894	46.80	0.678	0.96 0.000	0.412	0.34 1.30 0.44

17.40	109.60	0.899	47.20	0.680	0.96 0.000	0.412	0.34 1.30 0.44
17.50	110.00	0.904	47.60	0.683	0.96 0.000	0.412	0.34 1.30 0.44
17.60	110.40	0.909	48.00	0.685	0.96 0.000	0.412	0.34 1.30 0.44
17.70	110.80	0.914	48.40	0.687	0.96 0.000	0.412	0.34 1.30 0.44
17.80	111.20	0.920	48.80	0.690	0.96 0.000	0.412	0.34 1.30 0.44
17.90	111.60	0.925	49.20	0.692	0.96 0.000	0.412	0.34 1.30 0.45
18.00	112.00	0.930	49.60	0.694	0.96 0.000	0.412	0.34 1.30 0.45
18.10	112.40	0.935	50.00	0.697	0.96 0.000	0.412	0.34 1.30 0.45
18.20	112.80	0.941	50.40	0.699	0.96 0.000	0.412	0.35 1.30 0.45
18.30	113.20	0.946	50.80	0.701	0.96 0.000	0.412	0.35 1.30 0.45
18.40	113.60	0.951	51.20	0.704	0.96 0.000	0.412	0.35 1.30 0.45
18.50	114.00	0.957	51.60	0.706	0.96 0.000	0.412	0.35 1.30 0.45
18.60	114.40	0.962	52.00	0.709	0.96 0.000	0.412	0.35 1.30 0.45
18.70	114.80	0.968	52.40	0.711	0.96 0.000	0.412	0.35 1.30 0.45
18.80	115.20	0.973	52.80	0.713	0.96 0.000	0.412	0.35 1.30 0.45
18.90	115.60	0.978	53.20	0.716	0.96 0.000	0.412	0.35 1.30 0.45
19.00	116.00	0.984	53.60	0.719	0.96 0.000	0.412	0.35 1.30 0.46
19.10	116.40	0.989	54.00	0.721	0.96 0.000	0.412	0.35 1.30 0.46
19.20	116.80	0.995	54.40	0.724	0.96 0.000	0.412	0.35 1.30 0.46
19.30	117.20	1.000	54.80	0.726	0.96 0.000	0.412	0.35 1.30 0.46
19.40	117.60	1.006	55.20	0.729	0.95 0.000	0.412	0.35 1.30 0.46
19.50	118.00	1.012	55.60	0.731	0.95 0.000	0.412	0.35 1.30 0.46
19.60	118.40	1.017	56.00	0.734	0.95 0.000	0.412	0.35 1.30 0.46
19.70	118.80	1.023	56.40	0.737	0.95 0.000	0.412	0.35 1.30 0.46
19.80	119.20	1.028	56.80	0.739	0.95 0.000	0.412	0.36 1.30 0.46
19.90	119.60	1.034	57.20	0.742	0.95 0.000	0.412	0.36 1.30 0.46
20.00	120.00	1.040	57.60	0.745	0.95 0.000	0.412	0.36 1.30 0.46
20.10	120.00	1.045	57.60	0.747	0.95 0.000	0.412	0.36 1.30 0.46
20.20	120.00	1.051	57.60	0.750	0.95 0.000	0.412	0.36 1.30 0.46
20.30	120.00	1.057	57.60	0.753	0.95 0.000	0.412	0.36 1.30 0.47
20.40	120.00	1.062	57.60	0.756	0.95 0.000	0.412	0.36 1.30 0.47
20.50	120.00	1.068	57.60	0.758	0.95 0.000	0.412	0.36 1.30 0.47
20.60	120.00	1.074	57.60	0.761	0.95 0.000	0.412	0.36 1.30 0.47
20.70	120.00	1.079	57.60	0.764	0.95 0.000	0.412	0.36 1.30 0.47
20.80	120.00	1.085	57.60	0.767	0.95 0.000	0.412	0.36 1.30 0.47
20.90	120.00	1.091	57.60	0.769	0.95 0.000	0.412	0.36 1.30 0.47
21.00	120.00	1.096	57.60	0.772	0.95 0.000	0.412	0.36 1.30 0.47
21.10	120.00	1.102	57.60	0.775	0.95 0.000	0.412	0.36 1.30 0.47
21.20	120.00	1.108	57.60	0.777	0.95 0.000	0.412	0.36 1.30 0.47
21.30	120.00	1.113	57.60	0.780	0.95 0.000	0.412	0.36 1.30 0.47
21.40	120.00	1.119	57.60	0.783	0.95 0.000	0.412	0.36 1.30 0.47
21.50	120.00	1.125	57.60	0.786	0.95 0.000	0.412	0.36 1.30 0.47
21.60	120.00	1.130	57.60	0.788	0.95 0.000	0.412	0.36 1.30 0.47
21.70	120.00	1.136	57.60	0.791	0.95 0.000	0.412	0.37 1.30 0.47
21.80	120.00	1.142	57.60	0.794	0.95 0.000	0.412	0.37 1.30 0.48
21.90	120.00	1.147	57.60	0.796	0.95 0.000	0.412	0.37 1.30 0.48
22.00	120.00	1.153	57.60	0.799	0.95 0.000	0.412	0.37 1.30 0.48
22.10	120.00	1.159	57.60	0.802	0.95 0.000	0.412	0.37 1.30 0.48
22.20	120.00	1.164	57.60	0.805	0.95 0.000	0.412	0.37 1.30 0.48
22.30	120.00	1.170	57.60	0.807	0.95 0.000	0.412	0.37 1.30 0.48
22.40	120.00	1.176	57.60	0.810	0.95 0.000	0.412	0.37 1.30 0.48
22.50	120.00	1.181	57.60	0.813	0.95 0.000	0.412	0.37 1.30 0.48
22.60	120.00	1.187	57.60	0.816	0.95 0.000	0.412	0.37 1.30 0.48
22.70	120.00	1.193	57.60	0.818	0.95 0.000	0.412	0.37 1.30 0.48

22.80	120.00	1.198	57.60	0.821	0.95 0.000	0.412	0.37 1.30 0.48
22.90	120.00	1.204	57.60	0.824	0.95 0.000	0.412	0.37 1.30 0.48
23.00	120.00	1.210	57.60	0.826	0.95 0.000	0.412	0.37 1.30 0.48
23.10	120.00	1.215	57.60	0.829	0.95 0.000	0.412	0.37 1.30 0.48
23.20	120.00	1.221	57.60	0.832	0.95 0.000	0.412	0.37 1.30 0.48
23.30	120.00	1.227	57.60	0.835	0.95 0.000	0.412	0.37 1.30 0.48
23.40	120.00	1.232	57.60	0.837	0.95 0.000	0.412	0.37 1.30 0.48
23.50	120.00	1.238	57.60	0.840	0.95 0.000	0.412	0.37 1.30 0.49
23.60	120.00	1.244	57.60	0.843	0.94 0.000	0.412	0.37 1.30 0.49
23.70	120.00	1.249	57.60	0.845	0.94 0.000	0.412	0.37 1.30 0.49
23.80	120.00	1.255	57.60	0.848	0.94 0.000	0.412	0.37 1.30 0.49
23.90	120.00	1.261	57.60	0.851	0.94 0.000	0.412	0.37 1.30 0.49
24.00	120.00	1.266	57.60	0.854	0.94 0.000	0.412	0.38 1.30 0.49
24.10	120.00	1.272	57.60	0.856	0.94 0.000	0.412	0.38 1.30 0.49
24.20	120.00	1.278	57.60	0.859	0.94 0.000	0.412	0.38 1.30 0.49
24.30	120.00	1.283	57.60	0.862	0.94 0.000	0.412	0.38 1.30 0.49
24.40	120.00	1.289	57.60	0.864	0.94 0.000	0.412	0.38 1.30 0.49
24.50	120.00	1.295	57.60	0.867	0.94 0.000	0.412	0.38 1.30 0.49
24.60	120.00	1.300	57.60	0.870	0.94 0.000	0.412	0.38 1.30 0.49
24.70	120.00	1.306	57.60	0.873	0.94 0.000	0.412	0.38 1.30 0.49
24.80	120.00	1.312	57.60	0.875	0.94 0.000	0.412	0.38 1.30 0.49
24.90	120.00	1.317	57.60	0.878	0.94 0.000	0.412	0.38 1.30 0.49
25.00	120.00	1.323	57.60	0.881	0.94 0.000	0.412	0.38 1.30 0.49
25.10	120.00	1.329	57.60	0.884	0.94 0.000	0.412	0.38 1.30 0.49
25.20	120.00	1.334	57.60	0.886	0.94 0.000	0.412	0.38 1.30 0.49
25.30	120.00	1.340	57.60	0.889	0.94 0.000	0.412	0.38 1.30 0.49
25.40	120.00	1.346	57.60	0.892	0.94 0.000	0.412	0.38 1.30 0.49
25.50	120.00	1.351	57.60	0.894	0.94 0.000	0.412	0.38 1.30 0.49
25.60	120.00	1.357	57.60	0.897	0.94 0.000	0.412	0.38 1.30 0.50
25.70	120.00	1.363	57.60	0.900	0.94 0.000	0.412	0.38 1.30 0.50
25.80	120.00	1.368	57.60	0.903	0.94 0.000	0.412	0.38 1.30 0.50
25.90	120.00	1.374	57.60	0.905	0.94 0.000	0.412	0.38 1.30 0.50
26.00	120.00	1.380	57.60	0.908	0.94 0.000	0.412	0.38 1.30 0.50
26.10	120.00	1.386	57.60	0.911	0.94 0.000	0.412	0.38 1.30 0.50
26.20	120.00	1.391	57.60	0.913	0.94 0.000	0.412	0.38 1.30 0.50
26.30	120.00	1.397	57.60	0.916	0.94 0.000	0.412	0.38 1.30 0.50
26.40	120.00	1.403	57.60	0.919	0.94 0.000	0.412	0.38 1.30 0.50
26.50	120.00	1.408	57.60	0.922	0.94 0.000	0.412	0.38 1.30 0.50
26.60	120.00	1.414	57.60	0.924	0.94 0.000	0.412	0.38 1.30 0.50
26.70	120.00	1.420	57.60	0.927	0.94 0.000	0.412	0.38 1.30 0.50
26.80	120.00	1.425	57.60	0.930	0.94 0.000	0.412	0.38 1.30 0.50
26.90	120.00	1.431	57.60	0.933	0.94 0.000	0.412	0.39 1.30 0.50
27.00	120.00	1.437	57.60	0.935	0.94 0.000	0.412	0.39 1.30 0.50
27.10	120.00	1.442	57.60	0.938	0.94 0.000	0.412	0.39 1.30 0.50
27.20	120.00	1.448	57.60	0.941	0.94 0.000	0.412	0.39 1.30 0.50
27.30	120.00	1.454	57.60	0.943	0.94 0.000	0.412	0.39 1.30 0.50
27.40	120.00	1.459	57.60	0.946	0.94 0.000	0.412	0.39 1.30 0.50
27.50	120.00	1.465	57.60	0.949	0.94 0.000	0.412	0.39 1.30 0.50
27.60	120.00	1.471	57.60	0.952	0.94 0.000	0.412	0.39 1.30 0.50
27.70	120.00	1.476	57.60	0.954	0.94 0.000	0.412	0.39 1.30 0.50
27.80	120.00	1.482	57.60	0.957	0.94 0.000	0.412	0.39 1.30 0.50
27.90	120.00	1.488	57.60	0.960	0.93 0.000	0.412	0.39 1.30 0.50
28.00	120.00	1.493	57.60	0.962	0.93 0.000	0.412	0.39 1.30 0.50
28.10	120.00	1.499	57.60	0.965	0.93 0.000	0.412	0.39 1.30 0.51

28.20	120.00	1.505	57.60	0.968	0.93 0.000	0.412	0.39 1.30 0.51
28.30	120.00	1.510	57.60	0.971	0.93 0.000	0.412	0.39 1.30 0.51
28.40	120.00	1.516	57.60	0.973	0.93 0.000	0.412	0.39 1.30 0.51
28.50	120.00	1.522	57.60	0.976	0.93 0.000	0.412	0.39 1.30 0.51
28.60	120.00	1.527	57.60	0.979	0.93 0.000	0.412	0.39 1.30 0.51
28.70	120.00	1.533	57.60	0.982	0.93 0.000	0.412	0.39 1.30 0.51
28.80	120.00	1.539	57.60	0.984	0.93 0.000	0.412	0.39 1.30 0.51
28.90	120.00	1.544	57.60	0.987	0.93 0.000	0.412	0.39 1.30 0.51
29.00	120.00	1.550	57.60	0.990	0.93 0.000	0.412	0.39 1.30 0.51
29.10	120.00	1.556	57.60	0.992	0.93 0.000	0.412	0.39 1.30 0.51
29.20	120.00	1.561	57.60	0.995	0.93 0.000	0.412	0.39 1.30 0.51
29.30	120.00	1.567	57.60	0.998	0.93 0.000	0.412	0.39 1.30 0.51
29.40	120.00	1.573	57.60	1.001	0.93 0.000	0.412	0.39 1.30 0.51
29.50	120.00	1.578	57.60	1.003	0.93 0.000	0.412	0.39 1.30 0.51
29.60	120.00	1.584	57.60	1.006	0.93 0.000	0.412	0.39 1.30 0.51
29.70	120.00	1.590	57.60	1.009	0.93 0.000	0.412	0.39 1.30 0.51
29.80	120.00	1.595	57.60	1.011	0.93 0.000	0.412	0.39 1.30 0.51
29.90	120.00	1.601	57.60	1.014	0.93 0.000	0.412	0.39 1.30 0.51
30.00	120.00	1.607	57.60	1.017	0.93 0.000	0.412	0.39 1.30 0.51
30.10	119.90	1.612	57.50	1.020	0.93 0.000	0.412	0.39 1.30 0.51
30.20	119.80	1.618	57.40	1.022	0.93 0.000	0.412	0.39 1.30 0.51
30.30	119.70	1.624	57.30	1.025	0.93 0.000	0.412	0.39 1.30 0.51
30.40	119.60	1.629	57.20	1.028	0.93 0.000	0.412	0.39 1.30 0.51
30.50	119.50	1.635	57.10	1.030	0.93 0.000	0.412	0.39 1.30 0.51
30.60	119.40	1.641	57.00	1.033	0.92 0.000	0.412	0.39 1.30 0.51
30.70	119.30	1.646	56.90	1.036	0.92 0.000	0.412	0.39 1.30 0.51
30.80	119.20	1.652	56.80	1.039	0.92 0.000	0.412	0.39 1.30 0.51
30.90	119.10	1.658	56.70	1.041	0.92 0.000	0.412	0.39 1.30 0.51
31.00	119.00	1.663	56.60	1.044	0.92 0.000	0.412	0.39 1.30 0.51
31.10	118.90	1.669	56.50	1.047	0.92 0.000	0.412	0.39 1.30 0.51
31.20	118.80	1.674	56.40	1.049	0.92 0.000	0.412	0.39 1.30 0.51
31.30	118.70	1.680	56.30	1.052	0.92 0.000	0.412	0.39 1.30 0.51
31.40	118.60	1.686	56.20	1.055	0.92 0.000	0.412	0.39 1.30 0.51
31.50	118.50	1.691	56.10	1.057	0.92 0.000	0.412	0.39 1.30 0.51
31.60	118.40	1.697	56.00	1.060	0.92 0.000	0.412	0.39 1.30 0.51
31.70	118.30	1.702	55.90	1.063	0.92 0.000	0.412	0.39 1.30 0.51
31.80	118.20	1.708	55.80	1.065	0.92 0.000	0.412	0.39 1.30 0.51
31.90	118.10	1.714	55.70	1.068	0.91 0.000	0.412	0.39 1.30 0.51
32.00	118.00	1.719	55.60	1.070	0.91 0.000	0.412	0.39 1.30 0.51
32.10	117.90	1.725	55.50	1.073	0.91 0.000	0.412	0.39 1.30 0.51
32.20	117.80	1.730	55.40	1.076	0.91 0.000	0.412	0.39 1.30 0.51
32.30	117.70	1.736	55.30	1.078	0.91 0.000	0.412	0.39 1.30 0.51
32.40	117.60	1.741	55.20	1.081	0.91 0.000	0.412	0.39 1.30 0.51
32.50	117.50	1.747	55.10	1.084	0.91 0.000	0.412	0.39 1.30 0.51
32.60	117.40	1.753	55.00	1.086	0.91 0.000	0.412	0.39 1.30 0.51
32.70	117.30	1.758	54.90	1.089	0.91 0.000	0.412	0.39 1.30 0.51
32.80	117.20	1.764	54.80	1.091	0.91 0.000	0.412	0.39 1.30 0.51
32.90	117.10	1.769	54.70	1.094	0.91 0.000	0.412	0.39 1.30 0.51
33.00	117.00	1.775	54.60	1.096	0.91 0.000	0.412	0.39 1.30 0.51
33.10	116.90	1.780	54.50	1.099	0.90 0.000	0.412	0.39 1.30 0.51
33.20	116.80	1.786	54.40	1.102	0.90 0.000	0.412	0.39 1.30 0.51
33.30	116.70	1.791	54.30	1.104	0.90 0.000	0.412	0.39 1.30 0.51
33.40	116.60	1.797	54.20	1.107	0.90 0.000	0.412	0.39 1.30 0.51
33.50	116.50	1.802	54.10	1.109	0.90 0.000	0.412	0.39 1.30 0.51

33.60	116.40	1.808	54.00	1.112	0.90 0.000	0.412	0.39 1.30 0.51
33.70	116.30	1.813	53.90	1.114	0.90 0.000	0.412	0.39 1.30 0.51
33.80	116.20	1.819	53.80	1.117	0.90 0.000	0.412	0.39 1.30 0.51
33.90	116.10	1.824	53.70	1.120	0.90 0.000	0.412	0.39 1.30 0.51
34.00	116.00	1.830	53.60	1.122	0.90 0.000	0.412	0.39 1.30 0.51
34.10	115.90	1.835	53.50	1.125	0.90 0.000	0.412	0.39 1.30 0.51
34.20	115.80	1.841	53.40	1.127	0.90 0.000	0.412	0.39 1.30 0.51
34.30	115.70	1.846	53.30	1.130	0.89 0.000	0.412	0.39 1.30 0.51
34.40	115.60	1.852	53.20	1.132	0.89 0.000	0.412	0.39 1.30 0.51
34.50	115.50	1.857	53.10	1.135	0.89 0.000	0.412	0.39 1.30 0.51
34.60	115.40	1.863	53.00	1.137	0.89 0.000	0.412	0.39 1.30 0.51
34.70	115.30	1.868	52.90	1.140	0.89 0.000	0.412	0.39 1.30 0.51
34.80	115.20	1.873	52.80	1.142	0.89 0.000	0.412	0.39 1.30 0.51
34.90	115.10	1.879	52.70	1.145	0.89 0.000	0.412	0.39 1.30 0.51
35.00	115.00	1.884	52.60	1.147	0.89 0.000	0.412	0.39 1.30 0.51
35.10	114.70	1.890	52.30	1.150	0.89 0.000	0.412	0.39 1.30 0.51
35.20	114.40	1.895	52.00	1.152	0.89 0.000	0.412	0.39 1.30 0.51
35.30	114.10	1.901	51.70	1.155	0.89 0.000	0.412	0.39 1.30 0.51
35.40	113.80	1.906	51.40	1.157	0.89 0.000	0.412	0.39 1.30 0.51
35.50	113.50	1.911	51.10	1.159	0.89 0.000	0.412	0.39 1.30 0.51
35.60	113.20	1.917	50.80	1.162	0.88 0.000	0.412	0.39 1.30 0.51
35.70	112.90	1.922	50.50	1.164	0.88 0.000	0.412	0.39 1.30 0.51
35.80	112.60	1.927	50.20	1.167	0.88 0.000	0.412	0.39 1.30 0.51
35.90	112.30	1.933	49.90	1.169	0.88 0.000	0.412	0.39 1.30 0.51
36.00	112.00	1.938	49.60	1.171	0.88 0.000	0.412	0.39 1.30 0.51
36.10	111.70	1.943	49.30	1.174	0.88 0.000	0.412	0.39 1.30 0.51
36.20	111.40	1.949	49.00	1.176	0.88 0.000	0.412	0.39 1.30 0.51
36.30	111.10	1.954	48.70	1.178	0.88 0.000	0.412	0.39 1.30 0.51
36.40	110.80	1.959	48.40	1.181	0.88 0.000	0.412	0.39 1.30 0.51
36.50	110.50	1.964	48.10	1.183	0.88 0.000	0.412	0.39 1.30 0.51
36.60	110.20	1.970	47.80	1.185	0.88 0.000	0.412	0.39 1.30 0.51
36.70	109.90	1.975	47.50	1.187	0.88 0.000	0.412	0.39 1.30 0.51
36.80	109.60	1.980	47.20	1.190	0.87 0.000	0.412	0.39 1.30 0.51
36.90	109.30	1.985	46.90	1.192	0.87 0.000	0.412	0.39 1.30 0.51
37.00	109.00	1.990	46.60	1.194	0.87 0.000	0.412	0.39 1.30 0.51
37.10	108.70	1.995	46.30	1.196	0.87 0.000	0.412	0.39 1.30 0.51
37.20	108.40	2.001	46.00	1.199	0.87 0.000	0.412	0.39 1.30 0.51
37.30	108.10	2.006	45.70	1.201	0.87 0.000	0.412	0.39 1.30 0.51
37.40	107.80	2.011	45.40	1.203	0.87 0.000	0.412	0.39 1.30 0.51
37.50	107.50	2.016	45.10	1.205	0.87 0.000	0.412	0.39 1.30 0.51
37.60	107.20	2.021	44.80	1.207	0.87 0.000	0.412	0.39 1.30 0.51
37.70	106.90	2.026	44.50	1.209	0.87 0.000	0.412	0.39 1.30 0.51
37.80	106.60	2.031	44.20	1.211	0.87 0.000	0.412	0.39 1.30 0.51
37.90	106.30	2.036	43.90	1.213	0.87 0.000	0.412	0.39 1.30 0.51
38.00	106.00	2.041	43.60	1.215	0.86 0.000	0.412	0.39 1.30 0.51
38.10	105.70	2.046	43.30	1.218	0.86 0.000	0.412	0.39 1.30 0.51
38.20	105.40	2.051	43.00	1.220	0.86 0.000	0.412	0.39 1.30 0.51
38.30	105.10	2.056	42.70	1.222	0.86 0.000	0.412	0.39 1.30 0.51
38.40	104.80	2.061	42.40	1.224	0.86 0.000	0.412	0.39 1.30 0.51
38.50	104.50	2.066	42.10	1.226	0.86 0.000	0.412	0.39 1.30 0.51
38.60	104.20	2.071	41.80	1.228	0.86 0.000	0.412	0.39 1.30 0.51
38.70	103.90	2.076	41.50	1.230	0.86 0.000	0.412	0.39 1.30 0.50
38.80	103.60	2.081	41.20	1.232	0.86 0.000	0.412	0.39 1.30 0.50
38.90	103.30	2.086	40.90	1.233	0.86 0.000	0.412	0.39 1.30 0.50

39.00	103.00	2.091	40.60	1.235	0.86 0.000	0.412	0.39 1.30 0.50
39.10	102.70	2.095	40.30	1.237	0.86 0.000	0.412	0.39 1.30 0.50
39.20	102.40	2.100	40.00	1.239	0.86 0.000	0.412	0.39 1.30 0.50
39.30	102.10	2.105	39.70	1.241	0.85 0.000	0.412	0.39 1.30 0.50
39.40	101.80	2.110	39.40	1.243	0.85 0.000	0.412	0.39 1.30 0.50
39.50	101.50	2.115	39.10	1.245	0.85 0.000	0.412	0.39 1.30 0.50
39.60	101.20	2.119	38.80	1.247	0.85 0.000	0.412	0.39 1.30 0.50
39.70	100.90	2.124	38.50	1.249	0.85 0.000	0.412	0.39 1.30 0.50
39.80	100.60	2.129	38.20	1.250	0.85 0.000	0.412	0.39 1.30 0.50
39.90	100.30	2.134	37.90	1.252	0.85 0.000	0.412	0.39 1.30 0.50
40.00	100.00	2.139	37.60	1.254	0.85 0.000	0.412	0.39 1.30 0.50
40.10	100.00	2.143	37.60	1.256	0.85 0.000	0.412	0.39 1.30 0.50
40.20	100.00	2.148	37.60	1.257	0.85 0.000	0.412	0.39 1.30 0.50
40.30	100.00	2.153	37.60	1.259	0.85 0.000	0.412	0.39 1.30 0.50
40.40	100.00	2.157	37.60	1.261	0.85 0.000	0.412	0.39 1.30 0.50
40.50	100.00	2.162	37.60	1.263	0.84 0.000	0.412	0.39 1.30 0.50
40.60	100.00	2.167	37.60	1.265	0.84 0.000	0.412	0.39 1.30 0.50
40.70	100.00	2.172	37.60	1.266	0.84 0.000	0.412	0.39 1.30 0.50
40.80	100.00	2.176	37.60	1.268	0.84 0.000	0.412	0.39 1.30 0.50
40.90	100.00	2.181	37.60	1.270	0.84 0.000	0.412	0.39 1.30 0.50
41.00	100.00	2.186	37.60	1.272	0.84 0.000	0.412	0.39 1.30 0.50
41.10	100.00	2.190	37.60	1.273	0.84 0.000	0.412	0.39 1.30 0.50
41.20	100.00	2.195	37.60	1.275	0.84 0.000	0.412	0.39 1.30 0.50
41.30	100.00	2.200	37.60	1.277	0.84 0.000	0.412	0.39 1.30 0.50
41.40	100.00	2.205	37.60	1.279	0.84 0.000	0.412	0.39 1.30 0.50
41.50	100.00	2.209	37.60	1.281	0.84 0.000	0.412	0.39 1.30 0.50
41.60	100.00	2.214	37.60	1.282	0.84 0.000	0.412	0.39 1.30 0.50
41.70	100.00	2.219	37.60	1.284	0.83 0.000	0.412	0.39 1.30 0.50
41.80	100.00	2.224	37.60	1.286	0.83 0.000	0.412	0.39 1.30 0.50
41.90	100.00	2.228	37.60	1.288	0.83 0.000	0.412	0.39 1.30 0.50
42.00	100.00	2.233	37.60	1.289	0.83 0.000	0.412	0.39 1.30 0.50
42.10	100.00	2.238	37.60	1.291	0.83 0.000	0.412	0.39 1.30 0.50
42.20	100.00	2.242	37.60	1.293	0.83 0.000	0.412	0.39 1.30 0.50
42.30	100.00	2.247	37.60	1.295	0.83 0.000	0.412	0.39 1.30 0.50
42.40	100.00	2.252	37.60	1.297	0.83 0.000	0.412	0.39 1.30 0.50
42.50	100.00	2.257	37.60	1.298	0.83 0.000	0.412	0.39 1.30 0.50
42.60	100.00	2.261	37.60	1.300	0.83 0.000	0.412	0.39 1.30 0.50
42.70	100.00	2.266	37.60	1.302	0.83 0.000	0.412	0.39 1.30 0.50
42.80	100.00	2.271	37.60	1.304	0.83 0.000	0.412	0.39 1.30 0.50
42.90	100.00	2.276	37.60	1.305	0.82 0.000	0.412	0.39 1.30 0.50
43.00	100.00	2.280	37.60	1.307	0.82 0.000	0.412	0.38 1.30 0.50
43.10	100.00	2.285	37.60	1.309	0.82 0.000	0.412	0.38 1.30 0.50
43.20	100.00	2.290	37.60	1.311	0.82 0.000	0.412	0.38 1.30 0.50
43.30	100.00	2.294	37.60	1.313	0.82 0.000	0.412	0.38 1.30 0.50
43.40	100.00	2.299	37.60	1.314	0.82 0.000	0.412	0.38 1.30 0.50
43.50	100.00	2.304	37.60	1.316	0.82 0.000	0.412	0.38 1.30 0.50
43.60	100.00	2.309	37.60	1.318	0.82 0.000	0.412	0.38 1.30 0.50
43.70	100.00	2.313	37.60	1.320	0.82 0.000	0.412	0.38 1.30 0.50
43.80	100.00	2.318	37.60	1.321	0.82 0.000	0.412	0.38 1.30 0.50
43.90	100.00	2.323	37.60	1.323	0.82 0.000	0.412	0.38 1.30 0.50
44.00	100.00	2.328	37.60	1.325	0.82 0.000	0.412	0.38 1.30 0.50
44.10	100.00	2.332	37.60	1.327	0.82 0.000	0.412	0.38 1.30 0.50
44.20	100.00	2.337	37.60	1.329	0.81 0.000	0.412	0.38 1.30 0.50
44.30	100.00	2.342	37.60	1.330	0.81 0.000	0.412	0.38 1.30 0.50

44.40	100.00	2.346	37.60	1.332	0.81 0.000	0.412	0.38 1.30 0.50
44.50	100.00	2.351	37.60	1.334	0.81 0.000	0.412	0.38 1.30 0.50
44.60	100.00	2.356	37.60	1.336	0.81 0.000	0.412	0.38 1.30 0.50
44.70	100.00	2.361	37.60	1.337	0.81 0.000	0.412	0.38 1.30 0.50
44.80	100.00	2.365	37.60	1.339	0.81 0.000	0.412	0.38 1.30 0.50
44.90	100.00	2.370	37.60	1.341	0.81 0.000	0.412	0.38 1.30 0.50
45.00	100.00	2.375	37.60	1.343	0.81 0.000	0.412	0.38 1.30 0.50
45.10	100.40	2.380	38.00	1.345	0.81 0.000	0.412	0.38 1.30 0.50
45.20	100.80	2.384	38.40	1.346	0.81 0.000	0.412	0.38 1.30 0.50
45.30	101.20	2.389	38.80	1.348	0.81 0.000	0.412	0.38 1.30 0.50
45.40	101.60	2.394	39.20	1.350	0.80 0.000	0.412	0.38 1.30 0.50
45.50	102.00	2.399	39.60	1.352	0.80 0.000	0.412	0.38 1.30 0.50
45.60	102.40	2.403	40.00	1.354	0.80 0.000	0.412	0.38 1.30 0.50
45.70	102.80	2.408	40.40	1.356	0.80 0.000	0.412	0.38 1.30 0.50
45.80	103.20	2.413	40.80	1.358	0.80 0.000	0.412	0.38 1.30 0.50
45.90	103.60	2.418	41.20	1.359	0.80 0.000	0.412	0.38 1.30 0.50
46.00	104.00	2.423	41.60	1.361	0.80 0.000	0.412	0.38 1.30 0.50
46.10	104.40	2.428	42.00	1.363	0.80 0.000	0.412	0.38 1.30 0.50
46.20	104.80	2.433	42.40	1.365	0.80 0.000	0.412	0.38 1.30 0.50
46.30	105.20	2.438	42.80	1.367	0.80 0.000	0.412	0.38 1.30 0.49
46.40	105.60	2.443	43.20	1.369	0.80 0.000	0.412	0.38 1.30 0.49
46.50	106.00	2.448	43.60	1.371	0.80 0.000	0.412	0.38 1.30 0.49
46.60	106.40	2.453	44.00	1.374	0.79 0.000	0.412	0.38 1.30 0.49
46.70	106.80	2.458	44.40	1.376	0.79 0.000	0.412	0.38 1.30 0.49
46.80	107.20	2.463	44.80	1.378	0.79 0.000	0.412	0.38 1.30 0.49
46.90	107.60	2.468	45.20	1.380	0.79 0.000	0.412	0.38 1.30 0.49
47.00	108.00	2.473	45.60	1.382	0.79 0.000	0.412	0.38 1.30 0.49
47.10	108.40	2.478	46.00	1.384	0.79 0.000	0.412	0.38 1.30 0.49
47.20	108.80	2.483	46.40	1.386	0.79 0.000	0.412	0.38 1.30 0.49
47.30	109.20	2.488	46.80	1.388	0.79 0.000	0.412	0.38 1.30 0.49
47.40	109.60	2.494	47.20	1.391	0.79 0.000	0.412	0.38 1.30 0.49
47.50	110.00	2.499	47.60	1.393	0.79 0.000	0.412	0.38 1.30 0.49
47.60	110.40	2.504	48.00	1.395	0.79 0.000	0.412	0.38 1.30 0.49
47.70	110.80	2.509	48.40	1.397	0.79 0.000	0.412	0.38 1.30 0.49
47.80	111.20	2.514	48.80	1.400	0.79 0.000	0.412	0.38 1.30 0.49
47.90	111.60	2.520	49.20	1.402	0.78 0.000	0.412	0.38 1.30 0.49
48.00	112.00	2.525	49.60	1.404	0.78 0.000	0.412	0.38 1.30 0.49
48.10	112.40	2.530	50.00	1.407	0.78 0.000	0.412	0.38 1.30 0.49
48.20	112.80	2.536	50.40	1.409	0.78 0.000	0.412	0.38 1.30 0.49
48.30	113.20	2.541	50.80	1.412	0.78 0.000	0.412	0.38 1.30 0.49
48.40	113.60	2.546	51.20	1.414	0.78 0.000	0.412	0.38 1.30 0.49
48.50	114.00	2.552	51.60	1.416	0.78 0.000	0.412	0.38 1.30 0.49
48.60	114.40	2.557	52.00	1.419	0.78 0.000	0.412	0.38 1.30 0.49
48.70	114.80	2.562	52.40	1.421	0.78 0.000	0.412	0.38 1.30 0.49
48.80	115.20	2.568	52.80	1.424	0.78 0.000	0.412	0.38 1.30 0.49
48.90	115.60	2.573	53.20	1.426	0.78 0.000	0.412	0.37 1.30 0.49
49.00	116.00	2.579	53.60	1.429	0.78 0.000	0.412	0.37 1.30 0.49
49.10	116.40	2.584	54.00	1.431	0.77 0.000	0.412	0.37 1.30 0.49
49.20	116.80	2.590	54.40	1.434	0.77 0.000	0.412	0.37 1.30 0.49
49.30	117.20	2.595	54.80	1.436	0.77 0.000	0.412	0.37 1.30 0.49
49.40	117.60	2.601	55.20	1.439	0.77 0.000	0.412	0.37 1.30 0.49
49.50	118.00	2.606	55.60	1.442	0.77 0.000	0.412	0.37 1.30 0.49
49.60	118.40	2.612	56.00	1.444	0.77 0.000	0.412	0.37 1.30 0.49
49.70	118.80	2.618	56.40	1.447	0.77 0.000	0.412	0.37 1.30 0.48

49.80	119.20	2.623	56.80	1.450	0.77	0.000	0.412	0.37	1.30	0.48
49.90	119.60	2.629	57.20	1.452	0.77	0.000	0.412	0.37	1.30	0.48
50.00	120.00	2.634	57.60	1.455	0.77	0.000	0.412	0.37	1.30	0.48

CSR is based on water table at 10.00 during earthquake

CRR Calculation from SPT or BPT data:

Depth ft	SPT blows /ft	Cebs atm	Cr %	sigma' %	Cn	(N1)60	Fines %	d(N1)60	(N1)60f	CRR7.5
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2.50	22.00	1.58	0.75	0.142	1.70	44.18	20.00	3.60	47.78	0.50
2.60	21.80	1.58	0.75	0.147	1.70	43.78	20.00	3.60	47.38	0.50
2.70	21.60	1.58	0.75	0.153	1.70	43.38	20.00	3.60	46.98	0.50
2.80	21.40	1.58	0.75	0.159	1.70	42.97	20.00	3.60	46.57	0.50
2.90	21.20	1.58	0.75	0.164	1.70	42.57	20.00	3.60	46.17	0.50
3.00	21.00	1.58	0.75	0.170	1.70	42.17	20.00	3.60	45.77	0.50
3.10	20.80	1.58	0.75	0.176	1.70	41.77	20.00	3.60	45.37	0.50
3.20	20.60	1.58	0.75	0.181	1.70	41.37	20.00	3.60	44.97	0.50
3.30	20.40	1.58	0.75	0.187	1.70	40.97	20.00	3.60	44.57	0.50
3.40	20.20	1.58	0.75	0.193	1.70	40.56	20.00	3.60	44.16	0.50
3.50	20.00	1.58	0.75	0.198	1.70	40.16	20.00	3.60	43.76	0.50
3.60	19.80	1.58	0.75	0.204	1.70	39.76	20.00	3.60	43.36	0.50
3.70	19.60	1.58	0.75	0.210	1.70	39.36	20.00	3.60	42.96	0.50
3.80	19.40	1.58	0.75	0.215	1.70	38.96	20.00	3.60	42.56	0.50
3.90	19.20	1.58	0.75	0.221	1.70	38.56	20.00	3.60	42.16	0.50
4.00	19.00	1.58	0.75	0.227	1.70	38.15	20.00	3.60	41.75	0.50
4.10	18.80	1.58	0.75	0.232	1.70	37.75	20.00	3.60	41.35	0.50
4.20	18.60	1.58	0.75	0.238	1.70	37.35	20.00	3.60	40.95	0.50
4.30	18.40	1.58	0.75	0.244	1.70	36.95	20.00	3.60	40.55	0.50
4.40	18.20	1.58	0.75	0.250	1.70	36.55	20.00	3.60	40.15	0.50
4.50	18.00	1.58	0.75	0.255	1.70	36.15	20.00	3.60	39.75	0.50
4.60	17.80	1.58	0.75	0.261	1.70	35.74	20.00	3.60	39.34	0.50
4.70	17.60	1.58	0.75	0.267	1.70	35.34	20.00	3.60	38.94	0.50
4.80	17.40	1.58	0.75	0.272	1.70	34.94	20.00	3.60	38.54	0.50
4.90	17.20	1.58	0.75	0.278	1.70	34.54	20.00	3.60	38.14	0.50
5.00	17.00	1.58	0.75	0.284	1.70	34.14	20.00	3.60	37.74	0.50
5.10	17.10	1.58	0.75	0.289	1.70	34.34	20.66	3.76	38.10	0.50
5.20	17.20	1.58	0.75	0.295	1.70	34.54	21.32	3.92	38.46	0.50
5.30	17.30	1.58	0.75	0.300	1.70	34.74	21.98	4.08	38.82	0.50
5.40	17.40	1.58	0.75	0.306	1.70	34.94	22.64	4.23	39.17	0.50
5.50	17.50	1.58	0.75	0.312	1.70	35.14	23.30	4.39	39.53	0.50
5.60	17.60	1.58	0.75	0.317	1.70	35.34	23.96	4.55	39.89	0.50
5.70	17.70	1.58	0.75	0.323	1.70	35.54	24.62	4.71	40.25	0.50
5.80	17.80	1.58	0.75	0.328	1.70	35.74	25.28	4.87	40.61	0.50
5.90	17.90	1.58	0.75	0.334	1.70	35.95	25.94	5.03	40.97	0.50
6.00	18.00	1.58	0.75	0.339	1.70	36.15	26.60	5.18	41.33	0.50
6.10	18.10	1.58	0.75	0.345	1.70	36.35	27.26	5.34	41.69	0.50
6.20	18.20	1.58	0.75	0.350	1.69	36.33	27.92	5.50	41.83	0.50
6.30	18.30	1.58	0.75	0.356	1.68	36.24	28.58	5.66	41.90	0.50
6.40	18.40	1.58	0.75	0.361	1.66	36.17	29.24	5.82	41.99	0.50
6.50	18.50	1.58	0.75	0.367	1.65	36.10	29.90	5.98	42.07	0.50
6.60	18.60	1.58	0.75	0.372	1.64	36.03	30.56	6.13	42.16	0.50
6.70	18.70	1.58	0.75	0.377	1.63	35.96	31.22	6.29	42.26	0.50
6.80	18.80	1.58	0.75	0.383	1.62	35.90	31.88	6.45	42.35	0.50

6.90	18.90	1.58	0.75	0.388	1.61	35.84	32.54	6.61	42.45	0.50
7.00	19.00	1.58	0.75	0.393	1.59	35.79	33.20	6.77	42.56	0.50
7.10	19.10	1.58	0.75	0.399	1.58	35.74	33.86	6.93	42.67	0.50
7.20	19.20	1.58	0.75	0.404	1.57	35.69	34.52	7.08	42.78	0.50
7.30	19.30	1.58	0.75	0.409	1.56	35.65	35.18	7.20	42.85	0.50
7.40	19.40	1.58	0.75	0.414	1.55	35.60	35.84	7.20	42.80	0.50
7.50	19.50	1.58	0.75	0.420	1.54	35.56	36.50	7.20	42.76	0.50
7.60	19.60	1.58	0.75	0.425	1.53	35.53	37.16	7.20	42.73	0.50
7.70	19.70	1.58	0.75	0.430	1.53	35.49	37.82	7.20	42.69	0.50
7.80	19.80	1.58	0.75	0.435	1.52	35.46	38.48	7.20	42.66	0.50
7.90	19.90	1.58	0.75	0.440	1.51	35.43	39.14	7.20	42.63	0.50
8.00	20.00	1.58	0.75	0.445	1.50	35.40	39.80	7.20	42.60	0.50
8.10	20.10	1.58	0.75	0.450	1.49	35.38	40.46	7.20	42.58	0.50
8.20	20.20	1.58	0.75	0.455	1.48	35.36	41.12	7.20	42.56	0.50
8.30	20.30	1.58	0.85	0.461	1.47	40.05	41.78	7.20	47.25	0.50
8.40	20.40	1.58	0.85	0.466	1.47	40.03	42.44	7.20	47.23	0.50
8.50	20.50	1.58	0.85	0.471	1.46	40.01	43.10	7.20	47.21	0.50
8.60	20.60	1.58	0.85	0.476	1.45	39.99	43.76	7.20	47.19	0.50
8.70	20.70	1.58	0.85	0.481	1.44	39.98	44.42	7.20	47.18	0.50
8.80	20.80	1.58	0.85	0.486	1.44	39.96	45.08	7.20	47.16	0.50
8.90	20.90	1.58	0.85	0.490	1.43	39.95	45.74	7.20	47.15	0.50
9.00	21.00	1.58	0.85	0.495	1.42	39.94	46.40	7.20	47.14	0.50
9.10	21.10	1.58	0.85	0.500	1.41	39.94	47.06	7.20	47.14	0.50
9.20	21.20	1.58	0.85	0.505	1.41	39.93	47.72	7.20	47.13	0.50
9.30	21.30	1.58	0.85	0.510	1.40	39.93	48.38	7.20	47.13	0.50
9.40	21.40	1.58	0.85	0.515	1.39	39.92	49.04	7.20	47.12	0.50
9.50	21.50	1.58	0.85	0.520	1.39	39.92	49.70	7.20	47.12	0.50
9.60	21.60	1.58	0.85	0.525	1.38	39.92	50.36	7.20	47.12	0.50
9.70	21.70	1.58	0.85	0.529	1.37	39.93	51.02	7.20	47.13	0.50
9.80	21.80	1.58	0.85	0.534	1.37	39.93	51.68	7.20	47.13	0.50
9.90	21.90	1.58	0.85	0.539	1.36	39.94	52.34	7.20	47.14	0.50
10.00	22.00	1.58	0.85	0.544	1.36	39.94	53.00	7.20	47.14	0.50
10.10	22.16	1.58	0.85	0.545	1.35	40.17	53.00	7.20	47.37	0.50
10.20	22.32	1.58	0.85	0.547	1.35	40.39	53.00	7.20	47.59	0.50
10.30	22.48	1.58	0.85	0.549	1.35	40.62	53.00	7.20	47.82	0.50
10.40	22.64	1.58	0.85	0.551	1.35	40.84	53.00	7.20	48.04	0.50
10.50	22.80	1.58	0.85	0.553	1.35	41.06	53.00	7.20	48.26	0.50
10.60	22.96	1.58	0.85	0.554	1.34	41.28	53.00	7.20	48.48	0.50
10.70	23.12	1.58	0.85	0.556	1.34	41.51	53.00	7.20	48.71	0.50
10.80	23.28	1.58	0.85	0.558	1.34	41.73	53.00	7.20	48.93	0.50
10.90	23.44	1.58	0.85	0.560	1.34	41.95	53.00	7.20	49.15	0.50
11.00	23.60	1.58	0.85	0.561	1.33	42.17	53.00	7.20	49.37	0.50
11.10	23.76	1.58	0.85	0.563	1.33	42.39	53.00	7.20	49.59	0.50
11.20	23.92	1.58	0.85	0.565	1.33	42.60	53.00	7.20	49.80	0.50
11.30	24.08	1.58	0.85	0.567	1.33	42.82	53.00	7.20	50.02	0.50
11.40	24.24	1.58	0.85	0.569	1.33	43.04	53.00	7.20	50.24	0.50
11.50	24.40	1.58	0.85	0.570	1.32	43.25	53.00	7.20	50.45	0.50
11.60	24.56	1.58	0.85	0.572	1.32	43.47	53.00	7.20	50.67	0.50
11.70	24.72	1.58	0.85	0.574	1.32	43.69	53.00	7.20	50.89	0.50
11.80	24.88	1.58	0.85	0.576	1.32	43.90	53.00	7.20	51.10	0.50
11.90	25.04	1.58	0.85	0.577	1.32	44.12	53.00	7.20	51.32	0.50
12.00	25.20	1.58	0.85	0.579	1.31	44.33	53.00	7.20	51.53	0.50
12.10	25.36	1.58	0.85	0.581	1.31	44.54	53.00	7.20	51.74	0.50
12.20	25.52	1.58	0.85	0.583	1.31	44.75	53.00	7.20	51.95	0.50

12.30	25.68	1.58 0.85 0.585	1.31 44.97	53.00	7.20 52.17	0.50
12.40	25.84	1.58 0.85 0.586	1.31 45.18	53.00	7.20 52.38	0.50
12.50	26.00	1.58 0.85 0.588	1.30 45.39	53.00	7.20 52.59	0.50
12.60	26.16	1.58 0.85 0.590	1.30 45.60	53.00	7.20 52.80	0.50
12.70	26.32	1.58 0.85 0.592	1.30 45.81	53.00	7.20 53.01	0.50
12.80	26.48	1.58 0.85 0.593	1.30 46.02	53.00	7.20 53.22	0.50
12.90	26.64	1.58 0.85 0.595	1.30 46.23	53.00	7.20 53.43	0.50
13.00	26.80	1.58 0.85 0.597	1.29 46.44	53.00	7.20 53.64	0.50
13.10	26.96	1.58 0.85 0.599	1.29 46.64	53.00	7.20 53.84	0.50
13.20	27.12	1.58 0.85 0.601	1.29 46.85	53.00	7.20 54.05	0.50
13.30	27.28	1.58 0.85 0.602	1.29 47.06	53.00	7.20 54.26	0.50
13.40	27.44	1.58 0.85 0.604	1.29 47.26	53.00	7.20 54.46	0.50
13.50	27.60	1.58 0.85 0.606	1.28 47.47	53.00	7.20 54.67	0.50
13.60	27.76	1.58 0.85 0.608	1.28 47.68	53.00	7.20 54.88	0.50
13.70	27.92	1.58 0.85 0.609	1.28 47.88	53.00	7.20 55.08	0.50
13.80	28.08	1.58 0.85 0.611	1.28 48.09	53.00	7.20 55.29	0.50
13.90	28.24	1.58 0.85 0.613	1.28 48.29	53.00	7.20 55.49	0.50
14.00	28.40	1.58 0.85 0.615	1.28 48.49	53.00	7.20 55.69	0.50
14.10	28.56	1.58 0.85 0.617	1.27 48.70	53.00	7.20 55.90	0.50
14.20	28.72	1.58 0.85 0.618	1.27 48.90	53.00	7.20 56.10	0.50
14.30	28.88	1.58 0.85 0.620	1.27 49.10	53.00	7.20 56.30	0.50
14.40	29.04	1.58 0.85 0.622	1.27 49.30	53.00	7.20 56.50	0.50
14.50	29.20	1.58 0.85 0.624	1.27 49.50	53.00	7.20 56.70	0.50
14.60	29.36	1.58 0.85 0.625	1.26 49.70	53.00	7.20 56.90	0.50
14.70	29.52	1.58 0.85 0.627	1.26 49.90	53.00	7.20 57.10	0.50
14.80	29.68	1.58 0.95 0.629	1.26 56.00	53.00	7.20 63.20	0.50
14.90	29.84	1.58 0.95 0.631	1.26 56.22	53.00	7.20 63.42	0.50
15.00	30.00	1.58 0.95 0.633	1.26 56.44	53.00	7.20 63.64	0.50
15.10	30.00	1.58 0.95 0.634	1.26 56.36	52.74	7.20 63.56	0.50
15.20	30.00	1.58 0.95 0.636	1.25 56.28	52.48	7.20 63.48	0.50
15.30	30.00	1.58 0.95 0.638	1.25 56.20	52.22	7.20 63.40	0.50
15.40	30.00	1.58 0.95 0.640	1.25 56.12	51.96	7.20 63.32	0.50
15.50	30.00	1.58 0.95 0.642	1.25 56.04	51.70	7.20 63.24	0.50
15.60	30.00	1.58 0.95 0.643	1.25 55.96	51.44	7.20 63.16	0.50
15.70	30.00	1.58 0.95 0.645	1.24 55.88	51.18	7.20 63.08	0.50
15.80	30.00	1.58 0.95 0.647	1.24 55.79	50.92	7.20 62.99	0.50
15.90	30.00	1.58 0.95 0.649	1.24 55.71	50.66	7.20 62.91	0.50
16.00	30.00	1.58 0.95 0.651	1.24 55.63	50.40	7.20 62.83	0.50
16.10	30.00	1.58 0.95 0.653	1.24 55.54	50.14	7.20 62.74	0.50
16.20	30.00	1.58 0.95 0.655	1.24 55.46	49.88	7.20 62.66	0.50
16.30	30.00	1.58 0.95 0.657	1.23 55.37	49.62	7.20 62.57	0.50
16.40	30.00	1.58 0.95 0.659	1.23 55.29	49.36	7.20 62.49	0.50
16.50	30.00	1.58 0.95 0.661	1.23 55.20	49.10	7.20 62.40	0.50
16.60	30.00	1.58 0.95 0.663	1.23 55.12	48.84	7.20 62.32	0.50
16.70	30.00	1.58 0.95 0.665	1.23 55.03	48.58	7.20 62.23	0.50
16.80	30.00	1.58 0.95 0.667	1.22 54.94	48.32	7.20 62.14	0.50
16.90	30.00	1.58 0.95 0.670	1.22 54.86	48.06	7.20 62.06	0.50
17.00	30.00	1.58 0.95 0.672	1.22 54.77	47.80	7.20 61.97	0.50
17.10	30.00	1.58 0.95 0.674	1.22 54.68	47.54	7.20 61.88	0.50
17.20	30.00	1.58 0.95 0.676	1.22 54.59	47.28	7.20 61.79	0.50
17.30	30.00	1.58 0.95 0.678	1.21 54.50	47.02	7.20 61.70	0.50
17.40	30.00	1.58 0.95 0.680	1.21 54.42	46.76	7.20 61.62	0.50
17.50	30.00	1.58 0.95 0.683	1.21 54.33	46.50	7.20 61.53	0.50
17.60	30.00	1.58 0.95 0.685	1.21 54.24	46.24	7.20 61.44	0.50

17.70	30.00	1.58 0.95 0.687	1.21 54.15	45.98	7.20 61.35	0.50
17.80	30.00	1.58 0.95 0.690	1.20 54.06	45.72	7.20 61.26	0.50
17.90	30.00	1.58 0.95 0.692	1.20 53.97	45.46	7.20 61.17	0.50
18.00	30.00	1.58 0.95 0.694	1.20 53.88	45.20	7.20 61.08	0.50
18.10	30.00	1.58 0.95 0.697	1.20 53.78	44.94	7.20 60.98	0.50
18.20	30.00	1.58 0.95 0.699	1.20 53.69	44.68	7.20 60.89	0.50
18.30	30.00	1.58 0.95 0.701	1.19 53.60	44.42	7.20 60.80	0.50
18.40	30.00	1.58 0.95 0.704	1.19 53.51	44.16	7.20 60.71	0.50
18.50	30.00	1.58 0.95 0.706	1.19 53.42	43.90	7.20 60.62	0.50
18.60	30.00	1.58 0.95 0.709	1.19 53.33	43.64	7.20 60.53	0.50
18.70	30.00	1.58 0.95 0.711	1.19 53.23	43.38	7.20 60.43	0.50
18.80	30.00	1.58 0.95 0.713	1.18 53.14	43.12	7.20 60.34	0.50
18.90	30.00	1.58 0.95 0.716	1.18 53.05	42.86	7.20 60.25	0.50
19.00	30.00	1.58 0.95 0.719	1.18 52.96	42.60	7.20 60.16	0.50
19.10	30.00	1.58 0.95 0.721	1.18 52.86	42.34	7.20 60.06	0.50
19.20	30.00	1.58 0.95 0.724	1.18 52.77	42.08	7.20 59.97	0.50
19.30	30.00	1.58 0.95 0.726	1.17 52.67	41.82	7.20 59.87	0.50
19.40	30.00	1.58 0.95 0.729	1.17 52.58	41.56	7.20 59.78	0.50
19.50	30.00	1.58 0.95 0.731	1.17 52.49	41.30	7.20 59.69	0.50
19.60	30.00	1.58 0.95 0.734	1.17 52.39	41.04	7.20 59.59	0.50
19.70	30.00	1.58 0.95 0.737	1.17 52.30	40.78	7.20 59.50	0.50
19.80	30.00	1.58 0.95 0.739	1.16 52.20	40.52	7.20 59.40	0.50
19.90	30.00	1.58 0.95 0.742	1.16 52.11	40.26	7.20 59.31	0.50
20.00	30.00	1.58 0.95 0.745	1.16 52.01	40.00	7.20 59.21	0.50
20.10	30.20	1.58 0.95 0.747	1.16 52.27	41.22	7.20 59.47	0.50
20.20	30.40	1.58 0.95 0.750	1.15 52.52	42.44	7.20 59.72	0.50
20.30	30.60	1.58 0.95 0.753	1.15 52.77	43.66	7.20 59.97	0.50
20.40	30.80	1.58 0.95 0.756	1.15 53.02	44.88	7.20 60.22	0.50
20.50	31.00	1.58 0.95 0.758	1.15 53.26	46.10	7.20 60.46	0.50
20.60	31.20	1.58 0.95 0.761	1.15 53.51	47.32	7.20 60.71	0.50
20.70	31.40	1.58 0.95 0.764	1.14 53.76	48.54	7.20 60.96	0.50
20.80	31.60	1.58 0.95 0.767	1.14 54.00	49.76	7.20 61.20	0.50
20.90	31.80	1.58 0.95 0.769	1.14 54.25	50.98	7.20 61.45	0.50
21.00	32.00	1.58 0.95 0.772	1.14 54.50	52.20	7.20 61.70	0.50
21.10	32.20	1.58 0.95 0.775	1.14 54.74	53.42	7.20 61.94	0.50
21.20	32.40	1.58 0.95 0.777	1.13 54.98	54.64	7.20 62.18	0.50
21.30	32.60	1.58 0.95 0.780	1.13 55.23	55.86	7.20 62.43	0.50
21.40	32.80	1.58 0.95 0.783	1.13 55.47	57.08	7.20 62.67	0.50
21.50	33.00	1.58 0.95 0.786	1.13 55.71	58.30	7.20 62.91	0.50
21.60	33.20	1.58 0.95 0.788	1.13 55.95	59.52	7.20 63.15	0.50
21.70	33.40	1.58 0.95 0.791	1.12 56.19	60.74	7.20 63.39	0.50
21.80	33.60	1.58 0.95 0.794	1.12 56.43	61.96	7.20 63.63	0.50
21.90	33.80	1.58 0.95 0.796	1.12 56.67	63.18	7.20 63.87	0.50
22.00	34.00	1.58 0.95 0.799	1.12 56.91	64.40	7.20 64.11	0.50
22.10	34.20	1.58 0.95 0.802	1.12 57.14	65.62	7.20 64.34	0.50
22.20	34.40	1.58 0.95 0.805	1.11 57.38	66.84	7.20 64.58	0.50
22.30	34.60	1.58 0.95 0.807	1.11 57.62	68.06	7.20 64.82	0.50
22.40	34.80	1.58 0.95 0.810	1.11 57.85	69.28	7.20 65.05	0.50
22.50	35.00	1.58 0.95 0.813	1.11 58.09	70.50	7.20 65.29	0.50
22.60	35.20	1.58 0.95 0.816	1.11 58.32	71.72	7.20 65.52	0.50
22.70	35.40	1.58 0.95 0.818	1.11 58.56	72.94	7.20 65.76	0.50
22.80	35.60	1.58 0.95 0.821	1.10 58.79	74.16	7.20 65.99	0.50
22.90	35.80	1.58 0.95 0.824	1.10 59.02	75.38	7.20 66.22	0.50
23.00	36.00	1.58 0.95 0.826	1.10 59.25	76.60	7.20 66.45	0.50

23.10	36.20	1.58 0.95 0.829	1.10 59.48	77.82	7.20 66.68	0.50
23.20	36.40	1.58 0.95 0.832	1.10 59.72	79.04	7.20 66.92	0.50
23.30	36.60	1.58 0.95 0.835	1.09 59.95	80.26	7.20 67.15	0.50
23.40	36.80	1.58 0.95 0.837	1.09 60.17	81.48	7.20 67.37	0.50
23.50	37.00	1.58 0.95 0.840	1.09 60.40	82.70	7.20 67.60	0.50
23.60	37.20	1.58 0.95 0.843	1.09 60.63	83.92	7.20 67.83	0.50
23.70	37.40	1.58 0.95 0.845	1.09 60.86	85.14	7.20 68.06	0.50
23.80	37.60	1.58 0.95 0.848	1.09 61.09	86.36	7.20 68.29	0.50
23.90	37.80	1.58 0.95 0.851	1.08 61.31	87.58	7.20 68.51	0.50
24.00	38.00	1.58 0.95 0.854	1.08 61.54	88.80	7.20 68.74	0.50
24.10	38.20	1.58 0.95 0.856	1.08 61.77	90.02	7.20 68.97	0.50
24.20	38.40	1.58 0.95 0.859	1.08 61.99	91.24	7.20 69.19	0.50
24.30	38.60	1.58 0.95 0.862	1.08 62.21	92.46	7.20 69.41	0.50
24.40	38.80	1.58 0.95 0.864	1.08 62.44	93.68	7.20 69.64	0.50
24.50	39.00	1.58 0.95 0.867	1.07 62.66	94.90	7.20 69.86	0.50
24.60	39.20	1.58 0.95 0.870	1.07 62.88	96.12	7.20 70.08	0.50
24.70	39.40	1.58 0.95 0.873	1.07 63.11	97.34	7.20 70.31	0.50
24.80	39.60	1.58 0.95 0.875	1.07 63.33	98.56	7.20 70.53	0.50
24.90	39.80	1.58 0.95 0.878	1.07 63.55	99.78	7.20 70.75	0.50
25.00	40.00	1.58 0.95 0.881	1.07 63.77	NoLiq	7.20 70.97	0.50
25.10	40.18	1.58 0.95 0.884	1.06 63.96	NoLiq	7.20 71.16	0.50
25.20	40.36	1.58 0.95 0.886	1.06 64.15	NoLiq	7.20 71.35	0.50
25.30	40.54	1.58 0.95 0.889	1.06 64.33	NoLiq	7.20 71.53	0.50
25.40	40.72	1.58 0.95 0.892	1.06 64.52	NoLiq	7.20 71.72	0.50
25.50	40.90	1.58 0.95 0.894	1.06 64.71	NoLiq	7.20 71.91	0.50
25.60	41.08	1.58 0.95 0.897	1.06 64.89	NoLiq	7.20 72.09	0.50
25.70	41.26	1.58 0.95 0.900	1.05 65.08	NoLiq	7.20 72.28	0.50
25.80	41.44	1.58 0.95 0.903	1.05 65.26	NoLiq	7.20 72.46	0.50
25.90	41.62	1.58 0.95 0.905	1.05 65.45	NoLiq	7.20 72.65	0.50
26.00	41.80	1.58 0.95 0.908	1.05 65.63	NoLiq	7.20 72.83	0.50
26.10	41.98	1.58 0.95 0.911	1.05 65.82	NoLiq	7.20 73.02	0.50
26.20	42.16	1.58 0.95 0.913	1.05 66.00	NoLiq	7.20 73.20	0.50
26.30	42.34	1.58 0.95 0.916	1.04 66.18	NoLiq	7.20 73.38	0.50
26.40	42.52	1.58 0.95 0.919	1.04 66.37	NoLiq	7.20 73.57	0.50
26.50	42.70	1.58 0.95 0.922	1.04 66.55	NoLiq	7.20 73.75	0.50
26.60	42.88	1.58 0.95 0.924	1.04 66.73	NoLiq	7.20 73.93	0.50
26.70	43.06	1.58 0.95 0.927	1.04 66.91	NoLiq	7.20 74.11	0.50
26.80	43.24	1.58 0.95 0.930	1.04 67.09	NoLiq	7.20 74.29	0.50
26.90	43.42	1.58 0.95 0.933	1.04 67.28	NoLiq	7.20 74.48	0.50
27.00	43.60	1.58 0.95 0.935	1.03 67.46	NoLiq	7.20 74.66	0.50
27.10	43.78	1.58 0.95 0.938	1.03 67.64	NoLiq	7.20 74.84	0.50
27.20	43.96	1.58 0.95 0.941	1.03 67.82	NoLiq	7.20 75.02	0.50
27.30	44.14	1.58 0.95 0.943	1.03 68.00	NoLiq	7.20 75.20	0.50
27.40	44.32	1.58 0.95 0.946	1.03 68.17	NoLiq	7.20 75.37	0.50
27.50	44.50	1.58 0.95 0.949	1.03 68.35	NoLiq	7.20 75.55	0.50
27.60	44.68	1.58 0.95 0.952	1.03 68.53	NoLiq	7.20 75.73	0.50
27.70	44.86	1.58 0.95 0.954	1.02 68.71	NoLiq	7.20 75.91	0.50
27.80	45.04	1.58 0.95 0.957	1.02 68.89	NoLiq	7.20 76.09	0.50
27.90	45.22	1.58 1.00 0.960	1.02 72.70	NoLiq	7.20 79.90	0.50
28.00	45.40	1.58 1.00 0.962	1.02 72.88	NoLiq	7.20 80.08	0.50
28.10	45.58	1.58 1.00 0.965	1.02 73.07	NoLiq	7.20 80.27	0.50
28.20	45.76	1.58 1.00 0.968	1.02 73.26	NoLiq	7.20 80.46	0.50
28.30	45.94	1.58 1.00 0.971	1.02 73.44	NoLiq	7.20 80.64	0.50
28.40	46.12	1.58 1.00 0.973	1.01 73.63	NoLiq	7.20 80.83	0.50

28.50	46.30	1.58	1.00	0.976	1.01	73.81	NoLiq	7.20	81.01	0.50
28.60	46.48	1.58	1.00	0.979	1.01	73.99	NoLiq	7.20	81.19	0.50
28.70	46.66	1.58	1.00	0.982	1.01	74.18	NoLiq	7.20	81.38	0.50
28.80	46.84	1.58	1.00	0.984	1.01	74.36	NoLiq	7.20	81.56	0.50
28.90	47.02	1.58	1.00	0.987	1.01	74.54	NoLiq	7.20	81.74	0.50
29.00	47.20	1.58	1.00	0.990	1.01	74.73	NoLiq	7.20	81.93	0.50
29.10	47.38	1.58	1.00	0.992	1.00	74.91	NoLiq	7.20	82.11	0.50
29.20	47.56	1.58	1.00	0.995	1.00	75.09	NoLiq	7.20	82.29	0.50
29.30	47.74	1.58	1.00	0.998	1.00	75.27	NoLiq	7.20	82.47	0.50
29.40	47.92	1.58	1.00	1.001	1.00	75.45	NoLiq	7.20	82.65	0.50
29.50	48.10	1.58	1.00	1.003	1.00	75.63	NoLiq	7.20	82.83	0.50
29.60	48.28	1.58	1.00	1.006	1.00	75.81	NoLiq	7.20	83.01	0.50
29.70	48.46	1.58	1.00	1.009	1.00	75.99	NoLiq	7.20	83.19	0.50
29.80	48.64	1.58	1.00	1.011	0.99	76.17	NoLiq	7.20	83.37	0.50
29.90	48.82	1.58	1.00	1.014	0.99	76.35	NoLiq	7.20	83.55	0.50
30.00	49.00	1.58	1.00	1.017	0.99	76.53	NoLiq	7.20	83.73	0.50
30.10	49.78	1.58	1.00	1.020	0.99	77.64	NoLiq	7.20	84.84	0.50
30.20	50.56	1.58	1.00	1.022	0.99	78.75	NoLiq	7.20	85.95	0.50
30.30	51.34	1.58	1.00	1.025	0.99	79.86	NoLiq	7.20	87.06	0.50
30.40	52.12	1.58	1.00	1.028	0.99	80.97	NoLiq	7.20	88.17	0.50
30.50	52.90	1.58	1.00	1.030	0.99	82.07	NoLiq	7.20	89.27	0.50
30.60	53.68	1.58	1.00	1.033	0.98	83.18	NoLiq	7.20	90.38	0.50
30.70	54.46	1.58	1.00	1.036	0.98	84.27	NoLiq	7.20	91.47	0.50
30.80	55.24	1.58	1.00	1.039	0.98	85.37	NoLiq	7.20	92.57	0.50
30.90	56.02	1.58	1.00	1.041	0.98	86.46	NoLiq	7.20	93.66	0.50
31.00	56.80	1.58	1.00	1.044	0.98	87.56	NoLiq	7.20	94.76	0.50
31.10	57.58	1.58	1.00	1.047	0.98	88.64	NoLiq	7.20	95.84	0.50
31.20	58.36	1.58	1.00	1.049	0.98	89.73	NoLiq	7.20	96.93	0.50
31.30	59.14	1.58	1.00	1.052	0.98	90.82	NoLiq	7.20	98.02	0.50
31.40	59.92	1.58	1.00	1.055	0.97	91.90	NoLiq	7.20	99.10	0.50
31.50	60.70	1.58	1.00	1.057	0.97	92.98	NoLiq	7.20	100.18	0.50
31.60	61.48	1.58	1.00	1.060	0.97	94.05	NoLiq	7.20	101.25	0.50
31.70	62.26	1.58	1.00	1.063	0.97	95.13	NoLiq	7.20	102.33	0.50
31.80	63.04	1.58	1.00	1.065	0.97	96.20	NoLiq	7.20	103.40	0.50
31.90	63.82	1.58	1.00	1.068	0.97	97.27	NoLiq	7.20	104.47	0.50
32.00	64.60	1.58	1.00	1.070	0.97	98.34	NoLiq	7.20	105.54	0.50
32.10	65.38	1.58	1.00	1.073	0.97	99.40	NoLiq	7.20	106.60	0.50
32.20	66.16	1.58	1.00	1.076	0.96	100.47	NoLiq	7.20	107.67	0.50
32.30	66.94	1.58	1.00	1.078	0.96	101.53	NoLiq	7.20	108.73	0.50
32.40	67.72	1.58	1.00	1.081	0.96	102.59	NoLiq	7.20	109.79	0.50
32.50	68.50	1.58	1.00	1.084	0.96	103.64	NoLiq	7.20	110.84	0.50
32.60	69.28	1.58	1.00	1.086	0.96	104.70	NoLiq	7.20	111.90	0.50
32.70	70.06	1.58	1.00	1.089	0.96	105.75	NoLiq	7.20	112.95	0.50
32.80	70.84	1.58	1.00	1.091	0.96	106.80	NoLiq	7.20	114.00	0.50
32.90	71.62	1.58	1.00	1.094	0.96	107.85	NoLiq	7.20	115.05	0.50
33.00	72.40	1.58	1.00	1.096	0.95	108.89	NoLiq	7.20	116.09	0.50
33.10	73.18	1.58	1.00	1.099	0.95	109.94	NoLiq	7.20	117.14	0.50
33.20	73.96	1.58	1.00	1.102	0.95	110.98	NoLiq	7.20	118.18	0.50
33.30	74.74	1.58	1.00	1.104	0.95	112.02	NoLiq	7.20	119.22	0.50
33.40	75.52	1.58	1.00	1.107	0.95	113.06	NoLiq	7.20	120.26	0.50
33.50	76.30	1.58	1.00	1.109	0.95	114.09	NoLiq	7.20	121.29	0.50
33.60	77.08	1.58	1.00	1.112	0.95	115.13	NoLiq	7.20	122.33	0.50
33.70	77.86	1.58	1.00	1.114	0.95	116.16	NoLiq	7.20	123.36	0.50
33.80	78.64	1.58	1.00	1.117	0.95	117.19	NoLiq	7.20	124.39	0.50

33.90	79.42	1.58	1.00	1.120	0.95	118.22	NoLiq	7.20	125.42	0.50
34.00	80.20	1.58	1.00	1.122	0.94	119.24	NoLiq	7.20	126.44	0.50
34.10	80.98	1.58	1.00	1.125	0.94	120.27	NoLiq	7.20	127.47	0.50
34.20	81.76	1.58	1.00	1.127	0.94	121.29	NoLiq	7.20	128.49	0.50
34.30	82.54	1.58	1.00	1.130	0.94	122.31	NoLiq	7.20	129.51	0.50
34.40	83.32	1.58	1.00	1.132	0.94	123.33	NoLiq	7.20	130.53	0.50
34.50	84.10	1.58	1.00	1.135	0.94	124.35	NoLiq	7.20	131.55	0.50
34.60	84.88	1.58	1.00	1.137	0.94	125.36	NoLiq	7.20	132.56	0.50
34.70	85.66	1.58	1.00	1.140	0.94	126.37	NoLiq	7.20	133.57	0.50
34.80	86.44	1.58	1.00	1.142	0.94	127.38	NoLiq	7.20	134.58	0.50
34.90	87.22	1.58	1.00	1.145	0.93	128.39	NoLiq	7.20	135.59	0.50
35.00	88.00	1.58	1.00	1.147	0.93	129.40	NoLiq	7.20	136.60	0.50
35.10	86.60	1.58	1.00	1.150	0.93	127.21	NoLiq	7.20	134.41	0.50
35.20	85.20	1.58	1.00	1.152	0.93	125.02	NoLiq	7.20	132.22	0.50
35.30	83.80	1.58	1.00	1.155	0.93	122.84	NoLiq	7.20	130.04	0.50
35.40	82.40	1.58	1.00	1.157	0.93	120.66	NoLiq	7.20	127.86	0.50
35.50	81.00	1.58	1.00	1.159	0.93	118.48	NoLiq	7.20	125.68	0.50
35.60	79.60	1.58	1.00	1.162	0.93	116.32	NoLiq	7.20	123.52	0.50
35.70	78.20	1.58	1.00	1.164	0.93	114.15	NoLiq	7.20	121.35	0.50
35.80	76.80	1.58	1.00	1.167	0.93	111.99	NoLiq	7.20	119.19	0.50
35.90	75.40	1.58	1.00	1.169	0.92	109.84	NoLiq	7.20	117.04	0.50
36.00	74.00	1.58	1.00	1.171	0.92	107.69	NoLiq	7.20	114.89	0.50
36.10	72.60	1.58	1.00	1.174	0.92	105.55	NoLiq	7.20	112.75	0.50
36.20	71.20	1.58	1.00	1.176	0.92	103.41	NoLiq	7.20	110.61	0.50
36.30	69.80	1.58	1.00	1.178	0.92	101.28	NoLiq	7.20	108.48	0.50
36.40	68.40	1.58	1.00	1.181	0.92	99.15	NoLiq	7.20	106.35	0.50
36.50	67.00	1.58	1.00	1.183	0.92	97.03	NoLiq	7.20	104.23	0.50
36.60	65.60	1.58	1.00	1.185	0.92	94.91	NoLiq	7.20	102.11	0.50
36.70	64.20	1.58	1.00	1.187	0.92	92.80	NoLiq	7.20	100.00	0.50
36.80	62.80	1.58	1.00	1.190	0.92	90.69	NoLiq	7.20	97.89	0.50
36.90	61.40	1.58	1.00	1.192	0.92	88.58	NoLiq	7.20	95.78	0.50
37.00	60.00	1.58	1.00	1.194	0.92	86.48	NoLiq	7.20	93.68	0.50
37.10	58.60	1.58	1.00	1.196	0.91	84.39	NoLiq	7.20	91.59	0.50
37.20	57.20	1.58	1.00	1.199	0.91	82.30	NoLiq	7.20	89.50	0.50
37.30	55.80	1.58	1.00	1.201	0.91	80.21	NoLiq	7.20	87.41	0.50
37.40	54.40	1.58	1.00	1.203	0.91	78.13	NoLiq	7.20	85.33	0.50
37.50	53.00	1.58	1.00	1.205	0.91	76.05	NoLiq	7.20	83.25	0.50
37.60	51.60	1.58	1.00	1.207	0.91	73.98	NoLiq	7.20	81.18	0.50
37.70	50.20	1.58	1.00	1.209	0.91	71.91	NoLiq	7.20	79.11	0.50
37.80	48.80	1.58	1.00	1.211	0.91	69.84	NoLiq	7.20	77.04	0.50
37.90	47.40	1.58	1.00	1.213	0.91	67.78	NoLiq	7.20	74.98	0.50
38.00	46.00	1.58	1.00	1.215	0.91	65.72	NoLiq	7.20	72.92	0.50
38.10	44.60	1.58	1.00	1.218	0.91	63.67	NoLiq	7.20	70.87	0.50
38.20	43.20	1.58	1.00	1.220	0.91	61.62	NoLiq	7.20	68.82	0.50
38.30	41.80	1.58	1.00	1.222	0.90	59.57	NoLiq	7.20	66.77	0.50
38.40	40.40	1.58	1.00	1.224	0.90	57.53	NoLiq	7.20	64.73	0.50
38.50	39.00	1.58	1.00	1.226	0.90	55.49	NoLiq	7.20	62.69	0.50
38.60	37.60	1.58	1.00	1.228	0.90	53.46	NoLiq	7.20	60.66	0.50
38.70	36.20	1.58	1.00	1.230	0.90	51.42	NoLiq	7.20	58.62	0.50
38.80	34.80	1.58	1.00	1.232	0.90	49.40	NoLiq	7.20	56.60	0.50
38.90	33.40	1.58	1.00	1.233	0.90	47.37	NoLiq	7.20	54.57	0.50
39.00	32.00	1.58	1.00	1.235	0.90	45.35	NoLiq	7.20	52.55	0.50
39.10	30.60	1.58	1.00	1.237	0.90	43.33	NoLiq	7.20	50.53	0.50
39.20	29.20	1.58	1.00	1.239	0.90	41.32	NoLiq	7.20	48.52	0.50

39.30	27.80	1.58	1.00	1.241	0.90	39.31	NoLiq	7.20	46.51	0.50
39.40	26.40	1.58	1.00	1.243	0.90	37.30	NoLiq	7.20	44.50	0.50
39.50	25.00	1.58	1.00	1.245	0.90	35.30	NoLiq	7.20	42.50	0.50
39.60	23.60	1.58	1.00	1.247	0.90	33.30	NoLiq	7.20	40.50	0.50
39.70	22.20	1.58	1.00	1.249	0.89	31.30	NoLiq	7.20	38.50	0.50
39.80	20.80	1.58	1.00	1.250	0.89	29.30	NoLiq	7.20	36.50	0.50
39.90	19.40	1.58	1.00	1.252	0.89	27.31	NoLiq	7.20	34.51	0.50
40.00	18.00	1.58	1.00	1.254	0.89	25.32	NoLiq	7.20	32.52	0.50
40.10	19.50	1.58	1.00	1.256	0.89	27.40	NoLiq	7.20	34.60	0.50
40.20	21.00	1.58	1.00	1.257	0.89	29.49	NoLiq	7.20	36.69	0.50
40.30	22.50	1.58	1.00	1.259	0.89	31.57	NoLiq	7.20	38.77	0.50
40.40	24.00	1.58	1.00	1.261	0.89	33.65	NoLiq	7.20	40.85	0.50
40.50	25.50	1.58	1.00	1.263	0.89	35.73	NoLiq	7.20	42.93	0.50
40.60	27.00	1.58	1.00	1.265	0.89	37.81	NoLiq	7.20	45.01	0.50
40.70	28.50	1.58	1.00	1.266	0.89	39.88	NoLiq	7.20	47.08	0.50
40.80	30.00	1.58	1.00	1.268	0.89	41.95	NoLiq	7.20	49.15	0.50
40.90	31.49	1.58	1.00	1.270	0.89	44.02	NoLiq	7.20	51.22	0.50
41.00	32.99	1.58	1.00	1.272	0.89	46.08	NoLiq	7.20	53.28	0.50
41.10	34.49	1.58	1.00	1.273	0.89	48.14	NoLiq	7.20	55.34	0.50
41.20	35.99	1.58	1.00	1.275	0.89	50.20	NoLiq	7.20	57.40	0.50
41.30	37.49	1.58	1.00	1.277	0.88	52.26	NoLiq	7.20	59.46	0.50
41.40	38.99	1.58	1.00	1.279	0.88	54.31	NoLiq	7.20	61.51	0.50
41.50	40.49	1.58	1.00	1.281	0.88	56.36	NoLiq	7.20	63.56	0.50
41.60	41.99	1.58	1.00	1.282	0.88	58.41	NoLiq	7.20	65.61	0.50
41.70	43.49	1.58	1.00	1.284	0.88	60.45	NoLiq	7.20	67.65	0.50
41.80	44.99	1.58	1.00	1.286	0.88	62.49	NoLiq	7.20	69.69	0.50
41.90	46.49	1.58	1.00	1.288	0.88	64.53	NoLiq	7.20	71.73	0.50
42.00	47.99	1.58	1.00	1.289	0.88	66.57	NoLiq	7.20	73.77	0.50
42.10	49.49	1.58	1.00	1.291	0.88	68.60	NoLiq	7.20	75.80	0.50
42.20	50.99	1.58	1.00	1.293	0.88	70.63	NoLiq	7.20	77.83	0.50
42.30	52.49	1.58	1.00	1.295	0.88	72.66	NoLiq	7.20	79.86	0.50
42.40	53.99	1.58	1.00	1.297	0.88	74.69	NoLiq	7.20	81.89	0.50
42.50	55.49	1.58	1.00	1.298	0.88	76.71	NoLiq	7.20	83.91	0.50
42.60	56.99	1.58	1.00	1.300	0.88	78.73	NoLiq	7.20	85.93	0.50
42.70	58.49	1.58	1.00	1.302	0.88	80.74	NoLiq	7.20	87.94	0.50
42.80	59.99	1.58	1.00	1.304	0.88	82.76	NoLiq	7.20	89.96	0.50
42.90	61.49	1.58	1.00	1.305	0.88	84.77	NoLiq	7.20	91.97	0.50
43.00	62.99	1.58	1.00	1.307	0.87	86.78	NoLiq	7.20	93.98	0.50
43.10	64.49	1.58	1.00	1.309	0.87	88.78	NoLiq	7.20	95.98	0.50
43.20	65.99	1.58	1.00	1.311	0.87	90.79	NoLiq	7.20	97.99	0.50
43.30	67.49	1.58	1.00	1.313	0.87	92.79	NoLiq	7.20	99.99	0.50
43.40	68.99	1.58	1.00	1.314	0.87	94.79	NoLiq	7.20	101.99	0.50
43.50	70.49	1.58	1.00	1.316	0.87	96.78	NoLiq	7.20	103.98	0.50
43.60	71.99	1.58	1.00	1.318	0.87	98.77	NoLiq	7.20	105.97	0.50
43.70	73.49	1.58	1.00	1.320	0.87	100.76	NoLiq	7.20	107.96	0.50
43.80	74.99	1.58	1.00	1.321	0.87	102.75	NoLiq	7.20	109.95	0.50
43.90	76.49	1.58	1.00	1.323	0.87	104.74	NoLiq	7.20	111.94	0.50
44.00	77.99	1.58	1.00	1.325	0.87	106.72	NoLiq	7.20	113.92	0.50
44.10	79.49	1.58	1.00	1.327	0.87	108.70	NoLiq	7.20	115.90	0.50
44.20	80.99	1.58	1.00	1.329	0.87	110.67	NoLiq	7.20	117.87	0.50
44.30	82.49	1.58	1.00	1.330	0.87	112.65	NoLiq	7.20	119.85	0.50
44.40	83.99	1.58	1.00	1.332	0.87	114.62	NoLiq	7.20	121.82	0.50
44.50	85.49	1.58	1.00	1.334	0.87	116.59	NoLiq	7.20	123.79	0.50
44.60	86.99	1.58	1.00	1.336	0.87	118.56	NoLiq	7.20	125.76	0.50

44.70	88.49	1.58	1.00	1.337	0.86	120.52	NoLiq	7.20	127.72	0.50
44.80	89.99	1.58	1.00	1.339	0.86	122.48	NoLiq	7.20	129.68	0.50
44.90	91.49	1.58	1.00	1.341	0.86	124.44	NoLiq	7.20	131.64	0.50
45.00	92.99	1.58	1.00	1.343	0.86	126.40	NoLiq	7.20	133.60	0.50
45.10	91.86	1.58	1.00	1.345	0.86	124.78	NoLiq	7.20	131.98	0.50
45.20	90.72	1.58	1.00	1.346	0.86	123.15	NoLiq	7.20	130.35	0.50
45.30	89.58	1.58	1.00	1.348	0.86	121.52	NoLiq	7.20	128.72	0.50
45.40	88.44	1.58	1.00	1.350	0.86	119.89	NoLiq	7.20	127.09	0.50
45.50	87.30	1.58	1.00	1.352	0.86	118.26	NoLiq	7.20	125.46	0.50
45.60	86.16	1.58	1.00	1.354	0.86	116.64	NoLiq	7.20	123.84	0.50
45.70	85.02	1.58	1.00	1.356	0.86	115.02	NoLiq	7.20	122.22	0.50
45.80	83.88	1.58	1.00	1.358	0.86	113.39	NoLiq	7.20	120.59	0.50
45.90	82.74	1.58	1.00	1.359	0.86	111.77	NoLiq	7.20	118.97	0.50
46.00	81.60	1.58	1.00	1.361	0.86	110.15	NoLiq	7.20	117.35	0.50
46.10	80.46	1.58	1.00	1.363	0.86	108.54	NoLiq	7.20	115.74	0.50
46.20	79.32	1.58	1.00	1.365	0.86	106.92	NoLiq	7.20	114.12	0.50
46.30	78.18	1.58	1.00	1.367	0.86	105.31	NoLiq	7.20	112.51	0.50
46.40	77.04	1.58	1.00	1.369	0.85	103.70	NoLiq	7.20	110.90	0.50
46.50	75.90	1.58	1.00	1.371	0.85	102.08	NoLiq	7.20	109.28	0.50
46.60	74.76	1.58	1.00	1.374	0.85	100.48	NoLiq	7.20	107.68	0.50
46.70	73.62	1.58	1.00	1.376	0.85	98.87	NoLiq	7.20	106.07	0.50
46.80	72.48	1.58	1.00	1.378	0.85	97.26	NoLiq	7.20	104.46	0.50
46.90	71.34	1.58	1.00	1.380	0.85	95.66	NoLiq	7.20	102.86	0.50
47.00	70.20	1.58	1.00	1.382	0.85	94.06	NoLiq	7.20	101.26	0.50
47.10	69.06	1.58	1.00	1.384	0.85	92.46	NoLiq	7.20	99.66	0.50
47.20	67.92	1.58	1.00	1.386	0.85	90.86	NoLiq	7.20	98.06	0.50
47.30	66.78	1.58	1.00	1.388	0.85	89.27	NoLiq	7.20	96.47	0.50
47.40	65.64	1.58	1.00	1.391	0.85	87.67	NoLiq	7.20	94.87	0.50
47.50	64.50	1.58	1.00	1.393	0.85	86.08	NoLiq	7.20	93.28	0.50
47.60	63.36	1.58	1.00	1.395	0.85	84.49	NoLiq	7.20	91.69	0.50
47.70	62.22	1.58	1.00	1.397	0.85	82.90	NoLiq	7.20	90.10	0.50
47.80	61.09	1.58	1.00	1.400	0.85	81.32	NoLiq	7.20	88.52	0.50
47.90	59.95	1.58	1.00	1.402	0.84	79.73	NoLiq	7.20	86.93	0.50
48.00	58.81	1.58	1.00	1.404	0.84	78.15	NoLiq	7.20	85.35	0.50
48.10	57.67	1.58	1.00	1.407	0.84	76.57	NoLiq	7.20	83.77	0.50
48.20	56.53	1.58	1.00	1.409	0.84	75.00	NoLiq	7.20	82.20	0.50
48.30	55.39	1.58	1.00	1.412	0.84	73.42	NoLiq	7.20	80.62	0.50
48.40	54.25	1.58	1.00	1.414	0.84	71.85	NoLiq	7.20	79.05	0.50
48.50	53.11	1.58	1.00	1.416	0.84	70.28	NoLiq	7.20	77.48	0.50
48.60	51.97	1.58	1.00	1.419	0.84	68.71	NoLiq	7.20	75.91	0.50
48.70	50.83	1.58	1.00	1.421	0.84	67.15	NoLiq	7.20	74.35	0.50
48.80	49.69	1.58	1.00	1.424	0.84	65.58	NoLiq	7.20	72.78	0.50
48.90	48.55	1.58	1.00	1.426	0.84	64.02	NoLiq	7.20	71.22	0.50
49.00	47.41	1.58	1.00	1.429	0.84	62.46	NoLiq	7.20	69.66	0.50
49.10	46.27	1.58	1.00	1.431	0.84	60.91	NoLiq	7.20	68.11	0.50
49.20	45.13	1.58	1.00	1.434	0.84	59.35	NoLiq	7.20	66.55	0.50
49.30	43.99	1.58	1.00	1.436	0.83	57.80	NoLiq	7.20	65.00	0.50
49.40	42.85	1.58	1.00	1.439	0.83	56.25	NoLiq	7.20	63.45	0.50
49.50	41.71	1.58	1.00	1.442	0.83	54.71	NoLiq	7.20	61.91	0.50
49.60	40.57	1.58	1.00	1.444	0.83	53.16	NoLiq	7.20	60.36	0.50
49.70	39.43	1.58	1.00	1.447	0.83	51.62	NoLiq	7.20	58.82	0.50
49.80	38.29	1.58	1.00	1.450	0.83	50.08	NoLiq	7.20	57.28	0.50
49.90	37.15	1.58	1.00	1.452	0.83	48.55	NoLiq	7.20	55.75	0.50
50.00	36.01	1.58	1.00	1.455	0.83	47.01	NoLiq	7.20	54.21	0.50

CRR is based on water table at 10.00 during In-Situ Testing

Factor of Safety, - Earthquake Magnitude= 6.50:

Depth ft	sigC' atm	CRR7.5	x	Ksig	=CRRv	x	MSF	=CRRm	CSRfs	F.S.=CRRm/CSRfs
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2.50	0.09	0.50	1.00	0.50	1.44	0.72	0.35	5.00		
2.60	0.10	0.50	1.00	0.50	1.44	0.72	0.35	5.00		
2.70	0.10	0.50	1.00	0.50	1.44	0.72	0.35	5.00		
2.80	0.10	0.50	1.00	0.50	1.44	0.72	0.35	5.00		
2.90	0.11	0.50	1.00	0.50	1.44	0.72	0.35	5.00		
3.00	0.11	0.50	1.00	0.50	1.44	0.72	0.35	5.00		
3.10	0.11	0.50	1.00	0.50	1.44	0.72	0.35	5.00		
3.20	0.12	0.50	1.00	0.50	1.44	0.72	0.35	5.00		
3.30	0.12	0.50	1.00	0.50	1.44	0.72	0.35	5.00		
3.40	0.13	0.50	1.00	0.50	1.44	0.72	0.35	5.00		
3.50	0.13	0.50	1.00	0.50	1.44	0.72	0.35	5.00		
3.60	0.13	0.50	1.00	0.50	1.44	0.72	0.35	5.00		
3.70	0.14	0.50	1.00	0.50	1.44	0.72	0.35	5.00		
3.80	0.14	0.50	1.00	0.50	1.44	0.72	0.35	5.00		
3.90	0.14	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
4.00	0.15	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
4.10	0.15	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
4.20	0.15	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
4.30	0.16	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
4.40	0.16	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
4.50	0.17	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
4.60	0.17	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
4.70	0.17	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
4.80	0.18	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
4.90	0.18	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
5.00	0.18	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
5.10	0.19	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
5.20	0.19	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
5.30	0.20	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
5.40	0.20	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
5.50	0.20	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
5.60	0.21	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
5.70	0.21	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
5.80	0.21	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
5.90	0.22	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
6.00	0.22	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
6.10	0.22	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
6.20	0.23	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
6.30	0.23	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
6.40	0.23	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
6.50	0.24	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
6.60	0.24	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
6.70	0.25	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
6.80	0.25	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
6.90	0.25	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
7.00	0.26	0.50	1.00	0.50	1.44	0.72	0.34	5.00		
7.10	0.26	0.50	1.00	0.50	1.44	0.72	0.34	5.00		

7.20	0.26	0.50	1.00	0.50	1.44	0.72	0.34	5.00
7.30	0.27	0.50	1.00	0.50	1.44	0.72	0.34	5.00
7.40	0.27	0.50	1.00	0.50	1.44	0.72	0.34	5.00
7.50	0.27	0.50	1.00	0.50	1.44	0.72	0.34	5.00
7.60	0.28	0.50	1.00	0.50	1.44	0.72	0.34	5.00
7.70	0.28	0.50	1.00	0.50	1.44	0.72	0.34	5.00
7.80	0.28	0.50	1.00	0.50	1.44	0.72	0.34	5.00
7.90	0.29	0.50	1.00	0.50	1.44	0.72	0.34	5.00
8.00	0.29	0.50	1.00	0.50	1.44	0.72	0.34	5.00
8.10	0.29	0.50	1.00	0.50	1.44	0.72	0.34	5.00
8.20	0.30	0.50	1.00	0.50	1.44	0.72	0.34	5.00
8.30	0.30	0.50	1.00	0.50	1.44	0.72	0.34	5.00
8.40	0.30	0.50	1.00	0.50	1.44	0.72	0.34	5.00
8.50	0.31	0.50	1.00	0.50	1.44	0.72	0.34	5.00
8.60	0.31	0.50	1.00	0.50	1.44	0.72	0.34	5.00
8.70	0.31	0.50	1.00	0.50	1.44	0.72	0.34	5.00
8.80	0.32	0.50	1.00	0.50	1.44	0.72	0.34	5.00
8.90	0.32	0.50	1.00	0.50	1.44	0.72	0.34	5.00
9.00	0.32	0.50	1.00	0.50	1.44	0.72	0.34	5.00
9.10	0.33	0.50	1.00	0.50	1.44	0.72	0.34	5.00
9.20	0.33	0.50	1.00	0.50	1.44	0.72	0.34	5.00
9.30	0.33	0.50	1.00	0.50	1.44	0.72	0.34	5.00
9.40	0.33	0.50	1.00	0.50	1.44	0.72	0.34	5.00
9.50	0.34	0.50	1.00	0.50	1.44	0.72	0.34	5.00
9.60	0.34	0.50	1.00	0.50	1.44	0.72	0.34	5.00
9.70	0.34	0.50	1.00	0.50	1.44	0.72	0.34	5.00
9.80	0.35	0.50	1.00	0.50	1.44	0.72	0.34	5.00
9.90	0.35	0.50	1.00	0.50	1.44	0.72	0.34	5.00
10.00	0.35	0.50	1.00	0.50	1.44	0.72	0.34	2.12
10.10	0.35	0.50	1.00	0.50	1.44	0.72	0.34	2.11
10.20	0.36	0.50	1.00	0.50	1.44	0.72	0.34	2.10
10.30	0.36	0.50	1.00	0.50	1.44	0.72	0.35	2.09
10.40	0.36	0.50	1.00	0.50	1.44	0.72	0.35	2.08
10.50	0.36	0.50	1.00	0.50	1.44	0.72	0.35	2.07
10.60	0.36	0.50	1.00	0.50	1.44	0.72	0.35	2.06
10.70	0.36	0.50	1.00	0.50	1.44	0.72	0.35	2.05
10.80	0.36	0.50	1.00	0.50	1.44	0.72	0.35	2.04
10.90	0.36	0.50	1.00	0.50	1.44	0.72	0.36	2.03
11.00	0.36	0.50	1.00	0.50	1.44	0.72	0.36	2.02
11.10	0.37	0.50	1.00	0.50	1.44	0.72	0.36	2.01
11.20	0.37	0.50	1.00	0.50	1.44	0.72	0.36	2.00
11.30	0.37	0.50	1.00	0.50	1.44	0.72	0.36	1.99
11.40	0.37	0.50	1.00	0.50	1.44	0.72	0.36	1.98
11.50	0.37	0.50	1.00	0.50	1.44	0.72	0.37	1.97
11.60	0.37	0.50	1.00	0.50	1.44	0.72	0.37	1.97
11.70	0.37	0.50	1.00	0.50	1.44	0.72	0.37	1.96
11.80	0.37	0.50	1.00	0.50	1.44	0.72	0.37	1.95
11.90	0.38	0.50	1.00	0.50	1.44	0.72	0.37	1.94
12.00	0.38	0.50	1.00	0.50	1.44	0.72	0.37	1.93
12.10	0.38	0.50	1.00	0.50	1.44	0.72	0.37	1.93
12.20	0.38	0.50	1.00	0.50	1.44	0.72	0.38	1.92
12.30	0.38	0.50	1.00	0.50	1.44	0.72	0.38	1.91
12.40	0.38	0.50	1.00	0.50	1.44	0.72	0.38	1.90
12.50	0.38	0.50	1.00	0.50	1.44	0.72	0.38	1.90

12.60	0.38	0.50	1.00	0.50	1.44	0.72	0.38	1.89
12.70	0.38	0.50	1.00	0.50	1.44	0.72	0.38	1.88
12.80	0.39	0.50	1.00	0.50	1.44	0.72	0.38	1.87
12.90	0.39	0.50	1.00	0.50	1.44	0.72	0.39	1.87
13.00	0.39	0.50	1.00	0.50	1.44	0.72	0.39	1.86
13.10	0.39	0.50	1.00	0.50	1.44	0.72	0.39	1.85
13.20	0.39	0.50	1.00	0.50	1.44	0.72	0.39	1.85
13.30	0.39	0.50	1.00	0.50	1.44	0.72	0.39	1.84
13.40	0.39	0.50	1.00	0.50	1.44	0.72	0.39	1.83
13.50	0.39	0.50	1.00	0.50	1.44	0.72	0.39	1.83
13.60	0.39	0.50	1.00	0.50	1.44	0.72	0.40	1.82
13.70	0.40	0.50	1.00	0.50	1.44	0.72	0.40	1.81
13.80	0.40	0.50	1.00	0.50	1.44	0.72	0.40	1.81
13.90	0.40	0.50	1.00	0.50	1.44	0.72	0.40	1.80
14.00	0.40	0.50	1.00	0.50	1.44	0.72	0.40	1.80
14.10	0.40	0.50	1.00	0.50	1.44	0.72	0.40	1.79
14.20	0.40	0.50	1.00	0.50	1.44	0.72	0.40	1.78
14.30	0.40	0.50	1.00	0.50	1.44	0.72	0.41	1.78
14.40	0.40	0.50	1.00	0.50	1.44	0.72	0.41	1.77
14.50	0.41	0.50	1.00	0.50	1.44	0.72	0.41	1.77
14.60	0.41	0.50	1.00	0.50	1.44	0.72	0.41	1.76
14.70	0.41	0.50	1.00	0.50	1.44	0.72	0.41	1.76
14.80	0.41	0.50	1.00	0.50	1.44	0.72	0.41	1.75
14.90	0.41	0.50	1.00	0.50	1.44	0.72	0.41	1.75
15.00	0.41	0.50	1.00	0.50	1.44	0.72	0.41	1.74
15.10	0.41	0.50	1.00	0.50	1.44	0.72	0.42	1.74
15.20	0.41	0.50	1.00	0.50	1.44	0.72	0.42	1.73
15.30	0.41	0.50	1.00	0.50	1.44	0.72	0.42	1.72
15.40	0.42	0.50	1.00	0.50	1.44	0.72	0.42	1.72
15.50	0.42	0.50	1.00	0.50	1.44	0.72	0.42	1.72
15.60	0.42	0.50	1.00	0.50	1.44	0.72	0.42	1.71
15.70	0.42	0.50	1.00	0.50	1.44	0.72	0.42	1.71
15.80	0.42	0.50	1.00	0.50	1.44	0.72	0.42	1.70
15.90	0.42	0.50	1.00	0.50	1.44	0.72	0.43	1.70
16.00	0.42	0.50	1.00	0.50	1.44	0.72	0.43	1.69
16.10	0.42	0.50	1.00	0.50	1.44	0.72	0.43	1.69
16.20	0.43	0.50	1.00	0.50	1.44	0.72	0.43	1.68
16.30	0.43	0.50	1.00	0.50	1.44	0.72	0.43	1.68
16.40	0.43	0.50	1.00	0.50	1.44	0.72	0.43	1.67
16.50	0.43	0.50	1.00	0.50	1.44	0.72	0.43	1.67
16.60	0.43	0.50	1.00	0.50	1.44	0.72	0.43	1.67
16.70	0.43	0.50	1.00	0.50	1.44	0.72	0.43	1.66
16.80	0.43	0.50	1.00	0.50	1.44	0.72	0.43	1.66
16.90	0.44	0.50	1.00	0.50	1.44	0.72	0.44	1.65
17.00	0.44	0.50	1.00	0.50	1.44	0.72	0.44	1.65
17.10	0.44	0.50	1.00	0.50	1.44	0.72	0.44	1.65
17.20	0.44	0.50	1.00	0.50	1.44	0.72	0.44	1.64
17.30	0.44	0.50	1.00	0.50	1.44	0.72	0.44	1.64
17.40	0.44	0.50	1.00	0.50	1.44	0.72	0.44	1.63
17.50	0.44	0.50	1.00	0.50	1.44	0.72	0.44	1.63
17.60	0.45	0.50	1.00	0.50	1.44	0.72	0.44	1.63
17.70	0.45	0.50	1.00	0.50	1.44	0.72	0.44	1.62
17.80	0.45	0.50	1.00	0.50	1.44	0.72	0.44	1.62
17.90	0.45	0.50	1.00	0.50	1.44	0.72	0.45	1.62

18.00	0.45	0.50	1.00	0.50	1.44	0.72	0.45	1.61
18.10	0.45	0.50	1.00	0.50	1.44	0.72	0.45	1.61
18.20	0.45	0.50	1.00	0.50	1.44	0.72	0.45	1.61
18.30	0.46	0.50	1.00	0.50	1.44	0.72	0.45	1.60
18.40	0.46	0.50	1.00	0.50	1.44	0.72	0.45	1.60
18.50	0.46	0.50	1.00	0.50	1.44	0.72	0.45	1.60
18.60	0.46	0.50	1.00	0.50	1.44	0.72	0.45	1.59
18.70	0.46	0.50	1.00	0.50	1.44	0.72	0.45	1.59
18.80	0.46	0.50	1.00	0.50	1.44	0.72	0.45	1.59
18.90	0.47	0.50	1.00	0.50	1.44	0.72	0.45	1.59
19.00	0.47	0.50	1.00	0.50	1.44	0.72	0.46	1.58
19.10	0.47	0.50	1.00	0.50	1.44	0.72	0.46	1.58
19.20	0.47	0.50	1.00	0.50	1.44	0.72	0.46	1.58
19.30	0.47	0.50	1.00	0.50	1.44	0.72	0.46	1.57
19.40	0.47	0.50	1.00	0.50	1.44	0.72	0.46	1.57
19.50	0.48	0.50	1.00	0.50	1.44	0.72	0.46	1.57
19.60	0.48	0.50	1.00	0.50	1.44	0.72	0.46	1.57
19.70	0.48	0.50	1.00	0.50	1.44	0.72	0.46	1.56
19.80	0.48	0.50	1.00	0.50	1.44	0.72	0.46	1.56
19.90	0.48	0.50	1.00	0.50	1.44	0.72	0.46	1.56
20.00	0.48	0.50	1.00	0.50	1.44	0.72	0.46	1.56
20.10	0.49	0.50	1.00	0.50	1.44	0.72	0.46	1.55
20.20	0.49	0.50	1.00	0.50	1.44	0.72	0.46	1.55
20.30	0.49	0.50	1.00	0.50	1.44	0.72	0.47	1.55
20.40	0.49	0.50	1.00	0.50	1.44	0.72	0.47	1.55
20.50	0.49	0.50	1.00	0.50	1.44	0.72	0.47	1.54
20.60	0.49	0.50	1.00	0.50	1.44	0.72	0.47	1.54
20.70	0.50	0.50	1.00	0.50	1.44	0.72	0.47	1.54
20.80	0.50	0.50	1.00	0.50	1.44	0.72	0.47	1.54
20.90	0.50	0.50	1.00	0.50	1.44	0.72	0.47	1.54
21.00	0.50	0.50	1.00	0.50	1.44	0.72	0.47	1.53
21.10	0.50	0.50	1.00	0.50	1.44	0.72	0.47	1.53
21.20	0.51	0.50	1.00	0.50	1.44	0.72	0.47	1.53
21.30	0.51	0.50	1.00	0.50	1.44	0.72	0.47	1.53
21.40	0.51	0.50	1.00	0.50	1.44	0.72	0.47	1.52
21.50	0.51	0.50	1.00	0.50	1.44	0.72	0.47	1.52
21.60	0.51	0.50	1.00	0.50	1.44	0.72	0.47	1.52
21.70	0.51	0.50	1.00	0.50	1.44	0.72	0.47	1.52
21.80	0.52	0.50	1.00	0.50	1.44	0.72	0.48	1.52
21.90	0.52	0.50	1.00	0.50	1.44	0.72	0.48	1.51
22.00	0.52	0.50	1.00	0.50	1.44	0.72	0.48	1.51
22.10	0.52	0.50	1.00	0.50	1.44	0.72	0.48	1.51
22.20	0.52	0.50	1.00	0.50	1.44	0.72	0.48	1.51
22.30	0.52	0.50	1.00	0.50	1.44	0.72	0.48	1.51
22.40	0.53	0.50	1.00	0.50	1.44	0.72	0.48	1.51
22.50	0.53	0.50	1.00	0.50	1.44	0.72	0.48	1.50
22.60	0.53	0.50	1.00	0.50	1.44	0.72	0.48	1.50
22.70	0.53	0.50	1.00	0.50	1.44	0.72	0.48	1.50
22.80	0.53	0.50	1.00	0.50	1.44	0.72	0.48	1.50
22.90	0.54	0.50	1.00	0.50	1.44	0.72	0.48	1.50
23.00	0.54	0.50	1.00	0.50	1.44	0.72	0.48	1.49
23.10	0.54	0.50	1.00	0.50	1.44	0.72	0.48	1.49
23.20	0.54	0.50	1.00	0.50	1.44	0.72	0.48	1.49
23.30	0.54	0.50	1.00	0.50	1.44	0.72	0.48	1.49

23.40	0.54 0.50 1.00 0.50 1.44 0.72 0.48 1.49
23.50	0.55 0.50 1.00 0.50 1.44 0.72 0.49 1.49
23.60	0.55 0.50 1.00 0.50 1.44 0.72 0.49 1.48
23.70	0.55 0.50 1.00 0.50 1.44 0.72 0.49 1.48
23.80	0.55 0.50 1.00 0.50 1.44 0.72 0.49 1.48
23.90	0.55 0.50 1.00 0.50 1.44 0.72 0.49 1.48
24.00	0.55 0.50 1.00 0.50 1.44 0.72 0.49 1.48
24.10	0.56 0.50 1.00 0.50 1.44 0.72 0.49 1.48
24.20	0.56 0.50 1.00 0.50 1.44 0.72 0.49 1.48
24.30	0.56 0.50 1.00 0.50 1.44 0.72 0.49 1.47
24.40	0.56 0.50 1.00 0.50 1.44 0.72 0.49 1.47
24.50	0.56 0.50 1.00 0.50 1.44 0.72 0.49 1.47
24.60	0.57 0.50 1.00 0.50 1.44 0.72 0.49 1.47
24.70	0.57 0.50 1.00 0.50 1.44 0.72 0.49 1.47
24.80	0.57 0.50 1.00 0.50 1.44 0.72 0.49 1.47
24.90	0.57 0.50 1.00 0.50 1.44 0.72 0.49 1.47
25.00	0.57 0.50 1.00 0.50 1.44 0.72 0.49 1.46
25.10	0.57 0.50 1.00 0.50 1.44 2.00 0.49 5.00 ^
25.20	0.58 0.50 1.00 0.50 1.44 2.00 0.49 5.00 ^
25.30	0.58 0.50 1.00 0.50 1.44 2.00 0.49 5.00 ^
25.40	0.58 0.50 1.00 0.50 1.44 2.00 0.49 5.00 ^
25.50	0.58 0.50 1.00 0.50 1.44 2.00 0.49 5.00 ^
25.60	0.58 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
25.70	0.58 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
25.80	0.59 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
25.90	0.59 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
26.00	0.59 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
26.10	0.59 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
26.20	0.59 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
26.30	0.60 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
26.40	0.60 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
26.50	0.60 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
26.60	0.60 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
26.70	0.60 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
26.80	0.60 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
26.90	0.61 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
27.00	0.61 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
27.10	0.61 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
27.20	0.61 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
27.30	0.61 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
27.40	0.62 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
27.50	0.62 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
27.60	0.62 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
27.70	0.62 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
27.80	0.62 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
27.90	0.62 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
28.00	0.63 0.50 1.00 0.50 1.44 2.00 0.50 5.00 ^
28.10	0.63 0.50 1.00 0.50 1.44 2.00 0.51 5.00 ^
28.20	0.63 0.50 1.00 0.50 1.44 2.00 0.51 5.00 ^
28.30	0.63 0.50 1.00 0.50 1.44 2.00 0.51 5.00 ^
28.40	0.63 0.50 1.00 0.50 1.44 2.00 0.51 5.00 ^
28.50	0.63 0.50 1.00 0.50 1.44 2.00 0.51 5.00 ^
28.60	0.64 0.50 1.00 0.50 1.44 2.00 0.51 5.00 ^
28.70	0.64 0.50 1.00 0.50 1.44 2.00 0.51 5.00 ^

28.80	0.64	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
28.90	0.64	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
29.00	0.64	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
29.10	0.65	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
29.20	0.65	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
29.30	0.65	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
29.40	0.65	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
29.50	0.65	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
29.60	0.65	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
29.70	0.66	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
29.80	0.66	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
29.90	0.66	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
30.00	0.66	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
30.10	0.66	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
30.20	0.66	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
30.30	0.67	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
30.40	0.67	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
30.50	0.67	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
30.60	0.67	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
30.70	0.67	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
30.80	0.68	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
30.90	0.68	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
31.00	0.68	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
31.10	0.68	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
31.20	0.68	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
31.30	0.68	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
31.40	0.69	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
31.50	0.69	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
31.60	0.69	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
31.70	0.69	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
31.80	0.69	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
31.90	0.69	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
32.00	0.70	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
32.10	0.70	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
32.20	0.70	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
32.30	0.70	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
32.40	0.70	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
32.50	0.70	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
32.60	0.71	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
32.70	0.71	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
32.80	0.71	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
32.90	0.71	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
33.00	0.71	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
33.10	0.71	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
33.20	0.72	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
33.30	0.72	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
33.40	0.72	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
33.50	0.72	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
33.60	0.72	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
33.70	0.72	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
33.80	0.73	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
33.90	0.73	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
34.00	0.73	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
34.10	0.73	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^

34.20	0.73	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
34.30	0.73	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
34.40	0.74	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
34.50	0.74	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
34.60	0.74	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
34.70	0.74	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
34.80	0.74	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
34.90	0.74	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
35.00	0.75	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
35.10	0.75	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
35.20	0.75	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
35.30	0.75	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
35.40	0.75	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
35.50	0.75	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
35.60	0.76	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
35.70	0.76	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
35.80	0.76	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
35.90	0.76	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
36.00	0.76	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
36.10	0.76	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
36.20	0.76	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
36.30	0.77	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
36.40	0.77	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
36.50	0.77	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
36.60	0.77	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
36.70	0.77	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
36.80	0.77	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
36.90	0.77	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
37.00	0.78	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
37.10	0.78	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
37.20	0.78	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
37.30	0.78	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
37.40	0.78	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
37.50	0.78	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
37.60	0.78	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
37.70	0.79	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
37.80	0.79	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
37.90	0.79	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
38.00	0.79	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
38.10	0.79	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
38.20	0.79	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
38.30	0.79	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
38.40	0.80	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
38.50	0.80	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
38.60	0.80	0.50	1.00	0.50	1.44	2.00	0.51	5.00	^
38.70	0.80	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
38.80	0.80	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
38.90	0.80	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
39.00	0.80	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
39.10	0.80	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
39.20	0.81	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
39.30	0.81	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
39.40	0.81	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
39.50	0.81	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^

39.60	0.81	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
39.70	0.81	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
39.80	0.81	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
39.90	0.81	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
40.00	0.82	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
40.10	0.82	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
40.20	0.82	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
40.30	0.82	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
40.40	0.82	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
40.50	0.82	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
40.60	0.82	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
40.70	0.82	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
40.80	0.82	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
40.90	0.83	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
41.00	0.83	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
41.10	0.83	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
41.20	0.83	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
41.30	0.83	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
41.40	0.83	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
41.50	0.83	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
41.60	0.83	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
41.70	0.83	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
41.80	0.84	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
41.90	0.84	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
42.00	0.84	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
42.10	0.84	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
42.20	0.84	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
42.30	0.84	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
42.40	0.84	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
42.50	0.84	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
42.60	0.85	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
42.70	0.85	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
42.80	0.85	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
42.90	0.85	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
43.00	0.85	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
43.10	0.85	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
43.20	0.85	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
43.30	0.85	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
43.40	0.85	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
43.50	0.86	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
43.60	0.86	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
43.70	0.86	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
43.80	0.86	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
43.90	0.86	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
44.00	0.86	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
44.10	0.86	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
44.20	0.86	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
44.30	0.86	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
44.40	0.87	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
44.50	0.87	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
44.60	0.87	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
44.70	0.87	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
44.80	0.87	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
44.90	0.87	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^

45.00	0.87	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
45.10	0.87	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
45.20	0.88	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
45.30	0.88	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
45.40	0.88	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
45.50	0.88	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
45.60	0.88	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
45.70	0.88	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
45.80	0.88	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
45.90	0.88	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
46.00	0.88	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
46.10	0.89	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
46.20	0.89	0.50	1.00	0.50	1.44	2.00	0.50	5.00	^
46.30	0.89	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
46.40	0.89	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
46.50	0.89	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
46.60	0.89	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
46.70	0.89	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
46.80	0.90	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
46.90	0.90	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
47.00	0.90	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
47.10	0.90	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
47.20	0.90	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
47.30	0.90	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
47.40	0.90	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
47.50	0.91	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
47.60	0.91	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
47.70	0.91	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
47.80	0.91	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
47.90	0.91	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
48.00	0.91	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
48.10	0.91	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
48.20	0.92	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
48.30	0.92	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
48.40	0.92	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
48.50	0.92	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
48.60	0.92	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
48.70	0.92	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
48.80	0.93	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
48.90	0.93	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
49.00	0.93	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
49.10	0.93	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
49.20	0.93	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
49.30	0.93	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
49.40	0.94	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
49.50	0.94	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
49.60	0.94	0.50	1.00	0.50	1.44	2.00	0.49	5.00	^
49.70	0.94	0.50	1.00	0.50	1.44	2.00	0.48	5.00	^
49.80	0.94	0.50	1.00	0.50	1.44	2.00	0.48	5.00	^
49.90	0.94	0.50	1.00	0.50	1.44	2.00	0.48	5.00	^
50.00	0.95	0.50	1.00	0.50	1.44	2.00	0.48	5.00	^

* F.S.<1: Liquefaction Potential Zone. (If above water table: F.S.=5)

^ No-liquefiable Soils or above Water Table.

(F.S. is limited to 5,CRR is limited to 2, CSR is limited to 2)

CPT convert to SPT for Settlement Analysis:

Fines Correction for Settlement Analysis:

Depth ft	Ic	qc/N60 atm	qc1 %	(N1)60	Fines	d(N1)60	(N1)60s
2.50 -	-	-	47.78	20.00	0.00	47.78	
2.60 -	-	-	47.38	20.00	0.00	47.38	
2.70 -	-	-	46.98	20.00	0.00	46.98	
2.80 -	-	-	46.57	20.00	0.00	46.57	
2.90 -	-	-	46.17	20.00	0.00	46.17	
3.00 -	-	-	45.77	20.00	0.00	45.77	
3.10 -	-	-	45.37	20.00	0.00	45.37	
3.20 -	-	-	44.97	20.00	0.00	44.97	
3.30 -	-	-	44.57	20.00	0.00	44.57	
3.40 -	-	-	44.16	20.00	0.00	44.16	
3.50 -	-	-	43.76	20.00	0.00	43.76	
3.60 -	-	-	43.36	20.00	0.00	43.36	
3.70 -	-	-	42.96	20.00	0.00	42.96	
3.80 -	-	-	42.56	20.00	0.00	42.56	
3.90 -	-	-	42.16	20.00	0.00	42.16	
4.00 -	-	-	41.75	20.00	0.00	41.75	
4.10 -	-	-	41.35	20.00	0.00	41.35	
4.20 -	-	-	40.95	20.00	0.00	40.95	
4.30 -	-	-	40.55	20.00	0.00	40.55	
4.40 -	-	-	40.15	20.00	0.00	40.15	
4.50 -	-	-	39.75	20.00	0.00	39.75	
4.60 -	-	-	39.34	20.00	0.00	39.34	
4.70 -	-	-	38.94	20.00	0.00	38.94	
4.80 -	-	-	38.54	20.00	0.00	38.54	
4.90 -	-	-	38.14	20.00	0.00	38.14	
5.00 -	-	-	37.74	20.00	0.00	37.74	
5.10 -	-	-	38.10	20.66	0.00	38.10	
5.20 -	-	-	38.46	21.32	0.00	38.46	
5.30 -	-	-	38.82	21.98	0.00	38.82	
5.40 -	-	-	39.17	22.64	0.00	39.17	
5.50 -	-	-	39.53	23.30	0.00	39.53	
5.60 -	-	-	39.89	23.96	0.00	39.89	
5.70 -	-	-	40.25	24.62	0.00	40.25	
5.80 -	-	-	40.61	25.28	0.00	40.61	
5.90 -	-	-	40.97	25.94	0.00	40.97	
6.00 -	-	-	41.33	26.60	0.00	41.33	
6.10 -	-	-	41.69	27.26	0.00	41.69	
6.20 -	-	-	41.83	27.92	0.00	41.83	
6.30 -	-	-	41.90	28.58	0.00	41.90	
6.40 -	-	-	41.99	29.24	0.00	41.99	
6.50 -	-	-	42.07	29.90	0.00	42.07	
6.60 -	-	-	42.16	30.56	0.00	42.16	
6.70 -	-	-	42.26	31.22	0.00	42.26	
6.80 -	-	-	42.35	31.88	0.00	42.35	
6.90 -	-	-	42.45	32.54	0.00	42.45	
7.00 -	-	-	42.56	33.20	0.00	42.56	

7.10	-	-	42.67	33.86	0.00	42.67
7.20	-	-	42.78	34.52	0.00	42.78
7.30	-	-	42.85	35.18	0.00	42.85
7.40	-	-	42.80	35.84	0.00	42.80
7.50	-	-	42.76	36.50	0.00	42.76
7.60	-	-	42.73	37.16	0.00	42.73
7.70	-	-	42.69	37.82	0.00	42.69
7.80	-	-	42.66	38.48	0.00	42.66
7.90	-	-	42.63	39.14	0.00	42.63
8.00	-	-	42.60	39.80	0.00	42.60
8.10	-	-	42.58	40.46	0.00	42.58
8.20	-	-	42.56	41.12	0.00	42.56
8.30	-	-	47.25	41.78	0.00	47.25
8.40	-	-	47.23	42.44	0.00	47.23
8.50	-	-	47.21	43.10	0.00	47.21
8.60	-	-	47.19	43.76	0.00	47.19
8.70	-	-	47.18	44.42	0.00	47.18
8.80	-	-	47.16	45.08	0.00	47.16
8.90	-	-	47.15	45.74	0.00	47.15
9.00	-	-	47.14	46.40	0.00	47.14
9.10	-	-	47.14	47.06	0.00	47.14
9.20	-	-	47.13	47.72	0.00	47.13
9.30	-	-	47.13	48.38	0.00	47.13
9.40	-	-	47.12	49.04	0.00	47.12
9.50	-	-	47.12	49.70	0.00	47.12
9.60	-	-	47.12	50.36	0.00	47.12
9.70	-	-	47.13	51.02	0.00	47.13
9.80	-	-	47.13	51.68	0.00	47.13
9.90	-	-	47.14	52.34	0.00	47.14
10.00	-	-	-	47.14	53.00	0.00 47.14
10.10	-	-	-	47.37	53.00	0.00 47.37
10.20	-	-	-	47.59	53.00	0.00 47.59
10.30	-	-	-	47.82	53.00	0.00 47.82
10.40	-	-	-	48.04	53.00	0.00 48.04
10.50	-	-	-	48.26	53.00	0.00 48.26
10.60	-	-	-	48.48	53.00	0.00 48.48
10.70	-	-	-	48.71	53.00	0.00 48.71
10.80	-	-	-	48.93	53.00	0.00 48.93
10.90	-	-	-	49.15	53.00	0.00 49.15
11.00	-	-	-	49.37	53.00	0.00 49.37
11.10	-	-	-	49.59	53.00	0.00 49.59
11.20	-	-	-	49.80	53.00	0.00 49.80
11.30	-	-	-	50.02	53.00	0.00 50.02
11.40	-	-	-	50.24	53.00	0.00 50.24
11.50	-	-	-	50.45	53.00	0.00 50.45
11.60	-	-	-	50.67	53.00	0.00 50.67
11.70	-	-	-	50.89	53.00	0.00 50.89
11.80	-	-	-	51.10	53.00	0.00 51.10
11.90	-	-	-	51.32	53.00	0.00 51.32
12.00	-	-	-	51.53	53.00	0.00 51.53
12.10	-	-	-	51.74	53.00	0.00 51.74
12.20	-	-	-	51.95	53.00	0.00 51.95
12.30	-	-	-	52.17	53.00	0.00 52.17
12.40	-	-	-	52.38	53.00	0.00 52.38

12.50	-	-	-	52.59	53.00	0.00 52.59
12.60	-	-	-	52.80	53.00	0.00 52.80
12.70	-	-	-	53.01	53.00	0.00 53.01
12.80	-	-	-	53.22	53.00	0.00 53.22
12.90	-	-	-	53.43	53.00	0.00 53.43
13.00	-	-	-	53.64	53.00	0.00 53.64
13.10	-	-	-	53.84	53.00	0.00 53.84
13.20	-	-	-	54.05	53.00	0.00 54.05
13.30	-	-	-	54.26	53.00	0.00 54.26
13.40	-	-	-	54.46	53.00	0.00 54.46
13.50	-	-	-	54.67	53.00	0.00 54.67
13.60	-	-	-	54.88	53.00	0.00 54.88
13.70	-	-	-	55.08	53.00	0.00 55.08
13.80	-	-	-	55.29	53.00	0.00 55.29
13.90	-	-	-	55.49	53.00	0.00 55.49
14.00	-	-	-	55.69	53.00	0.00 55.69
14.10	-	-	-	55.90	53.00	0.00 55.90
14.20	-	-	-	56.10	53.00	0.00 56.10
14.30	-	-	-	56.30	53.00	0.00 56.30
14.40	-	-	-	56.50	53.00	0.00 56.50
14.50	-	-	-	56.70	53.00	0.00 56.70
14.60	-	-	-	56.90	53.00	0.00 56.90
14.70	-	-	-	57.10	53.00	0.00 57.10
14.80	-	-	-	63.20	53.00	0.00 63.20
14.90	-	-	-	63.42	53.00	0.00 63.42
15.00	-	-	-	63.64	53.00	0.00 63.64
15.10	-	-	-	63.56	52.74	0.00 63.56
15.20	-	-	-	63.48	52.48	0.00 63.48
15.30	-	-	-	63.40	52.22	0.00 63.40
15.40	-	-	-	63.32	51.96	0.00 63.32
15.50	-	-	-	63.24	51.70	0.00 63.24
15.60	-	-	-	63.16	51.44	0.00 63.16
15.70	-	-	-	63.08	51.18	0.00 63.08
15.80	-	-	-	62.99	50.92	0.00 62.99
15.90	-	-	-	62.91	50.66	0.00 62.91
16.00	-	-	-	62.83	50.40	0.00 62.83
16.10	-	-	-	62.74	50.14	0.00 62.74
16.20	-	-	-	62.66	49.88	0.00 62.66
16.30	-	-	-	62.57	49.62	0.00 62.57
16.40	-	-	-	62.49	49.36	0.00 62.49
16.50	-	-	-	62.40	49.10	0.00 62.40
16.60	-	-	-	62.32	48.84	0.00 62.32
16.70	-	-	-	62.23	48.58	0.00 62.23
16.80	-	-	-	62.14	48.32	0.00 62.14
16.90	-	-	-	62.06	48.06	0.00 62.06
17.00	-	-	-	61.97	47.80	0.00 61.97
17.10	-	-	-	61.88	47.54	0.00 61.88
17.20	-	-	-	61.79	47.28	0.00 61.79
17.30	-	-	-	61.70	47.02	0.00 61.70
17.40	-	-	-	61.62	46.76	0.00 61.62
17.50	-	-	-	61.53	46.50	0.00 61.53
17.60	-	-	-	61.44	46.24	0.00 61.44
17.70	-	-	-	61.35	45.98	0.00 61.35
17.80	-	-	-	61.26	45.72	0.00 61.26

17.90	-	-	-	61.17	45.46	0.00 61.17
18.00	-	-	-	61.08	45.20	0.00 61.08
18.10	-	-	-	60.98	44.94	0.00 60.98
18.20	-	-	-	60.89	44.68	0.00 60.89
18.30	-	-	-	60.80	44.42	0.00 60.80
18.40	-	-	-	60.71	44.16	0.00 60.71
18.50	-	-	-	60.62	43.90	0.00 60.62
18.60	-	-	-	60.53	43.64	0.00 60.53
18.70	-	-	-	60.43	43.38	0.00 60.43
18.80	-	-	-	60.34	43.12	0.00 60.34
18.90	-	-	-	60.25	42.86	0.00 60.25
19.00	-	-	-	60.16	42.60	0.00 60.16
19.10	-	-	-	60.06	42.34	0.00 60.06
19.20	-	-	-	59.97	42.08	0.00 59.97
19.30	-	-	-	59.87	41.82	0.00 59.87
19.40	-	-	-	59.78	41.56	0.00 59.78
19.50	-	-	-	59.69	41.30	0.00 59.69
19.60	-	-	-	59.59	41.04	0.00 59.59
19.70	-	-	-	59.50	40.78	0.00 59.50
19.80	-	-	-	59.40	40.52	0.00 59.40
19.90	-	-	-	59.31	40.26	0.00 59.31
20.00	-	-	-	59.21	40.00	0.00 59.21
20.10	-	-	-	59.47	41.22	0.00 59.47
20.20	-	-	-	59.72	42.44	0.00 59.72
20.30	-	-	-	59.97	43.66	0.00 59.97
20.40	-	-	-	60.22	44.88	0.00 60.22
20.50	-	-	-	60.46	46.10	0.00 60.46
20.60	-	-	-	60.71	47.32	0.00 60.71
20.70	-	-	-	60.96	48.54	0.00 60.96
20.80	-	-	-	61.20	49.76	0.00 61.20
20.90	-	-	-	61.45	50.98	0.00 61.45
21.00	-	-	-	61.70	52.20	0.00 61.70
21.10	-	-	-	61.94	53.42	0.00 61.94
21.20	-	-	-	62.18	54.64	0.00 62.18
21.30	-	-	-	62.43	55.86	0.00 62.43
21.40	-	-	-	62.67	57.08	0.00 62.67
21.50	-	-	-	62.91	58.30	0.00 62.91
21.60	-	-	-	63.15	59.52	0.00 63.15
21.70	-	-	-	63.39	60.74	0.00 63.39
21.80	-	-	-	63.63	61.96	0.00 63.63
21.90	-	-	-	63.87	63.18	0.00 63.87
22.00	-	-	-	64.11	64.40	0.00 64.11
22.10	-	-	-	64.34	65.62	0.00 64.34
22.20	-	-	-	64.58	66.84	0.00 64.58
22.30	-	-	-	64.82	68.06	0.00 64.82
22.40	-	-	-	65.05	69.28	0.00 65.05
22.50	-	-	-	65.29	70.50	0.00 65.29
22.60	-	-	-	65.52	71.72	0.00 65.52
22.70	-	-	-	65.76	72.94	0.00 65.76
22.80	-	-	-	65.99	74.16	0.00 65.99
22.90	-	-	-	66.22	75.38	0.00 66.22
23.00	-	-	-	66.45	76.60	0.00 66.45
23.10	-	-	-	66.68	77.82	0.00 66.68
23.20	-	-	-	66.92	79.04	0.00 66.92

23.30	-	-	-	67.15	80.26	0.00 67.15
23.40	-	-	-	67.37	81.48	0.00 67.37
23.50	-	-	-	67.60	82.70	0.00 67.60
23.60	-	-	-	67.83	83.92	0.00 67.83
23.70	-	-	-	68.06	85.14	0.00 68.06
23.80	-	-	-	68.29	86.36	0.00 68.29
23.90	-	-	-	68.51	87.58	0.00 68.51
24.00	-	-	-	68.74	88.80	0.00 68.74
24.10	-	-	-	68.97	90.02	0.00 68.97
24.20	-	-	-	69.19	91.24	0.00 69.19
24.30	-	-	-	69.41	92.46	0.00 69.41
24.40	-	-	-	69.64	93.68	0.00 69.64
24.50	-	-	-	69.86	94.90	0.00 69.86
24.60	-	-	-	70.08	96.12	0.00 70.08
24.70	-	-	-	70.31	97.34	0.00 70.31
24.80	-	-	-	70.53	98.56	0.00 70.53
24.90	-	-	-	70.75	99.78	0.00 70.75
25.00	-	-	-	70.97	NoLiq	0.00 70.97
25.10	-	-	-	71.16	NoLiq	0.00 71.16
25.20	-	-	-	71.35	NoLiq	0.00 71.35
25.30	-	-	-	71.53	NoLiq	0.00 71.53
25.40	-	-	-	71.72	NoLiq	0.00 71.72
25.50	-	-	-	71.91	NoLiq	0.00 71.91
25.60	-	-	-	72.09	NoLiq	0.00 72.09
25.70	-	-	-	72.28	NoLiq	0.00 72.28
25.80	-	-	-	72.46	NoLiq	0.00 72.46
25.90	-	-	-	72.65	NoLiq	0.00 72.65
26.00	-	-	-	72.83	NoLiq	0.00 72.83
26.10	-	-	-	73.02	NoLiq	0.00 73.02
26.20	-	-	-	73.20	NoLiq	0.00 73.20
26.30	-	-	-	73.38	NoLiq	0.00 73.38
26.40	-	-	-	73.57	NoLiq	0.00 73.57
26.50	-	-	-	73.75	NoLiq	0.00 73.75
26.60	-	-	-	73.93	NoLiq	0.00 73.93
26.70	-	-	-	74.11	NoLiq	0.00 74.11
26.80	-	-	-	74.29	NoLiq	0.00 74.29
26.90	-	-	-	74.48	NoLiq	0.00 74.48
27.00	-	-	-	74.66	NoLiq	0.00 74.66
27.10	-	-	-	74.84	NoLiq	0.00 74.84
27.20	-	-	-	75.02	NoLiq	0.00 75.02
27.30	-	-	-	75.20	NoLiq	0.00 75.20
27.40	-	-	-	75.37	NoLiq	0.00 75.37
27.50	-	-	-	75.55	NoLiq	0.00 75.55
27.60	-	-	-	75.73	NoLiq	0.00 75.73
27.70	-	-	-	75.91	NoLiq	0.00 75.91
27.80	-	-	-	76.09	NoLiq	0.00 76.09
27.90	-	-	-	79.90	NoLiq	0.00 79.90
28.00	-	-	-	80.08	NoLiq	0.00 80.08
28.10	-	-	-	80.27	NoLiq	0.00 80.27
28.20	-	-	-	80.46	NoLiq	0.00 80.46
28.30	-	-	-	80.64	NoLiq	0.00 80.64
28.40	-	-	-	80.83	NoLiq	0.00 80.83
28.50	-	-	-	81.01	NoLiq	0.00 81.01
28.60	-	-	-	81.19	NoLiq	0.00 81.19

28.70	-	-	-	81.38	NoLiq	0.00 81.38
28.80	-	-	-	81.56	NoLiq	0.00 81.56
28.90	-	-	-	81.74	NoLiq	0.00 81.74
29.00	-	-	-	81.93	NoLiq	0.00 81.93
29.10	-	-	-	82.11	NoLiq	0.00 82.11
29.20	-	-	-	82.29	NoLiq	0.00 82.29
29.30	-	-	-	82.47	NoLiq	0.00 82.47
29.40	-	-	-	82.65	NoLiq	0.00 82.65
29.50	-	-	-	82.83	NoLiq	0.00 82.83
29.60	-	-	-	83.01	NoLiq	0.00 83.01
29.70	-	-	-	83.19	NoLiq	0.00 83.19
29.80	-	-	-	83.37	NoLiq	0.00 83.37
29.90	-	-	-	83.55	NoLiq	0.00 83.55
30.00	-	-	-	83.73	NoLiq	0.00 83.73
30.10	-	-	-	84.84	NoLiq	0.00 84.84
30.20	-	-	-	85.95	NoLiq	0.00 85.95
30.30	-	-	-	87.06	NoLiq	0.00 87.06
30.40	-	-	-	88.17	NoLiq	0.00 88.17
30.50	-	-	-	89.27	NoLiq	0.00 89.27
30.60	-	-	-	90.38	NoLiq	0.00 90.38
30.70	-	-	-	91.47	NoLiq	0.00 91.47
30.80	-	-	-	92.57	NoLiq	0.00 92.57
30.90	-	-	-	93.66	NoLiq	0.00 93.66
31.00	-	-	-	94.76	NoLiq	0.00 94.76
31.10	-	-	-	95.84	NoLiq	0.00 95.84
31.20	-	-	-	96.93	NoLiq	0.00 96.93
31.30	-	-	-	98.02	NoLiq	0.00 98.02
31.40	-	-	-	99.10	NoLiq	0.00 99.10
31.50	-	-	-	100.00	NoLiq	0.00 100.00
31.60	-	-	-	100.00	NoLiq	0.00 100.00
31.70	-	-	-	100.00	NoLiq	0.00 100.00
31.80	-	-	-	100.00	NoLiq	0.00 100.00
31.90	-	-	-	100.00	NoLiq	0.00 100.00
32.00	-	-	-	100.00	NoLiq	0.00 100.00
32.10	-	-	-	100.00	NoLiq	0.00 100.00
32.20	-	-	-	100.00	NoLiq	0.00 100.00
32.30	-	-	-	100.00	NoLiq	0.00 100.00
32.40	-	-	-	100.00	NoLiq	0.00 100.00
32.50	-	-	-	100.00	NoLiq	0.00 100.00
32.60	-	-	-	100.00	NoLiq	0.00 100.00
32.70	-	-	-	100.00	NoLiq	0.00 100.00
32.80	-	-	-	100.00	NoLiq	0.00 100.00
32.90	-	-	-	100.00	NoLiq	0.00 100.00
33.00	-	-	-	100.00	NoLiq	0.00 100.00
33.10	-	-	-	100.00	NoLiq	0.00 100.00
33.20	-	-	-	100.00	NoLiq	0.00 100.00
33.30	-	-	-	100.00	NoLiq	0.00 100.00
33.40	-	-	-	100.00	NoLiq	0.00 100.00
33.50	-	-	-	100.00	NoLiq	0.00 100.00
33.60	-	-	-	100.00	NoLiq	0.00 100.00
33.70	-	-	-	100.00	NoLiq	0.00 100.00
33.80	-	-	-	100.00	NoLiq	0.00 100.00
33.90	-	-	-	100.00	NoLiq	0.00 100.00
34.00	-	-	-	100.00	NoLiq	0.00 100.00

34.10	-	-	-	100.00	NoLiq	0.00	100.00
34.20	-	-	-	100.00	NoLiq	0.00	100.00
34.30	-	-	-	100.00	NoLiq	0.00	100.00
34.40	-	-	-	100.00	NoLiq	0.00	100.00
34.50	-	-	-	100.00	NoLiq	0.00	100.00
34.60	-	-	-	100.00	NoLiq	0.00	100.00
34.70	-	-	-	100.00	NoLiq	0.00	100.00
34.80	-	-	-	100.00	NoLiq	0.00	100.00
34.90	-	-	-	100.00	NoLiq	0.00	100.00
35.00	-	-	-	100.00	NoLiq	0.00	100.00
35.10	-	-	-	100.00	NoLiq	0.00	100.00
35.20	-	-	-	100.00	NoLiq	0.00	100.00
35.30	-	-	-	100.00	NoLiq	0.00	100.00
35.40	-	-	-	100.00	NoLiq	0.00	100.00
35.50	-	-	-	100.00	NoLiq	0.00	100.00
35.60	-	-	-	100.00	NoLiq	0.00	100.00
35.70	-	-	-	100.00	NoLiq	0.00	100.00
35.80	-	-	-	100.00	NoLiq	0.00	100.00
35.90	-	-	-	100.00	NoLiq	0.00	100.00
36.00	-	-	-	100.00	NoLiq	0.00	100.00
36.10	-	-	-	100.00	NoLiq	0.00	100.00
36.20	-	-	-	100.00	NoLiq	0.00	100.00
36.30	-	-	-	100.00	NoLiq	0.00	100.00
36.40	-	-	-	100.00	NoLiq	0.00	100.00
36.50	-	-	-	100.00	NoLiq	0.00	100.00
36.60	-	-	-	100.00	NoLiq	0.00	100.00
36.70	-	-	-	100.00	NoLiq	0.00	100.00
36.80	-	-	-	97.89	NoLiq	0.00	97.89
36.90	-	-	-	95.78	NoLiq	0.00	95.78
37.00	-	-	-	93.68	NoLiq	0.00	93.68
37.10	-	-	-	91.59	NoLiq	0.00	91.59
37.20	-	-	-	89.50	NoLiq	0.00	89.50
37.30	-	-	-	87.41	NoLiq	0.00	87.41
37.40	-	-	-	85.33	NoLiq	0.00	85.33
37.50	-	-	-	83.25	NoLiq	0.00	83.25
37.60	-	-	-	81.18	NoLiq	0.00	81.18
37.70	-	-	-	79.11	NoLiq	0.00	79.11
37.80	-	-	-	77.04	NoLiq	0.00	77.04
37.90	-	-	-	74.98	NoLiq	0.00	74.98
38.00	-	-	-	72.92	NoLiq	0.00	72.92
38.10	-	-	-	70.87	NoLiq	0.00	70.87
38.20	-	-	-	68.82	NoLiq	0.00	68.82
38.30	-	-	-	66.77	NoLiq	0.00	66.77
38.40	-	-	-	64.73	NoLiq	0.00	64.73
38.50	-	-	-	62.69	NoLiq	0.00	62.69
38.60	-	-	-	60.66	NoLiq	0.00	60.66
38.70	-	-	-	58.62	NoLiq	0.00	58.62
38.80	-	-	-	56.60	NoLiq	0.00	56.60
38.90	-	-	-	54.57	NoLiq	0.00	54.57
39.00	-	-	-	52.55	NoLiq	0.00	52.55
39.10	-	-	-	50.53	NoLiq	0.00	50.53
39.20	-	-	-	48.52	NoLiq	0.00	48.52
39.30	-	-	-	46.51	NoLiq	0.00	46.51
39.40	-	-	-	44.50	NoLiq	0.00	44.50

39.50	-	-	-	42.50	NoLiq	0.00 42.50
39.60	-	-	-	40.50	NoLiq	0.00 40.50
39.70	-	-	-	38.50	NoLiq	0.00 38.50
39.80	-	-	-	36.50	NoLiq	0.00 36.50
39.90	-	-	-	34.51	NoLiq	0.00 34.51
40.00	-	-	-	32.52	NoLiq	0.00 32.52
40.10	-	-	-	34.60	NoLiq	0.00 34.60
40.20	-	-	-	36.69	NoLiq	0.00 36.69
40.30	-	-	-	38.77	NoLiq	0.00 38.77
40.40	-	-	-	40.85	NoLiq	0.00 40.85
40.50	-	-	-	42.93	NoLiq	0.00 42.93
40.60	-	-	-	45.01	NoLiq	0.00 45.01
40.70	-	-	-	47.08	NoLiq	0.00 47.08
40.80	-	-	-	49.15	NoLiq	0.00 49.15
40.90	-	-	-	51.22	NoLiq	0.00 51.22
41.00	-	-	-	53.28	NoLiq	0.00 53.28
41.10	-	-	-	55.34	NoLiq	0.00 55.34
41.20	-	-	-	57.40	NoLiq	0.00 57.40
41.30	-	-	-	59.46	NoLiq	0.00 59.46
41.40	-	-	-	61.51	NoLiq	0.00 61.51
41.50	-	-	-	63.56	NoLiq	0.00 63.56
41.60	-	-	-	65.61	NoLiq	0.00 65.61
41.70	-	-	-	67.65	NoLiq	0.00 67.65
41.80	-	-	-	69.69	NoLiq	0.00 69.69
41.90	-	-	-	71.73	NoLiq	0.00 71.73
42.00	-	-	-	73.77	NoLiq	0.00 73.77
42.10	-	-	-	75.80	NoLiq	0.00 75.80
42.20	-	-	-	77.83	NoLiq	0.00 77.83
42.30	-	-	-	79.86	NoLiq	0.00 79.86
42.40	-	-	-	81.89	NoLiq	0.00 81.89
42.50	-	-	-	83.91	NoLiq	0.00 83.91
42.60	-	-	-	85.93	NoLiq	0.00 85.93
42.70	-	-	-	87.94	NoLiq	0.00 87.94
42.80	-	-	-	89.96	NoLiq	0.00 89.96
42.90	-	-	-	91.97	NoLiq	0.00 91.97
43.00	-	-	-	93.98	NoLiq	0.00 93.98
43.10	-	-	-	95.98	NoLiq	0.00 95.98
43.20	-	-	-	97.99	NoLiq	0.00 97.99
43.30	-	-	-	99.99	NoLiq	0.00 99.99
43.40	-	-	-	100.00	NoLiq	0.00 100.00
43.50	-	-	-	100.00	NoLiq	0.00 100.00
43.60	-	-	-	100.00	NoLiq	0.00 100.00
43.70	-	-	-	100.00	NoLiq	0.00 100.00
43.80	-	-	-	100.00	NoLiq	0.00 100.00
43.90	-	-	-	100.00	NoLiq	0.00 100.00
44.00	-	-	-	100.00	NoLiq	0.00 100.00
44.10	-	-	-	100.00	NoLiq	0.00 100.00
44.20	-	-	-	100.00	NoLiq	0.00 100.00
44.30	-	-	-	100.00	NoLiq	0.00 100.00
44.40	-	-	-	100.00	NoLiq	0.00 100.00
44.50	-	-	-	100.00	NoLiq	0.00 100.00
44.60	-	-	-	100.00	NoLiq	0.00 100.00
44.70	-	-	-	100.00	NoLiq	0.00 100.00
44.80	-	-	-	100.00	NoLiq	0.00 100.00

44.90	-	-	-	100.00	NoLiq	0.00	100.00
45.00	-	-	-	100.00	NoLiq	0.00	100.00
45.10	-	-	-	100.00	NoLiq	0.00	100.00
45.20	-	-	-	100.00	NoLiq	0.00	100.00
45.30	-	-	-	100.00	NoLiq	0.00	100.00
45.40	-	-	-	100.00	NoLiq	0.00	100.00
45.50	-	-	-	100.00	NoLiq	0.00	100.00
45.60	-	-	-	100.00	NoLiq	0.00	100.00
45.70	-	-	-	100.00	NoLiq	0.00	100.00
45.80	-	-	-	100.00	NoLiq	0.00	100.00
45.90	-	-	-	100.00	NoLiq	0.00	100.00
46.00	-	-	-	100.00	NoLiq	0.00	100.00
46.10	-	-	-	100.00	NoLiq	0.00	100.00
46.20	-	-	-	100.00	NoLiq	0.00	100.00
46.30	-	-	-	100.00	NoLiq	0.00	100.00
46.40	-	-	-	100.00	NoLiq	0.00	100.00
46.50	-	-	-	100.00	NoLiq	0.00	100.00
46.60	-	-	-	100.00	NoLiq	0.00	100.00
46.70	-	-	-	100.00	NoLiq	0.00	100.00
46.80	-	-	-	100.00	NoLiq	0.00	100.00
46.90	-	-	-	100.00	NoLiq	0.00	100.00
47.00	-	-	-	100.00	NoLiq	0.00	100.00
47.10	-	-	-	99.66	NoLiq	0.00	99.66
47.20	-	-	-	98.06	NoLiq	0.00	98.06
47.30	-	-	-	96.47	NoLiq	0.00	96.47
47.40	-	-	-	94.87	NoLiq	0.00	94.87
47.50	-	-	-	93.28	NoLiq	0.00	93.28
47.60	-	-	-	91.69	NoLiq	0.00	91.69
47.70	-	-	-	90.10	NoLiq	0.00	90.10
47.80	-	-	-	88.52	NoLiq	0.00	88.52
47.90	-	-	-	86.93	NoLiq	0.00	86.93
48.00	-	-	-	85.35	NoLiq	0.00	85.35
48.10	-	-	-	83.77	NoLiq	0.00	83.77
48.20	-	-	-	82.20	NoLiq	0.00	82.20
48.30	-	-	-	80.62	NoLiq	0.00	80.62
48.40	-	-	-	79.05	NoLiq	0.00	79.05
48.50	-	-	-	77.48	NoLiq	0.00	77.48
48.60	-	-	-	75.91	NoLiq	0.00	75.91
48.70	-	-	-	74.35	NoLiq	0.00	74.35
48.80	-	-	-	72.78	NoLiq	0.00	72.78
48.90	-	-	-	71.22	NoLiq	0.00	71.22
49.00	-	-	-	69.66	NoLiq	0.00	69.66
49.10	-	-	-	68.11	NoLiq	0.00	68.11
49.20	-	-	-	66.55	NoLiq	0.00	66.55
49.30	-	-	-	65.00	NoLiq	0.00	65.00
49.40	-	-	-	63.45	NoLiq	0.00	63.45
49.50	-	-	-	61.91	NoLiq	0.00	61.91
49.60	-	-	-	60.36	NoLiq	0.00	60.36
49.70	-	-	-	58.82	NoLiq	0.00	58.82
49.80	-	-	-	57.28	NoLiq	0.00	57.28
49.90	-	-	-	55.75	NoLiq	0.00	55.75
50.00	-	-	-	54.21	NoLiq	0.00	54.21

(N1)60s has been fines corrected in liquefaction analysis, therefore d(N1)60=0.

Fines=NoLiq means the soils are not liquefiable.

Settlement of Saturated Sands:

Settlement Analysis Method: Tokimatsu/Seed

Depth ft	CSRsf	/ MSF*	=CSRm	F.S.	Fines	(N1)60s	Dr	ec	dsz	dsp	S
		%	%	%	in.	in.	in.				

49.95	0.48	1.00	0.48	5.00	NoLiq	54.98	100.00	0.000	0.0E0	0.000	0.000
49.90	0.48	1.00	0.48	5.00	NoLiq	55.75	100.00	0.000	0.0E0	0.000	0.000
49.80	0.48	1.00	0.48	5.00	NoLiq	57.28	100.00	0.000	0.0E0	0.000	0.000
49.70	0.48	1.00	0.48	5.00	NoLiq	58.82	100.00	0.000	0.0E0	0.000	0.000
49.60	0.49	1.00	0.49	5.00	NoLiq	60.36	100.00	0.000	0.0E0	0.000	0.000
49.50	0.49	1.00	0.49	5.00	NoLiq	61.91	100.00	0.000	0.0E0	0.000	0.000
49.40	0.49	1.00	0.49	5.00	NoLiq	63.45	100.00	0.000	0.0E0	0.000	0.000
49.30	0.49	1.00	0.49	5.00	NoLiq	65.00	100.00	0.000	0.0E0	0.000	0.000
49.20	0.49	1.00	0.49	5.00	NoLiq	66.55	100.00	0.000	0.0E0	0.000	0.000
49.10	0.49	1.00	0.49	5.00	NoLiq	68.11	100.00	0.000	0.0E0	0.000	0.000
49.00	0.49	1.00	0.49	5.00	NoLiq	69.66	100.00	0.000	0.0E0	0.000	0.000
48.90	0.49	1.00	0.49	5.00	NoLiq	71.22	100.00	0.000	0.0E0	0.000	0.000
48.80	0.49	1.00	0.49	5.00	NoLiq	72.78	100.00	0.000	0.0E0	0.000	0.000
48.70	0.49	1.00	0.49	5.00	NoLiq	74.35	100.00	0.000	0.0E0	0.000	0.000
48.60	0.49	1.00	0.49	5.00	NoLiq	75.91	100.00	0.000	0.0E0	0.000	0.000
48.50	0.49	1.00	0.49	5.00	NoLiq	77.48	100.00	0.000	0.0E0	0.000	0.000
48.40	0.49	1.00	0.49	5.00	NoLiq	79.05	100.00	0.000	0.0E0	0.000	0.000
48.30	0.49	1.00	0.49	5.00	NoLiq	80.62	100.00	0.000	0.0E0	0.000	0.000
48.20	0.49	1.00	0.49	5.00	NoLiq	82.20	100.00	0.000	0.0E0	0.000	0.000
48.10	0.49	1.00	0.49	5.00	NoLiq	83.77	100.00	0.000	0.0E0	0.000	0.000
48.00	0.49	1.00	0.49	5.00	NoLiq	85.35	100.00	0.000	0.0E0	0.000	0.000
47.90	0.49	1.00	0.49	5.00	NoLiq	86.93	100.00	0.000	0.0E0	0.000	0.000
47.80	0.49	1.00	0.49	5.00	NoLiq	88.52	100.00	0.000	0.0E0	0.000	0.000
47.70	0.49	1.00	0.49	5.00	NoLiq	90.10	100.00	0.000	0.0E0	0.000	0.000
47.60	0.49	1.00	0.49	5.00	NoLiq	91.69	100.00	0.000	0.0E0	0.000	0.000
47.50	0.49	1.00	0.49	5.00	NoLiq	93.28	100.00	0.000	0.0E0	0.000	0.000
47.40	0.49	1.00	0.49	5.00	NoLiq	94.87	100.00	0.000	0.0E0	0.000	0.000
47.30	0.49	1.00	0.49	5.00	NoLiq	96.47	100.00	0.000	0.0E0	0.000	0.000
47.20	0.49	1.00	0.49	5.00	NoLiq	98.06	100.00	0.000	0.0E0	0.000	0.000
47.10	0.49	1.00	0.49	5.00	NoLiq	99.66	100.00	0.000	0.0E0	0.000	0.000
47.00	0.49	1.00	0.49	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
46.90	0.49	1.00	0.49	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
46.80	0.49	1.00	0.49	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
46.70	0.49	1.00	0.49	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
46.60	0.49	1.00	0.49	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
46.50	0.49	1.00	0.49	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
46.40	0.49	1.00	0.49	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
46.30	0.49	1.00	0.49	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
46.20	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
46.10	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
46.00	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
45.90	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
45.80	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
45.70	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
45.60	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000

45.50	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
45.40	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
45.30	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
45.20	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
45.10	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
45.00	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
44.90	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
44.80	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
44.70	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
44.60	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
44.50	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
44.40	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
44.30	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
44.20	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
44.10	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
44.00	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
43.90	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
43.80	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
43.70	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
43.60	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
43.50	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
43.40	0.50	1.00	0.50	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
43.30	0.50	1.00	0.50	5.00	NoLiq	99.99	100.00	0.000	0.0E0	0.000	0.000
43.20	0.50	1.00	0.50	5.00	NoLiq	97.99	100.00	0.000	0.0E0	0.000	0.000
43.10	0.50	1.00	0.50	5.00	NoLiq	95.98	100.00	0.000	0.0E0	0.000	0.000
43.00	0.50	1.00	0.50	5.00	NoLiq	93.98	100.00	0.000	0.0E0	0.000	0.000
42.90	0.50	1.00	0.50	5.00	NoLiq	91.97	100.00	0.000	0.0E0	0.000	0.000
42.80	0.50	1.00	0.50	5.00	NoLiq	89.96	100.00	0.000	0.0E0	0.000	0.000
42.70	0.50	1.00	0.50	5.00	NoLiq	87.94	100.00	0.000	0.0E0	0.000	0.000
42.60	0.50	1.00	0.50	5.00	NoLiq	85.93	100.00	0.000	0.0E0	0.000	0.000
42.50	0.50	1.00	0.50	5.00	NoLiq	83.91	100.00	0.000	0.0E0	0.000	0.000
42.40	0.50	1.00	0.50	5.00	NoLiq	81.89	100.00	0.000	0.0E0	0.000	0.000
42.30	0.50	1.00	0.50	5.00	NoLiq	79.86	100.00	0.000	0.0E0	0.000	0.000
42.20	0.50	1.00	0.50	5.00	NoLiq	77.83	100.00	0.000	0.0E0	0.000	0.000
42.10	0.50	1.00	0.50	5.00	NoLiq	75.80	100.00	0.000	0.0E0	0.000	0.000
42.00	0.50	1.00	0.50	5.00	NoLiq	73.77	100.00	0.000	0.0E0	0.000	0.000
41.90	0.50	1.00	0.50	5.00	NoLiq	71.73	100.00	0.000	0.0E0	0.000	0.000
41.80	0.50	1.00	0.50	5.00	NoLiq	69.69	100.00	0.000	0.0E0	0.000	0.000
41.70	0.50	1.00	0.50	5.00	NoLiq	67.65	100.00	0.000	0.0E0	0.000	0.000
41.60	0.50	1.00	0.50	5.00	NoLiq	65.61	100.00	0.000	0.0E0	0.000	0.000
41.50	0.50	1.00	0.50	5.00	NoLiq	63.56	100.00	0.000	0.0E0	0.000	0.000
41.40	0.50	1.00	0.50	5.00	NoLiq	61.51	100.00	0.000	0.0E0	0.000	0.000
41.30	0.50	1.00	0.50	5.00	NoLiq	59.46	100.00	0.000	0.0E0	0.000	0.000
41.20	0.50	1.00	0.50	5.00	NoLiq	57.40	100.00	0.000	0.0E0	0.000	0.000
41.10	0.50	1.00	0.50	5.00	NoLiq	55.34	100.00	0.000	0.0E0	0.000	0.000
41.00	0.50	1.00	0.50	5.00	NoLiq	53.28	100.00	0.000	0.0E0	0.000	0.000
40.90	0.50	1.00	0.50	5.00	NoLiq	51.22	100.00	0.000	0.0E0	0.000	0.000
40.80	0.50	1.00	0.50	5.00	NoLiq	49.15	100.00	0.000	0.0E0	0.000	0.000
40.70	0.50	1.00	0.50	5.00	NoLiq	47.08	100.00	0.000	0.0E0	0.000	0.000
40.60	0.50	1.00	0.50	5.00	NoLiq	45.01	100.00	0.000	0.0E0	0.000	0.000
40.50	0.50	1.00	0.50	5.00	NoLiq	42.93	100.00	0.000	0.0E0	0.000	0.000
40.40	0.50	1.00	0.50	5.00	NoLiq	40.85	100.00	0.000	0.0E0	0.000	0.000
40.30	0.50	1.00	0.50	5.00	NoLiq	38.77	100.00	0.000	0.0E0	0.000	0.000
40.20	0.50	1.00	0.50	5.00	NoLiq	36.69	100.00	0.000	0.0E0	0.000	0.000

40.10	0.50	1.00	0.50	5.00	NoLiq	34.60	100.00	0.164	0.0E0	0.000	0.000
40.00	0.50	1.00	0.50	5.00	NoLiq	32.52	96.06	0.390	0.0E0	0.000	0.000
39.90	0.50	1.00	0.50	5.00	NoLiq	34.51	100.00	0.167	0.0E0	0.000	0.000
39.80	0.50	1.00	0.50	5.00	NoLiq	36.50	100.00	0.103	0.0E0	0.000	0.000
39.70	0.50	1.00	0.50	5.00	NoLiq	38.50	100.00	0.000	0.0E0	0.000	0.000
39.60	0.50	1.00	0.50	5.00	NoLiq	40.50	100.00	0.000	0.0E0	0.000	0.000
39.50	0.50	1.00	0.50	5.00	NoLiq	42.50	100.00	0.000	0.0E0	0.000	0.000
39.40	0.50	1.00	0.50	5.00	NoLiq	44.50	100.00	0.000	0.0E0	0.000	0.000
39.30	0.50	1.00	0.50	5.00	NoLiq	46.51	100.00	0.000	0.0E0	0.000	0.000
39.20	0.50	1.00	0.50	5.00	NoLiq	48.52	100.00	0.000	0.0E0	0.000	0.000
39.10	0.50	1.00	0.50	5.00	NoLiq	50.53	100.00	0.000	0.0E0	0.000	0.000
39.00	0.50	1.00	0.50	5.00	NoLiq	52.55	100.00	0.000	0.0E0	0.000	0.000
38.90	0.50	1.00	0.50	5.00	NoLiq	54.57	100.00	0.000	0.0E0	0.000	0.000
38.80	0.50	1.00	0.50	5.00	NoLiq	56.60	100.00	0.000	0.0E0	0.000	0.000
38.70	0.50	1.00	0.50	5.00	NoLiq	58.62	100.00	0.000	0.0E0	0.000	0.000
38.60	0.51	1.00	0.51	5.00	NoLiq	60.66	100.00	0.000	0.0E0	0.000	0.000
38.50	0.51	1.00	0.51	5.00	NoLiq	62.69	100.00	0.000	0.0E0	0.000	0.000
38.40	0.51	1.00	0.51	5.00	NoLiq	64.73	100.00	0.000	0.0E0	0.000	0.000
38.30	0.51	1.00	0.51	5.00	NoLiq	66.77	100.00	0.000	0.0E0	0.000	0.000
38.20	0.51	1.00	0.51	5.00	NoLiq	68.82	100.00	0.000	0.0E0	0.000	0.000
38.10	0.51	1.00	0.51	5.00	NoLiq	70.87	100.00	0.000	0.0E0	0.000	0.000
38.00	0.51	1.00	0.51	5.00	NoLiq	72.92	100.00	0.000	0.0E0	0.000	0.000
37.90	0.51	1.00	0.51	5.00	NoLiq	74.98	100.00	0.000	0.0E0	0.000	0.000
37.80	0.51	1.00	0.51	5.00	NoLiq	77.04	100.00	0.000	0.0E0	0.000	0.000
37.70	0.51	1.00	0.51	5.00	NoLiq	79.11	100.00	0.000	0.0E0	0.000	0.000
37.60	0.51	1.00	0.51	5.00	NoLiq	81.18	100.00	0.000	0.0E0	0.000	0.000
37.50	0.51	1.00	0.51	5.00	NoLiq	83.25	100.00	0.000	0.0E0	0.000	0.000
37.40	0.51	1.00	0.51	5.00	NoLiq	85.33	100.00	0.000	0.0E0	0.000	0.000
37.30	0.51	1.00	0.51	5.00	NoLiq	87.41	100.00	0.000	0.0E0	0.000	0.000
37.20	0.51	1.00	0.51	5.00	NoLiq	89.50	100.00	0.000	0.0E0	0.000	0.000
37.10	0.51	1.00	0.51	5.00	NoLiq	91.59	100.00	0.000	0.0E0	0.000	0.000
37.00	0.51	1.00	0.51	5.00	NoLiq	93.68	100.00	0.000	0.0E0	0.000	0.000
36.90	0.51	1.00	0.51	5.00	NoLiq	95.78	100.00	0.000	0.0E0	0.000	0.000
36.80	0.51	1.00	0.51	5.00	NoLiq	97.89	100.00	0.000	0.0E0	0.000	0.000
36.70	0.51	1.00	0.51	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
36.60	0.51	1.00	0.51	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
36.50	0.51	1.00	0.51	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
36.40	0.51	1.00	0.51	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
36.30	0.51	1.00	0.51	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
36.20	0.51	1.00	0.51	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
36.10	0.51	1.00	0.51	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
36.00	0.51	1.00	0.51	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
35.90	0.51	1.00	0.51	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
35.80	0.51	1.00	0.51	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
35.70	0.51	1.00	0.51	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
35.60	0.51	1.00	0.51	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
35.50	0.51	1.00	0.51	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
35.40	0.51	1.00	0.51	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
35.30	0.51	1.00	0.51	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
35.20	0.51	1.00	0.51	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
35.10	0.51	1.00	0.51	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
35.00	0.51	1.00	0.51	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
34.90	0.51	1.00	0.51	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000
34.80	0.51	1.00	0.51	5.00	NoLiq	100.00	100.00	0.000	0.0E0	0.000	0.000

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29.30	0.51	1.00	0.51	5.00	NoLiq	82.47	100.00	0.000	0.0E0	0.000	0.000
29.20	0.51	1.00	0.51	5.00	NoLiq	82.29	100.00	0.000	0.0E0	0.000	0.000
29.10	0.51	1.00	0.51	5.00	NoLiq	82.11	100.00	0.000	0.0E0	0.000	0.000
29.00	0.51	1.00	0.51	5.00	NoLiq	81.93	100.00	0.000	0.0E0	0.000	0.000
28.90	0.51	1.00	0.51	5.00	NoLiq	81.74	100.00	0.000	0.0E0	0.000	0.000
28.80	0.51	1.00	0.51	5.00	NoLiq	81.56	100.00	0.000	0.0E0	0.000	0.000
28.70	0.51	1.00	0.51	5.00	NoLiq	81.38	100.00	0.000	0.0E0	0.000	0.000
28.60	0.51	1.00	0.51	5.00	NoLiq	81.19	100.00	0.000	0.0E0	0.000	0.000
28.50	0.51	1.00	0.51	5.00	NoLiq	81.01	100.00	0.000	0.0E0	0.000	0.000
28.40	0.51	1.00	0.51	5.00	NoLiq	80.83	100.00	0.000	0.0E0	0.000	0.000
28.30	0.51	1.00	0.51	5.00	NoLiq	80.64	100.00	0.000	0.0E0	0.000	0.000
28.20	0.51	1.00	0.51	5.00	NoLiq	80.46	100.00	0.000	0.0E0	0.000	0.000
28.10	0.51	1.00	0.51	5.00	NoLiq	80.27	100.00	0.000	0.0E0	0.000	0.000
28.00	0.50	1.00	0.50	5.00	NoLiq	80.08	100.00	0.000	0.0E0	0.000	0.000
27.90	0.50	1.00	0.50	5.00	NoLiq	79.90	100.00	0.000	0.0E0	0.000	0.000
27.80	0.50	1.00	0.50	5.00	NoLiq	76.09	100.00	0.000	0.0E0	0.000	0.000
27.70	0.50	1.00	0.50	5.00	NoLiq	75.91	100.00	0.000	0.0E0	0.000	0.000
27.60	0.50	1.00	0.50	5.00	NoLiq	75.73	100.00	0.000	0.0E0	0.000	0.000
27.50	0.50	1.00	0.50	5.00	NoLiq	75.55	100.00	0.000	0.0E0	0.000	0.000
27.40	0.50	1.00	0.50	5.00	NoLiq	75.37	100.00	0.000	0.0E0	0.000	0.000
27.30	0.50	1.00	0.50	5.00	NoLiq	75.20	100.00	0.000	0.0E0	0.000	0.000
27.20	0.50	1.00	0.50	5.00	NoLiq	75.02	100.00	0.000	0.0E0	0.000	0.000
27.10	0.50	1.00	0.50	5.00	NoLiq	74.84	100.00	0.000	0.0E0	0.000	0.000
27.00	0.50	1.00	0.50	5.00	NoLiq	74.66	100.00	0.000	0.0E0	0.000	0.000
26.90	0.50	1.00	0.50	5.00	NoLiq	74.48	100.00	0.000	0.0E0	0.000	0.000
26.80	0.50	1.00	0.50	5.00	NoLiq	74.29	100.00	0.000	0.0E0	0.000	0.000
26.70	0.50	1.00	0.50	5.00	NoLiq	74.11	100.00	0.000	0.0E0	0.000	0.000
26.60	0.50	1.00	0.50	5.00	NoLiq	73.93	100.00	0.000	0.0E0	0.000	0.000
26.50	0.50	1.00	0.50	5.00	NoLiq	73.75	100.00	0.000	0.0E0	0.000	0.000
26.40	0.50	1.00	0.50	5.00	NoLiq	73.57	100.00	0.000	0.0E0	0.000	0.000
26.30	0.50	1.00	0.50	5.00	NoLiq	73.38	100.00	0.000	0.0E0	0.000	0.000
26.20	0.50	1.00	0.50	5.00	NoLiq	73.20	100.00	0.000	0.0E0	0.000	0.000
26.10	0.50	1.00	0.50	5.00	NoLiq	73.02	100.00	0.000	0.0E0	0.000	0.000
26.00	0.50	1.00	0.50	5.00	NoLiq	72.83	100.00	0.000	0.0E0	0.000	0.000
25.90	0.50	1.00	0.50	5.00	NoLiq	72.65	100.00	0.000	0.0E0	0.000	0.000
25.80	0.50	1.00	0.50	5.00	NoLiq	72.46	100.00	0.000	0.0E0	0.000	0.000
25.70	0.50	1.00	0.50	5.00	NoLiq	72.28	100.00	0.000	0.0E0	0.000	0.000
25.60	0.50	1.00	0.50	5.00	NoLiq	72.09	100.00	0.000	0.0E0	0.000	0.000
25.50	0.49	1.00	0.49	5.00	NoLiq	71.91	100.00	0.000	0.0E0	0.000	0.000
25.40	0.49	1.00	0.49	5.00	NoLiq	71.72	100.00	0.000	0.0E0	0.000	0.000
25.30	0.49	1.00	0.49	5.00	NoLiq	71.53	100.00	0.000	0.0E0	0.000	0.000
25.20	0.49	1.00	0.49	5.00	NoLiq	71.35	100.00	0.000	0.0E0	0.000	0.000
25.10	0.49	1.00	0.49	5.00	NoLiq	71.16	100.00	0.000	0.0E0	0.000	0.000
25.00	0.49	1.00	0.49	1.46	NoLiq	70.97	100.00	0.000	0.0E0	0.000	0.000
24.90	0.49	1.00	0.49	1.47	99.78	70.75	100.00	0.000	0.0E0	0.000	0.000
24.80	0.49	1.00	0.49	1.47	98.56	70.53	100.00	0.000	0.0E0	0.000	0.000
24.70	0.49	1.00	0.49	1.47	97.34	70.31	100.00	0.000	0.0E0	0.000	0.000
24.60	0.49	1.00	0.49	1.47	96.12	70.08	100.00	0.000	0.0E0	0.000	0.000
24.50	0.49	1.00	0.49	1.47	94.90	69.86	100.00	0.000	0.0E0	0.000	0.000
24.40	0.49	1.00	0.49	1.47	93.68	69.64	100.00	0.000	0.0E0	0.000	0.000
24.30	0.49	1.00	0.49	1.47	92.46	69.41	100.00	0.000	0.0E0	0.000	0.000
24.20	0.49	1.00	0.49	1.48	91.24	69.19	100.00	0.000	0.0E0	0.000	0.000
24.10	0.49	1.00	0.49	1.48	90.02	68.97	100.00	0.000	0.0E0	0.000	0.000
24.00	0.49	1.00	0.49	1.48	88.80	68.74	100.00	0.000	0.0E0	0.000	0.000

23.90	0.49	1.00	0.49	1.48	87.58	68.51	100.00	0.000	0.0E0	0.000	0.000
23.80	0.49	1.00	0.49	1.48	86.36	68.29	100.00	0.000	0.0E0	0.000	0.000
23.70	0.49	1.00	0.49	1.48	85.14	68.06	100.00	0.000	0.0E0	0.000	0.000
23.60	0.49	1.00	0.49	1.48	83.92	67.83	100.00	0.000	0.0E0	0.000	0.000
23.50	0.49	1.00	0.49	1.49	82.70	67.60	100.00	0.000	0.0E0	0.000	0.000
23.40	0.48	1.00	0.48	1.49	81.48	67.37	100.00	0.000	0.0E0	0.000	0.000
23.30	0.48	1.00	0.48	1.49	80.26	67.15	100.00	0.000	0.0E0	0.000	0.000
23.20	0.48	1.00	0.48	1.49	79.04	66.92	100.00	0.000	0.0E0	0.000	0.000
23.10	0.48	1.00	0.48	1.49	77.82	66.68	100.00	0.000	0.0E0	0.000	0.000
23.00	0.48	1.00	0.48	1.49	76.60	66.45	100.00	0.000	0.0E0	0.000	0.000
22.90	0.48	1.00	0.48	1.50	75.38	66.22	100.00	0.000	0.0E0	0.000	0.000
22.80	0.48	1.00	0.48	1.50	74.16	65.99	100.00	0.000	0.0E0	0.000	0.000
22.70	0.48	1.00	0.48	1.50	72.94	65.76	100.00	0.000	0.0E0	0.000	0.000
22.60	0.48	1.00	0.48	1.50	71.72	65.52	100.00	0.000	0.0E0	0.000	0.000
22.50	0.48	1.00	0.48	1.50	70.50	65.29	100.00	0.000	0.0E0	0.000	0.000
22.40	0.48	1.00	0.48	1.51	69.28	65.05	100.00	0.000	0.0E0	0.000	0.000
22.30	0.48	1.00	0.48	1.51	68.06	64.82	100.00	0.000	0.0E0	0.000	0.000
22.20	0.48	1.00	0.48	1.51	66.84	64.58	100.00	0.000	0.0E0	0.000	0.000
22.10	0.48	1.00	0.48	1.51	65.62	64.34	100.00	0.000	0.0E0	0.000	0.000
22.00	0.48	1.00	0.48	1.51	64.40	64.11	100.00	0.000	0.0E0	0.000	0.000
21.90	0.48	1.00	0.48	1.51	63.18	63.87	100.00	0.000	0.0E0	0.000	0.000
21.80	0.48	1.00	0.48	1.52	61.96	63.63	100.00	0.000	0.0E0	0.000	0.000
21.70	0.47	1.00	0.47	1.52	60.74	63.39	100.00	0.000	0.0E0	0.000	0.000
21.60	0.47	1.00	0.47	1.52	59.52	63.15	100.00	0.000	0.0E0	0.000	0.000
21.50	0.47	1.00	0.47	1.52	58.30	62.91	100.00	0.000	0.0E0	0.000	0.000
21.40	0.47	1.00	0.47	1.52	57.08	62.67	100.00	0.000	0.0E0	0.000	0.000
21.30	0.47	1.00	0.47	1.53	55.86	62.43	100.00	0.000	0.0E0	0.000	0.000
21.20	0.47	1.00	0.47	1.53	54.64	62.18	100.00	0.000	0.0E0	0.000	0.000
21.10	0.47	1.00	0.47	1.53	53.42	61.94	100.00	0.000	0.0E0	0.000	0.000
21.00	0.47	1.00	0.47	1.53	52.20	61.70	100.00	0.000	0.0E0	0.000	0.000
20.90	0.47	1.00	0.47	1.54	50.98	61.45	100.00	0.000	0.0E0	0.000	0.000
20.80	0.47	1.00	0.47	1.54	49.76	61.20	100.00	0.000	0.0E0	0.000	0.000
20.70	0.47	1.00	0.47	1.54	48.54	60.96	100.00	0.000	0.0E0	0.000	0.000
20.60	0.47	1.00	0.47	1.54	47.32	60.71	100.00	0.000	0.0E0	0.000	0.000
20.50	0.47	1.00	0.47	1.54	46.10	60.46	100.00	0.000	0.0E0	0.000	0.000
20.40	0.47	1.00	0.47	1.55	44.88	60.22	100.00	0.000	0.0E0	0.000	0.000
20.30	0.47	1.00	0.47	1.55	43.66	59.97	100.00	0.000	0.0E0	0.000	0.000
20.20	0.46	1.00	0.46	1.55	42.44	59.72	100.00	0.000	0.0E0	0.000	0.000
20.10	0.46	1.00	0.46	1.55	41.22	59.47	100.00	0.000	0.0E0	0.000	0.000
20.00	0.46	1.00	0.46	1.56	40.00	59.21	100.00	0.000	0.0E0	0.000	0.000
19.90	0.46	1.00	0.46	1.56	40.26	59.31	100.00	0.000	0.0E0	0.000	0.000
19.80	0.46	1.00	0.46	1.56	40.52	59.40	100.00	0.000	0.0E0	0.000	0.000
19.70	0.46	1.00	0.46	1.56	40.78	59.50	100.00	0.000	0.0E0	0.000	0.000
19.60	0.46	1.00	0.46	1.57	41.04	59.59	100.00	0.000	0.0E0	0.000	0.000
19.50	0.46	1.00	0.46	1.57	41.30	59.69	100.00	0.000	0.0E0	0.000	0.000
19.40	0.46	1.00	0.46	1.57	41.56	59.78	100.00	0.000	0.0E0	0.000	0.000
19.30	0.46	1.00	0.46	1.57	41.82	59.87	100.00	0.000	0.0E0	0.000	0.000
19.20	0.46	1.00	0.46	1.58	42.08	59.97	100.00	0.000	0.0E0	0.000	0.000
19.10	0.46	1.00	0.46	1.58	42.34	60.06	100.00	0.000	0.0E0	0.000	0.000
19.00	0.46	1.00	0.46	1.58	42.60	60.16	100.00	0.000	0.0E0	0.000	0.000
18.90	0.45	1.00	0.45	1.59	42.86	60.25	100.00	0.000	0.0E0	0.000	0.000
18.80	0.45	1.00	0.45	1.59	43.12	60.34	100.00	0.000	0.0E0	0.000	0.000
18.70	0.45	1.00	0.45	1.59	43.38	60.43	100.00	0.000	0.0E0	0.000	0.000
18.60	0.45	1.00	0.45	1.59	43.64	60.53	100.00	0.000	0.0E0	0.000	0.000

18.50	0.45	1.00	0.45	1.60	43.90	60.62	100.00	0.000	0.0E0	0.000	0.000
18.40	0.45	1.00	0.45	1.60	44.16	60.71	100.00	0.000	0.0E0	0.000	0.000
18.30	0.45	1.00	0.45	1.60	44.42	60.80	100.00	0.000	0.0E0	0.000	0.000
18.20	0.45	1.00	0.45	1.61	44.68	60.89	100.00	0.000	0.0E0	0.000	0.000
18.10	0.45	1.00	0.45	1.61	44.94	60.98	100.00	0.000	0.0E0	0.000	0.000
18.00	0.45	1.00	0.45	1.61	45.20	61.08	100.00	0.000	0.0E0	0.000	0.000
17.90	0.45	1.00	0.45	1.62	45.46	61.17	100.00	0.000	0.0E0	0.000	0.000
17.80	0.44	1.00	0.44	1.62	45.72	61.26	100.00	0.000	0.0E0	0.000	0.000
17.70	0.44	1.00	0.44	1.62	45.98	61.35	100.00	0.000	0.0E0	0.000	0.000
17.60	0.44	1.00	0.44	1.63	46.24	61.44	100.00	0.000	0.0E0	0.000	0.000
17.50	0.44	1.00	0.44	1.63	46.50	61.53	100.00	0.000	0.0E0	0.000	0.000
17.40	0.44	1.00	0.44	1.63	46.76	61.62	100.00	0.000	0.0E0	0.000	0.000
17.30	0.44	1.00	0.44	1.64	47.02	61.70	100.00	0.000	0.0E0	0.000	0.000
17.20	0.44	1.00	0.44	1.64	47.28	61.79	100.00	0.000	0.0E0	0.000	0.000
17.10	0.44	1.00	0.44	1.65	47.54	61.88	100.00	0.000	0.0E0	0.000	0.000
17.00	0.44	1.00	0.44	1.65	47.80	61.97	100.00	0.000	0.0E0	0.000	0.000
16.90	0.44	1.00	0.44	1.65	48.06	62.06	100.00	0.000	0.0E0	0.000	0.000
16.80	0.43	1.00	0.43	1.66	48.32	62.14	100.00	0.000	0.0E0	0.000	0.000
16.70	0.43	1.00	0.43	1.66	48.58	62.23	100.00	0.000	0.0E0	0.000	0.000
16.60	0.43	1.00	0.43	1.67	48.84	62.32	100.00	0.000	0.0E0	0.000	0.000
16.50	0.43	1.00	0.43	1.67	49.10	62.40	100.00	0.000	0.0E0	0.000	0.000
16.40	0.43	1.00	0.43	1.67	49.36	62.49	100.00	0.000	0.0E0	0.000	0.000
16.30	0.43	1.00	0.43	1.68	49.62	62.57	100.00	0.000	0.0E0	0.000	0.000
16.20	0.43	1.00	0.43	1.68	49.88	62.66	100.00	0.000	0.0E0	0.000	0.000
16.10	0.43	1.00	0.43	1.69	50.14	62.74	100.00	0.000	0.0E0	0.000	0.000
16.00	0.43	1.00	0.43	1.69	50.40	62.83	100.00	0.000	0.0E0	0.000	0.000
15.90	0.43	1.00	0.43	1.70	50.66	62.91	100.00	0.000	0.0E0	0.000	0.000
15.80	0.42	1.00	0.42	1.70	50.92	62.99	100.00	0.000	0.0E0	0.000	0.000
15.70	0.42	1.00	0.42	1.71	51.18	63.08	100.00	0.000	0.0E0	0.000	0.000
15.60	0.42	1.00	0.42	1.71	51.44	63.16	100.00	0.000	0.0E0	0.000	0.000
15.50	0.42	1.00	0.42	1.72	51.70	63.24	100.00	0.000	0.0E0	0.000	0.000
15.40	0.42	1.00	0.42	1.72	51.96	63.32	100.00	0.000	0.0E0	0.000	0.000
15.30	0.42	1.00	0.42	1.72	52.22	63.40	100.00	0.000	0.0E0	0.000	0.000
15.20	0.42	1.00	0.42	1.73	52.48	63.48	100.00	0.000	0.0E0	0.000	0.000
15.10	0.42	1.00	0.42	1.74	52.74	63.56	100.00	0.000	0.0E0	0.000	0.000
15.00	0.41	1.00	0.41	1.74	53.00	63.64	100.00	0.000	0.0E0	0.000	0.000
14.90	0.41	1.00	0.41	1.75	53.00	63.42	100.00	0.000	0.0E0	0.000	0.000
14.80	0.41	1.00	0.41	1.75	53.00	63.20	100.00	0.000	0.0E0	0.000	0.000
14.70	0.41	1.00	0.41	1.76	53.00	57.10	100.00	0.000	0.0E0	0.000	0.000
14.60	0.41	1.00	0.41	1.76	53.00	56.90	100.00	0.000	0.0E0	0.000	0.000
14.50	0.41	1.00	0.41	1.77	53.00	56.70	100.00	0.000	0.0E0	0.000	0.000
14.40	0.41	1.00	0.41	1.77	53.00	56.50	100.00	0.000	0.0E0	0.000	0.000
14.30	0.41	1.00	0.41	1.78	53.00	56.30	100.00	0.000	0.0E0	0.000	0.000
14.20	0.40	1.00	0.40	1.78	53.00	56.10	100.00	0.000	0.0E0	0.000	0.000
14.10	0.40	1.00	0.40	1.79	53.00	55.90	100.00	0.000	0.0E0	0.000	0.000
14.00	0.40	1.00	0.40	1.80	53.00	55.69	100.00	0.000	0.0E0	0.000	0.000
13.90	0.40	1.00	0.40	1.80	53.00	55.49	100.00	0.000	0.0E0	0.000	0.000
13.80	0.40	1.00	0.40	1.81	53.00	55.29	100.00	0.000	0.0E0	0.000	0.000
13.70	0.40	1.00	0.40	1.81	53.00	55.08	100.00	0.000	0.0E0	0.000	0.000
13.60	0.40	1.00	0.40	1.82	53.00	54.88	100.00	0.000	0.0E0	0.000	0.000
13.50	0.39	1.00	0.39	1.83	53.00	54.67	100.00	0.000	0.0E0	0.000	0.000
13.40	0.39	1.00	0.39	1.83	53.00	54.46	100.00	0.000	0.0E0	0.000	0.000
13.30	0.39	1.00	0.39	1.84	53.00	54.26	100.00	0.000	0.0E0	0.000	0.000
13.20	0.39	1.00	0.39	1.85	53.00	54.05	100.00	0.000	0.0E0	0.000	0.000

13.10	0.39	1.00	0.39	1.85	53.00	53.84	100.00	0.000	0.0E0	0.000	0.000
13.00	0.39	1.00	0.39	1.86	53.00	53.64	100.00	0.000	0.0E0	0.000	0.000
12.90	0.39	1.00	0.39	1.87	53.00	53.43	100.00	0.000	0.0E0	0.000	0.000
12.80	0.38	1.00	0.38	1.87	53.00	53.22	100.00	0.000	0.0E0	0.000	0.000
12.70	0.38	1.00	0.38	1.88	53.00	53.01	100.00	0.000	0.0E0	0.000	0.000
12.60	0.38	1.00	0.38	1.89	53.00	52.80	100.00	0.000	0.0E0	0.000	0.000
12.50	0.38	1.00	0.38	1.90	53.00	52.59	100.00	0.000	0.0E0	0.000	0.000
12.40	0.38	1.00	0.38	1.90	53.00	52.38	100.00	0.000	0.0E0	0.000	0.000
12.30	0.38	1.00	0.38	1.91	53.00	52.17	100.00	0.000	0.0E0	0.000	0.000
12.20	0.38	1.00	0.38	1.92	53.00	51.95	100.00	0.000	0.0E0	0.000	0.000
12.10	0.37	1.00	0.37	1.93	53.00	51.74	100.00	0.000	0.0E0	0.000	0.000
12.00	0.37	1.00	0.37	1.93	53.00	51.53	100.00	0.000	0.0E0	0.000	0.000
11.90	0.37	1.00	0.37	1.94	53.00	51.32	100.00	0.000	0.0E0	0.000	0.000
11.80	0.37	1.00	0.37	1.95	53.00	51.10	100.00	0.000	0.0E0	0.000	0.000
11.70	0.37	1.00	0.37	1.96	53.00	50.89	100.00	0.000	0.0E0	0.000	0.000
11.60	0.37	1.00	0.37	1.97	53.00	50.67	100.00	0.000	0.0E0	0.000	0.000
11.50	0.37	1.00	0.37	1.97	53.00	50.45	100.00	0.000	0.0E0	0.000	0.000
11.40	0.36	1.00	0.36	1.98	53.00	50.24	100.00	0.000	0.0E0	0.000	0.000
11.30	0.36	1.00	0.36	1.99	53.00	50.02	100.00	0.000	0.0E0	0.000	0.000
11.20	0.36	1.00	0.36	2.00	53.00	49.80	100.00	0.000	0.0E0	0.000	0.000
11.10	0.36	1.00	0.36	2.01	53.00	49.59	100.00	0.000	0.0E0	0.000	0.000
11.00	0.36	1.00	0.36	2.02	53.00	49.37	100.00	0.000	0.0E0	0.000	0.000
10.90	0.36	1.00	0.36	2.03	53.00	49.15	100.00	0.000	0.0E0	0.000	0.000
10.80	0.35	1.00	0.35	2.04	53.00	48.93	100.00	0.000	0.0E0	0.000	0.000
10.70	0.35	1.00	0.35	2.05	53.00	48.71	100.00	0.000	0.0E0	0.000	0.000
10.60	0.35	1.00	0.35	2.06	53.00	48.48	100.00	0.000	0.0E0	0.000	0.000
10.50	0.35	1.00	0.35	2.07	53.00	48.26	100.00	0.000	0.0E0	0.000	0.000
10.40	0.35	1.00	0.35	2.08	53.00	48.04	100.00	0.000	0.0E0	0.000	0.000
10.30	0.35	1.00	0.35	2.09	53.00	47.82	100.00	0.000	0.0E0	0.000	0.000
10.20	0.34	1.00	0.34	2.10	53.00	47.59	100.00	0.000	0.0E0	0.000	0.000
10.10	0.34	1.00	0.34	2.11	53.00	47.37	100.00	0.000	0.0E0	0.000	0.000
10.00	0.34	1.00	0.34	2.12	53.00	47.14	100.00	0.000	0.0E0	0.000	0.000

No Settlement of Saturated Sands

Settlement of Saturated Sands=0.000 in.
qc1 and (N1)60 is after fines correction in liquefaction analysis
dsz is per each segment, dz=0.05 ft
dsp is per each print interval, dp=0.10 ft
S is cumulated settlement at this depth

Settlement of Unsaturated Sands:

Depth ft	sigma' atm	sigC' atm	(N1)60s	CSRsf %	Gmax %	g*Ge/Gm in.	g_eff in.	ec7.5	Cec	ec	dsz	dsp	S
9.95	0.54	0.35	47.14	0.34	957.04	1.9E-4	0.0311	0.0098	0.77	0.0076	9.10E-5	0.000	0.000
9.90	0.54	0.35	47.14	0.34	954.92	1.9E-4	0.0309	0.0098	0.77	0.0076	9.07E-5	0.000	0.000
9.80	0.53	0.35	47.13	0.34	950.65	1.9E-4	0.0371	0.0117	0.77	0.0091	1.09E-4	0.000	0.000
9.70	0.53	0.34	47.13	0.34	946.37	1.9E-4	0.0369	0.0117	0.77	0.0090	1.08E-4	0.000	0.001
9.60	0.52	0.34	47.12	0.34	942.05	1.9E-4	0.0367	0.0116	0.77	0.0090	1.07E-4	0.000	0.001
9.50	0.52	0.34	47.12	0.34	937.71	1.9E-4	0.0364	0.0115	0.77	0.0089	1.07E-4	0.000	0.001
9.40	0.51	0.33	47.12	0.34	933.34	1.9E-4	0.0362	0.0114	0.77	0.0088	1.06E-4	0.000	0.001
9.30	0.51	0.33	47.13	0.34	928.95	1.9E-4	0.0360	0.0114	0.77	0.0088	1.05E-4	0.000	0.001

9.20	0.51	0.33	47.13	0.34	924.52	1.9E-4	0.0357	0.0113	0.77	0.0087	1.05E-4	0.000	0.002
9.10	0.50	0.33	47.14	0.34	920.07	1.9E-4	0.0355	0.0112	0.77	0.0087	1.04E-4	0.000	0.002
9.00	0.50	0.32	47.14	0.34	915.59	1.8E-4	0.0352	0.0111	0.77	0.0086	1.03E-4	0.000	0.002
8.90	0.49	0.32	47.15	0.34	911.09	1.8E-4	0.0350	0.0111	0.77	0.0085	1.02E-4	0.000	0.002
8.80	0.49	0.32	47.16	0.34	906.55	1.8E-4	0.0347	0.0110	0.77	0.0085	1.02E-4	0.000	0.003
8.70	0.48	0.31	47.18	0.34	901.98	1.8E-4	0.0345	0.0109	0.77	0.0084	1.01E-4	0.000	0.003
8.60	0.48	0.31	47.19	0.34	897.39	1.8E-4	0.0342	0.0108	0.77	0.0084	1.00E-4	0.000	0.003
8.50	0.47	0.31	47.21	0.34	892.76	1.8E-4	0.0340	0.0107	0.77	0.0083	9.95E-5	0.000	0.003
8.40	0.47	0.30	47.23	0.34	888.10	1.8E-4	0.0337	0.0107	0.77	0.0082	9.88E-5	0.000	0.003
8.30	0.46	0.30	47.25	0.34	883.41	1.8E-4	0.0335	0.0106	0.77	0.0082	9.80E-5	0.000	0.004
8.20	0.46	0.30	42.56	0.34	848.48	1.8E-4	0.0349	0.0110	0.77	0.0085	1.02E-4	0.000	0.004
8.10	0.45	0.29	42.58	0.34	843.89	1.8E-4	0.0346	0.0110	0.77	0.0085	1.01E-4	0.000	0.004
8.00	0.45	0.29	42.60	0.34	839.26	1.8E-4	0.0343	0.0109	0.77	0.0084	1.01E-4	0.000	0.004
7.90	0.44	0.29	42.63	0.34	834.60	1.8E-4	0.0341	0.0108	0.77	0.0083	9.98E-5	0.000	0.004
7.80	0.44	0.28	42.66	0.34	829.91	1.8E-4	0.0338	0.0107	0.77	0.0082	9.90E-5	0.000	0.005
7.70	0.43	0.28	42.69	0.34	825.18	1.8E-4	0.0335	0.0106	0.77	0.0082	9.81E-5	0.000	0.005
7.60	0.42	0.28	42.73	0.34	820.42	1.8E-4	0.0332	0.0105	0.77	0.0081	9.73E-5	0.000	0.005
7.50	0.42	0.27	42.76	0.34	815.62	1.8E-4	0.0329	0.0104	0.77	0.0080	9.64E-5	0.000	0.005
7.40	0.41	0.27	42.80	0.34	810.79	1.7E-4	0.0326	0.0103	0.77	0.0080	9.56E-5	0.000	0.005
7.30	0.41	0.27	42.85	0.34	805.92	1.7E-4	0.0323	0.0102	0.77	0.0079	9.47E-5	0.000	0.005
7.20	0.40	0.26	42.78	0.34	800.29	1.7E-4	0.0321	0.0101	0.77	0.0078	9.40E-5	0.000	0.006
7.10	0.40	0.26	42.67	0.34	794.37	1.7E-4	0.0318	0.0101	0.77	0.0078	9.33E-5	0.000	0.006
7.00	0.39	0.26	42.56	0.34	788.42	1.7E-4	0.0316	0.0100	0.77	0.0077	9.25E-5	0.000	0.006
6.90	0.39	0.25	42.45	0.34	782.44	1.7E-4	0.0313	0.0099	0.77	0.0076	9.18E-5	0.000	0.006
6.80	0.38	0.25	42.35	0.34	776.44	1.7E-4	0.0311	0.0098	0.77	0.0076	9.10E-5	0.000	0.006
6.70	0.38	0.25	42.26	0.34	770.41	1.7E-4	0.0308	0.0097	0.77	0.0075	9.03E-5	0.000	0.007
6.60	0.37	0.24	42.16	0.34	764.35	1.7E-4	0.0305	0.0097	0.77	0.0075	8.95E-5	0.000	0.007
6.50	0.37	0.24	42.07	0.34	758.26	1.7E-4	0.0303	0.0096	0.77	0.0074	8.88E-5	0.000	0.007
6.40	0.36	0.23	41.99	0.34	752.14	1.6E-4	0.0300	0.0095	0.77	0.0073	8.80E-5	0.000	0.007
6.30	0.36	0.23	41.90	0.34	745.98	1.6E-4	0.0297	0.0094	0.77	0.0073	8.72E-5	0.000	0.007
6.20	0.35	0.23	41.83	0.34	739.80	1.6E-4	0.0295	0.0093	0.77	0.0072	8.64E-5	0.000	0.007
6.10	0.34	0.22	41.69	0.34	733.22	1.6E-4	0.0292	0.0092	0.77	0.0071	8.56E-5	0.000	0.008
6.00	0.34	0.22	41.33	0.34	725.28	1.6E-4	0.0290	0.0092	0.77	0.0071	8.50E-5	0.000	0.008
5.90	0.33	0.22	40.97	0.34	717.29	1.6E-4	0.0288	0.0091	0.77	0.0070	8.45E-5	0.000	0.008
5.80	0.33	0.21	40.61	0.34	709.26	1.6E-4	0.0286	0.0091	0.77	0.0070	8.39E-5	0.000	0.008
5.70	0.32	0.21	40.25	0.34	701.18	1.6E-4	0.0284	0.0090	0.77	0.0069	8.33E-5	0.000	0.008
5.60	0.32	0.21	39.89	0.34	693.05	1.6E-4	0.0282	0.0090	0.77	0.0069	8.31E-5	0.000	0.008
5.50	0.31	0.20	39.53	0.34	684.87	1.6E-4	0.0280	0.0091	0.77	0.0071	8.46E-5	0.000	0.009
5.40	0.31	0.20	39.17	0.34	676.64	1.6E-4	0.0278	0.0093	0.77	0.0072	8.62E-5	0.000	0.009
5.30	0.30	0.20	38.82	0.34	668.36	1.5E-4	0.0276	0.0095	0.77	0.0073	8.77E-5	0.000	0.009
5.20	0.29	0.19	38.46	0.34	660.02	1.5E-4	0.0274	0.0096	0.77	0.0074	8.91E-5	0.000	0.009
5.10	0.29	0.19	38.10	0.34	651.63	1.5E-4	0.0271	0.0098	0.77	0.0075	9.05E-5	0.000	0.009
5.00	0.28	0.18	37.74	0.34	643.19	1.5E-4	0.0269	0.0099	0.77	0.0077	9.19E-5	0.000	0.010
4.90	0.28	0.18	38.14	0.34	638.97	1.5E-4	0.0264	0.0095	0.77	0.0073	8.79E-5	0.000	0.010
4.80	0.27	0.18	38.54	0.34	634.63	1.5E-4	0.0260	0.0091	0.77	0.0070	8.41E-5	0.000	0.010
4.70	0.27	0.17	38.94	0.34	630.15	1.5E-4	0.0255	0.0087	0.77	0.0067	8.04E-5	0.000	0.010
4.60	0.26	0.17	39.34	0.34	625.55	1.4E-4	0.0251	0.0083	0.77	0.0064	7.68E-5	0.000	0.010
4.50	0.26	0.17	39.75	0.34	620.81	1.4E-4	0.0246	0.0079	0.77	0.0061	7.33E-5	0.000	0.010
4.40	0.25	0.16	40.15	0.34	615.93	1.4E-4	0.0242	0.0076	0.77	0.0059	7.08E-5	0.000	0.010
4.30	0.24	0.16	40.55	0.34	610.91	1.4E-4	0.0237	0.0075	0.77	0.0058	6.95E-5	0.000	0.011
4.20	0.24	0.15	40.95	0.34	605.75	1.4E-4	0.0233	0.0074	0.77	0.0057	6.82E-5	0.000	0.011
4.10	0.23	0.15	41.35	0.34	600.44	1.3E-4	0.0228	0.0072	0.77	0.0056	6.69E-5	0.000	0.011
4.00	0.23	0.15	41.75	0.34	594.99	1.3E-4	0.0244	0.0077	0.77	0.0060	7.14E-5	0.000	0.011
3.90	0.22	0.14	42.16	0.34	589.38	1.3E-4	0.0240	0.0076	0.77	0.0058	7.02E-5	0.000	0.011

3.80	0.22	0.14	42.56	0.35	583.61	1.3E-4	0.0236	0.0075	0.77	0.0058	6.91E-5	0.000	0.011
3.70	0.21	0.14	42.96	0.35	577.69	1.3E-4	0.0232	0.0073	0.77	0.0057	6.80E-5	0.000	0.011
3.60	0.20	0.13	43.36	0.35	571.60	1.2E-4	0.0229	0.0072	0.77	0.0056	6.70E-5	0.000	0.012
3.50	0.20	0.13	43.76	0.35	565.33	1.2E-4	0.0225	0.0071	0.77	0.0055	6.60E-5	0.000	0.012
3.40	0.19	0.13	44.16	0.35	558.90	1.2E-4	0.0255	0.0081	0.77	0.0062	7.49E-5	0.000	0.012
3.30	0.19	0.12	44.57	0.35	552.28	1.2E-4	0.0250	0.0079	0.77	0.0061	7.33E-5	0.000	0.012
3.20	0.18	0.12	44.97	0.35	545.47	1.1E-4	0.0244	0.0077	0.77	0.0060	7.16E-5	0.000	0.012
3.10	0.18	0.11	45.37	0.35	538.48	1.1E-4	0.0238	0.0075	0.77	0.0058	6.99E-5	0.000	0.012
3.00	0.17	0.11	45.77	0.35	531.28	1.1E-4	0.0232	0.0073	0.77	0.0057	6.81E-5	0.000	0.012
2.90	0.16	0.11	46.17	0.35	523.87	1.1E-4	0.0226	0.0071	0.77	0.0055	6.62E-5	0.000	0.013
2.80	0.16	0.10	46.57	0.35	516.24	1.1E-4	0.0219	0.0069	0.77	0.0054	6.43E-5	0.000	0.013
2.70	0.15	0.10	46.98	0.35	508.39	1.0E-4	0.0213	0.0067	0.77	0.0052	6.23E-5	0.000	0.013
2.60	0.15	0.10	47.38	0.35	500.31	1.0E-4	0.0206	0.0065	0.77	0.0050	6.03E-5	0.000	0.013
2.50	0.14	0.09	47.78	0.35	491.97	1.0E-4	0.0199	0.0063	0.77	0.0049	5.82E-5	0.000	0.013

Settlement of Unsaturated Sands=0.013 in.

dsz is per each segment, dz=0.05 ft

dsp is per each print interval, dp=0.10 ft

S is cumulated settlement at this depth

Total Settlement of Saturated and Unsaturated Sands=0.013 in.

Differential Settlement=0.007 to 0.009 in.

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

1 atm (atmosphere) = 1.0581 tsf(1 tsf = 1 ton/ft² = 2 kip/ft²)

1 atm (atmosphere) = 101.325 kPa(1 kPa = 1 kN/m² = 0.001 Mpa)

SPT Field data from Standard Penetration Test (SPT)

BPT Field data from Becker Penetration Test (BPT)

qc Field data from Cone Penetration Test (CPT) [atm (tsf)]

fs Friction from CPT testing [atm (tsf)]

Rf Ratio of fs/qc (%)

gamma Total unit weight of soil

gamma' Effective unit weight of soil

Fines Fines content [%]

D50 Mean grain size

Dr Relative Density

sigma Total vertical stress [atm]

sigma' Effective vertical stress [atm]

sigC' Effective confining pressure [atm]

rd Acceleration reduction coefficient by Seed

a_max. Peak Ground Acceleration (PGA) in ground surface

mZ Linear acceleration reduction coefficient X depth

a_min. Minimum acceleration under linear reduction, mZ

CRRv CRR after overburden stress correction, CRRv=CRR7.5 * Ksig

CRR7.5 Cyclic resistance ratio (M=7.5)

Ksig Overburden stress correction factor for CRR7.5

CRRm After magnitude scaling correction CRRm=CRRv * MSF

MSF Magnitude scaling factor from M=7.5 to user input M

CSR Cyclic stress ratio induced by earthquake

CSRfs CSRfs=CSR*fs1 (Default fs1=1)

fs1 First CSR curve in graphic defined in #9 of Advanced page

fs2	2nd CSR curve in graphic defined in #9 of Advanced page
F.S.	Calculated factor of safety against liquefaction $F.S.=CRR_m/CSR_{sf}$
Cebs	Energy Ratio, Borehole Dia., and Sampling Method Corrections
Cr	Rod Length Corrections
Cn	Overburden Pressure Correction
(N1)60	SPT after corrections, $(N1)60=SPT * Cr * Cn * Cebs$
d(N1)60	Fines correction of SPT
(N1)60f	(N1)60 after fines corrections, $(N1)60f=(N1)60 + d(N1)60$
Cq	Overburden stress correction factor
qc1	CPT after Overburden stress correction
dqc1	Fines correction of CPT
qc1f	CPT after Fines and Overburden correction, $qc1f=qc1 + dqc1$
qc1n	CPT after normalization in Robertson's method
Kc	Fine correction factor in Robertson's Method
qc1f	CPT after Fines correction in Robertson's Method
Ic	Soil type index in Suzuki's and Robertson's Methods
(N1)60s	(N1)60 after settlement fines corrections
CSRm	After magnitude scaling correction for Settlement calculation $CSR_m=CSR_{sf} / MSF^*$
CSRfs	Cyclic stress ratio induced by earthquake with user input fs
MSF*	Scaling factor from CSR, $MSF^*=1$, based on Item 2 of Page C.
ec	Volumetric strain for saturated sands
dz	Calculation segment, $dz=0.050$ ft
dsz	Settlement in each segment, dz
dp	User defined print interval
dsp	Settlement in each print interval, dp
Gmax	Shear Modulus at low strain
g_eff	gamma_eff, Effective shear Strain
g*Ge/Gm	gamma_eff * G_eff/G_max, Strain-modulus ratio
ec7.5	Volumetric Strain for magnitude=7.5
Cec	Magnitude correction factor for any magnitude
ec	Volumetric strain for unsaturated sands, $ec=Cec * ec7.5$
NoLiq	No-Liquefy Soils

References:

1. NCEER Workshop on Evaluation of Liquefaction Resistance of Soils. Youd, T.L., and Idriss, I.M., eds., Technical Report NCEER 97-0022.
SP117. Southern California Earthquake Center. Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for
Analyzing and Mitigating Liquefaction in California. University of Southern California. March 1999.
2. RECENT ADVANCES IN SOIL LIQUEFACTION ENGINEERING AND SEISMIC SITE RESPONSE EVALUATION, Paper No. SPL-2, PROCEEDINGS: Fourth
International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, San Diego, CA, March 2001.
3. RECENT ADVANCES IN SOIL LIQUEFACTION ENGINEERING: A UNIFIED AND CONSISTENT FRAMEWORK, Earthquake Engineering Research Center,
Report No. EERC 2003-06 by R.B Seed and etc. April 2003.

Note: Print Interval you selected does not show complete results. To get complete results, you should select 'Segment' in Print Interval (Item 12, Page C).

LIQUEFACTION ANALYSIS SUMMARY
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Input File Name: J:\GES\Clients\Reno Office\Projects\2023\R20236851\E1\liquefaction\first run.liq
Title: Silver Dollar Elementary School
Subtitle:

Surface Elev.=
Hole No.=B-2
Depth of Hole= 50.00 ft
Water Table during Earthquake= 10.00 ft
Water Table during In-Situ Testing= 10.00 ft
Max. Acceleration= 0.41 g
Earthquake Magnitude= 6.50

Input Data:

Surface Elev.=
Hole No.=B-2
Depth of Hole=50.00 ft
Water Table during Earthquake= 10.00 ft
Water Table during In-Situ Testing= 10.00 ft
Max. Acceleration=0.41 g
Earthquake Magnitude=6.50
No-Liquefiable Soils: CL, OL are Non-Liq. Soil

1. SPT or BPT Calculation.
 2. Settlement Analysis Method: Tokimatsu/Seed
 3. Fines Correction for Liquefaction: Stark/Olson et al.*
 4. Fine Correction for Settlement: During Liquefaction*
 5. Settlement Calculation in: All zones*
 6. Hammer Energy Ratio, Ce = 1.25
 7. Borehole Diameter, Cb= 1.05
 8. Sampling Method, Cs= 1.2
 9. User request factor of safety (apply to CSR) , User= 1.3
Plot one CSR curve (fs1=User)
 10. Use Curve Smoothing: Yes*
- * Recommended Options

In-Situ Test Data:

Depth ft	SPT gamma pcf	Fines %
-------------	------------------	------------

2.50	22.00	120.00	20.00
5.00	17.00	120.00	20.00

10.00	22.00	100.00	53.00
15.00	30.00	100.00	53.00
20.00	30.00	120.00	40.00
25.00	40.00	120.00	NoLiq
30.00	49.00	120.00	NoLiq
35.00	88.00	115.00	NoLiq
40.00	18.00	100.00	NoLiq
45.00	93.00	100.00	NoLiq
50.00	36.00	120.00	NoLiq

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=0.007 to 0.009 in.

Depth ft	CRRm	CSRfs in.	F.S. in.	S_sat. in.	S_dry	S_all
-------------	------	--------------	-------------	---------------	-------	-------

2.50	0.72	0.35	5.00	0.00	0.01	0.01
2.60	0.72	0.35	5.00	0.00	0.01	0.01
2.70	0.72	0.35	5.00	0.00	0.01	0.01
2.80	0.72	0.35	5.00	0.00	0.01	0.01
2.90	0.72	0.35	5.00	0.00	0.01	0.01
3.00	0.72	0.35	5.00	0.00	0.01	0.01
3.10	0.72	0.35	5.00	0.00	0.01	0.01
3.20	0.72	0.35	5.00	0.00	0.01	0.01
3.30	0.72	0.35	5.00	0.00	0.01	0.01
3.40	0.72	0.35	5.00	0.00	0.01	0.01
3.50	0.72	0.35	5.00	0.00	0.01	0.01
3.60	0.72	0.35	5.00	0.00	0.01	0.01
3.70	0.72	0.35	5.00	0.00	0.01	0.01
3.80	0.72	0.35	5.00	0.00	0.01	0.01
3.90	0.72	0.34	5.00	0.00	0.01	0.01
4.00	0.72	0.34	5.00	0.00	0.01	0.01
4.10	0.72	0.34	5.00	0.00	0.01	0.01
4.20	0.72	0.34	5.00	0.00	0.01	0.01
4.30	0.72	0.34	5.00	0.00	0.01	0.01
4.40	0.72	0.34	5.00	0.00	0.01	0.01
4.50	0.72	0.34	5.00	0.00	0.01	0.01
4.60	0.72	0.34	5.00	0.00	0.01	0.01
4.70	0.72	0.34	5.00	0.00	0.01	0.01
4.80	0.72	0.34	5.00	0.00	0.01	0.01
4.90	0.72	0.34	5.00	0.00	0.01	0.01
5.00	0.72	0.34	5.00	0.00	0.01	0.01
5.10	0.72	0.34	5.00	0.00	0.01	0.01
5.20	0.72	0.34	5.00	0.00	0.01	0.01
5.30	0.72	0.34	5.00	0.00	0.01	0.01
5.40	0.72	0.34	5.00	0.00	0.01	0.01
5.50	0.72	0.34	5.00	0.00	0.01	0.01
5.60	0.72	0.34	5.00	0.00	0.01	0.01
5.70	0.72	0.34	5.00	0.00	0.01	0.01
5.80	0.72	0.34	5.00	0.00	0.01	0.01

5.90	0.72	0.34	5.00	0.00	0.01	0.01
6.00	0.72	0.34	5.00	0.00	0.01	0.01
6.10	0.72	0.34	5.00	0.00	0.01	0.01
6.20	0.72	0.34	5.00	0.00	0.01	0.01
6.30	0.72	0.34	5.00	0.00	0.01	0.01
6.40	0.72	0.34	5.00	0.00	0.01	0.01
6.50	0.72	0.34	5.00	0.00	0.01	0.01
6.60	0.72	0.34	5.00	0.00	0.01	0.01
6.70	0.72	0.34	5.00	0.00	0.01	0.01
6.80	0.72	0.34	5.00	0.00	0.01	0.01
6.90	0.72	0.34	5.00	0.00	0.01	0.01
7.00	0.72	0.34	5.00	0.00	0.01	0.01
7.10	0.72	0.34	5.00	0.00	0.01	0.01
7.20	0.72	0.34	5.00	0.00	0.01	0.01
7.30	0.72	0.34	5.00	0.00	0.01	0.01
7.40	0.72	0.34	5.00	0.00	0.01	0.01
7.50	0.72	0.34	5.00	0.00	0.01	0.01
7.60	0.72	0.34	5.00	0.00	0.00	0.00
7.70	0.72	0.34	5.00	0.00	0.00	0.00
7.80	0.72	0.34	5.00	0.00	0.00	0.00
7.90	0.72	0.34	5.00	0.00	0.00	0.00
8.00	0.72	0.34	5.00	0.00	0.00	0.00
8.10	0.72	0.34	5.00	0.00	0.00	0.00
8.20	0.72	0.34	5.00	0.00	0.00	0.00
8.30	0.72	0.34	5.00	0.00	0.00	0.00
8.40	0.72	0.34	5.00	0.00	0.00	0.00
8.50	0.72	0.34	5.00	0.00	0.00	0.00
8.60	0.72	0.34	5.00	0.00	0.00	0.00
8.70	0.72	0.34	5.00	0.00	0.00	0.00
8.80	0.72	0.34	5.00	0.00	0.00	0.00
8.90	0.72	0.34	5.00	0.00	0.00	0.00
9.00	0.72	0.34	5.00	0.00	0.00	0.00
9.10	0.72	0.34	5.00	0.00	0.00	0.00
9.20	0.72	0.34	5.00	0.00	0.00	0.00
9.30	0.72	0.34	5.00	0.00	0.00	0.00
9.40	0.72	0.34	5.00	0.00	0.00	0.00
9.50	0.72	0.34	5.00	0.00	0.00	0.00
9.60	0.72	0.34	5.00	0.00	0.00	0.00
9.70	0.72	0.34	5.00	0.00	0.00	0.00
9.80	0.72	0.34	5.00	0.00	0.00	0.00
9.90	0.72	0.34	5.00	0.00	0.00	0.00
10.00	0.72	0.34	2.12	0.00	0.00	0.00
10.10	0.72	0.34	2.11	0.00	0.00	0.00
10.20	0.72	0.34	2.10	0.00	0.00	0.00
10.30	0.72	0.35	2.09	0.00	0.00	0.00
10.40	0.72	0.35	2.08	0.00	0.00	0.00
10.50	0.72	0.35	2.07	0.00	0.00	0.00
10.60	0.72	0.35	2.06	0.00	0.00	0.00
10.70	0.72	0.35	2.05	0.00	0.00	0.00
10.80	0.72	0.35	2.04	0.00	0.00	0.00
10.90	0.72	0.36	2.03	0.00	0.00	0.00
11.00	0.72	0.36	2.02	0.00	0.00	0.00
11.10	0.72	0.36	2.01	0.00	0.00	0.00
11.20	0.72	0.36	2.00	0.00	0.00	0.00

11.30	0.72	0.36	1.99	0.00	0.00	0.00
11.40	0.72	0.36	1.98	0.00	0.00	0.00
11.50	0.72	0.37	1.97	0.00	0.00	0.00
11.60	0.72	0.37	1.97	0.00	0.00	0.00
11.70	0.72	0.37	1.96	0.00	0.00	0.00
11.80	0.72	0.37	1.95	0.00	0.00	0.00
11.90	0.72	0.37	1.94	0.00	0.00	0.00
12.00	0.72	0.37	1.93	0.00	0.00	0.00
12.10	0.72	0.37	1.93	0.00	0.00	0.00
12.20	0.72	0.38	1.92	0.00	0.00	0.00
12.30	0.72	0.38	1.91	0.00	0.00	0.00
12.40	0.72	0.38	1.90	0.00	0.00	0.00
12.50	0.72	0.38	1.90	0.00	0.00	0.00
12.60	0.72	0.38	1.89	0.00	0.00	0.00
12.70	0.72	0.38	1.88	0.00	0.00	0.00
12.80	0.72	0.38	1.87	0.00	0.00	0.00
12.90	0.72	0.39	1.87	0.00	0.00	0.00
13.00	0.72	0.39	1.86	0.00	0.00	0.00
13.10	0.72	0.39	1.85	0.00	0.00	0.00
13.20	0.72	0.39	1.85	0.00	0.00	0.00
13.30	0.72	0.39	1.84	0.00	0.00	0.00
13.40	0.72	0.39	1.83	0.00	0.00	0.00
13.50	0.72	0.39	1.83	0.00	0.00	0.00
13.60	0.72	0.40	1.82	0.00	0.00	0.00
13.70	0.72	0.40	1.81	0.00	0.00	0.00
13.80	0.72	0.40	1.81	0.00	0.00	0.00
13.90	0.72	0.40	1.80	0.00	0.00	0.00
14.00	0.72	0.40	1.80	0.00	0.00	0.00
14.10	0.72	0.40	1.79	0.00	0.00	0.00
14.20	0.72	0.40	1.78	0.00	0.00	0.00
14.30	0.72	0.41	1.78	0.00	0.00	0.00
14.40	0.72	0.41	1.77	0.00	0.00	0.00
14.50	0.72	0.41	1.77	0.00	0.00	0.00
14.60	0.72	0.41	1.76	0.00	0.00	0.00
14.70	0.72	0.41	1.76	0.00	0.00	0.00
14.80	0.72	0.41	1.75	0.00	0.00	0.00
14.90	0.72	0.41	1.75	0.00	0.00	0.00
15.00	0.72	0.41	1.74	0.00	0.00	0.00
15.10	0.72	0.42	1.74	0.00	0.00	0.00
15.20	0.72	0.42	1.73	0.00	0.00	0.00
15.30	0.72	0.42	1.72	0.00	0.00	0.00
15.40	0.72	0.42	1.72	0.00	0.00	0.00
15.50	0.72	0.42	1.72	0.00	0.00	0.00
15.60	0.72	0.42	1.71	0.00	0.00	0.00
15.70	0.72	0.42	1.71	0.00	0.00	0.00
15.80	0.72	0.42	1.70	0.00	0.00	0.00
15.90	0.72	0.43	1.70	0.00	0.00	0.00
16.00	0.72	0.43	1.69	0.00	0.00	0.00
16.10	0.72	0.43	1.69	0.00	0.00	0.00
16.20	0.72	0.43	1.68	0.00	0.00	0.00
16.30	0.72	0.43	1.68	0.00	0.00	0.00
16.40	0.72	0.43	1.67	0.00	0.00	0.00
16.50	0.72	0.43	1.67	0.00	0.00	0.00
16.60	0.72	0.43	1.67	0.00	0.00	0.00

16.70	0.72	0.43	1.66	0.00	0.00	0.00
16.80	0.72	0.43	1.66	0.00	0.00	0.00
16.90	0.72	0.44	1.65	0.00	0.00	0.00
17.00	0.72	0.44	1.65	0.00	0.00	0.00
17.10	0.72	0.44	1.65	0.00	0.00	0.00
17.20	0.72	0.44	1.64	0.00	0.00	0.00
17.30	0.72	0.44	1.64	0.00	0.00	0.00
17.40	0.72	0.44	1.63	0.00	0.00	0.00
17.50	0.72	0.44	1.63	0.00	0.00	0.00
17.60	0.72	0.44	1.63	0.00	0.00	0.00
17.70	0.72	0.44	1.62	0.00	0.00	0.00
17.80	0.72	0.44	1.62	0.00	0.00	0.00
17.90	0.72	0.45	1.62	0.00	0.00	0.00
18.00	0.72	0.45	1.61	0.00	0.00	0.00
18.10	0.72	0.45	1.61	0.00	0.00	0.00
18.20	0.72	0.45	1.61	0.00	0.00	0.00
18.30	0.72	0.45	1.60	0.00	0.00	0.00
18.40	0.72	0.45	1.60	0.00	0.00	0.00
18.50	0.72	0.45	1.60	0.00	0.00	0.00
18.60	0.72	0.45	1.59	0.00	0.00	0.00
18.70	0.72	0.45	1.59	0.00	0.00	0.00
18.80	0.72	0.45	1.59	0.00	0.00	0.00
18.90	0.72	0.45	1.59	0.00	0.00	0.00
19.00	0.72	0.46	1.58	0.00	0.00	0.00
19.10	0.72	0.46	1.58	0.00	0.00	0.00
19.20	0.72	0.46	1.58	0.00	0.00	0.00
19.30	0.72	0.46	1.57	0.00	0.00	0.00
19.40	0.72	0.46	1.57	0.00	0.00	0.00
19.50	0.72	0.46	1.57	0.00	0.00	0.00
19.60	0.72	0.46	1.57	0.00	0.00	0.00
19.70	0.72	0.46	1.56	0.00	0.00	0.00
19.80	0.72	0.46	1.56	0.00	0.00	0.00
19.90	0.72	0.46	1.56	0.00	0.00	0.00
20.00	0.72	0.46	1.56	0.00	0.00	0.00
20.10	0.72	0.46	1.55	0.00	0.00	0.00
20.20	0.72	0.46	1.55	0.00	0.00	0.00
20.30	0.72	0.47	1.55	0.00	0.00	0.00
20.40	0.72	0.47	1.55	0.00	0.00	0.00
20.50	0.72	0.47	1.54	0.00	0.00	0.00
20.60	0.72	0.47	1.54	0.00	0.00	0.00
20.70	0.72	0.47	1.54	0.00	0.00	0.00
20.80	0.72	0.47	1.54	0.00	0.00	0.00
20.90	0.72	0.47	1.54	0.00	0.00	0.00
21.00	0.72	0.47	1.53	0.00	0.00	0.00
21.10	0.72	0.47	1.53	0.00	0.00	0.00
21.20	0.72	0.47	1.53	0.00	0.00	0.00
21.30	0.72	0.47	1.53	0.00	0.00	0.00
21.40	0.72	0.47	1.52	0.00	0.00	0.00
21.50	0.72	0.47	1.52	0.00	0.00	0.00
21.60	0.72	0.47	1.52	0.00	0.00	0.00
21.70	0.72	0.47	1.52	0.00	0.00	0.00
21.80	0.72	0.48	1.52	0.00	0.00	0.00
21.90	0.72	0.48	1.51	0.00	0.00	0.00
22.00	0.72	0.48	1.51	0.00	0.00	0.00

22.10	0.72	0.48	1.51	0.00	0.00	0.00
22.20	0.72	0.48	1.51	0.00	0.00	0.00
22.30	0.72	0.48	1.51	0.00	0.00	0.00
22.40	0.72	0.48	1.51	0.00	0.00	0.00
22.50	0.72	0.48	1.50	0.00	0.00	0.00
22.60	0.72	0.48	1.50	0.00	0.00	0.00
22.70	0.72	0.48	1.50	0.00	0.00	0.00
22.80	0.72	0.48	1.50	0.00	0.00	0.00
22.90	0.72	0.48	1.50	0.00	0.00	0.00
23.00	0.72	0.48	1.49	0.00	0.00	0.00
23.10	0.72	0.48	1.49	0.00	0.00	0.00
23.20	0.72	0.48	1.49	0.00	0.00	0.00
23.30	0.72	0.48	1.49	0.00	0.00	0.00
23.40	0.72	0.48	1.49	0.00	0.00	0.00
23.50	0.72	0.49	1.49	0.00	0.00	0.00
23.60	0.72	0.49	1.48	0.00	0.00	0.00
23.70	0.72	0.49	1.48	0.00	0.00	0.00
23.80	0.72	0.49	1.48	0.00	0.00	0.00
23.90	0.72	0.49	1.48	0.00	0.00	0.00
24.00	0.72	0.49	1.48	0.00	0.00	0.00
24.10	0.72	0.49	1.48	0.00	0.00	0.00
24.20	0.72	0.49	1.48	0.00	0.00	0.00
24.30	0.72	0.49	1.47	0.00	0.00	0.00
24.40	0.72	0.49	1.47	0.00	0.00	0.00
24.50	0.72	0.49	1.47	0.00	0.00	0.00
24.60	0.72	0.49	1.47	0.00	0.00	0.00
24.70	0.72	0.49	1.47	0.00	0.00	0.00
24.80	0.72	0.49	1.47	0.00	0.00	0.00
24.90	0.72	0.49	1.47	0.00	0.00	0.00
25.00	0.72	0.49	1.46	0.00	0.00	0.00
25.10	2.00	0.49	5.00	0.00	0.00	0.00
25.20	2.00	0.49	5.00	0.00	0.00	0.00
25.30	2.00	0.49	5.00	0.00	0.00	0.00
25.40	2.00	0.49	5.00	0.00	0.00	0.00
25.50	2.00	0.49	5.00	0.00	0.00	0.00
25.60	2.00	0.50	5.00	0.00	0.00	0.00
25.70	2.00	0.50	5.00	0.00	0.00	0.00
25.80	2.00	0.50	5.00	0.00	0.00	0.00
25.90	2.00	0.50	5.00	0.00	0.00	0.00
26.00	2.00	0.50	5.00	0.00	0.00	0.00
26.10	2.00	0.50	5.00	0.00	0.00	0.00
26.20	2.00	0.50	5.00	0.00	0.00	0.00
26.30	2.00	0.50	5.00	0.00	0.00	0.00
26.40	2.00	0.50	5.00	0.00	0.00	0.00
26.50	2.00	0.50	5.00	0.00	0.00	0.00
26.60	2.00	0.50	5.00	0.00	0.00	0.00
26.70	2.00	0.50	5.00	0.00	0.00	0.00
26.80	2.00	0.50	5.00	0.00	0.00	0.00
26.90	2.00	0.50	5.00	0.00	0.00	0.00
27.00	2.00	0.50	5.00	0.00	0.00	0.00
27.10	2.00	0.50	5.00	0.00	0.00	0.00
27.20	2.00	0.50	5.00	0.00	0.00	0.00
27.30	2.00	0.50	5.00	0.00	0.00	0.00
27.40	2.00	0.50	5.00	0.00	0.00	0.00

27.50	2.00	0.50	5.00	0.00	0.00	0.00
27.60	2.00	0.50	5.00	0.00	0.00	0.00
27.70	2.00	0.50	5.00	0.00	0.00	0.00
27.80	2.00	0.50	5.00	0.00	0.00	0.00
27.90	2.00	0.50	5.00	0.00	0.00	0.00
28.00	2.00	0.50	5.00	0.00	0.00	0.00
28.10	2.00	0.51	5.00	0.00	0.00	0.00
28.20	2.00	0.51	5.00	0.00	0.00	0.00
28.30	2.00	0.51	5.00	0.00	0.00	0.00
28.40	2.00	0.51	5.00	0.00	0.00	0.00
28.50	2.00	0.51	5.00	0.00	0.00	0.00
28.60	2.00	0.51	5.00	0.00	0.00	0.00
28.70	2.00	0.51	5.00	0.00	0.00	0.00
28.80	2.00	0.51	5.00	0.00	0.00	0.00
28.90	2.00	0.51	5.00	0.00	0.00	0.00
29.00	2.00	0.51	5.00	0.00	0.00	0.00
29.10	2.00	0.51	5.00	0.00	0.00	0.00
29.20	2.00	0.51	5.00	0.00	0.00	0.00
29.30	2.00	0.51	5.00	0.00	0.00	0.00
29.40	2.00	0.51	5.00	0.00	0.00	0.00
29.50	2.00	0.51	5.00	0.00	0.00	0.00
29.60	2.00	0.51	5.00	0.00	0.00	0.00
29.70	2.00	0.51	5.00	0.00	0.00	0.00
29.80	2.00	0.51	5.00	0.00	0.00	0.00
29.90	2.00	0.51	5.00	0.00	0.00	0.00
30.00	2.00	0.51	5.00	0.00	0.00	0.00
30.10	2.00	0.51	5.00	0.00	0.00	0.00
30.20	2.00	0.51	5.00	0.00	0.00	0.00
30.30	2.00	0.51	5.00	0.00	0.00	0.00
30.40	2.00	0.51	5.00	0.00	0.00	0.00
30.50	2.00	0.51	5.00	0.00	0.00	0.00
30.60	2.00	0.51	5.00	0.00	0.00	0.00
30.70	2.00	0.51	5.00	0.00	0.00	0.00
30.80	2.00	0.51	5.00	0.00	0.00	0.00
30.90	2.00	0.51	5.00	0.00	0.00	0.00
31.00	2.00	0.51	5.00	0.00	0.00	0.00
31.10	2.00	0.51	5.00	0.00	0.00	0.00
31.20	2.00	0.51	5.00	0.00	0.00	0.00
31.30	2.00	0.51	5.00	0.00	0.00	0.00
31.40	2.00	0.51	5.00	0.00	0.00	0.00
31.50	2.00	0.51	5.00	0.00	0.00	0.00
31.60	2.00	0.51	5.00	0.00	0.00	0.00
31.70	2.00	0.51	5.00	0.00	0.00	0.00
31.80	2.00	0.51	5.00	0.00	0.00	0.00
31.90	2.00	0.51	5.00	0.00	0.00	0.00
32.00	2.00	0.51	5.00	0.00	0.00	0.00
32.10	2.00	0.51	5.00	0.00	0.00	0.00
32.20	2.00	0.51	5.00	0.00	0.00	0.00
32.30	2.00	0.51	5.00	0.00	0.00	0.00
32.40	2.00	0.51	5.00	0.00	0.00	0.00
32.50	2.00	0.51	5.00	0.00	0.00	0.00
32.60	2.00	0.51	5.00	0.00	0.00	0.00
32.70	2.00	0.51	5.00	0.00	0.00	0.00
32.80	2.00	0.51	5.00	0.00	0.00	0.00

32.90	2.00	0.51	5.00	0.00	0.00	0.00
33.00	2.00	0.51	5.00	0.00	0.00	0.00
33.10	2.00	0.51	5.00	0.00	0.00	0.00
33.20	2.00	0.51	5.00	0.00	0.00	0.00
33.30	2.00	0.51	5.00	0.00	0.00	0.00
33.40	2.00	0.51	5.00	0.00	0.00	0.00
33.50	2.00	0.51	5.00	0.00	0.00	0.00
33.60	2.00	0.51	5.00	0.00	0.00	0.00
33.70	2.00	0.51	5.00	0.00	0.00	0.00
33.80	2.00	0.51	5.00	0.00	0.00	0.00
33.90	2.00	0.51	5.00	0.00	0.00	0.00
34.00	2.00	0.51	5.00	0.00	0.00	0.00
34.10	2.00	0.51	5.00	0.00	0.00	0.00
34.20	2.00	0.51	5.00	0.00	0.00	0.00
34.30	2.00	0.51	5.00	0.00	0.00	0.00
34.40	2.00	0.51	5.00	0.00	0.00	0.00
34.50	2.00	0.51	5.00	0.00	0.00	0.00
34.60	2.00	0.51	5.00	0.00	0.00	0.00
34.70	2.00	0.51	5.00	0.00	0.00	0.00
34.80	2.00	0.51	5.00	0.00	0.00	0.00
34.90	2.00	0.51	5.00	0.00	0.00	0.00
35.00	2.00	0.51	5.00	0.00	0.00	0.00
35.10	2.00	0.51	5.00	0.00	0.00	0.00
35.20	2.00	0.51	5.00	0.00	0.00	0.00
35.30	2.00	0.51	5.00	0.00	0.00	0.00
35.40	2.00	0.51	5.00	0.00	0.00	0.00
35.50	2.00	0.51	5.00	0.00	0.00	0.00
35.60	2.00	0.51	5.00	0.00	0.00	0.00
35.70	2.00	0.51	5.00	0.00	0.00	0.00
35.80	2.00	0.51	5.00	0.00	0.00	0.00
35.90	2.00	0.51	5.00	0.00	0.00	0.00
36.00	2.00	0.51	5.00	0.00	0.00	0.00
36.10	2.00	0.51	5.00	0.00	0.00	0.00
36.20	2.00	0.51	5.00	0.00	0.00	0.00
36.30	2.00	0.51	5.00	0.00	0.00	0.00
36.40	2.00	0.51	5.00	0.00	0.00	0.00
36.50	2.00	0.51	5.00	0.00	0.00	0.00
36.60	2.00	0.51	5.00	0.00	0.00	0.00
36.70	2.00	0.51	5.00	0.00	0.00	0.00
36.80	2.00	0.51	5.00	0.00	0.00	0.00
36.90	2.00	0.51	5.00	0.00	0.00	0.00
37.00	2.00	0.51	5.00	0.00	0.00	0.00
37.10	2.00	0.51	5.00	0.00	0.00	0.00
37.20	2.00	0.51	5.00	0.00	0.00	0.00
37.30	2.00	0.51	5.00	0.00	0.00	0.00
37.40	2.00	0.51	5.00	0.00	0.00	0.00
37.50	2.00	0.51	5.00	0.00	0.00	0.00
37.60	2.00	0.51	5.00	0.00	0.00	0.00
37.70	2.00	0.51	5.00	0.00	0.00	0.00
37.80	2.00	0.51	5.00	0.00	0.00	0.00
37.90	2.00	0.51	5.00	0.00	0.00	0.00
38.00	2.00	0.51	5.00	0.00	0.00	0.00
38.10	2.00	0.51	5.00	0.00	0.00	0.00
38.20	2.00	0.51	5.00	0.00	0.00	0.00

38.30	2.00	0.51	5.00	0.00	0.00	0.00
38.40	2.00	0.51	5.00	0.00	0.00	0.00
38.50	2.00	0.51	5.00	0.00	0.00	0.00
38.60	2.00	0.51	5.00	0.00	0.00	0.00
38.70	2.00	0.50	5.00	0.00	0.00	0.00
38.80	2.00	0.50	5.00	0.00	0.00	0.00
38.90	2.00	0.50	5.00	0.00	0.00	0.00
39.00	2.00	0.50	5.00	0.00	0.00	0.00
39.10	2.00	0.50	5.00	0.00	0.00	0.00
39.20	2.00	0.50	5.00	0.00	0.00	0.00
39.30	2.00	0.50	5.00	0.00	0.00	0.00
39.40	2.00	0.50	5.00	0.00	0.00	0.00
39.50	2.00	0.50	5.00	0.00	0.00	0.00
39.60	2.00	0.50	5.00	0.00	0.00	0.00
39.70	2.00	0.50	5.00	0.00	0.00	0.00
39.80	2.00	0.50	5.00	0.00	0.00	0.00
39.90	2.00	0.50	5.00	0.00	0.00	0.00
40.00	2.00	0.50	5.00	0.00	0.00	0.00
40.10	2.00	0.50	5.00	0.00	0.00	0.00
40.20	2.00	0.50	5.00	0.00	0.00	0.00
40.30	2.00	0.50	5.00	0.00	0.00	0.00
40.40	2.00	0.50	5.00	0.00	0.00	0.00
40.50	2.00	0.50	5.00	0.00	0.00	0.00
40.60	2.00	0.50	5.00	0.00	0.00	0.00
40.70	2.00	0.50	5.00	0.00	0.00	0.00
40.80	2.00	0.50	5.00	0.00	0.00	0.00
40.90	2.00	0.50	5.00	0.00	0.00	0.00
41.00	2.00	0.50	5.00	0.00	0.00	0.00
41.10	2.00	0.50	5.00	0.00	0.00	0.00
41.20	2.00	0.50	5.00	0.00	0.00	0.00
41.30	2.00	0.50	5.00	0.00	0.00	0.00
41.40	2.00	0.50	5.00	0.00	0.00	0.00
41.50	2.00	0.50	5.00	0.00	0.00	0.00
41.60	2.00	0.50	5.00	0.00	0.00	0.00
41.70	2.00	0.50	5.00	0.00	0.00	0.00
41.80	2.00	0.50	5.00	0.00	0.00	0.00
41.90	2.00	0.50	5.00	0.00	0.00	0.00
42.00	2.00	0.50	5.00	0.00	0.00	0.00
42.10	2.00	0.50	5.00	0.00	0.00	0.00
42.20	2.00	0.50	5.00	0.00	0.00	0.00
42.30	2.00	0.50	5.00	0.00	0.00	0.00
42.40	2.00	0.50	5.00	0.00	0.00	0.00
42.50	2.00	0.50	5.00	0.00	0.00	0.00
42.60	2.00	0.50	5.00	0.00	0.00	0.00
42.70	2.00	0.50	5.00	0.00	0.00	0.00
42.80	2.00	0.50	5.00	0.00	0.00	0.00
42.90	2.00	0.50	5.00	0.00	0.00	0.00
43.00	2.00	0.50	5.00	0.00	0.00	0.00
43.10	2.00	0.50	5.00	0.00	0.00	0.00
43.20	2.00	0.50	5.00	0.00	0.00	0.00
43.30	2.00	0.50	5.00	0.00	0.00	0.00
43.40	2.00	0.50	5.00	0.00	0.00	0.00
43.50	2.00	0.50	5.00	0.00	0.00	0.00
43.60	2.00	0.50	5.00	0.00	0.00	0.00

43.70	2.00	0.50	5.00	0.00	0.00	0.00
43.80	2.00	0.50	5.00	0.00	0.00	0.00
43.90	2.00	0.50	5.00	0.00	0.00	0.00
44.00	2.00	0.50	5.00	0.00	0.00	0.00
44.10	2.00	0.50	5.00	0.00	0.00	0.00
44.20	2.00	0.50	5.00	0.00	0.00	0.00
44.30	2.00	0.50	5.00	0.00	0.00	0.00
44.40	2.00	0.50	5.00	0.00	0.00	0.00
44.50	2.00	0.50	5.00	0.00	0.00	0.00
44.60	2.00	0.50	5.00	0.00	0.00	0.00
44.70	2.00	0.50	5.00	0.00	0.00	0.00
44.80	2.00	0.50	5.00	0.00	0.00	0.00
44.90	2.00	0.50	5.00	0.00	0.00	0.00
45.00	2.00	0.50	5.00	0.00	0.00	0.00
45.10	2.00	0.50	5.00	0.00	0.00	0.00
45.20	2.00	0.50	5.00	0.00	0.00	0.00
45.30	2.00	0.50	5.00	0.00	0.00	0.00
45.40	2.00	0.50	5.00	0.00	0.00	0.00
45.50	2.00	0.50	5.00	0.00	0.00	0.00
45.60	2.00	0.50	5.00	0.00	0.00	0.00
45.70	2.00	0.50	5.00	0.00	0.00	0.00
45.80	2.00	0.50	5.00	0.00	0.00	0.00
45.90	2.00	0.50	5.00	0.00	0.00	0.00
46.00	2.00	0.50	5.00	0.00	0.00	0.00
46.10	2.00	0.50	5.00	0.00	0.00	0.00
46.20	2.00	0.50	5.00	0.00	0.00	0.00
46.30	2.00	0.49	5.00	0.00	0.00	0.00
46.40	2.00	0.49	5.00	0.00	0.00	0.00
46.50	2.00	0.49	5.00	0.00	0.00	0.00
46.60	2.00	0.49	5.00	0.00	0.00	0.00
46.70	2.00	0.49	5.00	0.00	0.00	0.00
46.80	2.00	0.49	5.00	0.00	0.00	0.00
46.90	2.00	0.49	5.00	0.00	0.00	0.00
47.00	2.00	0.49	5.00	0.00	0.00	0.00
47.10	2.00	0.49	5.00	0.00	0.00	0.00
47.20	2.00	0.49	5.00	0.00	0.00	0.00
47.30	2.00	0.49	5.00	0.00	0.00	0.00
47.40	2.00	0.49	5.00	0.00	0.00	0.00
47.50	2.00	0.49	5.00	0.00	0.00	0.00
47.60	2.00	0.49	5.00	0.00	0.00	0.00
47.70	2.00	0.49	5.00	0.00	0.00	0.00
47.80	2.00	0.49	5.00	0.00	0.00	0.00
47.90	2.00	0.49	5.00	0.00	0.00	0.00
48.00	2.00	0.49	5.00	0.00	0.00	0.00
48.10	2.00	0.49	5.00	0.00	0.00	0.00
48.20	2.00	0.49	5.00	0.00	0.00	0.00
48.30	2.00	0.49	5.00	0.00	0.00	0.00
48.40	2.00	0.49	5.00	0.00	0.00	0.00
48.50	2.00	0.49	5.00	0.00	0.00	0.00
48.60	2.00	0.49	5.00	0.00	0.00	0.00
48.70	2.00	0.49	5.00	0.00	0.00	0.00
48.80	2.00	0.49	5.00	0.00	0.00	0.00
48.90	2.00	0.49	5.00	0.00	0.00	0.00
49.00	2.00	0.49	5.00	0.00	0.00	0.00

49.10	2.00 0.49 5.00 0.00 0.00 0.00
49.20	2.00 0.49 5.00 0.00 0.00 0.00
49.30	2.00 0.49 5.00 0.00 0.00 0.00
49.40	2.00 0.49 5.00 0.00 0.00 0.00
49.50	2.00 0.49 5.00 0.00 0.00 0.00
49.60	2.00 0.49 5.00 0.00 0.00 0.00
49.70	2.00 0.48 5.00 0.00 0.00 0.00
49.80	2.00 0.48 5.00 0.00 0.00 0.00
49.90	2.00 0.48 5.00 0.00 0.00 0.00
50.00	2.00 0.48 5.00 0.00 0.00 0.00

* F.S.<1, Liquefaction Potential Zone

(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

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

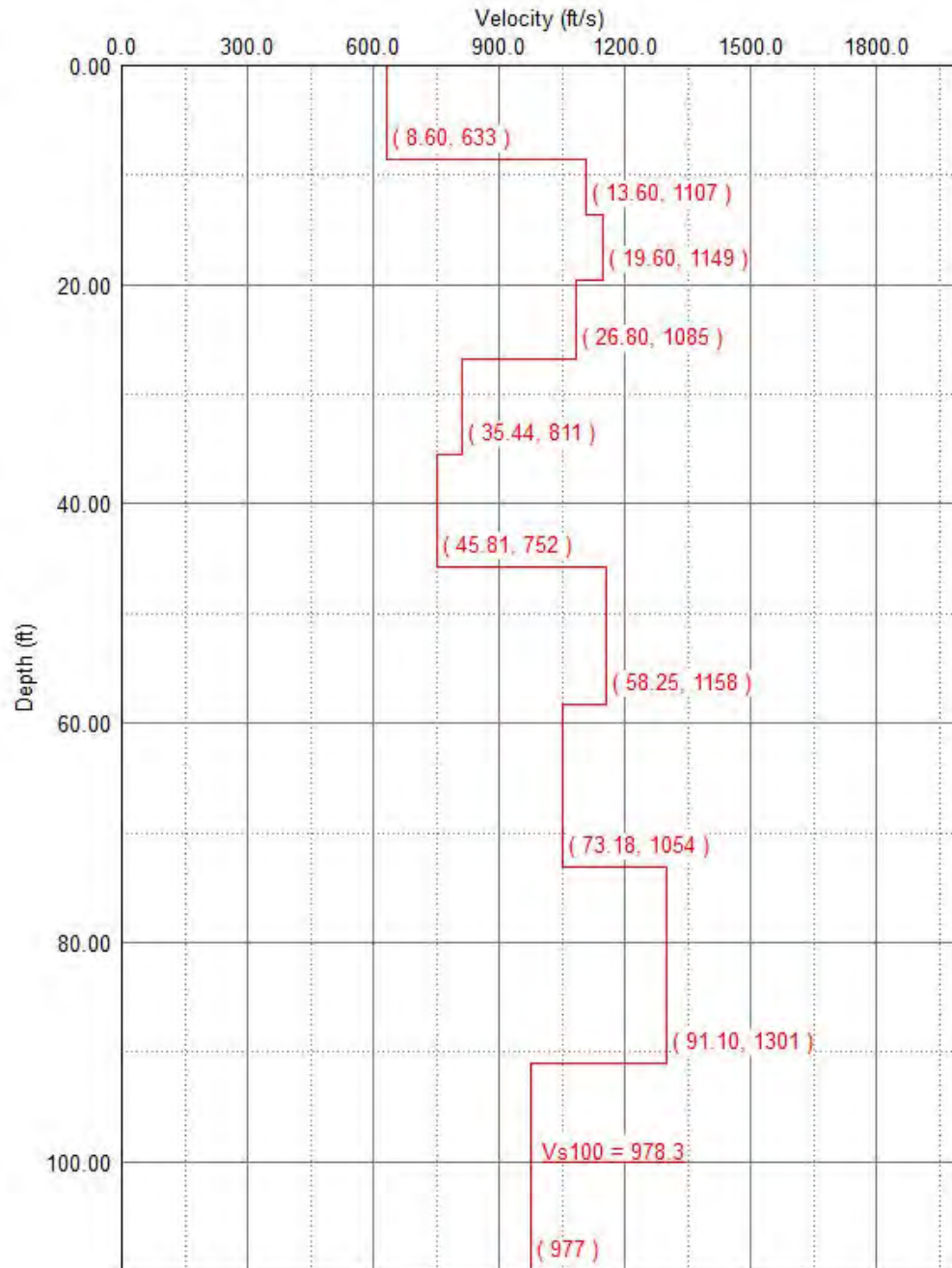
S_dry Settlement from Unsaturated Sands

S_all Total Settlement from Saturated and Unsaturated Sands

NoLiq No-Liquefy Soils

APPENDIX E – GEOPHYSICAL DATA

Models



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GEOPHYSICS LOCATION MAP
SILVER DOLLAR ELEMENTARY SCHOOL
SILVER DOLLAR LANE
RENO, NEVADA

Drawn By:
ZB

Project No.
R20236851E1

Date Drawn:
4/17/2024

Figure No.
E-1

APPENDIX F – DESKTOP FAULT INVESTIGATION



May 28, 2024
Project No. R20236851E201

Mr. Eddy Chacon
Washoe County School District
425 East 9th Street
Reno, NV 89512

**RE: Desktop Fault Investigation
Silver Dollar Elementary School
Silver Dollar Lane, Reno, Nevada
APN: 086-030-57**

Dear Mr. Chacon:

- Geotechnical Engineering

Geotechnical & Environmental Services, Inc. (GES) is pleased to present this Desktop Fault Investigation for the Silver Dollar Elementary School located within APN: 086-030-57 on Silver Dollar Lane in Reno, Nevada.

- Construction Materials Testing & Inspections

This letter includes the findings of our review of readily available geologic data and provides preliminary conclusions for further geotechnical studies.

We appreciate this opportunity to provide our professional services. If you have any questions or comments regarding this information, please feel free to contact our office.

- Environmental Services

Sincerely,

Geotechnical & Environmental Services, Inc.



- AASHTO Accredited Testing Laboratories

- IAS Accredited

Jillian Roybal
Staff Geologist

Federico Mendez, P.E.
Project Engineer

Zachary Bower, EI
Senior Staff Engineer

JR:ZB:TW:FM:vs

Dist: PDF e-mailed to addressee at: JChacon@WashoeSchools.net
Copy to Project Folder

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DESKTOP FAULT INVESTIGATION
SILVER DOLLAR ELEMENTARY SCHOOL
SILVER DOLLAR LANE, RENO, NEVADA
APN: 086-030-57

1. INTRODUCTION

This letter presents the results of a Desktop Fault Investigation performed by Geotechnical & Environmental Services, Inc. (GES) for the Silver Dollar Elementary School located within APN: 086-030-57 on Silver Dollar Lane in Reno, Nevada. The following sections present the purpose and scope of this preliminary desktop study as well as project and site descriptions.

1.1. PURPOSE AND SCOPE

The purpose of this desktop fault investigation is to provide our findings for the study area in regard to the proximity of the Peavine Peak Fault Zone to the project site. The scope of this desktop fault study included a review of readily available geologic data, a summary of our findings and, a list of common precautions. The scope of work contained herein is provided in general accordance with our proposal, dated May 1, 2024.

1.2. PROJECT AND SITE DESCRIPTION

The proposed project will include the development of an approximate 86,000-square-foot two-story elementary school on an approximately 8-acre parcel, including multiple parking areas with landscaping, bus lanes, play areas, and underground utilities located on Silver Dollar Lane within assessor's parcel number (APN) 086-030-57. The foundation loads are anticipated to be on the order of 5 kips per lineal foot for wall loads and 100 kips for column loads. Final design grades are not known at this time but are anticipated to generally be within 5 feet of existing site grades.

The project site is currently undeveloped and consists of dense native brush. The site lies within a residential neighborhood with Silver Dollar Lane to the south, Cloudburst Drive to the west, Desert Sunrise Court to the north, and a natural drainage and walking trail to the east. There are residential houses located in each direction from the site.



Figure 1.2 Project Site

2. GEOLOGY

2.1. GEOLOGY

According to the Preliminary Revised Geologic Maps of the Reno Urban Area, Nevada (Ramelli, A.R., 2011), the project area is within the southwestern portion of the Lemmon Valley and lies northeast of Peavine Peak. Lemmon Valley is physiographically characteristic of the Basin and Range Province with generally northwest-trending parallel mountain ranges and an intervening basin. Derived from the surrounding mountain ranges, Quaternary unconsolidated alluvial deposits fill the valley with sand and gravel sloping down from the mountain fronts towards the valley floor. As described on the referenced map, the project area lies within Older Fan Deposits (Qfo) consisting of Alluvial Deposits.

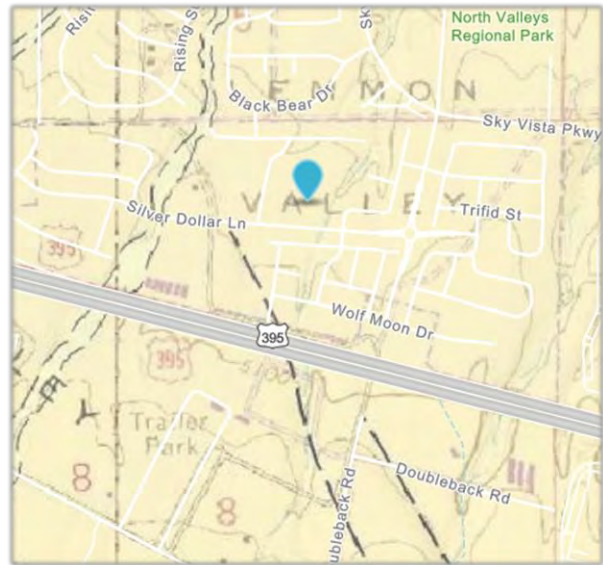


Figure 2.1 Geological Map

2.2. POTENTIAL FAULTING HAZARDS

During our initial investigation, we reviewed the USGS Quaternary Fault Database and found that the nearest fault is the Peavine Peak Fault Zone. This fault zone is estimated to be 17 to 20 kilometers in length and has a slip rate of 1.0-5.0 mm/year. These faults are mapped as Holocene to late Pleistocene, about 4,000 to about 15,000 years. There are two fault traces of the Peavine Peak Fault Zone near the project site. The location of these faults is based on geologic mapping done in 2003.

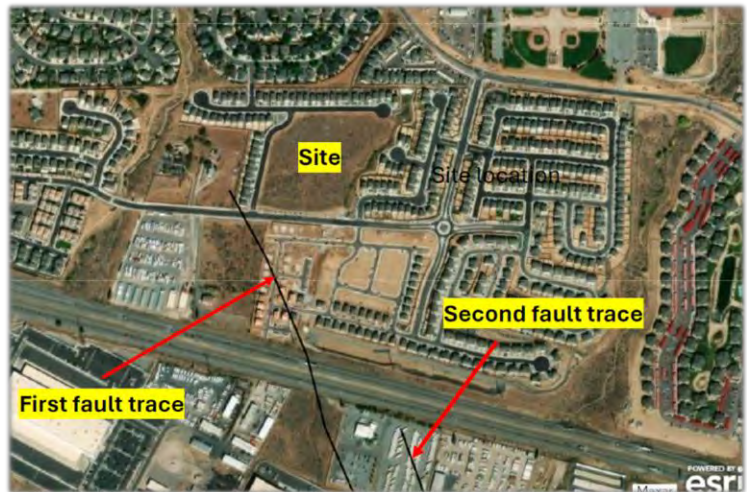


Figure 2.2 Nearby Fault Traces

The first fault trace of the Peavine Peak Fault Zone, labeled on Figure 2.2, is located over 50-feet from the planned building location, and is trending northwest. The second fault trace is trending north, towards the proposed building location. Both fault traces are mapped as Holocene to late Pleistocene aged – the most recent deformation recorded was latest Quaternary, less than 15,000 years ago.

Based on the information provided by the USGS Quaternary Fault Database and Geologic maps of the area, it is our opinion that the location of the Peavine Peak Fault Zone is reliable. The location of the fault zone is based on 1:24,000-scale maps of Bell and Garside (1987, #3605), Bingler (1974, #2425), and Szecsody (1983, #2625).

A review of the referenced Final Technical Report – Paleoseismic Studies of the Peavine Peak Fault, (Ramelli, A.R., et. al.) states that their field exploration of trenching revealed several Holocene events, with an average vertical offset of 1.5 to 2.0 meters per event. With the length of the fault being about 17 to 20 kilometers, with offsets of about 2 meters per event, the fault is capable of generating earthquakes near magnitude 7.

2.3. SITE RECONNAISSANCE

In preparation of this report and a Geotechnical Evaluation, GES visited the site on March 12th and March 13th, 2024, to oversee the drilling of 10 geotechnical explorations. On April 16th, 2024, GES personnel performed one Refraction Microtremor (ReMi) geophysical test to evaluate the seismic site class. On May 17th, 2024, GES performed another site visit to oversee the drilling of 3 additional geotechnical explorations. During this time, GES personnel also looked for indicators of onsite faulting. These physical indicators can include fault scarps, intense surface fracturing, hydrothermal veins, and abrupt changes in soil layers..

3. FINDINGS

- Boring logs from the site did not show any obvious offset of soil layers that a normal fault would typically produce.
- No visible distress around nearby structures or pavement to support a fault traveling through the site.
- The fault age is Holocene (<11,700 years). Holocene faults are required to have a 50-foot setback to structures.
- Geologic maps and USGS maps agree on the faulting locations with a certain level of accuracy.
- Aerial photos do not show any evidence of faulting in the area of the site. Aerial photos are shown in Appendix A to visualize site disturbance over the recent years.

4. CONCLUSIONS

Due to the surface and subsurface conditions observed during our investigation, it is our opinion that there was no evidence of faulting within the project area. At this time, the faults can be assumed to be mapped in the USGS locations. A 50-foot offset from the mapped locations should be implemented for any proposed structures. As mapped by the USGS the fault is more than 50 feet away from the southwest corner of the site. On-site improvements that are not structures (pavement, landscape areas, light poles) are exempt from this setback. It is our opinion that additional investigations are not required.

Additional investigations could be carried out at the owner's request. This would pertain to Geophysical testing specifically to locate faulting and/or trenching to visually confirm faulting. The cost of trenching is significant.

5. LIMITATIONS

The data and conclusions presented in this letter are based on our review of readily available geologic data and provide preliminary conclusions for further geotechnical studies. These recommendations are subject to change, after further review.

This preliminary report does not provide sufficient data for bid preparation by contractors. Bidders and the Contractor are solely responsible for assumptions, deductions, interpretations and conclusions they may make or obtain from any such information.

Our services were performed using that degree of care and skill ordinarily exercised under similar circumstances by reputable engineering firms in this or similar localities. No other warranties, either express or implied, are included or intended in this letter.

6. REFERENCES

Geotechnical & Environmental Services, Inc., proprietary in-house data

Google Earth, at approximate location 39.620069° latitude and -119.871078° longitude, accessed May 6, 2024

OSHDP Seismic Design Maps; <https://seismicmaps.org/>

Ramelli, A.R., et. al., Final Technical Report, Paleoseismic Studies of the Peavine Peak Fault, U.S. Geological Survey National Earthquake Hazards Reduction Program (NEHRP), Nevada Bureau of Mines and Geology.

Ramelli, A.R., et. al., 2011, Preliminary Revised Geologic Maps of the Reno Urban Area, Nevada, Nevada Bureau of Mines and Geology, 1: 24,000.

United States Geological Survey (USGS), Quaternary Faults and Folds Database of the United States:

APPENDIX A



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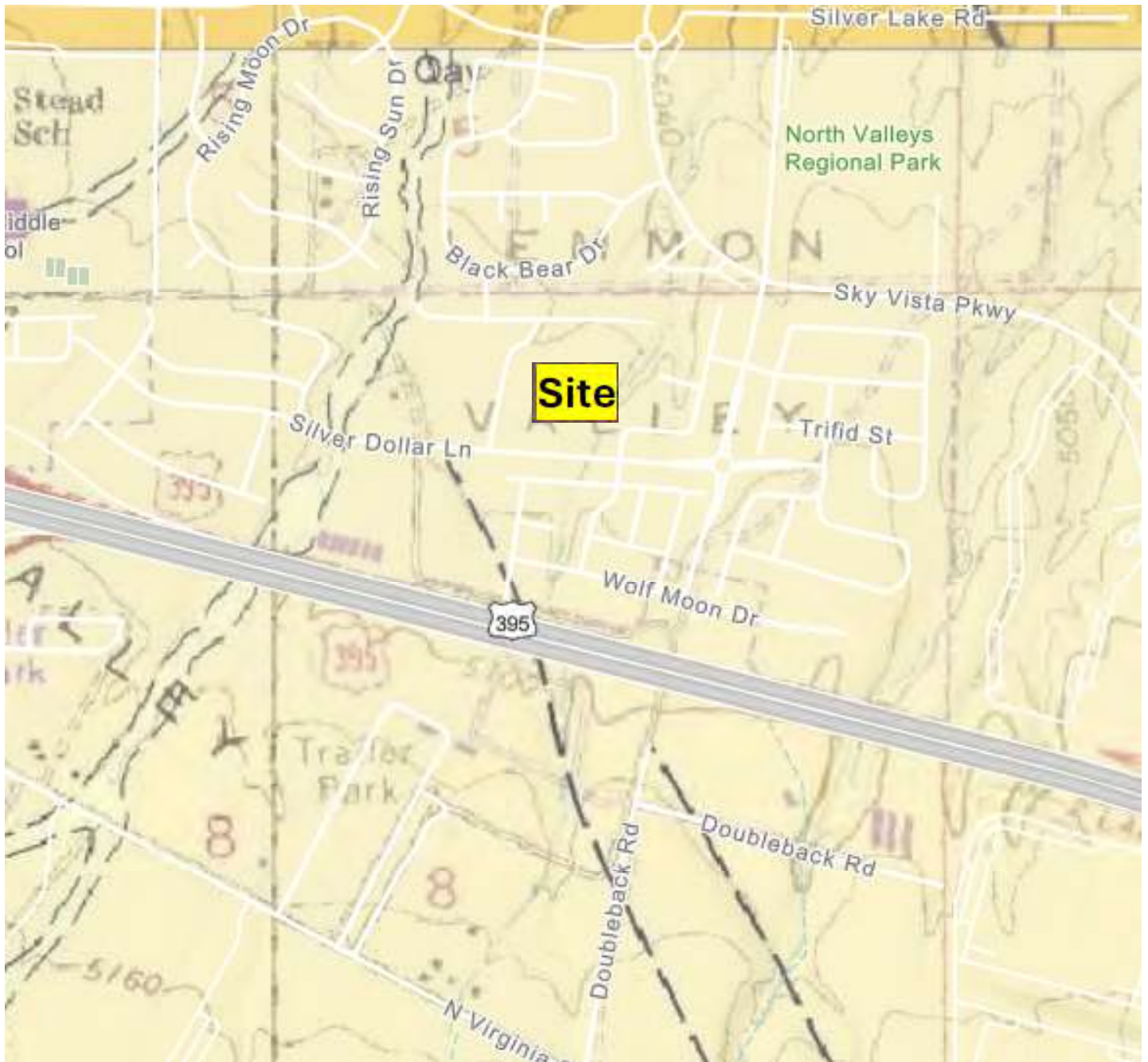
USGS MAPPING
SILVER DOLLAR ELEMENTARY SCHOOL
APN: 086-030-57
RENO, NEVADA

Drawn By: ZB

Date Drawn: 05/24/24

Project No. R20236851E201

Figure No. A-1



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**RAMELI 2011 GEOLOGIC MAP
SILVER DOLLAR ELEMENTARY SCHOOL**
APN: 086-030-57
RENO, NEVADA

Drawn By:
ZB

Project No.
R20236851E201

Date Drawn:
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Figure No.
A-2



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GOOGLE EARTH AERIAL PHOTO 1994
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RENO, NEVADA

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Figure No.
A-3



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GOOGLE EARTH AREIAL PHOTO 2002
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Figure No.
A-4



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GOOGLE EARTH AREIAL PHOTO 2007
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Figure No.
A-5



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GOOGLE EARTH AREIAL PHOTO 2012
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Figure No.
A-6



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GOOGLE EARTH AREIAL PHOTO 2018
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Figure No.
A-7



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GOOGLE EARTH AREIAL PHOTO 2020
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Figure No.
A-7



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GOOGLE EARTH AREIAL PHOTO 2021
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Figure No.
A-8



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GOOGLE EARTH AREIAL PHOTO 2023
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Figure No.
A-9



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**SITE PHOTOS
SILVER DOLLAR ELEMENTARY
SCHOOL APN: 086-030-57
RENO, NEVADA**

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Figure No.
A-10