May 28, 2021

Shea Properties
130 Vartis Street, Suite 200
Aliso Viejo, California 92656

Attention: Mr. Rick Rutecki
Vice President of Commercial Construction

Project No.: **21G164-2**

Subject: **Results of Infiltration Testing**
Proposed Industrial Building
Sierra Avenue, 800± feet North of Casa Grande Drive
Fontana, California

Reference: Geotechnical Investigation, Proposed Industrial Building, Sierra Avenue, 800± feet North of Casa Grande Drive, Fontana, California, prepared for Shea Properties, by Southern California Geotechnical, Inc. (SCG), SCG Project No. 21G164-1.

Mr. Rutecki:

In accordance with your request, we have conducted infiltration testing at the subject site. We are pleased to present this report summarizing the results of the infiltration testing and our design recommendations.

Scope of Services

The scope of the infiltration testing was in general accordance with our Proposal No. 21P160, dated February 16, 2021, and consisted of surface reconnaissance, subsurface exploration, field testing, laboratory testing, and engineering analysis to determine the infiltration rate of the on-site soils. The infiltration testing was performed in accordance with the ASTM test method D-3385-03, Standard Test Method for Infiltration Rate of Soils in Field Using Double-Ring Infiltrometer.

Site and Project Description

The subject site is located on the east side of Sierra Avenue, approximately 800 feet north of Casa Grande Drive in Fontana, California. The site is bounded to the north, west, and east by vacant land, and to the west by Sierra Avenue. The general location of the site is illustrated on the Site Location Map, included as Plate 1 in Appendix A of this report.

The site consists of a rectangular-shaped lot, 11.03± acres in size. The site is currently vacant and undeveloped with the exception of a wood-framed single-family residence (SFR) located in the southwest corner of the site approximately 2,000 ft^2 in size. The SFR is assumed to be supported on conventional shallow foundations with a concrete slab-on-grade floor. The ground surface surrounding the SFR consists of an open-graded gravel or aggregate base drive lane. The remaining areas surrounding the SFR as well as the reminder of the site consists of hummocky soil covered by moderate to dense native grass and shrub growth throughout. Some cobbles and boulders are present at the ground surface throughout the site.

Detailed topographic information was not available at the time of this report. Based on visual observations made at the time of the subsurface investigation and from elevations obtained from Google Earth, the overall site topography generally slopes downward to the south and southeast at a gradient of less than 2± percent. The site ranges from 1779± feet msl to 1762± feet msl in the northwest and southeast corners, respectively.

Proposed Development

SCG was provided with conceptual site plan prepared by Thienes Engineering, Inc., the project civil engineer. Based on this plan, the site will be developed with one industrial building, with a footprint of 203,000± ft² in size. The new building will be located in the central area of the site. Dock-high doors will be constructed along a portion of the south building wall. The building will be surrounded by asphaltic concrete pavements in the parking and drive areas, Portland cement concrete pavements in the truck court areas, and limited areas of concrete flatwork and landscape planters throughout.

The proposed development will use on-site storm water infiltration. Based on the site plan, a below-grade chamber system will be constructed in the southern portion of the property in the parking area. The bottom of the below-grade chamber system in the parking area will be approximately 9 to 10± feet below existing site grades. In addition, an infiltration basin will be constructed in the southwestern portion of the site. The bottom of the basin will be approximately 8± feet below the existing site grades.

Concurrent Study

SCG concurrently conducted a geotechnical investigation at the subject site. As part of this study, four (4) borings were drilled to depths of 15 to 20± feet below the existing site grades. In addition to the four borings, four (4) trenches were excavated at the site to depths of 5 to 9½± feet below existing site grades. Native alluvial soils were encountered at the ground surface at all of the boring and trench locations. The near-surface alluvial soils within the upper 2 to 3½± feet at some of the borings consist of medium dense to dense silty sands with varying gravel content. At greater depths the alluvium generally consists of dense to very dense gravelly sands, sandy gravels, and gravels with occasional to extensive cobbles and boulders, extending to the maximum depth explored of 20± feet.

Groundwater

Free water was not encountered during the drilling of any of the borings or during excavation of any of the trenches. Based on the lack of any water within the borings and trenches, and the moisture contents of the recovered soil samples, the static groundwater is considered to have existed at a depth in excess of 20± feet at the time of the subsurface exploration.

As part of our research, we reviewed available groundwater data in order to determine the historic high groundwater level for the site. The primary reference used to determine the groundwater depths in this area is the California Department of Water Resources website, http://www.water.ca.gov/waterdatalibrary/. The nearest monitoring well is located approximately ½ mile northwest from the site. Water level readings within this monitoring well indicates high groundwater levels of 159± feet below the ground surface in January 1992.

Subsurface Exploration

Scope of Exploration

The subsurface exploration conducted for this project consisted of three (3) backhoe-excavated infiltration trenches to depths of 8 to 10± feet below existing site grades. The trenches were logged during excavation by a member of our staff. The approximate locations of the infiltration trenches (identified as I-1 through I-3) are included in this report as Plate 2. It should be noted that at the time of this study the portion of the property where the proposed infiltration systems are located was not a part of the project. Infiltration tests were performed as close as possible to the proposed locations of the infiltration systems.

Geotechnical Conditions

Native alluvium was encountered at all of the infiltration trenches from the ground surface extending to at least the maximum explored depth of 10± feet below existing site grades. The alluvium of the upper 2± feet consist of medium dense fine to coarse sands at Infiltration Trench Nos. I-1 and I-2 with varying gravel content and occasional cobbles and boulders at Infiltration. The upper 2± feet of Infiltration Trench No. I-3 consist of medium dense silty fine to coarse sand with varying gravel content and occasional cobbles and boulders. The deeper alluvium consists of dense to very dense fine to coarse sandy gravels and gravelly fine to coarse sands with trace silt content and extensive cobbles and occasional boulders. The Trench Logs, which illustrate the conditions encountered at each of the infiltration trenches, are presented in this report.

Infiltration Testing

We understand that the results of the testing will be used to prepare a preliminary design for the storm water infiltration systems that will be used at the subject site. As previously mentioned, the infiltration testing was performed in general accordance with ASTM Test Method D-3385-03, Standard Test Method for Infiltration Rate of Soils in Field Using Double Ring Infiltrometer.

Two stainless steel infiltration rings were used for the infiltration testing. The outer infiltration ring is 2 feet in diameter and 20 inches in height. The inner infiltration ring is 1 foot in diameter and 20 inches in height. At each test location, a trench was excavated to the proposed depth of the infiltration system and the outer ring was driven 3± inches into the soil at the base of each trench. The inner ring was centered inside the outer ring and subsequently driven 3± inches into the soil at the base of the trench. The rings were driven into the soil using a ten-pound sledge hammer. The soil surrounding the wall of the infiltration rings was only slightly disturbed during the driving process.

Infiltration Testing Procedure

Infiltration testing was performed at both of the infiltration trench locations. The infiltration testing consisted of filling the inner ring and the annular space (the space between the inner and outer rings) with water, approximately 3 to 4± inches above the soil. To prevent the flow of water from one ring to the other, the water level in both the inner ring and the annular space between the rings was maintained using constant-head float valves. The volume of water that was added to maintain a constant head in the inner ring and the annular space during each time interval was determined and recorded. A cap was placed over the rings to minimize the evaporation of water during the tests.

The schedule for readings was determined based on the observed soil type at the base of each backhoe-excavated trench. Based on the existing soils at the trench locations, the volumetric measurements were made at 5-minute increments at Infiltration Test Nos. I-1 and I-2, and 10-minute increments at Infiltration Test No. I-3. The water volume measurements are presented on the spreadsheets enclosed with this report. The infiltration rates for each of the timed intervals are also tabulated on these spreadsheets.

The infiltration rates for the infiltration tests are calculated in centimeters per hour and then converted to inches per hour. The rates are summarized below:

Infiltration Test No.	Depth (feet)	Soil Description	Infiltration Rate (inches/hour)
I-1	9	Light Yellow Brown fine to coarse Sandy Gravel, extensive Cobbles, occasional Boulders	18.1
I-2	10	Gray fine to coarse Sandy Gravel, extensive Cobbles, occasional Boulders	19.4
I-3	8	Gray Gravelly fine to coarse Sand, extensive Cobbles, occasional Boulders	12.8

Laboratory Testing

Moisture Content

The moisture contents for selected soil samples within the trenches were determined in accordance with ASTM D-2216 and are expressed as a percentage of the dry weight. These test results are presented on the Trench Logs in Plates B-1 through B-3 of this report.

Grain Size Analysis

The grain size distribution of selected soils collected from the base of each infiltration test trench has been determined using a range of wire mesh screens. These tests were performed in general accordance with ASTM D-422 and/or ASTM D-1140. The weight of the portion of the sample retained on each screen is recorded and the percentage finer or coarser of the total weight is calculated. The results of the grainsize analysis are presented on Plates C-1 through C-3 of this report.

Design Recommendations

Three (3) infiltration tests were performed at the subject site. As noted above, the infiltration rates at these locations vary from 12.8 to 19.4 inches per hour. Based on the results of Infiltration Test Nos. I-1 through I-3, we recommend infiltration rates as follows:

Infiltration System	Location	Infiltration Rate (Inches per Hour)
"A"	Southern region	18.0
"B"	Southwestern region	12.0

The design of the storm water infiltration system should be performed by the project civil engineer, in accordance with the City of Fontana and/or County of San Bernardino guidelines. It is recommended that the system be constructed so as to facilitate removal of silt and clay, or other deleterious materials from any water that may enter the systems. The presence of such materials would decrease the effective infiltration rates. **It is recommended that the project civil engineer apply an appropriate factor of safety. The infiltration rates recommended above is based on the assumption that only clean water will be introduced to the subsurface profile. Any fines, debris, or organic materials could significantly impact the infiltration rate.** It should be noted that the recommended infiltration rates are based on infiltration testing at three (3) discrete locations and that the overall infiltration rates of the proposed infiltration systems could vary considerably.

Infiltration Rate Considerations

The infiltration rates presented herein was determined in accordance with the San Bernardino County guidelines and are considered valid only for the time and place of the actual test. Varying subsurface conditions will exist in other areas of the site, which could alter the recommended infiltration rates presented above. The infiltration rates will decline over time between maintenance cycles as silt or clay particles accumulate on the BMP surface. The infiltration rate is highly dependent upon a number of factors, including density, silt and clay content, grainsize distribution throughout the range of particle sizes, and particle shape. Small changes in these factors can cause large changes in the infiltration rates.

Infiltration rates are based on unsaturated flow. As water is introduced into soils by infiltration, the soils become saturated and the wetting front advances from the unsaturated zone to the saturated zone. Once the soils become saturated, infiltration rates become zero, and water can only move through soils by hydraulic conductivity at a rate determined by pressure head and soil permeability. Changes in soil moisture content will affect the infiltration rate. Infiltration rates should be expected to decrease until the soils become saturated. Soil permeability values will then govern groundwater movement. Permeability values may be on the order of 10 to 20 times less than infiltration rates. The system designer should incorporate adequate factors of safety and allow for overflow design into appropriate traditional storm drain systems, which would transport storm water off-site.

Construction Considerations

The infiltration rates presented in this report are specific to the tested locations and tested depths. Infiltration rates can be significantly reduced if the soils are exposed to excessive disturbance or compaction during construction. Compaction of the soils at the bottom of the infiltration system can significantly reduce the infiltration ability of the basins. Therefore, the subgrade soils within proposed infiltration system areas should not be over-excavated, undercut or compacted in any significant manner. **It is recommended that a note to this effect be added to the project plans and/or specifications.**

We recommend that a representative from the geotechnical engineer be on-site during the construction of the proposed infiltration systems to identify the soil classification at the base of each system. It should be confirmed that the soils at the base of the proposed infiltration systems correspond with those presented in this report to ensure that the performance of the systems will be consistent with the rates reported herein.

We recommend that scrapers and other rubber-tired heavy equipment not be operated on the basin bottom, or at levels lower than 2 feet above the bottom of the system, particularly within basins. As such, the bottom 24 inches of the infiltration systems should be excavated with non-rubber-tired equipment, such as excavators.

Basin Maintenance

The proposed project may include infiltration basins. Water flowing into these basins will carry some level of sediment. Wind-blown sediments and erosion of the basin side walls will also contribute to sediment deposition at the bottom of the basin. This layer has the potential to significantly reduce the infiltration rate of the basin subgrade soils. Therefore, a formal basin maintenance program should be established to ensure that these silt and clay deposits are removed from the basin on a regular basis. Appropriate vegetation on the basin sidewalls and bottom may reduce erosion and sediment deposition.

Basin maintenance should also include measures to prevent animal burrows, and to repair any burrows or damage caused by such. Animal burrows in the basin sidewalls can significantly increase the risk of erosion and piping failures.

Location of Infiltration Systems

The use of on-site storm water infiltration systems carries a risk of creating adverse geotechnical conditions. Increasing the moisture content of the soil can cause the soil to lose internal shear strength and increase its compressibility, resulting in a change in the designed engineering properties. Overlying structures and pavements in the infiltration area could potentially be damaged due to saturation of the subgrade soils. **The proposed infiltration systems for this site should be located at least 25 feet away from any structures, including retaining walls.** Even with this provision of locating the infiltration system at least 25 feet from the building(s), it is possible that infiltrating water into the subsurface soils could have an adverse effect on the proposed or existing structures. It should also be noted that utility trenches which happen to collect storm water can also serve as conduits to transmit storm water toward the structure, depending on the slope of the utility trench. Therefore, consideration should also be given to the proposed locations of underground utilities which may pass near the proposed infiltration system.

The infiltration system designer should also give special consideration to the effect that the proposed infiltration systems may have on nearby subterranean structures, open excavations, or descending slopes. In particular, infiltration systems should not be located near the crest of descending slopes, particularly where the slopes are comprised of granular soils. Such systems will require specialized design and analysis to evaluate the potential for slope instability, piping failures and other phenomena that typically apply to earthen dam design. This type of analysis is beyond the scope of this infiltration test report, but these factors should be considered by the infiltration system designer when locating the infiltration systems.

General Comments

This report has been prepared as an instrument of service for use by the client in order to aid in the evaluation of this property and to assist the architects and engineers in the design and preparation of the project plans and specifications. This report may be provided to the contractor(s) and other design consultants to disclose information relative to the project. However, this report is not intended to be utilized as a specification in and of itself, without appropriate interpretation by the project architect, structural engineer, and/or civil engineer. The design of the infiltration system is the responsibility of the civil engineer. The role of the geotechnical engineer is limited to determination of infiltration rate only. By using the design infiltration rates contained herein, the civil engineer agrees to indemnify, defend, and hold harmless the geotechnical engineer for all aspects of the design and performance of the infiltration system. The reproduction and distribution of this report must be authorized by the client and Southern California Geotechnical, Inc. Furthermore, any reliance on this report by an unauthorized third party is at such party's sole risk, and we accept no responsibility for damage or loss which may occur. The analysis of this site was based on a subsurface profile interpolated from limited discrete soil samples. While the materials encountered in the project area are considered to be representative of the total area, some variations should be expected between trench locations and testing depths. If the conditions encountered during construction vary significantly from those detailed herein, we should be contacted immediately to determine if the conditions alter the recommendations contained herein.

This report has been based on assumed or provided characteristics of the proposed development. It is recommended that the owner, client, architect, structural engineer, and civil engineer carefully review these assumptions to ensure that they are consistent with the characteristics of the proposed development. If discrepancies exist, they should be brought to our attention to verify that they do not affect the conclusions and recommendations contained herein. We also recommend that the project plans and specifications be submitted to our office for review to verify that our recommendations have been correctly interpreted. The analysis, conclusions, and recommendations contained within this report have been promulgated in accordance with generally accepted professional geotechnical engineering practice. No other warranty is implied.

Closure

We sincerely appreciate the opportunity to be of service on this project. We look forward to providing additional consulting services during the course of the project. If we may be of further assistance in any manner, please contact our office.

Respectfully Submitted,

SOUTHERN CALIFORNIA GEOTECHNICAL, INC.

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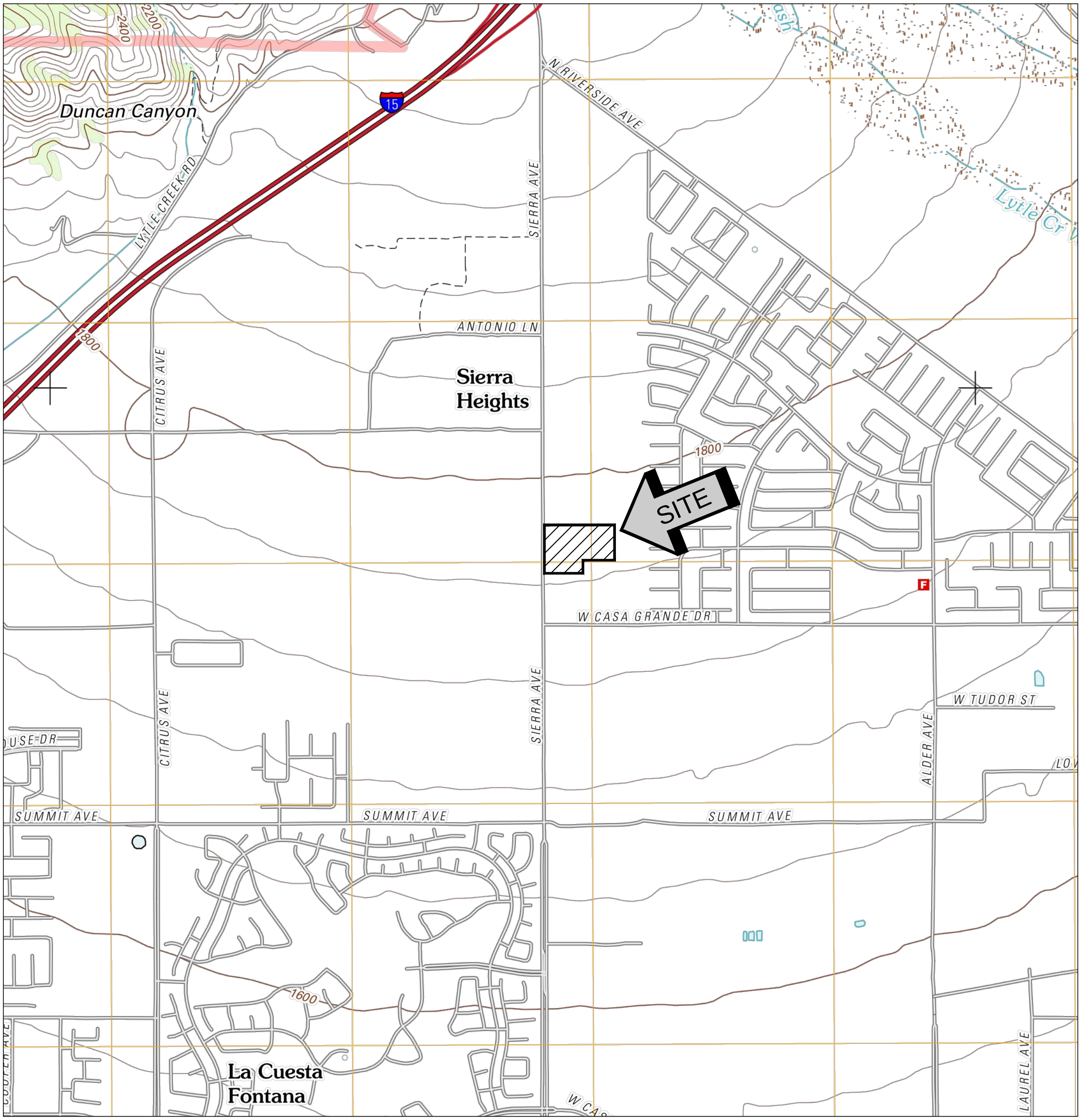
Distribution: (1) Addressee

Enclosures: Plate 1 - Site Location Map
Plate 2 - Infiltration Test Location Plan
Trench Logs & Trench Log Legend (5 pages)
Infiltration Test Results Spreadsheets (3 pages)
Grain Size Distribution Graphs (3 pages)



SOURCE: USGS TOPOGRAPHIC MAP OF THE FONTANA QUADRANGLE, SAN BERNARDINO COUNTY, CALIFORNIA, 2018

SITE LOCATION MAP

PROPOSED INDUSTRIAL BUILDING

FONTANA, CALIFORNIA

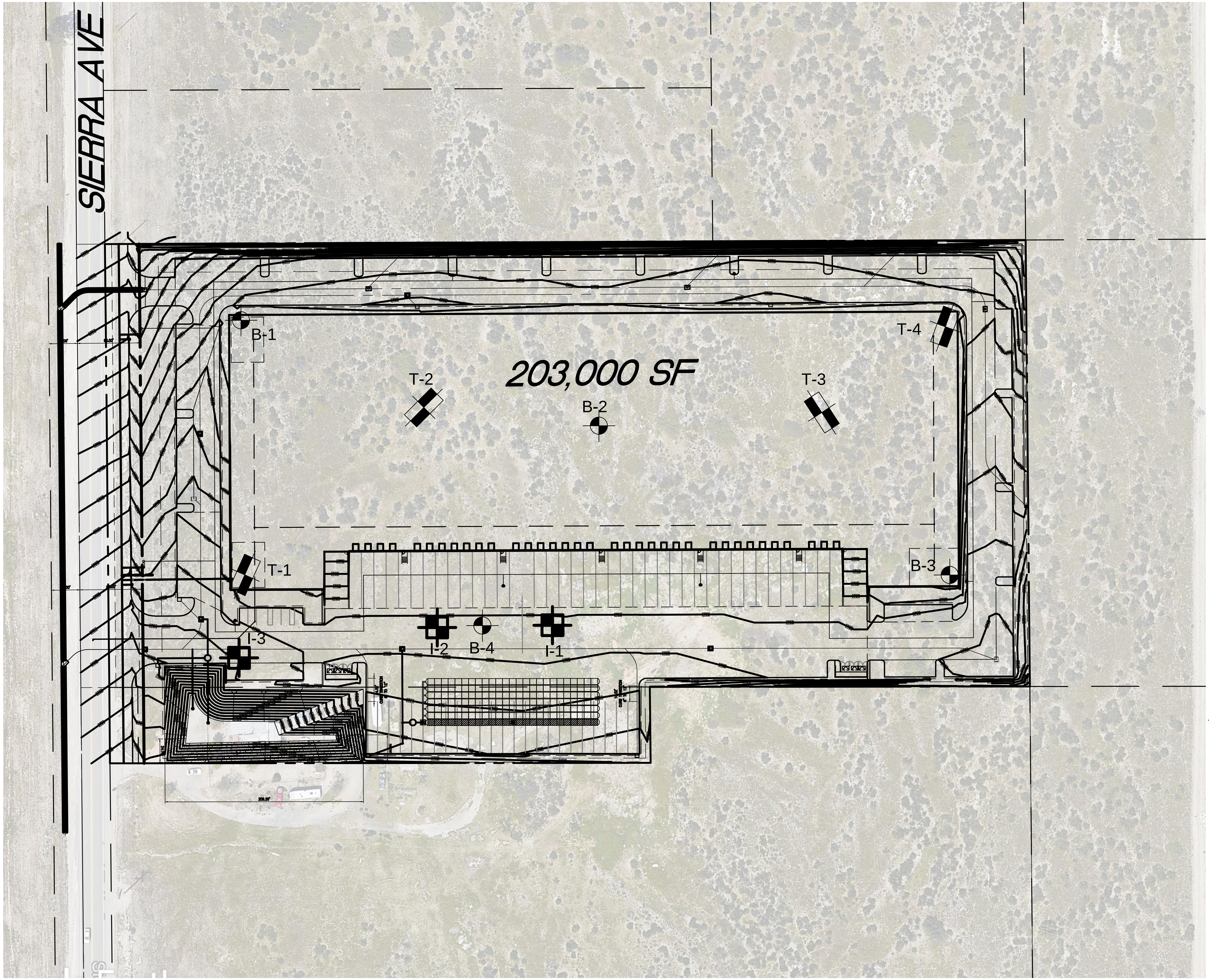
SCALE: 1" = 2000'

DRAWN: OS
CHKD: RF

SCG PROJECT
21G164-2

PLATE 1

SOUTHERN CALIFORNIA GEOTECHNICAL



GEOTECHNICAL LEGEND

APPROXIMATE INFILTRATION TEST LOCATION

APPROXIMATE BORING LOCATION (SCG PROJECT NO. 21G164-1)

APPROXIMATE TRENCH LOCATION (SCG PROJECT NO. 21G164-1)

NOTE: BASE MAP PREPARED BY THIENES ENGINEERING, INC.

INFILTRATION TEST LOCATION PLAN

PROPOSED INDUSTRIAL BUILDING

FONTANA, CALIFORNIA

SCALE: 1" = 80'

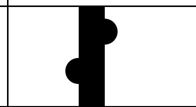
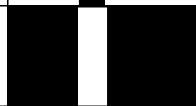
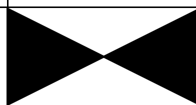
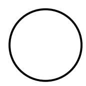
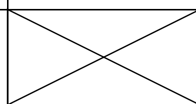
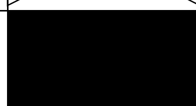
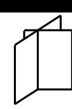
DRAWN: JAZ
CHKD: RF

SCG PROJECT
21G164-2

PLATE 2

SOUTHERN CALIFORNIA GEOTECHNICAL

TRENCH LOG LEGEND

SAMPLE TYPE	GRAPHICAL SYMBOL	SAMPLE DESCRIPTION
AUGER		SAMPLE COLLECTED FROM AUGER CUTTINGS, NO FIELD MEASUREMENT OF SOIL STRENGTH. (DISTURBED)
CORE		ROCK CORE SAMPLE: TYPICALLY TAKEN WITH A DIAMOND-TIPPED CORE BARREL. TYPICALLY USED ONLY IN HIGHLY CONSOLIDATED BEDROCK.
GRAB		SOIL SAMPLE TAKEN WITH NO SPECIALIZED EQUIPMENT, SUCH AS FROM A STOCKPILE OR THE GROUND SURFACE. (DISTURBED)
CS		CALIFORNIA SAMPLER: 2-1/2 INCH I.D. SPLIT BARREL SAMPLER, LINED WITH 1-INCH HIGH BRASS RINGS. DRIVEN WITH SPT HAMMER. (RELATIVELY UNDISTURBED)
NSR		NO RECOVERY: THE SAMPLING ATTEMPT DID NOT RESULT IN RECOVERY OF ANY SIGNIFICANT SOIL OR ROCK MATERIAL.
SPT		STANDARD PENETRATION TEST: SAMPLER IS A 1.4 INCH INSIDE DIAMETER SPLIT BARREL, DRIVEN 18 INCHES WITH THE SPT HAMMER. (DISTURBED)
SH		SHELBY TUBE: TAKEN WITH A THIN WALL SAMPLE TUBE, PUSHED INTO THE SOIL AND THEN EXTRACTED. (UNDISTURBED)
VANE		VANE SHEAR TEST: SOIL STRENGTH OBTAINED USING A 4 BLADED SHEAR DEVICE. TYPICALLY USED IN SOFT CLAYS-NO SAMPLE RECOVERED.

COLUMN DESCRIPTIONS

DEPTH: Distance in feet below the ground surface.

SAMPLE: Sample Type as depicted above.

BLOW COUNT: Number of blows required to advance the sampler 12 inches using a 140 lb hammer with a 30-inch drop. 50/3” indicates penetration refusal (>50 blows) at 3 inches. WH indicates that the weight of the hammer was sufficient to push the sampler 6 inches or more.

POCKET PEN.: Approximate shear strength of a cohesive soil sample as measured by pocket penetrometer.

GRAPHIC LOG: Graphic Soil Symbol as depicted on the following page.

DRY DENSITY: Dry density of an undisturbed or relatively undisturbed sample in lbs/ft^3.

MOISTURE CONTENT: Moisture content of a soil sample, expressed as a percentage of the dry weight.

LIQUID LIMIT: The moisture content above which a soil behaves as a liquid.

PLASTIC LIMIT: The moisture content above which a soil behaves as a plastic.

PASSING #200 SIEVE: The percentage of the sample finer than the #200 standard sieve.

UNCONFINED SHEAR: The shear strength of a cohesive soil sample, as measured in the unconfined state.

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

TRENCH NO. I-1

JOB NO.: 21G164-2
PROJECT: Proposed Industrial Building
LOCATION: Fontana, California

DRILLING DATE: 4/30/21
EXCAVATION METHOD: Backhoe
LOGGED BY: Ryan Bremer

WATER DEPTH: N/A
CAVE DEPTH: ---
READING TAKEN: At Completion

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	COMMENTS
					ALLUVIUM: Dark Brown Silty fine to coarse Sand, some fine to coarse Gravel, extensive Cobbles, some fine root fibers, medium dense-dry							
5					Gray Gravelly fine to coarse Sand, trace Silt, extensive Cobbles, occasional Boulders, dense-damp							
					Light Yellow Brown fine to coarse Sandy Gravel, extensive Cobbles, occasional Boulders, very dense-dry to damp		2					

Trench Terminated at 9'

TBL 21G164-2.GPJ SOCALGEO.GDT 5/28/21

TEST TRENCH LOG

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

TRENCH NO. I-2

JOB NO.: 21G164-2
PROJECT: Proposed Industrial Building
LOCATION: Fontana, California

DRILLING DATE: 4/30/21
EXCAVATION METHOD: Backhoe
LOGGED BY: Ryan Bremer

WATER DEPTH: N/A
CAVE DEPTH: ---
READING TAKEN: At Completion

FIELD RESULTS					DESCRIPTION	LABORATORY RESULTS						COMMENTS
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	
					ALLUVIUM: Dark Brown Silty fine to coarse Sand, little to some fine to coarse Gravel, trace fine root fibers, occasional Cobbles, occasional Boulders, medium dense-damp							
5					Gray Gravelly fine to coarse Sand, trace Silt, extensive Cobbles, occasional Boulders, dense-dry							
	Hand sample				Gray fine to coarse Sandy Gravel, extensive Cobbles, occasional Boulders, very dense-dry		1					
10												

Trench Terminated at 10'

TBL 21G164-2.GPJ SOCALGEO.GDT 5/28/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

TRENCH NO. I-3

JOB NO.: 21G164-2
PROJECT: Proposed Industrial Building
LOCATION: Fontana, California

DRILLING DATE: 4/30/21
EXCAVATION METHOD: Backhoe
LOGGED BY: Ryan Bremer

WATER DEPTH: N/A
CAVE DEPTH: ---
READING TAKEN: At Completion

FIELD RESULTS					DESCRIPTION	LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	COMMENTS
					ALLUVIUM: Gray Silty fine to coarse Sand, little fine to coarse Gravel, little fine root fibers, occasional Cobbles, occasional Boulders, medium dense-dry							
					Gray Gravelly fine to coarse Sand, extensive Cobbles, occasional Boulders, trace fine root fibers, dense-dry to damp							
5												
	(hand sample)						2					
					Trench Terminated at 8'							

TBL 21G164-2.GPJ SOCALGEO.GDT 5/28/21

TEST TRENCH LOG

INFILTRATION CALCULATIONS

Project Name	Proposed Industrial Building
Project Location	Fontana, California
Project Number	21G164-2
Engineer	Ryan Bremer

Infiltration Test No: I-1

Constants	Diameter (ft)	Area (ft^2)	Area (cm^2)
Inner	1	0.79	730
Anlr. Spac	2	2.36	2189

*Note: The infiltration rate was calculated based on current time interval

Test Interval		Time (hr)	Interval **Elapsed** (min)	Flow Readings: Inner Ring (ml)	Ring Flow (cm^3)	Annular Ring (ml)	Space Flow (cm^3)	Infiltration Rates: Inner Ring* (cm/hr)	Annular Space* (cm/hr)	Inner Ring* (in/hr)	Annular Space* (in/hr)
1	Initial	1:29 PM	5	400	2900	0	11800	47.70	64.69	18.78	25.47
	Final	1:34 PM	**5**	3300		11800					
2	Initial	1:38 PM	5	500	2800	0	11700	46.05	64.14	18.13	25.25
	Final	1:43 PM	**14**	3300		11700					
3	Initial	1:45 PM	5	600	2900	0	11800	47.70	64.69	18.78	25.47
	Final	1:50 PM	**21**	3500		11800					
4	Initial	1:53 PM	5	500	2850	0	11200	46.87	61.40	18.45	24.17
	Final	1:58 PM	**29**	3350		11200					
5	Initial	2:00 PM	5	500	2800	0	11700	46.05	64.14	18.13	25.25
	Final	2:05 PM	**36**	3300		11700					
6	Initial	2:07 PM	5	400	2900	0	11400	47.70	62.50	18.78	24.61
	Final	2:12 PM	**43**	3300		11400					
7	Initial	2:16 PM	5	400	2700	0	10800	44.41	59.21	17.48	23.31
	Final	2:21 PM	**52**	3100		10800					
8	Initial	2:25 PM	5	500	2700	0	10900	44.41	59.76	17.48	23.53
	Final	2:30 PM	**61**	3200		10900					
9	Initial	2:33 PM	5	500	2800	0	10900	46.05	59.76	18.13	23.53
	Final	2:38 PM	**69**	3300		10900					

INFILTRATION CALCULATIONS

Project Name	Proposed Industrial Building
Project Location	Fontana, California
Project Number	21G164-2
Engineer	Ryan Bremer

Infiltration Test No: I-2

Constants			
	Diameter (ft)	Area (ft^2)	Area (cm^2)
Inner	1	0.79	730
Anlr. Spac	2	2.36	2189

*Note: The infiltration rate was calculated based on current time interval

Test Interval		Time (hr)	Interval **Elapsed** (min)	Flow Readings: Inner Ring (ml)	Ring Flow (cm^3)	Annular Ring (ml)	Space Flow (cm^3)	Infiltration Rates: Inner Ring* (cm/hr)	Annular Space* (cm/hr)	Inner Ring* (in/hr)	Annular Space* (in/hr)
1	Initial	11:40 AM	5	0	3200	0	11100	52.63	60.85	20.72	23.96
	Final	11:45 AM	**5**	3200		11100					
2	Initial	11:48 AM	5	0	3300	0	10900	54.27	59.76	21.37	23.53
	Final	11:53 AM	**13**	3300		10900					
3	Initial	11:58 AM	5	0	3300	0	10800	54.27	59.21	21.37	23.31
	Final	12:03 PM	**23**	3300		10800					
4	Initial	12:08 PM	5	0	3200	0	10500	52.63	57.56	20.72	22.66
	Final	12:13 PM	**33**	3200		10500					
5	Initial	12:15 PM	5	0	3100	0	10300	50.98	56.47	20.07	22.23
	Final	12:20 PM	**40**	3100		10300					
6	Initial	12:23 PM	5	0	3100	0	10300	50.98	56.47	20.07	22.23
	Final	12:28 PM	**48**	3100		10300					
7	Initial	12:32 PM	5	0	3000	0	10200	49.34	55.92	19.43	22.02
	Final	12:37 PM	**57**	3000		10200					
8	Initial	12:40 PM	5	0	3000	0	10200	49.34	55.92	19.43	22.02
	Final	12:45 PM	**65**	3000		10200					
9	Initial	12:47 PM	5	0	3000	0	10200	49.34	55.92	19.43	22.02
	Final	12:52 PM	**72**	3000		10200					

INFILTRATION CALCULATIONS

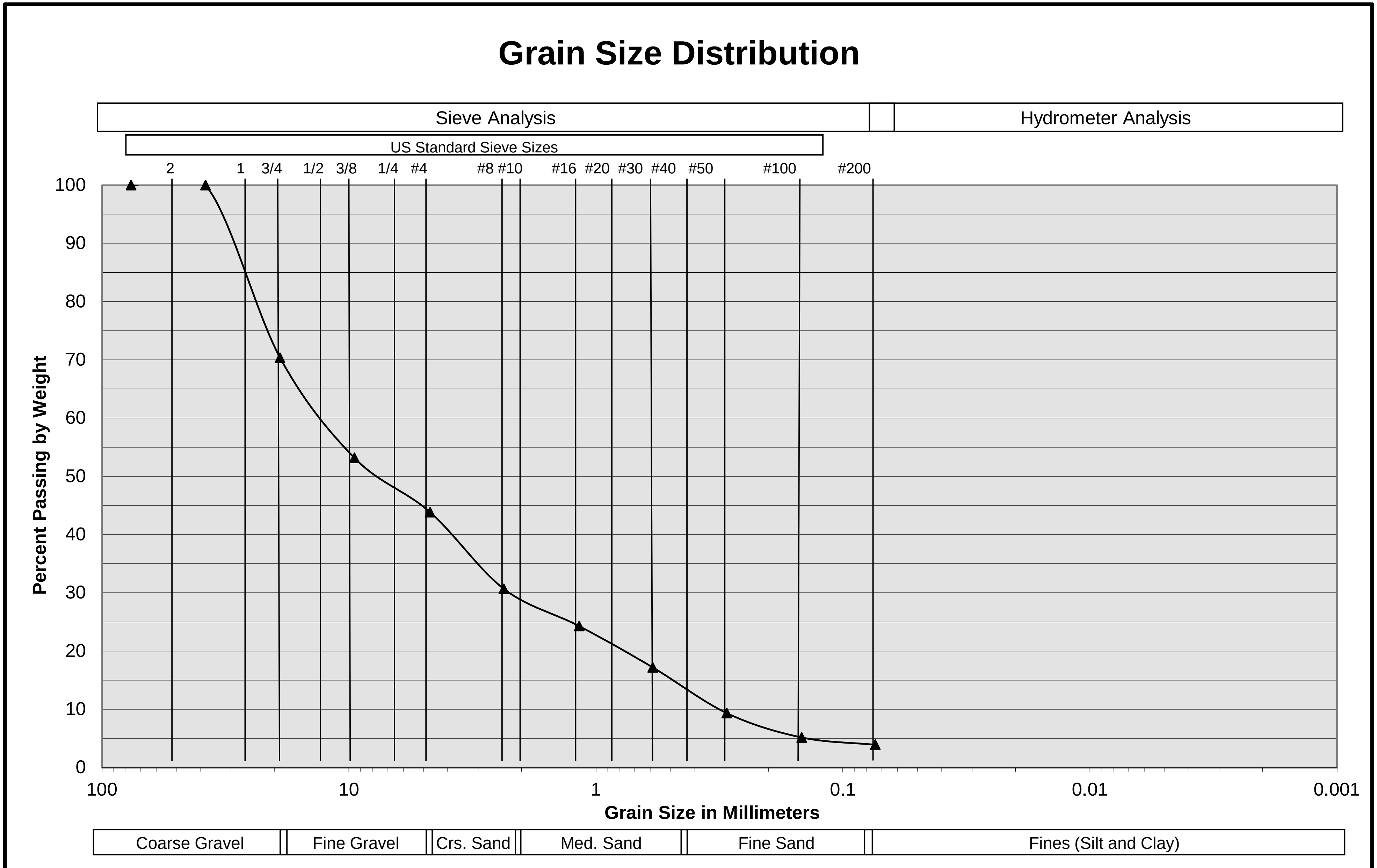
Project Name	Proposed Industrial Building
Project Location	Fontana, California
Project Number	21G164-2
Engineer	Ryan Bremer

Infiltration Test No: I-3

Constants	Diameter (ft)	Area (ft^2)	Area (cm^2)
Inner	1	0.79	730
Anlr. Spac	2	2.36	2189

*Note: The infiltration rate was calculated based on current time interval

Test Interval		Time (hr)	Interval **Elapsed** (min)	Flow Readings: Inner Ring (ml)	Ring Flow (cm^3)	Annular Ring (ml)	Space Flow (cm^3)	Infiltration Rates: Inner Ring* (cm/hr)	Annular Space* (cm/hr)	Inner Ring* (in/hr)	Annular Space* (in/hr)
1	Initial	9:32 AM	10	750	4350	0	9500	35.77	26.04	14.08	10.25
	Final	9:42 AM	**10**	5100		9500					
2	Initial	9:45 AM	10	200	3800	0	9800	31.25	26.86	12.30	10.58
	Final	9:55 AM	**23**	4000		9800					
3	Initial	9:58 AM	10	250	3950	0	10200	32.48	27.96	12.79	11.01
	Final	10:08 AM	**36**	4200		10200					
4	Initial	10:10 AM	10	250	3950	0	10500	32.48	28.78	12.79	11.33
	Final	10:20 AM	**48**	4200		10500					
5	Initial	10:22 AM	10	250	3950	0	12000	32.48	32.89	12.79	12.95
	Final	10:32 AM	**60**	4200		12000					



Sample Description	I-1 @ 9'
Soil Classification	Light Yellow Brown fine to coarse Sandy Gravel, extensive Cobbles, occasional Boulders

Proposed Industrial Building
Fontana, California
Project No. 21G164-2
PLATE C- 1

SoCalGeo
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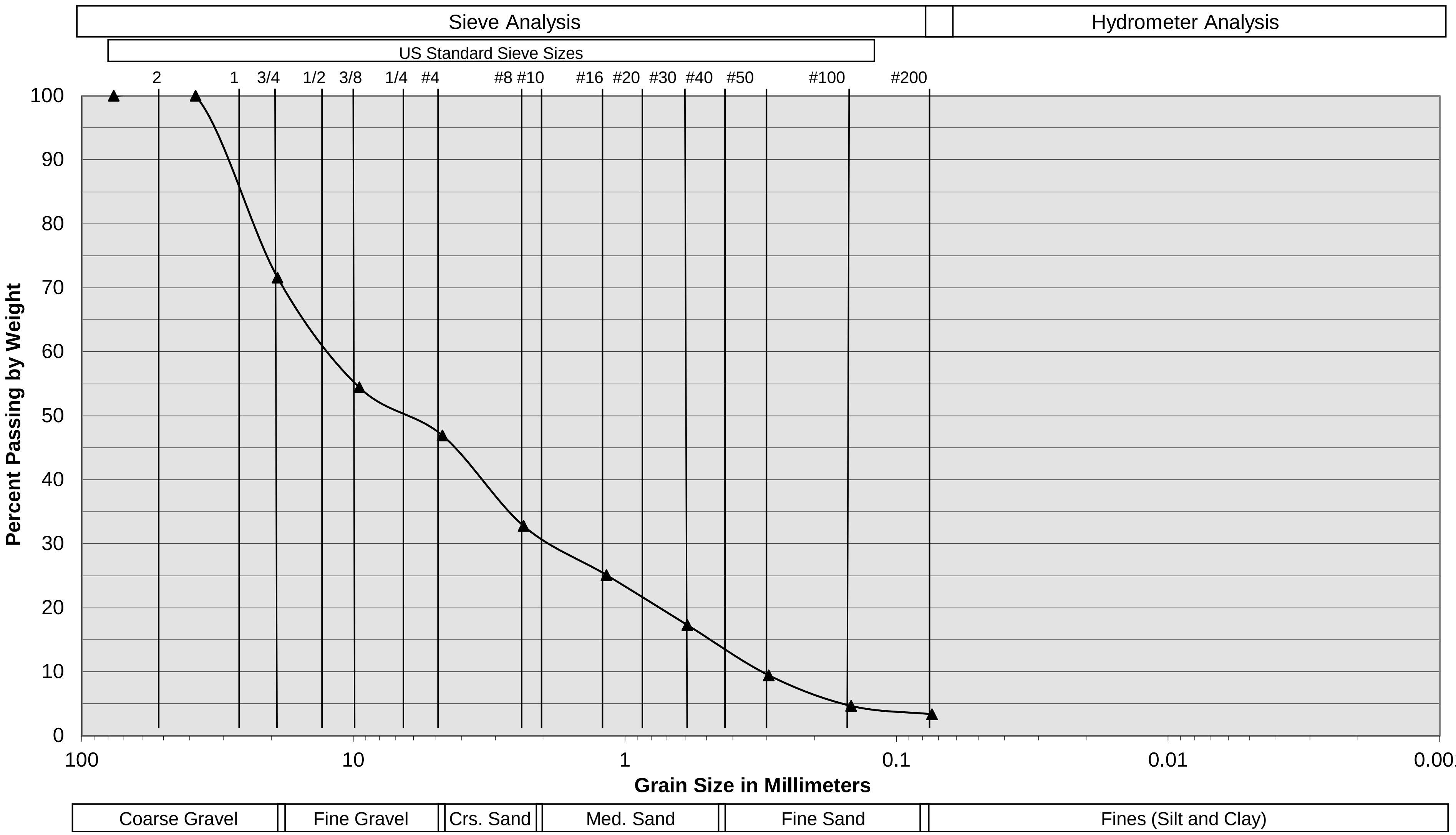
Grain Size Distribution

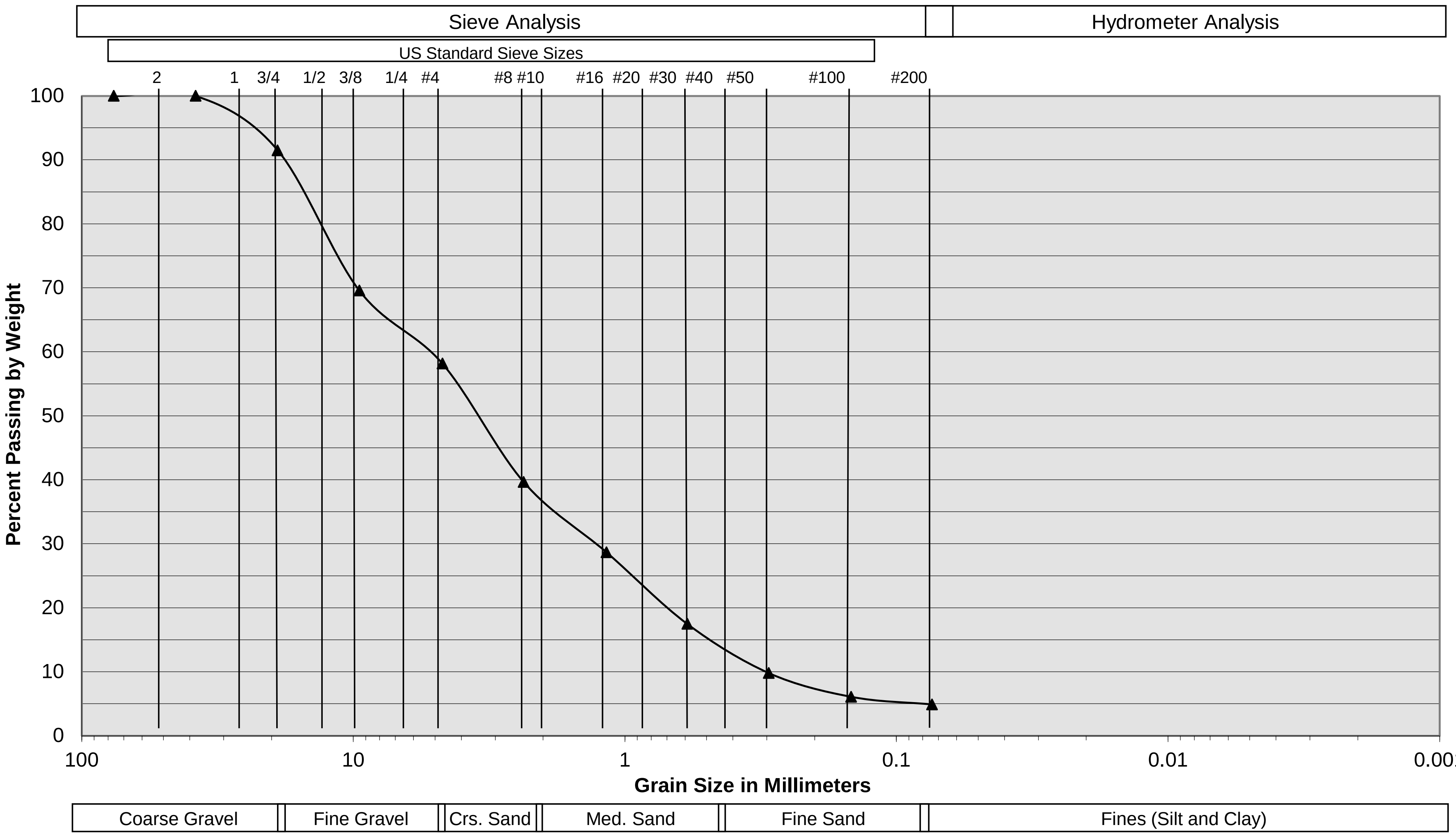


Sample Description	I-2 @ 10'
Soil Classification	Gray fine to coarse Sandy Gravel, extensive Cobbles, occasional Boulders

Proposed Industrial Building
Fontana, California
Project No. 21G164-2
PLATE C- 2

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution



Sample Description	I-3 @ 8'
Soil Classification	Gray Gravelly fine to coarse Sand, extensive Cobbles, occasional Boulders

Proposed Industrial Building
Fontana, California
Project No. 21G164-2
PLATE C- 3

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