August 4, 2022

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

CHIPT Fontana Citrus Avenue, L.P.
527 West 7th Street, Suite 200
Los Angeles, California 90014

Attention: Mr. Jorge A. Garcia
Development Associate

Project No.: **22G211-2**

Subject: **Updated Results of Infiltration Testing**
Proposed Warehouse
South Side of Boyle Avenue, East of Citrus Avenue
Fontana, California

Reference: Geotechnical Investigation, Proposed Warehouse, South Side of Boyle Avenue, East of Citrus Avenue, Fontana, California, prepared by Southern California Geotechnical, Inc. (SCG) for CHIPT Fontana Citrus Avenue, L.P., SCG Project No. 22G211-1, dated August 2, 2022.

Mr. Garcia:

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 services performed for this project was in general accordance with our Proposal No. 22P265 dated June 14, 2022. The scope of services included a visual site reconnaissance and the review of the previously prepared infiltration report to determine the infiltration rates of the on-site soils. The infiltration testing was performed in general accordance with the guidelines published in Riverside County – Low Impact Development BMP Design Handbook – Section 2.3 of Appendix A, prepared for the Riverside County Department of Environmental Health (RCDEH), dated December 2013. The San Bernardino County standards defer to the guidelines published by the RCDEH.

Site and Project Description

The subject site is located on the south side of Boyle Avenue, east of Citrus Avenue in Fontana, California. The site is bounded to the east by single-family residences, to the south by Slover Avenue, to the west by an ARCO gasoline service station and Citrus Avenue, and to the north by Boyle Avenue. The general location of the site is illustrated on the Site Location Map, included as Plate 1 of this report.

The project site consists of several irregularly-shaped parcels totaling 7.82± acres in size. Based on our site reconnaissance performed on July 28, 2022, the subject site has not significantly changed since the time of our original subsurface exploration. Single-family residences are located in the northern- and southern-most portions of the site. The residential lots range from 0.25 to

0.41± acres in size. The existing single-family residences are single-story structures of wood-frame construction, presumably supported on conventional shallow foundations with concrete slab-on-grade floors. The ground surface cover surrounding the structures consists of exposed soil with sparse native grass and weed growth and some areas of concrete flatwork. It should be noted that the central-southern single-family lot has been used for demolition storage. This lot contains several soil, broken concrete/brick, and rubber tire stockpiles.

The eastern and central areas of the site are currently undeveloped and appear to have been utilized as trailer storage. Ground surface cover in these areas consists of a ½-inch-thick layer of aggregate base.

The southwestern region of the site consists of concrete slabs from demolished structures and several large palm trees and other sparse medium-sized tress. Ground surface cover in this area consist of exposed soil with sparse native grass and weed growth.

A sheet metal structure is located in the eastern region of the site. This structure is 20,500± ft^2 in size and is comprised of four (4) attached units, presumably supported on conventional shallow foundations with concrete slab-on-grade floors.

Detailed topographic information was not available at the time of this report. Based on elevations obtained from Google Earth and visual observations made at the time of the subsurface investigation. The site slopes downward towards the southwest at a gradient of less than 1± percent. The overall site possesses 6± feet maximum topographic relief.

<u>Proposed Development</u>

Based on a preliminary site plan (Scheme 10), prepared by RGA, the site will be developed with one (1) warehouse, 181,134± ft^2 in size, located in the eastern area of the site. Dock-high doors and a truck court will be constructed on the west side of the proposed building. The building is expected to be surrounded by asphaltic concrete (AC) pavements in the parking and drive lanes, Portland cement concrete pavements in the loading dock area, and concrete flatwork with limited areas of landscape planters throughout.

The proposed development will include on-site stormwater infiltration systems. The infiltration systems are expected to consist of three (3) below-grade chamber systems; two (2) located in the western region of the site, and one (1) in the eastern region. The bottoms of the below-grade chamber systems are expected to be 10± feet below existing site grades.

<u>Previous Study</u>

SCG previously performed a geotechnical investigation at the subject site, which is referenced above. As a part of this study, eight (8) borings (identified as Boring Nos. B-1 through B-8) were advanced to depths of 15 to 25± feet below existing site grades.

Aggregate base (AB) pavement materials were encountered at Boring No. B-3, measuring ½± inch in thickness. Artificial fill soils were encountered beneath the pavements or at the ground surface at all of the boring locations, extending to depths of 2½ to 4½± feet below the existing site grades. The artificial fill soils generally consist of loose to medium dense silty sands and sands, with varying amounts of fine to coarse gravel. Native alluvium was encountered beneath the artificial fill soils at all of the boring locations, extending to the maximum depth explored of 25± feet below the existing site grades. The alluvial soils generally consist of medium dense to very dense sands and gravelly sands with varying amounts of silt. Boring No. B-5 encountered medium dense silty sands at a depth of 17± feet below the existing site grades.

Groundwater

Groundwater was not encountered at any of the borings. Based on the lack of any water within the borings, and the moisture contents of the recovered soil samples, the static groundwater table is considered to have existed at a depth in excess of 25± feet below existing site grades, at the time of the subsurface investigation.

As part of our research, we reviewed readily available groundwater data in order to determine regional groundwater depths. Recent water level data was obtained from the California Department of Water Resources website, http://www.water.ca.gov/waterdatalibrary/. The nearest monitoring well on record is located approximately 0.2± miles west of the site. Water level readings within this monitoring well indicate a groundwater level of 347± feet below the ground surface in March 2021.

Subsurface Exploration

Scope of Exploration

The subsurface exploration conducted for the infiltration testing consisted of four (4) infiltration test borings (identified as I-1 through I-4), advanced to a depth of 10± feet below the existing site grades. Infiltration Test Nos. I-1, I-2 and I-3 were drilled on October 22, 2021, and the remaining boring was drilled on December 1, 2021. All of the borings were logged during drilling by a member of our staff.

The infiltration borings were advanced using a truck-mounted drilling rig, equipped with 8-inch-diameter hollow-stem augers and were logged during drilling by a member of our staff. The approximate locations of the infiltration borings are indicated on the Infiltration Test Location Plan, enclosed as Plate 2 of this report.

Upon the completion of the infiltration borings, the bottom of each test boring was covered with 2± inches of clean ¾-inch gravel. A sufficient length of 3-inch-diameter perforated PVC casing was then placed into each test hole so that the PVC casing extended from the bottom of the test hole to the ground surface. Clean ¾-inch gravel was then installed in the annulus surrounding the PVC casing.

Geotechnical Conditions

Artificial fill soils were encountered at the ground surface at all of the boring locations, extending to a depth of up to 5½ ± feet below the existing site grades. The fill soils generally consist of medium dense silty fine sands, with varying amounts of fine to coarse gravels. Native alluvial soils were encountered beneath the artificial fill soils at all boring locations, extending to at least the maximum depth explored of 10± feet below existing site grades. The alluvial soils generally consist of medium dense to dense fine to coarse sands and gravelly fine to coarse sands, with varying amounts of silts and gravels. The Boring Logs, which illustrate the conditions encountered at the boring locations, are included with this report.

Infiltration Testing

As previously mentioned, the infiltration testing was performed in general accordance with the guidelines published in Riverside County – Low Impact Development BMP Design Handbook – Section 2.3 of Appendix A, which apply to San Bernardino County.

Pre-soaking

In accordance with the county infiltration standards for sandy soils, the infiltration test borings were pre-soaked 2 hours prior to the infiltration testing or until all of the water had percolated through the test holes. The pre-soaking process consisted of filling test borings by inverting a full 5-gallon bottle of clear water supported over each hole so that the water flow into the hole holds constant at a level at least 5 times the hole's radius above the gravel at the bottom of each hole. Pre-soaking was completed after all of the water had percolated through the test holes.

Infiltration Testing

Following the pre-soaking process of the infiltration test borings, SCG performed the infiltration testing. Each test hole was filled with water to a depth of at least 5 times the hole's radius above the gravel at the bottom of the test holes. In accordance with the Riverside County guidelines, since "sandy soils" (where 6 inches of water infiltrated into the surrounding soils in less than 25 minutes for two consecutive readings) were encountered at the bottom of the infiltration test borings, readings were taken at 10-minute intervals for a total of 1 hour. After each reading, water was added to the borings so that the depth of the water was at least 5 times the radius of the hole. The water level readings are presented on the spreadsheets enclosed with this report. The infiltration rates for each of the timed intervals are also tabulated on the spreadsheets.

The infiltration rates from the tests are tabulated in inches per hour. In accordance with the typically accepted practice, it is recommended that the most conservative reading from the latter part of the infiltration tests be used as the design infiltration rate. The rates are summarized below:

Infiltration Test No.	**Depth (feet)**	**Soil Description**	**Measured Infiltration Rate (inches/hour)**
I-1	10	Fine to coarse Sand, little fine Gravel, trace Silt	20.6
I-2	10	Fine to coarse Sandy Gravel to Gravelly fine to coarse Sand, trace Silt	20.3
I-3	10	Fine to coarse Sand, some fine Gravel, trace Silt	9.8
I-4	10	Fine to coarse Sand, little to some fine Gravel, trace Silt	17.8

Laboratory Testing

Moisture Content

The moisture contents for the recovered soil samples within the borings 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 Boring Logs.

Grain Size Analysis

The grain size distribution of selected soils collected from the base of each infiltration test boring have 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 these tests are presented on Plates C-1 through C-4 of this report.

Design Recommendations

Four (4) infiltration tests were performed at the subject site. As noted above, the infiltration rates at these locations vary from 9.8 to 20.6 inches per hour. **Based on the infiltration test results, we recommend the following infiltration rates:**

Infiltration System	Infiltration Rate (inches/hour)
"A"	19.2
"B"	20.3
"C"	9.8

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 chamber 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.

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 four (4) 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 chambers. 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 infiltration system. The infiltration rate of the system will likely vary significantly if the composition of the soil located beneath the system is not consistent with the tested soils.

We recommend that scrapers and other rubber-tired heavy equipment not be operated on the system 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 systems.

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 proposed storm water 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 rate 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 proposed storm water 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 boring 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 or expressed.

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.

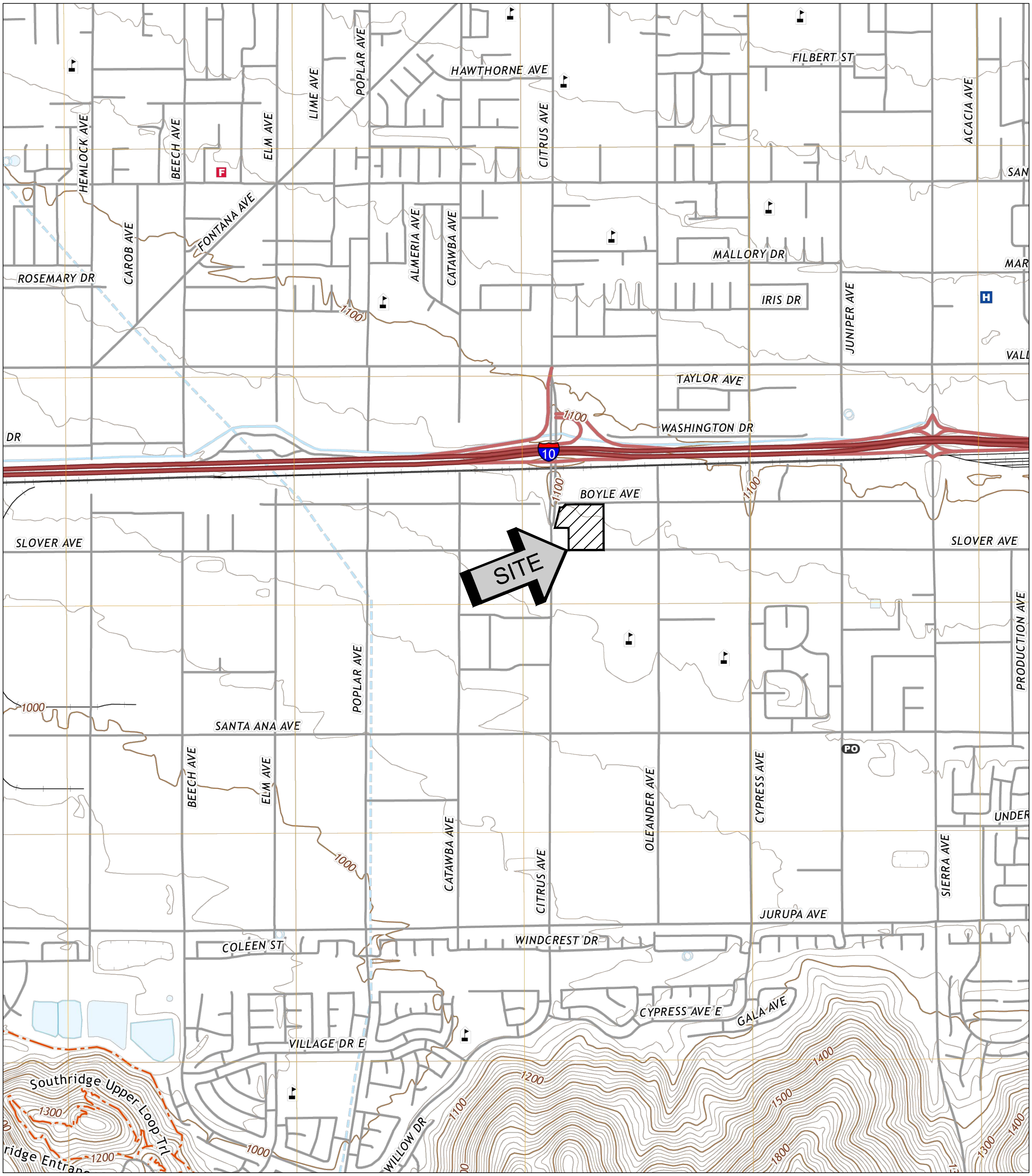
Joseph Lozano Leon
Staff Engineer

Robert G. Trazo, GE 2655
Principal Engineer

REGISTERED PROFESSIONAL ENGINEER
ROBERT TRAZO
No. 2655
GEOTECHNICAL
STATE OF CALIFORNIA

Distribution: (1) Addressee

Enclosures:
- Plate 1: Site Location Map
- Plate 2: Infiltration Test Location Plan
- Boring Log Legend and Logs (6 pages)
- Infiltration Test Results Spreadsheets (4 pages)
- Grain Size Distribution Graphs (4 pages)



SOURCE: USGS TOPOGRAPHIC MAP OF THE FONTANA QUADRANGLE, SAN BERNARDINO COUNTY, CALIFORNIA, 2021.

SITE LOCATION MAP

PROPOSED WAREHOUSE

FONTANA, CALIFORNIA

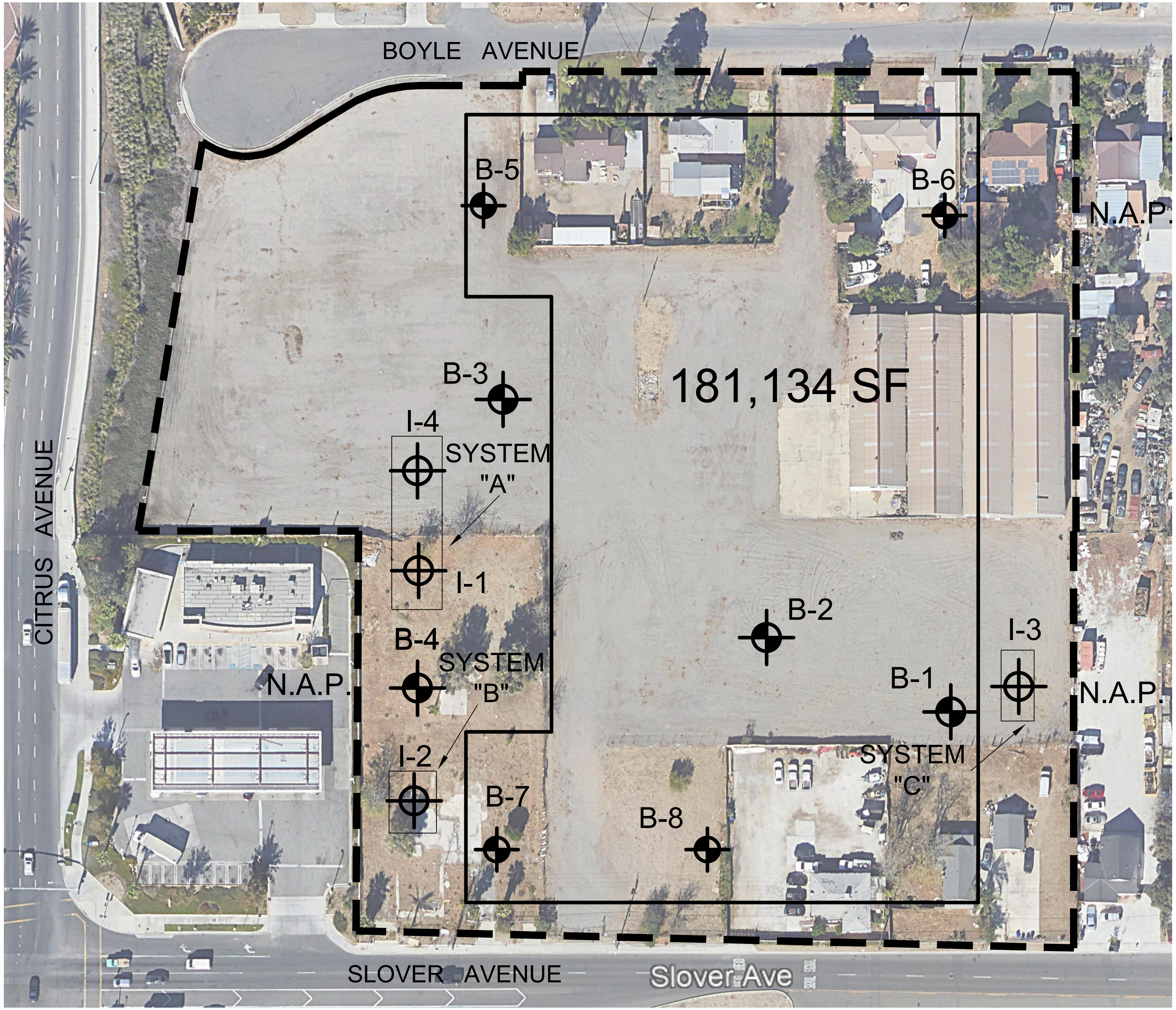
SCALE: 1" = 2000'

DRAWN: JLL
CHKD: RGT

SCG PROJECT
22G211-2

PLATE 1

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL



GEOTECHNICAL LEGEND

APPROXIMATE INFILTRATION TEST LOCATION (SCG PROJECT NO. 21G255-2)

APPROXIMATE BORING LOCATION (SCG PROJECT NO. 21G255-1)

NOTE: AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH. CONCEPTUAL SITE PLAN PREPARED BY RGA.

INFILTRATION TEST LOCATION PLAN

PROPOSED WAREHOUSE

FONTANA, CALIFORNIA

SCALE: 1" = 80'

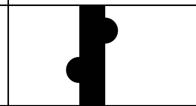
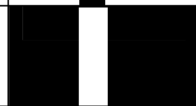
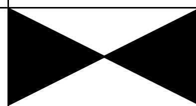
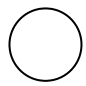
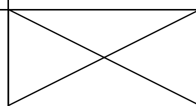
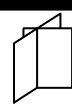
DRAWN: JLL
CHKD: RGT

SCG PROJECT
22G211-2

PLATE 2

SOUTHERN CALIFORNIA GEOTECHNICAL

BORING 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	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		(LITTLE OR NO FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SANDS		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		(LITTLE OR NO FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINES		SM	SILTY SANDS, SAND - SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	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
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	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
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BORING NO. I-1

JOB NO.: 21G255-2
PROJECT: Proposed Warehouse
LOCATION: Fontana, California

DRILLING DATE: 10/22/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jose Zuniga

WATER DEPTH: Dry
CAVE DEPTH: ---
READING TAKEN: At Completion

SURFACE ELEVATION: --- MSL

DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	COMMENTS
	X	15			FILL: Brown Silty fine Sand, trace medium to coarse Sand, trace fine Gravel, medium dense-dry to damp		2					
5	X	20			FILL: Brown Silty fine Sand, little fine to coarse Sand, trace wood fragments, trace pipe fragments, medium dense-dry		1					
	X	42			ALLUVIUM: Gray Brown fine to coarse Sand, little fine to coarse Gravel, medium dense to dense-dry		1					
10	X	26			@ 8½ to 10 feet, little fine Gravel, trace Silt		1			8		

Boring Terminated at 10'

TBL 21G255-2.GPJ SOCALGEO.GDT 12/13/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. I-2

JOB NO.: 21G255-2
PROJECT: Proposed Warehouse
LOCATION: Fontana, California

DRILLING DATE: 10/22/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jose Zuniga

WATER DEPTH: Dry
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
	X	14			FILL: Brown Silty fine Sand, trace fine Gravel, medium dense-damp		3					
5	X	39			ALLUVIUM: Gray Brown Silty fine Sand, some fine to coarse Gravel, dense-dry to damp		2					
	X	33			Gray Brown Gravelly fine to coarse Sand, dense-dry		1					
10	X	39			Gray Gravelly fine to coarse Sand to fine to coarse Sandy Gravel, trace Silt, dense-dry		1			4		

Boring Terminated at 10'

TBL 21G255-2.GPJ SOCALGEO.GDT 12/13/21

TEST BORING LOG

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. I-3

JOB NO.: 21G255-2
PROJECT: Proposed Warehouse
LOCATION: Fontana, California

DRILLING DATE: 10/22/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jose Zuniga

WATER DEPTH: Dry
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
					FILL: Brown Silty fine Sand, trace fine to coarse Gravel, medium dense-dry to damp							
	X	11					2					
					ALLUVIUM: Gray Brown Gravelly fine to coarse Sand, dense-dry							
	X	32					1					
5												
	X	31					2					
					Gray Brown fine to coarse Sand, some fine Gravel, trace Silt, dense-dry							
	X	31					2			7		
10												

Boring Terminated at 10'

TBL 21G255-2.GPJ SOCALGEO.GDT 12/13/21

SOUTHERN CALIFORNIA GEOTECHNICAL
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BORING NO. I-4

JOB NO.: 21G255-2	DRILLING DATE: 12/1/21	WATER DEPTH: Dry
PROJECT: Proposed Warehouse	DRILLING METHOD: Hollow Stem Auger	CAVE DEPTH: ---
LOCATION: Fontana, California	LOGGED BY: Ryan Bremer	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
					FILL: Brown Silty fine Sand, trace medium to coarse Sand, medium dense-moist							
	X	16					8					
					ALLUVIUM: Brown fine to coarse Sand, little to some fine Gravel, medium dense-dry to damp							
	X	14					3					
5												
	X	26					2					
	X	34			@ 8½ to 10 feet, trace Silt, dense		2			5		
10												

Boring Terminated at 10'

INFILTRATION CALCULATIONS

Project Name	Proposed Warehouse
Project Location	Fontana, California
Project Number	21G255-2
Engineer	Jose Zuniga

Test Hole Radius	4	(in)
Test Depth	10.00	(ft)

Infiltration Test Hole	I-1

Soil Criteria Test

Interval Number		Time	Time Interval (min)	Water Depth (ft)	Change in Water Level (in)	Did 6 inches of water seep away in less than 25 minutes?	Sandy Soils or Non-Sandy Soils?
1	Initial	11:40 AM	25.00	0.00	120.00	YES	SANDY SOILS
	Final	12:05 PM		10.00			
2	Initial	12:07 PM	25.00	0.00	120.00	YES	SANDY SOILS
	Final	12:32 PM		10.00			

Test Data

Interval Number		Time	Time Interval (min)	Water Depth (ft)	Change in Water Level (ft)	Average Head Height (ft)	Infiltration Rate Q (in/hr)
1	Initial	12:35 PM	10.00	4.00	5.75	3.13	20.96
	Final	12:45 PM		9.75			
2	Initial	12:46 PM	10.00	4.00	5.73	3.14	20.83
	Final	12:56 PM		9.73			
3	Initial	12:57 PM	10.00	4.00	5.72	3.14	20.76
	Final	1:07 PM		9.72			
4	Initial	1:08 PM	10.00	4.00	5.71	3.15	20.69
	Final	1:18 PM		9.71			
5	Initial	1:19 PM	10.00	4.00	5.71	3.15	20.69
	Final	1:29 PM		9.71			
6	Initial	1:30 PM	10.00	4.00	5.70	3.15	20.62
	Final	1:40 PM		9.70			

Per County Standards, Infiltration Rate calculated as follows:

$$Q = \frac{\Delta H(60r)}{\Delta t(r + 2H_{avg})}$$

Where:
- Q = Infiltration Rate (in inches per hour)
- ΔH = Change in Height (Water Level) over the time interval
- r = Test Hole (Borehole) Radius
- Δt = Time Interval
- H_{avg} = Average Head Height over the time interval

INFILTRATION CALCULATIONS

Project Name	Proposed Warehouse
Project Location	Fontana, California
Project Number	21G255-2
Engineer	Jose Zuniga

Test Hole Radius	4	(in)
Test Depth	10.00	(ft)

Infiltration Test Hole	I-2

Soil Criteria Test

Interval Number		Time	Time Interval (min)	Water Depth (ft)	Change in Water Level (in)	Did 6 inches of water seep away in less than 25 minutes?	Sandy Soils or Non-Sandy Soils?
1	Initial	2:00 PM	25.00	0.00	120.00	YES	SANDY SOILS
	Final	2:25 PM		10.00			
2	Initial	2:26 PM	25.00	0.00	120.00	YES	SANDY SOILS
	Final	2:51 PM		10.00			

Test Data

Interval Number		Time	Time Interval (min)	Water Depth (ft)	Change in Water Level (ft)	Average Head Height (ft)	Infiltration Rate Q (in/hr)
1	Initial	2:53 PM	10.00	4.00	5.70	3.15	20.62
	Final	3:03 PM		9.70			
2	Initial	3:05 PM	10.00	4.00	5.68	3.16	20.49
	Final	3:15 PM		9.68			
3	Initial	1:17 PM	10.00	4.00	5.67	3.17	20.42
	Final	1:27 PM		9.67			
4	Initial	1:29 PM	10.00	4.00	5.66	3.17	20.36
	Final	1:39 PM		9.66			
5	Initial	1:41 PM	10.00	4.00	5.65	3.18	20.29
	Final	1:51 PM		9.65			
6	Initial	1:53 PM	10.00	4.00	5.65	3.18	20.29
	Final	2:03 PM		9.65			

Per County Standards, Infiltration Rate calculated as follows:

$$Q = \frac{\Delta H(60r)}{\Delta t(r + 2H_{avg})}$$

Where: Q = Infiltration Rate (in inches per hour)
ΔH = Change in Height (Water Level) over the time interval
r = Test Hole (Borehole) Radius
Δt = Time Interval
H_{avg} = Average Head Height over the time interval

INFILTRATION CALCULATIONS

Project Name	Proposed Warehouse
Project Location	Fontana, California
Project Number	21G255-2
Engineer	Jose Zuniga

Test Hole Radius	4	(in)
Test Depth	10.00	(ft)

Infiltration Test Hole	1-3

Soil Criteria Test

Interval Number		Time	Time Interval (min)	Water Depth (ft)	Change in Water Level (in)	Did 6 inches of water seep away in less than 25 minutes?	Sandy Soils or Non-Sandy Soils?
1	Initial	8:10 AM	25.00	7.00	28.20	YES	SANDY SOILS
	Final	8:35 AM		9.35			
2	Initial	8:37 AM	25.00	7.00	27.60	YES	SANDY SOILS
	Final	9:02 AM		9.30			

Test Data

Interval Number		Time	Time Interval (min)	Water Depth (ft)	Change in Water Level (ft)	Average Head Height (ft)	Infiltration Rate Q (in/hr)
1	Initial	9:04 AM	10.00	7.00	1.86	2.07	9.98
	Final	9:14 AM		8.86			
2	Initial	9:16 AM	10.00	7.00	1.85	2.08	9.90
	Final	9:26 AM		8.85			
3	Initial	9:28 AM	10.00	7.00	1.85	2.08	9.90
	Final	9:38 AM		8.85			
4	Initial	9:40 AM	10.00	7.00	1.84	2.08	9.83
	Final	9:50 AM		8.84			
5	Initial	9:52 AM	10.00	7.00	1.84	2.08	9.83
	Final	10:02 AM		8.84			
6	Initial	10:04 AM	10.00	7.00	1.84	2.08	9.83
	Final	10:14 AM		8.84			

Per County Standards, Infiltration Rate calculated as follows:

$$\boxed{Q = \frac{\Delta H(60r)}{\Delta t(r + 2H_{avg})}}$$

Where:
Q = Infiltration Rate (in inches per hour)
ΔH = Change in Height (Water Level) over the time interval
r = Test Hole (Borehole) Radius
Δt = Time Interval
H_{avg} = Average Head Height over the time interval

INFILTRATION CALCULATIONS

Project Name	Proposed Warehouse
Project Location	Fontana, California
Project Number	21G255-2
Engineer	Jose Zuniga

Test Hole Radius	4	(in)
Test Depth	10.00	(ft)

Infiltration Test Hole	I-4

Soil Criteria Test

Interval Number		Time	Time Interval (min)	Water Depth (ft)	Change in Water Level (in)	Did 6 inches of water seep away in less than 25 minutes?	Sandy Soils or Non-Sandy Soils?
1	Initial	11:00 AM	25.00	7.20	33.60	YES	SANDY SOILS
	Final	11:25 AM		10.00			
2	Initial	11:25 AM	25.00	7.20	33.60	YES	SANDY SOILS
	Final	11:50 AM		10.00			

Test Data

Interval Number		Time	Time Interval (min)	Water Depth (ft)	Change in Water Level (ft)	Average Head Height (ft)	Infiltration Rate Q (in/hr)
1	Initial	11:50 AM	10.00	7.20	2.57	1.52	18.34
	Final	12:00 PM		9.77			
2	Initial	12:00 PM	10.00	7.20	2.55	1.53	18.09
	Final	12:10 PM		9.75			
3	Initial	12:10 PM	10.00	7.20	2.54	1.53	17.96
	Final	12:20 PM		9.74			
4	Initial	12:20 PM	10.00	7.20	2.53	1.54	17.84
	Final	12:30 PM		9.73			
5	Initial	12:30 PM	10.00	7.20	2.53	1.54	17.84
	Final	12:40 PM		9.73			
6	Initial	12:40 PM	10.00	7.20	2.53	1.54	17.84
	Final	12:50 PM		9.73			

Per County Standards, Infiltration Rate calculated as follows:

$$\boxed{Q = \frac{\Delta H(60r)}{\Delta t(r + 2H_{avg})}}$$

Where:
- Q = Infiltration Rate (in inches per hour)
- ΔH = Change in Height (Water Level) over the time interval
- r = Test Hole (Borehole) Radius
- Δt = Time Interval
- H_{avg} = Average Head Height over the time interval

Grain Size Distribution

Sample Description	I-1 @ 8½'
Soil Classification	Gray Brown fine to coarse Sand, little fine Gravel, trace Silt

Proposed Warehouse
Fontana, California
Project No. 21G255-2
PLATE C- 1

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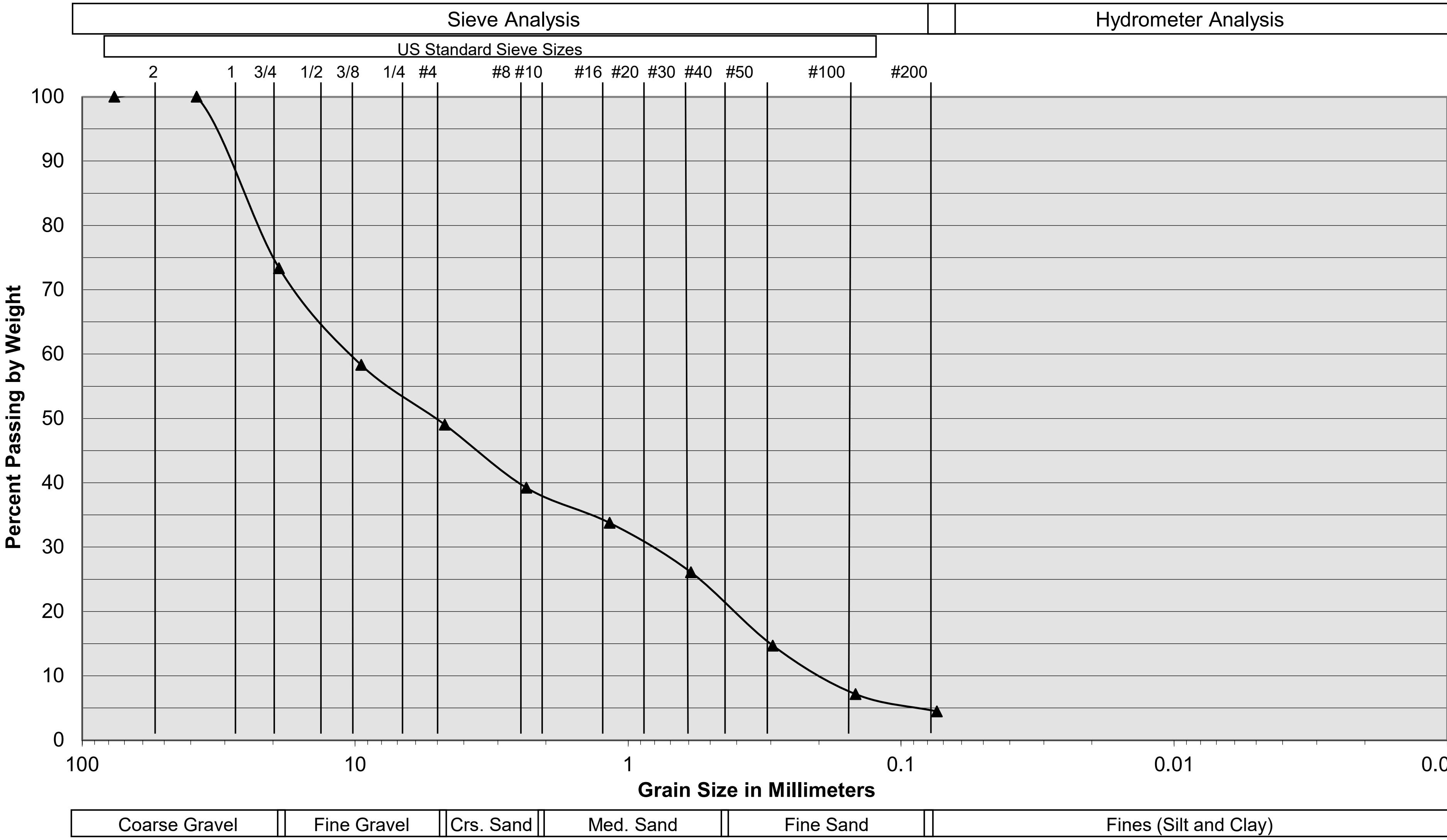
Grain Size Distribution



Sample Description	I-2 @ 8½'
Soil Classification	Gray fine to coarse Sandy Gravel to Gravelly fine to coarse Sand, trace Silt

Proposed Warehouse
Fontana, California
Project No. 21G255-2
PLATE C- 2

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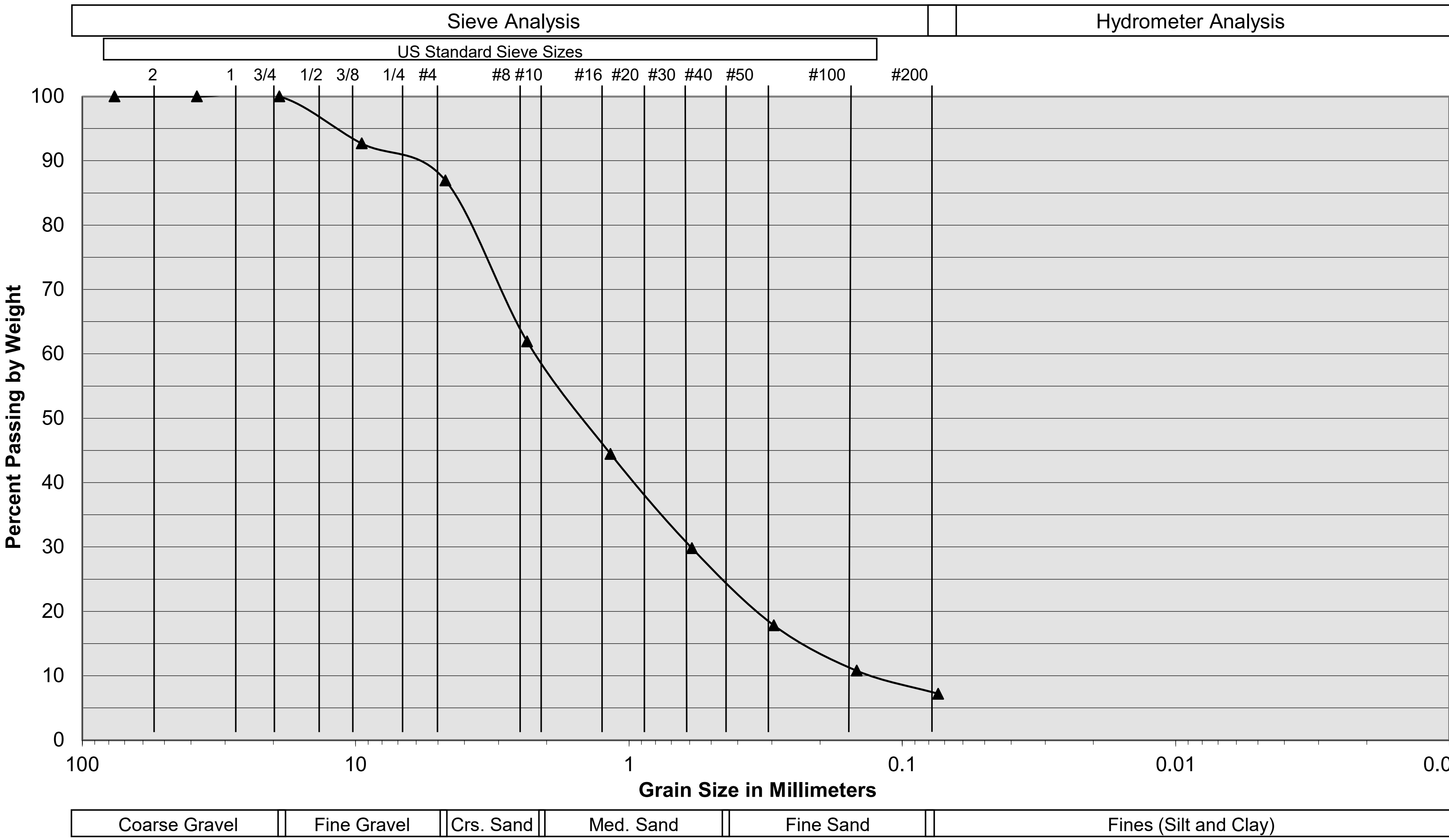
Grain Size Distribution



Sample Description	I-3 @ 8½'
Soil Classification	Gray Brown fine to coarse Sand, some fine Gravel, trace Silt

Proposed Warehouse
Fontana, California
Project No. 21G255-2
PLATE C- 3

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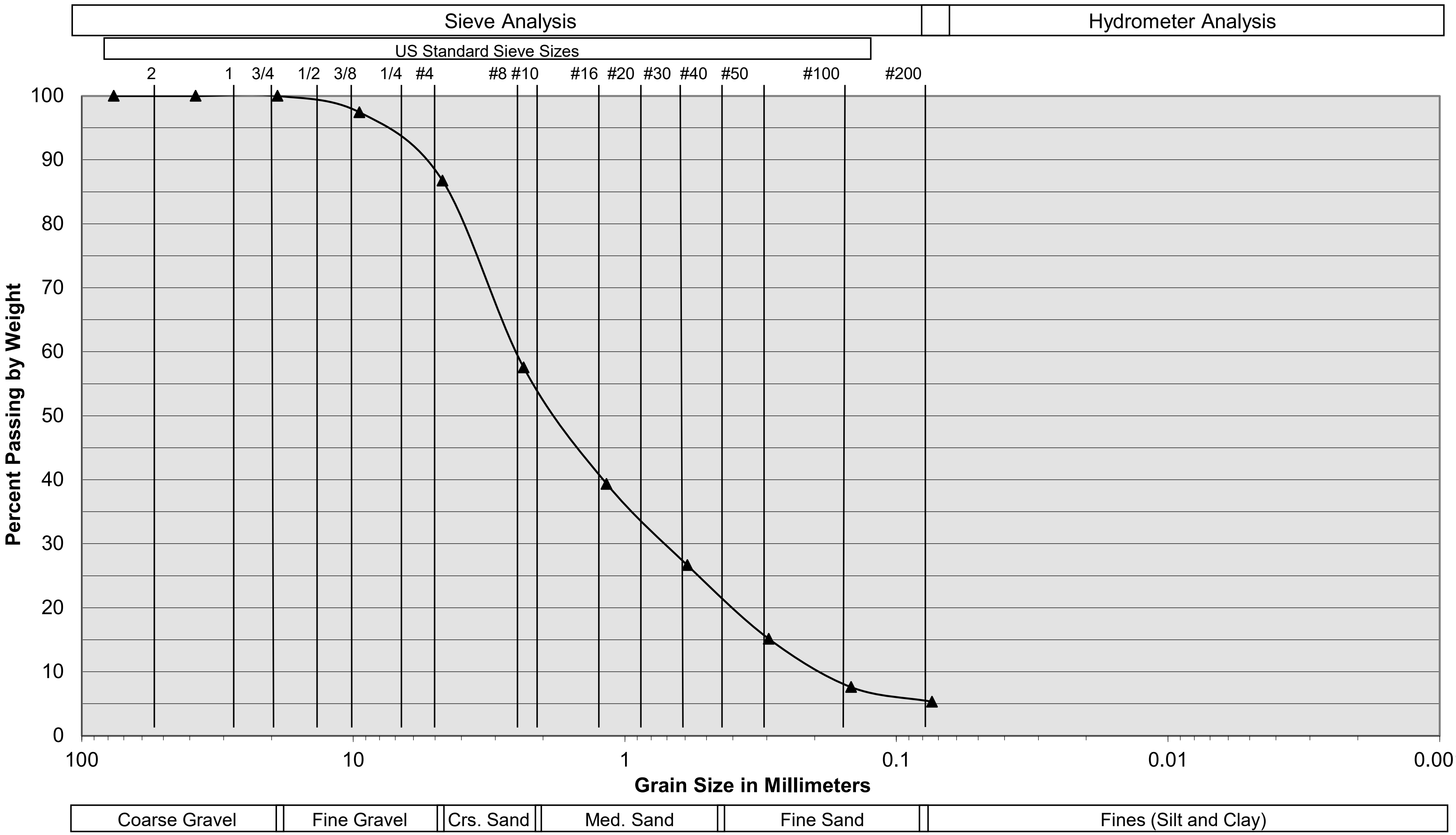
Grain Size Distribution



Sample Description	I-4 @ 8½'
Soil Classification	Brown fine to coarse Sand, little to some fine Gravel, trace Silt

Proposed Warehouse
Fontana, California
Project No. 21G255-2
PLATE C- 4

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