

May 13, 2020

Newport-Mesa Unified School District
2985 Bear Street
Costa Mesa, CA 92626



**SOUTHERN
CALIFORNIA
GEOTECHNICAL**
A California Corporation

Attention: Lance Bidnick
Maintenance and Operations

Project No.: **20G139-1**

Subject: **Limited Pavement Investigation**
Proposed Elementary School Improvements
Newport - Mesa Unified School District
Newport Beach and Costa Mesa, California

Gentlemen:

We have prepared this report in order to provide pavement design parameters and recommendations for the automobile parking and driving lane improvements at the subject site. This report was prepared in accordance with our Proposal No. 20P165R2, dated March 23, 2020.

Scope of Services

The scope of services included a visual site reconnaissance, subsurface exploration, field and laboratory testing, and geotechnical engineering analysis to provide recommendations for preparing the design of the proposed pavements at the subject site. The proposed pavement thickness designs are based on the results of the laboratory testing and anticipated traffic volumes.

Site and Project Description

The subject site consists of five (5) existing elementary schools in Costa Mesa and Newport Beach, California. Our office evaluated the existing pavements within the boundaries identified by the project architect. The general description of the elementary schools are as follows:

Killybrooke Elementary School – 3155 Killybrooke Lane, Costa Mesa

The pavements evaluated at Killybrooke Elementary School include two (2) separate areas, located in the western and eastern regions of the school property. The western area consists of asphaltic concrete pavements in the basketball court and playground areas. The pavements appear to be in poor condition with areas of moderate to severe cracking. Although these pavements are in the playground area, they may have been subjected to loads from school maintenance vehicles. The pavements located in the eastern region of the site are comprised of asphaltic concrete pavements for automobile parking and drive areas. These pavements are also in poor condition with areas of moderate cracking and moderate wear.

Wilson Elementary School – 801 West Wilson Street, Costa Mesa

The pavements evaluated at Wilson Elementary School are in the northeastern region of the school property. This portion of the site consists of asphaltic concrete pavements for automobile parking and drive lanes. The pavements are in fair condition, with limited area of moderate cracking.

Woodland Elementary School – 2025 Garden Lane, Costa Mesa

The pavements evaluated at Woodland Elementary School are in the parking lot, located in the western corner of the school property. These pavements consist of asphaltic concrete pavements that are in poor to fair condition, with some areas of moderate cracking.

Mariners Elementary School – 2100 Mariners Drive, Newport Beach

The pavements evaluated at Mariners Elementary School consist of two (2) areas, located in the western and southern regions of the school property. The area located to the west is an asphaltic concrete-paved parking lot. These pavements are in poor condition, with areas of moderate cracking. The southern area of the site consists of asphaltic concrete pavements in the playground area. These pavements appear to be in poor to fair condition, with some areas of moderate cracking.

College Park Elementary School – 2380 Notre Dame Rd, Costa Mesa

The pavements evaluated at College Park Elementary School consist of asphaltic concrete pavements in the parking lot, located in the western region of the property. These pavements are in poor condition with several areas of severe alligator cracking.

General

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 site topography in the existing asphaltic concrete pavement areas are relatively level.

Based on information provided by the client, consideration is being given to reconstructing the pavements at the sites. The reconstruction will include demolition of the existing asphaltic concrete (AC) pavements and replacement with a new AC pavement section.

Field Exploration

The subsurface exploration conducted for this project consisted of seven (7) borings (identified as Boring Nos. C-1 through C-7). At each boring locations, a portable coring rig equipped with a 5-inch diameter diamond-tipped core barrel was used to core through the existing pavement section. At each of these locations, the thickness of the existing pavement sections was measured. Once the core was removed, the borings were advanced using manually-operated hand auger equipment. The borings generally extended to depths of 4 to 5 feet below existing surface elevation. The purpose of the borings was to collect bulk soil samples for laboratory testing. The soils samples were collected from auger cuttings and placed into plastic bags.

At the completion drilling, the borings were backfilled with soil cuttings and the bore holes were patched with asphalt cold-patch. The approximate location of each of the borings is indicated on the Boring Location Plans, included as Plates 2A through 2E of this report.

Geotechnical Conditions

Existing Pavements

AC pavements were encountered at the ground surface at all of the coring locations. The existing pavements generally consist of 3¼ to 6± inches of AC, underlain by 3 to 5± inches of aggregate base (AB). A summary of the pavement thicknesses is presented below:

Boring No.	<u>Location</u>	Asphaltic Concrete Thickness (inches)	Aggregate Base Thickness (inches)
C-1	Killybrooke Elementary	5½	4
C-2	Killybrooke Elementary	4½	5
C-3	Wilson Elementary	3½	2¾
C-4	Woodland Elementary	3¼	3
C-5	Mariners Elementary	6	-
C-6	Mariners Elementary	3¼	3¼
C-7	College Park Elementary	5	3

Laboratory Testing

The soil samples recovered from the subsurface exploration were returned to our laboratory for further testing to determine selected physical and engineering properties of the soils. The tests are briefly discussed below. It should be noted that the test results are specific to the actual samples tested, and variations could be expected at other locations and depths.
date.

Classification

All recovered soil samples were classified using the Unified Soil Classification System (USCS), in accordance with ASTM D-2488. Field identifications were then supplemented with additional visual classifications and/or by laboratory testing. The USCS classifications are shown on the Boring Logs and are periodically referenced throughout this report.

Density and Moisture Content

The density has been determined for selected relatively undisturbed ring samples. These densities were determined in general accordance with the method presented in ASTM D-2937. The results are recorded as dry unit weight in pounds per cubic foot. The moisture contents are 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.

Maximum Dry Density and Optimum Moisture Content

A representative bulk sample was tested for its maximum dry density and optimum moisture content. The results have been obtained using the Modified Proctor procedure, per ASTM D-1557, and are presented on Plate C-1 of this report. This test is generally used to compare the in-situ densities of undisturbed field samples, and for later compaction testing. Additional testing of other soil types or soil mixes may be necessary at a later date.

R-value

R (resistance)-value testing was conducted on five (5) soil samples obtained from the boring locations at the subject site. The R-value was determined in accordance with CA Test Method 301. The test provides a measure of the pavement support characteristics of the soils. The results of the R-value testing are as follows:

<u>Sample ID</u>	<u>Location</u>	<u>Soil Classification</u>	<u>R-Value</u>
C-2 @ 1-5 feet	Killybrooke Elementary	Sandy Clay, trace to little Silt	6
C-3 @ 1-5 feet	Wilson Elementary	Fine Sandy Silt, little Clay	11
C-4 @ 1-5 feet	Woodland Elementary	Silty fine Sand	65
C-6 @ 1-5 feet	Mariners Elementary	Silty fine Sand	74
C-7 @ 1-5 feet	College Park Elementary	Silty Clay	1

Existing Pavements

The majority of the existing asphaltic concrete pavements are in a poor to fair condition, with areas of moderate to severe cracking throughout. Based on the results of our limited pavement investigation, and the results of R-value testing, the existing subgrade soils possess varying pavement support characteristics. Some of the existing pavements, mostly those encountered at Killybrooke, Wilson and College Park Elementary Schools, are not considered to have been designed in consideration of the relatively poor pavement support characteristics of the underlying soils, as indicated by the results of R-value testing. In addition, the existing pavements do not appear to have been designed with consideration to any significant truck traffic, such as trash trucks, utility service trucks or fire trucks. Finally, it is expected that the existing pavements have exceeded the typical 20-year pavement service life.

We recommend that the existing AC pavements be demolished and reconstructed using appropriately designed sections. Based on the subsurface conditions, we recommend limited remedial grading of the existing near-surface soils in order to provide adequate support for the new pavement sections.

Site Preparation

Demolition of the existing pavements will be required to facilitate the construction of the proposed pavements. Debris resultant from demolition should be disposed of off-site. Alternatively, concrete and asphalt debris may be pulverized to a maximum 1-inch particle size, and incorporated into new structural fills or it may be crushed and made into crushed miscellaneous base (CMB).

Pavement Subgrade Preparation – Killybrooke, Wilson & College Park Elementary

Following demolition, any soils disturbed during demolition operations should be removed. The geotechnical engineer should then evaluate the subgrade to identify any areas of additional unsuitable soils. The subgrade soils should then be scarified to a depth of 12± inches, moisture conditioned, or air-dried, to 2 to 4 percent above optimum moisture content, and recompact to at least 90 percent of the ASTM D-1557 maximum dry density.

Moist to very moist soils were encountered within the upper 5± feet from the ground surface at most of the boring locations. Therefore, it is expected that some subgrade stabilization may be required where unstable subgrades are encountered during grading. Scarification and air drying of these materials may be sufficient to obtain a stable subgrade. However, if highly unstable soils are identified, and if the construction schedule does not allow for delays associated with drying, mechanical stabilization, usually consisting of coarse crushed stone and/or geotextile, may be necessary. Asphalt debris that is crushed to a 2 to 4-inch particle size may also be feasible to use as a subgrade stabilization material. If unstable subgrade conditions are encountered, the geotechnical engineer should be contacted for supplementary recommendations. The proposed site improvement project should include costs associated with drying of the on-site soils and the possible stabilization of the overexcavation subgrades.

As an alternative to rock stabilization, the planned pavement subgrade may be stabilized by cement treatment. If this option is selected, the soils exposed at the planned subgrade elevation should be thoroughly mixed with a pulverizer to a concentration of 5 to 7 percent cement by dry weight of soil, to a depth of at least 12 inches. The actual percent of cement to be used should be determined during grading. Cement stabilization would also increase the R-value of the subgrade materials which would result in a thinner pavement section.

Pavement Subgrade Preparation – Woodland & Mariners Elementary School

Limited remedial grading will be necessary within the new pavement areas in order to remove any soils disturbed during demolition operations. The geotechnical engineer should then evaluate the subgrade to identify any areas of additional unsuitable soils. The subgrade soils should then be scarified to a depth of 12± inches, moisture conditioned to 0 to 4 percent above optimum moisture content, and recompact to at least 90 percent of the ASTM D-1557 maximum dry density.

The grading recommendations presented above for the new pavements assume that the Newport-Mesa Unified School District can tolerate minor amounts of settlement within the proposed pavements. The grading recommendations presented above do not completely mitigate the extent of any existing fill soils that may be present in the new pavement areas. As such, settlement and associated pavement distress could occur. Typically, repair of such distressed areas involves significantly lower costs than completely mitigating these soils at the time of construction. If the school district cannot tolerate the risk of such settlements, the new pavement areas should be overexcavated to provide a new layer of structural fill at least 2 feet in thickness.

New Asphaltic Concrete Pavements

The recommended thicknesses for new flexible pavement structures consisting of asphaltic concrete over a granular base are presented below. The recommended thicknesses were

calculated using the Caltrans design method, and were based on the R-values noted below, which are based on the results of R-value testing and the variability of the underlying soil conditions. The recommended pavement sections were also calculated using a range of traffic index (TI's), since the appropriate TI was not available at the time of this investigation.

Presented below are the recommended thicknesses for new flexible pavement structures consisting of asphaltic concrete over a granular base. The pavement designs are based on the traffic indices (TI's) indicated below. The client and/or civil engineer should verify that these TI's are representative of the anticipated traffic volumes. If the client and/or civil engineer determine that the expected traffic volume will exceed the applicable traffic index, we should be contacted for supplementary recommendations. The design traffic indices equate to the following approximate daily traffic volumes over a 20-year design life, assuming six operational traffic days per week.

Traffic Index	No. of Heavy Trucks per Day
4.0	0
5.0	1
6.0	3

For the purpose of the traffic volumes indicated above, a truck is defined as a 5-axle tractor trailer unit with one 8-kip axle and two 32-kip tandem axles. All of the traffic indices allow for 1,000 automobiles per day.

Killybrooke, Wilson and College Park Elementary School

ASPHALT PAVEMENTS (R = 1)			
Materials	Thickness (inches)		
	(TI = 4.0)	(TI = 5.0)	(TI = 6.0)
Asphaltic Concrete	3	3	3½
Aggregate Base (95% minimum compaction)	8	11	14
Compacted Subgrade (90% minimum compaction)	12	12	12

As discussed previously, cement treatment of the low strength subgrade soils at Killybrooke, Wilson, and College Park schools is a potential option. Cement treatment will help to create a stable pavement subgrade, and will also increase the pavement support characteristics of the existing soils. Cement treated soils are expected to possess an R-value of 50. Therefore, if cement treatment is performed at one of these three school sites, the new pavements may be designed using the sections presented below for Mariners and Woodland schools.

Mariners and Woodland Elementary School

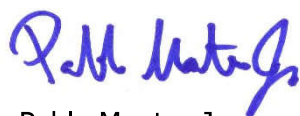
ASPHALT PAVEMENTS (R = 50)			
Materials	Thickness (inches)		
	(TI = 4.0)	(TI = 5.0)	(TI = 6.0)
Asphaltic Concrete	3	3	3½
Aggregate Base (95% minimum compaction)	3	3	4
Compacted Subgrade (90% minimum compaction)	12	12	12

The aggregate base course should be compacted to at least 95 percent of the ASTM D-1557 maximum dry density. The asphaltic concrete should be compacted to at least 95 percent of the batch plant-reported maximum density. The aggregate base course may consist of crushed aggregate base (CAB) or crushed miscellaneous base (CMB), which is a recycled gravel, asphalt and concrete material. The gradation, R-Value, Sand Equivalent, and Percentage Wear of the CAB or CMB should comply with appropriate specifications contained in the current edition of the "Greenbook" Standard Specifications for Public Works Construction.

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.



Pablo Montes Jr.
Staff Engineer

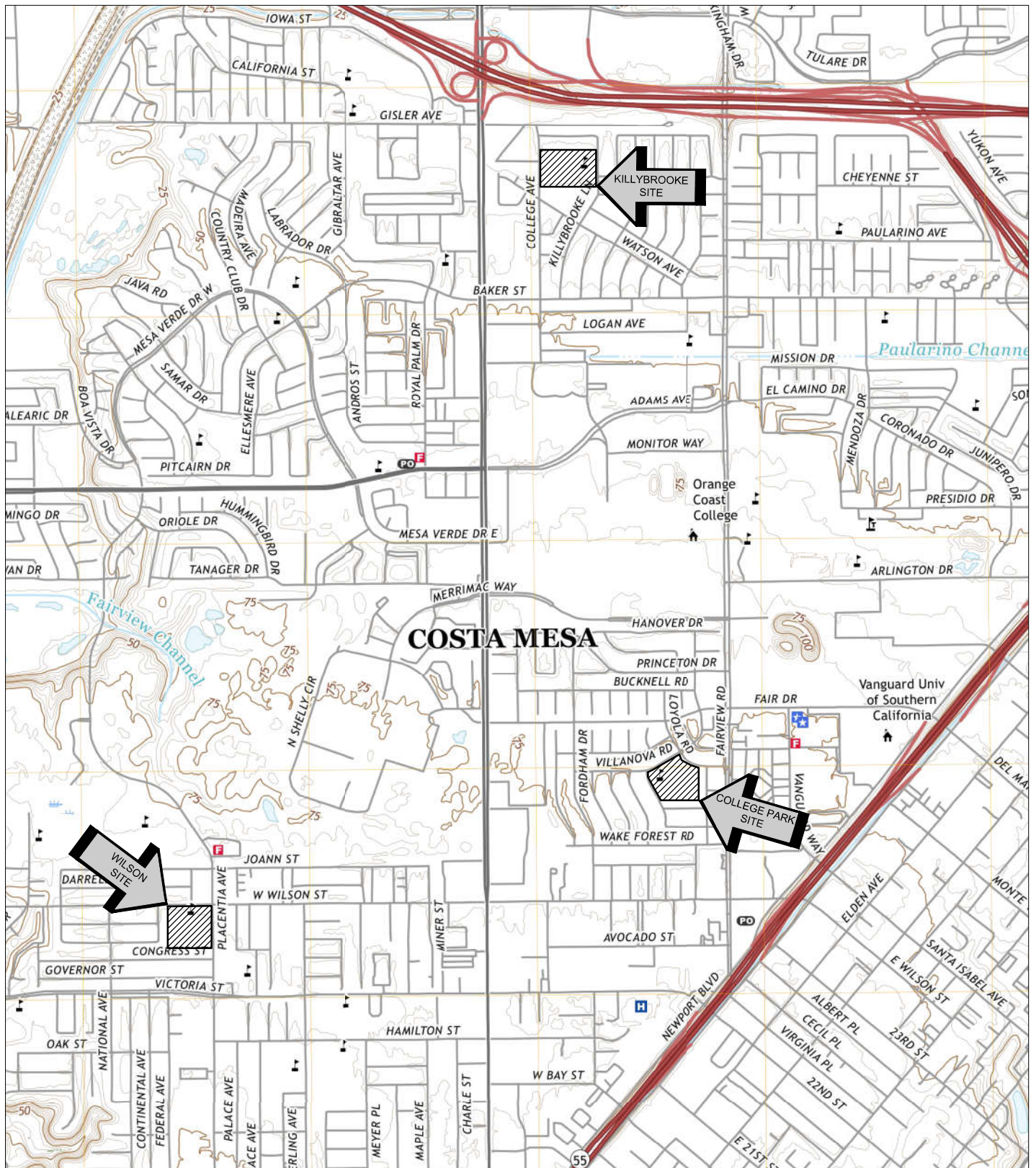


Gregory K. Mitchell, GE 2364
Principal Engineer



Distribution: (1) Addressee

Enclosures: Plates 1A & 1B: Site Location Maps
Plates 2A through 2E: Boring Location Plans
Boring Legend & Logs
Plate C-1: Moisture/Density Relationship



SOURCE: USGS TOPOGRAPHIC MAP OF THE NEWPORT BEACH QUADRANGLE, ORANGE COUNTY, CALIFORNIA, 2018.



SITE LOCATION MAP

PROPOSED ELEMENTARY SCHOOL IMPROVEMENTS COSTA MESA, CALIFORNIA

SCALE: 1" = 2000'

DRAWN: JLL

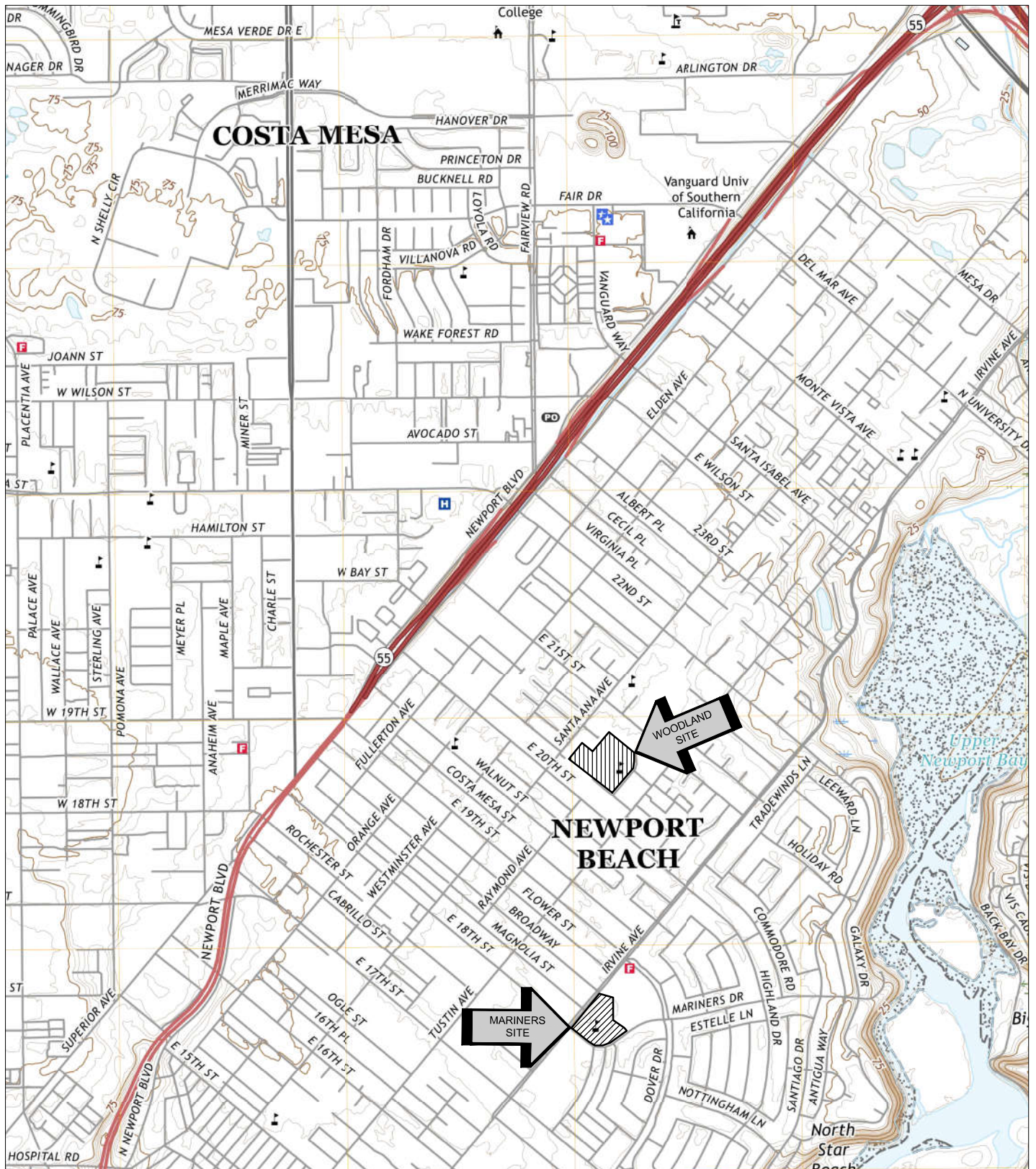
CHKD: GKM

SCG PROJECT
20G139-1

PLATE 1A



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SOURCE: USGS TOPOGRAPHIC MAP OF THE NEWPORT BEACH QUADRANGLE, ORANGE COUNTY, CALIFORNIA, 2018.



SITE LOCATION MAP

PROPOSED ELEMENTARY SCHOOL IMPROVEMENTS
NEWPORT BEACH, CALIFORNIA

SCALE: 1" = 2000'

DRAWN: JLL

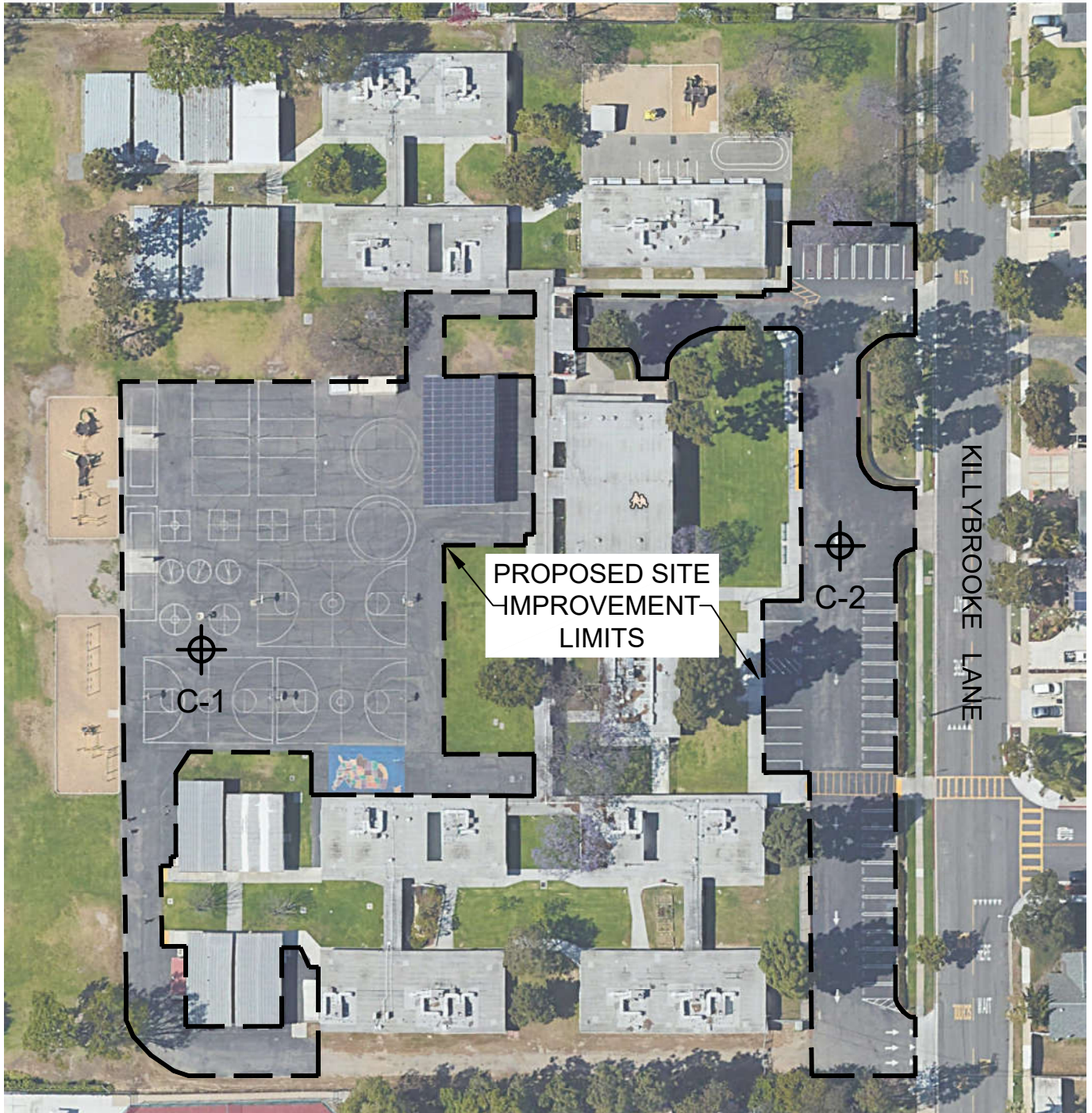
CHKD: GKM

SCG PROJECT
20G139-1

PLATE 1B

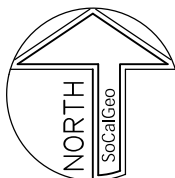


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GEOTECHNICAL LEGEND


 APPROXIMATE CORE LOCATION



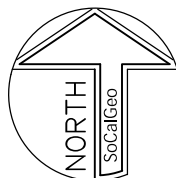
NOTE: AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH.

BORING LOCATION PLAN	
PROPOSED ELEMENTARY SCHOOL IMPROVEMENTS	
COSTA MESA, CALIFORNIA	
SCALE: 1" = 80'	 SOUTHERN CALIFORNIA GEOTECHNICAL
DRAWN: JLL	
CHKD: GKM	
SCG PROJECT 20G139-1	
PLATE 2A	



GEOTECHNICAL LEGEND

 APPROXIMATE CORE LOCATION

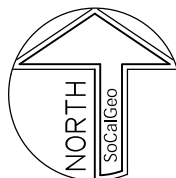


NOTE: AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH.

BORING LOCATION PLAN	
PROPOSED ELEMENTARY SCHOOL IMPROVEMENTS	
COSTA MESA, CALIFORNIA	
SCALE: 1" = 60'	 SOUTHERN CALIFORNIA GEOTECHNICAL
DRAWN: JLL CHKD: GKM	
SCG PROJECT 20G139-1	
PLATE 2B	



GEOTECHNICAL LEGEND

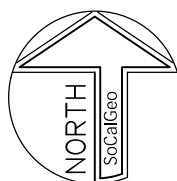


NOTE: AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH.

BORING LOCATION PLAN	
PROPOSED ELEMENTARY SCHOOL IMPROVEMENTS	
COSTA MESA, CALIFORNIA	
SCALE: 1" = 80'	 SOUTHERN CALIFORNIA GEOTECHNICAL
DRAWN: JLL	
CHKD: GKM	
SCG PROJECT 20G139-1	
PLATE 2C	



GEOTECHNICAL LEGEND

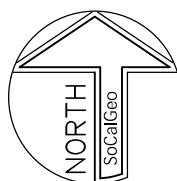


NOTE: AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH.

BORING LOCATION PLAN	
PROPOSED ELEMENTARY SCHOOL IMPROVEMENTS	
NEWPORT BEACH, CALIFORNIA	
SCALE: 1" = 80'	 SOUTHERN CALIFORNIA GEOTECHNICAL
DRAWN: JLL	
CHKD: GKM	
SCG PROJECT 20G139-1	
PLATE 2D	



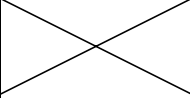
GEOTECHNICAL LEGEND



NOTE: AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH.

BORING LOCATION PLAN	
PROPOSED ELEMENTARY SCHOOL IMPROVEMENTS	
COSTA MESA, CALIFORNIA	
SCALE: 1" = 40'	 SOUTHERN CALIFORNIA GEOTECHNICAL
DRAWN: JLL	
CHKD: GKM	
SCG PROJECT 20G139-1	
PLATE 2E	

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/ft³.

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



JOB NO.: 20G139-1
PROJECT: Proposed Elementray School Improvement
LOCATION: Newport and Costa Mesa, California

DRILLING DATE: 4/22/20
DRILLING METHOD: Hand Auger
LOGGED BY: Jose Zuniga

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

FIELD RESULTS					DESCRIPTION	LABORATORY RESULTS						COMMENTS
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG		DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	
					SURFACE ELEVATION: MSL							
					5½± Inches Asphaltic Concrete, 4± Inches Aggregate Base							
					FILL: Dark Brown to Black fine Sandy Clay, trace to little Silt, stiff-moist to very moist		21					
					ALLUVIUM: Brown Silty Clay, trace fine Gravel, little medium to coarse Sand, stiff-very moist		21					
					Boring Terminated at 4'							

TBL_20G139-1.GPJ_SOCALGEO.GDT 5/13/20



JOB NO.: 20G139-1
PROJECT: Proposed Elementray School Improvement
LOCATION: Newport and Costa Mesa, California

DRILLING DATE: 4/22/20
DRILLING METHOD: Hand Auger
LOGGED BY: Jose Zuniga

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

FIELD RESULTS					LABORATORY RESULTS							COMMENTS
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 (%)	
						SURFACE ELEVATION: MSL						
5			2.0		4½± Inches Asphaltic Concrete, 5± Inches Aggregate Base	96	25					
				FILL: Dark Brown to Black fine Sandy Clay, trace to little Silt, medium stiff to stiff-very moist	21							
							ALLUVIUM: Brown Silty Clay, trace fine Gravel, trace fine Sand, medium stiff-very moist					
					Boring Terminated at 5'							

TBL 20G139-1.GPJ_SOCALGEO.GDT 5/13/20



JOB NO.: 20G139-1
PROJECT: Proposed Elementray School Improvement
LOCATION: Newport and Costa Mesa, California

DRILLING DATE: 4/22/20
DRILLING METHOD: Hand Auger
LOGGED BY: Jose Zuniga

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

FIELD RESULTS					DESCRIPTION	LABORATORY RESULTS						COMMENTS
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG		DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	
5	 				SURFACE ELEVATION: MSL	117	13					
					3½± Inches Asphaltic Concrete, 2¾± Inches Aggregate Base							
					FILL: Brown Silty fine Sand, little Clay, slightly porous, medium dense-moist to very moist							
					ALLUVIUM: Brown Clayey fine Sand to fine Sandy Clay, little Silt, medium dense to stiff-very moist							
					Boring Terminated at 5'							

TBL 20G139-1.GPJ_SOCALGEO.GDT 5/13/20



JOB NO.: 20G139-1
PROJECT: Proposed Elementray School Improvement
LOCATION: Newport and Costa Mesa, California

DRILLING DATE: 4/22/20
DRILLING METHOD: Hand Auger
LOGGED BY: Jose Zuniga

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

FIELD RESULTS					DESCRIPTION	LABORATORY RESULTS						COMMENTS
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG		DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	
5	 				3¼± Inches Asphaltic Concrete, 3± Inches Aggregate Base	107	9					
					<u>POSSIBLE FILL:</u> Brown Silty fine Sand, medium dense-moist		10					
					Boring Terminated at 5'							

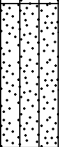
TBL 20G139-1.GPJ_SOCALGEO.GDT 5/13/20



JOB NO.: 20G139-1				DRILLING DATE: 4/22/20				WATER DEPTH: Dry				
PROJECT: Proposed Elementray School Improvement				DRILLING METHOD: Hand Auger				CAVE DEPTH: -				
LOCATION: Newport and Costa Mesa, California				LOGGED BY: Jose Zuniga				READING TAKEN: -				
FIELD RESULTS					LABORATORY RESULTS							
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
					SURFACE ELEVATION: MSL							
5					6± Inches Asphaltic Concrete							
					FILL: Brown Silty fine Sand, trace medium Sand, medium dense-moist to very moist		13					
					ALLUVIUM: Light Brown Silty fine Sand, trace medium Sand, medium dense-very moist		16					
					Boring Terminated at 5'							

TBL 20G139-1.GPJ_SOCALGEO.GDT 5/13/20



JOB NO.: 20G139-1				DRILLING DATE: 4/22/20				WATER DEPTH: Dry				
PROJECT: Proposed Elementray School Improvements				DRILLING METHOD: Hand Auger				CAVE DEPTH: -				
LOCATION: Newport and Costa Mesa, California				LOGGED BY: Jose Zuniga				READING TAKEN: -				
FIELD RESULTS				GRAPHIC LOG	DESCRIPTION	LABORATORY RESULTS						COMMENTS
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)			DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	
5	 				3 1/4± Inches Asphaltic Concrete, 3 1/4± Inches Aggregate Base	119	8					
					FILL: Brown Silty fine Sand, little medium Sand, medium dense-damp to moist							
					ALLUVIUM: Light Brown Silty fine Sand, trace medium Sand, medium dense-moist							
Boring Terminated at 5'												

TBL 20G139-1.GPJ_SOCALGEO.GDT 5/13/20



JOB NO.: 20G139-1
PROJECT: Proposed Elementray School Improvement
LOCATION: Newport and Costa Mesa, California

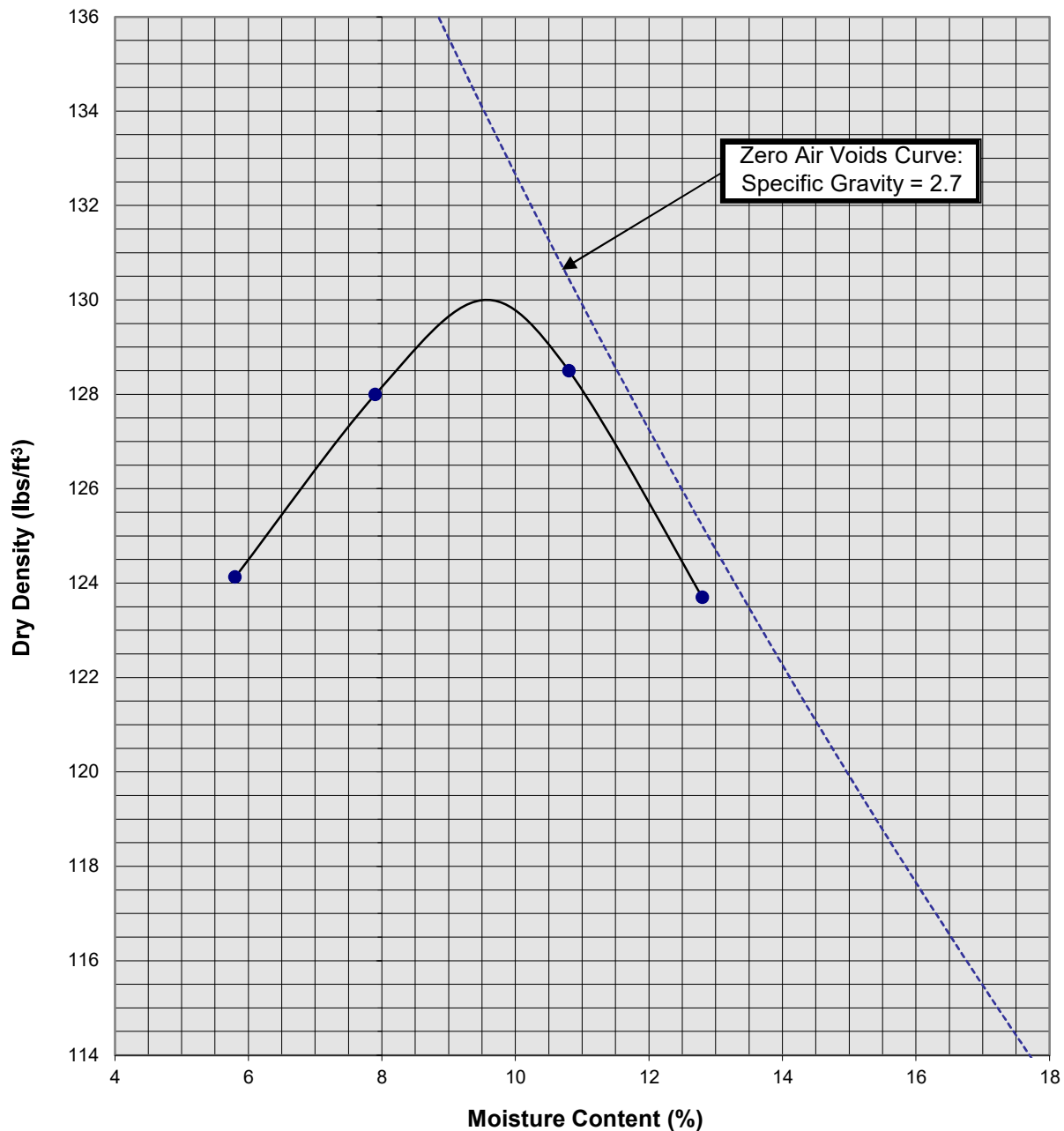
DRILLING DATE: 4/23/20
DRILLING METHOD: Hand Auger
LOGGED BY: Jose Zuniga

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

FIELD RESULTS					LABORATORY RESULTS							COMMENTS
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 (%)	
					SURFACE ELEVATION: MSL							
5					5± Inches Asphaltic Concrete, 3± Inches Aggregate Base							
					FILL: Gray Brown to Black Silty Clay, trace Iron Oxide staining, occasional calcareous nodules, stiff-very moist		25					
					ALLUVIUM: Dark Gray to Black Silty Clay, abundant calcareous nodules, little Iron oxide staining, stiff-very moist		26					
					Boring Terminated at 5'							

TBL_20G139-1.GPJ_SOCALGEO.GDT 5/13/20

Moisture/Density Relationship ASTM D-1557



Soil ID Number	C-4 @ 0 to 5
Optimum Moisture (%)	9.5
Maximum Dry Density (pcf)	130
Soil Classification	Brown Silty fine Sand

Proposed Elementary School Improvements
Newport Beach and Costa Mesa, California
Project No. 20G139

PLATE C-1



**SOUTHERN
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