HYDROLOGY AND HYDRAULIC ANALYSIS

FOR:

MARKHAM INDUSTRIAL FACILITY

945 & 995 W. MARKHAM STREET

PERRIS, CA 92571

CASE NUMBER: T.B.D.

TRUXAW PROJECT NUMBER: DED21012

PREPARED FOR:

Dedeaux Properties

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PREPARED BY:

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PREPARED ON: SEP. 16, 22

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APPENDICES

1.0 PURPOSE

This drainage study analyzes the existing and proposed hydrology characteristics for the Markham Industrial Facility at the 945 & 955 W. Markham Street in the City of Perris, County of Riverside, latitude, and longitude of 33° 85' 13.91"N and 117° 24' 64.21" W, respectively.

2.0 SITE LOCATION

The subject site is approximately 4.07 acres in size is bounded on the north by commercial business and Markham Street, on the west by commercial businesses, to the east by residential houses and parking lot to the south.

The site is within the Santa Ana River Water Shed, sub-water shed is San Jacinto River. The site is underlain with Type B soil per the Hydraulic Soils Group Map for Perris from the RCFC & WCD Hydrology Manual Map included as Appendix D of this report.

2.1 WATERSHED DESCRIPTION

All hydrologic calculations are based on the Standard Intensity – Duration Curves Data prepared by the RCFC & WCD Hydrology Manual Included as Appendix E of this report.

The site is within the Santa Ana River Water Shed, sub-water shed is San Jacinto River.

2.2 EXISTING DRAINAGE

Existing onsite runoff sheet flows from the northwest corner of the site to the southeast corner of the site. The runoff to the southeast flows to a low spot on the site with no apparent discharge. The runoff appears to pond in this area until it overflows into Markham Street and is collected by a municipal curb and gutter. It is then conveyed to a catch basin that is maintained by R.C.F.C. & W.C.D. approximately 180 feet east of the subject site. Runoff is then conveyed via underground storm drain to the to the Perris Valley Storm Drain, then to San Jacinto River, then to Canyon Lake, and ultimately to Lake Elsinore.

See Existing Hydrology map in Appendix J of this Report.

2.3 PROPOSED DRAINAGE

The site discharges to on-site grated inlets, which lead to an underground infiltration system sized for the post construct volume requirements. Overflow will discharge to the Perris Valley MDP Lateral B-5, which lead to the Perris Valley Storm Drain, then to San Jacinto River, then to Canyon Lake, and ultimately to Lake Elsinore.

3.0 METHODOLOGY

For this study, all drainage runoffs have been calculated for the 10-year and 100-year storm event for. All calculations are done using the Rational Method Hydrology Computer Program Package designed by Advanced Engineering Software (AES). Calculations are included as Appendix H in this report.

3.1 10-YEAR AND 100-YEAR STORM EVENT DESIGN

Existing:

The existing site has one drainage area, DMA-1. The site is 80.2% pervious and 19.98% impervious and is currently occupied by a single family home, workshop and mobile home, and 4.077 acres. The existing flows have been calculated for the 10-yr and 100-yr and are shown in the table below. The AES files are provided in Appendix H.

Proposed:

The site has been broken down into 4 drainage areas and 4.077 acres. DMA 1 is located along the west one-third of the building and the westerly and southerly drive aisle. DMA-1 is 96.33% impervious and 1.072 acres.

DMA-2 is 100% impervious and 0.225 acres. DMA 2 consists of the truck loading dock area.

DMA 3 is located along the east two-thirds of the building and the easterly and southerly drive aisle. DMA-1 is 93.40% impervious and 2.285 acres.

DMA 4 is a landscape area located along the northerly part of the site. These areas will discharge to Markham Street.

The proposed flows have been calculated for the 10-yr and 100-yr and are shown in the table below. The AES files are provided in Appendix H.

The difference between the existing and proposed flows are shown in the table below.

DISCHARGE SUMMARY

STORM EVENT	Exiting Flow (cfs)	Proposed Flow (cfs) DMA 1	Proposed Flow (cfs) DMA 2	Proposed Flow (cfs) DMA 3	Proposed Flow (cfs) DMA 4	Proposed Flow (cfs) Total	Increased Flow (cfs)
10	6.24	2.12	0.53	4.49	0.68	7.82	1.58
100	8.92	3.10	0.75	6.41	0.97	11.23	2.31

4.0 SUMMARY

The site design ensures that Stormwater runoff will not adversely affect the site's operation and ensure that danger to property and life is minimal. Hydrology maps summarizing these calculations are included in Appendix J of this report.

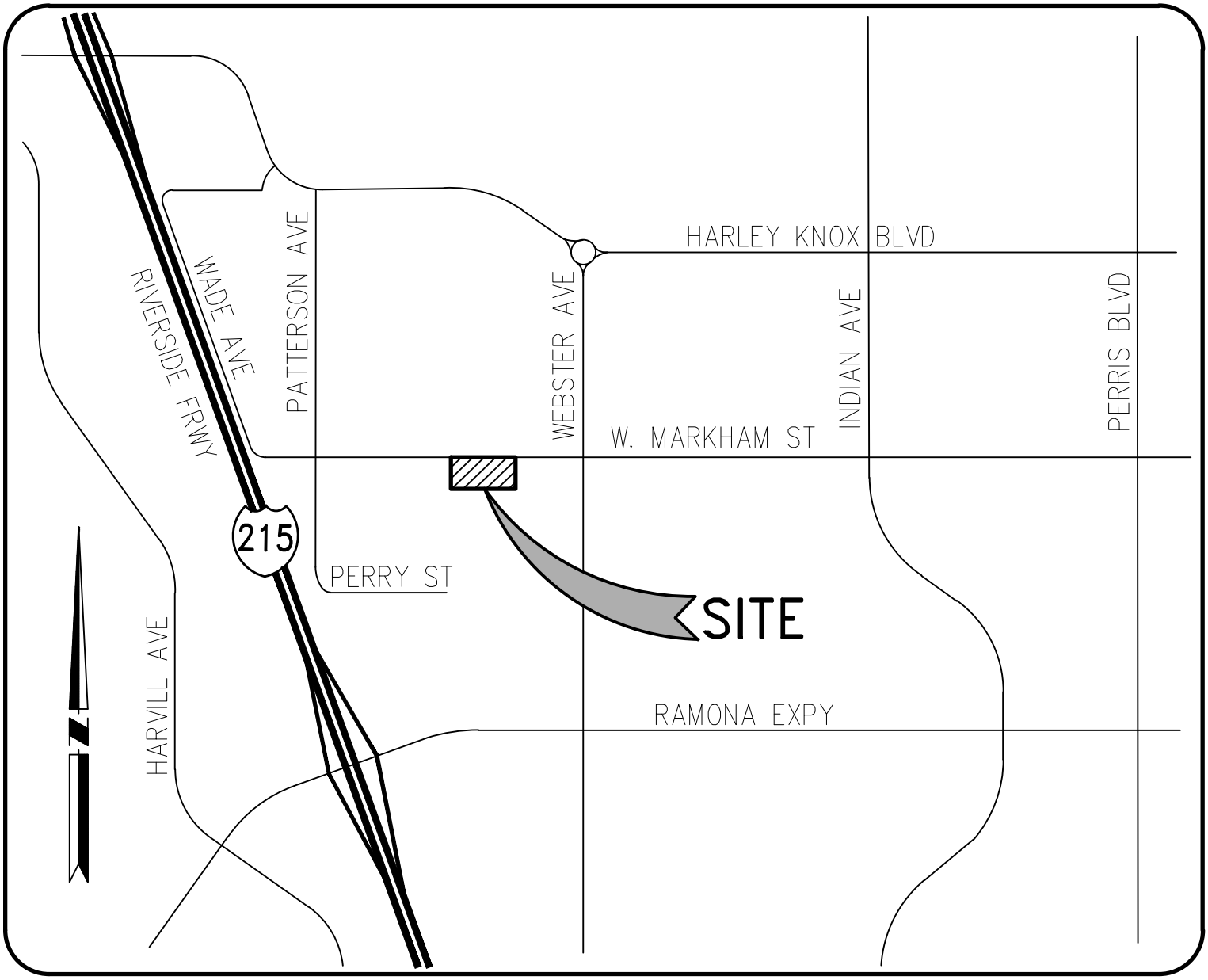
4.1 PIPE SIZE CALCULATIONS

Underground pipes are sized so that the pipes flow less than full during the 10-year peak storm event. See the AES calculations in Appendix I for flow rates.

4.2 BUILDING PROTECTION AND OVERFLOW

During larger storm events, stormwater from both DMA's will overflow through the overflow pipe that is connected directly to the Perris Valley Lateral B-5.

APPENDIX A –VICINITY MAP



VICINITY MAP

NOT TO SCALE

APPENDIX B – GEOTECHNICAL REPORT

GEOTECHNICAL INVESTIGATION

PROPOSED INDUSTRIAL BUILDING

945-995 WEST MARKHAM STREET

APN 314-170-009 & 314-170-010

PERRIS, CALIFORNIA

-Prepared By-

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May 31, 2022

Project No. 644-22018
22-05-068

Dedeaux Properties
100 Wilshire Boulevard, Suite 250
Santa Monica, California 90401

Subject: Geotechnical Investigation

Project: Proposed Industrial Building
945-995 West Markham Street
APN 314-170-009 & 314-170-010
Perris, California

Sladden Engineering is pleased to present the results of our geotechnical investigation performed for the proposed new industrial building to be constructed on the site (APN 314-170-009 & 010) located at 945-995 West Markham Street in the City of Perris, California. Our services were completed in accordance with our proposal for geotechnical engineering services dated March 7, 2022 and your authorization to proceed with the work. The purpose of our investigation was to explore the subsurface conditions at the site in order to provide recommendations for foundation design and site preparation. Evaluation of environmental issues and hazardous wastes was not included within the scope of services provided.

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

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

Respectfully submitted,
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GEOTECHNICAL INVESTIGATION
PROPOSED INDUSTRIAL BUILDING
945-995 WEST MARKHAM STREET
APN 314-170-009 & 314-170-010
PERRIS, CALIFORNIA

May 31, 2022

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INTRODUCTION

This report presents the results of the geotechnical investigation performed by Sladden Engineering (Sladden) for the proposed industrial building to be constructed on the site (APN 314-170-009 & 010) located at 945-995 West Markham Street in the City of Perris, California. The site is located at approximately 33.8513 degrees North latitude and 117.2471 degrees West longitude. The approximate location of the site is indicated on the Site Location Map (Figure 1).

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

PROJECT DESCRIPTION

Based on the conceptual site plan (AO, 2022), it is our understanding that the proposed project will consist of constructing a new 83,000 square foot (ft^2) industrial building. The new building will consist of 79,000 ft^2 of warehouse space and 4,000 ft^2 of mezzanine and office space. The project will also include paved parking areas, truck loading docks, exterior concrete flatwork, underground utilities, landscape areas and various other improvements. For our analyses, we expect that the proposed industrial building will be of reinforced concrete tilt-up construction supported on conventional shallow spread footings and concrete slabs-on-grade.

We anticipate that grading will be limited to minor cuts and fills in order to accomplish the desired pad elevations and provide adequate gradients for site drainage. This does not include the removal and re-compaction of foundation bearing soil within the building envelope. Upon completion of precise grading plans, Sladden should be retained in order to ensure that the recommendations presented within in this report are incorporated into the design of the proposed project.

Structural foundation loads were not available at the time of this report. Based on our experience with relatively lightweight concrete tilt-up structures, we expect that isolated column loads will be less than 50 kips and continuous wall loads will be less than 5.0 kips per linear foot. If these assumed loads vary significantly from the actual loads, we should be consulted to verify the applicability of the recommendations provided.

SCOPE OF SERVICES

The purpose of our investigation was to determine specific engineering characteristics of the surface and near surface soil in order to develop foundation design criteria and recommendations for site preparation. Exploration of the site was achieved by drilling seven (7) exploratory boreholes to depths between approximately 5 and 48 feet below the existing ground surface (bgs). Specifically, our site characterization consisted of the following tasks:

- Site reconnaissance to assess the existing surface conditions on and adjacent to the site.
- The excavation of seven (7) exploratory boreholes to depths between approximately 5 and 48 feet bgs in order to characterize the subsurface soil conditions. Representative samples of the soil were classified in the field and retained for laboratory testing and engineering analyses.
- The performance of laboratory testing on selected samples to evaluate their engineering characteristics.
- The review of geologic literature with respect to potential geologic hazards.
- The performance of engineering analyses to develop recommendations for foundation design and site preparation.
- The preparation of this report summarizing our work at the site.

SITE CONDITIONS

The site is located on the south side of West Markham Street between Patterson Avenue and North Webster Avenue in the City of Perris, California. The property consists of two (2) parcels that are formally identified by the County of Riverside as APN 314-170-009 & 010. The site occupies approximately 4.08 acres of land. At the time of our investigation, the project site was occupied by scattered residential structures and automobile/truck parking areas. The subject site is bounded by West Markham Street to the north, and developed properties to the east, south and west.

The project site is relatively level with minimal surface gradients. According to the USGS 7.5′ Perris Quadrangle map (2015), the site is at an approximate elevation of 1,490 feet above mean sea level (MSL).

No ponding water or surface seeps were observed at or near the site during our investigation conducted on April 4, 2022. Site drainage appears to be controlled via sheet flow and surface infiltration.

GEOLOGIC SETTING

The project site is located in the Peninsular Ranges Physiographic Province of California. The Peninsular Ranges are mountainous areas that extend from the western edge of the continental borderland to the Salton Trough and from the Transverse Ranges Physiographic Province in the north to the tip of Baja California in the south. The Peninsular Ranges Physiographic Province is characterized by northwest-trending topographic and structural features. The province is characterized by elongated, northwest-southeast trending mountain ranges and valleys and is truncated at its northern margin by the east-west trending Transverse Ranges. Mountainous areas of the Peninsular Ranges Physiographic Province generally consist of Igneous, metasedimentary and metavolcanic rocks. However, plutonic rocks of the Southern California Batholith are the dominant basement rock exposed (Jahns, 1954).

The site has been mapped by Morton (2003) to be immediately underlain by young alluvial valley deposits consisting of well-indurated sand deposits (Qvof). The geologic setting for the site and site vicinity is illustrated on the Regional Geologic Map, Figure 2.

SUBSURFACE CONDITIONS

The subsurface conditions at the site were investigated by drilling seven (7) exploratory boreholes on the site. The approximate locations of the boreholes are illustrated on the Exploration Location Plan (Figure 3). The boreholes were advanced using a truck-mounted Mobile B-61 drill-rig equipped with 8-inch outside diameter hollow stem augers. A representative of Sladden was on-site to log the materials encountered and retrieve samples for laboratory testing and engineering analyses.

During our field investigation, disturbed soil was encountered to a maximum depth of approximately two (2) feet below the (existing) ground surface (bgs) within our bore locations. Underlying the disturbed soil, native alluvial materials were encountered to the maximum explored depth of approximately 48 feet bgs. The native soil consists primarily of clayey sand (SC) and sandy clay (CL). Sampler penetration resistance as measured by field blow counts indicates that density generally increases with depth.

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

Groundwater was not encountered during our field investigation. Based on our experience in the project vicinity, and our review of groundwater elevations in the project vicinity (CDWR, 2022), it is our opinion that groundwater should not be a factor during construction of the proposed project.

SEISMICITY AND FAULTING

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

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

Table 1 lists the closest known potentially active faults that was generated in part using the EQFAULT computer program (Blake, 2000), as modified using the fault parameters from The Revised 2002 California Probabilistic Seismic Hazard Maps (Cao et al, 2003), Southern Earthquake Data Center (SCEDC, 2022), Building Seismic Safety Council (BSSC, 2014) and the Quaternary Fault and Fold Database of the United States (USGS, 2022a). This table does not identify the probability of reactivation or the on-site effects from earthquakes occurring on any of the other faults in the region.

TABLE 1
CLOSEST KNOWN ACTIVE FAULTS

Fault Name	Distance (Km)	Maximum Event
San Jacinto – San Jacinto Valley	13.3	7.03*
San Jacinto – San Bernardino	18.4	6.7
Elsinore – Glen Ivy	23.5	6.8
Elsinore – Temecula	25.0	6.8
Chino – Central Avenue (Elsinore)	29.8	6.7
San Andreas – Southern	32.1	7.5
San Andreas – San Bernardino	32.1	7.5
San Jacinto – Anza	32.9	7.2
Whittier	36.0	6.8
Cucamonga	40.8	6.9

*BSSC (2014)

SITE SPECIFIC GROUND MOTION PARAMETERS

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

TABLE 2
GROUND MOTION PARAMETERS

Latitude / Longitude	33.8513/-117.2471
Risk Category	II
Site Class	D
Code Reference Documents	ASCE 7-16; Chapter 11 & 21

Description	Type	Map Based	Site-Specific
MCE_R Ground Motion (0.2 second period)	S_S	1.5	---
MCE_R Ground Motion (1.0 second period)	S_1	0.572	---
Site-Modified Spectral Acceleration Value	S_{MS}	1.5	**1.369**
Site-Modified Spectral Acceleration Value	S_{M1}	null	**0.898**
Numeric Seismic Design Value at 0.2 second SA	S_{DS}	1	**0.913**
Numeric Seismic Design Value at 1.0 second SA	S_{D1}	null	**0.599**
Site Amplification Factor at 0.2 second	F_a	1	**1.0**
Site Amplification Factor at 1.0 second	F_v	null	**2.5**
Site Peak Ground Acceleration	PGA_M	0.55	**0.55**

GEOLOGIC HAZARDS

The subject site is located in an active seismic zone and will likely experience strong seismic shaking during the design life of the proposed project. In general, the intensity of ground shaking will depend on several factors including: the distance to the earthquake focus, the earthquake magnitude, the response characteristics of the underlying materials, and the quality and type of construction. Geologic hazards and their relationship to the site are discussed below.

I. Surface Rupture. Surface rupture is expected to occur along preexisting, known active fault traces. However, surface rupture could potentially splay or step from known active faults or rupture along unidentified traces. Based on review of Jennings (1994), CGS (2022) and Morton (2003), known faults are not mapped on the site. In addition, no signs of active surface faulting were observed during our review of non-stereo digitized photographs of the site and site vicinity (Google, 2022). Finally, no signs of active surface rupture or secondary seismic effects (lateral spreading, lurching etc.) were identified on-site during our field investigation. Therefore, it is our opinion that risks associated with primary surface ground rupture should be considered "low".

II. Ground Shaking. The site has been subjected to past ground shaking by faults that traverse through the region. Strong seismic shaking from nearby active faults is expected to produce strong seismic shaking during the design life of the proposed project. A site-specific approach determined the peak ground acceleration (PGAm) at the site to be 0.55g.

III. Liquefaction/Seismic Settlement. Liquefaction is the process in which loose, saturated granular soil loses strength as a result of cyclic loading. The strength loss is a result of a decrease in granular sand volume and a positive increase in pore pressures. Generally, liquefaction can occur if all of the following conditions apply; liquefaction-susceptible soil, groundwater within a depth of 50 feet or less, and strong seismic shaking. The site is located within a "low" liquefaction potential zone (RCMMC, 2022). Based on the relatively dense nature of the underlying native earth materials, risks associated with liquefaction are considered "low".

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

V. Slope Failure, Landslides, Rock Falls. The site is situated on relatively level ground and is not immediately adjacent to any slopes or hillsides that could be potentially susceptible to slope instability. No signs of slope instability in the form of landslides, rock falls, earthflows or slumps were observed at or near the subject site during our investigation. As such, risks associated with slope instability should be considered "negligible".

VI. Expansive Soil. Expansion Index testing of a bulk sample was performed in order to evaluate the expansive potential of the materials underlying the site. Based the results of our laboratory testing (EI = 15), the materials underlying the site are considered to have a "very low" expansion potential.

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

CONCLUSIONS

Based on the results of our investigation, it is our professional opinion that the project should be feasible from a geotechnical perspective provided that the recommendations provided in this report are incorporated into design and carried out through construction. The main geotechnical concerns in the design and construction of the proposed project are the presence of the existing structures and improvements, and potentially compressible surface and near surface soil.

Because of the somewhat soft and compressible condition of the near surface native soil, remedial grading including overexcavation and recompaction is recommended for the proposed building and foundation areas. We recommend that remedial grading within the proposed building areas include over-excavation and/or re-compaction of the artificial fill and primary foundation bearing soil. Specific recommendations for site preparation are presented in the Earthwork and Grading section of this report.

Groundwater was encountered during our field investigation. Based on the conditions encountered during our field investigation, groundwater should not be a factor in design or during the construction of the proposed project.

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

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

EARTHWORK AND GRADING

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

a. Site Clearing. Areas to be graded should be cleared of the existing structures, surface improvements, debris and underground utilities. All areas scheduled to receive fill should be cleared of surface improvements, artificial fill and any unsuitable matter. The unsuitable materials should be removed off-site. Existing fill soil should be removed in its entirety and replaced as engineering fill. Voids left by obstructions should be properly backfilled in accordance with the compaction recommendations of this report.

b. Preparation of Building Areas. In order to achieve firm and uniform foundation bearing conditions, we recommend over-excavation and re-compaction throughout the building areas. All artificial fill soil and low density near surface native soil should be removed to competent native soil expected at depths of approximately 3 feet below the existing ground surface or to a minimum depth of 3 feet below the bottom of the footings, whichever is deeper. Remedial grading should extend laterally a minimum of five feet beyond the building foundations. The soil exposed by over-excavation should be scarified, moisture conditioned to near optimum moisture content, and compacted to at least 90 percent relative compaction.

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

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

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

TABLE 3
SUMMARY OF RECOMMENDATIONS

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

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

d. Shrinkage and Subsidence. Volumetric shrinkage of the material that is excavated and replaced as controlled compacted fill should be anticipated. We estimate that this shrinkage could vary from 10 to 15 percent. Subsidence of the surfaces that are scarified and compacted should be between 1 and 2 tenths of a foot. This will vary depending upon the type of equipment used, the moisture content of the soil at the time of grading and the actual degree of compaction attained.

FOUNDATIONS: CONVENTIONAL SHALLOW SPREAD FOOTINGS

Exterior footings should extend at least 18 inches beneath lowest adjacent grade and interior footings should extend at least 12 inches below slab subgrade. Isolated square or rectangular footings at least 2 feet square and continuous footings at least 12 inches wide may be designed using allowable bearing pressures of 2200 and 2000 pounds per square foot, respectively. The allowable bearing pressure may be increased by approximately 250 psf for each additional 1 foot of width and 250 psf for each additional 6 inches of depth, if desired. The maximum allowable bearing pressure should be limited to 3000 psf unless confirmed by Sladden Engineering subsequent to performing specific settlement calculations. The allowable bearing pressures are for dead and frequently applied live loads and may be increased by 1/3 to resist wind, seismic or other transient loading. All footings should be reinforced in accordance with the project structural engineer's recommendations.

Based on the allowable bearing pressures recommended above the total static settlement of conventional shallow spread footings is anticipated to be less than one inch, provided that foundation preparation conforms to the recommendations provided in this report. Differential static settlement is anticipated to be approximately one-half the total static settlement for similarly loaded footings spaced approximately 40 feet apart.

Resistance to lateral loads may be provided by a combination of friction acting at the base of the slabs or foundations and passive earth pressure along the sides of the foundations. A coefficient of friction of 0.40 between soil and concrete may be used for dead load forces only. A passive earth pressure of 250 pounds per square foot, per foot of depth, may be used for the sides of footings that are placed against properly compacted native soil. Passive earth pressure should be ignored within the upper 1 foot except where confined.

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

SLABS-ON-GRADE

In order to reduce the risk of heave, cracking and settlement, concrete slabs-on-grade must be placed on properly compacted fill as outlined in the previous sections. The slab subgrades should remain near optimum moisture content and should not be permitted to dry prior to concrete placement. All slab subgrades should be firm and unyielding. Disturbed soil should be removed and then replaced and compacted to a minimum of 90 percent relative compaction.

Slab thickness and reinforcement should be determined by the structural engineer. All slab reinforcement should be supported on concrete chairs to ensure that reinforcement is placed at slab mid-height. Considering the expected uses, we recommend a minimum slab thickness of 6.0 inches within warehouse areas and 4.0 inches within office areas along with minimum reinforcement of #4 bars at 24 inches on center in both directions in warehouse areas and #3 bars at 24 inches on center in both directions for office areas.

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

RETAINING WALLS

Minor retaining walls may be required to accomplish the proposed construction. Cantilever retaining walls may be designed using "active" pressures. Active pressures may be estimated using an equivalent fluid weight of 40 pcf for level native backfill soil acting in a triangular pressure distribution with drained backfill conditions. "At Rest" pressures should be utilized for restrained walls. At rest pressures may be estimated using an equivalent fluid weight of 60 pcf for native backfill soil with level drained backfill conditions.

We recommend that a back drain system be provided behind all retaining walls or that the walls be designed for full hydrostatic pressures. The back drains should consist of a heavy walled, four inch diameter, perforated pipe sloped to drain to outlets by gravity, and of clean, free-draining, three-quarter to one and one-half inch crushed rock or gravel. The crushed rock or gravel should extend to within one foot of the surface. The upper one foot should be backfilled with compacted, fine-grained soil to exclude surface water. A Mirafi 140N (or equivalent) filter cloth should be placed between the on-site native material and the drain rock.

ON-SITE PAVEMENT DESIGN

Asphalt concrete pavements should be designed in accordance with the Caltrans Highway Design Manual based on R-Value and Traffic Index. The R-Value of the near surface soil determined to be 36 at equilibrium. For preliminary pavement design, Traffic Indices (TI) of 6.0 and 7.5 were used for the light duty and heavy duty pavements, respectively. We assumed Asphalt Concrete (AC) over Class II Aggregate Base (AB). The preliminary flexible pavement layer thickness is as follows:

TABLE 4
RECOMMENDED ASPHALT PAVEMENT SECTION LAYER THICKNESS

Pavement Material	Recommended Thickness	
	TI = 6.0	TI = 7.5
Asphalt Concrete Surface Course	3.0 inches	4.0 inches
Class II Aggregate Base Course	6.0 inches	8.0 inches
Compacted Subgrade Soil	12.0 inches	12.0 inches

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

We expect that concrete pavement may also be considered for on-site pavement areas. A concrete pavement section of 6.0 inches of Portland Cement Concrete (PCC) on compacted native soil should be adequate for the on-site concrete pavement limited to automobile and light truck traffic. In areas where heavy truck traffic is expected, the concrete pavement section should be increased to 7.0 inches of PCC on compact native soil. Properly spaced and constructed control joints including expansion joints and contraction joints should be incorporated into concrete pavement design to accommodate temperature and shrinkage related cracking. Joint spacing and joint patterns should be established based upon Portland Cement Association (PCA) and American Concrete Institute (ACI) guidelines.

CORROSION SERIES

The soluble sulfate concentrations of the surface soil were determined to be 140 parts per million (ppm). The soil is considered to have a "negligible" corrosion potential with respect to concrete. The use of Type V cement and special sulfate resistant concrete mixes will be required. The soluble sulfate content of the surface soil should be reevaluated after grading and appropriate concrete mix designs should be established based upon post-grading test results.

The pH level of the surface soil was determined to be 7.8. Based on soluble chloride concentration testing (170 ppm), the soil is considered to have a "low" corrosion potential with respect to normal grade steel. The minimum resistivity of the surface soil was found to be 640 ohm-cm, which suggests that the site soil is considered to have a "sever" corrosion potential with respect to ferrous metal installations. A corrosion expert should be consulted regarding appropriate corrosion protection measures for corrosion sensitive installations.

UTILITY TRENCH BACKFILL

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

EXTERIOR CONCRETE FLATWORK

To minimize cracking of concrete flatwork, the subgrade soil below concrete flatwork areas should first be compacted to a minimum of 90 percent relative compaction. A representative of the project geotechnical consultant should observe and verify the density and moisture content of the soil.

DRAINAGE

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

LIMITATIONS

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

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

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

ADDITIONAL SERVICES

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

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

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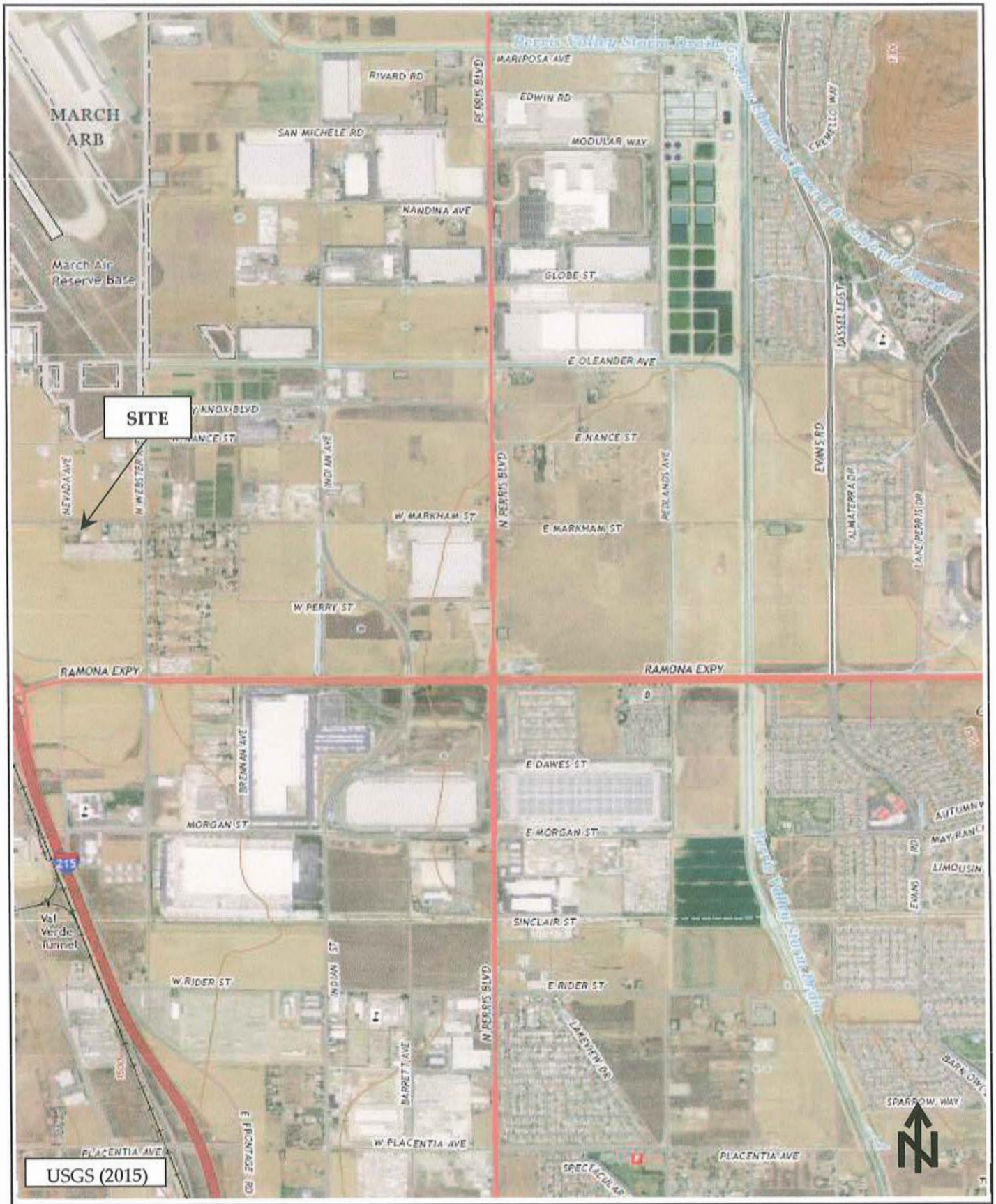
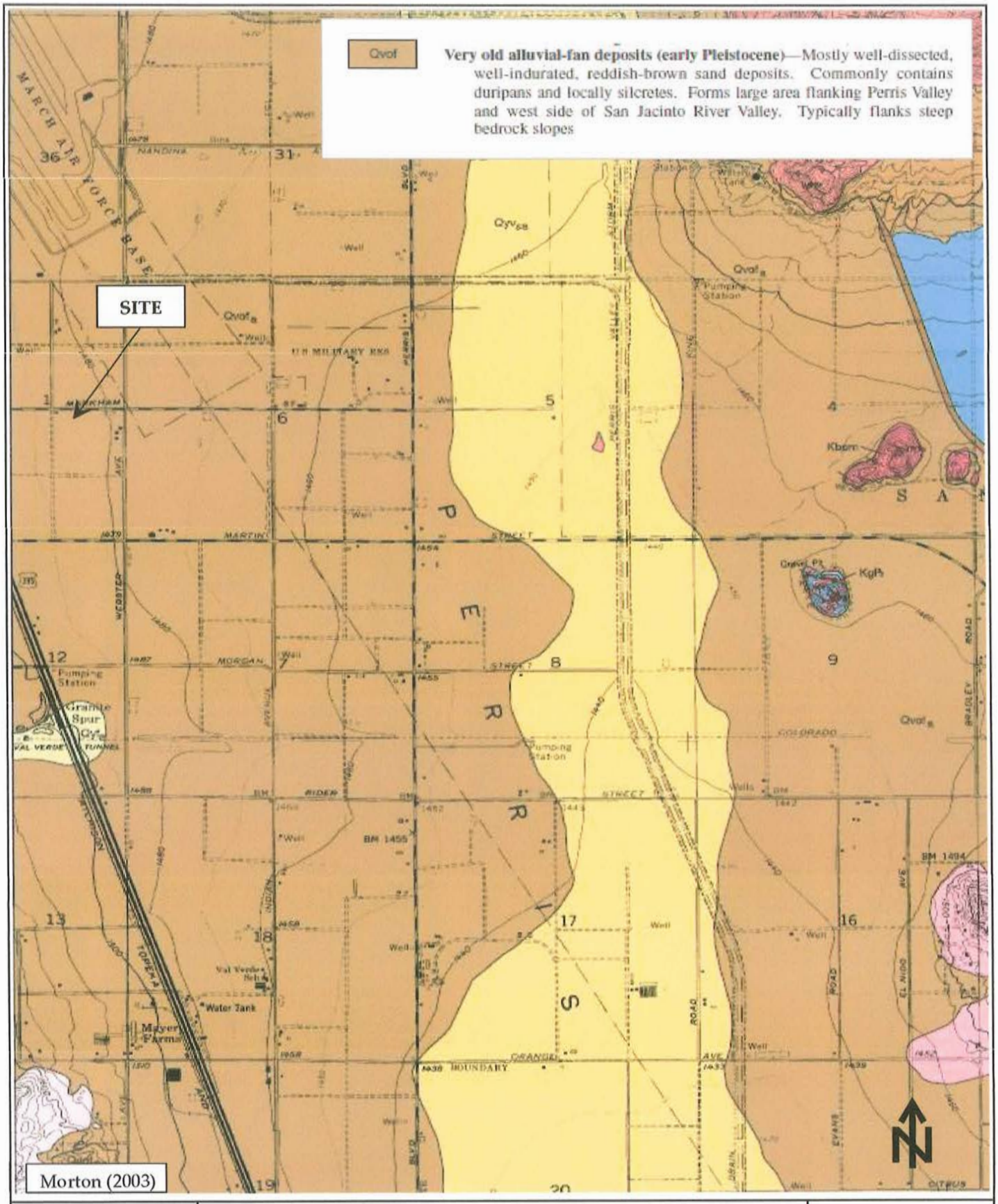
FIGURES

SITE LOCATION MAP
REGIONAL GEOLOGIC MAP
EXPLORATION LOCATION PLAN



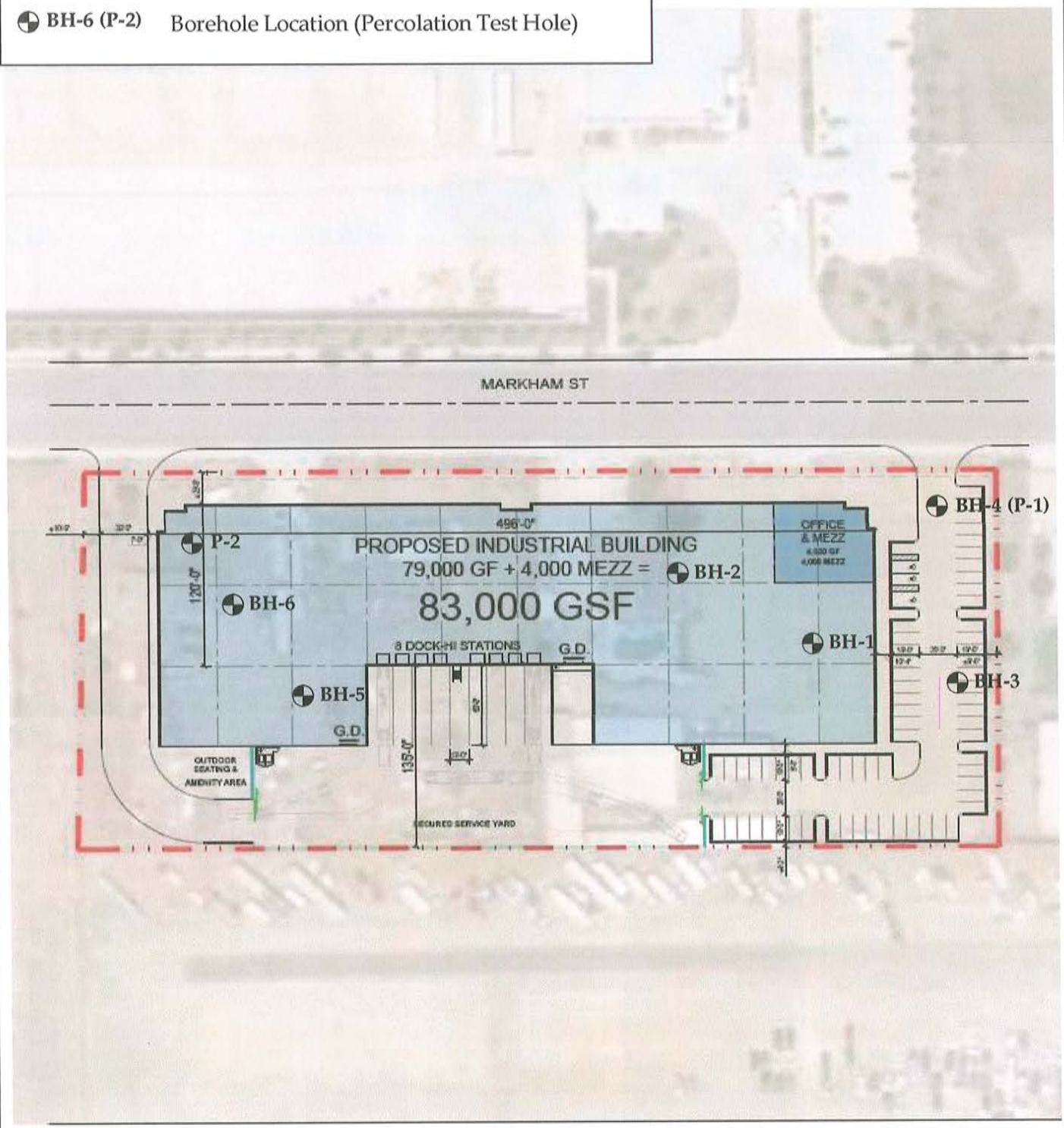
Sladden Engineering	SITE LOCATION MAP	FIGURE 1
	Project Number: 644-22018	
	Report Number: 22-05-068	
	Date: May 31, 2022	



Sladden Engineering	REGIONAL GEOLOGIC MAP	FIGURE 2
	Project Number: 644-22018	
	Report Number: 22-05-068	
	Date: May 31, 2022	

LEGEND

BH-6 (P-2) Borehole Location (Percolation Test Hole)



Sladden Engineering	EXPLORATION LOCATION PLAN		FIGURE 3
	Project Number:	644-22018	
	Report Number:	22-05-068	
	Date:	May 31, 2022	

APPENDIX A

FIELD EXPLORATION

APPENDIX A

FIELD EXPLORATION

For our field investigation seven (7) exploratory bores were excavated on April 4, 2022 utilizing a truck mounted hollow stem auger rig (Mobile B-61). Continuous logs of the materials encountered were made by a representative of Sladden Engineering. Materials encountered in the boreholes were classified in accordance with the Unified Soil Classification System which is presented in this appendix.

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

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

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BORE LOG

Equipment:	MOBILE B-61	Date Drilled:	4/4/2022
Elevation:	1,490 Ft. MSL	Boring No:	BH-1

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Density, pcf	Depth (Feet)	Graphic Lithology	Description
							2		Silty Sand to Clayey Sand (SM/SC); yellowish brown, dry, fine-grained (Disturbed/Fill).
	12 18 25	1	15	41.6	3.4	118.9	4		Clayey Sand (SC); dark brown, dry, medium dense, fine-grained with gravel (Qvof).
	18 34 39			33.8	4.0	134.5	6		Clayey Sand (SC); dark brown, dry, medium dense, fine-grained with gravel (Qvof).
	12 15 15			46.6	6.5		10		Clayey Sand (SC); reddish brown, dry, medium dense, fine-grained with gravel (Qvof).
	50-3			34.5	7.7	125.6	14		Clayey Sand (SC); reddish brown, dry, very dense, fine-grained with gravel (Qvof).
							16		Terminated at ~15.25 Feet bgs. No Bedrock Encountered. No Groundwater or Seepage Encountered.
							18		
							20		
							22		
							24		
							26		
							28		
							30		
							32		
							34		
							36		
							38		
							40		
							42		
							44		
							46		
							48		
							50		

Completion Notes:

PROPOSED INDUSTRIAL BUILDING
945-995 WEST MARKHAM STREET, PERRIS

Project No:	644-22018	Page	1
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Sladden Engineering

BORE LOG

Equipment:	MOBILE B-61	Date Drilled:	4/4/2022
Elevation:	1,490 Ft. MSL	Boring No:	BH-2

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Density, pcf	Depth (Feet)	Graphic Lithology	Description
							2		Silty Sand to Clayey Sand (SM/SC); yellowish brown, dry, fine-grained (Disturbed/Fill).
	8 10 12			56.7	11.4	129.5	4 6 8		Sandy Clay (CL); dark yellowish brown, slightly moist, very stiff, low plasticity (Qvof).
	20 27 33			37.2	10.3		10 12 14		Clayey Sand (SC); dark yellowish brown, slightly moist, dense, fine-grained (Qvof).
	18 21 24			35.9	8.6	130.8	16 18		Clayey Sand (SC); dark yellowish brown, slightly moist, very dense, fine-grained (Qvof).
	15 50-5			43.8	10.6		20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50		Clayey Sand (SC); dark yellowish brown, slightly moist, very dense, fine-grained (Qvof). Terminated at ~21.0 Feet bgs. No Bedrock Encountered. No Groundwater or Seepage Encountered.

Completion Notes:

PROPOSED INDUSTRIAL BUILDING
945-995 WEST MARKHAM STREET, PERRIS

Project No:	644-22018	Page	2
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Sladden Engineering

BORE LOG

Equipment:	MOBILE B-61	Date Drilled:	4/4/2022
Elevation:	1,490 Ft. MSL	Boring No:	BH-3

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Density, pcf	Depth (Feet)	Graphic Lithology	Description
							0		Silty Sand to Clayey Sand (SM/SC); yellowish brown, dry, fine-grained (Disturbed/Fill).
							2		
X	50-3						4		No Recovery.
							6		
							8		
							10		
	9 14 17			47.9	8.1		12		Clayey Sand (SC); dark yellowish brown, dry to slightly moist, dense, fine-grained (Qvof)>
							14		Terminated at ~11.5 Feet bgs.
							16		No Bedrock Encountered.
							18		No Groundwater or Seepage Encountered.
							20		
							22		
							24		
							26		
							28		
							30		
							32		
							34		
							36		
							38		
							40		
							42		
							44		
							46		
							48		
							50		

Completion Notes:

PROPOSED INDUSTRIAL BUILDING
945-995 WEST MARKHAM STREET, PERRIS

Project No:	644-22018	Page	3
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Sladden Engineering

BORE LOG

Equipment:	MOBILE B-61	Date Drilled:	4/4/2022
Elevation:	1,490 Ft. MSL	Boring No:	BH-4 (P-1)

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Density, pcf	Depth (Feet)	Graphic Lithology	Description
							0		Silty Sand to Clayey Sand (SM/SC); yellowish brown, dry, fine-grained (Disturbed/Fill).
							2		
							4		
	8 10 11			43.1	6.6		6		Clayey Sand (SC); dark yellowish brown to reddish brown, dry, medium dense, fine-grained (Qvof).
							8		
	18 24 50-6			46.0	8.5	134.3	10		Clayey Sand (SC); dark yellowish brown to reddish brown, dry, medium dense, fine-grained with gravel (Qvof).
							12		
							14		Terminated at ~11.5 Feet bgs. No Bedrock Encountered. No Groundwater or Seepage Encountered. Cased to Facilitate Percolation Testing.
							16		
							18		
							20		
							22		
							24		
							26		
							28		
							30		
							32		
							34		
							36		
							38		
							40		
							42		
							44		
							46		
							48		
							50		

Completion Notes:

PROPOSED INDUSTRIAL BUILDING
945-995 WEST MARKHAM STREET, PERRIS

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Sladden Engineering

BORE LOG

Equipment:	MOBILE B-61	Date Drilled:	4/4/2022
Elevation:	1,490 Ft. MSL	Boring No:	BH-5

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Density, pcf	Depth (Feet)	Graphic Lithology	Description
							2		Silty Sand to Clayey Sand (SM/SC); yellowish brown, dry, fine-grained (Disturbed/Fill).
	8 13 17			49.9	7.2	125.7	6		Clayey Sand (SC); yellowish brown, dry, medium dense, fine-grained (Qvof).
	9 10 12			17.3	4.3		10		Clayey Sand (SC); yellowish brown, dry, medium dense, fine-grained (Qvof).
	12 50-5			38.2	10.4	125.6	16		Clayey Sand (SC); yellowish brown, dry, very dense, fine-grained with gravel (Qvof).
	7 10 11			45.3	10.2		20		Clayey Sand (SC); yellowish brown, dry, medium dense, fine-grained (Qvof).
	11 20 25			48.1	9.5	122.6	26		Clayey Sand (SC); reddish brown, dry, medium dense, fine-grained (Qvof).
	6 11 15			42.7	9.6		30		Clayey Sand (SC); reddish brown, dry, medium dense, fine-grained (Qvof).
	14 17 52			29.3	5.5	128.9	36		Clayey Sand (SC); reddish brown, dry, medium dense, fine-grained (Qvof).
	17 19 22			29.1	6.3		40		Clayey Sand (SC); reddish brown, dry, dense, fine-grained (Qvof).
	22 35 50-6			44.6	8.3	133.6	46		Clayey Sand (SC); reddish brown, dry, very dense, fine-grained (Qvof).
							48		
							50		

Completion Notes:
Practical Auger Refusal at ~48.0 Feet bgs.
No Bedrock Encountered.
No Groundwater or Seepage Encountered.

PROPOSED INDUSTRIAL BUILDING
945-995 WEST MARKHAM STREET, PERRIS

Project No:	644-22018	Page	5
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Sladden Engineering

BORE LOG

Equipment:	MOBILE B-61	Date Drilled:	4/4/2022
Elevation:	1,490 Ft. MSL	Boring No:	BH-6

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Density, pcf	Depth (Feet)	Graphic Lithology	Description
							0		Silty Sand to Clayey Sand (SM/SC); yellowish brown, dry, fine-grained (Disturbed/Fill).
							2		
							4		
■	14 18 27			50.6	7.0	133.7	6		Sandy Clay (CL); reddish brown, dry to slighlty moist, very stiff, low plasticity (Qvof).
							8		
■	9 18 29			50.4	9.5		10		Sandy Clay (CL); reddish brown, dry to slighlty moist, hard, low plasticity (Qvof).
							12		
							14		
■	11 26 41			51.5	10.1	131.0	16		Sandy Clay (CL); reddish brown, slighlty moist, hard, low plasticity (Qvof).
							18		
							20		Terminated at ~16.5 Feet bgs. No Bedrock Encountered. No Groundwater or Seepage Encountered.
							22		
							24		
							26		
							28		
							30		
							32		
							34		
							36		
							38		
							40		
							42		
							44		
							46		
							48		
							50		

Completion Notes:

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945-995 WEST MARKHAM STREET, PERRIS

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Sladden Engineering

BORE LOG

Equipment:	MOBILE B-61	Date Drilled:	4/4/2022
Elevation:	1,490 Ft. MSL	Boring No:	P-2

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Density, pcf	Depth (Feet)	Graphic Lithology	Description
							2		Silty Sand to Clayey Sand (SM/SC); yellowish brown, dry, fine-grained (Disturbed/Fill).
							4		Clayey Sand (SC); reddish brown, dry, fine-grained (Qvof).
							6		Termianted at ~5.0 Feet bgs. No Bedrock Encountered. No Groundwater or Seepage Encountered. Cased to Facilitate Percolation Testing
							8		
							10		
							12		
							14		
							16		
							18		
							20		
							22		
							24		
							26		
							28		
							30		
							32		
							34		
							36		
							38		
							40		
							42		
							44		
							46		
							48		
							50		

Completion Notes:

PROPOSED INDUSTRIAL BUILDING
945-995 WEST MARKHAM STREET, PERRIS

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Report No:	22-05-068		

APPENDIX B

LABORATORY TESTING

APPENDIX B

LABORATORY TESTING

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

CLASSIFICATION AND COMPACTION TESTING

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

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

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

SOIL MECHANIC'S TESTING

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

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

Consolidation Testing: Two (2) relatively undisturbed samples were selected for consolidation testing. For this test, a one-inch thick test specimen was subjected to vertical loads varying from 575 psf to 11520 psf applied progressively. The consolidation at each load increment was recorded prior to placement of each subsequent load. The specimens were saturated at 575 psf or 720 psf load increment.

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

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Maximum Density/Optimum Moisture

ASTM D698/D1557

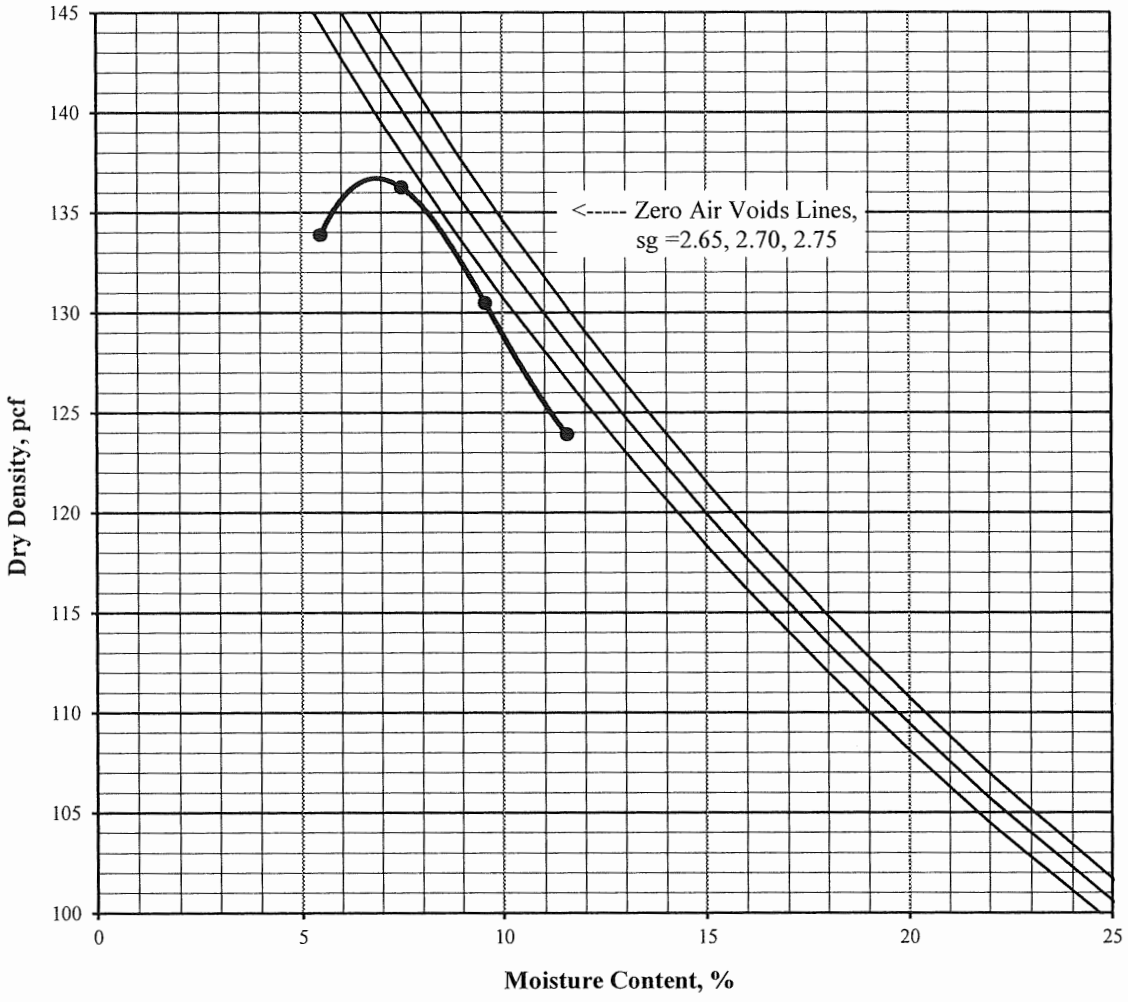
Project Number: 644-22018
Project Name: 945-995 West Markham Street
Lab ID Number: LN6-22169
Sample Location: BH-1 Bulk 1 @ 0-5'
Description: Dark Brown Clayey Sand (SC)

May 23, 2022

ASTM D-1557 A
Rammer Type: Machine

Maximum Density: 136.5 pcf
Optimum Moisture: 7.5%

Sieve Size	% Retained
3/4"	
3/8"	
#4	0.4



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Expansion Index

ASTM D 4829

Job Number: 644-22018

May 23, 2022

Job Name: 945-995 West Markham Street

Lab ID Number: LN6-22169

Sample ID: BH-1 Bulk 1 @ 0-5'

Soil Description: Dark Brown Clayey Sand (SC)

Wt of Soil + Ring:	603.8
Weight of Ring:	188.6
Wt of Wet Soil:	415.2
Percent Moisture:	6.3%
Sample Height, in	0.95
Wet Density, pcf:	132.9
Dry Denstiy, pcf:	125.0

% Saturation:	48.9

Expansion **Rack # 2**

Date/Time	5/19/2022	3:30 PM
Initial Reading	0.0000	
Final Reading	0.0145	

Expansion Index **15**

(Final - Initial) x 1000

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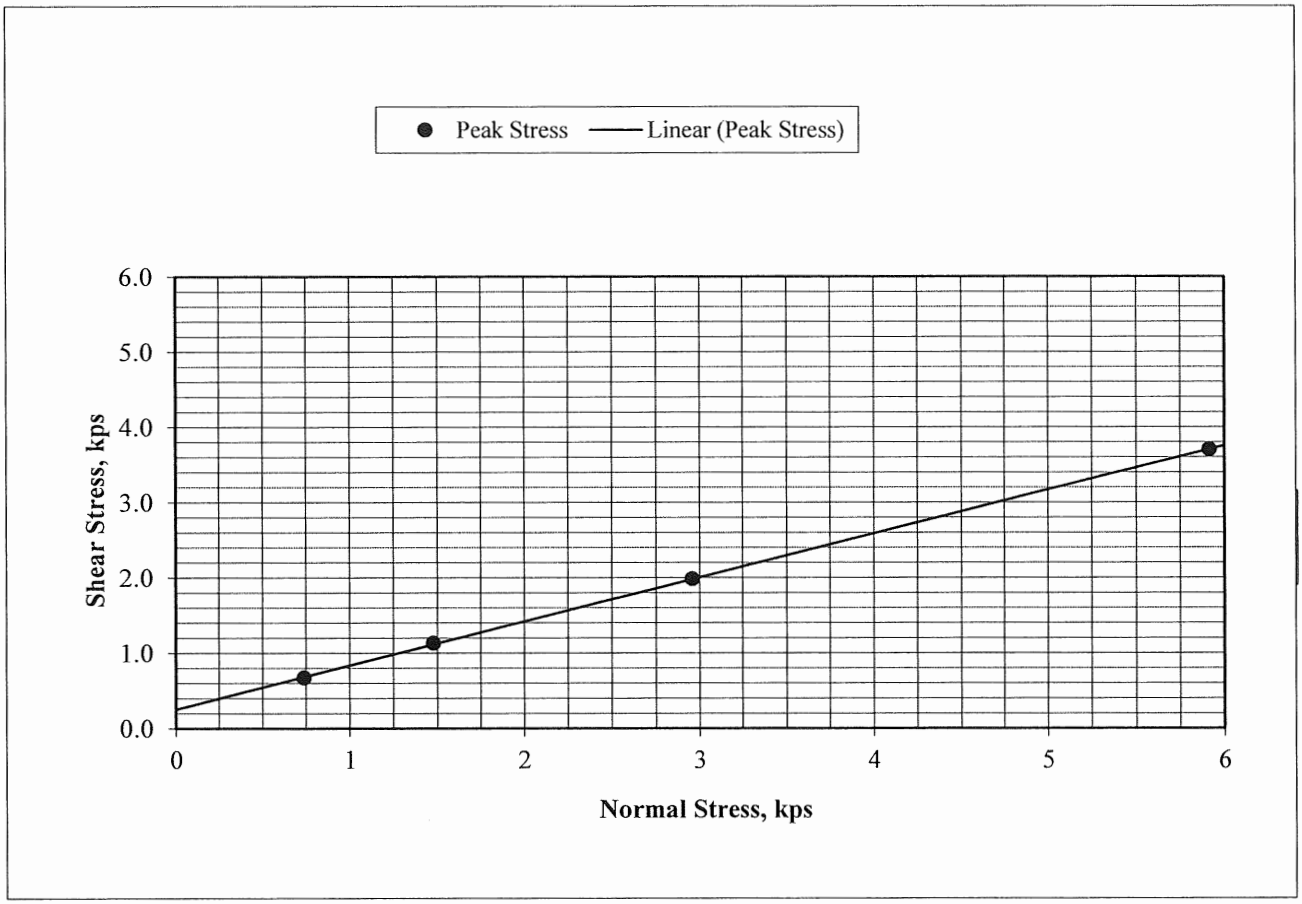
Direct Shear ASTM D 3080-04
(modified for unconsolidated condition)

Job Number:	644-22018		May 23, 2022
Job Name	945-995 West Markham Street		Initial Dry Density: 122.8 pcf
Lab ID No.	LN6-22169		Initial Mosture Content: 7.5 %
Sample ID	BH-1 Bulk 1 @ 0-5'		Peak Friction Angle (Ø): 30°
Classification	Dark Brown Clayey Sand (SC)		Cohesion (c): 260 psf
Sample Type	Remolded @ 90% of Maximum Density		

Test Results	1	2	3	4	Average
Moisture Content, %	12.8	12.8	12.8	12.8	12.8
Saturation, %	92.7	92.7	92.7	92.7	92.7
Normal Stress, kps	0.739	1.479	2.958	5.916	
Peak Stress, kps	0.676	1.134	1.984	3.706	



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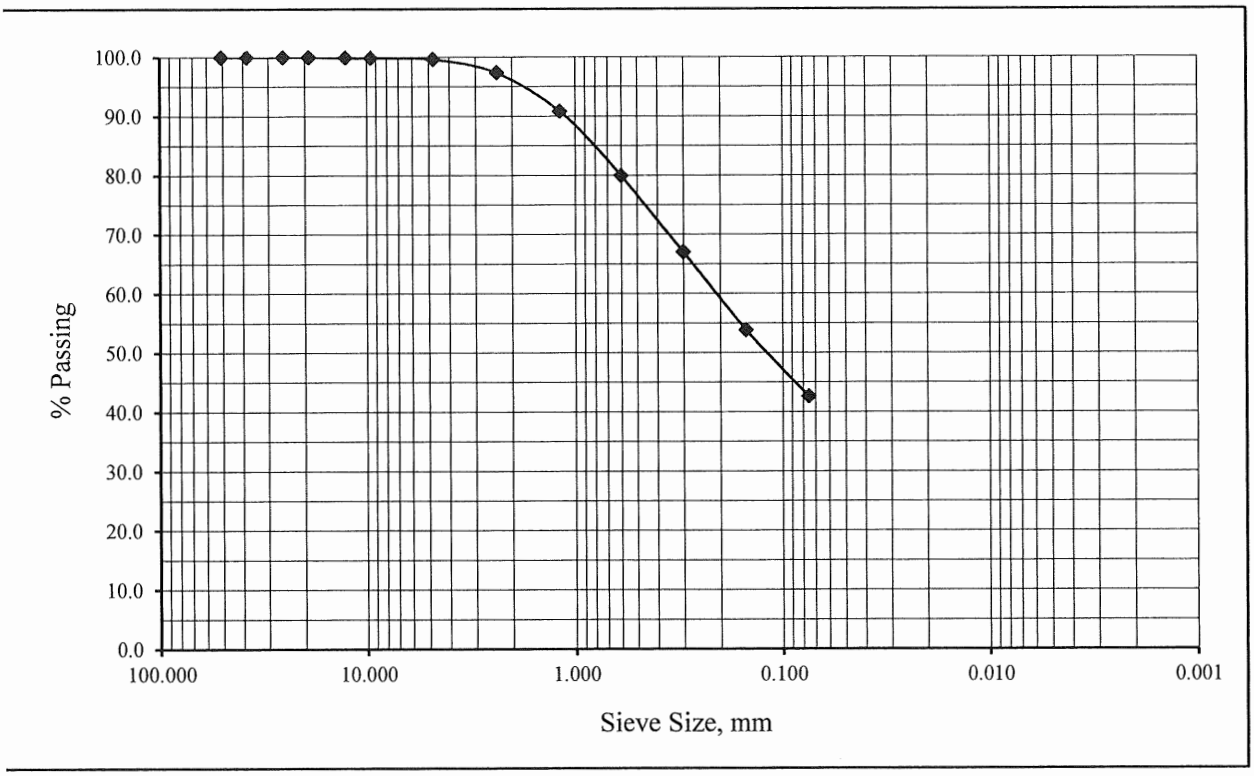
Gradation

ASTM C117 & C136

Project Number: 644-22018 May 23, 2022
Project Name: 945-995 West Markham Street
Lab ID Number: LN6-22169
Sample ID: BH-1 Bulk 1 @ 0-5' Soil Classification: SC

Sieve Size, in	Sieve Size, mm	Percent Passing
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	99.9
3/8"	9.53	99.9
#4	4.75	99.7
#8	2.36	97.4
#16	1.18	90.9
#30	0.60	80.0
#50	0.30	67.0
#100	0.15	53.9
#200	0.075	42.6



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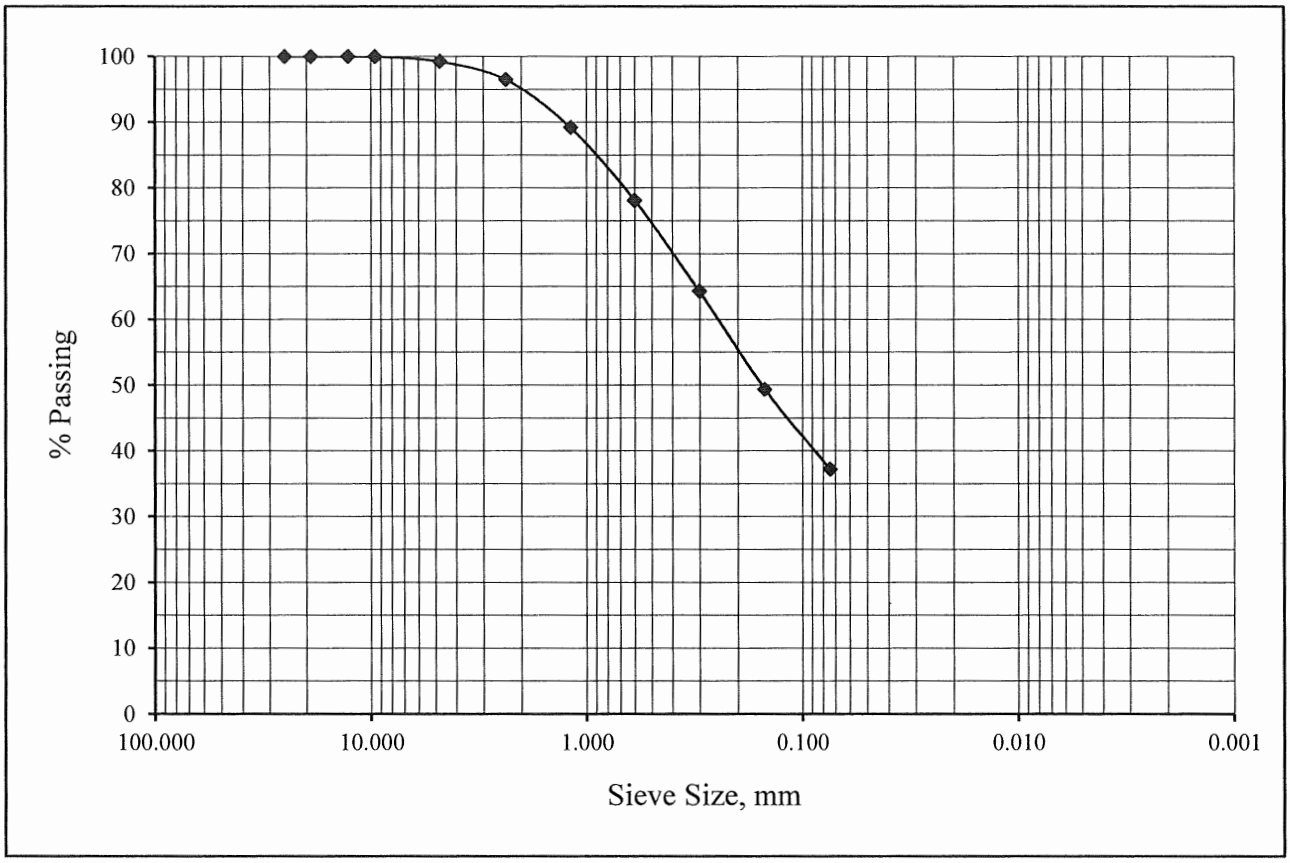
Gradation

ASTM C117 & C136

Project Number: 644-22018 May 23, 2022
Project Name: 945-995 West Markham Street
Lab ID Number: LN6-22169
Sample ID: BH-2 R-2 @ 10' Soil Classification: SC

Sieve Size, in	Sieve Size, mm	Percent Passing
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	100.0
3/8"	9.53	100.0
#4	4.75	99.3
#8	2.36	96.5
#16	1.18	89.2
#30	0.60	78.1
#50	0.30	64.3
#100	0.15	49.4
#200	0.074	37.2



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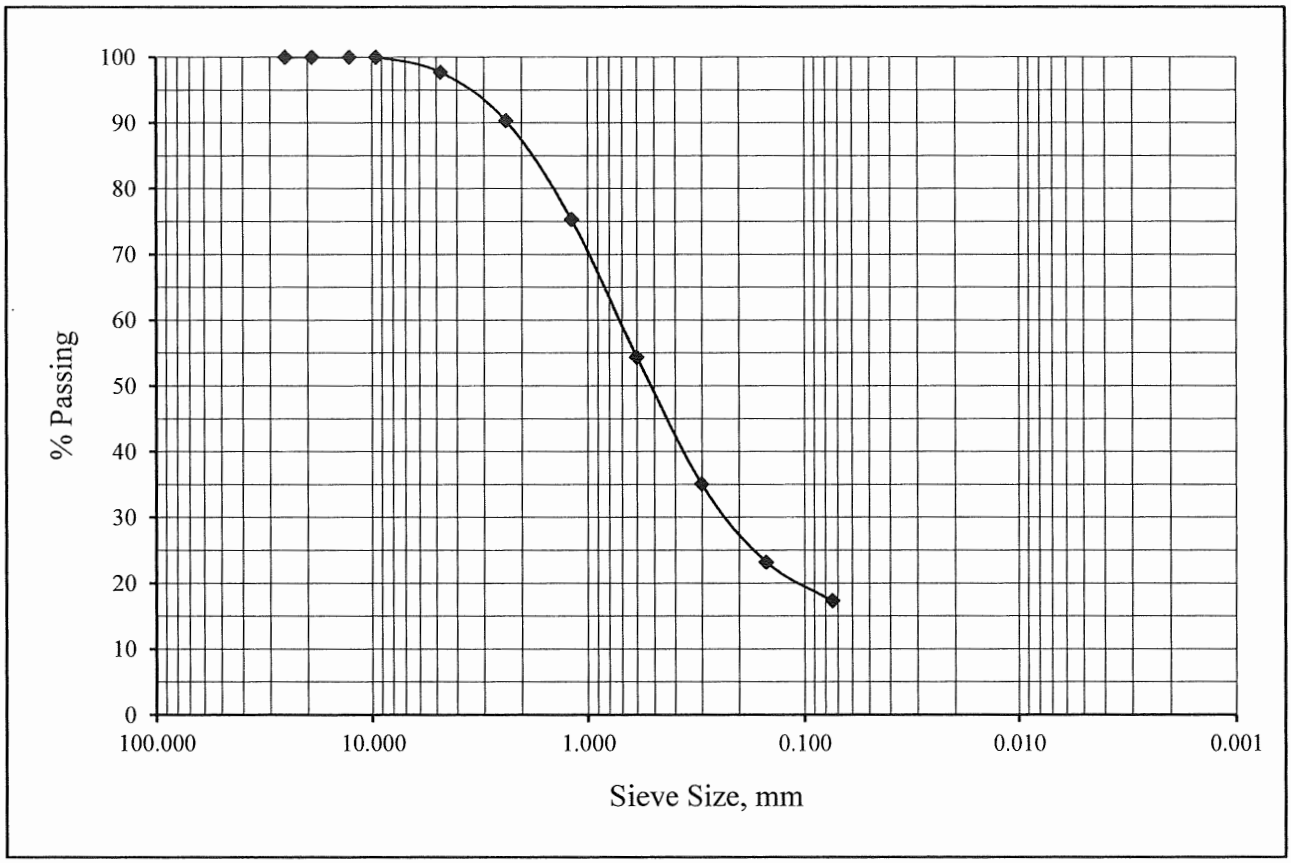
Gradation

ASTM C117 & C136

Project Number: 644-22018 May 23, 2022
Project Name: 945-995 West Markham Street
Lab ID Number: LN6-22169
Sample ID: BH-5 S-2 @ 10' Soil Classification: SC

Sieve Size, in	Sieve Size, mm	Percent Passing
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	100.0
3/8"	9.53	100.0
#4	4.75	97.7
#8	2.36	90.3
#16	1.18	75.3
#30	0.60	54.4
#50	0.30	35.1
#100	0.15	23.2
#200	0.074	17.3



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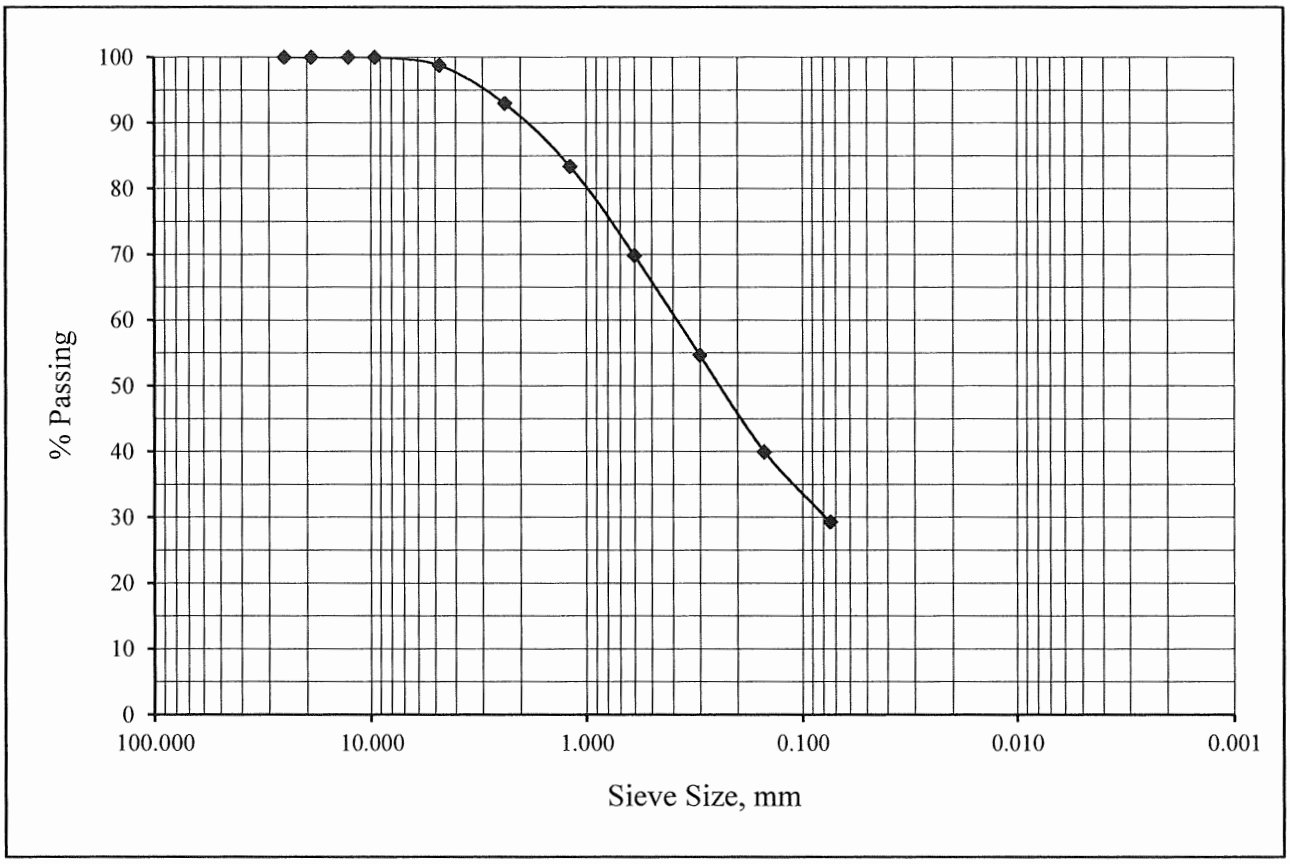
Gradation

ASTM C117 & C136

Project Number: 644-22018 May 23, 2022
Project Name: 945-995 West Markham Street
Lab ID Number: LN6-22169
Sample ID: BH-5 R-7 @ 35' Soil Classification: SC

Sieve Size, in	Sieve Size, mm	Percent Passing
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	100.0
3/8"	9.53	100.0
#4	4.75	98.8
#8	2.36	93.0
#16	1.18	83.4
#30	0.60	69.8
#50	0.30	54.7
#100	0.15	40.0
#200	0.074	29.3



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One Dimensional Consolidation

ASTM D2435 & D5333

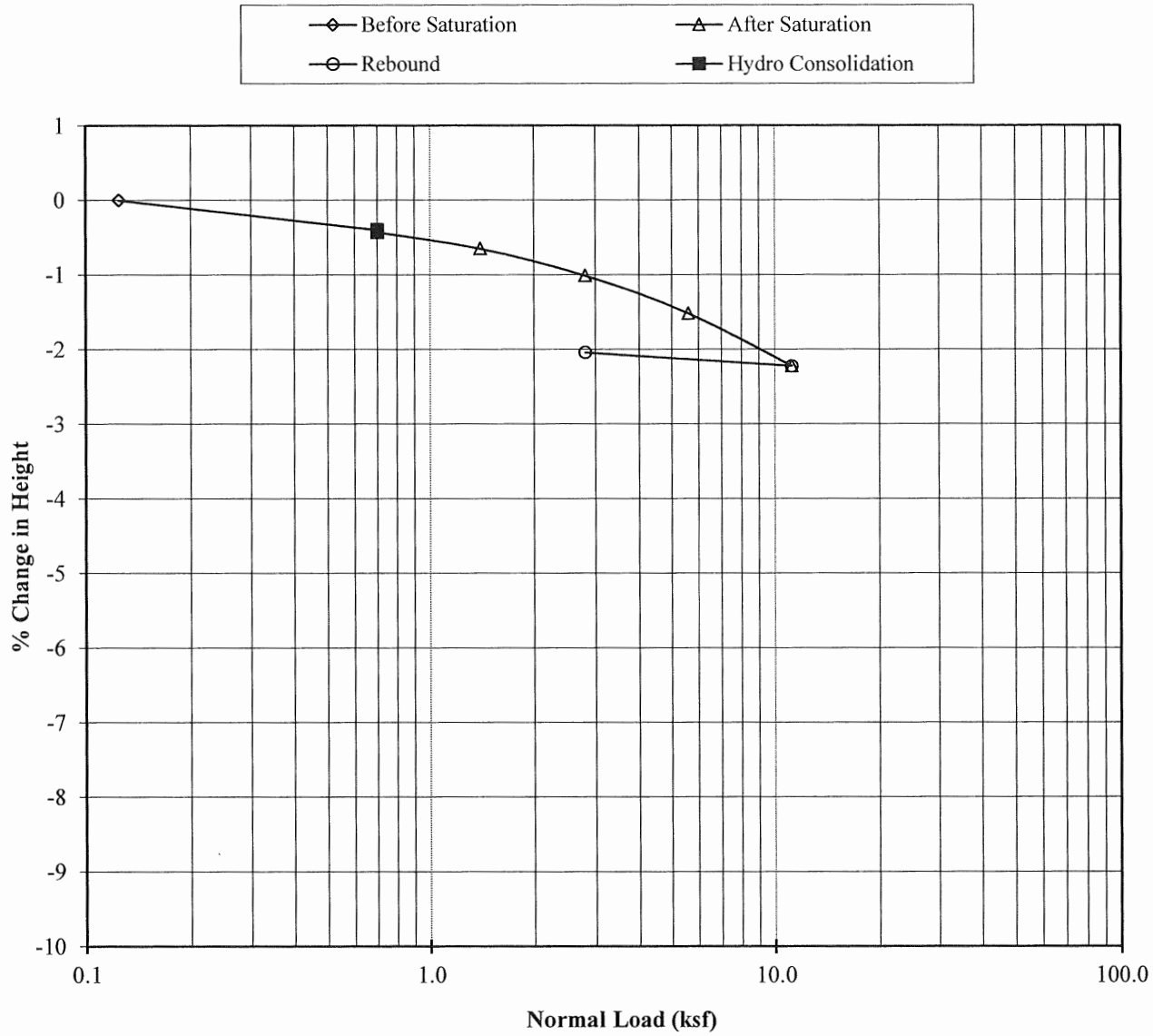
Job Number: 644-22018
Job Name: 945-995 West Markham Street

May 23, 2022

Lab ID Number: LN6-22169
Sample ID: BH-2 R-2 @ 10'
Soil Description: Brown Clayey Sand (SC)

Initial Dry Density, pcf:	128.0
Initial Moisture, %:	10.3
Initial Void Ratio:	0.303
Specific Gravity:	2.67

% Change in Height vs Normal Presssure Diagram



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One Dimensional Consolidation

ASTM D2435 & D5333

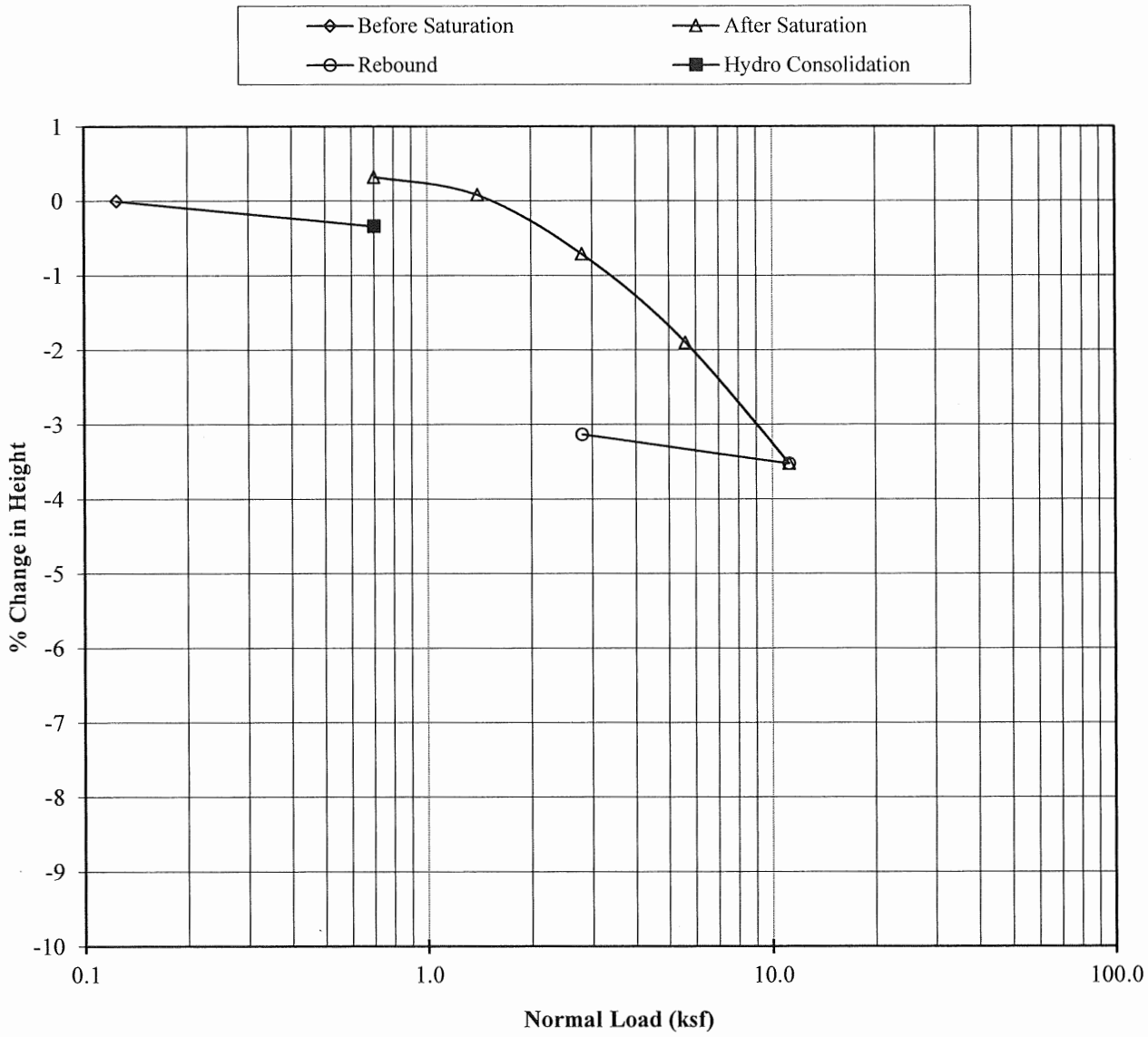
Job Number: 644-22018
Job Name: 945-995 West Markham Street

May 23, 2022

Lab ID Number: LN6-22169
Sample ID: BH-5 R-1 @ 5'
Soil Description: Brown Clayey Sand (SC)

Initial Dry Density, pcf:	126.5
Initial Moisture, %:	7.2
Initial Void Ratio:	0.318
Specific Gravity:	2.67

% Change in Height vs Normal Presssure Diagram



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RESISTANCE '*R*' VALUE AND EXPANSION PRESSURE

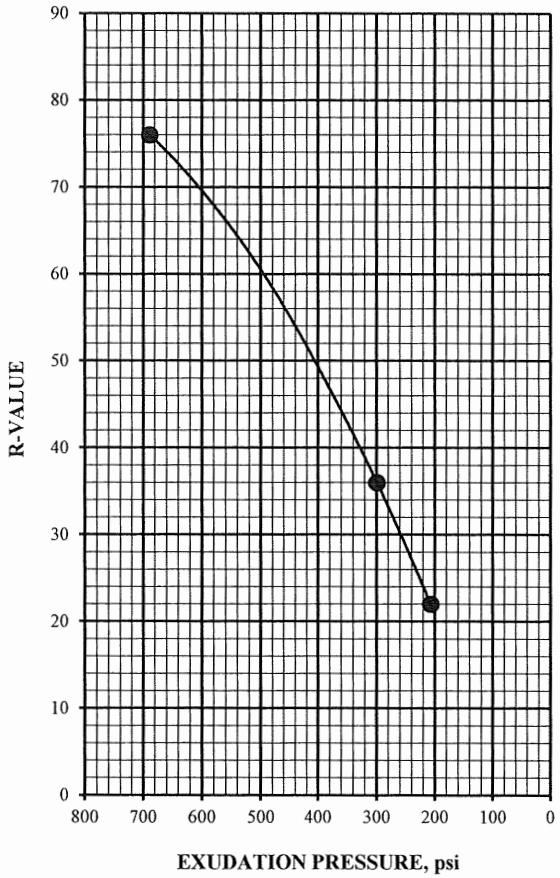
CTM 301

May 23, 2022

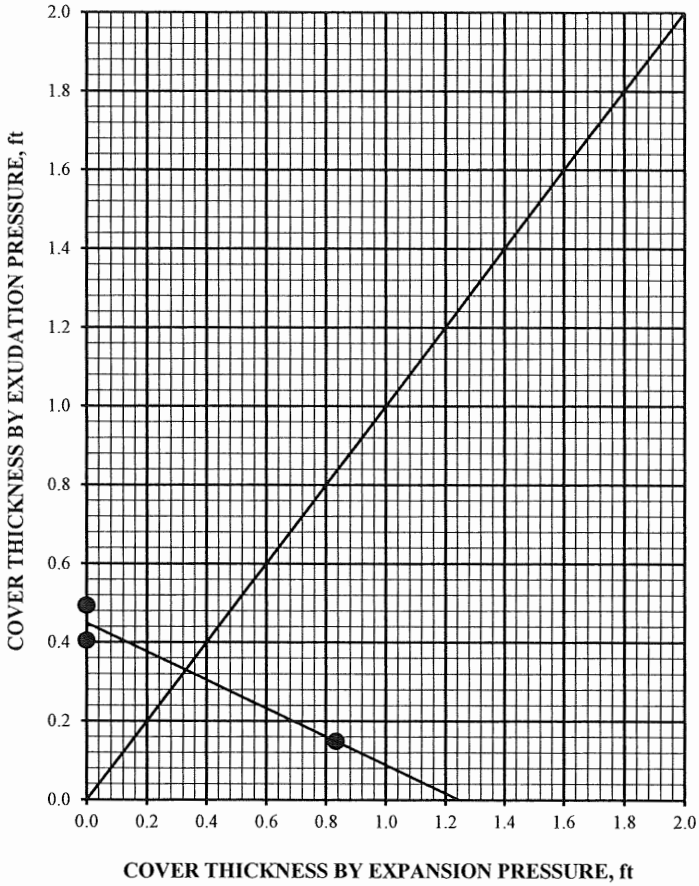
Project Number: 644-22018
Project Name: 945-995 West Markham Street
Lab ID Number: LN6-22169
Sample ID: BH-1 Bulk 1 @ 0-5'
Sample Description: Dark Brown Clayey Sand (SC)
Specified Traffic Index: 5.0

Dry Density @ 300 psi Exudation Pressure: 129.6-pcf
%Moisture @ 300 psi Exudation Pressure: 9.4%
R-Value - Exudation Pressure: 36
R-Value - Expansion Pressure: 48
R-Value @ Equilibrium: 36

EXUDATION PRESSURE CHART



EXPANSION PRESSURE CHART



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45090 Golf Center Pkwy, Suite F, Indio CA 92201 (760) 863-0713 Fax (760) 863-0847
450 Egan Avenue, Beaumont, CA 92223 (951) 845-7743 Fax (951) 845-8863

Date: May 23, 2022

Account No.: 644-22018

Customer: Dedeaux Properties

Location: APN's 314-17-0009 & 0010, 945-995 West Markham Street, Perris

Analytical Report

Corrosion Series

	pH per CA 643	Soluble Sulfates per CA 417 ppm	Soluble Chloride per CA 422 ppm	Min. Resistivity per CA 643 ohm-cm
BH-1 @ 0-5'	7.8	140	170	640

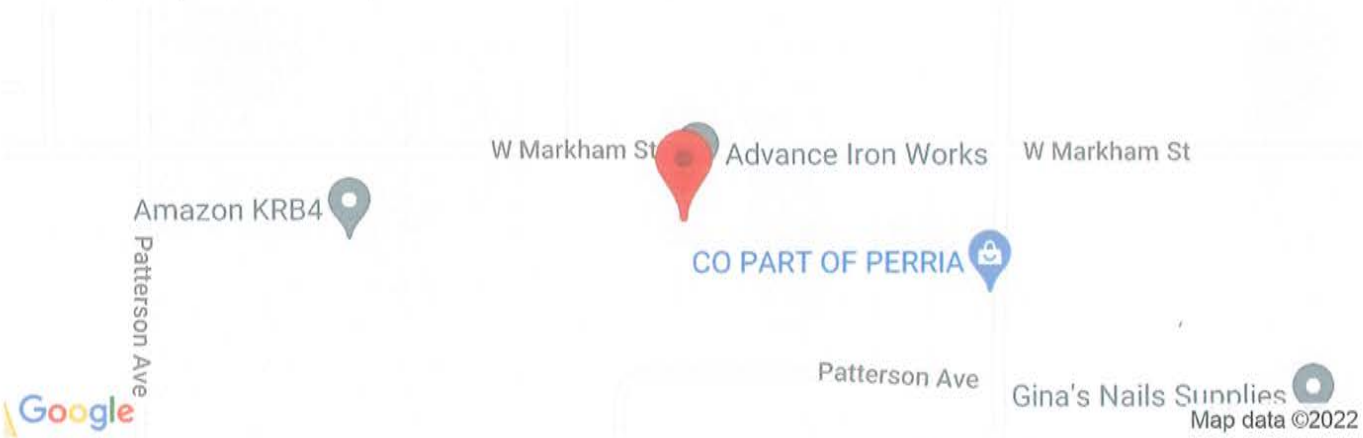
APPENDIX C

SEISMIC DESIGN MAP AND REPORT
SITE SPECIFIC GROUND MOTION PARAMETERS

OSHPD

945-995 West Markham Street, Perris

Latitude, Longitude: 33.8513, -117.2471



Date	5/19/2022, 10:34:11 AM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	D - Stiff Soil

Type	Value	Description
S_S	1.5	MCE_R ground motion. (for 0.2 second period)
S_1	0.572	MCE_R ground motion. (for 1.0s period)
S_{MS}	1.5	Site-modified spectral acceleration value
S_{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{DS}	1	Numeric seismic design value at 0.2 second SA
S_{D1}	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
F_a	1	Site amplification factor at 0.2 second
F_v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.5	MCE_G peak ground acceleration
F_{PGA}	1.1	Site amplification factor at PGA
PGA_M	0.55	Site modified peak ground acceleration
T_L	8	Long-period transition period in seconds
SsRT	1.535	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	1.642	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.5	Factored deterministic acceleration value. (0.2 second)
S1RT	0.572	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.627	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.6	Factored deterministic acceleration value. (1.0 second)
PGAd	0.5	Factored deterministic acceleration value. (Peak Ground Acceleration)
C_{RS}	0.935	Mapped value of the risk coefficient at short periods

Type	Value	Description
C_{R1}	0.912	Mapped value of the risk coefficient at a period of 1 s

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Project: 945-995 West Markham Street, Perris
Project Number: 644-22018
Client: Dedeaux Properties
Site Lat/Long: 33.8513/-117.2471
Controlling Seismic Source: San Jacinto

REFERENCE	NOTATION	VALUE
Site Class	C, D, D default, or E	D measured
Site Class D - Table 11.4-1	F_a	1.0
Site Class D - 21.3(ii)	F_v	2.5
$0.2*(S_{D1}/S_{DS})$	T_0	0.132
S_{D1}/S_{DS}	T_S	0.659
Fundamental Period (12.8.2)	T	Period
Seismic Design Maps or Fig 22-14	T_L	8
Equation 11.4-4 - $2/3*S_{M1}$	S_{D1}	0.6589*
Equation 11.4-2 - F_V*S_1	S_{M1}	0.9884*

REFERENCE	NOTATION	VALUE
Fv (Table 11.4-2)[Used for General Spectrum]	F_v	1.7
Design Maps	S_s	1.500
Design Maps	S_1	0.572
Equation 11.4-1 - F_A*S_S	S_{MS}	1.500*
Equation 11.4-3 - $2/3*S_{MS}$	S_{DS}	1.00*
Design Maps	PGA	0.5
Table 11.8-1	F_{PGA}	1.1
Equation 11.8-1 - F_{PGA}*PGA	PGA_M	0.55*
Section 21.5.3	80% of PGA_M	0.440
Design Maps	C_{RS}	0.935
Design Maps	C_{R1}	0.912

RISK COEFFICIENT

Cr - At Perods <=0.2, Cr=C_{RS}	C_{RS}	0.935
Cr - At Periods >=1.0, Cr=C_{R1}	C_{R1}	0.912

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

Period	Cr
0.200	0.935
0.300	0.932
0.400	0.929
0.500	0.926
0.600	0.924
0.680	0.921
1.000	0.912

* Code based design value. See accompanying data for Site Specific Design values.

Mapped values from https://seismicmaps.org/

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PROBABILISTIC SPECTRA[1]
2% in 50 year Exceedence

Project No: 644-22018

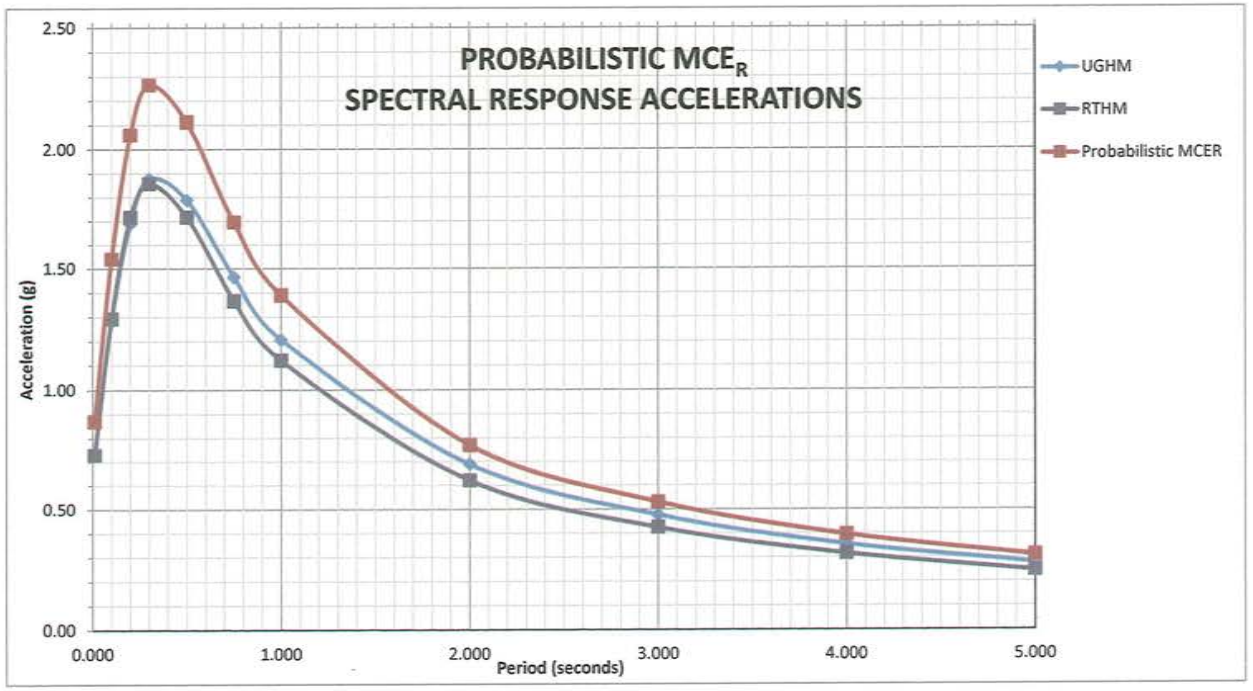
Period	UGHM	RTHM	Max Directional Scale Factor[2]	Probabilistic MCE
0.010	0.737	0.731	1.19	0.870
0.100	1.286	1.294	1.19	1.540
0.200	1.691	1.717	1.20	2.060
0.300	1.878	1.858	1.22	2.267
0.500	1.789	1.717	1.23	2.112
0.750	1.466	1.367	1.24	1.695
1.000	1.208	1.121	1.24	1.390
2.000	0.691	0.622	1.24	0.771
3.000	0.477	0.425	1.25	0.531
4.000	0.355	0.316	1.25	0.395
5.000	0.279	0.246	1.26	0.310

Probabilistic PGA: 0.737

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

[1] Data Sources:
https://earthquake.usgs.gov/hazards/interactive/
https://earthquake.usgs.gov/designmaps/rtgm/

[2] Shahi-Baker RotD100/RotD50 Factors (2014)



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DETERMINISTIC SPECTRUM

Largest Amplitudes of Ground Motions Considering All Sources Calculated using Weighted Mean of Attenuation Equations[1]

Controlling Source: San Jacinto

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

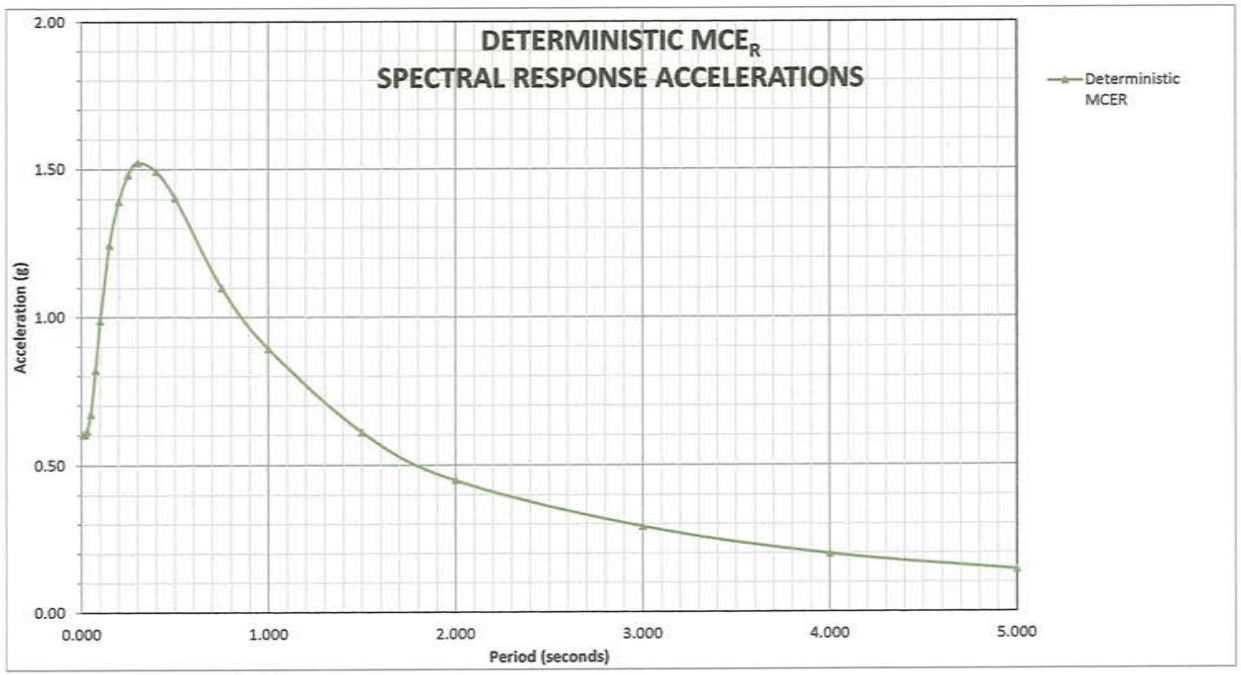
Period	Deterministic PSa Median + 1.σ for 5% Damping	Max Directional Scale Factor[2]	Deterministic MCE	Section 21.2.2 Scaling Factor Applied
0.010	0.506	1.19	0.602	0.602
0.020	0.507	1.19	0.604	0.604
0.030	0.518	1.19	0.616	0.616
0.050	0.563	1.19	0.670	0.670
0.075	0.688	1.19	0.819	0.819
0.100	0.830	1.19	0.987	0.987
0.150	1.036	1.20	1.243	1.243
0.200	1.159	1.20	1.391	1.391
0.250	1.224	1.21	1.481	1.481
0.300	1.247	1.22	1.521	1.521
0.400	1.214	1.23	1.493	1.493
0.500	1.141	1.23	1.404	1.404
0.750	0.887	1.24	1.100	1.100
1.000	0.720	1.24	0.893	0.893
1.500	0.492	1.24	0.610	0.610
2.000	0.362	1.24	0.449	0.449
3.000	0.233	1.25	0.291	0.291
4.000	0.158	1.25	0.198	0.198
5.000	0.114	1.26	0.143	0.143

Project No: 644-22018

Is Determinstic $Sa_{(max)}$<1.5*Fa?	NO
Section 21.2.2 Scaling Factor:	N/A
Deterministic PGA:	~~0.506~~
Is Deterministic PGA >=F_{PGA}*0.5?	NO
Deterministic PGA:	0.550

[1] NGAWest 2 GMPE worksheet and Uniform California Earthquake Rupture Forecast, Version 3 (UCERF3) - Time Dependent Model

[2] Shahi-Baker RotD100/RotD50 Factors (2014)



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SITE SPECIFIC SPECTRA

Period	Probabilistic MCE	Deterministic MCE	Site-Specific MCE	Design Response Spectrum (Sa)
0.010	0.870	0.602	0.602	0.402
0.100	1.540	0.987	0.987	0.684
0.200	2.060	1.391	1.391	0.927
0.300	2.267	1.521	1.521	1.014
0.500	2.112	1.404	1.404	0.936
0.750	1.695	1.100	1.100	0.733
1.000	1.390	0.893	0.893	0.595
2.000	0.771	0.449	0.449	0.299
3.000	0.531	0.291	0.291	0.194
4.000	0.395	0.198	0.198	0.132
5.000	0.310	0.143	0.143	0.105

ASCE 7-16: Section 21.4

	Site Specific	
	Calculated Value	Design Value
SDS:	0.913	0.913
SD1:	0.599	0.599
SMS:	1.369	1.369
SM1:	0.898	0.898
Site Specific PGAm:	0.550	0.550
Site Class:	D measured	

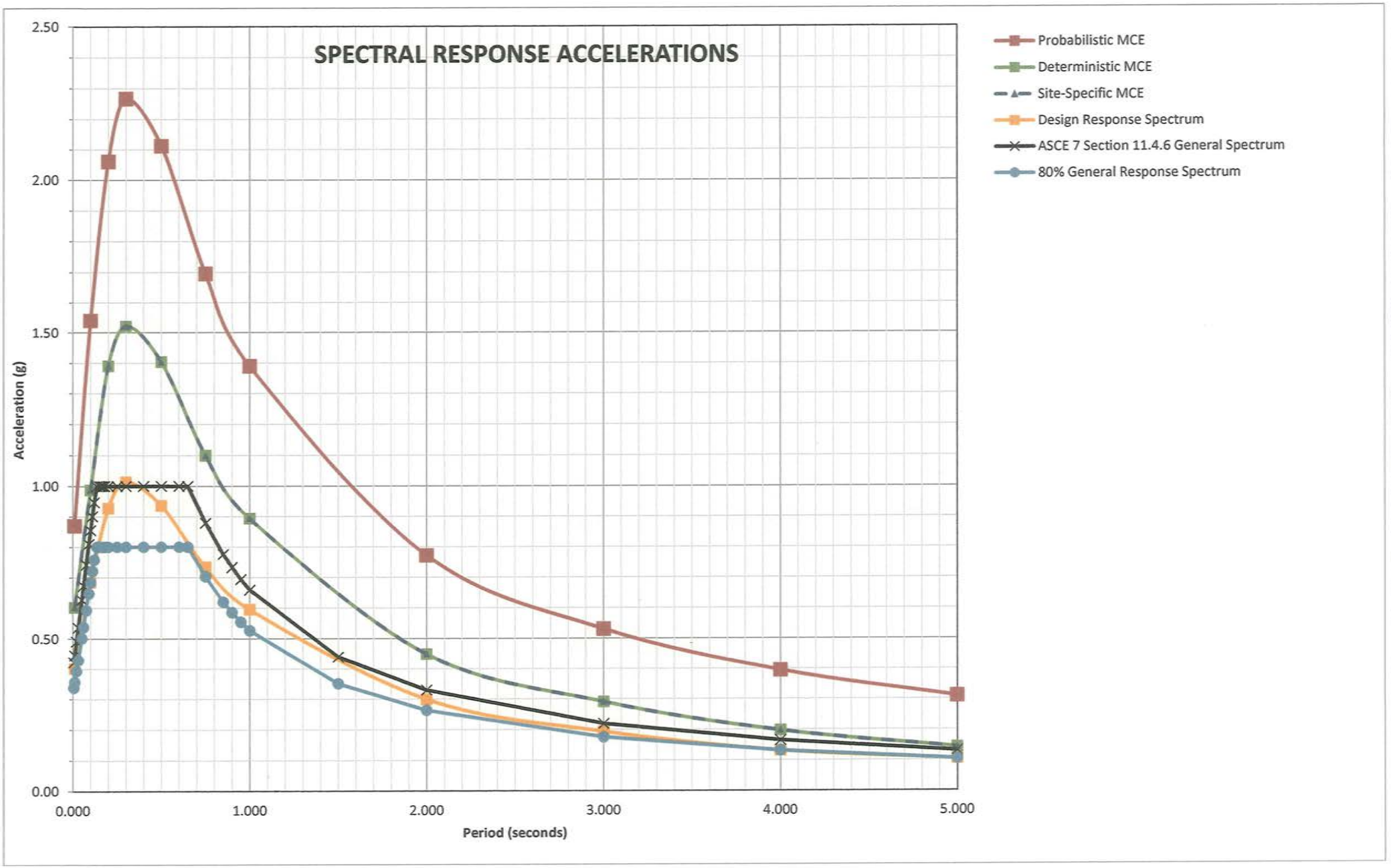
Seismic Design Category - Short* D

Seismic Design Category - 1s* D

* Risk Categories I, II, or III

Period	ASCE 7 SECTION 11.4.6 General Spectrum	80% General Response Spectrum
0.005	0.423	0.338
0.010	0.446	0.356
0.020	0.491	0.393
0.030	0.537	0.429
0.050	0.628	0.502
0.060	0.673	0.539
0.075	0.741	0.593
0.090	0.810	0.648
0.100	0.855	0.684
0.110	0.901	0.721
0.120	0.946	0.757
0.136	1.000	0.800
0.150	1.000	0.800
0.160	1.000	0.800
0.170	1.000	0.800
0.180	1.000	0.800
0.200	1.000	0.800
0.250	1.000	0.800
0.300	1.000	0.800
0.400	1.000	0.800
0.500	1.000	0.800
0.600	1.000	0.800
0.650	1.000	0.800
0.750	0.879	0.703
0.850	0.775	0.620
0.900	0.732	0.586
0.950	0.694	0.555
1.000	0.659	0.527
1.500	0.439	0.351
2.000	0.329	0.264
3.000	0.220	0.176
4.000	0.165	0.132
5.000	0.132	0.105

Project No: 644-22018


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

APPENDIX C – PERCOLATION REPORT

Sladden Engineering

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450 Egan Avenue, Beaumont, CA. 92223 (951) 845-7743 Fax (951) 845-8863
www.sladdenengineering.com

May 31, 2022

Project No. 644-22018
22-05-069

Dedeaux Properties
100 Wilshire Boulevard, Suite 250
Santa Monica, California 90401

Project: Proposed Industrial Building
945-995 West Markham Street
APN 314-170-009 & 314-170-010
Perris, California

Subject: Percolation/Infiltration Testing for On-Site Stormwater Management

Ref: Geotechnical Investigation, Proposed Industrial Building, 945-995 West Markham Street, Perris, California; prepared by Sladden Engineering, Project No 644-22018, Report No. 22-05-068, dated May 31, 2022

In accordance with your request, we have performed percolation testing on the subject site to evaluate the infiltration potential of the near surface soil to assist in stormwater management system design. It is our understanding that on-site stormwater retention including infiltration is proposed for the project.

Percolation testing was performed on April 7, 2022 within two (2) shallow tests bores excavated on the site. Testing was performed at depths of approximately 10 and 5 feet below existing grade. The approximate locations of the test holes are presented on the attached Exploration Location Plan (Figure 3). Testing was performed by placing water within the test holes and recording the drop in the water surface with time. Testing was performed in general accordance with the *United States Bureau of Reclamation (BOR) Procedure 7300-89 (1999)*. Test results are summarized in the following table.

PERCOLATION TEST RESULTS

Test No.	Depth (Ft)	USCS	Percolation Rate (in/hr)	Infiltration Rate (in/hr)
P-1	10	SC	9.75	1.01
P-2	5	SC	12.00	1.14

The percolation rates determined represent the ultimate field rates that do not include a safety factor. The corresponding infiltration rates were calculated using the Porchet Method.

Based on our field investigation and our review of groundwater levels[1] within the vicinity, it is our professional opinion that groundwater should not be a controlling factor in on-site stormwater retention/infiltration system design.

If you have any questions regarding this memo or the testing summarized herein, please contact the undersigned.

Respectfully submitted,
SLADDEN ENGINEERING

Matthew J. Cohrt
Principal Geologist

CERTIFIED ENGINEERING GEOLOGIST
MATTHEW J. COHRT
2634
STATE OF CALIFORNIA

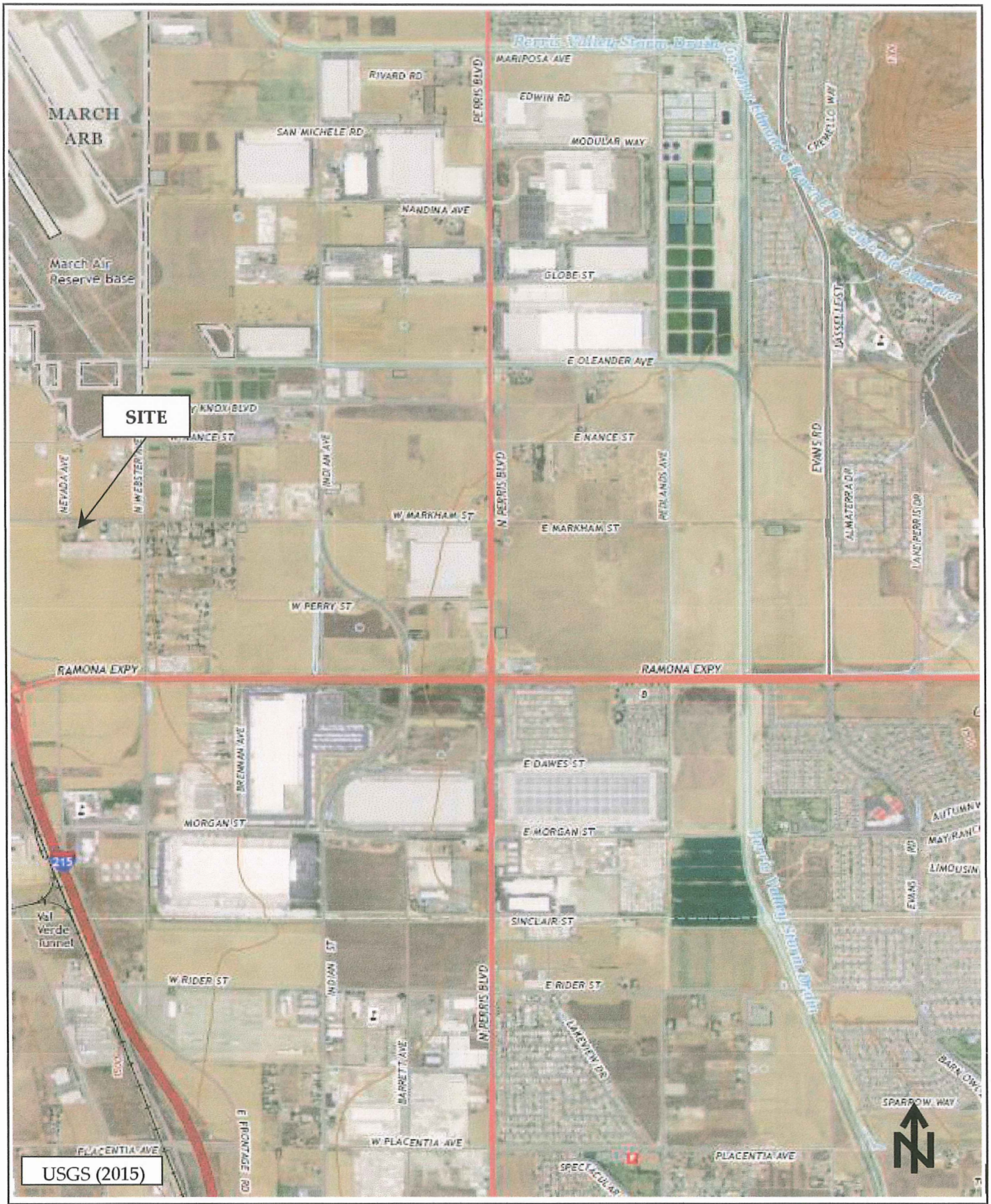
Brett L. Anderson
Principal Engineer

REGISTERED PROFESSIONAL ENGINEER
BRETT L. ANDERSON
No. C45389
CIVIL ENGINEERING
STATE OF CALIFORNIA

Copies: 4/Addressee

[1] California Department of Water Resources (CDWR), 2022,, Historical Data by Well-Map Interface, available at: http://wdl.water.ca.gov/waterdatalibrary/Home.aspx

SITE LOCATION MAP
REGIONAL GEOLOGIC MAP
EXPLORATION LOCATION PLAN



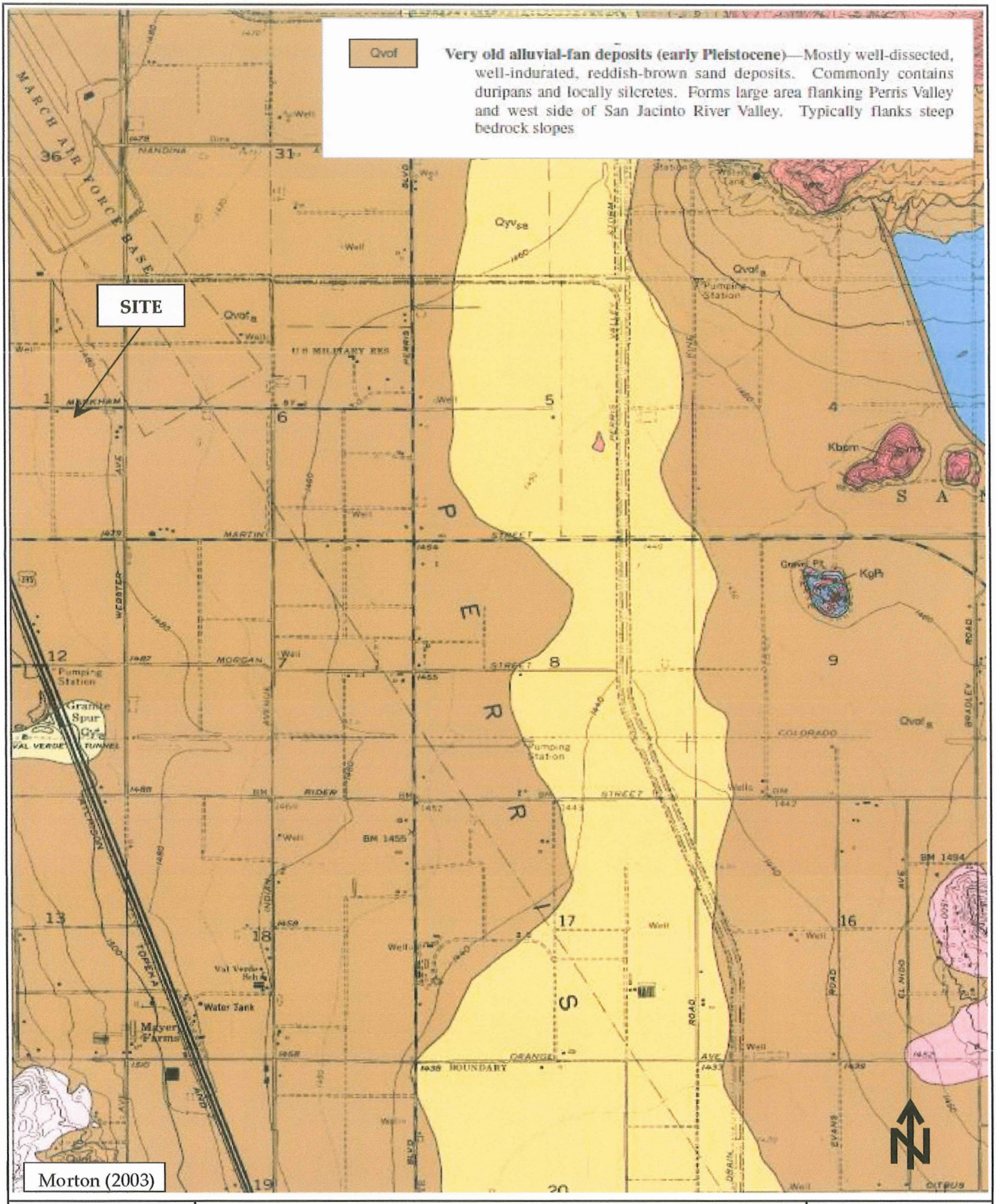
USGS (2015)

Sladden Engineering

SITE LOCATION MAP

Project Number:	644-22018
Report Number:	22-05-069
Date:	May 31, 2022

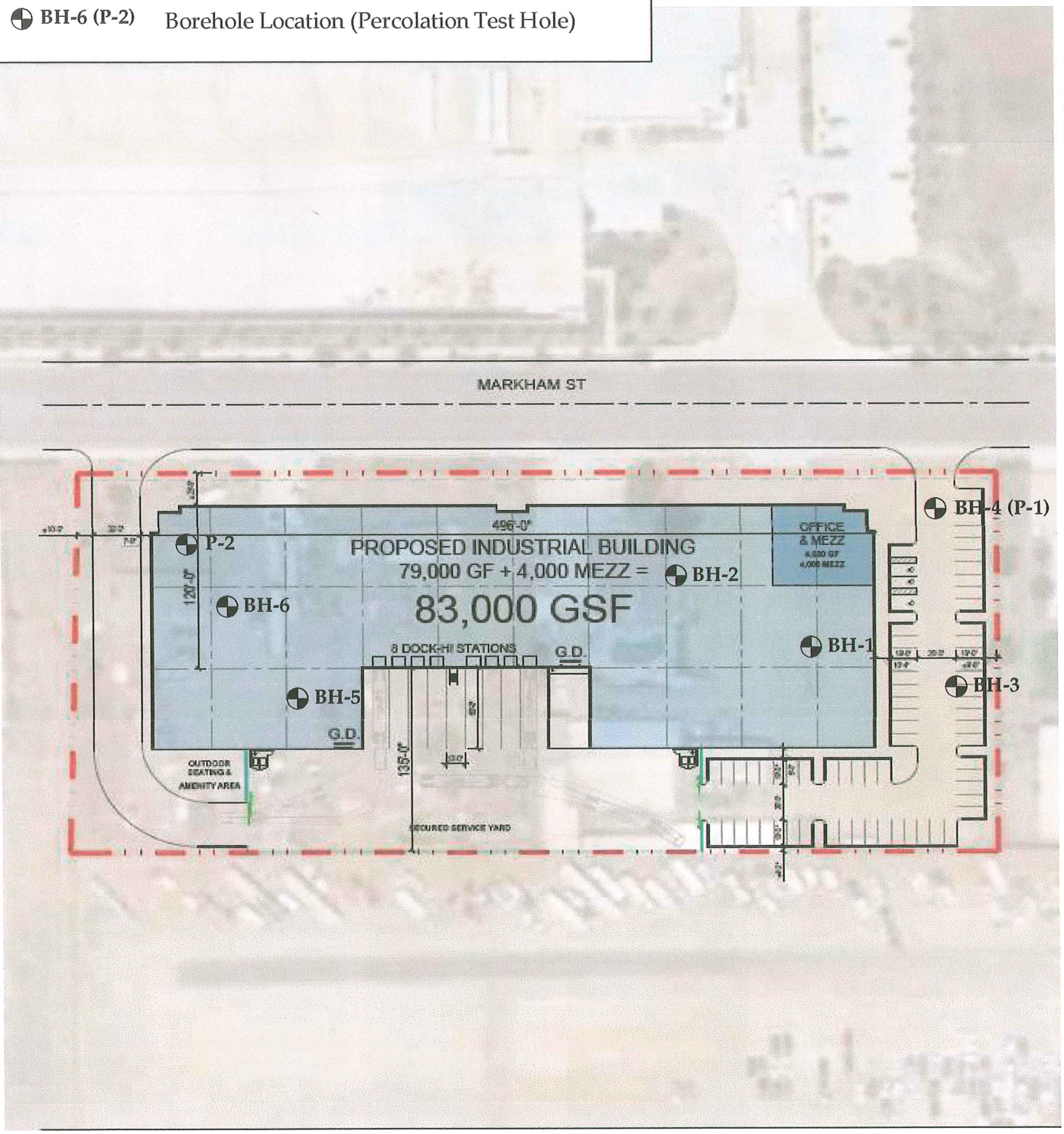
FIGURE 1



Sladden Engineering	REGIONAL GEOLOGIC MAP	FIGURE 2
	Project Number: 644-22018	
	Report Number: 22-05-069	
	Date: May 31, 2022	

LEGEND

BH-6 (P-2) Borehole Location (Percolation Test Hole)



N

Sladden Engineering

EXPLORATION LOCATION PLAN

Project Number:	644-22018
Report Number:	22-05-069
Date:	May 31, 2022

FIGURE

3

BORELOGS

Sladden Engineering

BORE LOG

Equipment:	MOBILE B-61	Date Drilled:	4/4/2022
Elevation:	1,490 Ft. MSL	Boring No:	BH-1

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Density, pcf	Depth (Feet)	Graphic Lithology	Description
							0		Silty Sand to Clayey Sand (SM/SC); yellowish brown, dry, fine-grained (Disturbed/Fill).
	12 18 25	1	15	41.6	3.4	118.9	2		Clayey Sand (SC); dark brown, dry, medium dense, fine-grained with gravel (Qvof).
	18 34 39			33.8	4.0	134.5	4		Clayey Sand (SC); dark brown, dry, medium dense, fine-grained with gravel (Qvof).
	12 15 15			46.6	6.5		6		Clayey Sand (SC); reddish brown, dry, medium dense, fine-grained with gravel (Qvof).
	50-3			34.5	7.7	125.6	8		Clayey Sand (SC); reddish brown, dry, very dense, fine-grained with gravel (Qvof).
							10		Terminated at ~15.25 Feet bgs. No Bedrock Encountered. No Groundwater or Seepage Encountered.
							12		
							14		
							16		
							18		
							20		
							22		
							24		
							26		
							28		
							30		
							32		
							34		
							36		
							38		
							40		
							42		
							44		
							46		
							48		
							50		

Completion Notes:

PROPOSED INDUSTRIAL BUILDING
945-995 WEST MARKHAM STREET, PERRIS

Project No:	644-22018	Page	1
Report No:	22-05-069		

Sladden Engineering

BORE LOG

Equipment:	MOBILE B-61	Date Drilled:	4/4/2022
Elevation:	1,490 Ft. MSL	Boring No:	BH-2

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Density, pcf	Depth (Feet)	Graphic Lithology	Description
							0		Silty Sand to Clayey Sand (SM/SC); yellowish brown, dry, fine-grained (Disturbed/Fill).
							2		
							4		
	8 10 12			56.7	11.4	129.5	6		Sandy Clay (CL); dark yellowish brown, slightly moist, very stiff, low plasticity (Qvof).
							8		
	20 27 33			37.2	10.3		10		Clayey Sand (SC); dark yellowish brown, slightly moist, dense, fine-grained (Qvof).
							12		
							14		
	18 21 24			35.9	8.6	130.8	16		Clayey Sand (SC); dark yellowish brown, slightly moist, very dense, fine-grained (Qvof).
							18		
	15 50-5			43.8	10.6		20		Clayey Sand (SC); dark yellowish brown, slightly moist, very dense, fine-grained (Qvof).
							22		Terminated at ~21.0 Feet bgs. No Bedrock Encountered. No Groundwater or Seepage Encountered.
							24		
							26		
							28		
							30		
							32		
							34		
							36		
							38		
							40		
							42		
							44		
							46		
							48		
							50		

Completion Notes:

PROPOSED INDUSTRIAL BUILDING
945-995 WEST MARKHAM STREET, PERRIS

Project No:	644-22018	Page	2
Report No:	22-05-069		

Sladden Engineering

BORE LOG

Equipment:	MOBILE B-61	Date Drilled:	4/4/2022
Elevation:	1,490 Ft. MSL	Boring No:	BH-3

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Density, pcf	Depth (Feet)	Graphic Lithology	Description
							0		Silty Sand to Clayey Sand (SM/SC); yellowish brown, dry, fine-grained (Disturbed/Fill).
X	50-3						2		No Recovery.
	9 14 17			47.9	8.1		10		Clayey Sand (SC); dark yellowish brown, dry to slightly moist, dense, fine-grained (Qvof)>
							12		Terminated at ~11.5 Feet bgs. No Bedrock Encountered. No Groundwater or Seepage Encountered.

Completion Notes:

PROPOSED INDUSTRIAL BUILDING
945-995 WEST MARKHAM STREET, PERRIS

Project No:	644-22018	Page	3
Report No:	22-05-069		

Sladden Engineering

BORE LOG

Equipment:	MOBILE B-61	Date Drilled:	4/4/2022
Elevation:	1,490 Ft. MSL	Boring No:	BH-4 (P-1)

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Density, pcf	Depth (Feet)	Graphic Lithology	Description
							0		Silty Sand to Clayey Sand (SM/SC); yellowish brown, dry, fine-grained (Disturbed/Fill).
							2		
							4		
	8 10 11			43.1	6.6		6		Clayey Sand (SC); dark yellowish brown to reddish brown, dry, medium dense, fine-grained (Qvof).
							8		
	18 24 50-6			46.0	8.5	134.3	10		Clayey Sand (SC); dark yellowish brown to reddish brown, dry, medium dense, fine-grained with gravel (Qvof).
							12		Terminated at ~11.5 Feet bgs. No Bedrock Encountered. No Groundwater or Seepage Encountered. Cased to Facilitate Percolation Testing.
							14		
							16		
							18		
							20		
							22		
							24		
							26		
							28		
							30		
							32		
							34		
							36		
							38		
							40		
							42		
							44		
							46		
							48		
							50		

Completion Notes:

PROPOSED INDUSTRIAL BUILDING
945-995 WEST MARKHAM STREET, PERRIS

Project No:	644-22018	Page	4
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Sladden Engineering

BORE LOG

Equipment:	MOBILE B-61	Date Drilled:	4/4/2022
Elevation:	1,490 Ft. MSL	Boring No:	BH-5

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Density, pcf	Depth (Feet)	Graphic Lithology	Description
							0		Silty Sand to Clayey Sand (SM/SC); yellowish brown, dry, fine-grained (Disturbed/Fill).
							2		
							4		
■	8 13 17			49.9	7.2	125.7	6		Clayey Sand (SC); yellowish brown, dry, medium dense, fine-grained (Qvof).
							8		
■	9 10 12			17.3	4.3		10		Clayey Sand (SC); yellowish brown, dry, medium dense, fine-grained (Qvof).
							12		
■	12 50-5			38.2	10.4	125.6	14		Clayey Sand (SC); yellowish brown, dry, very dense, fine-grained with gravel (Qvof).
							16		
■	7 10 11			45.3	10.2		18		Clayey Sand (SC); yellowish brown, dry, medium dense, fine-grained (Qvof).
							20		
■	11 20 25			48.1	9.5	122.6	22		Clayey Sand (SC); reddish brown, dry, medium dense, fine-grained (Qvof).
							24		
■	6 11 15			42.7	9.6		26		Clayey Sand (SC); reddish brown, dry, medium dense, fine-grained (Qvof).
							28		
■	14 17 52			29.3	5.5	128.9	30		Clayey Sand (SC); reddish brown, dry, medium dense, fine-grained (Qvof).
							32		
■	17 19 22			29.1	6.3		34		Clayey Sand (SC); reddish brown, dry, dense, fine-grained (Qvof).
							36		
■	22 35 50-6			44.6	8.3	133.6	38		Clayey Sand (SC); reddish brown, dry, very dense, fine-grained (Qvof).
							40		
							42		
							44		
							46		
							48		
							50		

Completion Notes:
Practical Auger Refusal at ~48.0 Feet bgs.
No Bedrock Encountered.
No Groundwater or Seepage Encountered.

PROPOSED INDUSTRIAL BUILDING
945-995 WEST MARKHAM STREET, PERRIS

Project No:	644-22018	Page	5
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Sladden Engineering

BORE LOG

Equipment:	MOBILE B-61	Date Drilled:	4/4/2022
Elevation:	1,490 Ft. MSL	Boring No:	BH-6

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Density, pcf	Depth (Feet)	Graphic Lithology	Description
							2		Silty Sand to Clayey Sand (SM/SC); yellowish brown, dry, fine-grained (Disturbed/Fill).
	14 18 27			50.6	7.0	133.7	6		Sandy Clay (CL); reddish brown, dry to slighlty moist, very stiff, low plasticity (Qvof).
	9 18 29			50.4	9.5		10		Sandy Clay (CL); reddish brown, dry to slighlty moist, hard, low plasticity (Qvof).
	11 26 41			51.5	10.1	131.0	16		Sandy Clay (CL); reddish brown, slighlty moist, hard, low plasticity (Qvof).
							20		Terminated at ~16.5 Feet bgs. No Bedrock Encountered. No Groundwater or Seepage Encountered.

Completion Notes:

PROPOSED INDUSTRIAL BUILDING
945-995 WEST MARKHAM STREET, PERRIS

Project No:	644-22018	Page	6
Report No:	22-05-069		

Sladden Engineering

BORE LOG

Equipment:	MOBILE B-61	Date Drilled:	4/4/2022
Elevation:	1,490 Ft. MSL	Boring No:	P-2

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Density, pcf	Depth (Feet)	Graphic Lithology	Description
							2		Silty Sand to Clayey Sand (SM/SC); yellowish brown, dry, fine-grained (Disturbed/Fill).
							4		Clayey Sand (SC); reddish brown, dry, fine-grained (Qvof).
							6		Termianted at ~5.0 Feet bgs. No Bedrock Encountered. No Groundwater or Seepage Encountered. Cased to Facilitate Percolation Testing
							8		
							10		
							12		
							14		
							16		
							18		
							20		
							22		
							24		
							26		
							28		
							30		
							32		
							34		
							36		
							38		
							40		
							42		
							44		
							46		
							48		
							50		

Completion Notes:

PROPOSED INDUSTRIAL BUILDING
945-995 WEST MARKHAM STREET, PERRIS

Project No:	644-22018	Page	7
Report No:	22-05-069		

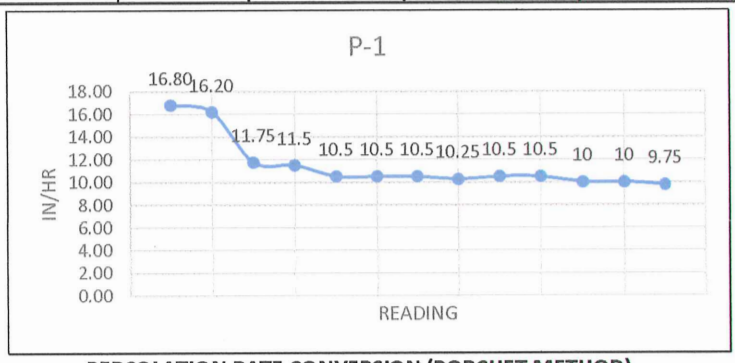
PERCOLATION/INFILTRATION TEST DATA SHEETS

STORMWATER PERCOLATION SHEET (LESS THAN 10 FT)

Project:	945-995 WEST MARKHAM STREET	Depth (ft):	10.00
Job No. :	644-22018	USCS Soil Class:	SC
Date:	4/7/2022	Sandy Soil:	K.F.
Test Hole #:	P-1	Tested By:	R.F.

READING	TIME (min)	DEPTH (ft)	INITIAL W (in)	FINAL W (in)	ΔW (in)	IN/HR
A	25.00	10.00	20	13	7	16.80
B	25.00	10.00	20	13 2/8	6 6/8	16.20

READING	TIME (min)	DEPTH (ft)	INITIAL W (in)	FINAL W (in)	ΔW (in)	IN/HR
1	30.00	10.00	20	14 1/8	5 7/8	11.75
2	30.00	10.00	20	14 2/8	5 6/8	11.5
3	30.00	10.00	20	14 6/8	5 2/8	10.5
4	30.00	10.00	20	14 6/8	5 2/8	10.5
5	30.00	10.00	20	14 6/8	5 2/8	10.5
6	30.00	10.00	20	14 7/8	5 1/8	10.25
7	30.00	10.00	20	14 6/8	5 2/8	10.5
8	30.00	10.00	20	14 6/8	5 2/8	10.5
9	30.00	10.00	19 7/8	14 7/8	5	10
10	30.00	10.00	19 7/8	14 7/8	5	10
11	30.00	10.00	19 6/8	14 7/8	4 7/8	9.75



PERCOLATION RATE CONVERSION (PORCHET METHOD)

$$I_{t=} \quad \frac{\Delta H \; 60 \; R}{\Delta t(r+2H_{avg})}$$

Δt =	30.00
D_f =	105.13
r =	4.00
D_0 =	100 2/8
D_t =	120.00
H_0 =	19.75
H_f =	14.875
ΔH =	4.88
H_{avg} =	17.31

Δt (minutes)
D_f (Final Depth to water)
r (hole radius in inches)
D_0 (Initial Depth to water)
D_t (Total Depth of test hole)
H_0 (initial height of water at selected time interval)

$$H_0 = D_t - D_0$$

H_f (final height of water at the selected time interval)

$$H_f = D_t - D_f$$

ΔH (change in head over the time interval)

$$\Delta H = H_0 - H_f$$

H_{avg} (average head height over the time interval)

$$H_{avg} = (H_0 + H_f)/2$$

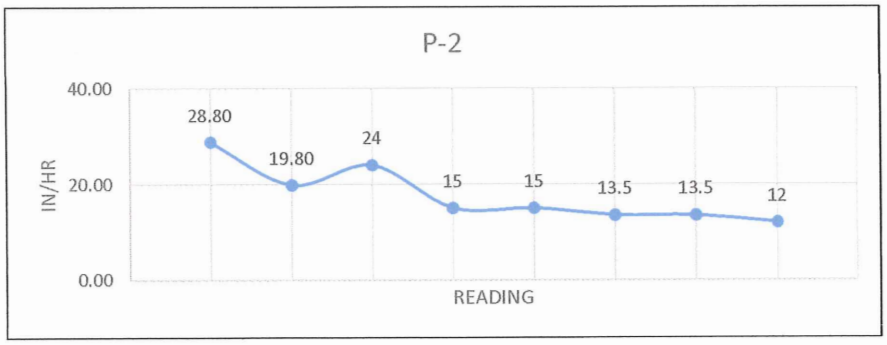
Field Rate:	9.75 in/hr
Infiltration Rate:	1.01 in/hr

STORMWATER PERCOLATION SHEET (LESS THAN 10 FT)

Project:	945-995 WEST MARKHAM STREET	Depth (ft):	5.00
Job No. :	644-22018	USCS Soil Class:	SC
Date:	4/7/2022	Sandy Soil:	K.F.
Test Hole #:	P-2	Tested By:	R.F.

READING	TIME (min)	DEPTH (ft)	INITIAL W (in)	FINAL W (in)	ΔW (in)	IN/HR
A	25.00	5.00	20	8	12	28.80
B	25.00	5.00	20	11 6/8	8 2/8	19.80

READING	TIME (min)	DEPTH (ft)	INITIAL W (in)	FINAL W (in)	ΔW (in)	IN/HR
1	10.00	5.00	20	16	4	24
2	10.00	5.00	20	17 4/8	2 4/8	15
3	10.00	5.00	20	17 4/8	2 4/8	15
4	10.00	5.00	20	17 6/8	2 2/8	13.5
5	10.00	5.00	20	17 6/8	2 2/8	13.5
6	10.00	5.00	20	18	2	12



PERCOLATION RATE CONVERSION (PORCHET METHOD)

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

Δt =	10.00
D_f =	42.00
r =	4.00
D_0 =	40
D_t =	60.00
H_0 =	20
H_f =	18
ΔH =	2.00
H_{avg} =	19.00

Δt (minutes)
D_f (Final Depth to water)
r (hole radius in inches)
D_0 (Initial Depth to water)
D_t (Total Depth of test hole)
H_0 (initial height of water at selected time interval)

$$H_0 = D_t - D_0$$

H_f (final height of water at the selected time interval)

$$H_f = D_t - D_f$$

ΔH (change in head over the time interval)

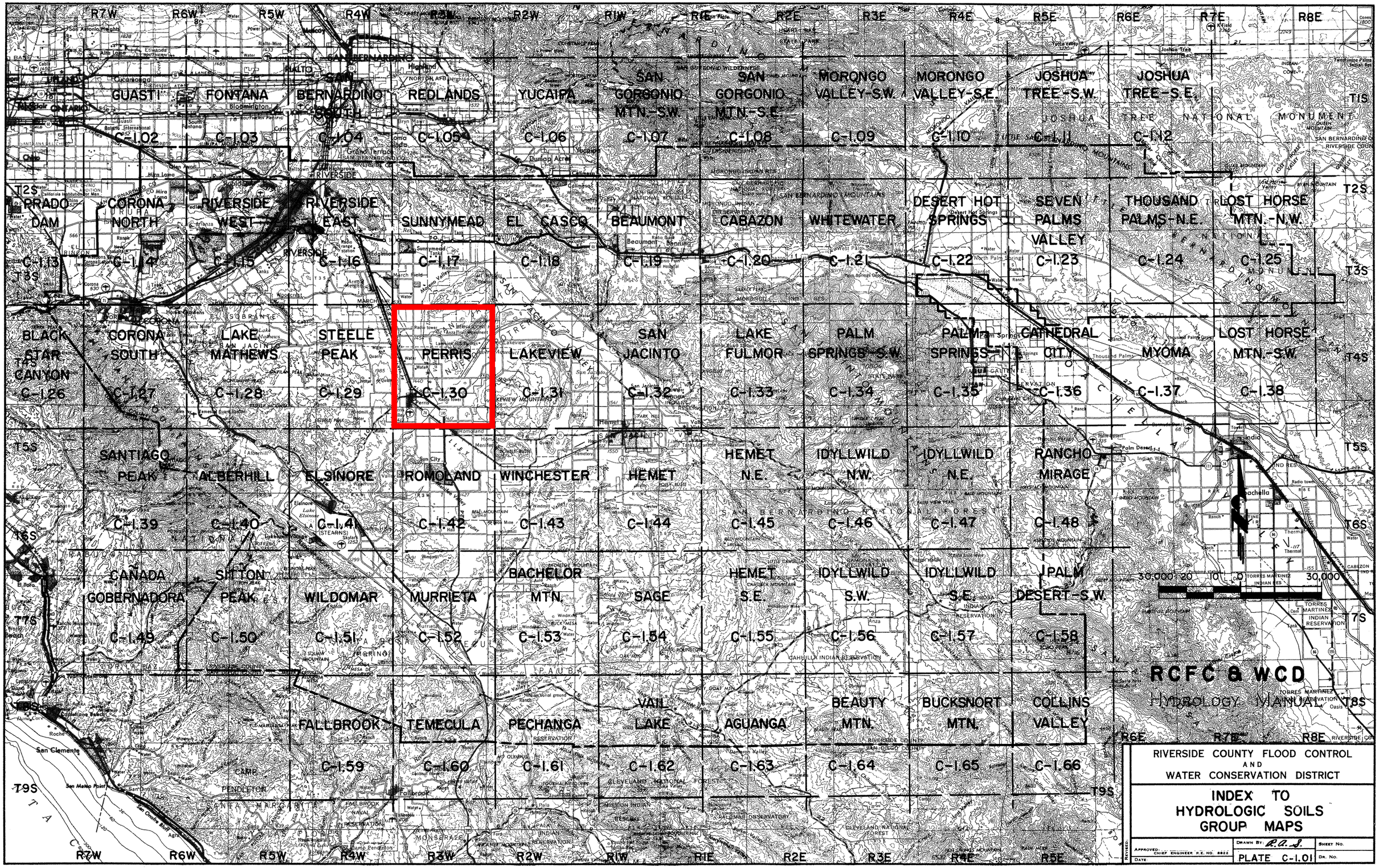
$$\Delta H = H_0 - H_f$$

H_{avg} (average head height over the time interval)

$$H_{avg} = (H_0 + H_f)/2$$

Field Rate:	12 in/hr
Infiltration Rate:	1.14 in/hr

APPENDIX D – SOILS MAP



RCFC & WCD
HYDROLOGY MANUAL

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT

INDEX TO HYDROLOGIC SOILS GROUP MAPS

APPROVED: CHIEF ENGINEER R.E. NO. 8822
DATE:

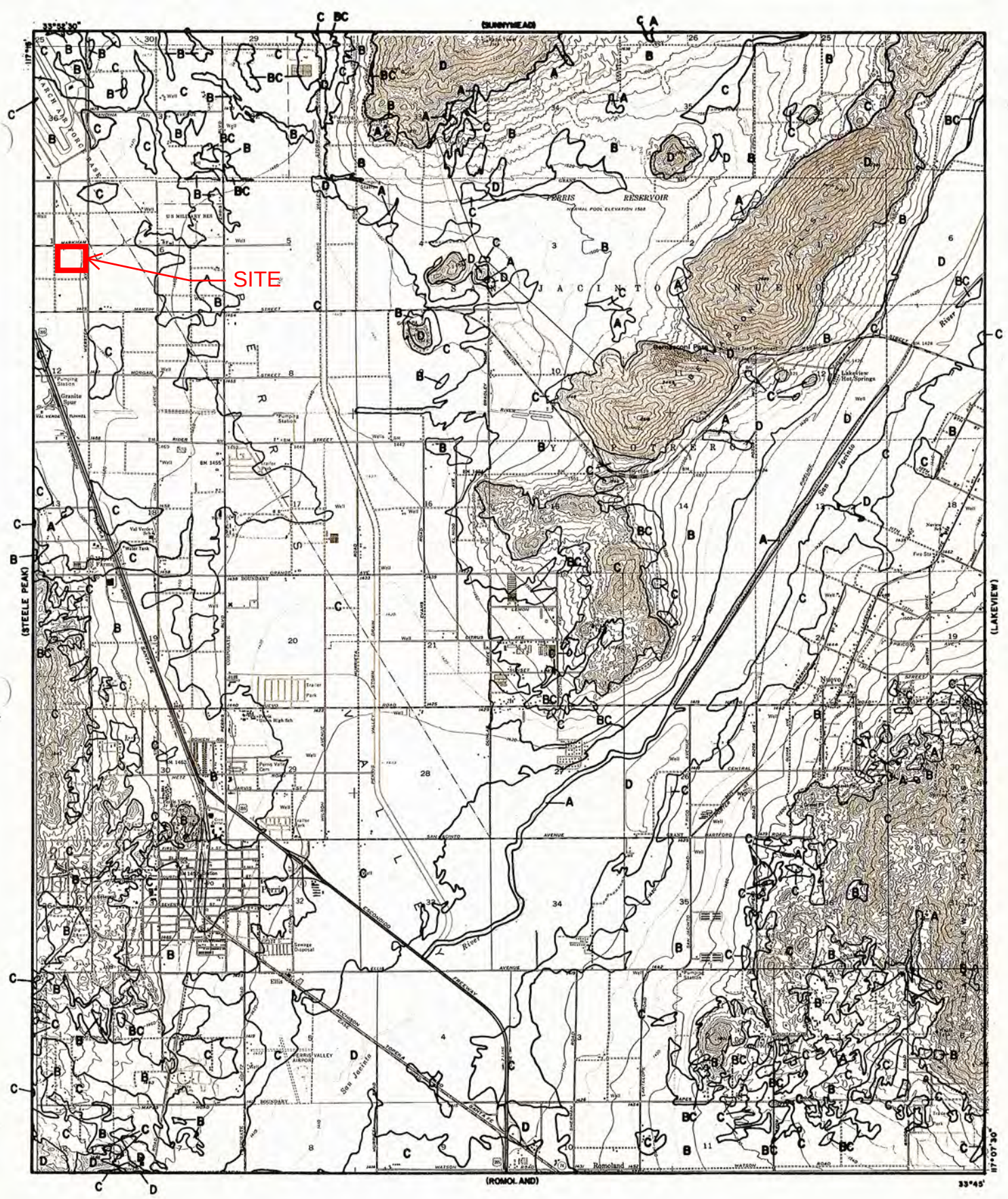
DRAWN BY: R.A.S.

SHEET NO.

PLATE C-1.01

DR. NO.

REVISED:



LEGEND

—— SOILS GROUP BOUNDARY

A SOILS GROUP DESIGNATION

RCFC&WCD

HYDROLOGY MANUAL

0 FEET 5000

HYDROLOGIC SOILS GROUP MAP FOR PERRIS

PLATE C-1.30

APPENDIX E – STANDARD INTENSITY – DURATION CURVES DATA

RAINFALL INTENSITY—INCHES PER HOUR

MIRA LOMA			MURRIETA - TEMECULA & RANCHO CALIFORNIA			NORCO			PALM SPRINGS			PERRIS VALLEY		
DURATION MINUTES	FREQUENCY		DURATION MINUTES	FREQUENCY		DURATION MINUTES	FREQUENCY		DURATION MINUTES	FREQUENCY		DURATION MINUTES	FREQUENCY	
	10 YEAR	100 YEAR		10 YEAR	100 YEAR		10 YEAR	100 YEAR		10 YEAR	100 YEAR		10 YEAR	100 YEAR
5	2.84	4.48	5	3.45	5.10	5	2.77	4.16	5	4.23	6.76	5	2.64	3.78
6	2.58	4.07	6	3.12	4.61	6	2.53	3.79	6	3.80	6.08	6	2.41	3.46
7	2.37	3.75	7	2.87	4.24	7	2.34	3.51	7	3.48	5.56	7	2.24	3.21
8	2.21	3.49	8	2.67	3.94	8	2.19	3.29	8	3.22	5.15	8	2.09	3.01
9	2.08	3.28	9	2.50	3.69	9	2.07	3.10	9	3.01	4.81	9	1.98	2.84
10	1.96	3.10	10	2.36	3.48	10	1.96	2.94	10	2.83	4.52	10	1.88	2.69
11	1.87	2.95	11	2.24	3.30	11	1.87	2.80	11	2.67	4.28	11	1.79	2.57
12	1.78	2.82	12	2.13	3.15	12	1.79	2.68	12	2.54	4.07	12	1.72	2.46
13	1.71	2.70	13	2.04	3.01	13	1.72	2.58	13	2.43	3.88	13	1.65	2.37
14	1.64	2.60	14	1.96	2.89	14	1.66	2.48	14	2.33	3.72	14	1.59	2.29
15	1.58	2.50	15	1.89	2.79	15	1.60	2.40	15	2.23	3.58	15	1.54	2.21
16	1.53	2.42	16	1.82	2.69	16	1.55	2.32	16	2.15	3.44	16	1.49	2.14
17	1.48	2.34	17	1.76	2.60	17	1.50	2.25	17	2.08	3.32	17	1.45	2.08
18	1.44	2.27	18	1.71	2.52	18	1.46	2.19	18	2.01	3.22	18	1.41	2.02
19	1.40	2.21	19	1.66	2.45	19	1.42	2.13	19	1.95	3.12	19	1.37	1.97
20	1.36	2.15	20	1.61	2.38	20	1.39	2.08	20	1.89	3.03	20	1.34	1.92
22	1.29	2.04	22	1.53	2.26	22	1.32	1.98	22	1.79	2.86	22	1.28	1.83
24	1.24	1.95	24	1.46	2.15	24	1.26	1.90	24	1.70	2.72	24	1.22	1.75
26	1.18	1.87	26	1.39	2.06	26	1.22	1.82	26	1.62	2.60	26	1.18	1.69
28	1.14	1.80	28	1.34	1.98	28	1.17	1.76	28	1.56	2.49	28	1.13	1.63
30	1.10	1.73	30	1.29	1.90	30	1.13	1.70	30	1.49	2.39	30	1.10	1.57
32	1.06	1.67	32	1.24	1.84	32	1.10	1.64	32	1.44	2.30	32	1.06	1.52
34	1.03	1.62	34	1.20	1.78	34	1.06	1.59	34	1.39	2.22	34	1.03	1.48
36	1.00	1.57	36	1.17	1.72	36	1.03	1.55	36	1.34	2.15	36	1.00	1.44
38	.97	1.53	38	1.13	1.67	38	1.01	1.51	38	1.30	2.09	38	.98	1.40
40	.94	1.49	40	1.10	1.62	40	.98	1.47	40	1.27	2.02	40	.95	1.37
45	.89	1.40	45	1.03	1.52	45	.92	1.39	45	1.18	1.89	45	.90	1.29
50	.84	1.32	50	.97	1.44	50	.88	1.31	50	1.11	1.78	50	.85	1.22
55	.80	1.26	55	.92	1.36	55	.84	1.25	55	1.05	1.68	55	.81	1.17
60	.76	1.20	60	.88	1.30	60	.80	1.20	60	1.00	1.60	60	.78	1.12
65	.73	1.15	65	.84	1.24	65	.77	1.15	65	.95	1.53	65	.75	1.08
70	.70	1.11	70	.81	1.19	70	.74	1.11	70	.91	1.46	70	.72	1.04
75	.68	1.07	75	.78	1.15	75	.72	1.07	75	.88	1.41	75	.70	1.00
80	.65	1.03	80	.75	1.11	80	.69	1.04	80	.85	1.35	80	.68	.97
85	.63	1.00	85	.73	1.07	85	.67	1.01	85	.82	1.31	85	.66	.94
SLOPE = .530			SLOPE = .550			SLOPE = .500			SLOPE = .580			SLOPE = .490		

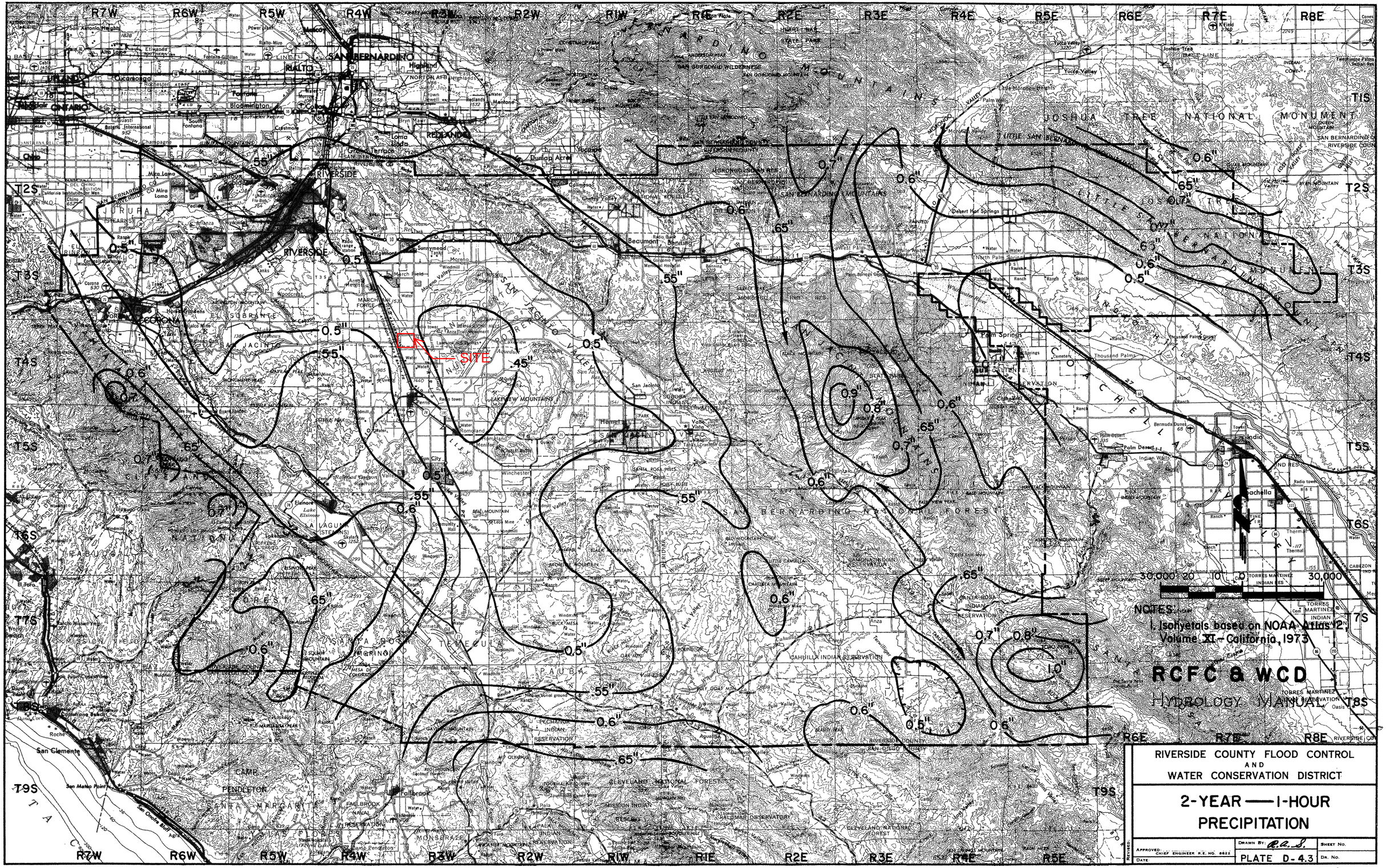
RCFC & WCD

HYDROLOGY MANUAL

STANDARD INTENSITY-DURATION CURVES DATA

PLATE D-4.1 (4 of 6)

APPENDIX F – 2 YEAR, 1 HOUR PRECIPITATION



NOTES:
1. Isohyetals based on NOAA Atlas 2, Volume XI - California, 1973

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HYDROLOGY MANUAL

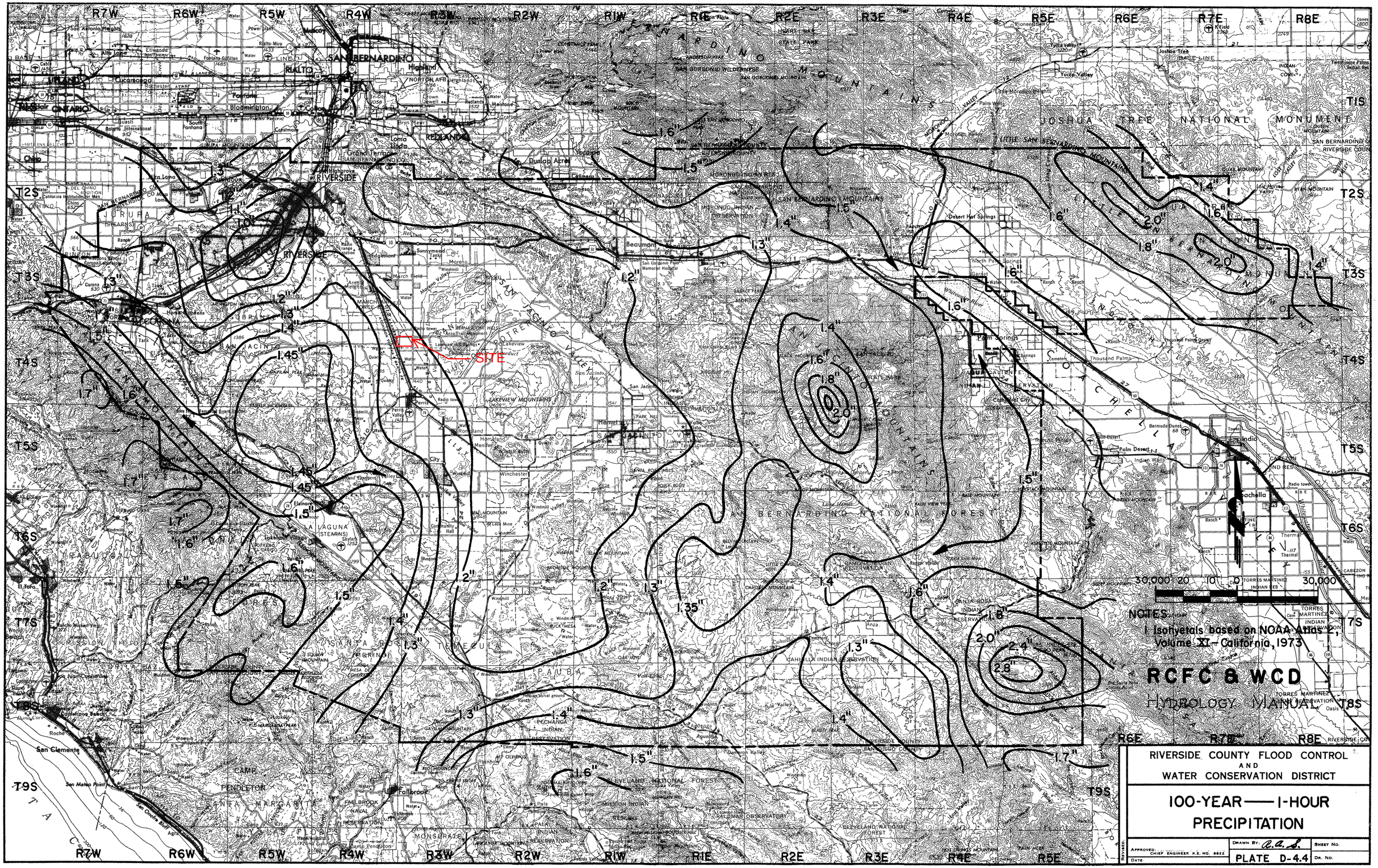
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

2-YEAR — 1-HOUR PRECIPITATION

APPROVED CHIEF ENGINEER R.E. NO. 8822	DRAWN BY: R.A.S.	SHEET No.
DATE	PLATE D-4.3	DR. No.

REVISED:

APPENDIX G – 100 YEAR, 1 HOUR PRECIPITATION


SITE
1.6"
1.5"
1.4"
1.3"
1.2"
1.7"
1.8"
2.0"
2.4"
2.8"
1.35"
1.45"
NOTES:
1. Isohyetals based on NOAA Atlas 2, Volume XI - California, 1973.
RCFC & WCD
HYDROLOGY MANUAL
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
100-YEAR — 1-HOUR PRECIPITATION
DRAWN BY: A.A.S.
SHEET NO.
PLATE D-4.4
APPROVED: CHIEF ENGINEER R.E. NO. 6822
DATE
REVISED
DR. NO.

APPENDIX H – ADVANCED ENGINEERING SOFTWARE (AES) RESULTS

```
**************************************************************************
        RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
      RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
              (RCFC&WCD)  1978 HYDROLOGY MANUAL
       (c) Copyright 1982-2012 Advanced Engineering Software (aes)
              (Rational Tabling Version 18.2)
            Release Date: 05/08/2012  License ID 1537

                  Analysis prepared by:

 ************************* DESCRIPTION OF STUDY *************************
* 22012PRE                                                *
* 10 YEAR STORM                                             *
*                                                 *
 **************************************************************************

  FILE NAME: 22012PRE.DAT
  TIME/DATE OF STUDY: 15:45 06/07/2022
------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  1.880
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.780
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.690
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.120
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.4909883
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.4890234
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =   10.00   1-HOUR INTENSITY(INCH/HOUR) =   0.788
  SLOPE OF INTENSITY DURATION CURVE = 0.4910
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
      AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
    HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
```

```
    WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)    (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  =====  ======  =====  =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00  0.0313  0.167  0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

****************************************************************************
  FLOW PROCESS FROM NODE  100 TO NODE  101 IS CODE=21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
       ASSUMED INITIAL SUBAREA UNIFORM
       DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   729.90
  UPSTREAM ELEVATION(FEET) =   1485.30
  DOWNSTREAM ELEVATION(FEET) =   1479.60
  ELEVATION DIFFERENCE(FEET) =      5.70
  TC = 0.303*[(  729.90**3)/(     5.70)]**.2 =   11.178
   10 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.798
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8669
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =      6.24
  TOTAL AREA(ACRES) =      4.01   TOTAL RUNOFF(CFS) =      6.24
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       4.0  TC(MIN.) =     11.18
  PEAK FLOW RATE(CFS)   =      6.24
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
        RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
      RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
              (RCFC&WCD)  1978 HYDROLOGY MANUAL
       (c) Copyright 1982-2012 Advanced Engineering Software (aes)
              (Rational Tabling Version 18.2)
            Release Date: 05/08/2012  License ID 1537

                  Analysis prepared by:



 ************************* DESCRIPTION OF STUDY *************************
* 22012PRE                                                *
* 100 YEAR STORM                                            *
*                                                 *
 **************************************************************************

  FILE NAME: 22012PRE.DAT
  TIME/DATE OF STUDY: 07:54 06/08/2022
----------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
----------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  1.880
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.780
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.690
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.120
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.4909883
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.4890234
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.120
  SLOPE OF INTENSITY DURATION CURVE = 0.4890
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
      AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
```

```
    HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
    WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.  (FT)    (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
=== ===== ========= ================= ====== ===== ====== ===== =======
 1  30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

 GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
  1. Relative Flow-Depth =  0.00 FEET
    as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
  2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
 *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
  OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

****************************************************************************
 FLOW PROCESS FROM NODE   100 TO NODE  101 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
      ASSUMED INITIAL SUBAREA UNIFORM
      DEVELOPMENT IS COMMERCIAL
 TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   729.90
 UPSTREAM ELEVATION(FEET) =   1485.30
 DOWNSTREAM ELEVATION(FEET) =   1479.60
 ELEVATION DIFFERENCE(FEET) =     5.70
 TC = 0.303*[(  729.90**3)/(    5.70)]**.2 =   11.178
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.547
 COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8738
 SOIL CLASSIFICATION IS "B"
 SUBAREA RUNOFF(CFS) =     8.92
 TOTAL AREA(ACRES) =     4.01   TOTAL RUNOFF(CFS) =     8.92
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)    =       4.0  TC(MIN.) =    11.18
 PEAK FLOW RATE(CFS)   =      8.92
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
        RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
      RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
              (RCFC&WCD)  1978 HYDROLOGY MANUAL
       (c) Copyright 1982-2012 Advanced Engineering Software (aes)
              (Rational Tabling Version 18.2)
            Release Date: 05/08/2012  License ID 1537

                  Analysis prepared by:


 ************************* DESCRIPTION OF STUDY *************************
* 22012 POST                                                            *
* 10 YR STORM                                                           *
*                                                                       *
 ************************************************************************

  FILE NAME: 22012P.DAT
  TIME/DATE OF STUDY: 14:51 06/08/2022
------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  1.880
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.780
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.690
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.120
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.4909883
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.4890234
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =   10.00   1-HOUR INTENSITY(INCH/HOUR) =   0.788
  SLOPE OF INTENSITY DURATION CURVE = 0.4910
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
      AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
    HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
    WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.  (FT)    (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
```

```
===  =====  =========  ================  ======  =====  ======  =====  =======
 1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

 GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
  1. Relative Flow-Depth =  0.00 FEET
    as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
  2. (Depth)*(Velocity) Constraint =  2.0 (FT*FT/S)
 *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
  OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

****************************************************************************
 FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
      ASSUMED INITIAL SUBAREA UNIFORM
      DEVELOPMENT IS COMMERCIAL
 TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   287.50
 UPSTREAM ELEVATION(FEET) =   1485.40
 DOWNSTREAM ELEVATION(FEET) =   1482.80
 ELEVATION DIFFERENCE(FEET) =      2.60
 TC = 0.303*[(  287.50**3)/(    2.60)]**.2 =    7.478
  10 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.190
 COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8709
 SOIL CLASSIFICATION IS "B"
 SUBAREA RUNOFF(CFS) =      2.12
 TOTAL AREA(ACRES) =      1.11   TOTAL RUNOFF(CFS) =      2.12

****************************************************************************

 FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
      ASSUMED INITIAL SUBAREA UNIFORM
      DEVELOPMENT IS COMMERCIAL
 TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
 INITIAL SUBAREA FLOW-LENGTH(FEET) =    49.50
 UPSTREAM ELEVATION(FEET) =   1483.80
 DOWNSTREAM ELEVATION(FEET) =   1480.00
 ELEVATION DIFFERENCE(FEET) =      3.80
```

```
 TC = 0.303*[(   49.50**3)/(     3.80)]**.2 =    2.412
 COMPUTED TIME OF CONCENTRATION INCREASED TO 5 MIN.
  10 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.669
 COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8746
 SOIL CLASSIFICATION IS "B"
 SUBAREA RUNOFF(CFS) =      0.53
 TOTAL AREA(ACRES) =      0.22   TOTAL RUNOFF(CFS) =      0.53
================================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =       0.2  TC(MIN.) =      5.00
 PEAK FLOW RATE(CFS)   =       0.53
================================================================================
================================================================================

FLOW PROCESS FROM NODE    300.00 TO NODE    301.00 IS CODE =  21
 ----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
================================================================================
      ASSUMED INITIAL SUBAREA UNIFORM
      DEVELOPMENT IS COMMERCIAL
 TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   405.10
 UPSTREAM ELEVATION(FEET) =   1483.40
 DOWNSTREAM ELEVATION(FEET) =   1478.40
 ELEVATION DIFFERENCE(FEET) =      5.00
 TC = 0.303*[(  405.10**3)/(     5.00)]**.2 =    8.060
  10 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.111
 COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8701
 SOIL CLASSIFICATION IS "B"
 SUBAREA RUNOFF(CFS) =      4.49
 TOTAL AREA(ACRES) =      2.45   TOTAL RUNOFF(CFS) =      4.49

**********************************************************************

 FLOW PROCESS FROM NODE    400.00 TO NODE    401.00 IS CODE =  21
 ----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
================================================================================
      ASSUMED INITIAL SUBAREA UNIFORM
      DEVELOPMENT IS COMMERCIAL
 TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
 INITIAL SUBAREA FLOW-LENGTH(FEET) =    25.00
```

```
 UPSTREAM ELEVATION(FEET) =   1485.40
 DOWNSTREAM ELEVATION(FEET) =   1484.90
 ELEVATION DIFFERENCE(FEET) =      0.50
 TC = 0.303*[(   25.00**3)/(     0.50)]**.2 =    2.402
 COMPUTED TIME OF CONCENTRATION INCREASED TO 5 MIN.
  10 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.669
 COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8746
 SOIL CLASSIFICATION IS "B"
 SUBAREA RUNOFF(CFS) =      0.68
 TOTAL AREA(ACRES) =      0.29   TOTAL RUNOFF(CFS) =      0.68

**************************************************************************

 END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
        RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
      RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
              (RCFC&WCD)  1978 HYDROLOGY MANUAL
       (c) Copyright 1982-2012 Advanced Engineering Software (aes)
              (Rational Tabling Version 18.2)
            Release Date: 05/08/2012  License ID 1537

                  Analysis prepared by:



 ************************* DESCRIPTION OF STUDY *************************
* 22012 POST                                                *
* 100 YR STORM                                                *
*                                                 *
 **************************************************************************

  FILE NAME: 22012P.DAT
  TIME/DATE OF STUDY: 14:54 06/08/2022
----------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
----------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  1.880
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.780
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.690
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.120
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.4909883
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.4890234
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.120
  SLOPE OF INTENSITY DURATION CURVE = 0.4890
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
      AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
    HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
    WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
```

```
NO.   (FT)    (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
 1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
   1. Relative Flow-Depth =  0.00 FEET
     as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
   2. (Depth)*(Velocity) Constraint =  2.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

****************************************************************************
 FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
       ASSUMED INITIAL SUBAREA UNIFORM
       DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   287.50
  UPSTREAM ELEVATION(FEET) =   1485.40
  DOWNSTREAM ELEVATION(FEET) =   1482.80
  ELEVATION DIFFERENCE(FEET) =      2.60
  TC = 0.303*[(  287.50**3)/(     2.60)]**.2 =    7.478
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.101
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8773
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =      3.03
  TOTAL AREA(ACRES) =      1.11   TOTAL RUNOFF(CFS) =      3.03

****************************************************************************

 FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
       ASSUMED INITIAL SUBAREA UNIFORM
       DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    49.50
  UPSTREAM ELEVATION(FEET) =   1483.80
  DOWNSTREAM ELEVATION(FEET) =   1480.00
```

```
 ELEVATION DIFFERENCE(FEET) =      3.80
 TC = 0.303*[(   49.50**3)/(     3.80)]**.2 =    2.412
 COMPUTED TIME OF CONCENTRATION INCREASED TO 5 MIN.
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.775
 COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8805
 SOIL CLASSIFICATION IS "B"
 SUBAREA RUNOFF(CFS) =      0.75
 TOTAL AREA(ACRES) =      0.22   TOTAL RUNOFF(CFS) =      0.75
================================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =       0.2  TC(MIN.) =      5.00
 PEAK FLOW RATE(CFS)   =       0.75
================================================================================
================================================================================

 FLOW PROCESS FROM NODE    300.00 TO NODE    301.00 IS CODE =  21
--------------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
================================================================================
      ASSUMED INITIAL SUBAREA UNIFORM
      DEVELOPMENT IS COMMERCIAL
 TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   405.10
 UPSTREAM ELEVATION(FEET) =   1483.40
 DOWNSTREAM ELEVATION(FEET) =   1478.40
 ELEVATION DIFFERENCE(FEET) =      5.00
 TC = 0.303*[(  405.10**3)/(     5.00)]**.2 =    8.060
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.989
 COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8766
 SOIL CLASSIFICATION IS "B"
 SUBAREA RUNOFF(CFS) =      6.41
 TOTAL AREA(ACRES) =      2.45   TOTAL RUNOFF(CFS) =      6.41

**********************************************************************************

 FLOW PROCESS FROM NODE    400.00 TO NODE    401.00 IS CODE =  21
--------------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
================================================================================
      ASSUMED INITIAL SUBAREA UNIFORM
      DEVELOPMENT IS COMMERCIAL
 TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
```

```
 INITIAL SUBAREA FLOW-LENGTH(FEET) =    25.00
 UPSTREAM ELEVATION(FEET) =   1485.40
 DOWNSTREAM ELEVATION(FEET) =   1484.90
 ELEVATION DIFFERENCE(FEET) =      0.50
 TC = 0.303*[(   25.00**3)/(     0.50)]**.2 =    2.402
 COMPUTED TIME OF CONCENTRATION INCREASED TO 5 MIN.
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.775
 COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8805
 SOIL CLASSIFICATION IS "B"
 SUBAREA RUNOFF(CFS) =      0.97
 TOTAL AREA(ACRES) =      0.29   TOTAL RUNOFF(CFS) =      0.97

****************************************************************************
END OF RATIONAL METHOD ANALYSIS
```

APPENDIX I – PIPE CALCULATIONS

OVERFLOW PIPE

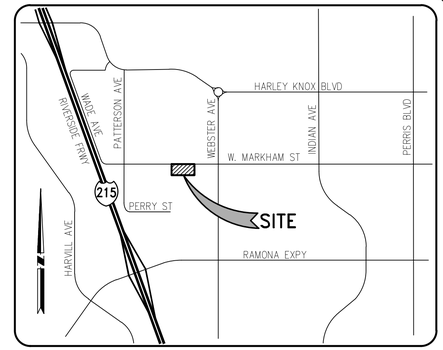
```
**********************************************************************
****
 >>>>PIPEFLOW HYDRAULIC INPUT INFORMATION<<<<
 ----------------------------------------------------------------------
   PIPE DIAMETER(FEET) =   1.250
   PIPE SLOPE(FEET/FEET) =  0.0200
   PIPEFLOW(CFS) =        7.14
   MANNINGS FRICTION FACTOR = 0.013000
======================================================================
====
   CRITICAL-DEPTH FLOW INFORMATION:
 ----------------------------------------------------------------------
   CRITICAL DEPTH(FEET) =      1.07
   CRITICAL FLOW AREA(SQUARE FEET) =     1.117
   CRITICAL FLOW TOP-WIDTH(FEET) =   0.881
   CRITICAL FLOW PRESSURE + MOMENTUM(POUNDS) =        122.96
   CRITICAL FLOW VELOCITY(FEET/SEC.) =     6.391
   CRITICAL FLOW VELOCITY HEAD(FEET) =          0.63
   CRITICAL FLOW HYDRAULIC DEPTH(FEET) =      1.27
   CRITICAL FLOW SPECIFIC ENERGY(FEET) =          1.70
======================================================================
====
   NORMAL-DEPTH FLOW INFORMATION:
 ----------------------------------------------------------------------
   NORMAL DEPTH(FEET) =      0.83
   FLOW AREA(SQUARE FEET) =      0.87
   FLOW TOP-WIDTH(FEET) =     1.180
   FLOW PRESSURE + MOMENTUM(POUNDS) =        133.67
   FLOW VELOCITY(FEET/SEC.) =         8.235
   FLOW VELOCITY HEAD(FEET) =         1.053
   HYDRAULIC DEPTH(FEET) =      0.73
   FROUDE NUMBER =     1.693
   SPECIFIC ENERGY(FEET) =          1.88
======================================================================
====
```

APPENDIX J – HYDROLOGY MAPS

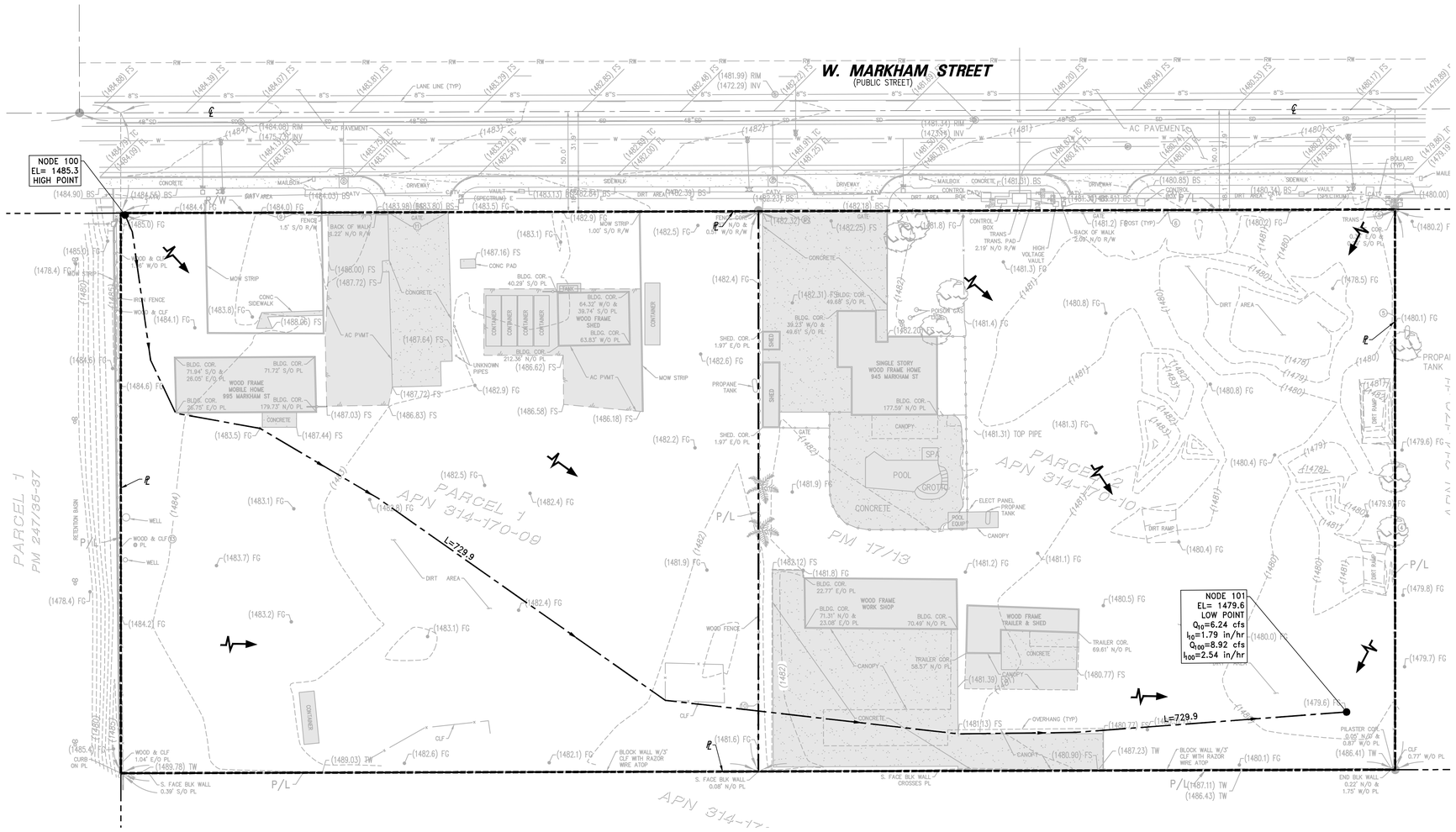
LEGEND

- LIMIT OF DRAINAGE MANAGEMENT AREA
- LIMIT OF SUBAREA
- FLOWPATH
- NODE 200 / EL. 901.01 / HIGH POINT — NODE / CONCENTRATION POINT / ELEVATION
- 0.497 — AREA IN ACRES
- Q_{25} = 1.17 cfs — TOTAL DESIGN FLOW
- Q_{10} = 0.94 cfs — ALLOWABLE FLOW
- PATH OF FLOW
- IMPERVIOUS
- PERVIOUS

DMA–1				
177,600 SF , 4.077 ACRES				
	SURFACE TYPE	AREA SF	AREA AC	%
IMPERVIOUS	CONCRETE, A.C. PAVEMENT, MOBILE HOME AND SINGLE FAMILY HOME	35,486	0.815	19.98
PERVIOUS	LANDSCAPE	142,114	3.262	80.02



VICINITY MAP
NOT TO SCALE



REGISTERED PROFESSIONAL ENGINEER
CRAIG S. DI BIAS
No. 75205
CIVIL
STATE OF CALIFORNIA

NO.	REVISIONS	DATE

Prepared by:
Joseph C. Truxaw and Associates, Inc.
Civil Engineers and Land Surveyors
1915 W. Orangewood Ave., Suite 101, Orange, CA 92868 (714) 935-0265 Truxaw.com

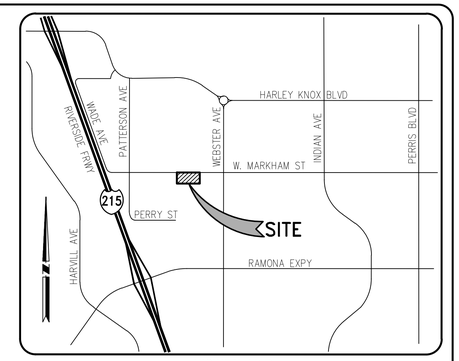
HYDROLOGY MAP
PRE–DEVELOPMENT

945 & 995 W. MARKHAM STREET

IN THE CITY OF PERRIS, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

DATE	9/16/22
DRAWN BY	KDL
CHECKED BY	CDB
JOB NO.	DED22012
SHEET NO.	1
	OF 1 SHEETS

DMA–1					SUB–AREA 1.1					SUB–AREA 1.2					SUB–AREA 1.3					SUB–AREA 1.4				
177,600 SF , 4.077 ACRES					48,493 SF , 1.113 ACRES					9,780 SF , 0.225 ACRES					106,579 SF , 2.446 ACRES					12,748 SF , 0.293 ACRES				
	SURFACE TYPE	AREA SF	AREA AC	%		SURFACE TYPE	AREA SF	AREA AC	%		SURFACE TYPE	AREA SF	AREA AC	%		SURFACE TYPE	AREA SF	AREA AC	%		SURFACE TYPE	AREA SF	AREA AC	%
IMPERVIOUS	CONCRETE, A.C. PAVEMENT, AND BUILDING	156,101	3.583	87.89	IMPERVIOUS	CONCRETE, A.C. PAVEMENT, AND BUILDING	46,713	1.072	96.33	IMPERVIOUS	CONCRETE, A.C. PAVEMENT, AND BUILDING	9,780	0.225	100	IMPERVIOUS	CONCRETE, A.C. PAVEMENT, AND BUILDING	99,555	2.285	93.40	IMPERVIOUS	CONCRETE, A.C. PAVEMENT, AND BUILDING	0	0	0
PERVIOUS	LANDSCAPE	21,499	0.493	12.11	PERVIOUS	LANDSCAPE	1,780	0.041	3.67	PERVIOUS	LANDSCAPE	0	0	0	PERVIOUS	LANDSCAPE	7,024	0.161	6.60	PERVIOUS	LANDSCAPE	12,739	0.293	100



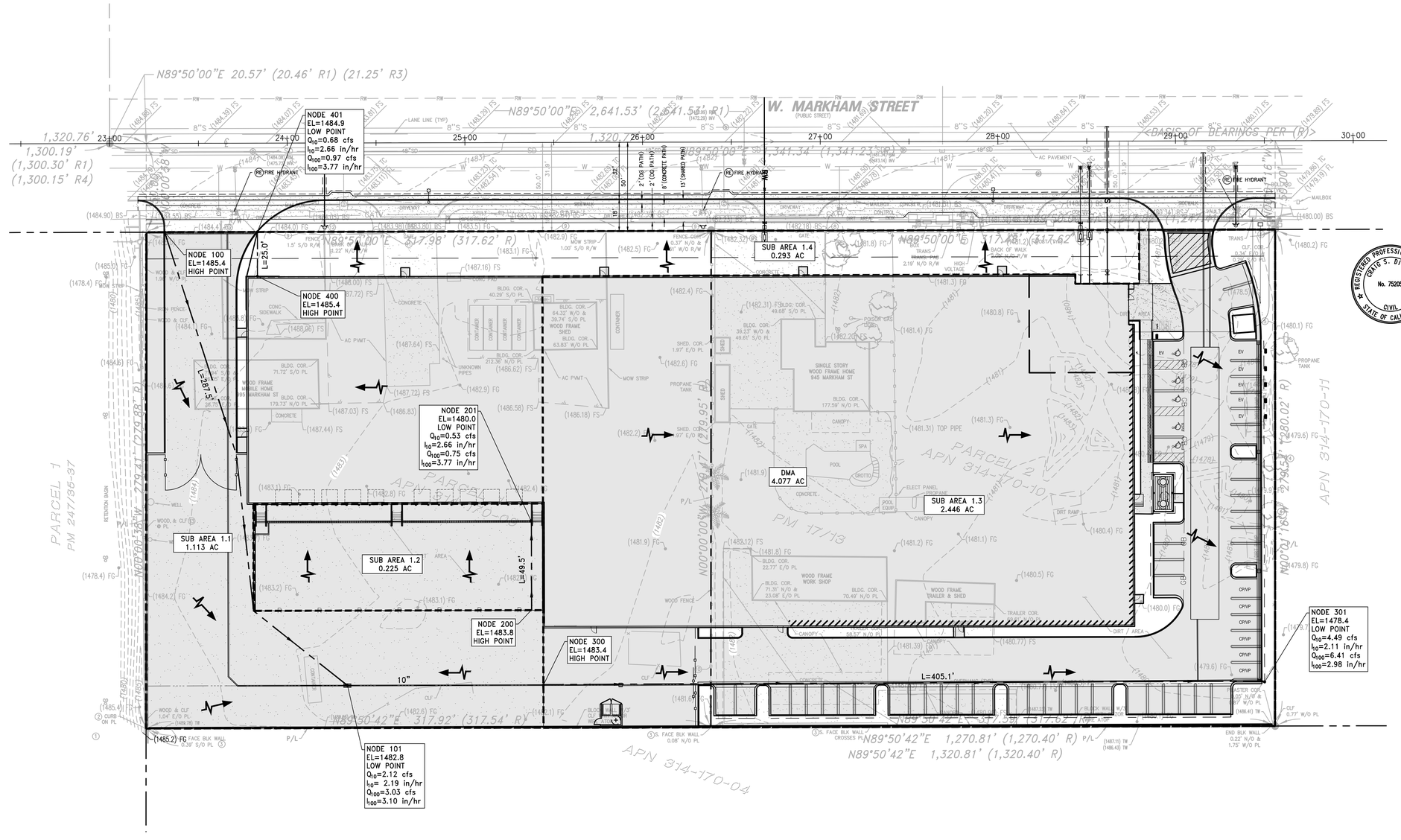
VICINITY MAP
NOT TO SCALE

LEGEND

- LIMIT OF DRAINAGE MANAGEMENT AREA
- LIMIT OF SUBAREA
- FLOWPATH
- NODE
- CONCENTRATION POINT
- ELEVATION
- AREA IN ACRES
- Q_{25} = 1.17 cfs TOTAL DESIGN FLOW
- Q_{10} = 0.94 cfs ALLOWABLE FLOW
- PATH OF FLOW
- IMPERVIOUS
- PERVIOUS

NODE 200
EL. 901.01
HIGH POINT

0.497



30 15 0 30 60 90
SCALE: 1"=30'

NO.	REVISIONS	DATE

Prepared by:
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REGISTERED PROFESSIONAL ENGINEER
CRAIG S. DT BITAS
No. 75205
CIVIL
STATE OF CALIFORNIA

HYDROLOGY MAP
POST–DEVELOPMENT

945 & 995 W. MARKHAM STREET

IN THE CITY OF PERRIS, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

DATE	9/16/22
DRAWN BY	KDL
CHECKED BY	CDB
JOB NO.	DED22012
SHEET NO.	1 OF 1 SHEETS

APPENDIX K – REFERENCE PLANS

GENERAL NOTES

1. ALL WORK TO BE PERFORMED PER CITY OF PERRIS, RIVERSIDE COUNTY TRANSPORTATION DEPARTMENT (R.C.T.D.), EASTERN MUNICIPAL WATER DISTRICT (E.M.W.D.), CALTRANS AND THE 2014 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.) STANDARDS WITH CALIFORNIA SUPPLEMENT.
2. NOTIFY CITY ENGINEER, CITY OF PERRIS, AT (951) 943-6504, AT LEAST 24 HOURS PRIOR TO START OF CONSTRUCTION.
3. CONTRACTOR IS REQUIRED TO LOCATE AND ADJUST TO GRADE ALL EXISTING MANHOLES, METERS, AND VALVE COVERS FOR WATER, SEWER, TELEPHONE, ELECTRIC, CABLE TV AND OTHER FACILITIES AS REQUIRED (WHETHER CALLED-OUT OR NOT ON PLANS).
4. ALL STRIPING & LEGENDS SHALL BE REPLACED IN ACCORDANCE WITH THE STRIPING PLANS HEREIN. ALL STRIPING TO BE PAINT (TWO COATS) AND ALL MARKINGS (INCLUDING CROSSWALKS) TO BE THERMOPLASTIC. ALL STRIPING AND PAVEMENT MARKINGS TO BE PER 2014 M.U.T.C.D. STANDARDS WITH CALIFORNIA SUPPLEMENT.
5. ALL EXISTING A.C. AND CONCRETE TO BE SAW-CUT WHERE WIDENING IS TO TAKE PLACE OR ADJACENT TO WHERE CONCRETE IS TO BE CONSTRUCTED (1" MINIMUM).
6. ANY STOCKPILE OR STORAGE YARD ON PRIVATE PROPERTY MUST HAVE CITY'S AND OWNERS APPROVAL.
7. THE CITY INSPECTOR WILL MARK ALL CONCRETE REMOVALS PRIOR TO CONSTRUCTION. ALL CONCRETE WILL BE SAW-CUT WHERE REQUIRED PRIOR TO BEING REMOVED.
8. CONTRACTOR SHALL VERIFY THE EXISTENCE OF EXISTING SURVEY MONUMENTS AND PROTECT THEM IN PLACE. ANY SURVEY MONUMENTS MISSING AND/OR DAMAGED DURING CONSTRUCTION WILL HAVE TO BE RESET PRIOR TO PROJECT COMPLETION BY A QUALIFIED REGISTERED SURVEYOR.
9. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT THE NEW WORK FROM VANDALISM UNTIL THE IMPROVEMENTS HAVE BEEN ACCEPTED BY THE CITY AND A NOTICE OF COMPLETION HAS BEEN FILED.
10. ALL ASPHALT REMOVALS TO BE MARKED BY THE CITY INSPECTOR PRIOR TO CONTRACTOR BEGINNING WORK ON THAT PARTICULAR STREET SEGMENT.
11. CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA AND OTHER UTILITY COMPANIES AS NEEDED TO COORDINATE FOR PROTECTION AND/OR ADJUSTMENTS OF UTILITIES, AS REQUIRED.
12. CONTRACTOR TO VISIT THE SITE AND FAMILIARIZE HIMSELF WITH THE WORK AND AREA PRIOR TO BIDDING AND NOTIFY THE ENGINEER OF RECORD OF DISCREPANCIES.
13. ALL DIMENSIONS ARE APPROXIMATE. CONTRACTOR TO VERIFY IN FIELD.
14. CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL TRAFFIC CONTROL DEVICES AS NEEDED AND PROVIDE TWO WAY ACCESS AT ALL TIMES THROUGH THE SITE. THE CONTRACTOR SHALL MAINTAIN THESE DEVICES AT ALL TIMES INCLUDING HOLIDAYS AND WEEKENDS. FLAGMAN SHALL BE UTILIZED AS REQUIRED TO PROVIDE TWO WAY TRAFFIC DURING CONSTRUCTION.
15. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL IN COMPLIANCE WITH WATCH MANUAL, 2006 M.U.T.C.D., AND THE TRAFFIC PLANS PROVIDED PER SEPARATE PLANS.
16. THE CONTRACTOR SHALL APPLY TO, AND BE ISSUED AN ENCROACHMENT PERMIT BY THE CITY OF PERRIS BEFORE BEGINNING ANY WORK WITHIN AN EXISTING, CITY MAINTAINED PUBLIC STREET AND FOR UTILITY WORK WITHIN OFFERS OF DEDICATION FOR PUBLIC USE.
17. EXISTING PUBLIC STREETS, SHALL REMAIN OPEN TO THE PUBLIC DURING CONSTRUCTION AND SHALL BE MAINTAINED BY THE CONTRACTOR, UNLESS OTHERWISE PROVIDED IN THE PLANS AND SPECIFICATIONS. PUBLIC INCONVENIENCE WILL BE MINIMIZED AT ALL TIMES AND SUCH STREETS SHALL BE LEFT FREE OF DIRT AND DEBRIS AT THE END OF EACH WORKING DAY UNLESS PERMISSION IS OTHERWISE GRANTED BY THE CITY ENGINEER.
18. THE CONTRACTOR IS RESPONSIBLE FOR CLEARING AND GRUBBING THE PROPOSED WORK AREA AND DISPOSAL OF EXCESS OR UNDESIRABLE MATERIAL. CONTRACTOR SHALL RELOCATE OR CAUSE TO BE RELOCATED EXISTING CONFLICTING UTILITIES IF REQUIRED BY CONTRACT.
19. ANY PROPOSED DEVIATION FROM THESE PLANS BY THE CONTRACTOR MUST MEET CITY'S APPROVAL. THE CONTRACTOR IS RESPONSIBLE TO REIMBURSE THE CITY FOR ANY RELATED COST TO THE CITY ASSOCIATED WITH SUCH CHANGE. IN THIS EVENT, NO INCREASE IN CONTRACTOR'S COST WILL BE APPROVED.
20. CONTRACTOR IS REQUIRED TO INSTALL BLUE REFLECTIVE PAVEMENT MARKERS AT ALL FIRE HYDRANT LOCATIONS WITHIN THE PROJECT.
21. THE CONTRACTOR IS REQUIRED TO REMOVE ALL CONFLICTING STRIPING AND LEGENDS BY WET SANDBLASTING OR OTHER APPROVED METHODS.
22. APPLY WEED KILL TO ALL EXISTING WEEDS BETWEEN 1-3 WEEKS PRIOR TO CONSTRUCTION AND REMOVE WEEDS. WEEDS SHALL BE REMOVED FROM ALL EXISTING PAVEMENT, MEDIANS, CURB AND CUTTER, SIDEWALK (BETWEEN CURB AND SIDEWALK) AND WHEREVER IMPROVEMENTS ARE PROPOSED, AND UP TO 4.0' BEHIND E.P. OR CURB WHEN NO SIDEWALK EXISTS.
23. CONTRACTOR SHALL REPLACE ALL STRIPING, LEGENDS, AND SIGNS IF THEY ARE DAMAGED DURING CONSTRUCTION AT NO EXTRA COST TO THE CITY. EXISTING STRIPING WITHIN PROJECT VICINITY THAT BECOME DULL, SHALL BE REFRESHED AS DIRECTED BY THE CITY ENGINEER.
24. EXISTING TO PROPOSED CONCRETE PAVEMENT JOINTS SHALL BE CONSTRUCTED PER CALTRANS REVISED STANDARD PLAN RSP P10. ONE INCH MINIMUM DIAMETER DOWEL BARS SHALL BE USED AND AS APPROVED BY THE CITY ENGINEER. ANY CONFLICTING STRIPING SHALL BE REMOVED BY SANDBLASTING OR OTHER APPROVED METHOD.
25. ALL GRADING AND CONSTRUCTION ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECTS SWPPP AND NOI. REFER TO NPDES NOTES ON EROSION CONTROL PLANS. CONSTRUCTION ACTIVITIES SHALL BE LIMITED FROM 7:00 AM TO 6:00 PM MONDAY TO FRIDAY.
26. ALL STREET SECTIONS ARE MINIMUM REQUIREMENTS, ADDITIONAL SOILS TESTS SHALL BE TAKEN AFTER ROUGH GRADING TO DETERMINE THE RECOMMENDED STREET SECTIONS REQUIREMENTS. USE RIVERSIDE COUNTY STD 401 IF EXPANSIVE SOILS ARE ENCOUNTERED.
27. ON-SITE LIGHTING, LANDSCAPE AND ADA LAYOUT TO BE APPROVED BY THE CITY OF PERRIS PLANNING DEPARTMENT.
28. WALLS/FENCE REQUIRE A SEPARATE PERMIT.
29. CONTRACTOR SHALL SUBMIT HAULING ROUTE FOR APPROVAL BY THE CITY ENGINEER PRIOR TO STARTING IMPORTATION/EXPORTATION OF DIRT.
30. VIDEO OF STORM DRAINAGE PIPES SHALL BE SUBMITTED FOR REVIEW BY THE CITY ENGINEER PRIOR TO PAVEMENT CAPPING AND CONCRETING.

GRADING NOTES

GRADING

1. ALL GRADING SHALL CONFORM TO THE 2016 CALIFORNIA BUILDING CODE CHAPTERS 17, 18 & APPENDIX CHAPTER J AS AMENDED BY ORD. 457.
2. ALL PROPERTY CORNERS SHALL BE CLEARLY DELINEATED IN THE FIELD PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION/GRADING.
3. ALL WORK UNDER THIS GRADING PERMIT SHALL BE LIMITED TO WORK WITHIN THE PROPERTY LINES. ALL WORK WITHIN THE ROAD RIGHT-OF-WAY WILL REQUIRE SEPARATE PLANS AND SEPARATE REVIEW, APPROVAL (PERMIT) FROM THE TRANSPORTATION DEPARTMENT.
4. GRADING SHALL BE DONE UNDER THE SUPERVISION OF A SOILS ENGINEER IN CONFORMANCE WITH RECOMMENDATIONS OF THE PRELIMINARY SOILS INVESTIGATION BY NORCAL ENGINEERING DATED FEBRUARY 2, 2016.
5. COMPACTED FILL TO SUPPORT ANY STRUCTURES SHALL COMPLY WITH CBC SECTION 1803.5. PROJECTS WITHOUT PRELIMINARY SOILS REPORTS SHALL HAVE DETAILED SPECIFICATIONS SATISFYING THE REQUIREMENTS IN CBC SECTION 1803.5 PREPARED BY THE ENGINEER ON RECORD.
6. THE CONTRACTOR SHALL NOTIFY THE BUILDING AND SAFETY DEPARTMENT AT LEAST 24 HOURS IN ADVANCE TO REQUEST FINISH LOT GRADE AND DRAINAGE INSPECTION. THIS INSPECTION MUST BE APPROVED PRIOR TO BUILDING PERMIT FINAL INSPECTION FOR EACH LOT.
7. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT, TWO DAYS BEFORE DIGGING AT 1-800-422-4133.

CUT / FILL

8. MAXIMUM CUT AND FILL SLOPE = 2:1.
9. NO FILL SHALL BE PLACED ON EXISTING GROUND UNTIL THE GROUND HAS BEEN CLEARED OF WEEDS, DEBRIS, TOPSOIL AND OTHER DELETERIOUS MATERIAL. FILLS SHOULD BE PLACED IN THIN LIFTS (8-INCH MAX OR AS RECOMMENDED IN SOILS REPORT), COMPACTED AND TESTED AS GRADING PROGRESSES UNTIL FINAL GRADES ARE ATTAINED. ALL FILLS ON SLOPES STEEPER THAN 5 TO 1 (H/V) AND A HEIGHT GREATER THAN 5 FEET SHALL BE KEYED AND BENCHED INTO FIRM NATURAL SOIL FOR FULL SUPPORT. THE BENCH UNDER THE TOE MUST BE 10 FEET WIDE MIN.
10. THE SLOPE STABILITY FOR CUT AND FILL SLOPES OVER 30' IN VERTICAL HEIGHT, OR SLOPES STEEPER THAN 2:1 HAVE BEEN VERIFIED WITH A FACTOR OF SAFETY OF AT LEAST 1.5.
11. NO ROCK OR SIMILAR IRREDUCIBLE MATERIAL WITH A MAXIMUM DIMENSION GREATER THAN 12 INCHES SHALL BE BURIED OR PLACED IN FILLS CLOSER THAN 10 FEET TO THE FINISHED GRADE.

DRAINAGE AND EROSION/ DUST CONTROL

12. DRAINAGE ACROSS THE PROPERTY LINE SHALL NOT EXCEED THAT WHICH EXISTED PRIOR TO GRADING. EXCESS OR CONCENTRATED DRAINAGE SHALL BE CONTAINED ON SITE OR DIRECTED TO AN APPROVED DRAINAGE FACILITY.
13. PROVIDE A SLOPE INTERCEPTOR DRAIN ALONG THE TOP OF CUT SLOPES WHERE THE DRAINAGE PATH IS GREATER THAN 40 FEET TOWARDS THE CUT SLOPE.
14. PROVIDE 5 ' WIDE BY 1' HIGH BERM ALONG THE TOP OF ALL FILL SLOPES STEEPER THAN 3:1.
15. THE GROUND IMMEDIATELY ADJACENT TO THE BUILDING FOUNDATION SHALL BE SLOPED AWAY WITH 5% MIN. FOR A MIN. DISTANCE OF 10 HORIZONTAL FEET. SWALES WITHIN 10 FEET FROM BUILDING SHALL HAVE 2% MINIMUM SLOPE.
16. NO OBSTRUCTION OF NATURAL WATER COURSES SHALL BE PERMITTED.
17. DURING ROUGH GRADING OPERATIONS AND PRIOR TO CONSTRUCTION OF PERMANENT DRAINAGE STRUCTURES, TEMPORARY DRAINAGE CONTROL (BEST MANAGEMENT PRACTICES, BMPS) SHALL BE PROVIDED TO PREVENT PONDING WATER AND DAMAGE TO ADJACENT PROPERTIES.
18. DUST SHALL BE CONTROLLED BY WATERING OR OTHER APPROVED METHODS.
19. ALL EXISTING DRAINAGE COURSES ON THE PROJECT SITE MUST CONTINUE TO FUNCTION. PROTECTIVE MEASURES AND TEMPORARY DRAINAGE PROVISIONS MUST BE USED TO PROTECT ADJOINING PROPERTIES DURING GRADING OPERATIONS.
20. FOR SLOPES 3 TO 1 (H/V) OR STEEPER:
    ALL SLOPES EQUAL TO OR GREATER THAN 3 ' IN VERTICAL HEIGHT, ARE REQUIRED TO BE PLANTED WITH GRASS OR ROSEA ICE PLANT (OR EQUAL) GROUND COVER AT A MAXIMUM SPACING OF 12" ON CENTER. SLOPES EXCEEDING 15 ' IN VERTICAL HEIGHT SHALL BE PLANTED WITH APPROVED SHRUBS NOT TO EXCEED 10' ON CENTER, OR TREES SPACED NOT TO EXCEED 20 ' ON CENTER OR SHRUBS NOT TO EXCEED 10 ', OR A COMBINATION OF SHRUBS AND TREES NOT TO EXCEED 15 ' IN ADDITION TO THE GRASS OR GROUND COVER. SLOPES THAT REQUIRE PLANTING SHALL BE PROVIDED WITH AN IN-GROUND IRRIGATION SYSTEM EQUIPPED WITH AN APPROPRIATE BACKFLOW DEVICE PER U.P.C., CHAPTER 10. THE SLOPE PLANTING AND IRRIGATION SYSTEM SHALL BE INSTALLED PRIOR TO PRECISE GRADING FINAL.

COMPLETION OF WORK

21. A REGISTERED CIVIL ENGINEER SHALL PREPARE FINAL COMPACTION REPORT/GRADING REPORT AND IT SHALL BE SUBMITTED FOR REVIEW AND APPROVAL. THE REPORT SHALL ALSO PROVIDE BUILDING FOUNDATION DESIGN PARAMETERS INCLUDING ALLOWABLE SOILS PRESSURES, EXPANSION INDEX AND REMEDIAL MEASURES IF EI>20. WATER SOLUBLE SULFATE CONTENT, CORROSIVITY AND REMEDIAL MEASURES IF NECESSARY.
22. EXCEPT FOR NON-TRACT SINGLE RESIDENTIAL LOT GRADING, THE COMPACTION REPORT SHALL INCLUDE THE SPECIAL INSPECTION VERIFICATIONS LISTED IN TABLE 1704.7 OF 2007 CBC.
23. A REGISTERED CIVIL ENGINEER SHALL SUBMIT TO THE BUILDING AND SAFETY DEPARTMENT WRITTEN CERTIFICATION OF COMPLETION OF GRADING IN ACCORDANCE WITH THE APPROVED GRADING PLAN PRIOR TO REQUESTING INSPECTION AND ISSUANCE OF THE BUILDING PERMIT. CERTIFICATION SHALL INCLUDE LINE GRADE, SURFACE DRAINAGE, ELEVATION, AND LOCATION OF PERMITTED GRADING ON THE LOT.

MISC NOTES

1. FOR ANY GRADING >5000 CY, PRE-GRADING MEETING SHALL BE HELD WITH ATTENDANCE OF PLAN CHECK ENGINEER, CONTRACTOR, SOIL ENGINEER, AND CIVIL ENGINEER AT OWNER'S EXPENSE. ALSO, GRADING CONTRACTOR SHALL SUBMIT PRELIMINARY CONSTRUCTION SCHEDULE PRIOR TO STARTING GRADING WORK AND SUBMIT REVISED CONSTRUCTION SCHEDULE WHENEVER MAJOR CHANGES OCCURS.
2. ALL COLLUVIUM AND ANY UNDOCUMENTED FILL SHOULD BE REMOVED TO A DEPTH WHERE BEDROCK IS EXPOSED. ESTIMATED DEPTHS OF REMOVAL ARE ANTICIPATED TO RANGE FROM APPROXIMATELY 1' TO 7 FEET.

GENERAL NOTES

1. CONTRACTOR SHALL VERIFY ALL EXISTING FIELD CONDITIONS AND NOTIFY DESIGN ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
2. CONTRACTOR TO VERIFY POINTS OF CONNECTION TO PIPES, INLETS, CURBS, GUTTERS, ETC. AND NOTIFY TRUXAW AND ASSOCIATES OF ANY DISCREPANIES PRIOR TO CONSTRUCTION.
3. REFER TO ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS, BUILDING SETBACKS, CONCRETE COLORS AND FINISHES, STRUCTURAL DETAILS, WALKWAYS, EXPANSION JOINT LOCATIONS, UTILITIES, ETC.
4. ALL WORK SHALL BE DONE IN STRICT CONFORMANCE WITH CURRENT CITY OF PERRIS AND SPPWC STANDARDS. WORK SHALL ALSO CONFORM TO APPLICABLE BUILDING CODES (CA BUILDING CODE, CA PLUMBING CODE, ETC.) AS INTERPRETED BY THE CITY OF LA MIRADA. ALL WHEEL CHAIR RAMPS SHALL BE CONSTRUCTED AS PER CURRENT ADA (AMERICANS WITH DISABILITIES ACT) STANDARDS INCLUDING BUT NOT LIMITED TO SLOPE, TRUNCATED DOMES, ETC.
5. ALL CONTRACTORS PERFORMING WORK ON THIS PROJECT SHALL FAMILIARIZE THEMSELVES WITH THE SITE AND SHALL BE SOLELY RESPONSIBLE FOR ANY DAMAGE TO EXISTING FACILITIES RESULTING DIRECTLY OR INDIRECTLY FROM THEIR OPERATIONS, WHETHER OR NOT SHOWN ON THESE PLANS.
6. EXISTING UNDERGROUND UTILITY LINE LOCATIONS WERE TAKEN FROM AVAILABLE RECORDS. OTHER UTILITIES MAY EXIST THAT ARE NOT PLOTTED HEREON.
7. EXISTING UNDERGROUND UTILITIES ARE TO BE RELOCATED BY THE CONTRACTOR AS REQUIRED TO AVOID CONFLICT WITH PROPOSED STRUCTURES. REFER TO PLANS FOR DETAILS.
8. CALL UNDERGROUND SERVICE ALERT FOR UNDERGROUND LOCATIONS 48 HOURS BEFORE YOU DIG. 811.
9. THE CONTRACTOR SHALL RENEW OR REPLACE ANY EXISTING TRAFFIC STRIPING AND/OR PAVEMENT MARKINGS, WHICH DURING HIS OPERATIONS HAVE BEEN EITHER REMOVED OR THE EFFECTIVENESS OF WHICH HAS BEEN REDUCED.
10. THE CONTRACTOR SHALL COMPLY WITH THE SOILS REPORT (AND ADDENDA) FOR THIS PROJECT AND ALL RECOMMENDATIONS FROM THE SOILS ENGINEER. (SEE INFORMATION AT BOTTOM RIGHT)
11. ALL TOPOGRAPHIC AND BOUNDARY INFORMATION SHOWN HEREON WAS OBTAINED FROM AN ALTA/NSPS LAND TITLE SURVEY DATED APRIL 22, 2022 BY TRUXAW AND ASSOCIATES, INC.
12. THESE PLANS ARE BASED ON THE SITE PLAN PROVIDED TO TRUXAW AND ASSOCIATES ON 5-20-22.
13. ALL STORM DRAIN AND SEWER PIPE SHALL BE PLACED BEGINNING AT THE DOWNSTREAM POINT OF CONNECTION AND CONTINUING TO THE UPSTREAM TERMINUS. PIPE PLACEMENT SHALL BE CONTINUOUS. DEVIATIONS FROM THIS SEQUENCE WILL NOT BE PERMITTED. POTHOLING INFORMATION, WHERE REQUIRED, SHALL BE OBTAINED AND PROVIDED TO TRUXAW AND ASSOCIATES PRIOR TO CONSTRUCTION.
14. ALL IMPROVEMENTS BEYOND THE LIMITS OF GRADING ARE TO BE PROTECTED IN PLACE UNLESS NOTED OTHERWISE.

* BENCHMARK

U.S.C. & G.S. BENCH MARK P.R. 325-1970 (RIVERSIDE CO. DESIGNATION M-29 RESET)
CITY OF PERRIS, RIVERSIDE COUNTY.

AT THE INTERSECTION OF PERRIS BOULEVARD AND RAMONA EXPRESSWAY. 42.5 FEET NORTH OF THE CENTER OF RAMONA, 36.5 FEET EAST OF THE CENTER OF PERRIS. A BRASS DISK, STAMPED P.R.-325 1970, SET IN THE TOP OF AND IN THE CENTER OF 8" x 16' CONCRETE HEADWALL 1 FOOT ABOVE GROUND.

ELEVATION = 1453.86 FEET (1973 ADJ.)

* BASIS OF BEARINGS

BASIS OF BEARINGS SHOWN HEREON, ESTABLISHED FROM FOUND MONUMENTS ON THE CENTERLINE OF MARKHAM STREET BEING NORTH 89°50'00" EAST PER PARCEL MAP NO. 6304.

* UTILITY PROVIDERS

SEWER.....EASTERN MUNICIPAL WATER DISTRICT.....(951) 928-3777
STORM DRAIN.....CITY OF PERRIS.....(951) 657-3280
WATER.....EASTERN MUNICIPAL WATER DISTRICT.....(951) 928-3777
ELECTRIC.....SOUTHERN CALIFORNIA EDISON..... (951) 928-8290
CABLE.....CHARTER COMMUNICATIONS.....(951) 406-1666
GAS.....SOUTHERN CALIFORNIA GAS.....(951) 406-1666
TELEPHONE..... FRONTIER COMMUNICATIONS.....(877) 462-6640

* FLOOD ZONE

COMMUNITY NUMBER: 060258 1430H, EFFECTIVE DATE: AUGUST 18, 2014
ZONE X ; PROPERTY NOT IN A SPECIAL FLOOD HAZARD AREA. AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.
FLOOD INSURANCE IS AVAILABLE, BUT NOT REQUIRED.
INFORMATION OBTAINED FROM CERTIFIED FLOOD SYSTEMS, INC. ON 11/10/2021

* SOURCE OF TOPOGRAPHIC AND BOUNDARY INFORMATION

INFORMATION SHOWN ON THESE PLANS WERE TAKEN FROM THE PLAN REFERENCED BELOW.

DATE OF SURVEY: APRIL 22, 2022

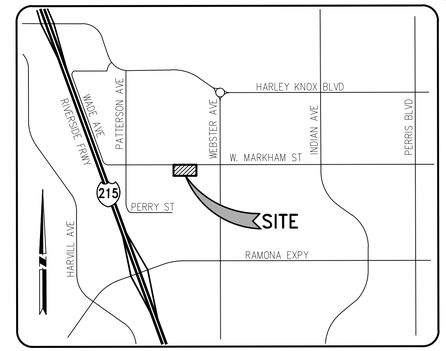
ALTA SURVEY BY: TRUXAW AND ASSOCIATES, INC.
1915 W. ORANGEWOOD AVE, SUITE 101
ORANGE, CA 92868
(714) 935-0265
JOB # DED22012

LEGEND

AB	= AGGREGATE BASE	TRW	= TOP OF RETAINING WALL
AC	= ASPHALT CONCRETE	TW	= TOP OF WALL
BLK	= CONCRETE BLOCK	UG	= UNDERGROUND
BS	= BACK OF SIDEWALK	UP	= UTILITY POLE
CB	= CATCH BASIN	VAR	= VARIABLE
CF	= CURB FACE	W	= WASHER
CL	= CENTERLINE	WDF	= WOOD FENCE
CLF	= CHAIN LINK FENCE	WM	= WATER METER
CO	= CLEANOUT	WV	= WATER VALVE
DCV	= DETECTOR CHECK VALVE		
DS	= ROOF DOWNSPOUT	N.	= NORTH
EG	= EDGE OF GUTTER	S.	= SOUTH
EP	= EDGE OF PAVEMENT	E.	= EAST
FD	= FOUND	W.	= WEST
FDC	= FIRE DEPT. CONNECTION	N'LY	= NORTHERLY
FF	= FINISHED FLOOR	S'LY	= SOUTHERLY
FG	= FINISHED GRADE	E'LY	= EASTERLY
FH	= FIRE HYDRANT	W'LY	= WESTERLY
FL	= FLOW LINE	N/O	= NORTH OF
FS	= FINISHED SURFACE	S/O	= SOUTH OF
GB	= GRADE BREAK	E/O	= EAST OF
GM	= GAS METER	W/O	= WEST OF
GR	= TOP OF GRATE	PL	= PROPERTY LINE
GV	= GAS VALVE	℄	= CENTERLINE
HP	= HIGH POINT	R/W	= RIGHT OF WAY
HT	= HEIGHT	Δ	= DELTA
ICV	= IRRIGATION CONTROL VALVE	R	= RADIUS
INV	= INVERT	L	= LENGTH
IP	= IRON PIPE	T	= TANGENT
LS	= LIGHT STANDARD	M	= MEASURED DATA
L&T	= LEAD & TAG	C	= CALCULATED DATA
MH	= MANHOLE	(RAD)=	RADIAL BEARING
NG	= NATURAL GROUND	PRO	= PROPORTIONATE MEASUREMENT
N&T	= NAIL & TAG	(210.00' R)	= RECORD DATA
OHW	= OVERHEAD WIRE	210.00' M.	= MEASURED DATA
PB	= PULL BOX	210.00' PRO.	= PRORATED DATA
PCC	= CONCRETE	210.00' C.	= CALCULATED DATA
PIV	= POST INDICATOR VALVE	(427.00) TC	= EXISTING ELEVATION
PL	= PROPERTY LINE	427.00 TC	= DESIGN ELEVATION
RD	= ROOF DRAIN	CATV	= CABLE TV LINE
RWH	= REDWOOD HEADER	E	= ELECTRICAL LINE
SCB	= SIGNAL CONTROL BOX	FW	= FIRE WATER LINE
SMH	= SEWER MANHOLE	G	= GAS LINE
SPK	= SPIKE	GB GB	= GRADE BREAK LINE
SW	= SIDEWALK	R R	= RIDGE LINE
TC	= TOP OF CURB	S	= SEWER LINE
TE	= TRASH ENCLOSURE	SD	= STORM DRAIN LINE
TP	= TELEPHONE POLE	T	= TELEPHONE LINE
TRAN	= TRANSITION	W	= WATER LINE
TRANS=	TRANSFORMER		

SYMBOLS

- FIRE HYDRANT
- STREET LIGHT
- TRAFFIC SIGNAL
- TRAFFIC SIGNAL ARM & POLE
- LIGHT STANDARD
- UTILITY POLE
- GUY WIRE & ANCHOR
- WM WATER METER
- GM GAS METER
- WV WATER VALVE
- PB PULL BOX
- GRATE INLET
- SIGN
- VENT
- (S) SEWER MANHOLE
- (D) STORM DRAIN MANHOLE
- (T) TELEPHONE MANHOLE
- (MH) MANHOLE
- SEWER CLEANOUT
- (W) MONITORING WELL
- HANDICAP PARKING STALL
- (L) LANDSCAPED AREA
- (P) PROTECT IN PLACE
- (R) REMOVE AND DISPOSE OFFSITE
- (RE) RELOCATE
- (J) PLOTABLE EASEMENT ITEM No. PER TITLE REPORT
- (427.0) EXIST. CONTOUR
- 427.0 DESIGN CONTOUR



VICINITY MAP
NOT TO SCALE

SHEET INDEX

** REFERENCE PLANS

1 – TITLE SHEET
2 – BOUNDARY ESTABLISHMENT
3 – TOPOGRAPHIC SURVEY

** ALTA/NSPS LAND TITLE SURVEY PLAN PREPARED BY:
TRUXAW AND ASSOCIATES
1915 W. ORANGEWOOD AVE, SUITE 101
ORANGE CA, 92868
DATED: APRIL 22, 2022

REGISTERED PROFESSIONAL ENGINEER
CRAIG S. DI PAS
No. 75205
CIVIL
STATE OF CALIFORNIA

NO.	REVISIONS	DATE

Prepared by:
Joseph C. Truxaw and Associates, Inc.
Civil Engineers and Land Surveyors
1915 W. Orangewood Ave., Suite 101, Orange, CA 92868 (714) 935-0265 Truxaw.com

TITLE SHEET

945-995 W. MARKHAM STREET
IN THE CITY OF PERRIS, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

EARTHWORK QUANTITY ESTIMATES		
RAW CUT:	1,600	CU. YD.
RAW FILL:	3,600	CU. YD.

THE ABOVE QUANTITIES DO NOT REFLECT ANY SHRINKAGE, SWELLING, SUBSIDENCE, STRIPPING LOSS, OVER-EXCAVATION, DEMOLITION LOSSES, FOOTING SPOILS, OR ANY SPECIAL CONDITIONS THAT MAY BE SPECIFIED IN THE APPLICABLE GEOTECHNICAL REPORT(S) AND ARE FOR REFERENCE AND FEE PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING HIS OWN QUANTITIES FOR CONSTRUCTION AND CONTRACT PURPOSES.

THESE QUANTITIES ARE APPROXIMATE ONLY AND DO NOT INCLUDE OVEREXCAVATION QUANTITIES, IMPORT OR EXPORT QUANTITIES.

THIS PLAN IS:
PRELIMINARY
(NOT FOR CONSTRUCTION)

PLAN PREPARED FOR
DEDEAUX PROPERTIES
100 WILSHIRE BOULEVARD, SUITE 250
SANTA MONICA, CA 90401

ARCHITECT
ARCHITECTS ORANGE
144 NORTH ORANGE STREET
ORANGE, CA 92866

DATE	9-16-22
DRAWN BY	KDL
CHECKED BY	CDB
JOB NO.	DED22012
SHEET NO.	1 OF 5 SHEETS

TITLE REPORT – PARCEL 1

THIS SURVEY AND EASEMENTS SHOWN HEREON ARE BASED ON INFORMATION CONTAINED IN THE PRELIMINARY TITLE REPORT PREPARED BY:

FIRST AMERICAN TITLE INSURANCE COMPANY
4 FIRST AMERICAN WAY
SANTA ANA, CA 92707
(714) 250-8579
ORDER/FILE NUMBER: 0-SA-6795274 AMENDED
DATED: FEBRUARY 23, 2022
TITLE OFFICER: ROBERT BACA/JOEL SOTTO

LEGAL DESCRIPTION – PARCEL 1

ALL THAT CERTAIN REAL PROPERTY SITUATED IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCEL 1 OF PARCEL MAP NO. 6304, IN THE CITY OF PERRIS, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 17, PAGE 13 OF PARCEL MAPS, OF SAID RIVERSIDE COUNTY, CALIFORNIA.

APN: 314-170-009

EASEMENT NOTES – PARCEL 1

4 AN EASEMENT FOR LAY AND MAINTAIN PIPES, PIPE LINES, CONDUITS, DITCHES, FLUMES OR OTHER MEANS OF WATER TRANSPORTATION AND DISTRIBUTION AND INCIDENTAL PURPOSES, RECORDED OCTOBER 27, 1915 IN BOOK 430 OF DEEDS, PAGE 345.

IN FAVOR OF: VAL VERDE MUTUAL WATER COMPANY, A CORPORATION
AFFECTS: AS DESCRIBED THEREIN

LOCATION OF THE EASEMENT CANNOT BE DETERMINED FROM RECORD INFORMATION

NOTE: ABOVE ITEM AFFECTS THE SUBJECT SITE, WITH NO PLOTTABLE MATTERS INCLUDED IN SAID EXCEPTION AND ALL MAPS OR DOCUMENTS NOTED THEREIN.

5 AN EASEMENT FOR PUMPING PLANT, PIPE LINES, CONDUITS, FLUMES, INGRESS AND EGRESS AND INCIDENTAL PURPOSES, RECORDED MARCH 11, 1931 AS BOOK 13, PAGE 222 OF OFFICIAL RECORDS.

IN FAVOR OF: NEBUJIRO KOBATA
AFFECTS: AS DESCRIBED THEREIN

THE LOCATION OF THE EASEMENT CANNOT BE DETERMINED FROM RECORD INFORMATION.

NOTE: ABOVE ITEM AFFECTS THE SUBJECT SITE, WITH NO PLOTTABLE MATTERS INCLUDED IN SAID EXCEPTION AND ALL MAPS OR DOCUMENTS NOTED THEREIN.

6 AN EASEMENT FOR WATER SYSTEMS AND INCIDENTAL PURPOSES, RECORDED FEBRUARY 17, 1942 AS BOOK 533, PAGE 45 OF OFFICIAL RECORDS.
IN FAVOR OF: VAL VERDE MUTUAL WATER COMPANY, A CORPORATION
AFFECTS: AS DESCRIBED THEREIN

THE LOCATION OF THE EASEMENT CANNOT BE DETERMINED FROM RECORD INFORMATION.

NOTE: ABOVE ITEM AFFECTS THE SUBJECT SITE AND IS BLANKET IN NATURE, NOT PLOTTED HEREON, WITH NO PLOTTABLE MATTERS INCLUDED IN SAID EXCEPTION AND ALL MAPS OR DOCUMENTS NOTED THEREIN. SAID EXCEPTION RESERVES TO WATER PURVEYOR RIGHTS OF WATER PRODUCTION.

7 THE FACT THAT THE LAND LIES WITHIN THE BOUNDARIES OF THE PERRIS REDEVELOPMENT PROJECT AREA, AS DISCLOSED BY THE DOCUMENT RECORDED JULY 16, 1987 AS INSTRUMENT NO. 87-204394 OF OFFICIAL RECORDS.

NOTE: ABOVE ITEM AFFECTS LAND SURVEYED, IS NOT A SURVEY ITEM AND IS NOT PLOTTED HEREON. ITEM PERTAINS TO REDEVELOPMENT MATTERS.

8 LIEN FOR NOTICE OF ABATEMENT IN FAVOR OF THE CITY OF PERRIS

AGAINST: DONALD D. ROBINSON
AMOUNT: $2,648.65
RECORDED: NOVEMBER 24, 1999 AS INSTRUMENT NO. 99-518637 OF OFFICIAL RECORDS.

NOTE: ABOVE ITEM IS NOT A SURVEY ITEM AND IS NOT PLOTTED HEREON.

9 ANY LIEN, ASSESSMENT, AND/OR VIOLATION OR ENFORCEMENT OF ANY LAW, ORDINANCE, PERMIT OR GOVERNMENTAL REGULATION ARISING FROM THE DOCUMENT ENTITLED NOTICE OF PENDENCY OF ADMINISTRATIVE PROCEEDINGS RECORDED APRIL 25, 2019 AS INSTRUMENT NO. 19-142027 OF OFFICIAL RECORDS.

NOTE: ABOVE ITEM IS NOT A SURVEY ITEM AND IS NOT PLOTTED HEREON.

10 WE FIND NO OPEN DEED OF TRUST. THE COMPANY WILL REQUIRE SATISFACTORY PROOF, PRIOR TO INSURING THE CONTEMPLATED TRANSACTION, THAT THE SUBJECT PROPERTY IS FREE FROM ANY ENCUMBRANCES. PLEASE PROVIDE THE FOLLOWING:

A. AN AFFIDAVIT, EXECUTED BY ALL THE SELLERS/BORROWERS STATING THAT THE PROPERTY IS FREE AND CLEAR, AND NOTARIZED IN FRONT OF A FIRST AMERICAN APPROVED NOTARY;

B. THE OWNER STATEMENT FROM THE ESCROW INSTRUCTIONS; AND

C. A WRITTEN STATEMENT FROM ESCROW CONFIRMING WHO THE PROCEEDS WILL BE DISBURSED TO.

11 ANY DEFECTS, LIENS, ENCUMBRANCES OR OTHER MATTERS WHICH NAME PARTIES WITH THE SAME OR SIMILAR NAMES AS DONALD DEAN ROBINSON. THE NAME SEARCH NECESSARY TO ASCERTAIN THE EXISTENCE OF SUCH MATTERS HAS NOT BEEN COMPLETED. IN ORDER TO COMPLETE THIS PRELIMINARY REPORT OR COMMITMENT, WE WILL REQUIRE A STATEMENT OF INFORMATION.

12 ANY RIGHT, TITLE OR INTEREST OF THE SPOUSE (IF ANY) OF ANY MARRIED PERSON HEREIN.

13 ANY RIGHT, TITLE OR INTEREST OF THE SPOUSE (IF ANY) OF DONALD DEAN ROBINSON.

14 THE POLICY CONTEMPLATED BY THIS REPORT/COMMITMENT WILL NOT INSURE THE TITLE TO ANY MOBILEHOME OR MANUFACTURED HOME THAT MAY BE LOCATED ON THE LAND. THE COMPANY WILL CONSIDER ISSUING SUCH COVERAGE ONLY UPON THE CUSTOMER'S SPECIFIC REQUEST.

15 WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT SHOWN BY THE PUBLIC RECORDS.

PRIOR TO THE ISSUANCE OF ANY POLICY OF TITLE INSURANCE, THE COMPANY WILL REQUIRE:

16 A DEED FROM THE SPOUSE OF ANY MARRIED VESTEE HEREIN BE RECORDED IN THE PUBLIC RECORDS, OR THE JOINDER OF THE SPOUSE OF ANY MARRIED VESTEE NAMED HEREIN ON ANY CONVEYANCE, ENCUMBRANCE OR LEASE TO BE EXECUTED BY THE VESTEE.

THE DEED SHOULD CONTAIN THE FOLLOWING STATEMENT:

"IT IS THE EXPRESS INTENT OF THE GRANTOR, BEING THE SPOUSE OF THE GRANTEE, TO CONVEY ALL RIGHT, TITLE AND INTEREST OF THE GRANTOR, COMMUNITY OR OTHERWISE, IN AND TO THE HEREIN DESCRIBED PROPERTY TO THE GRANTEE AS HIS/HER SOLE AND SEPARATE PROPERTY."

17 A DEED FROM THE SPOUSE (IF ANY) OF DONALD DEAN ROBINSON BE RECORDED IN THE PUBLIC RECORDS, OR THE JOINDER OF THE SPOUSE NAMED HEREIN ON ANY CONVEYANCE, ENCUMBRANCE OR LEASE TO BE EXECUTED BY SAID MARRIED PERSON.
THE DEED SHOULD CONTAIN THE FOLLOWING STATEMENT:
"IT IS THE EXPRESS INTENT OF THE GRANTOR, BEING THE SPOUSE OF THE GRANTEE, TO CONVEY ALL RIGHT, TITLE AND INTEREST OF THE GRANTOR, COMMUNITY OR OTHERWISE, IN AND TO THE HEREIN DESCRIBED PROPERTY TO THE GRANTEE AS HIS/HER SOLE AND SEPARATE PROPERTY."

18 WITH RESPECT TO DONALD DEAN ROBINSON, LLC, A LIMITED LIABILITY COMPANY:

A. A COPY OF ITS OPERATING AGREEMENT AND ANY AMENDMENTS THERETO;
B. IF IT IS A CALIFORNIA LIMITED LIABILITY COMPANY, THAT A CERTIFIED COPY OF ITS ARTICLES OF ORGANIZATION (LLC-1) AND ANY CERTIFICATE OF CORRECTION (LLC-11), CERTIFICATE OF AMENDMENT (LLC-2), OR RESTATEMENT OF ARTICLES OF ORGANIZATION (LLC-10) BE RECORDED IN THE PUBLIC RECORDS;
C. IF IT IS A FOREIGN LIMITED LIABILITY COMPANY, THAT A CERTIFIED COPY OF ITS APPLICATION FOR REGISTRATION (LLC-5) BE RECORDED IN THE PUBLIC RECORDS;
D. WITH RESPECT TO ANY DEED, DEED OF TRUST, LEASE, SUBORDINATION AGREEMENT OR OTHER DOCUMENT OR INSTRUMENT EXECUTED BY SUCH LIMITED LIABILITY COMPANY AND PRESENTED FOR RECORDATION BY THE COMPANY OR UPON WHICH THE COMPANY IS ASKED TO RELY, THAT SUCH DOCUMENT OR INSTRUMENT BE EXECUTED IN ACCORDANCE WITH ONE OF THE FOLLOWING, AS APPROPRIATE:
(I) IF THE LIMITED LIABILITY COMPANY PROPERLY OPERATES THROUGH OFFICERS APPOINTED OR ELECTED PURSUANT TO THE TERMS OF A WRITTEN OPERATING AGREEMENT, SUCH DOCUMENT MUST BE EXECUTED BY AT LEAST TWO DULY ELECTED OR APPOINTED OFFICERS, AS FOLLOWS: THE CHAIRMAN OF THE BOARD, THE PRESIDENT OR ANY VICE PRESIDENT, AND ANY SECRETARY, ASSISTANT SECRETARY, THE CHIEF FINANCIAL OFFICER OR ANY ASSISTANT TREASURER;
(II) IF THE LIMITED LIABILITY COMPANY PROPERLY OPERATES THROUGH A MANAGER OR MANAGERS IDENTIFIED IN THE ARTICLES OF ORGANIZATION AND/OR DULY ELECTED PURSUANT TO THE TERMS OF A WRITTEN OPERATING AGREEMENT, SUCH DOCUMENT MUST BE EXECUTED BY AT LEAST TWO SUCH MANAGERS OR BY ONE MANAGER IF THE LIMITED LIABILITY COMPANY PROPERLY OPERATES WITH THE EXISTENCE OF ONLY ONE MANAGER.
E. OTHER REQUIREMENTS WHICH THE COMPANY MAY IMPOSE FOLLOWING ITS REVIEW OF THE MATERIAL REQUIRED HEREIN AND OTHER INFORMATION WHICH THE COMPANY MAY REQUIRE

TITLE REPORT – PARCEL 2

THIS SURVEY AND EASEMENTS SHOWN HEREON ARE BASED ON INFORMATION CONTAINED IN THE PRELIMINARY TITLE REPORT PREPARED BY:

FIRST AMERICAN TITLE INSURANCE COMPANY
4 FIRST AMERICAN WAY
SANTA ANA, CA 92707
(714) 250-8579
ORDER/FILE NUMBER: 0-SA-6795283 AMENDED
DATED: FEBRUARY 23, 2022
TITLE OFFICER: ROBERT BACA/JOEL SOTTO

LEGAL DESCRIPTION – PARCEL 2

REAL PROPERTY IN THE CITY OF PERRIS, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCEL 2 OF PARCEL MAP NO. 6304, AS PER MAP RECORDED IN BOOK 17, PAGE 13 OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

APN: 314-170-010

EASEMENT NOTES – PARCEL 2

4. AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES IN THE DOCUMENT RECORDED IN BOOK 430 OF DEEDS, PAGE 345.

NOTE: ABOVE ITEM AFFECTS THE SUBJECT SITE, WITH NO PLOTTABLE MATTERS INCLUDED IN SAID EXCEPTION AND ALL MAPS OR DOCUMENTS NOTED THEREIN.

5. AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES IN THE DOCUMENT RECORDED AS BOOK 13, PAGE 222 OF OFFICIAL RECORDS.

NOTE: ABOVE ITEM AFFECTS THE SUBJECT SITE, WITH NO PLOTTABLE MATTERS INCLUDED IN SAID EXCEPTION AND ALL MAPS OR DOCUMENTS NOTED THEREIN.

6. AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES IN THE DOCUMENT RECORDED AS BOOK 533, PAGE 45 OF OFFICIAL RECORDS.

NOTE: ABOVE ITEM AFFECTS THE SUBJECT SITE AND IS BLANKET IN NATURE, NOT PLOTTED HEREON, WITH NO PLOTTABLE MATTERS INCLUDED IN SAID EXCEPTION AND ALL MAPS OR DOCUMENTS NOTED THEREIN. SAID EXCEPTION RESERVES TO WATER PURVEYOR RIGHTS OF WATER PRODUCTION.

7. A DEED OF TRUST TO SECURE AN ORIGINAL INDEBTEDNESS OF $296,000.00 RECORDED FEBRUARY INSTRUMENT NO. 05-144767 OF OFFICIAL RECORDS.

DATED: FEBRUARY 10, 2005
TRUSTOR: STEPHEN BERGER AND LAURA BERGER, HUSBAND A WIFE AS JOINT TENANTS
TRUSTEE: LSI TITLE COMPANY
BENEFICIARY: MORTGAGE ELECTRONIC REGISTRATION SYSTEMS, INC.
LENDER: LENOX FINANCIAL MORTGAGE CORP

8. ANY LIEN, ASSESSMENT, AND/OR VIOLATION OR ENFORCEMENT OF ANY LAW, ORDINANCE, PERMIT OR GOVERNMENTAL REGULATION ARISING FROM THE DOCUMENT ENTITLED NOTICE OF PENDENCY OF ADMINISTRATIVE PROCEEDINGS RECORDED JUNE 19, 2017 AS INSTRUMENT NO. 17-245158 OF OFFICIAL RE

NOTE: ABOVE ITEM AFFECTS THE SUBJECT SITE, NOT A SURVEY ITEM WITH NO PLOTTABLE MATTERS.

9. ANY LIEN, ASSESSMENT, AND/OR VIOLATION OR ENFORCEMENT OF ANY LAW, ORDINANCE, PERMIT OR REGULATION ARISING FROM THE DOCUMENT ENTITLED NOTICE OF PENDENCY OF ADMINISTRATION PROCEEDINGS RECORDED MARCH 1, 2018 AS INSTRUMENT NO. 18-77130 OF OFFICIAL RECORDS

NOTE: ABOVE ITEM AFFECTS THE SUBJECT SITE, NOT A SURVEY ITEM WITH NO PLOTTABLE MATTERS.

10. RIGHTS OF THE PUBLIC IN AND TO THAT PORTION OF THE LAND LYING WITHIN ANY ROAD, STREET, ALL

11. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT SHOWN BY THE PUBLIC RECORDS.

REGISTERED PROFESSIONAL ENGINEER
CRAIG S. DI DIAS
No. 75205
CIVIL
STATE OF CALIFORNIA

THIS PLAN IS:
PRELIMINARY
(NOT FOR CONSTRUCTION)

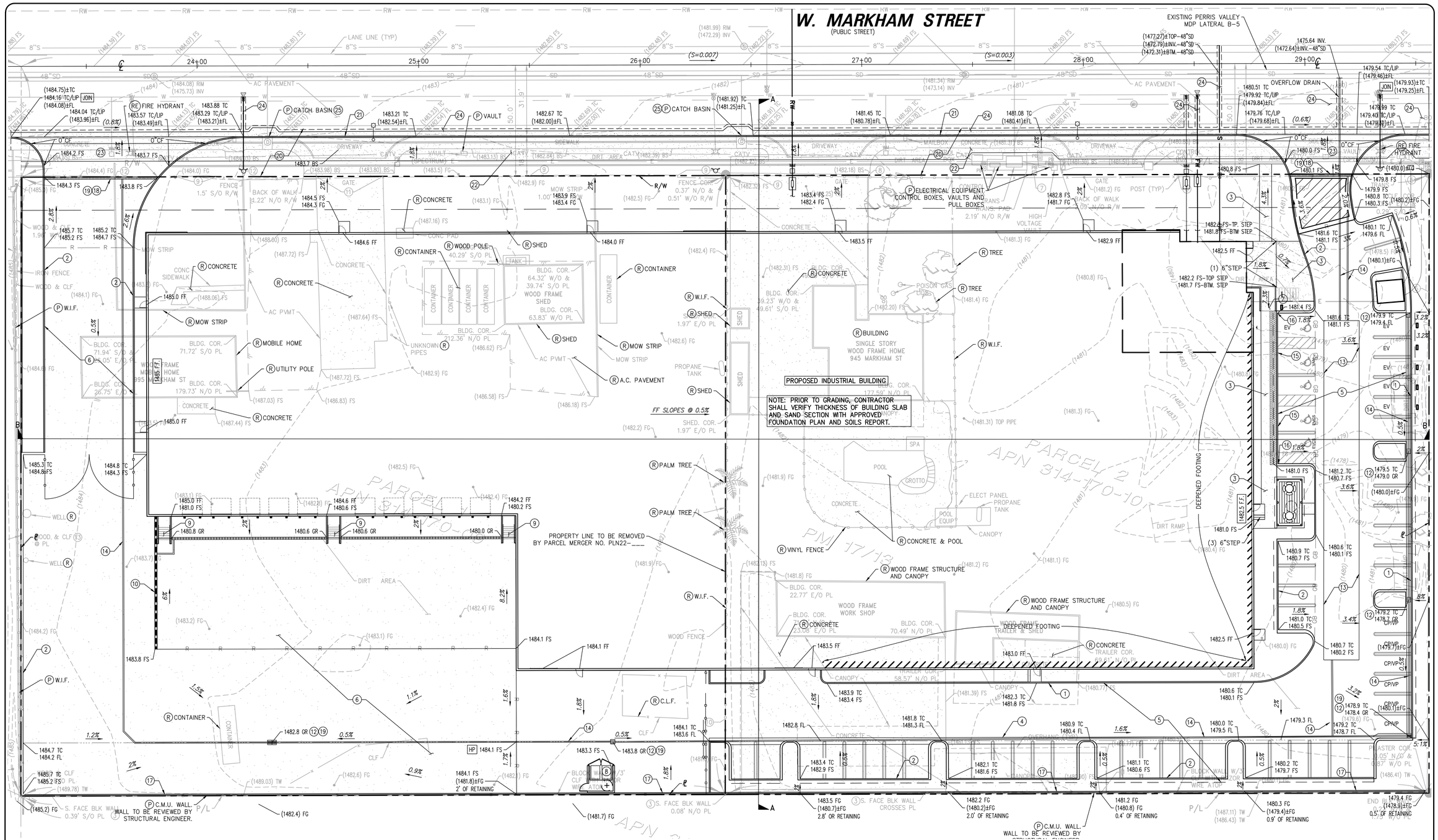
NO.	REVISIONS	DATE

Prepared by:
Joseph C. Truxaw and Associates, Inc.
Civil Engineers and Land Surveyors
1915 W. Orangewood Ave., Suite 101, Orange, CA 92868 (714) 935-0265 Truxaw.com

NOTES

945-995 W. MARKHAM STREET
IN THE CITY OF PERRIS, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

DATE	9-16-22
DRAWN BY	KDL
CHECKED BY	CDB
JOB NO.	DED22012
SHEET NO.	2 OF 5 SHEETS



CONSTRUCTION NOTES (ON-SITE IMPROVEMENTS):

1. CONSTRUCT CURB AND GUTTER PER DETAIL ON SHEET 4.
2. CONSTRUCT CURB PER DETAIL ON SHEET 4.
3. CONSTRUCT CONCRETE SIDEWALK PER ARCHITECTURAL DETAILS.
4. CONSTRUCT 3-WIDE CONCRETE V-GUTTER PER DETAIL ON SHEET 4.
5. PAVE WITH 4-INCH AC OVER 8-INCH AB OVER COMPACTED SUBGRADE PER RECOMMENDATIONS OF THE SOILS ENGINEER.
6. PAVE WITH 4-INCH PCC CONCRETE OVER COMPACTED SUBGRADE PER RECOMMENDATIONS OF THE SOILS ENGINEER.
7. CONSTRUCT RAMP PER C.B.C. REQUIREMENTS.
8. TRASH ENCLOSURE PER ARCHITECTURAL PLANS.
9. CONSTRUCT STAIRS PER ARCHITECTURAL PLANS.
10. RETAINING WALL PER SEPARATE PLAN CHECK AND PERMIT.
11. CONSTRUCT 12-INCH BY 12-INCH CATCH BASIN PER DETAIL ON SHEET 4.
12. CONSTRUCT 24-INCH BY 24-INCH CATCH BASIN WITH FILTER INSERTPER DETAIL ON SHEET 4.
13. CONSTRUCT UNDERGROUND STORMWATER INFILTRATION SYSTEM.
14. PLACE STORM DRAIN LINE
15. CONSTRUCT 0-INCH CURB FACE.
16. CONSTRUCT 6-INCH TO 0-INCH CURB TRANSITION PER DETAIL ON SHEET 4.
17. CONSTRUCT RETAINING CURB ALONG EXISTING C.M.U. WALL.
18. INSTALL 8-INCH WIDE TRENCH DRAIN WITH FILTER INSERT.
19. STENCIL "NO DUMPING-DRAINS TO RIVER" PER DETAIL ON SHEET 4.

CONSTRUCTION NOTES (OFF-SITE IMPROVEMENTS):

20. SAWCUT AND REMOVE EXISTING A.C. PAVEMENT, CURB, GUTTER, SIDEWALK ETC.
21. CONSTRUCT CURB AND GUTTER PER CITY OF PERRIS STD. NO. 200.
22. SHARED USE PATH PER CITY REQUIREMENTS.
23. CONSTRUCT DRIVEWAY PER COUNTY OF RIVERSIDE STD. NO. 207A.
24. PATCH A.C. PAVING PER CITY STANDARD.
25. CONSTRUCT LOCAL DEPRESSION PER CITY OF PERRIS STD. NO. 311.

NOTICE TO CONTRACTOR

THE CONTRACTOR SHALL ASCERTAIN THE TRUE VERTICAL AND HORIZONTAL LOCATION AND SIZE OF ALL UTILITIES, PIPES, AND/OR STRUCTURES AND SHALL BE RESPONSIBLE FOR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES, SHOWN OR NOT SHOWN HEREON.

IMPORTANT NOTICE

Section 4216 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert CALL 811

Two working days before you dig.

REGISTERED PROFESSIONAL ENGINEER CRAIG S. DT WITKS No. 75205 CIVIL STATE OF CALIFORNIA

THIS PLAN IS:

PRELIMINARY

(NOT FOR CONSTRUCTION)

20 10 0 20 40 60

SCALE: 1"=20'

NO.	REVISIONS	DATE

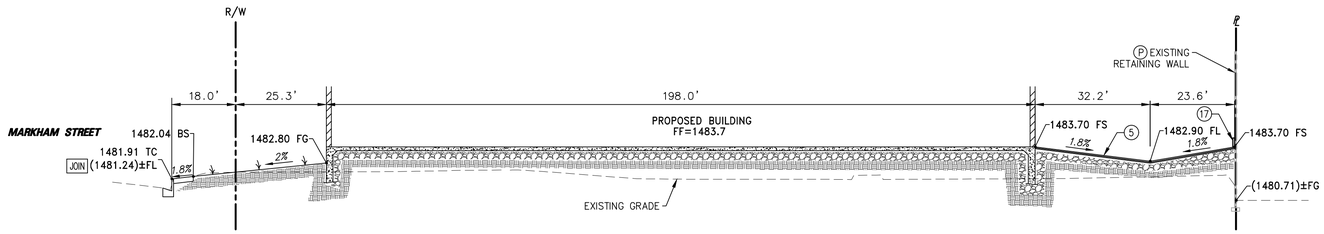
Prepared by:
Joseph C. Truxaw and Associates, Inc.
Civil Engineers and Land Surveyors
1915 W. Orangewood Ave., Suite 101, Orange, CA 92868 (714) 935-0265 Truxaw.com

CONCEPTUAL GRADING PLAN

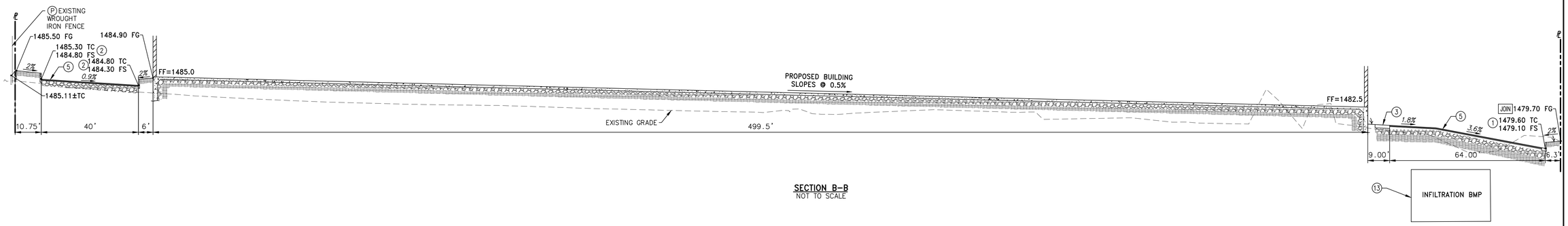
945-995 W. MARKHAM STREET

IN THE CITY OF PERRIS, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

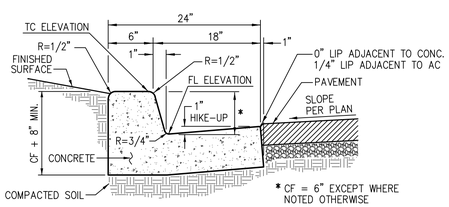
DATE	9-16-22
DRAWN BY	KDL
CHECKED BY	CDB
JOB NO.	DED22012
SHEET NO.	3 OF 5 SHEETS



SECTION A–A
NOT TO SCALE

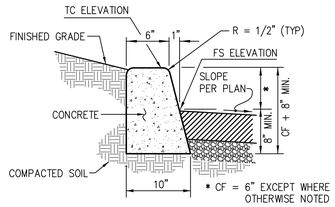


SECTION B–B
NOT TO SCALE



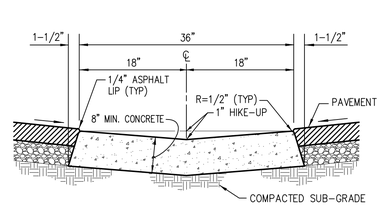
1. BOTTOM OF CURB TO BE SET ON COMPACTED SUB–GRADE OR NATURAL UNDISTURBED SOIL.
2. FINISH ALL EXPOSED CONCRETE SURFACES SMOOTH.
3. PROVIDE 1/2" EXPANSION JOINTS @ 25' O.C. MAXIMUM AT CURVES, TANGENTS AND CORNERS.
4. CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (THE GREEN BOOK) AND THE SPECIFIC REQUIREMENTS OF THE GOVERNING AGENCY.

6" CURB & 18" GUTTER DETAIL (1)
NOT TO SCALE



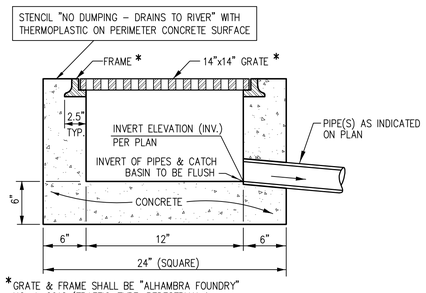
1. BOTTOM OF CURB TO BE SET ON COMPACTED SUB–GRADE OR NATURAL UNDISTURBED SOIL.
2. FINISH ALL EXPOSED CONCRETE SURFACES SMOOTH.
3. PROVIDE 1/2" EXPANSION JOINTS @ 25' O.C. MAXIMUM AT CURVES, TANGENTS AND CORNERS.
4. CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (THE GREEN BOOK) AND THE SPECIFIC REQUIREMENTS OF THE GOVERNING AGENCY.

6" CURB DETAIL (2)
NOT TO SCALE



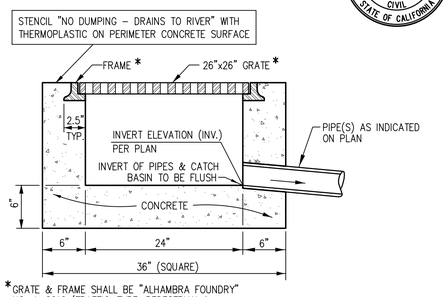
1. BOTTOM OF CONCRETE TO BE SET ON COMPACTED SUB–GRADE OR NATURAL UNDISTURBED SOIL.
2. FINISH ALL EXPOSED CONCRETE SURFACES SMOOTH.
3. PROVIDE 1/2" EXPANSION JOINTS @ 25' O.C. MAXIMUM AT CURVES, TANGENTS AND CORNERS.
4. CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (THE GREEN BOOK) AND THE SPECIFIC REQUIREMENTS OF THE GOVERNING AGENCY.

36" WIDE GUTTER DETAIL (4)
NOT TO SCALE



*GRATE & FRAME SHALL BE "ALHAMBRA FOUNDRY" NO. A–2012 (TRAFFIC–TYPE, PEDESTRIAN & BICYCLE–PROOF) OR APPROVED EQUAL.

12"x12" CONCRETE CATCH BASIN BOX (11)
NOT TO SCALE



*GRATE & FRAME SHALL BE "ALHAMBRA FOUNDRY" NO. A–2012 (TRAFFIC–TYPE, PEDESTRIAN & BICYCLE–PROOF) OR APPROVED EQUAL.

24"x24" CONCRETE CATCH BASIN BOX (12)
NOT TO SCALE

NOTICE TO CONTRACTOR

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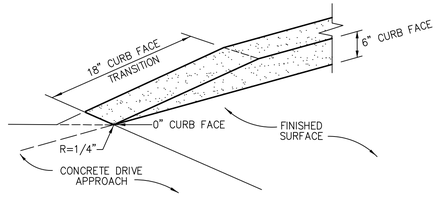
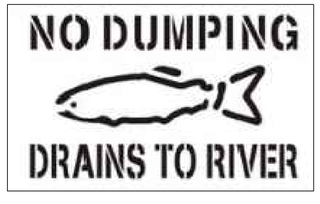


CURB FACE TRANSITION DETAIL (16)
NOT TO SCALE



NO DUMPING–DRAINS TO RIVER STENCIL (19)
NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER
CRAIG S. DI BIAS
No. 75205
CIVIL
STATE OF CALIFORNIA

THIS PLAN IS:
PRELIMINARY
(NOT FOR CONSTRUCTION)

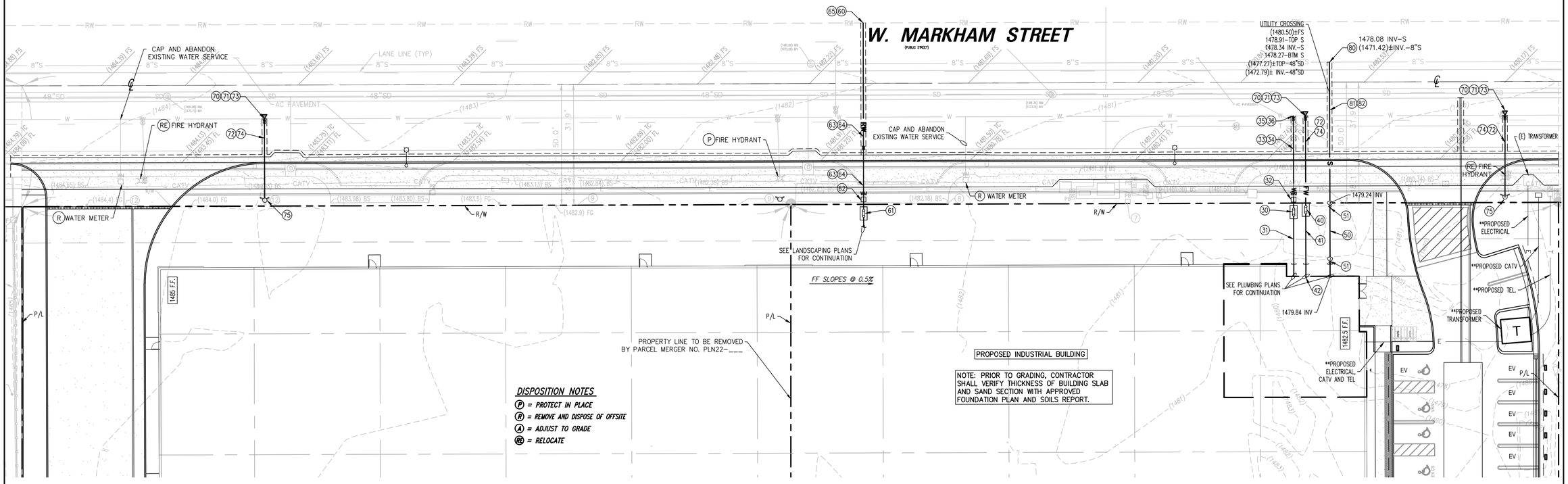
NO.	REVISIONS	DATE

Prepared by:
Joseph C. Truxaw and Associates, Inc.
Civil Engineers and Land Surveyors
1915 W. Orangewood Ave., Suite 101, Orange, CA 92868 (714) 935-0265 Truxaw.com

SECTIONS AND DETAILS

945–995 W. MARKHAM STREET
IN THE CITY OF PERRIS, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

DATE	9–16–22
DRAWN BY	KDL
CHECKED BY	CDB
JOB NO.	DED22012
SHEET NO.	4 OF 5 SHEETS



DISPOSITION NOTES

- (P) = PROTECT IN PLACE
- (R) = REMOVE AND DISPOSE OF OFFSITE
- (A) = ADJUST TO GRADE
- (RE) = RELOCATE

GENERAL WATER NOTES

1. ALL ON SITE WORK SHALL CONFORM TO THE STANDARDS & REQUIREMENTS OF THE CALIFORNIA PLUMBING CODE, UNIFORM PLUMBING CODE AND THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND CONFORMING WITH THE REQUIREMENTS OF THE ENCROACHMENT PERMIT REQUIRED FOR WORK IN THE PUBLIC RIGHT-OF-WAY.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL AND PROTECTION OF PEDESTRIANS. THIS RESPONSIBILITY SHALL BE CONTINUOUS.
4. PIPE BEDDING AND BACKFILL SHALL CONFORM TO THE REQUIREMENTS OF THE EASTERN MUNICPAL WATER DISTRICT AND THE RECOMMENDATIONS OF THE SOILS ENGINEER.
5. NO ON-SITE PIPE MAY BE LAID UNTIL THE WATER CONNECTION AT THE PUBLIC MAIN HAS BEEN MADE.
6. FOR ALL EXISTING WATER SERVICES TO BE ABANDONED-SHUT OFF AT CORPORATION STOP AND RETURN METERS TO THE EASTERN MUNICIPAL WATER DISTRICT.

GENERAL SEWER NOTES

1. ALL ON SITE WORK SHALL CONFORM TO THE STANDARDS & REQUIREMENTS OF THE CALIFORNIA PLUMBING CODE, UNIFORM PLUMBING CODE AND THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND CONFORMING WITH THE REQUIREMENTS OF THE ENCROACHMENT PERMIT REQUIRED FOR WORK IN THE PUBLIC RIGHT-OF-WAY.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL AND PROTECTION OF PEDESTRIANS. THIS RESPONSIBILITY SHALL BE CONTINUOUS.
4. PIPE BEDDING AND BACKFILL SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF PERRIS AND THE RECOMMENDATIONS OF THE SOILS ENGINEER.
5. NO ON-SITE PIPE MAY BE LAID UNTIL THE SEWER CONNECTION AT THE PUBLIC MAIN HAS BEEN MADE.
6. PIPE IS TO BE PLACED BEGINNING AT THE DOWNSTREAM POINT OF CONNECTION AND CONTINUING UPSTREAM. DEVIATIONS FROM THIS SEQUENCE ARE NOT PERMITTED.

UTILITY NOTE

**PROPOSED ELECTRIC, TELEPHONE AND CATV ARE SHOWN HEREON FOR COORDINATION PURPOSES. CONTRACTOR TO VERIFY POINTS OF CONNECTION AND CONSTRUCT PROPOSED SERVICE LINES IN ACCORDANCE WITH SERVICE PLANNING DOCUMENTS PREPARED BY EACH RESPECTIVE UTILITY COMPANY.

WATER CONSTRUCTION NOTES (PRIVATE)

(30) INSTALL ___-INCH REDUCED PRESSURE DEVICE PER EMWD STANDARD B-597A. (DOMESTIC)

(31) INSTALL ___-INCH SCH. 80 PVC. WATER LINE. PIPE BEDDING AND BACKFILL TO CONFORM TO THE RECOMMENDATIONS OF THE SOILS ENGINEER. (DOMESTIC)

RECYCLED WATER CONSTRUCTION NOTES (PRIVATE)

(60) INSTALL ___-INCH REDUCED PRESSURE DEVICE PER EMWD STANDARD B-597A. (IRRIGATION)

(61) INSTALL ___-INCH SCH. 80 PVC. RECYCLED WATER LINE. PIPE BEDDING AND BACKFILL TO CONFORM TO THE RECOMMENDATIONS OF THE SOILS ENGINEER. (IRRIGATION)

FIRE SERVICE CONSTRUCTION NOTES (PRIVATE)

*(40) INSTALL DOUBLE DETECTOR CHECK ASSEMBLY WITH FIRE DEPARTMENT CONNECTION PER EMWD STANDARD B-657.

*(41) INSTALL FIRE SERVICE WATER LINE WITH D.I. FITTINGS PER EMWD REGULATIONS. PIPE TRENCHING, BEDDING AND BACKFILL SHALL BE PER EMWD REQUIREMENTS.

*(42) INSTALL ONE-PIECE STAINLESS STEEL FIRE RISER PER DETAIL HEREON.

*CONTRACTOR TO VERIFY SIZE OF FIRE SERVICE APPURTENANCES PRIOR TO CONSTRUCTION

SEWER CONSTRUCTION NOTES (PRIVATE)

(50) CONSTRUCT CLEANOUT PER CALIFORNIA BUILDING CODES AND EMWD STANDARD SB-52.

(51) PLACE SDR-35 P.V.C. SEWER PIPE PER EMWD REQUIREMENTS. PIPE BEDDING AND BACKFILL TO CONFORM TO THE RECOMMENDATIONS OF THE SOILS ENGINEER.

WATER CONSTRUCTION NOTES (PUBLIC)

(32) INSTALL WATER METER PER EMWD STANDARD B-342. (DOMESTIC)

(33) INSTALL ___-INCH SERVICE LATERAL PER EMWD STANDARD B-658. (DOMESTIC)

(34) TRENCHING & BACKFILL PER EMWD STANDARD B-286D

(35) CONNECT TO EXISTING WATER MAIN PER EMWD STANDARD B-658. (DOMESTIC)

(36) POTHOLE AND VERIFY THE EXISTENCE, LOCATION, DEPTH, MATERIAL, SIZE AND CONDITION OF EXISTING RECYCLED WATER LINE. REPORT FINDINGS TO TRUXAW & ASSOCIATES PRIOR TO CONSTRUCTION.

RECYCLED WATER CONSTRUCTION NOTES (PUBLIC)

(60) POTHOLE AND VERIFY THE EXISTENCE, LOCATION, DEPTH, MATERIAL, SIZE AND CONDITION OF EXISTING RECYCLED WATER LINE. REPORT FINDINGS TO TRUXAW & ASSOCIATES PRIOR TO CONSTRUCTION.

(61) INSTALL ___-INCH BACKFLOW PREVENTOR PER EMWD STDS.

(62) INSTALL ___-INCH RECYCLED WATER METER PER EMWD STANDARDS. (IRRIGATION)

(63) INSTALL ___-INCH SERVICE LATERAL PER EMWD STANDARDS. (IRRIGATION)

(64) TRENCHING & BACKFILL PER EMWD STANAND B-286B.

(65) CONNECT TO EXISTING RECYLED WATER MAIN PER EMWD STANDARD. (IRRIGATION)

FIRE SERVICE CONSTRUCTION NOTES (PUBLIC)

*(70) POTHOLE AND VERIFY THE EXISTENCE, LOCATION, DEPTH, MATERIAL, SIZE AND CONDITION OF EXISTING WATER LINE. REPORT FINDINGS TO TRUXAW & ASSOCIATES PRIOR TO CONSTRUCTION.

*(71) CONNECT TO EXISTING WATER MAIN PER EMWD STANDARD B-658

*(72) PLACE FIRE SERVICE LATERAL PER EMWD STANDARD B-658

(73) CONSTRUCT CONCRETE THRUST BLOCK PER EMWD STANDARD B-407.

(74) TRENCHING & BACKFILL PER EMWD STANARD B-286B.

*(75) INSTALL FIRE HYDRANT AND SERVICE PER EMWD STANDARD 701.

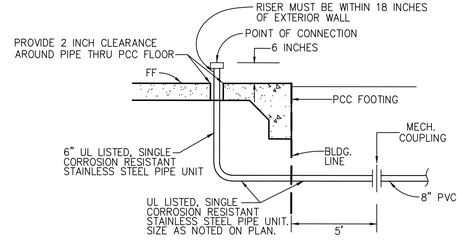
*CONTRACTOR TO VERIFY SIZE OF FIRE SERVICE APPURTENANCES PRIOR TO CONSTRUCTION

SEWER CONSTRUCTION NOTES (PUBLIC)

(80) POTHOLE AND VERIFY THE EXISTENCE, LOCATION, DEPTH, MATERIAL, SIZE AND CONDITION OF EXISTING 15" SEWER MAIN. REPORT FINDINGS TO TRUXAW & ASSOCIATES PRIOR TO CONSTRUCTION.

(81) PLACE SEWER LATERAL PER EMWD STANDARD SB-177.

(82) TRENCHING & BACKFILL PER EMWD STANDARD SB-158.



FIRE RISER — 42

NO SCALE

THIS PLAN IS:

PRELIMINARY

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20 10 0 20 40 60

SCALE: 1"=20'

NOTICE TO CONTRACTOR

THE CONTRACTOR SHALL ASCERTAIN THE TRUE VERTICAL AND HORIZONTAL LOCATION AND SIZE OF ALL UTILITIES, PIPES, AND/OR STRUCTURES AND SHALL BE RESPONSIBLE FOR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES, SHOWN OR NOT SHOWN HEREON.

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REGISTERED PROFESSIONAL ENGINEER CRAIG S. DI BITAS No. 75205 CIVIL STATE OF CALIFORNIA

CONCEPTUAL UTILITY PLAN

945-995 W. MARKHAM STREET

IN THE CITY OF PERRIS, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

DATE	9-16-22
DRAWN BY	JHD
CHECKED BY	CDB
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SHEET NO.	5

OF 5 SHEETS