FAULT STUDY
PROPOSED COMMERCIAL/INDUSTRIAL BUILDING

Pepper Avenue, South of Foothill Freeway
Rialto, California
for
Howard Industrial Partners

SOUTHERN
CALIFORNIA
GEOTECHNICAL
A California Corporation

March 22, 2021

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Howard Industrial Partners
1944 North Tustin Street, Suite 122
Orange, California 92865

Attention: Mr. Mike Tunney
Vice President

Project No.: **20G234-2**

Subject: **Fault Study**
Proposed Commercial/Industrial Building
Pepper Avenue, South of Foothill Freeway
Rialto, California

Mr. Tunney:

In accordance with your request, we have conducted a fault study at the subject site. We are pleased to present this report summarizing the conclusions and recommendations developed from our investigation.

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

Respectfully Submitted,

SOUTHERN CALIFORNIA GEOTECHNICAL, INC.

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Senior Geologist

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Distribution: (1) Addressee

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1.0 INTRODUCTION

1.1 Purpose and Scope

The subject site is located within an Alquist-Priolo earthquake fault zone and a San Bernardino County fault zone. Therefore, a fault study was required to be performed within the area of the proposed development. This report presents the results of our fault study for the proposed commercial/industrial building in Rialto, California. The purpose of our study was to evaluate the possible presence of on-site faulting and to provide conclusions and appropriate recommendations. Our scope of services included:

- Review of pertinent available geologic and geotechnical literature, maps, and aerial photographs.
- Excavation and logging of two (2) fault trenches across the proposed development area to a maximum depth of approximately 18 to 20± feet below existing site grade. The trenches extended from 65± feet southwest of the proposed building to 35± feet northeast of the proposed building, in a direction perpendicular to the mapped trace of the San Bernardino segment of the San Jacinto fault zone (SJFZ).
- Geologic review and analysis of the collected data.
- Preparation of this report presenting our findings and conclusions with regard to our fault investigation.

1.2 Site Description

The subject site is located on the east side of Pepper Avenue, approximately 500 feet south of the intersection of Pepper Avenue and the Foothill Freeway (CA-210) in Rialto, California. The site is bounded to the north and east by vacant lots, to the west by Pepper Avenue, and to the south by a vacant lot and a detention basin with an above-ground storage tank (AST). The general location of the site is illustrated on the Site Location Map, enclosed as Plate 1 of this report.

The site consists of an "L"-shaped parcel, 24.23± acres in size. The site is currently vacant and undeveloped. The ground surface cover consists of exposed soil with sparse to moderate native grass and weed growth. Tree trunks and debris are scattered around the northern region of the site.

Topographic information by Inland Aerial Surveys, Inc. was provided by the client. The site topography ranges from 1267± feet mean sea level (msl) located in the southeast corner of the site to 1290± msl in the northwest corner of the site. The site generally slopes downward to the southeast at a gradient of 1½± percent.

1.3 Proposed Development

Based on a conceptual site plan, prepared by Architects Orange (AO), provided to our office by the client, the subject site will be developed with one (1) new commercial/industrial building, 493,000± ft² in size, located in the north-central area of the site. Dock-high doors will be constructed along portions of the north and south building walls. The building will be surrounded by asphaltic concrete pavements in the parking and drive lanes, Portland cement concrete pavements in the loading dock areas, concrete flatwork, and limited areas of landscape planters throughout.

Detailed structural information has not been provided. It is assumed that the new building will be a single-story structure of tilt-up concrete construction, supported on a conventional shallow foundation system with a concrete slab-on-grade floor. Based on the assumed construction, maximum column and wall loads are expected to be on the order of 80 to 100 kips and 4 to 7 kips per linear foot, respectively.

Grading plans for the proposed development were not available at the time of this report. No significant amounts of below-grade construction such as basements or crawl spaces are expected to be included in the proposed development. Based on the assumed topography, cuts and fills of 7 to 10± feet are expected to be necessary to achieve the proposed site grades.

1.4 Previous Studies

A geotechnical feasibility study was previously conducted for this site by Southern California Geotechnical. This report is identified as follows:

> Geotechnical Feasibility Investigation, Proposed Commercial/Industrial Building, Pepper Avenue, South of Foothill Freeway, Rialto, California, prepared by Southern California Geotechnical, Inc. (SCG), prepared for Howard Industrial Partners, SCG Project No.20G234-1 dated December 15, 2020.

As part of this investigation, a total of four (4) borings were drilled to a depth of 50± feet below the existing site grades. SCG reported that native alluvium was encountered at the ground surface at all of the boring locations, extending to at least the maximum depth explored of 50± feet below the existing site grades. The near-surface alluvium generally consisted of very loose to medium dense silty sands, sandy silts, gravelly sands, and well-graded sands, with varying silt and gravel content, extending to depths of 7 to 10± feet. The underlying alluvium generally consisted of medium dense to dense silty sands, sandy silts, and well graded sands with varying fine gravel and silt content, extending to depths of 15 to 20± feet. At greater depths, the alluvial soils generally consisted of dense to very dense silty sands, gravely sands, sandy gravels, and well graded sands, with varying silt, gravel and cobble content.

Free water was not encountered during the drilling of any of the borings. Based on the lack of any water within the borings and the moisture contents of the recovered soil samples, the static groundwater was considered to have existed at a depth in excess of 50± feet at the time of the subsurface exploration.

The SCG geotechnical feasibility study presented preliminary grading, foundation, and floor slab design recommendations based on the conditions encountered at the boring locations. It should be noted that no groundwater discrepancies, fault scarps, fault line scarps, or any other indicators of faulting were observed during the feasibility study. Accordingly, the preliminary geotechnical recommendations were made under the assumption that no active faulting occurred on the site.

2.0 SUBSURFACE INVESTIGATION

The major purpose of the subsurface investigation was to determine if any faults are present at the site and; if so, what is their relative activity (time of last offset). Accordingly, two (2) trenches were excavated at the site to depths of 18 to 20± feet. The two exploratory trenches were excavated and logged in detail by staff geologists and a certified engineering geologist from our firm to evaluate the possible presence of on-site faulting. Charcoal discovered within the soils near the bottom of the exploratory trenches allowed for radiocarbon dating.

2.2 Fault Trenching and Logging

The two trenches were excavated across the proposed development as follows:

Trench No.	Length (feet)	Depth (feet)	Orientation
T-1	430	18 to 20	N 56° E
T-2	948	18 to 20	N 57° E

The trenches were excavated in an orientation that is roughly perpendicular to the projection of the San Bernardino section of the San Jacinto fault zone. This section of the San Jacinto fault zone is inferred to extend into or near the site (https://usgs.maps.arcgis.com). The approximate locations of the fault trenches are presented on the Trench Location Plan (Plate 2). This allowed for a thorough assessment of the proposed development with regard to possible faults that may cross the proposed development. Cross-sections of the trenches are presented in the enclosed Fault Investigation Trenches (Plate B-1, B-2a, and B-2b).

The trenches were excavated using a track-mounted excavator equipped with a 48-inch-wide bucket. The trenches were excavated with approximately 4-foot-wide benches on each side of the trench every 4± vertical feet to allow for SCG personnel to safely log the trench. The trenches were labeled with stations at 5-foot horizontal intervals.

The trench walls were scraped using picks and shovels to remove smears and gouge marks left by the excavator. To prepare a graphic log of the trench, we used the horizontal stations as a reference to scale the trench walls and the geologic features exposed at a 1 inch to 5-foot scale log. The trench location was surveyed using a GPS device.

2.3 Backfilling of Fault Trench

After the trenches were logged, both of the trenches were backfilled and compacted. Backfilling operations occurred between January 21, 2021 and January 27, 2021 for Trench T-1 and between February 14, 2021 and February 18, 2021 for Trench T-2. The trenches were backfilled with the previously excavated on-site soils. The soil was moisture conditioned as necessary and compacted using a loader and a vibratory roller in 12± inch lifts. Moisture-density tests indicate that the fill soils were compacted to at least 90 percent of the ASTM D-1557 maximum dry density. In place density testing of the structural fill was performed using the Nuclear test method (ASTM D-2922-81), referenced to the maximum dry density values obtained by the Modified Proctor method

(ASTM D-1557-91). The density test locations are shown on the enclosed Density Test Location Plan, Plate 7 in Appendix D of this report. Moisture density test results are presented on Table 1, enclosed in Appendix D. In addition, data regarding the soil types used as structural fill are presented on Table 2 in Appendix D.

3.0 HISTORICAL AERIAL PHOTOGRAPH REVIEW

Historical aerial photographs provided by San Bernardino County Flood Control District. The stereographic aerial photographs were reviewed to characterize site geomorphology and topography and surrounding vicinity prior to urbanization. Relative topographic expression can be interpreted using stereo aerial photographs.

Photographs from the San Bernardino County Flood Control District Aerial from the following years were available for review: 1938, 1969, 1970, and 1978. Copies of the 1938, 1969, and 1978 aerial photographs are provided in Appendix C of this report. A brief summary of these aerial photographs reviewed is presented below.

The site appears to have been utilized for agricultural purposes, presumably citrus orchards, prior to the earliest photograph in 1938. The site appears to have been vacant and undeveloped in the 1969 photograph until the most recent photograph in 1978. A topographic linear feature was visible in all of the photographs reviewed. The topographic linear feature trends northwest-southeast and is located approximately 725± feet southwest of the subject site. This topographic linear feature is located in a similar location, parallel to and coinciding with the mapped trace of the San Bernardino segment of the San Jacinto fault zone (SJFZ) on the geologic map (Dibblee, 2004). This topographic linear feature could be fault scarp or fault line scarp of the SJFZ. It should be noted that no topographic feature was observed on the subject site during the historical aerial photographic analysis.

4.0 SUMMARY OF GEOLOGIC CONDITIONS

4.1 Regional Geology

The subject site is located within the Peninsular Ranges physiographic provinces of California. The Peninsular Ranges province consists of several northwesterly-trending ranges in the southwestern California. The province is truncated to the north by the east-west trending Transverse Ranges. Prior to the mid-Mesozoic, the region was covered by seas and thick marine sedimentary and volcanic sequences were deposited. The bedrock geology that dominates the elevated areas of the Peninsular Ranges consists of high-grade metamorphic rocks intruded by Mesozoic plutons. During the Cretaceous, extensive mountain building occurred during the emplacement of the southern California batholith. The Peninsular Ranges have been significantly disrupted by Tertiary and Quaternary strike-slip faulting along the Elsinore and San Jacinto faults. This tectonic activity has resulted in the present terrain.

The regional geologic conditions were obtained from two primary sources. A portion of the Geologic Map of the San Bernardino North 7.5' Quadrangle, San Bernardino County, California, by Fred K. Miller, Jonathan C. Matti, and Scott E. Carson in 2001 and the Geologic Map of the San Bernardino North/North ½ of the San Bernardino South Quadrangles, San Bernardino County, California, by Thomas W. Dibblee Jr. in 2004 are presented as Plate 3 and Plate 4 of this report, respectively. The Miller map indicates that the site is underlain by Holocene and late Pleistocene age, young alluvial-valley deposits Map Symbol Qya_4). These deposits are described as slightly to moderately dissected, consolidated to cemented deposits of angular to sub-angular silt, sand, and pebbles. The Dibblee map indicates that the site is located within the Lytle Creek wash and is underlain by Holocene-age surficial sediments (Map Symbol Qg). These deposits are described as alluvial gravel and sand of stream channels. A buried segment of the SJFZ is mapped 775± feet northeast of the subject site on the Miller map. A segment of the San Jacinto fault is mapped 650± feet southwest of the subject site and another segment of the San Jacinto fault is mapped 7500± feet northeast of the site on the Dibblee map.

4.2 Regional Faulting

There are two main structural geologic features on or near the subject site, the SJFZ and the San Andreas Fault Zone (SAFZ). The site is located within the SJFZ. The SJFZ extends from El Centro, California to San Bernardino, California. The SJFZ is a northwest-southeast trending, right-lateral, strike-slip fault system. Information presented on the Southern California Earthquake Data Center (SCEDC) website operated by CalTech has assigned the following parameters to the San Jacinto Fault:

- Length: 210 kilometers
- Slip Rate: 7 to 17 millimeters per year
- Probable Magnitudes (M_W): 6.5 to 7.5
- Recurrence Interval: Between 100 and 300 years, per segment

Several of the large segments of the SJFZ have individual identities. One of the northern segments of the SJFZ is identified as the San Bernardino segment. This segment of the SJFZ is nearest the subject site. This section of the fault is a right-lateral fault that trends N58ºW with an average dip of 65 degrees to the southwest. The average slip rate is 5 millimeters per year. In addition, the recurrence interval is 107 years (https://earthquake.usgs.gov).

The SAFZ is the other major structural feature near the subject site. The SAFZ is a northwest-southeast trending, right-lateral, strike-slip fault system (SCEDC). The SAFZ is located 4.5± miles northeast of the subject site. The SCEDC has assigned the following parameters to the San Andreas Fault:

▪ Length:	1200 kilometers
▪ Slip Rate:	20 to 35 millimeters per year
▪ Probable Magnitudes (M_W):	6.8 to 8.0
▪ Recurrence Interval:	140 years

4.3 Site Specific Geology

The subject site is located within the Lytle Creek wash. Lytle Creek extends from the eastern San Gabriel mountains, trending northwest-southeast to the Santa Ana river. Based on our subsurface exploration, and review of pertinent geologic and geotechnical literature, the site is underlain by a surficial layer artificial fill and alluvial soils characteristic of wash deposits. A description of the units is presented below.

Artificial Fill

Artificial fill was encountered at Trench No. T-2 extending from the ground surface to depths of 3 to 5± feet. The artificial fill consists of loose, fine sands to silty fine sands with trace amounts of medium to coarse sands and varying amounts debris including roots, concrete, and brick fragments.

Alluvium

Native alluvium was encountered at the ground surface at Trench No. T-1 and beneath the artificial fill at Trench No. T-2. The alluvium consists of interbedded loose to medium dense fine sands to silty fine sands in the upper 10 to 15± feet. The deeper alluvial soils consist of loose to medium dense fine to coarse sands and gravelly fine to coarse sands with occasional to extensive cobble content. The near surface alluvium generally consists of unbroken sediments which the deeper alluvium generally consists of sand and gravel layers that pinch out horizontally which is characteristic of channel deposits. The sand and gravel layers are predominating in the deeper alluvium in the northeastern area of the site, closer to Lytle Creek. It should be noted that three (3) charcoal samples were collected within the deeper alluvial soils at Trench No. T-2.

Groundwater

Free water was not encountered during the excavation of the two trenches. In addition, as previously stated, no groundwater was encountered during the drilling of the borings during the previous geotechnical feasibility study. The static groundwater was considered to have existed at a depth in excess of 50± feet at the time of the previous subsurface exploration.

As part of our research for the feasibility study, we reviewed readily available groundwater data in order to determine regional groundwater depths. The primary reference used to determine the groundwater depths in the subject site area is the California Department of Water Resources website, http://www.water.ca.gov/waterdatalibrary/. The nearest monitoring well is located approximately 800 feet southeast from the site. Water level readings within this monitoring well indicates a high groundwater level of 418 feet below the ground surface in September 2020.

4.4 Sediment Age

A total of three (3) charcoal samples were collected from Trench T-2. These samples were submitted to DirectAMS a radiocarbon dating service. The results of the testing is below:

Sample	Radiocarbon Age (before present)
T-2 @17.5 feet	1967
T-2 @ 16.5 feet	2171
T-2 @ 17 feet	2160

Based on the results of the radiocarbon dating, the deeper alluvial soils have an average radiocarbon age of 2,099 years before present.

4.5 On-Site Faulting

Our discussion of on-site faulting on the site is prefaced with a discussion of California legislation and state policies concerning the classification and land-use criteria associated with faults. By definition of the California Geological Survey (CGS), an active fault is a fault which has had surface displacement with Holocene time (about the last 11,700 years). The State Geologist has defined a potentially active fault as any fault considered to have been active during Quaternary time (the last 1,600,000 years) but that has not been proven to be active or inactive. This definition is used in delineating Fault-Rupture Hazard Zones as mandated by the Alquist-Priolo Earthquake Fault Zoning Act of 1972 and is most recently subsequently revised in 1997 (Hart, 1997). The intent of this act is to assure that unwise urban development does not occur across the traces of active faults.

Based on our review of the Special Study Zones Map of the San Bernardino North Quadrangle, published by the CGS, the subject site is located within a designated earthquake fault zone as defined by the Alquist-Priolo Earthquake Fault Zoning Act. In accordance with the provisions of the Act, all new construction of habitable structures within the Fault Rupture Hazard Zone will be preceded by a fault trenching investigation to determine the presence of on-site strands of any active or potentially active fault and to determine the need for a structural setback. The general location of the site relative to the SJFZ is illustrated on the Alquist-Priolo Fault Zone Map, included as Plate 5 of this report.

Based on our review of the San Bernardino County Geologic Hazards Overlay Map of the San Bernardino North Quadrangle FH22, published by San Bernardino County, the site is also located within a County of San Bernardino fault zone. The general location of the site relative to the SJFZ is illustrated on the San Bernardino County Fault Zone Map, included as Plate 6 of this report.

Approximately 18 to 20± feet of alluvial sediments were exposed at Trench Nos. T-1 and T-2. The upper 10 to 12± feet generally consisted of unbroken sediments. The deeper alluvial soils were characteristic of channel deposits with interbedded sand and gravel layers that pinch out horizontally. The cobbles were generally rounded and sub-rounded and were generally concentrated in the lower section of each depositional channel. None of the deeper alluvial channel deposits were offset. As previously stated, the sediments exposed near the bottom of Trench Nos. T-1 and T-2 were deposited approximately 2,100 years before present and the recurrence interval for the San Bernardino segment of the San Jacinto fault is 107 years. Based on the recurrence interval with respect to the approximate date of the deeper exposed sediments, we would expect that an offset in the deeper exposed sediments would be evident if the fault transected the subject site. Therefore, the San Bernardino segment of the SJFZ is not considered to transect the subject site.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

We have reviewed readily available reports, maps, and performed a subsurface fault study of the subject site to evaluate the potential for surface faulting at the site. There is positive evidence that no active or potentially active faults transect the subject site. This conclusion is based on the following factors:

- Historical aerial stereographic photograph analysis indicates that a linear topographic feature is located 750± feet southwest of the subject site. This linear topographic feature is parallel to and coincides with the mapped trace of the San Jacinto fault on the Dibblee map. No linear topographic depressions or features were visible on the subject site.

- No evidence of on-site faulting was encountered within the fault trenches, which extended from 65± feet southwest of the proposed building to 35± northeast of the proposed building, in a direction perpendicular to the mapped trace of the San Bernardino segment of the SJFZ.

- Based on the recurrence interval for the San Bernardino segment of the SJFZ (107 years) with respect to the approximate date of the deeper exposed sediments (2,100 years before present), we would expect that an offset in the deeper exposed sediments would be evident if an active fault transected the subject site.

5.2 Recommendations

Based on the results of this fault study, positive evidence indicates that neither active nor potentially active faults occur at the proposed development. Therefore, we recommend that development proceed without structural setbacks related to active or potentially active faults. The conclusions and recommendations presented in the previously submitted geotechnical investigation are thus considered valid for the proposed development.

6.0 GENERAL COMMENTS

This report has been prepared for use by the client, in order to aid in the evaluation of this property and to assist the architects and engineers in the design and preparation of the project plans and specifications. This report may be provided to the contractor(s) and other design consultants to disclose information relative to the project. However, this report is not intended to be utilized as a specification in and of itself, without appropriate interpretation by the project architect, civil engineer, and/or structural engineer. The reproduction and distribution of this report must be authorized by the client and Southern California Geotechnical, Inc. Furthermore, any reliance on this report by an unauthorized third party is at such party's sole risk, and we accept no responsibility for damage or loss which may occur.

The analysis of this site was based on a subsurface profile interpolated from limited discrete soil samples. While the materials encountered in the project area are considered to be representative of the total area, some variations should be expected between boring and trench locations and sample depths. If the conditions encountered during construction vary significantly from those detailed herein, we should be contacted immediately to determine if the conditions alter the recommendations contained herein.

This report has been based on assumed or provided characteristics of the proposed development. It is recommended that the owner, client, architect, structural engineer, and civil engineer carefully review these assumptions to ensure that they are consistent with the characteristics of the proposed development. If discrepancies exist, they should be brought to our attention to verify that they do not affect the conclusions and recommendations contained herein. We also recommend that the project plans and specifications be submitted to our office for review to verify that our recommendations have been correctly interpreted.

The analysis, conclusions, and recommendations contained within this report have been promulgated in accordance with generally accepted professional geological and geotechnical engineering practice. No other warranty is implied or expressed.

7.0 REFERENCES

California Division of Mines and Geology (CDMG), 1974, Earthquake Fault Zones (Alquist-Priolo Earthquake Fault Zoning Act: San Bernardino North Quadrangle, CDMG, Scale 1:24,000.

Dibblee, T.W., 2004, Geologic Map of the San Bernardino North/North ½ San Bernardino South Quadrangles, San Bernardino County, California, published by the Dibblee Geologic Foundation, Scale 1:24,000.

Geotechnical Feasibility Study, Proposed Commercial/Industrial Building, Pepper Avenue, South of Foothill Freeway, Rialto, California, prepared by SCG, prepared for Howard Industrial Partners, SCG Project No. 20G234-1, dated December 15, 2020.

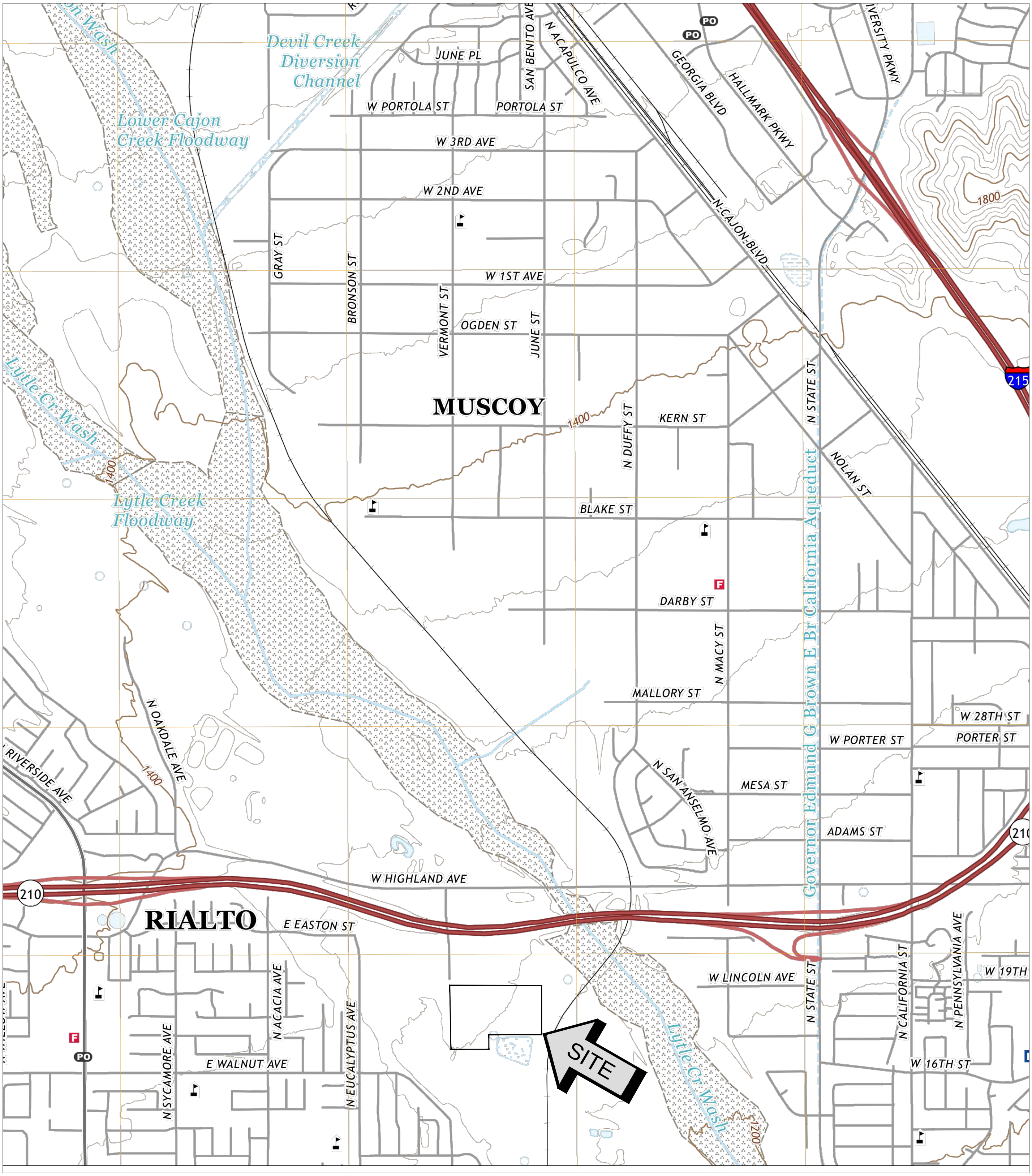
Miller, F.K., Matti, J.C., and Carson, S.E., 2001, Geologic Map of the San Bernardino North 7.5' Quadrangle, published by CDGM, OFR 01-131, Scale 1:24,000.

Southern California Earthquake Data Center, www.data.scec.org, San Jacinto Fault.

U.S. Quaternary Faults, https://usgs.maps.arcgis.com, maintained by United States Geologic Survey (USGS).

Quaternary Fault and Fold Database, https://earthquake.usgs.gov/, maintained by USGS.

APPENDIX A



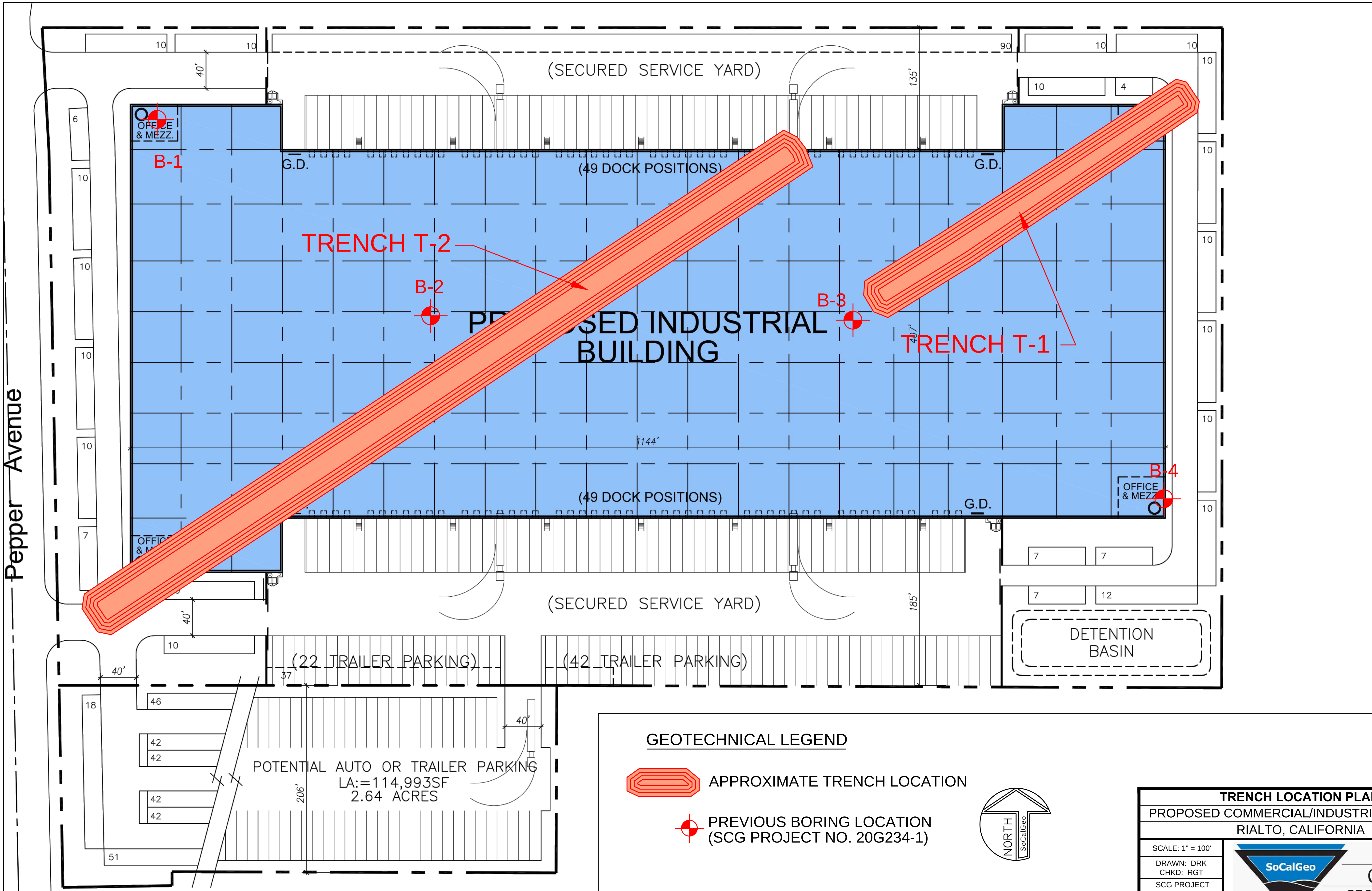
SOURCE: USGS TOPOGRAPHIC MAPS OF THE SAN BERNARDINO NORTH QUADRANGLES, SAN BERNARDINO COUNTY, CALIFORNIA, 2018.

SITE LOCATION MAP

PROPOSED COMMERCIAL/INDUSTRIAL BUILDING

RIALTO, CALIFORNIA

SCALE: 1" = 2000'	SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
DRAWN: DRK CHKD: RGT	
SCG PROJECT 20G234-2	
PLATE 1	



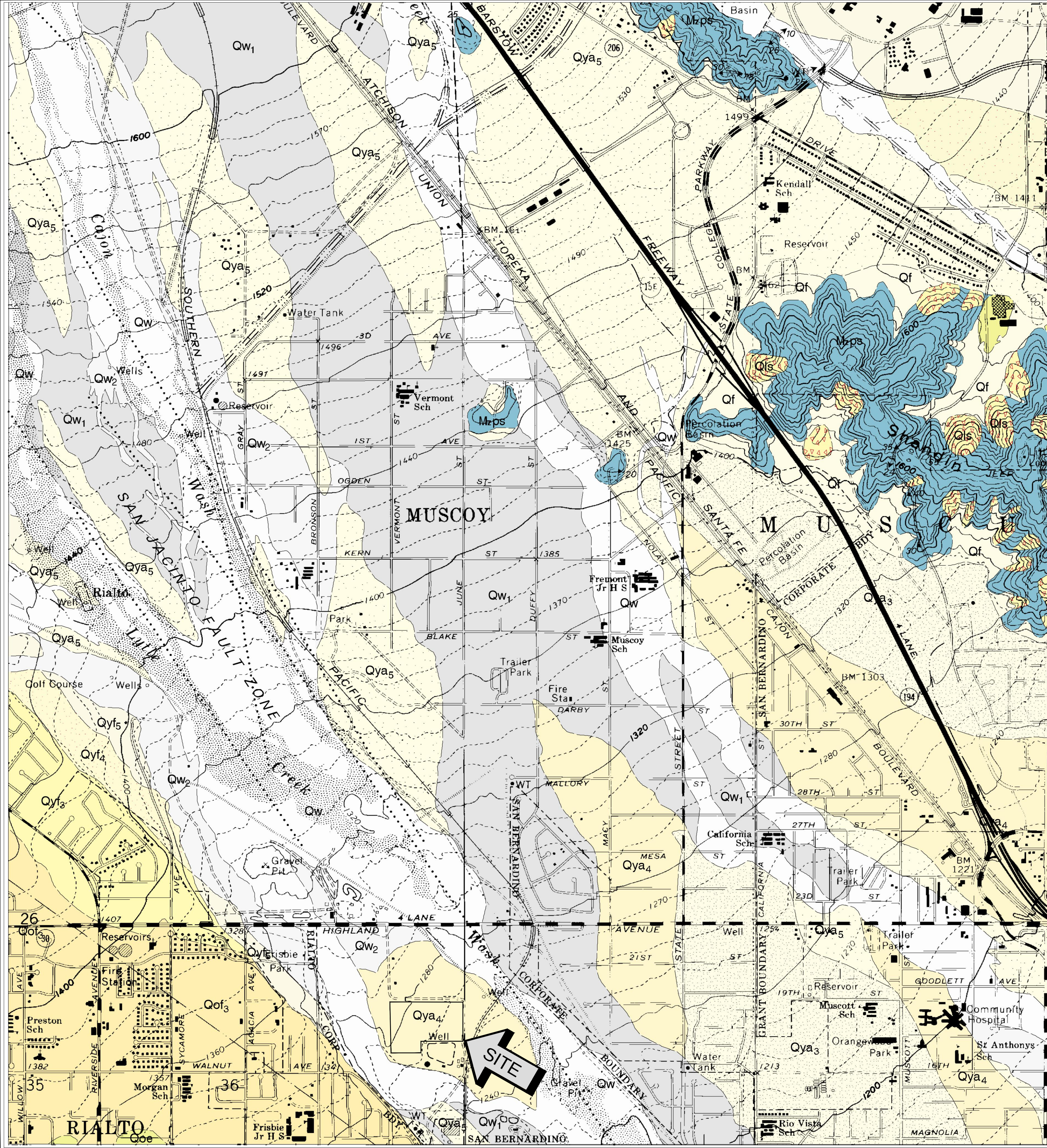
TRENCH LOCATION PLAN

PROPOSED COMMERCIAL/INDUSTRIAL BUILDING

RIALTO, CALIFORNIA

SCALE: 1" = 100'	
DRAWN: DRK CHKD: RGT	
SCG PROJECT 20G234-2	
PLATE 2	

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL



DESCRIPTION OF MAP UNITS

VERY YOUNG SURFICIAL DEPOSITS—Sediment recently transported and deposited in channels and washes, on surfaces of alluvial fans and alluvial plains, and on hillslopes. Soil-profile development is non-existant to minimal. Includes:

Qw — **Very young wash deposits (late Holocene)**—Unconsolidated to locally cemented sand, gravel, and boulder deposits in active washes of streams and on active surfaces of alluvial fans. Typically shows fresh flood scours and channel-and-bar morphology. Locally includes small areas of older surficial deposits. Most deposits are centimeters to a few meters thick. Includes:

Qw_2 — **Very young wash deposits, Unit 2 (late Holocene)**—Chiefly sand and gravel. Distinguished as lower level terraces in Qw terrace sequence; pebble to boulder clasts are sparse to abundant

Qw_1 — **Very young wash deposits, Unit 1 (late Holocene)**—Chiefly sand and gravel. Distinguished as upper level terraces in Qw terrace sequence; pebble to boulder clasts are sparse to abundant

Qf — **Very young alluvial-fan deposits (late Holocene)**—Unconsolidated to locally cemented, undissected deposits of gravel and sand that for active parts of alluvial fans. Essentially no pedogenic soil development

Qf_1 — **Very young alluvial-fan deposits, Unit 1 (late Holocene)**—Undissected, unconsolidated to loosely compacted deposits of gravel and sand. Distinguished as high-level terrace in Qf terrace sequence

Qc — **Very young colluvial deposits (late Holocene)**—Unconsolidated to slightly consolidated sandy and pebbly deposits of hillslopes and base of slopes. No pedogenic soil development

Qt — **Very young talus deposits (late Holocene)**—Unconsolidated deposits of angular and sub-angular pebble-, cobble-, and boulder-sized clasts that form scree and rubble on hillslopes and at bases of slopes

Qls — **Very young landslide deposits (late Holocene)**—Slope-failure deposits that consist of displaced bedrock blocks and (or) chaotically mixed rubble. Most deposits are probably active or recently active

Qs — **Very young surficial deposits, undifferentiated (late Holocene)**—Sand and pebble to small cobble gravel deposits not assigned to any specific surficial materials unit. Unconsolidated to slightly consolidated. Includes wash, alluvial fan, colluvial, and valley-filling deposits

YOUNGER SURFICIAL DEPOSITS—Sedimentary units that are slightly consolidated to cemented and slightly to moderately dissected. Alluvial fan deposits (Qyf series) typically have high Coarse:fine clast ratios. Younger surficial units have upper surfaces that are capped by slight to moderately developed pedogenic-soil profiles (A/C to A/AC/$B_{cambric}C_{ox}$ profiles). Includes:

Qyf — **Young alluvial-fan deposits (Holocene and late Pleistocene)**—Slightly consolidated to cemented, undissected to slightly dissected deposits of unsorted boulders, cobbles, gravel, and sand that form inactive parts of alluvial fans. Many have unsorted clast and matrix supported debris-flow fabrics. Subunits of Qyf generally form a nested series of thin fills that include from younger to older:

Qyf_5 — **Young alluvial-fan deposits, Unit 5 (late Holocene)**—Sand and pebble-boulder gravel. Unconsolidated to slightly consolidated; sand is fine to coarse grained. Occupies topographically highest position relative to other Qyf units

Qyf_4 — **Young alluvial-fan deposits, Unit 4 (late Holocene)**—Sand and pebble-boulder gravel. Unconsolidated to slightly consolidated; sand is fine to coarse grained. Differs from Qyf_5 and from Qyf_3 by relative position in terrace sequence, consolidation, and surface dissection

Qyf_3 — **Young alluvial-fan deposits, Unit 3 (late and middle Holocene)**—Sand and pebble-boulder gravel. Unconsolidated to slightly consolidated, sand is fine to coarse grained. Differs from Qyf_4 and from Qyf_2 by relative position in terrace sequence, consolidation, and surface dissection

Qyf_2 — **Young alluvial-fan deposits, Unit 2 (early Holocene)**—Sand, silty sand, and granule-pebble gravel. Slightly to moderately consolidated; sand is fine to coarse grained. Differs from Qyf_3 by relative position in terrace sequence, consolidation, surface dissection, and average grainsize and from Qyf_1 by relative topographic position and slight differences in average grain size

Qyf_1 — **Young alluvial-fan deposits, Unit 1 (early Holocene and late Pleistocene)**—Sand and pebble-boulder gravel. Slightly to moderately consolidated; sand is fine to coarse grained. Differs from Qyf_2 by relative position in terrace sequence, consolidation, surface dissection, and slight difference in average grainsize

Young alluvial-valley deposits (Holocene and late Pleistocene)—Slightly to moderately dissected, consolidated to cemented deposits of angular to subangular silt, sand and pebbles. Generally finer grained than Qyf units Includes:

Qya_5 — **Young alluvial-valley deposits, Unit 5 (Holocene and late Pleistocene)**—Slightly dissected, slightly consolidated to cemented deposits of angular to subangular silt, sand and pebbles. Differs from Qya_4 by relative position in terrace sequence, consolidation, and surface dissection

Qya_4 — **Young alluvial-valley deposits, Unit 4 (Holocene and late Pleistocene)**—Slightly to moderately dissected, consolidated to cemented deposits of angular to subangular silt, sand and pebbles. Differs from Qya_5 and Qya_3 by relative position in terrace sequence, consolidation, and surface dissection

Qya_3 — **Young alluvial-valley deposits, Unit 3 (Holocene and late Pleistocene)**—Slightly to moderately dissected, moderately well consolidated to cemented deposits of angular to subangular silt, sand and pebbles. Differs from Qya_4 by relative position in terrace sequence, consolidation, and surface dissection

Qyls — **Young landslide deposits (Holocene and late Pleistocene)**—Landslide-failure deposits that consist of displaced bedrock blocks and (or) chaotically mixed rubble. Deposits are probably inactive under current climatic conditions and moderate to strong ground-shaking conditions

OLDER SURFICIAL DEPOSITS—Sedimentary units that are moderately consolidated and slightly to moderately dissected. Older surficial deposits have upper surfaces that are capped by moderately to well-developed pedogenic soils (A/AB/B/C_{ox} profiles and Bt horizons as much as 1 to 2 m thick and maximum hues in the range of 10YR 5/4 and 6/4 through 7.5YR 6/4 to 4/4 and mature Bt horizons reaching 5YR 5/6). Includes:

Qof — **Old alluvial-fan deposits (late to middle Pleistocene)**—Sedimentary units that are moderately consolidated and slightly to moderately dissected. Includes from younger to older:

Qof3 — **Old alluvial-fan deposits, Unit 3 (late Pleistocene)**—Slightly to moderately dissected alluvial fan deposits. Moderately to well consolidated brownish sand, gravelly sand, and granule-boulder gravel mainly having matrix-supported debris-flow fabrics; lenses of sediment having clast-supported, imbricated fluvial fabrics are subordinate

Qof_2 — **Old alluvial-fan deposits, Unit 2 (late Pleistocene)**—Slightly to moderately dissected alluvial fan deposits. Moderately to well consolidated brownish sand, gravelly sand, and granule-boulder gravel mainly having matrix-supported debris-flow fabrics

Contact—Solid where located within ±15 meters; dashed where located within ±30 meters

Contact—Separates terraced alluvial units, hachers point towards topographically lower surface. Located within ±15 meters

70

Fault—High angle. Solid where located within ±15 meters; dashed where located within ±30 meters; dotted where concealed. Hachures indicate scarp; hachures on down-dropped block. Opposed arrows indicate relative movement. Arrow and number indicate direction and amount of dip. MLS, Mill Creek strand; MCS, Mission Creek strand; SBS, San Bernardino strand of San Andreas Fault zone

Strike and dip of beds

70 **Inclined**

70 **Overturned**

Strike and dip of metamorphic foliation

70 **Inclined**

Bearing and plunge of linear features

70 **Minor fold axes**

70 **Aligned metamorphic minerals**

70 **Lineation, general**

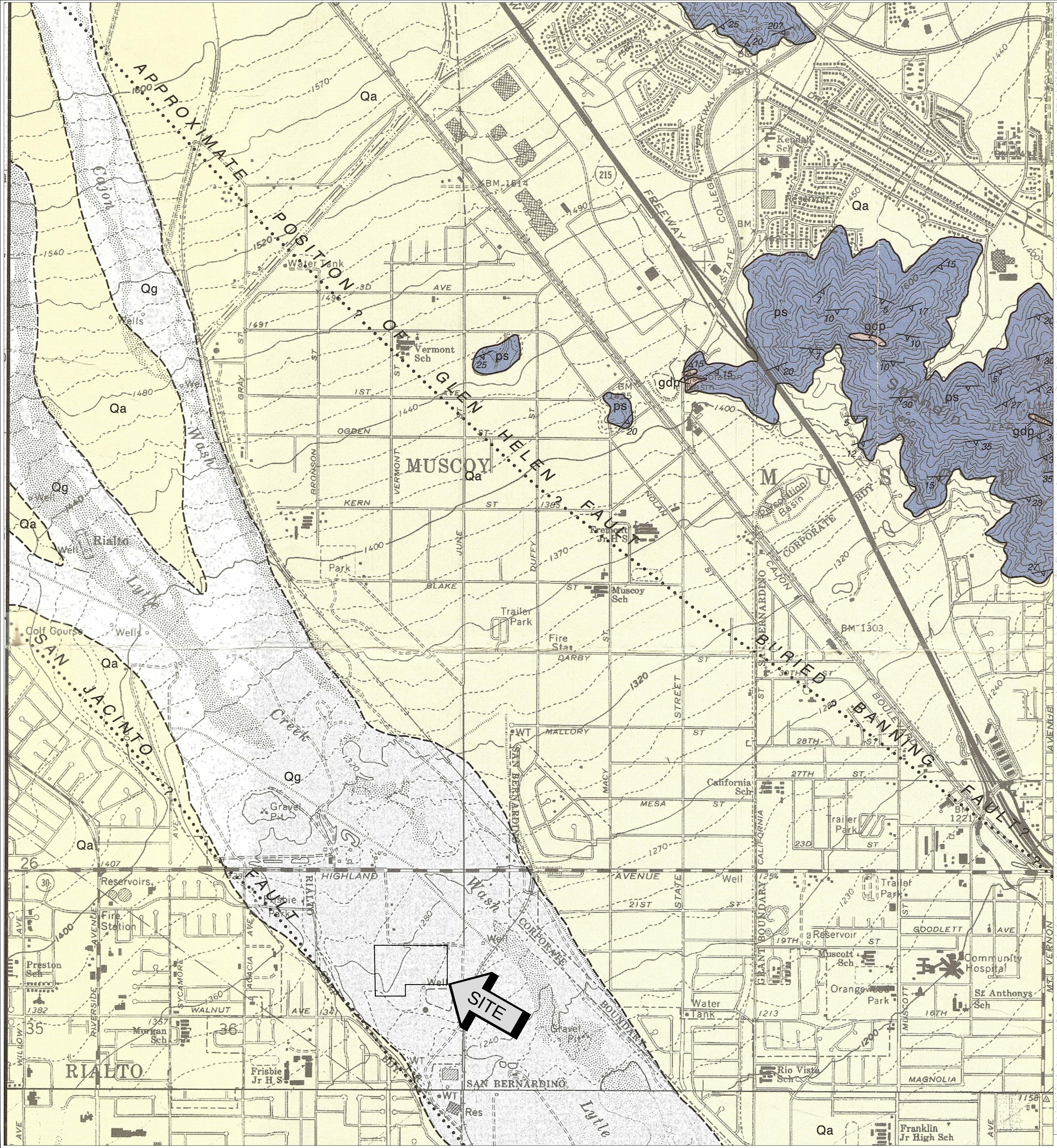
GEOLOGIC MAP OF THE SAN BERNARDINO NORTH 7.5' QUADRANGLE, SAN BERNARDINO COUNTY, CALIFORNIA, FRED K. MILLER, JONATHAN C. MATTI, AND SCOTT E. CARSON (2001)

GEOLOGIC MAP

PROPOSED COMMERCIAL/INDUSTRIAL BUILDING

RIALTO, CALIFORNIA

SCALE: 1" = 2000'	SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
DRAWN: DRK CHKD: RGT	
SCG PROJECT 20G234-2	
PLATE 3	



LEGEND

Qa | Qg | Qs

SURFICIAL SEDIMENTS

Alluvial sediments, Unconsolidated, undissected

Og *Alluvial gravel and sand of stream channels*
Qa *Alluvial fan gravel and sand of valley areas, derived from rocks of San Bernardino Mountains composed of unsorted boulders and cobbles in mountain area, down slope into finer cobble-gravel and sand outward southwest in valley area.*
Qs *Drift sand, deposited by north winds*

Qls

LANDSLIDE DEBRIS

Qls *Landslide of rock rubble*

Qoa | Qog

OLDER SURFICIAL SEDIMENTS

Dissected older alluvial deposits, slightly indurated, undeformed; age, late Pleistocene

Qoa *Alluvial fan gravel and sand of lower terraces*
Qog *Alluvial fan deposits of boulder gravel in major canyons, older, at higher levels*

— *UNCONFORMITY* —

Holocene | Pleistocene | QUATERNARY | Pliocene | ? | Miocene | TERTIARY

AREA NORTHEAST OF SAN ANDREAS FAULT

Tcr | Ts

SEDIMENTARY ROCKS

Tcr *Crowder Formation near Crestline, terrestrial sandstone and cobble conglomerate of granitic detritus, friable, light gray to tan, arkosic; similar to Crowder Formation; Pliocene – late Miocene, in areas to northwest*
Ts *Terrestrial sandstone and conglomerate of granitic detritus, semi-lithified, light gray to tan, arkosic; exposed in San Andreas fault zone eastern part of quadrangle; similar to Cajon Formation, Miocene, of Cajon Valley area northwest of quadrangle*

— *UNCONFORMITY* —

gr | qd | di | mp

PLUTONIC ROCKS

Granitic rocks of San Bernardino Mountains, medium grained holocrystalline; age, Cretaceous

gr *Leucocratic granitic rocks, mostly quartz monzonite or monzogranite but vary to granodiorite, as determined only from thin sections, composed of quartz, potassic feldspar and sodic plagioclase feldspar in nearly equal amounts and less than 10 percent biotite, little to no hornblende; in few places contains scattered phenocrysts of potassic feldspar; rock gray-white to light gray, massive, rarely gneissoid, somewhat incoherent where weathered especially on areas of subdued relief where weathered to residual sandy soil; includes units mapped by Miller et al, 2001, as biotite monzogranite granodiorite of Lake Gregory and granodiorite of Arrowhead Peak*
qd *Intermediate plutonic rocks, mostly quartz diorite, varies to monzodiorite, composed of 1/4 or less of quartz, 3/4 of sodic plagioclase, minor amounts of potassic feldspar, 10 – 15 % biotite and hornblende; gray, massive to gneissoid; commonly includes mixtures of gneiss; includes unit mapped by Miller et al, 2001, as monzodiorite of Crestline*
di *Diorite, dark gray, massive, medium grained, somewhat incoherent where weathered, composed of hornblende, biotite, and plagioclase feldspar; complexly migmatized with gneissic rocks; only one outcrop near lower Waterman Creek*
mp *Monzonite of Cedar Pines Park, composed of potassic feldspar and sodic plagioclase feldspar in nearly equal amounts, sparse quartz, and minor hornblende and biotite of a ratio greater than 10:1; locally porphyritic with phenocrysts of potassic feldspar; rock gray, indistinctly gneissoid, probably engulfed in granitic rocks; age based on correlation with similar rock near Fawnskin 27 km to east which yielded a zircon U/Pb age of 245 Ma (Miller et al, 2001, written commun: from J.E. Wooden) or Triassic age exposed on crest of range at north border of quadrangle*

CRETACEOUS | ? | TRIASSIC

gn | ml

GNEISS

(Gneiss of Devil Canyon of Miller et al, 2001) foliated holocrystalline rocks, metamorphosed under conditions of high temperature and pressure from sedimentary petroliths of probably Precambrian age; latest cooling age Mesozoic)

gn *Gneiss, composed of white to light gray laminae of mostly quartz and feldspar alternating with gray to nearly black laminae rich in biotite and minor hornblende; laminae undulated, locally contorted; hard but brittle, closely fractured; in many places includes small masses and migmatites of granitic rocks, in some areas complexly intruded by granitic dikes and sills*
ml *Marble, white to gray-white, medium to coarse crystalline, massive, with little evidence of bedding, composed of calcite or dolomite, occurs as many layers interbedded in gneiss as mapped*

AREA SOUTHWEST OF SAN ANDREAS FAULT

gdp | db

GRANODIORITE PORPHYRY DIKES

Hypabyssal dikes in Pelona Schist, similar to those rocks in eastern San Gabriel Mountains, radiometrically dated as 25.6 Ma (May and Walker, 1989, in Morton and Matti, 2001)

gdp *Granodiorite to dacite porphyry light gray, medium to fine grained, composed of quartz, potassic feldspar and sodic plagioclase, and minor biotite; dikes fine grained, rock porphyritic with small phenocrysts of potassic feldspar and quartz*
db *Diabase*

TERTIARY

ps

PELONA SCHIST

Mica schist metamorphosed from petroliths of sedimentary and pyroclastic rocks of unknown age in late Cretaceous time

ps *Mica schist, composed of muscovite and biotite micas, albite feldspar and quartz, locally chlorite, gray with silvery sheen on foliation planes, weathers brown; fine – medium grained, highly foliated, cleaves into flat slabs along foliation planes*

ms | mq | ml | mig

METASEDIMENTARY ROCKS

Severely metamorphosed marine sedimentary rocks of inferred Paleozoic (?) age, as small pendant remnants engulfed in plutonic rocks

ms *Biotite schist, dark gray, fine grained foliated, includes minor biotite-quartz-feldspar schist or gneiss, quartzite and calc-silicate hornfels in Riverside area*
mq *Quartzite, light gray, massive to layered, hard but brittle, fractured*
ml *Marble, white to light blue-gray, coarse grained*
mig *Migmatized mixture of biotite schist and tonalitic granitic rocks*

GEOLOGIC SYMBOLS

not all symbols shown on each map

FORMATION CONTACT *dashed where inferred or indefinite, dotted where concealed*

MEMBER CONTACT *between units of a formation*; **Prominent bed**

CONTACT BETWEEN SURFICIAL SEDIMENTS *located only approximately in places*

FAULT: *Dashed where indefinite or inferred, dotted where concealed, queried where existence is doubtful. Parallel arrows indicate inferred relative lateral movement. Relative vertical movement is shown by U/D (U=upthrown side, D=downthrown side). Short arrow indicates dip of fault plane. Sawteeth are on upper plate of low angle thrust fault.* U D 25 ?

FOLDS: overturned **ANTICLINE** **SYNCLINE**
arrow on axial trace of fold indicates direction of plunge; dotted where concealed by surficial sediments

Strike and dip of Sedimentary rocks: 18 *inclined*; 20 *inclined (approximate)*; 80 *overturned*; *horizontal*; *vertical*

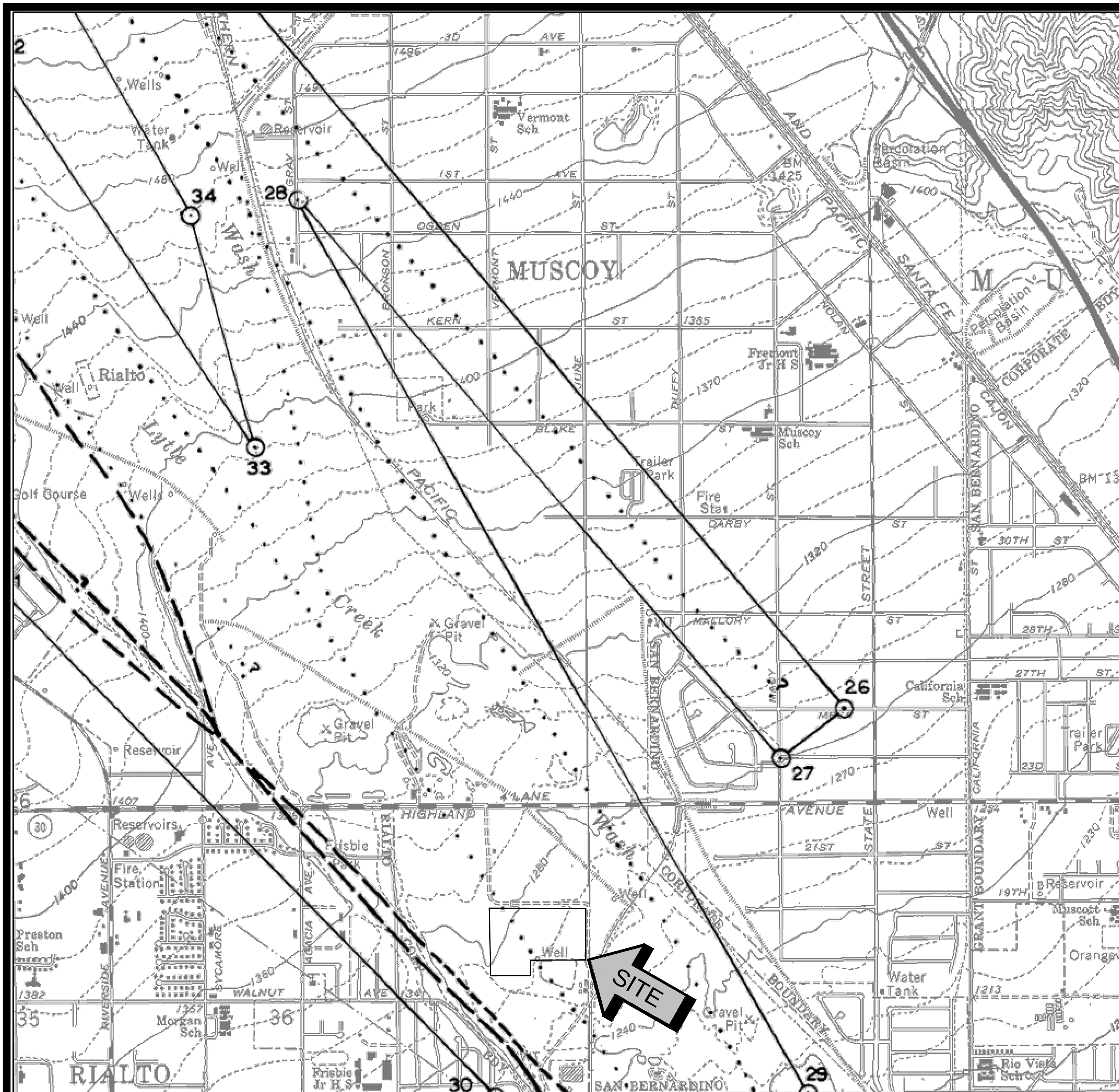
Strike and dip of metamorphic or igneous rock foliation or flow banding or compositional layers: 75 *inclined*; *inclined (approximate)*; *vertical*; 80 *overturned*

OTHER SYMBOLS: *Direction of landslide movement*; *outline of water bodies shown on map*; *water well*; *oil well*

GEOLOGIC MAP OF THE SAN BERNARDINO NORTH / NORTH 1/2 OF SAN BERNARDINO SOUTH QUADRANGLES BY THOMAS W. DIBBLEE, JR. (2004)

GEOLOGIC MAP
PROPOSED COMMERCIAL/INDUSTRIAL BUILDING
RIALTO, CALIFORNIA

SCALE: 1" = 2000'	SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
DRAWN: DRK CHKD: RGT	
SCG PROJECT 20G234-2	
PLATE 4	



MAP EXPLANATION

Potentially Active Faults

Faults considered to have been active during Quaternary time, solid line where accurately located, long dash where approximately located, short dash where inferred, dotted where concealed, query (?) indicates additional uncertainty. Evidence of historic offset indicated by year of earthquake-associated event or C for displacement caused by creep or possible creep

Aerial photo lineaments (not field checked), based on youthful geomorphic and other features believed to be the results of Quaternary faulting

Special Studies Zone Boundaries

These are delineated as straight-line segments that connect consecutively numbered turning points so as to define one or more special studies zone segments

Seaward projection of zone boundary

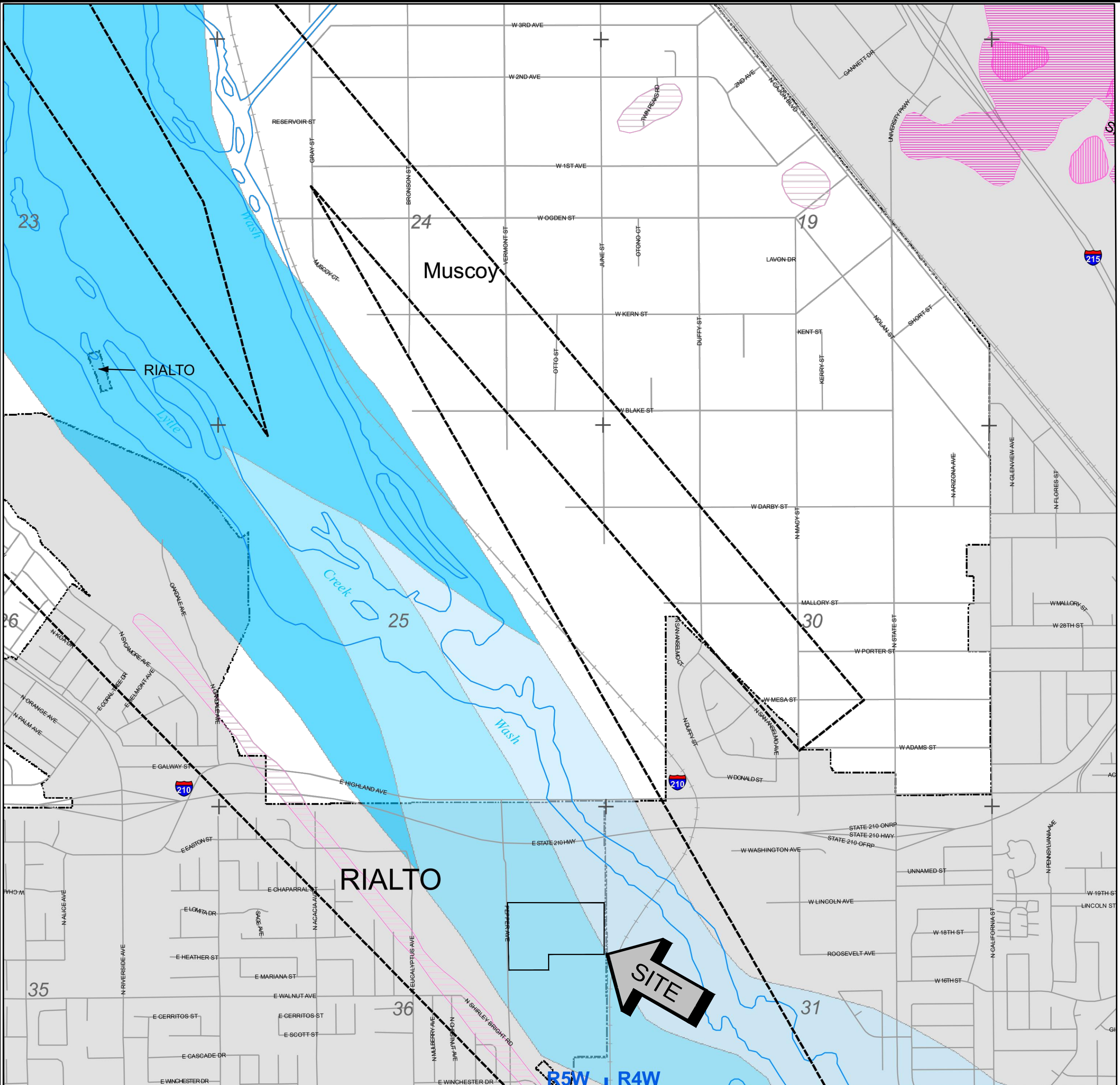
SOURCE: "STATE OF CALIFORNIA SPECIAL STUDIES ZONES, SAN BERNARDINO NORTH QUADRANGLE" DATED JULY 1, 1974 AND JUNE 1, 1995.

ALQUIST-PRIOLO EARTHQUAKE FAULT ZONE MAP

PROPOSED COMMERCIAL/INDUSTRIAL BUILDING

RIALTO, CALIFORNIA

SCALE: 1" = 2,000'	SOUTHERN CALIFORNIA GEOTECHNICAL
DRAWN: DRK CHKD: RGT	
SCG PROJECT 20G243-2	
PLATE 5	



Generalized Landslide Susceptibility

- Low to moderate
- Moderate to high
- Mapped, Existing Landslide
- Rockfall/Debris-Flow Hazard Area (Forest Falls Only)

Zone of Suspected Liquefaction Susceptibility

- Zone of Susceptibility

Generalized Liquefaction Susceptibility

- Low
- Medium
- High

Earthquake Fault Zones

- Earthquake Fault Zone Boundary
- County Designated Fault Zones

Cities

SOURCE: "SAN BERNARDINO COUNTY LAND USE PLAN, GENERAL PLAN, GEOLOGIC HAZARDS OVERLAY, SAN BERNARDINO NORTH QUADRANGLE, FH22"

SAN BERNARDINO COUNTY GEOLOGIC HAZARD MAP

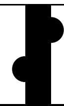
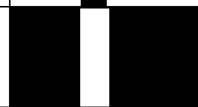
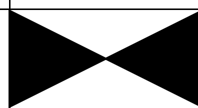
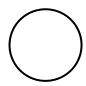
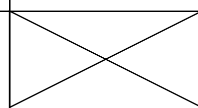
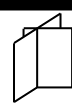
PROPOSED COMMERCIAL/INDUSTRIAL BUILDING

RIALTO, CALIFORNIA

SCALE: 1" = 2,000'	SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
DRAWN: DRK CHKD: RGT	
SCG PROJECT 20G243-2	
PLATE 6	

APPENDIX B

TRENCH LOG LEGEND

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

COLUMN DESCRIPTIONS

DEPTH: Distance in feet below the ground surface.

SAMPLE: Sample Type as depicted above.

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

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

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

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

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

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

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

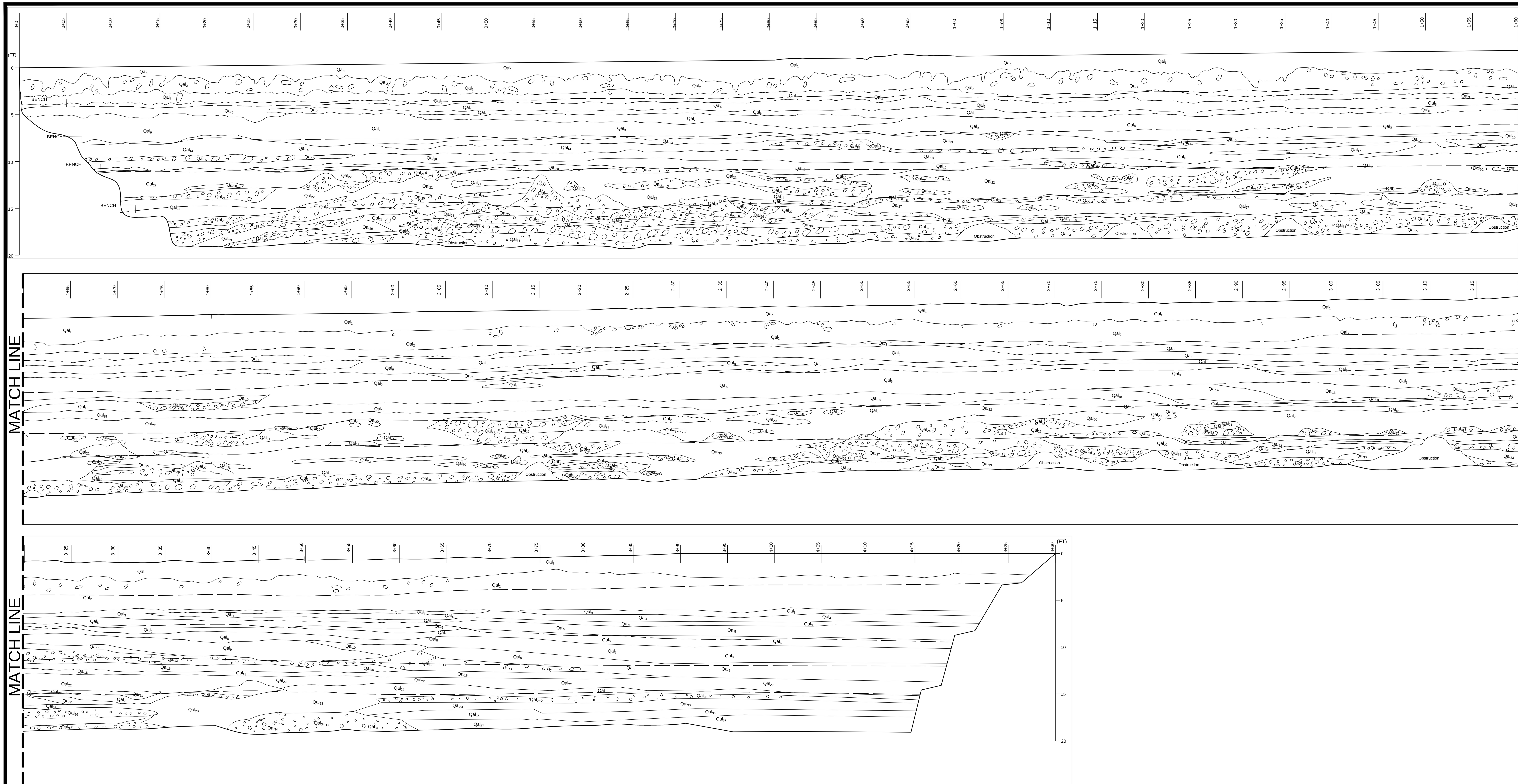
PASSING #200 SIEVE: The percentage of the sample finer than the #200 standard sieve.

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

SOIL CLASSIFICATION CHART

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

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS



Qal$_1$ - Gray Brown Silty fine to medium Sand, little coarse Sand, little fine Gravel, some trace fine root fibers, loose - damp
Qal$_2$ - Light Gray fine Sand, trace to little medium to coarse Sand, little Iron oxide staining, loose - dry to damp
Qal$_3$ - Light Gray Silty fine Sand, trace fine root fibers, porous, loose to damp
Qal$_4$ - Light Gray fine Sandy Silt, porous, loose - damp
Qal$_5$ - Light Gray Brown fine Sand, trace medium to coarse Sand, trace fine Gravel, loose - dry
Qal$_6$ - Brown Silty fine Sand, pourous, loose - damp
Qal$_7$ - Gray Brown fine to coarse Sand, trace to little Iron oxide staining, loose - dry
Qal$_8$ - Gray to Gray Brown fine Sandy Silt, trace to little calcarous veins, porous, loose - damp
Qal$_9$ - Light Gray Brown Silty fine to coarse Sand, trace fine to coarse Gravel, occasional Cobbles, loose - dry to damp
Qal$_{10}$ - Brown Silty fine Sand, loose - damp
Qal$_{11}$ - Gray fine Sandy Silt, little calcarous veins, porous, loose - dry to damp
Qal$_{12}$ - Gray fine to coarse Sand, some fine to coarse Gravel, occasional Cobbles, loose - dry
Qal$_{13}$ - Gray Brown fine to coarse Sand, trace fine Gravel, loose - dry
Qal$_{14}$ - Gray Brown fine Sand, little Iron oxide staining, loose - dry
Qal$_{15}$ - Light Gray Gravelly fine to coarse Sand, occasional Cobbles, loose to medium dense - dry to damp
Qal$_{16}$ - Light Gray fine Sandy Silt, porous, medium dense - dry
Qal$_{17}$ - Gray fine to coarse Sand, little fine to coarse Gravel, loose - dry
Qal$_{18}$ - Brown to Gray Brown Silty fine Sand, loose to medium dense - damp
Qal$_{19}$ - Brown Silty fine to coarse Sand, trace fine to coarse Gravel, loose - damp
Qal$_{20}$ - Brown Silty fine Sand, loose - damp
Qal$_{21}$ - Light Gray fine to coarse Sand, little fine to coarse Gravel, loose to medium dense - dry
Qal$_{22}$ - Light Gray fine Sand, trace to medium to coarse Sand, trace fine Gravel, little Iron oxide staining, loose to medium dense - damp
Qal$_{23}$ - Brown Silty fine Sand, loose - damp
Qal$_{24}$ - Light Gray Brown fine to coarse Sand, little fine to coarse gravel, medium dense - damp
Qal$_{25}$ - Brown Silty fine Sand, medium dense - damp
Qal$_{26}$ - Gray Gravely fine to coarse Sand, occasional to extensive Cobbles, medium dense - damp
Qal$_{27}$ - Gray fine to medium Sand, trace coarse Sand, trace fine Gravel, medium dense - dry
Qal$_{28}$ - Gray Gravelly fine to coarse Sand, occasional Cobbles, medium dense - dry
Qal$_{29}$ - Light Gray fine to coarse Sand, trace fine to coarse Gravel, medium dense - dry
Qal$_{30}$ - Brown Silty fine Sand, medium dense - damp
Qal$_{31}$ - Gray fine to coarse Sand, medium dense - dry
Qal$_{32}$ - Light Gray Gravelly fine to coarse Sand, extensive Cobbles, medium dense - dry
Qal$_{33}$ - Gray fine Sand, medium dense - dry
Qal$_{34}$ - Gray Gravelly fine to coarse Sand, extensive Cobbles, medium dense - dry
Qal$_{35}$ - Gray fine Sand, trace medium to coarse Sand, trace fine Gravel, medium dense - dry
Qal$_{36}$ - Light Gray fine Sand, trace medium Sand, little Silt, little Iron oxide Staining, loose - damp
Qal$_{37}$ - Light Gray fine Sand, trace Silt, little Iron oxide staining, loose - dry

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Fax: (714) 685-1118
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SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

SCALE: 1" = 5'
DRAWN: DRK
CHKD: RGT
SCG PROJECT
20G234-2

TRENCH T-1
PROPOSED COMMERCIAL/INDUSTRIAL BUILDING
RIALTO, CALIFORNIA

PLATE
B-1

Af - Gray Brown to Brown fine Sand to Silty fine Sand, trace medium to coarse Sand, mottled, roots,debris loose - damp
Qal$_{1}$ - Brown Silty fine Sand, trace medium to coarse Sand, loose - dry to damp
Qal$_{2}$ - Light Gray Gravelly fine to coarse Sand, occasional to extensive Cobbles, loose - dry
Qal$_{3}$ - Gray Silty fine to coarse Sand, trace to little fine to coarse Gravel, loose - dry
Qal$_{4}$ - Light Gray fine Sand, trace medium to coarse Sand, trace fine to coarse Gravel, loose - dry
Qal$_{5}$ - Dark Gray Brown Silty fine Sand, loose - dry to damp
Qal$_{6}$ - Gray Brown fine Sand, trace to little medium to coarse Sand, little Iron oxide staining, loose - dry
Qal$_{7}$ - Light Gray fine to coarse Sand, loose - dry
Qal$_{8}$ - Light Gray fine to medium Sand, little coarse Sand, trace fine to coarse Gravel, occasional Cobbles, loose - dry
Qal$_{9}$ - Gray fine to coarse Sand, little fine to coarse Gravel, occasional Cobbles, loose - dry
Qal$_{10}$ - Gray Brown fine to medium Sand, trace coarse Sand, little Silt, loose - dry to damp
Qal$_{11}$ - Light Gray fine Sand, little medium to coarse Sand, trace fine to coarse Gravel, loose - dry
Qal$_{12}$ - Gray fine Sandy Silt, trace calcareous veining, loose to medium dense - damp
Qal$_{13}$ - Gray Brown Silty fine Sand, loose to medium dense - damp
Qal$_{14}$ - Light Gray fine Sand, little Iron oxide staining, loose - dry
Qal$_{15}$ - Gray Brown Silty fine Sand, little Iron oxide staining, trace Calcareous nodules, loose - dry
Qal$_{16}$ - Light Gray Gravelly fine to coarse Sand, loose - dry
Qal$_{17}$ - Light Gray Brown fine Sand, trace medium to coarse Sand, little Iron oxide staining, loose - dry
Qal$_{18}$ - Light Gray Brown Silty fine Sand, trace medium to coarse Sand, trace fine Gravel, medium dense - damp
Qal$_{19}$ - Light Gray Brown fine to medium Sand, trace coarse Sand, little Iron oxide staining, loose - damp
Qal$_{20}$ - Light Gray fine Sand, extensive Iron oxide staining, loose - dry to damp
Qal$_{21}$ - Gray fine to coarse Sand, little fine to coarse Gravel, medium dense - dry
Qal$_{22}$ - Gray fine Sand, little Iron oxide staining, medium dense - dry
Qal$_{23}$ - Brown Silty fine Sand, loose to medium dense - damp
Qal$_{24}$ - Gray fine to coarse Sand, little fine to coarse Gravel, medium dense - damp
Qal$_{25}$ - Light Gray fine Sand, laminated, Iron oxide staining, loose - dry
Qal$_{26}$ - Gray Brown Silty fine to coarse Sand, little fine to coarse Gravel, occasional Cobbles, loose - dry to damp
Qal$_{27}$ - Light Gray fine Sand, little Iron oxide staining, loose - dry to damp
Qal$_{28}$ - Gray Gravelly fine to coarse Sand, extensive Cobbles, loose - dry
Qal$_{29}$ - Light Gray Brown Gravelly fine to coarse Sand, extensive Cobbles, loose - dry
Qal$_{30}$ - Light Gray Brown fine Sandy Silt, slightly porous, trace organics, medium dense - dry
Qal$_{31}$ - Light Gray fine to medium Sand, little coarse Sand, little fine to coarse Gravel, loose - dry
Qal$_{32}$ - Gray Brown Silty fine to coarse Sand, little Iron oxide staining, loose - dry
Qal$_{33}$ - Light Brown fine Sand, trace to little medium to coarse Sand, little Silt, little Iron oxide Staining, loose - damp
Qal$_{34}$ - Light Gray Brown Silty fine Sand, little Iron oxide Staining. loose - damp
Qal$_{35}$ - Light Gray fine to medium Sand, trace coarse Sand, loose - dry
Qal$_{36}$ - Light Gray Gravelly fine to coarse Sand, extensive Cobbles, loose - dry
Qal$_{37}$ - Light Gray fine to coarse Sand, little Iron oxide staining, loose - dry
Qal$_{38}$ - Light Gray Brown Silty fine Sand, little Iron oxide staining, loose - damp
Qal$_{39}$ - Light Gray fine to medium Sand, trace coarse Sand, little Iron oxide staining, loose - damp
Qal$_{40}$ - Light Gray Brown Silty fine Sand, little Iron oxide staining, loose - damp to moist
Qal$_{41}$ - Gray Brown Silty fine to coarse Sand, trace fine to coarse Gravel, loose - dry
Qal$_{42}$ - Gray Brown Gravelly fine to coarse Sand, extensive Cobbles, loose - dry
Qal$_{43}$ - Light Gray fine to coarse Sand, trace fine Gravel, loose - dry
Qal$_{44}$ - Light Gray Brown fine Sand, trace medium Sand, little Silt, little Iron oxide staining, loose- damp
Qal$_{45}$ - Light Gray Brown Silty fine Sand, trace medium Sand, little Iron oxide staining medium dense - dry
Qal$_{46}$ - Light Gray Gravelly fine to coarse Sand, occasional Cobbles, trace Iron oxide staining, loose - dry
Qal$_{47}$ - Light Gray fine Sand, little Iron oxide staining, loose - dry
Qal$_{48}$ - Light Gray Brown fine Sand, trace Silt, little Iron oxide staining, loose - damp

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A California Corporation
SoCalGeo

SCALE: 1" = 5'
DRAWN: DRK
CHKD: RGT
SCG PROJECT 20G234-2

TRENCH T-2
PROPOSED COMMERCIAL/INDUSTRIAL BUILDING
RIALTO, CALIFORNIA

PLATE
B- 2 a

Af - Gray Brown to Brown fine Sand to Silty fine Sand, trace medium to coarse Sand, mottled, roots,debris loose - damp
Qal$_{1}$ - Brown Silty fine Sand, trace medium to coarse Sand, loose - dry to damp
Qal$_{2}$ - Light Gray Gravelly fine to coarse Sand, occasional to extensive Cobbles, loose - dry
Qal$_{3}$ - Gray Silty fine to coarse Sand, trace to little fine to coarse Gravel, loose - dry
Qal$_{4}$ - Light Gray fine Sand, trace medium to coarse Sand, trace fine to coarse Gravel, loose - dry
Qal$_{5}$ - Dark Gray Brown Silty fine Sand, loose - dry to damp
Qal$_{6}$ - Gray Brown fine Sand, trace to little medium to coarse Sand, little Iron oxide staining, loose - dry
Qal$_{7}$ - Light Gray fine to coarse Sand, loose - dry
Qal$_{8}$ - Light Gray fine to medium Sand, little coarse Sand, trace fine to coarse Gravel, occasional Cobbles, loose - dry
Qal$_{9}$ - Gray fine to coarse Sand, little fine to coarse Gravel, occasional Cobbles, loose - dry
Qal$_{10}$ - Gray Brown fine to medium Sand, trace coarse Sand, little Silt, loose - dry to damp
Qal$_{11}$ - Light Gray fine Sand, little medium to coarse Sand, trace fine to coarse Gravel, loose - dry
Qal$_{12}$ - Gray fine Sandy Silt, trace calcareous veining, loose to medium dense - damp
Qal$_{13}$ - Gray Brown Silty fine Sand, loose to medium dense - damp
Qal$_{14}$ - Light Gray fine Sand, little Iron oxide staining, loose - dry
Qal$_{15}$ - Gray Brown Silty fine Sand, little Iron oxide staining, trace Calcareous nodules, loose - dry
Qal$_{16}$ - Light Gray Gravelly fine to coarse Sand, loose - dry
Qal$_{17}$ - Light Gray Brown fine Sand, trace medium to coarse Sand, little Iron oxide staining, loose - dry
Qal$_{18}$ - Light Gray Brown Silty fine Sand, trace medium to coarse Sand, trace fine Gravel, medium dense - damp
Qal$_{19}$ - Light Gray Brown fine to medium Sand, trace coarse Sand, little Iron oxide staining, loose - damp
Qal$_{20}$ - Light Gray fine Sand, extensive Iron oxide staining, loose - dry to damp
Qal$_{21}$ - Gray fine to coarse Sand, little fine to coarse Gravel, medium dense - dry
Qal$_{22}$ - Gray fine Sand, little Iron oxide staining, medium dense - dry
Qal$_{23}$ - Brown Silty fine Sand, loose to medium dense - damp
Qal$_{24}$ - Gray fine to coarse Sand, little fine to coarse Gravel, medium dense - damp
Qal$_{25}$ - Light Gray fine Sand, laminated, Iron oxide staining, loose - dry
Qal$_{26}$ - Gray Brown Silty fine to coarse Sand, little fine to coarse Gravel, occasional Cobbles, loose - dry to damp
Qal$_{27}$ - Light Gray fine Sand, little Iron oxide staining, loose - dry to damp
Qal$_{28}$ - Gray Gravelly fine to coarse Sand, extensive Cobbles, loose - dry
Qal$_{29}$ - Light Gray Brown Gravelly fine to coarse Sand, extensive Cobbles, loose - dry
Qal$_{30}$ - Light Gray Brown fine Sandy Silt, slightly porous, trace organics, medium dense - dry
Qal$_{31}$ - Light Gray fine to medium Sand, little coarse Sand, little fine to coarse Gravel, loose - dry
Qal$_{32}$ - Gray Brown Silty fine to coarse Sand, little Iron oxide staining, loose - dry
Qal$_{33}$ - Light Brown fine Sand, trace to little medium to coarse Sand, little Silt, little Iron oxide Staining, loose - damp
Qal$_{34}$ - Light Gray Brown Silty fine Sand, little Iron oxide Staining. loose - damp
Qal$_{35}$ - Light Gray fine to medium Sand, trace coarse Sand, loose - dry
Qal$_{36}$ - Light Gray Gravelly fine to coarse Sand, extensive Cobbles, loose - dry
Qal$_{37}$ - Light Gray fine to coarse Sand, little Iron oxide staining, loose - dry
Qal$_{38}$ - Light Gray Brown Silty fine Sand, little Iron oxide staining, loose - damp
Qal$_{39}$ - Light Gray fine to medium Sand, trace coarse Sand, little Iron oxide staining, loose - damp
Qal$_{40}$ - Light Gray Brown Silty fine Sand, little Iron oxide staining, loose - damp to moist
Qal$_{41}$ - Gray Brown Silty fine to coarse Sand, trace fine to coarse Gravel, loose - dry
Qal$_{42}$ - Gray Brown Gravelly fine to coarse Sand, extensive Cobbles, loose - dry
Qal$_{43}$ - Light Gray fine to coarse Sand, trace fine Gravel, loose - dry
Qal$_{44}$ - Light Gray Brown fine Sand, trace medium Sand, little Silt, little Iron oxide staining, loose- damp
Qal$_{45}$ - Light Gray Brown Silty fine Sand, trace medium Sand, little Iron oxide staining medium dense - dry
Qal$_{46}$ - Light Gray Gravelly fine to coarse Sand, occasional Cobbles, trace Iron oxide staining, loose - dry
Qal$_{47}$ - Light Gray fine Sand, little Iron oxide staining, loose - dry
Qal$_{48}$ - Light Gray Brown fine Sand, trace Silt, little Iron oxide staining, loose - damp

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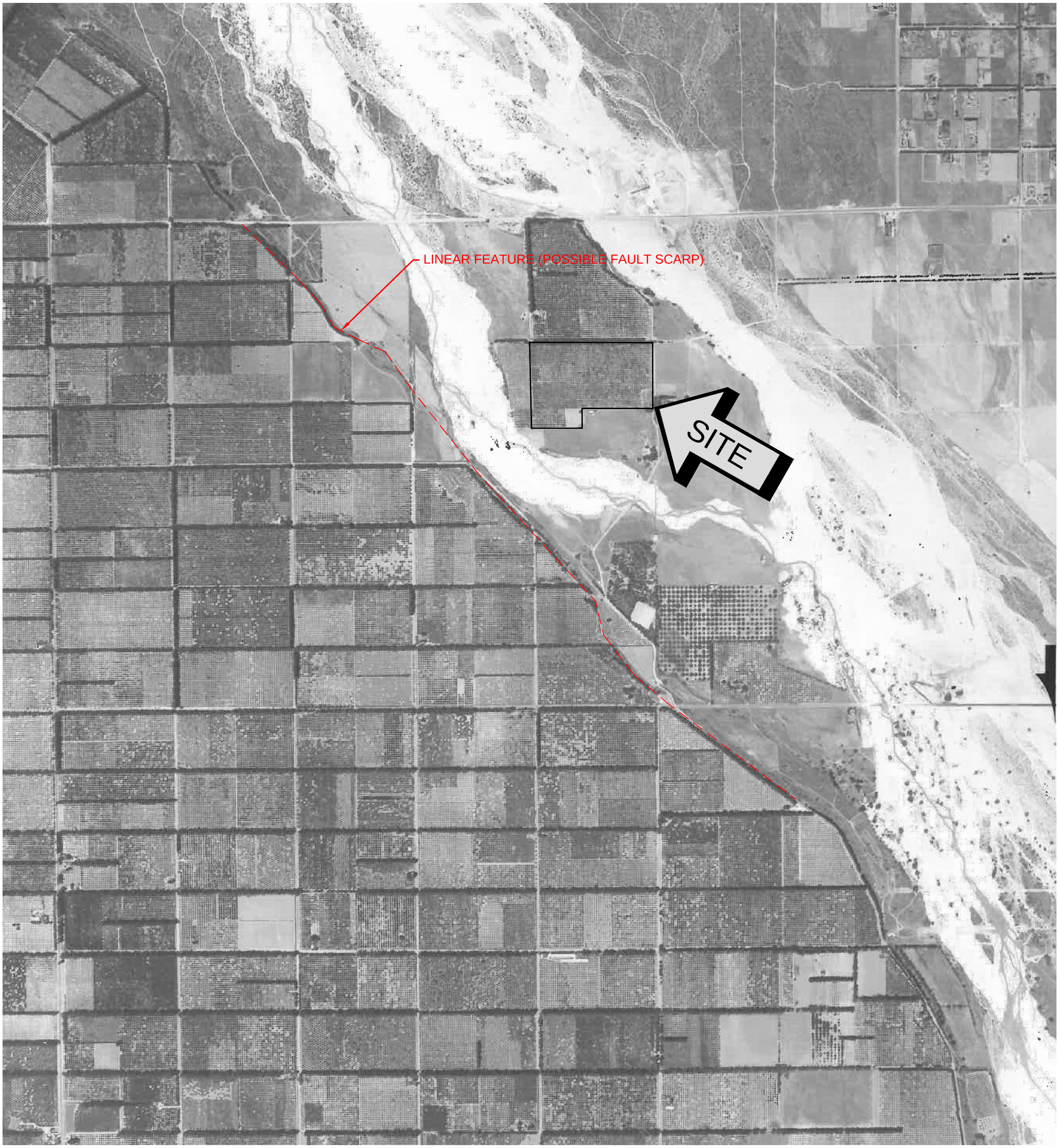
20G234-2

TRENCH T-2
PROPOSED COMMERCIAL/INDUSTRIAL BUILDING
RIALTO, CALIFORNIA

PLATE
B-2b

APPENDIX C



HISTORICAL PHOTOGRAPH - 1938

PROPOSED COMMERCIAL/INDUSTRIAL BUILDING

RIALTO, CALIFORNIA

1" = 1500'

DRAWN: DRK
CHKD: RGT

SCG PROJECT
20G234-2

PLATE C-1

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL

HISTORICAL PHOTOGRAPH - 1969

PROPOSED COMMERCIAL/INDUSTRIAL BUILDING

RIALTO, CALIFORNIA

1" = 1500'

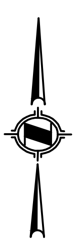
DRAWN: DRK
CHKD: RGT

SCG PROJECT
20G234-2

PLATE C-2

SoCalGeo

SOUTHERN CALIFORNIA GEOTECHNICAL



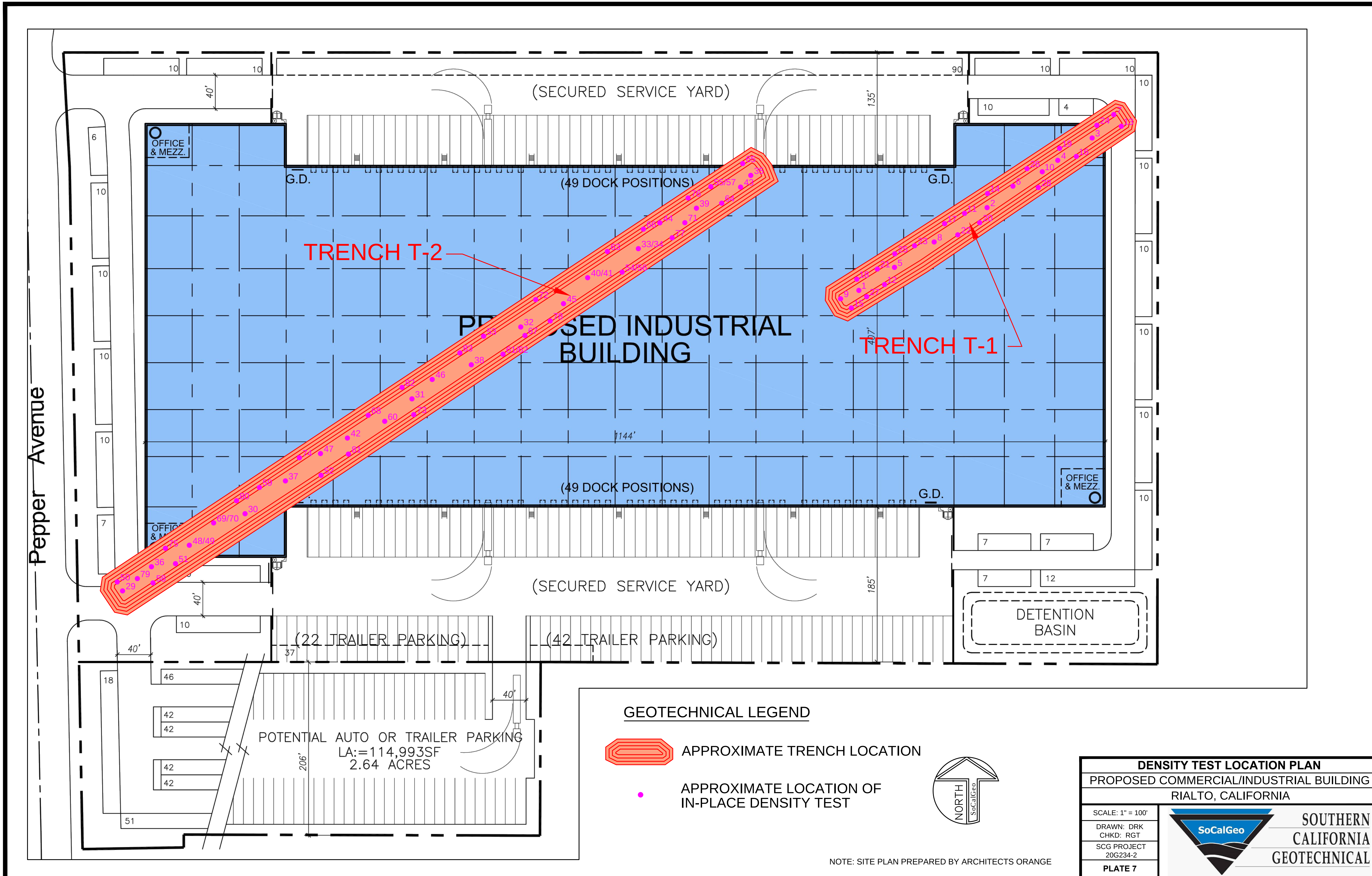
HISTORICAL PHOTOGRAPH - 1978

PROPOSED COMMERCIAL/INDUSTRIAL BUILDING

RIALTO, CALIFORNIA

1" = 1500'	SOUTHERN CALIFORNIA GEOTECHNICAL
DRAWN: DRK CHKD: RGT	
SCG PROJECT 20G234-2	
PLATE C-3	

APPENDIX D



(SECURED SERVICE YARD)
(49 DOCK POSITIONS)
G.D.
OFFICE & MEZZ.
PROPOSED INDUSTRIAL BUILDING
TRENCH T-2
TRENCH T-1
1144'
135'
185'
407'
40'
(SECURED SERVICE YARD)
(22 TRAILER PARKING)
(42 TRAILER PARKING)
DETENTION BASIN
Pepper Avenue
POTENTIAL AUTO OR TRAILER PARKING
LA:=114,993SF
2.64 ACRES
206'
GEOTECHNICAL LEGEND
APPROXIMATE TRENCH LOCATION
APPROXIMATE LOCATION OF IN-PLACE DENSITY TEST
NORTH
SoCalGeo
NOTE: SITE PLAN PREPARED BY ARCHITECTS ORANGE
DENSITY TEST LOCATION PLAN
PROPOSED COMMERCIAL/INDUSTRIAL BUILDING
RIALTO, CALIFORNIA
SCALE: 1" = 100'
DRAWN: DRK
CHKD: RGT
SCG PROJECT
20G234-2
PLATE 7
SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL

TABLE 1
SUMMARY OF FIELD DENSITY TESTS

Test No.	***Date***	***Depth (ft)***	***Test Location***	***Soil Type***	***Moisture Content*** (%)	***Dry Density (pcf)***	***Relative Compaction*** (%)	***Comments***
1	21-Jan-21	-18.0	Trench No. T-1	A	10.1	111.2	90	
2	21-Jan-21	-18.0	Trench No. T-1	A	10.6	111.7	90	
3	21-Jan-21	-18.0	Trench No. T-1	A	10.7	111.8	91	
4	21-Jan-21	-16.0	Trench No. T-1	A	10.5	111.5	90	
5	21-Jan-21	-16.0	Trench No. T-1	A	10.2	111.4	90	
6	21-Jan-21	-16.0	Trench No. T-1	A	10.9	111.9	91	
7	22-Jan-21	-14.0	Trench No. T-1	A	10.2	111.4	90	
8	22-Jan-21	-14.0	Trench No. T-1	A	10.1	111.2	90	
9	22-Jan-21	-14.0	Trench No. T-1	A	10.3	111.3	90	
10	22-Jan-21	-12.0	Trench No. T-1	A	10.1	111.2	90	
11	22-Jan-21	-12.0	Trench No. T-1	A	10.4	111.4	90	
12	22-Jan-21	-12.0	Trench No. T-1	A	10.2	111.3	90	
13	22-Jan-21	-10.0	Trench No. T-1	A	10.5	111.5	90	
14	22-Jan-21	-10.0	Trench No. T-1	A	10.4	111.5	90	
15	26-Jan-21	-8.0	Trench No. T-1	A	11.4	112.1	91	
16	26-Jan-21	-8.0	Trench No. T-1	A	11.6	112.0	91	
17	26-Jan-21	-8.0	Trench No. T-1	A	12.1	112.4	91	
18	26-Jan-21	-8.0	Trench No. T-1	A	11.9	111.9	91	
19	26-Jan-21	-6.0	Trench No. T-1	A	12.4	111.5	90	
20	26-Jan-21	-6.0	Trench No. T-1	A	12.1	111.0	90	
21	26-Jan-21	-4.0	Trench No. T-1	A	11.8	111.3	90	
22	26-Jan-21	-4.0	Trench No. T-1	A	12.0	112.0	91	
23	26-Jan-21	-2.0	Trench No. T-1	A	11.8	111.1	90	
24	26-Jan-21	-2.0	Trench No. T-1	A	12.1	111.4	90	
25	26-Jan-21	-2.0	Trench No. T-1	A	12.0	111.4	90	
26	27-Jan-21	-1.0	Trench No. T-1	A	11.8	111.5	90	
27	27-Jan-21	-1.0	Trench No. T-1	A	11.5	111.3	90	
28	27-Jan-21	-1.0	Trench No. T-1	A	11.7	111.0	90	
29	15-Feb-21	-18.0	Trench No. T-2	B	12.5	111.5	91	
30	15-Feb-21	-18.0	Trench No. T-2	B	12.0	112.0	91	
31	15-Feb-21	-18.0	Trench No. T-2	B	12.4	112.3	91	
32	15-Feb-21	-18.0	Trench No. T-2	B	12.1	111.9	91	
33	15-Feb-21	-18.0	Trench No. T-2	B	10.0	110.0	89	Fail
34	15-Feb-21	-18.0	Trench No. T-2	B	10.7	111.5	91	Retest No. 33
35	15-Feb-21	-18.0	Trench No. T-2	B	10.9	111.8	91	
36	15-Feb-21	-16.0	Trench No. T-2	B	10.9	111.9	91	
37	15-Feb-21	-16.0	Trench No. T-2	B	11.2	112.1	91	
38	15-Feb-21	-16.0	Trench No. T-2	B	11.5	112.0	91	

TABLE 1
SUMMARY OF FIELD DENSITY TESTS

Test No.	*Date*	*Depth (ft)*	*Test Location*	*Soil Type*	*Moisture Content* (%)	*Dry Density (pcf)*	*Relative Compaction* (%)	*Comments*
39	15-Feb-21	-16.0	Trench No. T-2	B	11.3	112.1	91	
40	15-Feb-21	-16.0	Trench No. T-2	B	9.5	109.4	89	Fail
41	15-Feb-21	-16.0	Trench No. T-2	B	10.6	111.6	91	Retest No. 40
42	15-Feb-21	-16.0	Trench No. T-2	B	11.0	111.8	91	
43	15-Feb-21	-14.0	Trench No. T-2	B	11.8	111.9	91	
44	15-Feb-21	-14.0	Trench No. T-2	B	11.4	112.1	91	
45	15-Feb-21	-14.0	Trench No. T-2	B	11.9	112.3	91	
46	15-Feb-21	-14.0	Trench No. T-2	B	10.9	112.0	91	
47	15-Feb-21	-14.0	Trench No. T-2	B	11.3	112.1	91	
48	15-Feb-21	-14.0	Trench No. T-2	B	9.6	109.6	89	Fail
49	15-Feb-21	-14.0	Trench No. T-2	B	10.8	112.0	91	Retest No. 48
50	15-Feb-21	-14.0	Trench No. T-2	B	11.0	111.8	91	
51	16-Feb-21	-12.0	Trench No. T-2	B	12.0	112.2	91	
52	16-Feb-21	-12.0	Trench No. T-2	B	12.2	112.1	91	
53	16-Feb-21	-12.0	Trench No. T-2	B	11.9	111.8	91	
54	16-Feb-21	-12.0	Trench No. T-2	B	10.0	109.4	89	Fail
55	16-Feb-21	-12.0	Trench No. T-2	B	10.2	109.9	89	Fail
56	16-Feb-21	-12.0	Trench No. T-2	B	12.3	110.9	90	Retest No. 54
57	16-Feb-21	-12.0	Trench No. T-2	B	12.1	111.0	90	Retest No. 55
58	16-Feb-21	-10.0	Trench No. T-2	B	11.8	111.2	90	
59	16-Feb-21	-10.0	Trench No. T-2	B	11.7	111.5	91	
60	16-Feb-21	-10.0	Trench No. T-2	B	12.2	111.4	91	
61	16-Feb-21	-10.0	Trench No. T-2	B	10.4	109.4	89	Fail
62	16-Feb-21	-10.0	Trench No. T-2	B	11.5	111.9	91	Restest No. 61
63	16-Feb-21	-10.0	Trench No. T-2	B	11.8	111.7	91	
64	16-Feb-21	-10.0	Trench No. T-2	B	11.0	111.5	91	
65	17-Feb-21	-8.0	Trench No. T-2	B	10.6	110.9	90	
66	17-Feb-21	-8.0	Trench No. T-2	B	10.8	111.0	90	
67	17-Feb-21	-8.0	Trench No. T-2	B	10.9	111.2	90	
68	17-Feb-21	-8.0	Trench No. T-2	B	11.2	110.8	90	
69	17-Feb-21	-8.0	Trench No. T-2	B	10.4	108.3	88	Fail
70	17-Feb-21	-8.0	Trench No. T-2	B	10.9	111.3	90	Retest No. 69
71	17-Feb-21	-6.0	Trench No. T-2	B	11.0	111.3	90	
72	17-Feb-21	-6.0	Trench No. T-2	B	11.2	111.0	90	
73	17-Feb-21	-6.0	Trench No. T-2	B	10.8	111.2	90	
74	17-Feb-21	-6.0	Trench No. T-2	B	10.6	111.1	90	
75	17-Feb-21	-6.0	Trench No. T-2	B	11.2	110.9	90	
76	17-Feb-21	-4.0	Trench No. T-2	B	10.9	110.9	90	

TABLE 1
SUMMARY OF FIELD DENSITY TESTS

Test No.	***Date***	***Depth (ft)***	***Test Location***	***Soil Type***	***Moisture Content*** (%)	***Dry Density (pcf)***	***Relative Compaction*** (%)	***Comments***
77	17-Feb-21	-4.0	Trench No. T-2	B	11.0	111.2	90	
78	18-Feb-21	-2.0	Trench No. T-2	B	11.8	110.9	90	
79	18-Feb-21	-2.0	Trench No. T-2	B	11.9	111.1	90	
80	18-Feb-21	-4.0	Trench No. T-2	B	11.5	111.0	90	
81	18-Feb-21	-4.0	Trench No. T-2	B	11.8	111.3	90	
82	18-Feb-21	-4.0	Trench No. T-2	B	11.0	108.2	88	
83	18-Feb-21	-4.0	Trench No. T-2	B	12.0	111.2	90	

NOTES: Elevations Referenced To Grade Stakes Set In Field By Others
Retests Performed After Recompaction
All Tests Performed By Nuclear Test Method (ASTM D-6938)

TABLE 2
SUMMARY OF MOISTURE-DENSITY RELATIONSHIPS

Soil Type	Soil Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
A	Gray Brown Silty fine Sand, trace medium Sand	123.5	9.5
B	Gray Brown Silty fine to coarse Sand, little fine to coarse Gravel	123.0	10.5

Note: All Moisture-Density Relationships determined per ASTM D-1557 (Modified Proctor)