June 25, 2010
(Revised June 29, 2010)
Project No. 106088027

Ms. Kelley Hudson-MacIsaac
Palomar Community College
1140 West Mission Road, Suite A-4A
San Marcos, California 92069

Subject: Update Geotechnical Evaluation
Proposed "T" Building Improvements
Palomar Community College
San Marcos, California

Dear Ms. Hudson-MacIsaac:

In accordance with your request and our proposal dated June 15, 2010, we have performed a supplemental subsurface evaluation for the proposed improvements to the "T" building at Palomar Community College in San Marcos, California (Figure 1). The proposed improvements will include the relocation of the saw mill building, additions to the north and east sides of the existing building, and improvements to the existing building slab and foundations.

We issued geotechnical evaluation reports for the adjacent "IT" building in 2008 and 2009 (Ninyo & Moore, 2008, 2009a, 2009b, and 2009c). Subsequently, additional improvements not addressed in our previous reports were proposed and we were asked by the project architect to provide updated allowable bearing capacities and spectral response acceleration parameters for the newly proposed improvements. This report presents the results of our supplementary subsurface exploration and laboratory testing, as well as provides an update of our conclusions regarding geotechnical conditions at the site.

SCOPE OF SERVICES

Our services related to this report consisted of the following:

- Performing a geologic reconnaissance of the site.
- Siting and staking of exploratory test pit locations for clearance by Underground Service Alert (USA), a private utility contractor, and school personnel.

- Excavating, logging, and sampling five exploratory borings with a track-mounted, limited-access drill rig. Bulk and in-place samples of the encountered soils were collected and transported to our in-house geotechnical laboratory for testing purposes.
- Performing geotechnical laboratory testing on selected samples to evaluate soil characteristics and design parameters.
- Compiling and performing an engineering analysis of the data obtained.
- Preparing this letter report providing our findings and conclusions regarding the geotechnical aspects of the project.

SUPPLEMENTAL SUBSURFACE EXPLORATION

Our recent subsurface exploration was conducted on June 18, 2010, and consisted of the excavating, logging, and sampling of five exploratory borings (AB-1 through AB-5) in the locations shown on Figure 2. The other explorations depicted on Figure 2 were performed during our previous evaluations (Ninyo & Moore, 2008, 2009a, 2009b, and 2009c). Our borings for this most recent evaluation were excavated up to depths up to approximately 12 feet using a track-mounted, limited-access drill rig. Bulk and in-place soil samples were collected from the borings and transported to our in-house geotechnical laboratory for testing. Logs of the borings are included in Attachment A.

LABORATORY TESTING

Laboratory testing of representative soil samples included an evaluation of direct shear strength. The results of these laboratory tests are presented in Attachment B.

SUBSURFACE CONDITIONS

Geologic units encountered during our supplemental subsurface exploration included fill and granitic rock (Kennedy, et al, 2007). These conditions are similar to those encountered during our previous evaluations (Ninyo & Moore, 2008, 2009a, 2009b, and 2009c). Generalized descriptions of the earth units encountered during our supplemental subsurface exploration are provided below. Additional descriptions of the subsurface units are provided on the boring logs in Attachment A.

Fill Materials

Fill materials were encountered in our exploratory borings from the ground surface or underlying the pavements to depths up to approximately 5 feet. As encountered, these materials generally consisted of brown and reddish brown, damp to moist, medium dense, silty sand. Scattered gravel and cobbles were encountered in the fill materials.

Granitic Rock

Granitic rock was encountered in our exploratory borings underlying the fill materials to the total depths explored. As encountered, these materials generally consisted of brown, light brown, and reddish brown, damp, granitic rock. Refusal to further drilling was encountered in the granitic rock in each of our borings.

CONCLUSIONS

Based on our review of our referenced geotechnical reports and the subsurface exploration and laboratory testing from this supplemental evaluation, it is our opinion that construction of the proposed project is feasible from a geotechnical standpoint. In general, the following conclusions were made as part of this supplemental evaluation:

- The geotechnical conditions encountered during this supplemental subsurface exploration are similar to those observed during our earlier evaluations (Ninyo & Moore, 2008, 2009a, 2009b, and 2009c). Accordingly, the recommendations presented in the referenced geotechnical reports are considered valid and remain applicable to the project.

- Excavations in granitic rock are anticipated to encounter difficult ripping conditions and the use of rock breakers, a rock wheel, and/or blasting will be needed. This is particularly the case if utility trenches are to be installed. Excavation in granitic rock will produce oversize material which will require special handling.

- An allowable bearing capacity of 3,000 psf may be used if the grading recommendations outlined in Section 8 of our report (Ninyo & Moore, 2009c) are also implemented for the newly proposed improvements.

- Based on the findings from this report, the conclusions from our earlier evaluation (Ninyo & Moore, 2009c) are still considered applicable.

SEISMIC DESIGN PARAMETERS

The proposed improvements should be designed in accordance with the requirements of governing jurisdictions and applicable building codes. The table below presents the seismic design parameters for the site, according to the 2007 CBC and mapped spectral acceleration parameters (USGS, 2010).

Table 1 – Seismic Design Factors

Factors	Values
Site Class	B
Site Coefficient, F_a	1.000
Site Coefficient, F_v	1.000
Mapped Short Period Spectral Acceleration, S_S	1.051g
Mapped One-Second Period Spectral Acceleration, S_1	0.400g
Short Period Spectral Acceleration Adjusted For Site Class, S_{MS}	1.051g
One-Second Period Spectral Acceleration Adjusted For Site Class, S_{M1}	0.400g
Design Short Period Spectral Acceleration, S_{DS}	0.700g
Design One-Second Period Spectral Acceleration, S_{D1}	0.266g

LIMITATIONS

The field evaluation, laboratory testing, and geotechnical analyses presented in this geotechnical report have been conducted in general accordance with current practice and the standard of care exercised by geotechnical consultants performing similar tasks in the project area. No warranty, expressed or implied, is made regarding the conclusions, recommendations, and opinions presented in this report. There is no evaluation detailed enough to reveal every subsurface condition. Variations may exist and conditions not observed or described in this report may be encountered during construction. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluation will be performed upon request. Please also note that our evaluation was limited to assessment of the geotechnical aspects of the project, and did not include evaluation of structural issues, environmental concerns, or the presence of hazardous materials.

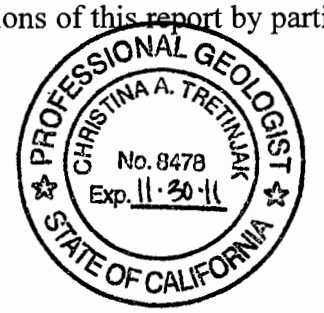
This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document.

This report is intended for design purposes only. It does not provide sufficient data to prepare an accurate bid by contractors. It is suggested that the bidders and their geotechnical consultant perform an independent evaluation of the subsurface conditions in the project areas. The independent evaluations may include, but not be limited to, review of other geotechnical reports prepared for the adjacent areas, site reconnaissance, and additional exploration and laboratory testing.

Our conclusions, recommendations, and opinions are based on an analysis of the observed site conditions. If geotechnical conditions different from those described in this report are encountered, our office should be notified and additional recommendations, if warranted, will be provided upon request. It should be understood that the conditions of a site could change with time as a result of natural processes or the activities of man at the subject site or nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

This report is intended exclusively for use by the client. Any use or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

Sincerely,
NINYO & MOORE



Christina Tretinjak, P.G.
Project Geologist

Randal L. Irwin, C.E.G.
Chief Engineering Geologist

Kenneth H. Mansir, Jr., P.E., G.E.
Principal Engineer

CAT/RI/KHM/gg

Attachments: References
Figure 1 – Site Location Map
Figure 2 – Geotechnical Map
Attachment A – Boring Logs
Attachment B – Laboratory Testing

REFERENCES

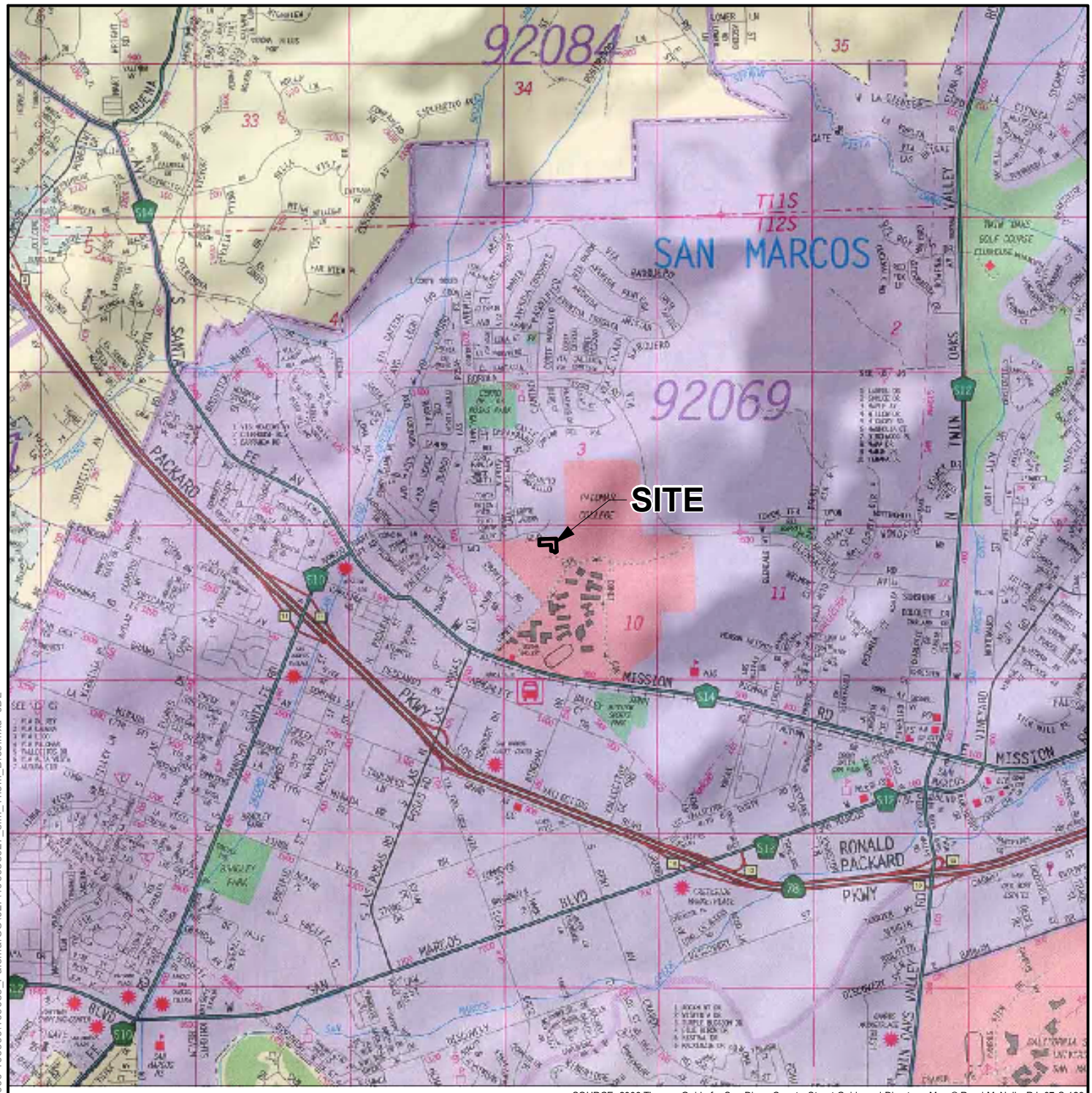
Kennedy, M.P., Tan, S.S., Bovard, K.R., Alvarez, R.M., Watson, M.J., and Gutierrez, C.I., 2007, Geologic Map of the Oceanside 30 x 60-Minute Quadrangle, California: California Geological Survey, Regional Geologic Map No. 2, Scale 1:100,000.

Ninyo & Moore, 2008, Geotechnical Evaluation, Proposed IT Building, Palomar Community College, San Marcos, California: Project No. 106088010: dated June 23.

Ninyo & Moore, 2009a, Update Geotechnical Evaluation, Alternate Location for Proposed IT Building, Palomar Community College, San Marcos, California: Project No. 106088019: dated January 29.

Ninyo & Moore, 2009b, Addendum to Geotechnical Evaluation, Alternate Location for Proposed IT Building, Palomar Community College, San Marcos, California: Project No. 106088019: dated February 10.

Ninyo & Moore, 2009c, Geotechnical Evaluation, Additions to IT Building, Palomar Community College, San Marcos, California: Project No. 106088020: dated October 9.



SOURCE: 2008 Thomas Guide for San Diego County, Street Guide and Directory; Map © Rand McNally, R.L.07-S-129

APPROXIMATE SCALE

0 2,200 4,400 FEET

N

NOTE: ALL DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE

Ninyo & Moore	SITE LOCATION MAP	FIGURE
PROJECT NO. 106088027 / DATE 6/10	PROPOSED "T" BUILDING IMPROVEMENTS PALOMAR COMMUNITY COLLEGE SAN MARCOS, CALIFORNIA	1

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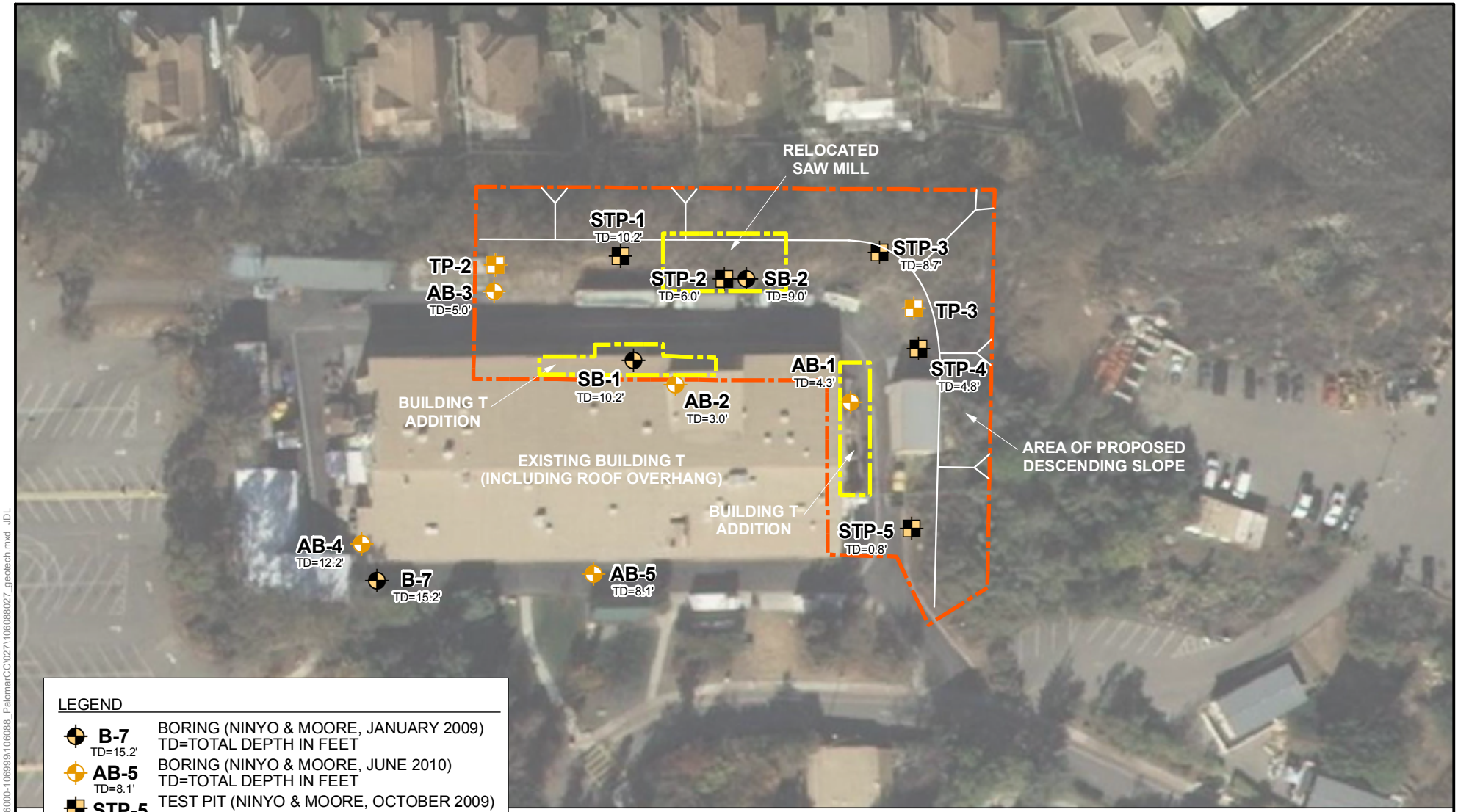

LEGEND

B-7 TD=15.2'	BORING (NINYO & MOORE, JANUARY 2009) TD=TOTAL DEPTH IN FEET
AB-5 TD=8.1'	BORING (NINYO & MOORE, JUNE 2010) TD=TOTAL DEPTH IN FEET
STP-5 TD=0.8'	TEST PIT (NINYO & MOORE, OCTOBER 2009) TD=TOTAL DEPTH IN FEET
TP-3 TD=0.8'	TEST PIT (NINYO & MOORE, JANUARY 2009) TD=TOTAL DEPTH IN FEET
	BUILDING ADDITION/RELOCATION
	PROPOSED PROJECT ADDITION

SOURCE: AERIAL IMAGERY - GOOGLE EARTH, FEB 2008

N

APPROXIMATE SCALE

0 80 160 FEET

NOTE: ALL DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE

Ninyo & Moore

PROJECT NO.	DATE
106088027	6/10

GEOTECHNICAL MAP

PROPOSED "T" BUILDING IMPROVEMENTS
PALOMAR COMMUNITY COLLEGE
SAN MARCOS, CALIFORNIA

FIGURE
2

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ATTACHMENT A

BORING LOGS

Field Procedure for the Collection of Disturbed Samples

Disturbed soil samples were obtained in the field using the following methods.

Bulk Samples

Bulk samples of representative earth materials were obtained from the exploratory excavations **(and/or borings)**. The samples were bagged and transported to the laboratory for testing.

The Standard Penetration Test (SPT) Sampler

Disturbed drive samples of earth materials were obtained by means of an SPT sampler. The sampler is composed of a split barrel with an external diameter of 2 inches and an unlined internal diameter of 1-3/8 inches. The sampler was driven into the ground 12 to 18 inches with a 140-pound hammer free-falling from a height of 30 inches in general accordance with the American Society for Testing and Materials (ASTM) D 1586. The blow counts were recorded for every 6 inches of penetration; the blow counts reported on the logs are those for the last 12 inches of penetration. Soil samples were observed and removed from the sampler, bagged, sealed and transported to the laboratory for testing.

Field Procedure for the Collection of Relatively Undisturbed Samples

Relatively undisturbed soil samples were obtained in the field using the following methods.

The Modified Split-Barrel Drive Sampler

The sampler, with an external diameter of 3.0 inches, was lined with 1-inch long, thin brass rings with inside diameters of approximately 2.4 inches. The sample barrel was driven into the ground with the weight of a hammer or the Kelly bar of the drill rig in general accordance with ASTM D 3550. The driving weight was permitted to fall freely. The approximate length of the fall, the weight of the hammer or bar, and the number of blows per foot of driving are presented on the boring logs as an index to the relative resistance of the materials sampled. The samples were removed from the sample barrel in the brass rings, sealed, and transported to the laboratory for testing.

BORING LOG EXPLANATION SHEET

DEPTH (feet)	SAMPLES: Bulk	SAMPLES: Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	
0	■							Bulk sample.
		■						Modified split-barrel drive sampler.
		⊠						No recovery with modified split-barrel drive sampler.
		▬						Sample retained by others.
		◢						Standard Penetration Test (SPT).
5		◥						No recovery with a SPT.
		▯	XX/XX					Shelby tube sample. Distance pushed in inches/length of sample recovered in inches.
		◥						No recovery with Shelby tube sampler.
		▬						Continuous Push Sample.
				⚲				Seepage.
10				▽				Groundwater encountered during drilling.
				▼				Groundwater measured after drilling.
						▩	SM	ALLUVIUM: Solid line denotes unit change.
								Dashed line denotes material change.
								Attitudes: Strike/Dip b: Bedding c: Contact j: Joint f: Fracture F: Fault cs: Clay Seam s: Shear bss: Basal Slide Surface sf: Shear Fracture sz: Shear Zone sbs: Sheared Bedding Surface
15								
20								The total depth line is a solid line that is drawn at the bottom of the boring.

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BORING LOG

EXPLANATION OF BORING LOG SYMBOLS

PROJECT NO.	DATE	FIGURE
	Rev. 01/03	

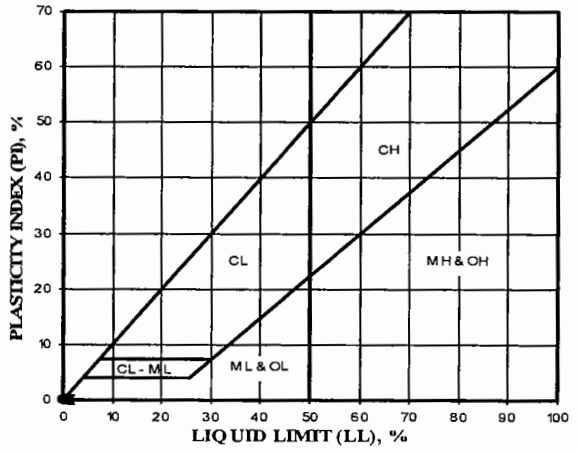
U.S.C.S. METHOD OF SOIL CLASSIFICATION

MAJOR DIVISIONS		SYMBOL	TYPICAL NAMES
COARSE-GRAINED SOILS (More than 1/2 of soil >No. 200 sieve size)	GRAVELS (More than 1/2 of coarse fraction > No. 4 sieve size)	GW	Well graded gravels or gravel-sand mixtures, little or no fines
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS (More than 1/2 of coarse fraction <No. 4 sieve size)	SW	Well graded sands or gravelly sands, little or no fines
		SP	Poorly graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (More than 1/2 of soil <No. 200 sieve size)	SILTS & CLAYS Liquid Limit <50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean
		OL	Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS Liquid Limit >50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts
HIGHLY ORGANIC SOILS		Pt	Peat and other highly organic soils

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZE	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL	3" to No. 4	76.2 to 4.76
Coarse	3" to 3/4"	76.2 to 19.1
Fine	3/4" to No. 4	19.1 to 4.76
SAND	No. 4 to No. 200	4.76 to 0.075
Coarse	No. 4 to No. 10	4.76 to 2.00
Medium	No. 10 to No. 40	2.00 to 0.420
Fine	No. 40 to No. 200	0.420 to 0.075
SILT & CLAY	Below No. 200	Below 0.075

PLASTICITY CHART



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U.S.C.S. METHOD OF SOIL CLASSIFICATION

DATE DRILLED 6/18/10 BORING NO. AB-1

GROUND ELEVATION 624' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 6" Diameter Hollow Stem Auger (Mole-Rig) (Pacific)

DRIVE WEIGHT 140 lbs. (Cathead) DROP 30"

SAMPLED BY BTM LOGGED BY BTM REVIEWED BY RI

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0							PORTLAND CEMENT CONCRETE: Approximately 5.5 inches thick.
						SM	FILL: Brown, moist, medium dense, silty SAND; scattered gravel and cobbles.
							GRANITIC ROCK: Brown, damp, weathered GRANITIC ROCK.
		50/3"					Auger refusal.
5							Total Depth = 4.3 feet. Groundwater not encountered during drilling. Backfilled with soil and concrete shortly after drilling on 6/18/10.
							Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
10							
15							
20							

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BORING LOG

PROPOSED BUILDING "T" IMPROVEMENTS
PALOMAR COMMUNITY COLLEGE, SAN MARCOS, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106088027	6/10	A-1

DATE DRILLED 6/18/10 BORING NO. AB-2

GROUND ELEVATION 624' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 6" Diameter Hollow Stem Auger (Mole-Rig) (Pacific)

DRIVE WEIGHT 140 lbs. (Cathead) DROP 30"

SAMPLED BY BTM LOGGED BY BTM REVIEWED BY RI

DEPTH (feet)	SAMPLES Bulk	SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0								PORTLAND CEMENT CONCRETE: Approximately 6 inches thick.
							SM	BEDDING SAND:
							SM	Brown, damp, loose, silty SAND; vapor barrier below sand; approximately 3 inches thick.
								FILL: Brown, damp, medium dense, silty SAND; scattered gravel.
		☒	50/1"					GRANITIC ROCK: Brown, damp, weathered GRANITIC ROCK. Auger refusal.
								Total Depth = 3 feet.
								Groundwater not encountered during drilling.
								Backfilled with soil and dry concrete cap shortly after drilling on 6/18/10.
5								Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
10								
15								
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BORING LOG

PROPOSED BUILDING "T" IMPROVEMENTS
PALOMAR COMMUNITY COLLEGE, SAN MARCOS, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106088027	6/10	A-2

DATE DRILLED 6/18/10 BORING NO. AB-3

GROUND ELEVATION 624' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 6" Diameter Hollow Stem Auger (Mole-Rig) (Pacific)

DRIVE WEIGHT 140 lbs. (Cathead) DROP 30"

SAMPLED BY BTM LOGGED BY BTM REVIEWED BY RI

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0							ASPHALT CONCRETE:
						GM	Approximately 3.5 inches thick.
						SM	BASE:
							Brown, damp to moist, medium dense, silty sandy GRAVEL; approximately 4 inches thick.
							FILL:
							Reddish brown, moist, medium dense, silty SAND; scattered gravel.
							GRANITIC ROCK:
							Light brown, damp, weathered GRANITIC ROCK.
	☒	50/4"					
5							Total Depth = 5 feet.
							Groundwater not encountered during drilling.
							Backfilled with soil and black dyed concrete shortly after drilling on 6/18/10.
							Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
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Ninyo & Moore

BORING LOG

PROPOSED BUILDING "T" IMPROVEMENTS
PALOMAR COMMUNITY COLLEGE, SAN MARCOS, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106088027	6/10	A-3

DATE DRILLED 6/18/10 BORING NO. AB-4

GROUND ELEVATION 624' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 6" Diameter Hollow Stem Auger (Mole-Rig) (Pacific)

DRIVE WEIGHT 140 lbs. (Cathead) DROP 30"

SAMPLED BY BTM LOGGED BY BTM REVIEWED BY RI

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	FILL: Brown, damp, medium dense, silty SAND; scattered gravel.
5		78					GRANITIC ROCK: Light brown to reddish brown, damp, weathered GRANITIC ROCK.
10		83/9"					Total Depth = 12.2 feet. Groundwater not encountered during drilling. Backfilled with soil shortly after drilling on 6/18/10. Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
15							
20							

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BORING LOG

PROPOSED BUILDING "T" IMPROVEMENTS
PALOMAR COMMUNITY COLLEGE, SAN MARCOS, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106088027	6/10	A-4

DATE DRILLED 6/18/10 BORING NO. AB-5

GROUND ELEVATION 624' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 6" Diameter Hollow Stem Auger (Mole-Rig) (Pacific)

DRIVE WEIGHT 140 lbs. (Cathead) DROP 30"

SAMPLED BY BTM LOGGED BY BTM REVIEWED BY RI

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						GM	ASPHALT CONCRETE: Approximately 3 inches thick.
						SM	BASE: Brown, moist, medium dense, silty sandy GRAVEL; approximately 3 inches thick.
							FILL: Reddish brown, moist, medium dense, silty SAND.
5		42					GRANITIC ROCK: Reddish brown, damp, weathered GRANITIC ROCK. Auger refusal.
		50/1"					Total Depth = 8.1 feet. Groundwater not encountered during drilling. Backfilled with soil and concrete shortly after drilling on 6/18/10. Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
10							
15							
20							

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BORING LOG

PROPOSED BUILDING "T" IMPROVEMENTS
PALOMAR COMMUNITY COLLEGE, SAN MARCOS, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106088027	6/10	A-5

ATTACHMENT B

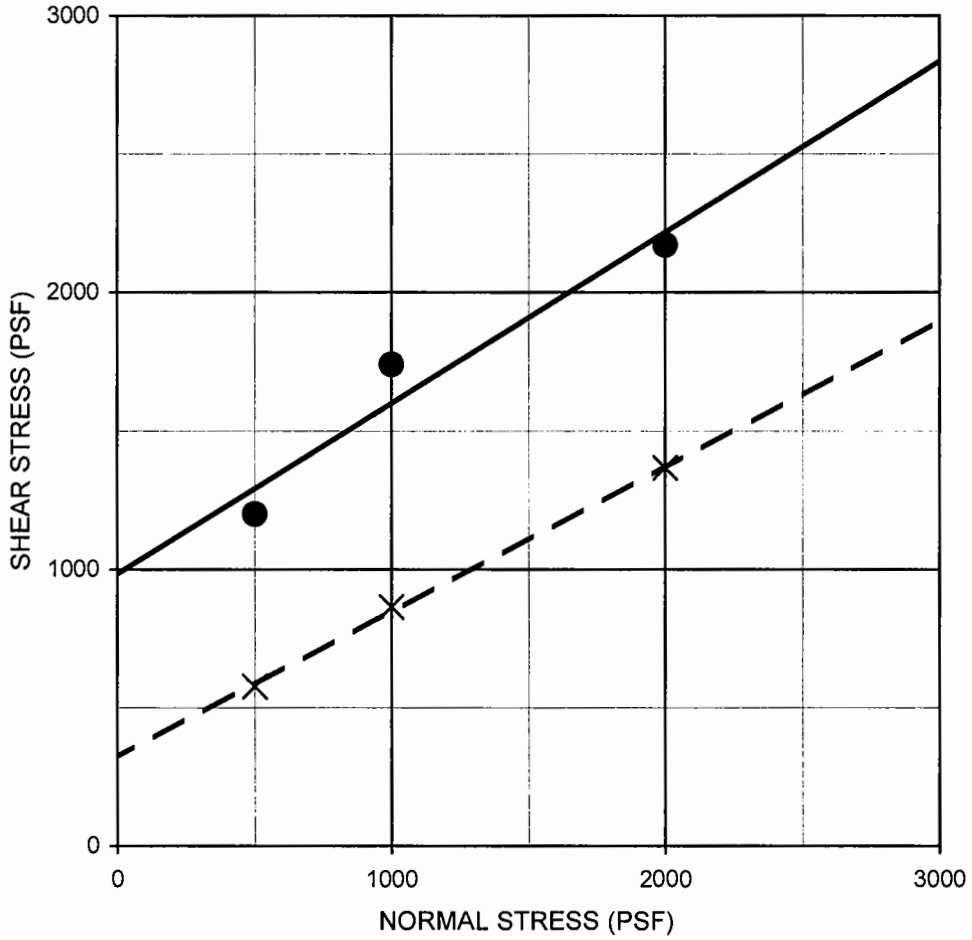
LABORATORY TESTING

Classification

Soils were visually and texturally classified in accordance with the Unified Soil Classification System (USCS) in general accordance with ASTM D 2488. Soil classifications are indicated on the logs of the exploratory excavations in Attachment A.

Direct Shear Tests

A direct shear test was performed on a relatively undisturbed sample in general accordance with ASTM D 3080 to evaluate the shear strength characteristics of selected material. The sample was inundated during shearing to represent adverse field conditions. The results are shown on Figure B-1.



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion, c (psf)	Friction Angle, ϕ (degrees)	Soil Type
SILTY SAND	—●—	AB-5	4.0-5.5	Peak	980	32	SM
SILTY SAND	- - X - -	AB-5	4.0-5.5	Ultimate	320	28	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

Ninyo & Moore	DIRECT SHEAR TEST RESULTS	FIGURE
PROJECT NO. / DATE	PROPOSED "T" BUILDING IMPROVEMENTS PALOMAR COMMUNITY COLLEGE SAN MARCOS, CALIFORNIA	B-1
106088027 / 6/10		

DIRECT SHEAR AB-5 @ 4.0-5.5.xls