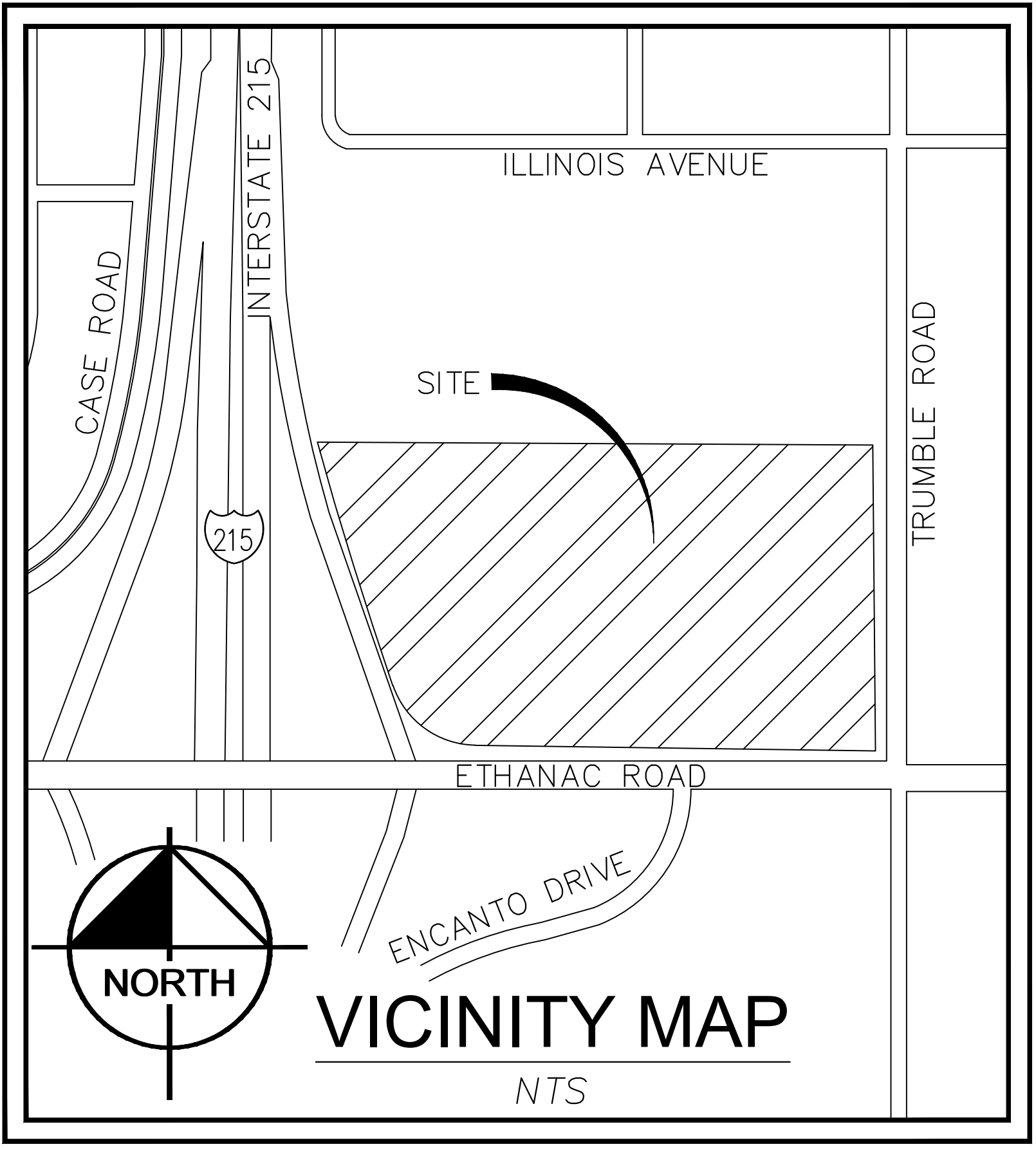


VICINITY MAP

NTS


PROJECT SITE
Illinois Ave
Case Rd
Case Rd
215
Trumble Rd
Sherman Rd
Ethanac Rd
Ethanac Rd
Encanto Dr
Trumble Rd
Sherman Rd
Patricia Ln
Google Earth
Image Landsat / Copernicus
1000 ft
N

Perris Valley Storm Drain

San Jacinto River

PROJECT SITE

CHANNEL FROM PROJECT SITE TO SAN JACINTO RIVER,
THEN SAN JACINTO RIVER TO CANYON LAKE,
CANYON LAKE TO LAKE ELSINORE

Canyon Lake

Lake Elsinore

MAP INSET

PROJECT SITE

Miles

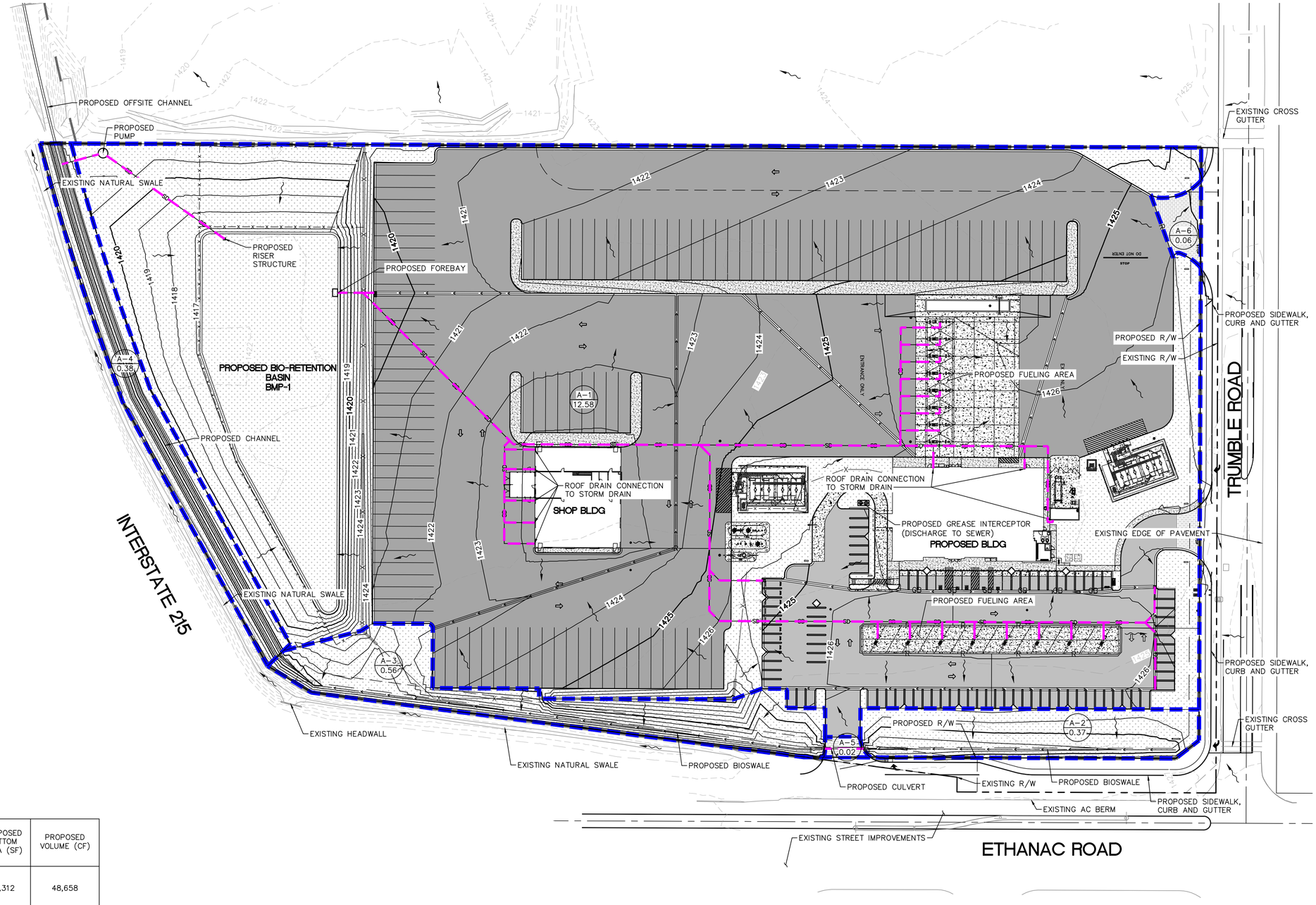
0 1 2 3 4

PILOT PERRIS
MAP OF RECEIVING WATERS

Kimley»Horn

LEGEND

- 1695 — PROPOSED CONTOUR
- (1695) — EXISTING CONTOUR
- PROPERTY LINE
- DMA BOUNDARY
- PROPOSED STORM DRAIN
- FLOW ARROW
- X / XX — DA NAME / DA AREA (IN ACRES)
- RIGHT OF WAY



DMA	SURFACE TYPE	AREA (SF)	AREA (AC)	BMP ID	REQUIRED DESIGN CAPTURE VOLUME (CF)	MINIMUM BOTTOM AREA (SF)	PROPOSED BOTTOM AREA (SF)	PROPOSED VOLUME (CF)
A-1	CONCRETE/ASPHALT	395,859	12.58	BMP-1	18,619	13,864	36,312	48,658
	ORNAMENTAL LANDSCAPING	152,078						
A-2	LANDSCAPING	16,086	0.37	SELF-TREATING	N/A	N/A	N/A	N/A
A-3	LANDSCAPING	24,391	0.56	SELF-TREATING	N/A	N/A	N/A	N/A
A-4	LANDSCAPING	16,688	0.38	SELF-TREATING	N/A	N/A	N/A	N/A
A-5	LANDSCAPING	766	0.02	DE-MINIMIS	N/A	N/A	N/A	N/A
A-6	LANDSCAPING	2,470	0.06	DE-MINIMIS	N/A	N/A	N/A	N/A

NORTH

GRAPHIC SCALE IN FEET
0 25 50 100
1" = 50'
WHEN PRINTED AT FULL SIZE (24" BY 36")

Kimley»Horn

DMA PLAN
PILOT FUELING AND TRUCK STOP PERRIS (P22-05002)
SHEET 1 OF 1

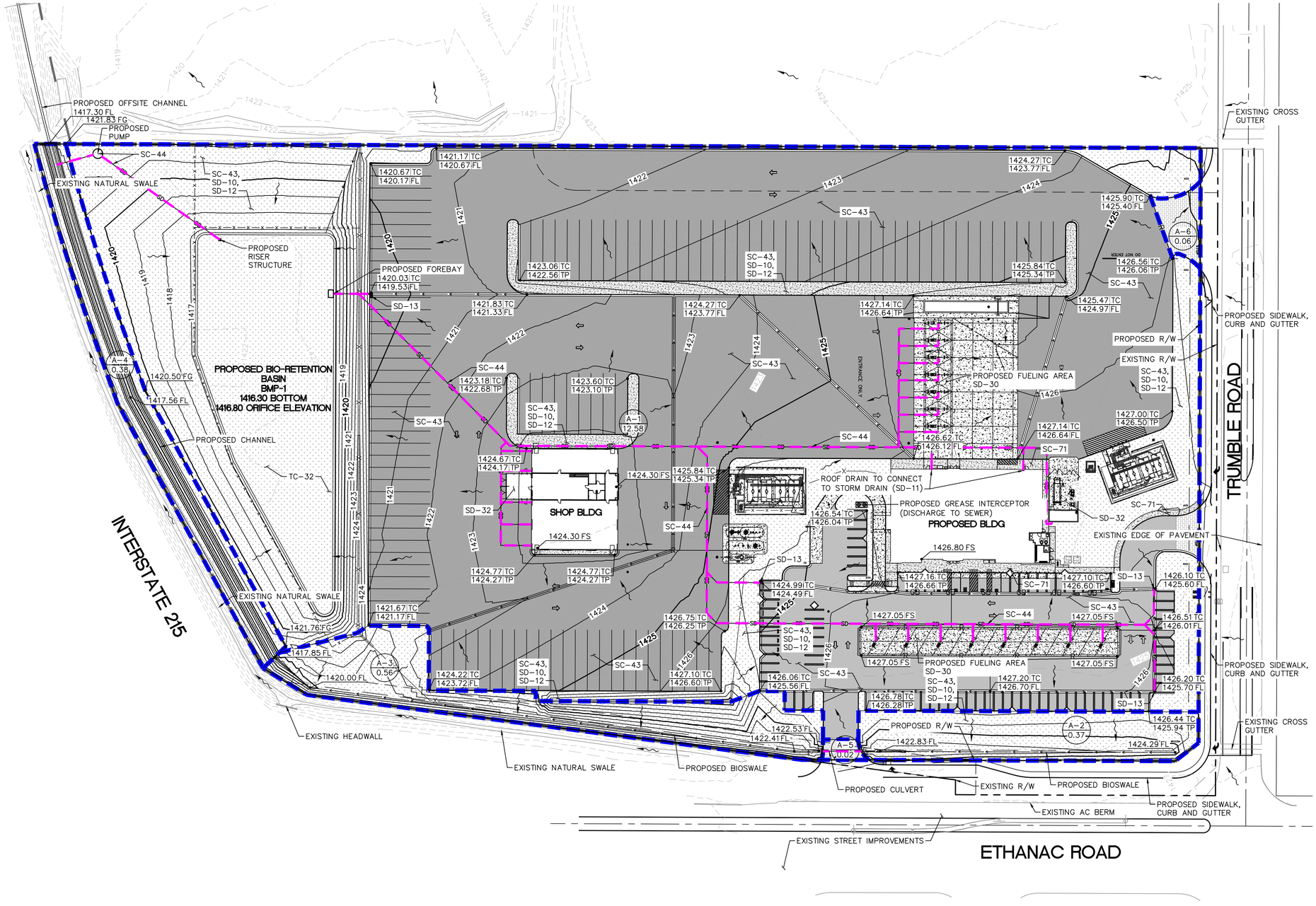
LEGEND

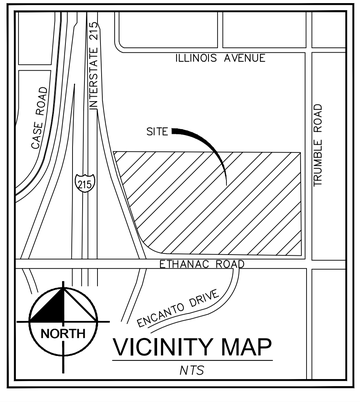
1695	PROPOSED CONTOUR
(1695)	EXISTING CONTOUR
	PROPERTY LINE
	DMA BOUNDARY
	PROPOSED STORM DRAIN
	FLOW ARROW
X / XX	DA NAME / DA AREA (IN ACRES)
	RIGHT OF WAY

LANDSCAPE NOTE

FINISH GRADE OF LANDSCAPE AREAS IS TO BE DEPRESSED 1–2 INCHES (MIN.) BELOW TOP OF CURB, SIDEWALK OR PAVEMENT.

TREATMENT CONTROL & SOURCE CONTROL BMP'S	
BMP ID	BMP DESCRIPTION
TC–32	BIO–RETENTION FACILITY
SC–43	PARKING AREA MAINTENANCE
SC–44	DRAINAGE SYSTEM MAINTENANCE
SC–71	PLAZA & SIDEWALK CLEANING
SC–73	LANDSCAPE MAINTENANCE
SD–10	SITE DESIGN AND LANDSCAPE PLANNING
SD–11	ROOF RUNOFF CONTROL
SD–12	EFFICIENT IRRIGATION
SD–13	STORM DRAIN SIGNAGE
SD–30	FUELING AREAS
SD–32	TRASH STORAGE AREAS





NORTH

GRAPHIC SCALE IN FEET
0 25 50 100
1" = 50'
WHEN PRINTED AT FULL SIZE (24" BY 36")

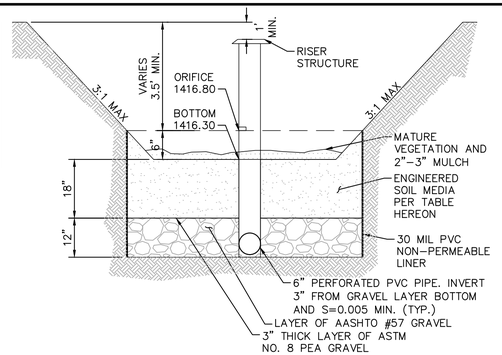
Kimley»Horn

POST-CONSTRUCTION BMP SITE PLAN
PILOT FUELING AND TRUCK STOP PERRIS (P22-05002)
SHT 1 OF 3

TABLE 1 MINERAL COMPONENT RANGE REQUIREMENTS FOR BIO-RETENTION FACILITY	
PERCENTAGE RANGE	COMPONENT
70-80	SAND
15-20	SILT
5-10	CLAY

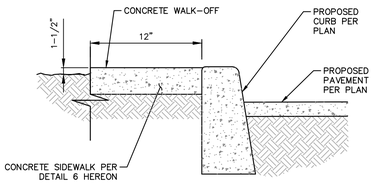
THE TRIP TICKET, OR CERTIFICATE OF COMPLIANCE, SHALL BE MADE AVAILABLE TO THE INSPECTOR TO PROVE THE ENGINEERED MIX MEETS THIS SPECIFICATION.

THE ENGINEERED SOIL MEDIA SHALL BE COMPRISED OF 85 PERCENT MINERAL COMPONENT AND 15 PERCENT ORGANIC COMPONENT, BY VOLUME, DRUM MIXED PRIOR TO PLACEMENT. THE MINERAL COMPONENT SHALL BE A CLASS A SANDY LOAM TOPSOIL THAT MEETS THE RANGE SPECIFIED IN TABLE 1 BELOW. THE ORGANIC COMPONENT SHALL BE NITROGEN STABILIZED COMPOST 1, SUCH THAT NITROGEN DOES NOT LEACH FROM THE MEDIA.



BMP-1 TYPICAL SECTION

NTS

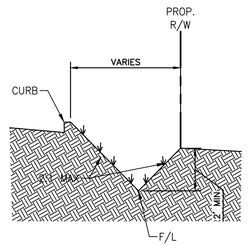


NOTES:

1. CONCRETE SHALL BE 2500 PSI.
2. ISOLATION JOINTS SHALL BE PLACED ONLY AS SPECIFIED
3. CONTRACTION JOINTS CONSISTING OF 1" DEEP SCORES SHALL BE PLACED AT 15' INTERVALS O.C.
4. WHERE A WALK IS ADJACENT TO THE CURB THE JOINTS SHALL ALIGN WITH JOINTS IN THE WALK.

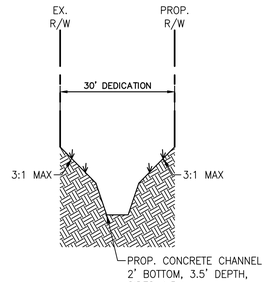
DEPRESSED LANDSCAPE DETAIL

NTS



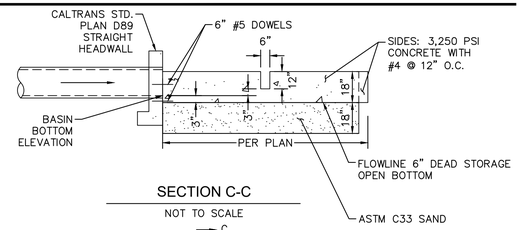
BIOSWALE DETAIL

NTS



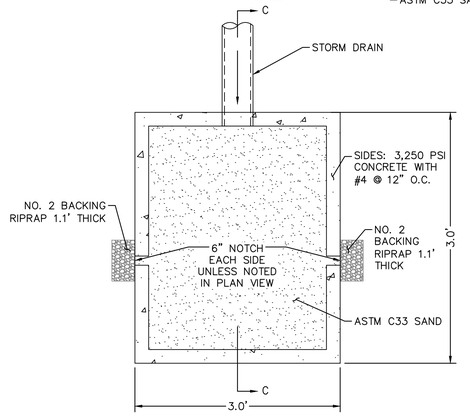
CHANNEL DETAIL

NTS



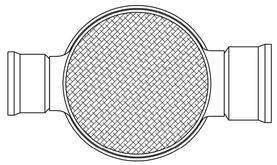
SECTION C-C

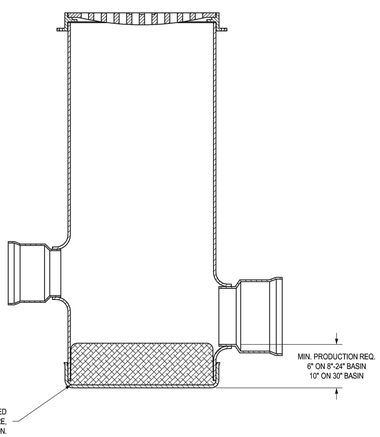
NOT TO SCALE



SAND FOREBAY DETAIL

NTS

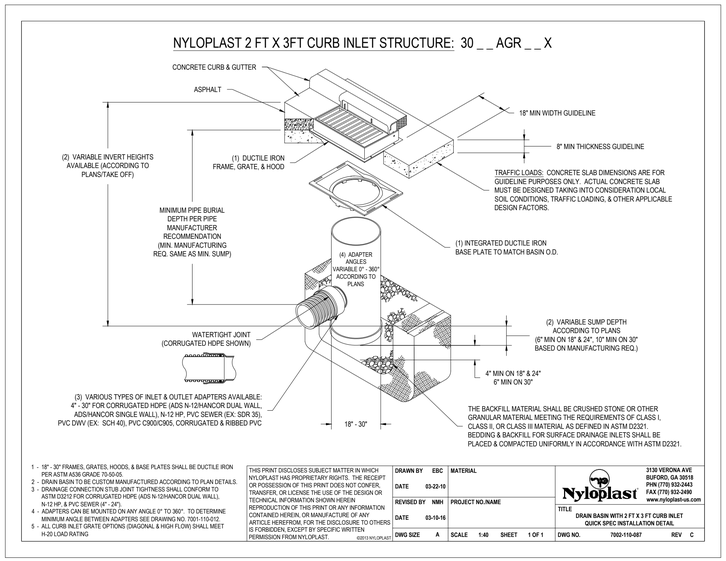




THIS PRINT DISCLOSES SUBJECT MATTER IN WHICH NYLOPLAST HAS PROPRIETARY RIGHTS. THE RECEIPT OR POSSESSION OF THIS PRINT DOES NOT CONFER, TRANSFER, OR LICENSE THE USE OF THE DESIGN OR TECHNICAL INFORMATION SHOWN HEREIN. REPRODUCTION OF THIS PRINT OR ANY INFORMATION CONTAINED HEREIN, OR MANUFACTURE OF ANY ARTICLE HEREFROM, FOR THE DISCLOSURE TO OTHERS IS FORBIDDEN, EXCEPT BY SPECIFIC WRITTEN PERMISSION FROM NYLOPLAST. ©2012 NYLOPLAST	DRAWN BY JJC DATE 7-16-12 APPD BY JJC DATE 7-16-12 DWG SIZE A	MATERIAL PROJECT NO./NAME SCALE 1:12 SHEET 1 OF 1 DWG NO. 7001-110-413 REV B	Nyloplast 3130 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2443 FAX (770) 932-2490 www.nyloplast-us.com TITLE 12" - 30" DRAIN BASIN WITH HDPE SUMP INSERT QUICK SPEC INSTALLATION DETAIL

DRAIN BASIN SUMP INSERT

NTS

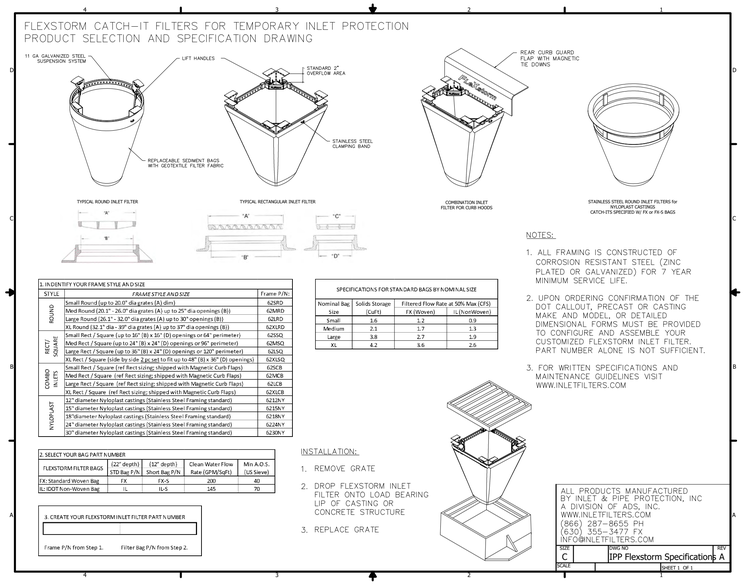


1 - 18" - 30" FRAMES, GRATES, HOODS, & BASE PLATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS.
3 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL) N-12 HP, & PVC SEWER (4" - 24").
4 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.
5 - ALL CURB INLET GRATE OPTIONS (DIAGONAL & HIGH FLOW) SHALL MEET H-20 LOAD RATING

DRAWN BY EBC DATE 03-22-10 REVISED BY NMH DATE 03-10-16 DWG SIZE A	MATERIAL PROJECT NO./NAME SCALE 1:40 SHEET 1 OF 1 DWG NO. 7002-110-087 REV C	Nyloplast 3130 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2443 FAX (770) 932-2490 www.nyloplast-us.com TITLE DRAIN BASIN WITH 2 FT X 3 FT CURB INLET QUICK SPEC INSTALLATION DETAIL	

DRAIN BASIN STANDARD DETAIL

NTS



FLEXSTORM CATCH-IT INLET FILTER

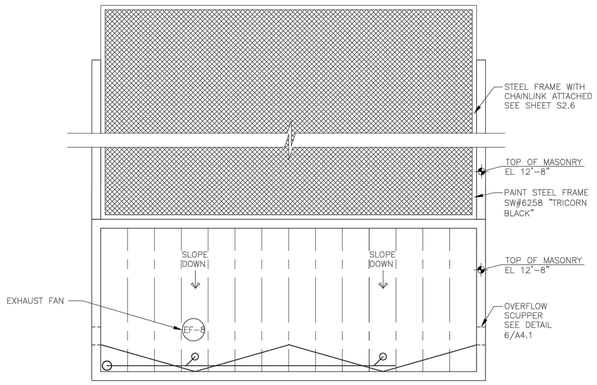
NTS

STENCIL EXAMPLE

NTS

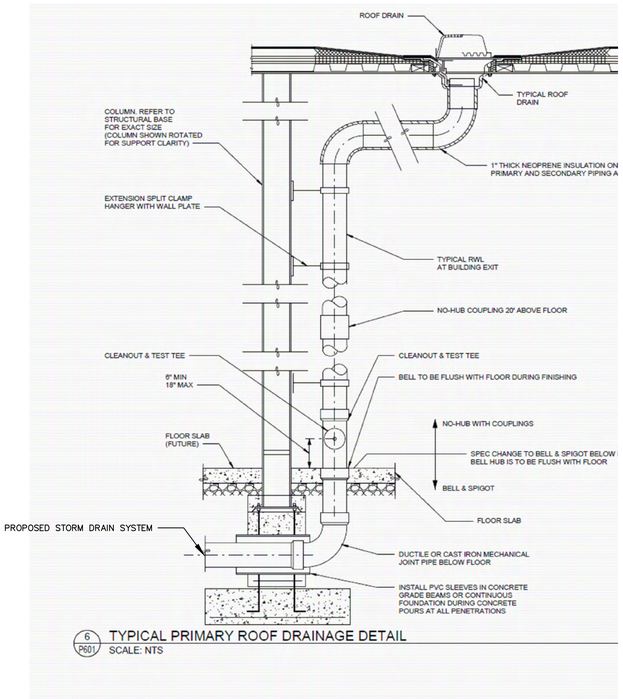
Kimley»Horn

POST-CONSTRUCTION BMP DETAILS
PILOT FUELING AND TRUCK STOP PERRIS (P22-05002)
SHT 2 OF 3



TRUCK STOP TRASH ENCLOSURE ROOF PLAN

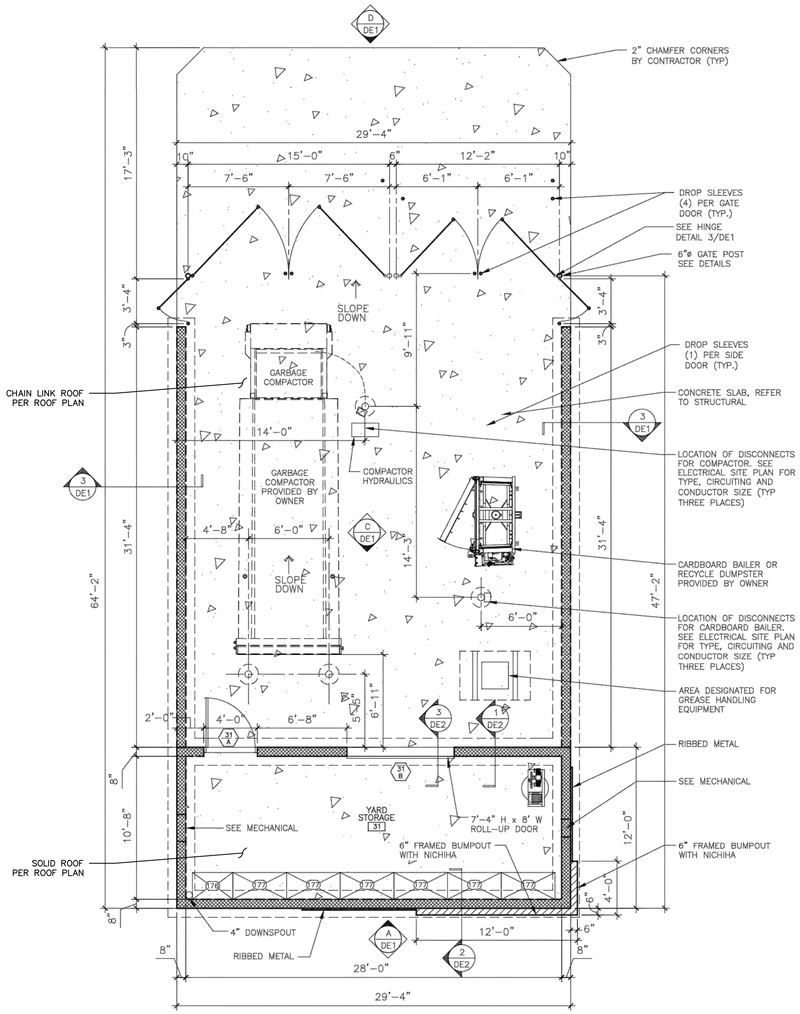
NTS



6 / P601 TYPICAL PRIMARY ROOF DRAINAGE DETAIL
SCALE: NTS

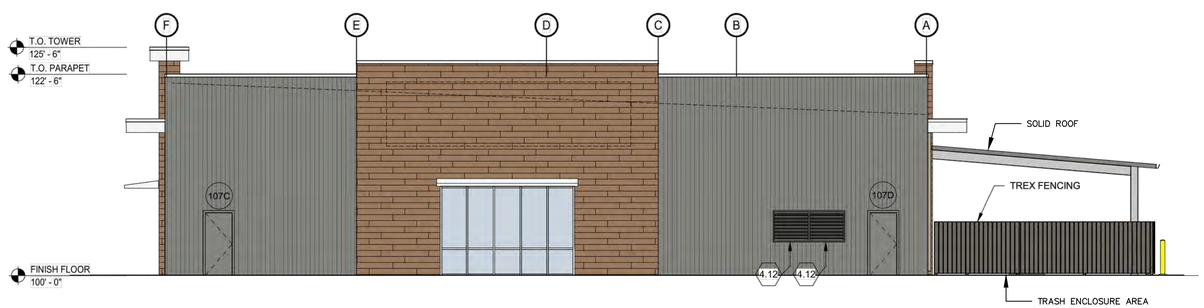
ROOF DRAIN CONNECTION TO STORM DRAIN DETAIL

NTS



TRUCK STOP TRASH ENCLOSURE PLAN

NTS



SHOP BUILDING/TRASH ENCLOSURE ELEVATION

NTS

Appendix 2: Construction Plans

Grading and Drainage Plans

CITY OF PERRIS
PRELIMINARY GRADING PLANS
PILOT PERRIS
ETHANAC ROAD AND TRUMBLE ROAD

PROJECT TEAM

OWNER/DEVELOPER
PILOT TRAVEL CENTERS LLC
5508 LONAS DRIVE
KNOXVILLE, TN 37909
(865) 588-7488

SURVEYOR
LG LAND SURVEYING, INC
30355 CALLE FELIZ TER
VALLEY CENTER, CA 92082
ATTN: JOHN GERVAIS, PLS 8674
(619) 535-1172
JOHN@LGLSINC.COM
DATE OF FIELD SURVEY: 07/13/2021

CIVIL ENGINEER
SHEA-MICHAEL ANTI. PE, LSIT, QSP/QSD
KIMLEY-HORN AND ASSOCIATES, INC.
3880 LEMON STREET, SUITE 420,
RIVERSIDE, CA 92501
(951) 335-8272
SHEA.ANTI@KIMLEY-HORN.COM

GEOTECHNICAL CONSULTANT
GEOTECHNICAL SOLUTIONS, INC
27 MAUCHLY #210
IRVINE, CA 92618
PROJECT No.: G-5908-01
DATED: JUNE 11, 2021

UTILITY PURVEYORS

WATER
EASTERN MUNICIPAL WATER DISTRICT
P.O. BOX 8300
2270 TRUMBLE ROAD PERRIS, CA
92572 (951) 928-3777

ELECTRICITY
SOUTHERN CALIFORNIA EDISON
26100 MENIFEE ROAD MENIFEE,
CA 92585
PHONE: (800) 655-4555

TELEPHONE/CABLE
FRONTIER COMMUNICATIONS
E 3RD ST PERRIS,
CA, 92570
PHONE: (909) 793-2826

SEWER
EASTERN MUNICIPAL WATER DISTRICT
P.O. BOX 8300
2270 TRUMBLE ROAD
PERRIS, CA 92572
(951) 928-3777

GAS
SOUTHERN CALIFORNIA GAS
1981 W. LUGONIA AVENUE
REDLANDS, CA 92374
PHONE: (800) 427-2200

PRIVATE ENGINEER'S NOTICE TO CONTRACTOR:

THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. THESE LOCATIONS ARE APPROXIMATE AND SHALL BE CONFIRMED IN THE FIELD BY THE CONTRACTOR SO THAT ANY NECESSARY ADJUSTMENTS CAN BE MADE IN ALIGNMENT AND/OR GRADE OF THE PROPOSED IMPROVEMENTS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PREVENT ANY UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS.

ACTUAL THICKNESS OR BASE MATERIAL TO BE DETERMINED BY THE SOILS TEST AND RECOMMENDED BY THE SOILS ENGINEER.

CARE SHOULD BE TAKEN TO PREVENT GRADED DITCHES AND SWALES FROM UNDERMINING STREET IMPROVEMENTS.

ATTENTION CONTRACTORS:

CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND SHALL REPORT ALL DISCREPANCIES TO THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.

CONSTRUCTION CONTRACTOR AGREES THAT, IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL.

BASIS OF BEARINGS:

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CENTERLINE OF TRUMBLE ROAD PER RS 85/71, I.E. N00°13'05"E.

FLOOD ZONE INFORMATION

THE LAND SHOWN IS MAINLY LOCATED IN FLOOD ZONE "X" BEING DESCRIBED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN. PER FLOOD INSURANCE RATE MAP (FIRM) – COMMUNITY PANEL NUMBER 06065C2055H AND 06065C2060H, DATED AUGUST 18, 2014.

BUILDING NOTE:

ALL INFORMATION WITH BUILDING (INCLUDING SETBACKS AND FINISH FLOOR ELEVATIONS) IS FOR REFERENCE ONLY AND THE APPROVAL OF THESE GRADING PLANS DO NOT INCLUDE ANY PROVISIONS ASSOCIATED WITH BUILDINGS.

NOTE:

A PRE-GRADING/PRE-CONSTRUCTION MEETING AND SITE INSPECTION SHALL BE ARRANGED FOR BY THE SITE DEVELOPER PRIOR TO COMMENCING GRADING OPERATIONS. THOSE PARTIES REQUIRED TO ATTEND THE PRE-CONSTRUCTION MEETING SHALL INCLUDE BUT ARE NOT LIMITED TO THE DEVELOPER, PROJECT SUPERINTENDENT, ENGINEER OF RECORD, SOIL ENGINEER, GRADING CONTRACTOR, THE UNDERGROUND UTILITIES CONTRACTOR AND CITY INSPECTOR. THE FOCUS OF THE PRE-CONSTRUCTION MEETING SHALL BE TO DISCUSS THE VARIOUS ASPECTS AND RESPONSIBILITIES OF THE GRADING PROJECT AND TO PROVIDE AN APPROXIMATE TIME-TABLE FOR THE COMPLETION OF ROUGH GRADING. ARRANGE FOR A PRE-GRADING/PRE-CONSTRUCTION MEETING BY CALLING THE CITY OFFICE RESPONSIBLE FOR PROVIDING YOUR GRADING AND BUILDING INSPECTIONS. CALL CITY DISPATCH AT (951) 943-6504 TO SETUP PRE-CONSTRUCTION MEETING.

NO WORK SHALL COMMENCE WITHIN THE ROAD RIGHT-OF-WAY (R/W) PRIOR TO ISSUANCE OF AN ENCROACHMENT PERMIT BY CITY OF PERRIS.

PROJECT WILL COMPLY WITH PM10 REQUIREMENTS.

NOTIFICATIONS:

AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION, CONTRACTOR SHALL NOTIFY:

1. EASTERN MUNICIPAL WATER DISTRICT (FIELD ENGINEERING DEPARTMENT) (951) 928-3777, EXT 4830
2. CITY OF PERRIS (951) 943-5003
3. UNDERGROUND SERVICE ALERT (USA) 1(800) 227-2600 OR 811
4. ALL OTHER AFFECTED UTILITIES AND PERMIT AGENCIES:
   - A. THE GAS COMPANY 1-800-427-2200
   - B. SO. CAL EDISON (USA) 1-800-684-8123
   - C. VERIZON 1-800-483-4000
   - D. TIME WARNER CABLE 1-887-475-3127

LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF PERRIS, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

PARCEL A:

LOT 13 OF WATERS HOMESTEAD, A SUBDIVISION OF THE SOUTHWEST QUARTER OF SECTION 10, TOWNSHIP 5 SOUTH, RANGE 3 WEST, SAN BERNARDINO BASE AND MERIDIAN, AS SHOWN BY MAP OF SAID SUBDIVISION ON FILE IN BOOK 14, PAGE 681, SAN DIEGO COUNTY RECORDS.

EXCEPT FROM SAID LOT 13 THAT PORTION THEREOF GRANTED TO THE STATE OF CALIFORNIA FOR FREEWAY PURPOSES BY DEED RECORDED JULY 3, 1951 IN BOOK 1284, PAGE 162, OFFICIAL RECORDS, RIVERSIDE COUNTY RECORDS.

ALSO EXCEPT THOSE PORTIONS OF LOT 13 OF WATERS HOMESTEAD, A SUBDIVISION OF THE SOUTHWEST QUARTER OF SECTION 10, TOWNSHIP 5 SOUTH, RANGE 3 WEST, SAN BERNARDINO BASE AND MERIDIAN, AS SHOWN BY MAP OF SAID SUBDIVISION ON FILE IN BOOK 14, PAGE 681 OF MAPS, SAN DIEGO COUNTY RECORDS, LYING WESTERLY AND SOUTHERLY OF THE FOLLOWING DESCRIBED LINE:

BEGINNING ON THE NORTHERLY LINE OF SAID LOT 12, DISTANT ALONG SAID NORTHERLY LINE
SOUTH 89° 17' 04" EAST 50.61 FEET FROM THE WESTERLY LINE OF SAID SECTION;
THENCE COURSE (1) SOUTH 0° 21' 45" EAST 82.75 FEET;
THENCE ALONG A TANGENT CURVE CONCAVE EASTERLY WITH A RADIUS OF 2947 FEET, THROUGH AN ANGLE OF 3° 11' 29", 164.15 FEET;
THENCE ALONG A COMPOUND CURVE CONCAVE EASTERLY WITH A RADIUS OF 2197 FEET FROM A TANGENT BEARING SOUTH 3° 33' 14" EAST, THROUGH AN ANGLE OF 15° 40' 18", 600.93 FEET;
THENCE SOUTH 19° 13' 32" EAST 67.41 FEET;
THENCE SOUTH 28° 16' 41" EAST 298.72 FEET;
THENCE SOUTH 58° 11' 26" EAST, 50.93 FEET;
THENCE SOUTH 82° 01' 10" EAST 438.46 FEET;
THENCE COURSE (2) CONTINUING SOUTH 82° 01' 10" EAST 207.28 FEET;
THENCE COURSE (3) SOUTH 0° 46' 23" WEST 24.30 FEET TO THE SOUTHERLY LINE OF SAID LOT 14, AS CONVEYED TO THE STATE OF CALIFORNIA BY DEED RECORDED JUNE 18, 1965 AS INSTRUMENT NO. 70888 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY.

APN: 329-250-011

PARCEL B:

LOT 14 OF WATERS HOMESTEAD, A SUBDIVISION OF THE SOUTHWEST QUARTER OF SECTION 10, TOWNSHIP 5 SOUTH, RANGE 3 WEST, SAN BERNARDINO BASE AND MERIDIAN, AS SHOWN BY MAP OF SAID SUBDIVISION ON FILE IN BOOK 14, PAGE 681, SAN DIEGO COUNTY RECORDS.

EXCEPT THE EASTERLY RECTANGULAR 30 FEET OF SAID LOT 14, AS GRANTED TO COUNTY OF RIVERSIDE BY DEED RECORDED AUGUST 16, 1950 IN BOOK 1197, PAGE 206 AND BY DEED RECORDED AUGUST 16, 1950 IN BOOK 1197, PAGE 229, BOTH OF OFFICIAL RECORDS, RIVERSIDE COUNTY RECORDS.

EXCEPT THOSE PORTIONS OF LOT 14 OF WATERS HOMESTEAD, A SUBDIVISION OF THE SOUTHWEST QUARTER OF SECTION 10, TOWNSHIP 5 SOUTH, RANGE 3 WEST, SAN BERNARDINO BASE AND MERIDIAN, AS SHOWN BY MAP OF SAID SUBDIVISION ON FILE IN BOOK 14, PAGE 681 OF MAPS, SAN DIEGO COUNTY RECORDS, LYING WESTERLY AND SOUTHERLY OF THE FOLLOWING DESCRIBED LINE:

BEGINNING ON THE NORTHERLY LINE OF SAID LOT 12, DISTANT ALONG SAID NORTHERLY LINE
SOUTH 89° 17' 04" EAST 50.61 FEET FROM THE WESTERLY LINE OF SAID SECTION;
THENCE COURSE (1) SOUTH 0° 21' 45" EAST 82.75 FEET;
THENCE ALONG A TANGENT CURVE CONCAVE EASTERLY WITH A RADIUS OF 2947 FEET, THROUGH AN ANGLE OF 3° 11' 29", 164.15 FEET;
THENCE ALONG A COMPOUND CURVE CONCAVE EASTERLY WITH A RADIUS OF 2197 FEET FROM A TANGENT BEARING SOUTH 3° 33' 14" EAST, THROUGH AN ANGLE OF 15° 40' 18", 600.93 FEET;
THENCE SOUTH 19° 13' 32" EAST 67.41 FEET;
THENCE SOUTH 28° 16' 41" EAST 298.72 FEET; THENCE SOUTH 58° 11' 26" EAST, 50.93 FEET;
THENCE SOUTH 82° 01' 10" EAST 438.46 FEET;
THENCE COURSE (2) CONTINUING SOUTH 82° 01' 10" EAST 207.28 FEET;
THENCE COURSE (3) SOUTH 0° 46' 23" WEST 24.30 FEET TO THE SOUTHERLY LINE OF SAID LOT 14, AS CONVEYED TO THE STATE OF CALIFORNIA BY DEED RECORDED JUNE 18, 1965 AS INSTRUMENT NO. 70888 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY.

APN: 329-250-012

ESTIMATED EARTHWORK QUANTITIES

CUT: 21,176 CY

FILL: 20,864 CY

NET: 312 CY CUT

NOTE:

THE ABOVE QUANTITIES ARE APPROXIMATE AND FOR PERMIT PROCESS ONLY. QUANTITIES HAVE BEEN CALCULATED FROM EXISTING GRADE SURFACE TO PROPOSED FINAL GRADE. QUANTITIES ACCOUNT FOR THICKNESS OF PAVEMENT SECTIONS, BUILDING SLAB, AND DETENTION SPOILS. THEY DO NOT REFLECT SHRINKAGE, SWELL, SUBSIDENCE AND REMOVAL OF EXISTING BUILDING STRUCTURES AND SURFACE IMPROVEMENTS.

THE CONTRACTOR SHALL RELY ON THEIR OWN EARTHWORK ESTIMATES FOR BIDDING PURPOSES.

STATEMENT BY ENGINEER OF RECORD

ALL EASEMENTS SHOWN ON THIS PLAN ARE PER THE ALTA PREPARED BY LG LAND SURVEYING DATED 07/13/21.

APPLICABLE CODES:

ALL NEW CONSTRUCTION SHALL MEET OR EXCEED THE MINIMUM REQUIREMENTS OF THE CALIFORNIA BUILDING CODE 2016 EDITION THAT INCLUDE THE BUILDING, PLUMBING, MECHANICAL, ELECTRICAL, FIRE AND ENERGY COMMISSION SERIES. IN CASES WHERE THE CODES MAY CONFLICT WITH THE PROVISIONS IN THESE PLANS OR SPECIFICATIONS, THE MORE RESTRICTIVE PROVISIONS SHALL GOVERN.

ABBREVIATIONS

AB	– AGGREGATE BASE
AC	– ASPHALT
AHJ	– AUTHORITY HAVING JURISDICTION
BC	– BACK OF CURB
BS	– BOTTOM OF STAIR
BLDG	– BUILDING
BW	– BACK OF WALK
CAB	– COMPACTED AGGREGATE BASE
CB	– CATCH BASIN
CF	– CURB FACE
C/L	– CENTERLINE
CONC.	– CONCRETE
CONST.	– CONSTRUCT, CONSTRUCTION
CSG	– COMPACTED SUBGRADE
DF	– DEEPENED FOOTING
DI	– DRAIN INLET
DW	– DOMESTIC WATER
E	– EAST
EG	– EDGE OF GUTTER
ELEC	– ELECTRIC
EP	– EDGE OF PAVEMENT
FF	– FINISHED FLOOR
FG	– FINISHED GRADE
FL	– FLOW LINE
FS	– FINISHED SURFACE
FW	– FIRE WATER
G	– GAS
GB	– GRADE BREAK
HP	– HIGH POINT
INV	– INVERT
IRR	– IRRIGATION WATER
JS	– JUNCTION STRUCTURE
L	– LENGTH
LP	– LOW POINT
MH	– MANHOLE
N	– NORTH
PCC	– PORTLAND CEMENT CONCRETE
P/L	– PROPERTY LINE
PUE	– PUBLIC UTILITY EASEMENT
PVC	– POLYVINYL CHLORIDE
R	– RADIUS OR RIDGE
RD	– ROOF DRAIN
RW	– RECLAIMED WATER
ROW	– RIGHT-OF-WAY
S	– SLOPE GRADIENT
SD	– STORM DRAIN
STA	– STATION
SS	– SANITARY SEWER
SPPWC	– STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION
SW	– SIDE WALK
T	– TELEPHONE
TC	– TOP OF CURB
TS	– TOP OF STAIR
VIF	– VERIFY IN FIELD
W	– WATER OR WEST
XXX.XX	– PROPOSED ELEVATION
(XXX.XX)	– EXISTING ELEVATION

SHEET INDEX

SHEET NUMBER	SHEET TITLE
1	COVER SHEET
2	GENERAL NOTES
3	SITE PLAN
4	SITE PLAN
5	HORIZONTAL CONTROL PLAN
6	HORIZONTAL CONTROL PLAN
7	SIGNING, STRIPING, AND PAVEMENT PLAN
8	SIGNING, STRIPING, AND PAVEMENT PLAN
9	GRADING PLAN
10	GRADING PLAN
11	UTILITY PLAN
12	UTILITY PLAN BLOW UPS
13	STORM DRAIN PLAN
14	STORM DRAIN PLAN BLOW UPS
15	LANDSCAPE PLAN
16	LANDSCAPE PLAN

SITE DATA

APN'S: 329-250-011 AND 329-250-012

GROSS PARCEL	±14.4	ACRES
DISTURBED	±14.4	ACRES
TOTAL PERVIOUS	±4.5	ACRES
TOTAL IMPERVIOUS (INCLUDING BUILDING)	±9.9	ACRES

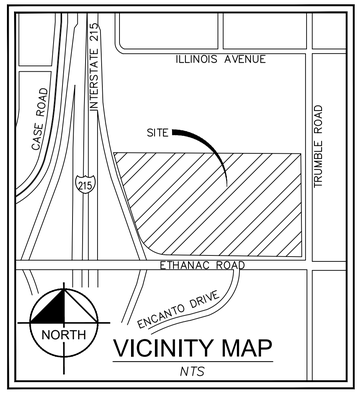
TOTAL GROSS FLOOR AREA: 13,980 SF

EXISTING: COMMERCIAL COMMUNITY (CC)

PROPOSED: COMMERCIAL COMMUNITY (CC)

PARKING PROVIDED:

STANDARD	88	SPACES
ACCESSIBLE	5	SPACES
TRUCK	116	SPACES
BICYCLE SPACES	2	PROPOSED



VICINITY MAP
NTS

LEGEND

- PROPERTY LINE CIVIL
- CENTERLINE
- SETBACKS
- EASEMENT LINE
- LIMITS OF WORK LINE
- SS — PROPOSED SANITARY SEWER PIPE
- SD — PROPOSED STORM DRAIN PIPE
- AIR — PROPOSED AIR
- W — PROPOSED WATER PIPE
- OWS — PROPOSED OIL WATER SEPARATOR
- UGT — PROPOSED TELEPHONE LINE
- UE — PROPOSED UNDERGROUND ELECTRIC
- GB — GRADE BREAK
- R — RIDGE LINE
- ACCESSIBLE ROUTE
- FENCE
- (P) PARKING COUNT
- (1422.27 TC) / (1421.77 TP) PROPOSED ELEVATION
- 1422.27 TC / 1421.77 TP EXISTING ELEVATION
- 1.2% SLOPE

- HEAVY DUTY CONCRETE PAVEMENT
- HEAVY DUTY ASPHALT PAVEMENT
- STANDARD DUTY ASPHALT PAVEMENT
- LANDSCAPE/PLANTER AREA
- DETECTABLE WARNINGS
- DECORATIVE PAVEMENT

GEOTECHNICAL REPORT

THE GEOTECHNICAL EVALUATION REPORT TRAVEL PLAZA PERRIS PROJECT NO. G-5908-01 DATED JUNE 11, 2021 PREPARED BY GEOTECHNICAL SOLUTIONS, INC. AND ALL ADDENDA SHALL BE CONSIDERED PART OF THESE CONSTRUCTION DOCUMENTS. THE PROJECT IS CONSISTENT WITH SOILS REPORT REQUIREMENTS AND RECOMMENDATIONS; AS WELL AS, ALL REQUIRED TESTS, INSPECTIONS AND REPORTS WILL BE CONDUCTED AS NECESSARY.

GEOTECHNICAL ENGINEER OF RECORD
GEOTECHNICAL SOLUTIONS, INC

DECLARATION OF ENGINEER OF RECORD

I HEREBY DECLARE THAT IN MY PROFESSIONAL OPINION, THE DESIGN OF THE IMPROVEMENTS AS SHOWN ON THESE PLANS COMPLIES WITH THE CURRENT PROFESSIONAL ENGINEERING STANDARDS AND PRACTICES. AS THE ENGINEER IN RESPONSIBLE CHARGE OF THE DESIGN OF THESE IMPROVEMENTS, I ACCEPT FULL RESPONSIBILITY FOR SUCH DESIGN. I UNDERSTAND AND ACKNOWLEDGE THAT THE PLAN CHECK OF THESE PLANS BY THE CITY OF PERRIS IS A REVIEW FOR THE LIMITED PURPOSE OF ENSURING THAT THESE PLANS COMPLY WITH CITY PROCEDURES AND OTHER APPLICABLE CODES AND ORDINANCES. THE PLAN REVIEW PROCESS IS NOT A DETERMINATION OF THE TECHNICAL ADEQUACY OF THE DESIGN OF THE IMPROVEMENTS. SUCH PLAN CHECK DOES NOT THEREFORE RELIEVE ME OF MY DESIGN RESPONSIBILITY.

SIGNATURE _____ DATE 6/8/2022

LICENSE NO. 78274 EXP. 9/30/2023

REGISTERED PROFESSIONAL ENGINEER SHEA-MICHAEL ANTI RCE NO. 78274 STATE OF CALIFORNIA CIVIL

811 Know what's below. Call before you dig. DIAL TOLL FREE 811 AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

BENCH MARK:
COUNTY OF RIVERSIDE BENCHMARK "M 21-1 RESET", 373 FEET EAST ALONG ETHANAC ROAD FROM THE INTERSECTION OF ETHANAC ROAD AND THE SOUTHBOUND LANES OF HIGHWAY 395. 150 FEET SOUTH OF ETHANAC ROAD. 50 FEET SOUTHEAST OF THE NORTHEAST CORNER OF A 6 FOOT CHAIN LINK RIGHT-OF-WAY FENCE. 1 FOOT NORTHEAST OF AN ANGLE-POINT IN THE RIGHT-OF-WAY FENCE. 2 FEET NORTH OF A MARKER POST. A BRASS DISK STAMPED "M-21-1 RESET" SET IN THE TOP OF A CONCRETE POST 3 INCHES ABOVE GROUND. EL = 1421.891 NGVD 29 (5/85)

MARK	BY	DATE	REVISIONS	APPR	DATE
	ENGINEER			CITY	

CITY OF PERRIS

APPROVED BY: _____ _____
CONTRACT CITY ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER SHEA-MICHAEL ANTI RCE NO. 78274 STATE OF CALIFORNIA CIVIL

Kimley»Horn
765 THE CITY DRIVE SUITE 200, ORANGE, CA 92868
PHONE: 714-939-1030

PREPARED BY: _____
SHEA-MICHAEL ANTI R.C.E 78274 6/8/2022 DATE

COVER SHEET
PRELIMINARY PRECISE GRADING PLAN
PILOT PERRIS
ETHANAC ROAD AND TRUMBLE ROAD
APN: 329-250-011 & 329-250-012

PROJECT NUMBER: 095426010

SHEET NO. 1 OF 16 SHTS

FILE NO.:

GENERAL NOTES:

1. NOTIFY CITY ENGINEER, CITY OF PERRIS, AT (951) 943–6504, AT LEAST 24 HOURS PRIOR TO START OF CONSTRUCTION.
2. PROOF ROLL BUILDING AND ALL PARKING AREAS. NOTIFY ARCHITECT OF ALL UNACCEPTABLE AREAS.
3. EDGE OF NEW PAVEMENT TO BE FLUSH WITH EXISTING PAVEMENT.
4. ALL SIDEWALK, CURB AND GUTTER, STREET PAVING, CURB CUTS, DRIVEWAY APPROACHES, ACCESSIBLE RAMPS, ETC. CONSTRUCTED OUTSIDE THE PROPERTY LINE IN THE RIGHT–OF–WAY SHALL CONFORM TO ALL MUNICIPAL AND/OR STATE SPECIFICATIONS AND REQUIREMENTS.
5. FOR AREAS OUTSIDE THE PROPERTY LINES, REPAIR AND REPLACE ALL DAMAGE DONE TO EXISTING ELEMENTS (SIDEWALKS, PAVING, LANDSCAPING, ETC.) AS REQUIRED BY OWNERS AND/OR GOVERNING AUTHORITY.
6. FOR PROPOSED UTILITY LOCATIONS, SEE UTILITY PLAN.
7. ALL DIMENSIONS REFER TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
8. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS PRIOR TO ORDERING MATERIALS AND STARTING WORK, AND NOTIFY ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
9. CONTRACTOR SHALL ENSURE CLEAN JOINTS AND PROTECT PAVEMENT WHEREVER PROPOSED PAVEMENT MATCHES EXISTING PAVEMENT.
10. REFER TO ARCHITECTURAL PLANS FOR SIGN DETAILS. SEE MEP PLANS FOR SITE ELECTRICAL DRAWINGS.
11. REFER TO ARCHITECTURAL AND STRUCTURAL PLANS TO VERIFY ALL BUILDING DIMENSIONS.
12. ANY WORK IN THE RIGHT–OF–WAY SHALL BE APPROVED BY THE CITY ENGINEER.
13. ALL EARTHWORK TO COMPLY WITH RECOMMENDATIONS IN GEOTECHNICAL REPORT.
14. ALL PAINT STRIPING TO BE TWO COATS.
15. ALL PROPERTY LINES, EASEMENTS AND BUILDING, EXISTING AND PROPOSED, ARE SHOWN ON THIS SITE PLAN.
16. THE CONTRACTOR AND SUBCONTRACTORS SHOULD BE FAMILIAR WITH ALL STATE AND LOCAL REQUIREMENTS RELATED TO SITE CONSTRUCTION ACTIVITIES PRIOR TO COMMENCING WORK. ALL WORK SHALL CONFORM AS APPLICABLE TO THESE GOVERNING STANDARDS AND SPECIFICATIONS.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL MATERIAL AND LABOR TO CONSTRUCT THE FACILITY AS SHOWN AND DESCRIBED IN THE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH THE APPROPRIATE APPROVING AUTHORITIES, SPECIFICATIONS AND REQUIREMENTS. CONTRACTOR SHALL CLEAR AND GRUB ALL AREAS UNLESS OTHERWISE INDICATED, REMOVING TREES, STUMPS, ROOTS, MUCK, EXISTING PAVEMENT AND ALL OTHER DELETERIOUS MATERIAL.
18. EXISTING UTILITIES SHOWN ARE LOCATED ACCORDING TO THE INFORMATION AVAILABLE TO THE ENGINEER AT THE TIME OF THE TOPOGRAPHIC SURVEY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR THE ENGINEER. GUARANTEE IS NOT MADE THAT ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN OR THAT THE LOCATION OF THOSE SHOWN ARE ENTIRELY ACCURATE. FINDING THE ACTUAL LOCATION OF ANY EXISTING UTILITIES IS THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE DONE BEFORE COMMENCING ANY WORK IN THE VICINITY. FURTHERMORE, THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES DUE TO THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE OWNER OR ENGINEER WILL ASSUME NO LIABILITY FOR ANY DAMAGES SUSTAINED OR COST INCURRED BECAUSE OF THE OPERATIONS IN THE VICINITY OF EXISTING UTILITIES OR STRUCTURES, NOR FOR TEMPORARY BRACING AND SHORING OF SAME. IF IT IS NECESSARY TO SHORE, BRACE, SWING OR RELOCATE A UTILITY, THE UTILITY COMPANY OR DEPARTMENT AFFECTED SHALL BE CONTACTED AND THEIR PERMISSION OBTAINED REGARDING THE METHOD TO USE FOR SUCH WORK.
19. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES WHICH MAY HAVE BURIED OR AERIAL UTILITIES WITHIN OR NEAR THE CONSTRUCTION AREA BEFORE COMMENCING WORK. THE CONTRACTOR SHALL PROVIDE 48 HOURS MINIMUM NOTICE TO ALL UTILITY COMPANIES PRIOR TO BEGINNING CONSTRUCTION. AN APPROXIMATE LIST OF THE UTILITY COMPANIES WHICH THE CONTRACTOR MUST CALL BEFORE COMMENCING WORK IS PROVIDED ON THE UTILITY SHEET OF THESE CONSTRUCTION PLANS. THIS LIST SERVES AS A GUIDE ONLY AND IS NOT INTENDED TO LIMIT THE UTILITY COMPANIES WHICH THE CONTRACTOR MAY WISH TO NOTIFY.
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED CONSTRUCTION PERMITS AND BONDS IF REQUIRED PRIOR TO CONSTRUCTION.
21. THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE AT ALL TIMES ONE COPY OF THE CONSTRUCTION DOCUMENTS INCLUDING PLANS, SPECIFICATIONS, GEOTECHNICAL REPORT AND SPECIAL CONDITIONS AND COPIES OF ANY REQUIRED CONSTRUCTION PERMITS.
22. ANY DISCREPANCIES ON THE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS FROM DESIGN ARE TO BE MADE WITHOUT PRIOR APPROVAL OF THE OWNER AND NOTIFICATION TO THE ENGINEER.
23. ALL COPIES OF COMPACTION, CONCRETE AND OTHER REQUIRED TEST RESULTS ARE TO BE SENT TO THE OWNER AND DESIGN ENGINEER OF RECORD DIRECTLY FROM THE TESTING AGENCY.
24. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING TO THE ENGINEER A CERTIFIED RECORD SURVEY SIGNED AND SEALED BY A PROFESSIONAL LAND SURVEYOR REGISTERED IN THE STATE OF ARIZONA DEPICTING THE ACTUAL FIELD LOCATION OF ALL CONSTRUCTED IMPROVEMENTS THAT ARE REQUIRED BY THE JURISDICTIONAL AGENCIES FOR THE CERTIFICATION PROCESS. ALL SURVEY COSTS WILL BE THE CONTRACTORS RESPONSIBILITY.
25. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DOCUMENTING AND MAINTAINING AS–BUILT INFORMATION WHICH SHALL BE RECORDED AS CONSTRUCTION PROGRESSES OR AT THE COMPLETION OF APPROPRIATE CONSTRUCTION INTERVALS AND SHALL BE RESPONSIBLE FOR PROVIDING AS–BUILT DRAWINGS TO THE OWNER FOR THE PURPOSE OF CERTIFICATION TO JURISDICTIONAL AGENCIES AS REQUIRED. ALL AS–BUILT DATA SHALL BE COLLECTED BY A STATE OF CALIFORNIA PROFESSIONAL LAND SURVEYOR WHOSE SERVICES ARE ENGAGED BY THE CONTRACTOR.
26. ANY WELLS DISCOVERED ON SITE THAT WILL HAVE NO USE MUST BE PLUGGED BY A LICENSED WELL DRILLING CONTRACTOR IN A MANNER APPROVED BY ALL JURISDICTIONAL AGENCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY WELL ABANDONMENT PERMITS REQUIRED.
27. ANY WELL DISCOVERED DURING EARTH MOVING OR EXCAVATION SHALL BE REPORTED TO THE APPROPRIATE JURISDICTIONAL AGENCIES WITHIN 24 HOURS AFTER DISCOVERY IS MADE.
28. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THAT THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS DO NOT CONFLICT WITH ANY KNOWN EXISTING OR OTHER PROPOSED IMPROVEMENTS. IF ANY CONFLICTS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE OWNER PRIOR TO INSTALLATION OF ANY PORTION OF THE SITE WORK THAT WOULD BE AFFECTED. FAILURE TO NOTIFY OWNER OF AN IDENTIFIABLE CONFLICT PRIOR TO PROCEEDING WITH INSTALLATION RELIEVES OWNER OF ANY OBLIGATION TO PAY FOR A RELATED CHANGE ORDER.
29. ANY EXISTING UTILITY, WHICH IS TO BE EXTENDED, WHICH IS THE CONNECTION POINT FOR NEW UNDERGROUND UTILITIES, OR WHICH NEW FACILITIES CROSS, SHALL BE EXPOSED BY THE CONTRACTOR PRIOR TO PLACEMENT OF THE NEW UTILITIES. COST OF SUCH EXCAVATION AND SUBSEQUENT BACKFILL SHALL BE INCLUDED IN THE PRICES PAID FOR THE VARIOUS ITEMS OF WORK. THE ELEVATIONS AND LOCATIONS OF THE EXISTING FACILITIES WILL BE CHECKED BY THE PUBLIC WORKS INSPECTOR AND THE ENGINEER. IF IN THE OPINION OF THE INSPECTOR A CONFLICT EXISTS, THEN THE ENGINEER SHALL MAKE ANY NEEDED GRADE AND/ OR ALIGNMENT ADJUSTMENTS AND REVISE THE PLANS ACCORDINGLY. ALL GRAVITY FLOW PIPELINES TO BE LAID UPGRADE FROM THE LOWEST POINT STARTING AT THE END OF EXISTING IMPROVEMENTS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 24 HOURS PRIOR TO BACKFILLING OF ANY PIPE WHICH STUBS TO A FUTURE PHASE OF CONSTRUCTION FOR INVERT VERIFICATION. TOLERANCE SHALL BE IN ACCORDANCE WITH CITY STANDARD SPECIFICATIONS.

GENERAL NOTES CONTINUATION:

1. ALL WORK TO BE PERFORMED PER CITY OF PERRIS, RIVERSIDE COUNTY TRANSPORTATION DEPARTMENT (R.C.T.D.), EASTERN MUNICIPAL WATER DISTRICT (E.M.W.D), CALTRANS AND THE 2009 MANUAL ON UNIFORM CONTROL DEVICES (M.U.T.C.D.) STANDARDS WITH CALIFORNIA SUPPLEMENT.
2. NOTIFY CITY ENGINEER, CITY OF PERRIS, AT (951) 943–6504, AT LEAST 24 HOURS PRIOR TO START OF CONSTRUCTION.
3. CONTRACTOR IS REQUIRED TO LOCATE AND ADJUST TO GRADE ALL EXISTING MANHOLES, METERS, AND VALVE COVERS FOR WATER, SEWER, TELEPHONE, ELECTRIC, CABLE TV AND OTHER FACILITIES AS REQUIRED (WHEATEAR CALLED–OUT OR NOT ON PLANS).
4. ALL STRIPING & LEGENDS SHALL BE REPLACED IN ACCORDANCE WITH THE STRIPING PLANS HEREIN. ALL STRIPING TO BE PAINT (TWO COATS) AND ALL MARKINGS (INCLUDING CROSSWALKS) TO BE THERMOPLASTIC ALL STRIPING AND PAVEMENT MARKINGS TO BE PER 2006 M.U.T.C.D. STANDARDS WITH CALIFORNIA SUPPLEMENT.
5. ALL EXISTING A.C. AND CONCRETE TO BE SAW–CUT WHERE WIDENING IS TO TAKE PLACE OR ADJACENT TO WHERE CONCRETE IS TO BE CONSTRUCTED (1' MINIMUM).
6. ANY STOCKPILE OR STORAGE YARD ON PRIVATE PROPERTY MUST HAVE CITY'S AND OWNER'S APPROVAL.
7. THE CITY INSPECTOR WILL MARK ALL CONCRETE REMOVALS PRIOR TO CONSTRUCTION ALL CONCRETE WILL BE SAW–CUT WHERE REQUIRED PRIOR TO BEING REMOVED.
8. CONTRACTOR SHALL VERIFY THE EXISTENCE OF EXISTING SURVEY MONUMENTS AND PROTECT THEM IN PLACE. ANY SURVEY MONUMENTS MISSING AND/OR DAMAGED DURING CONSTRUCTION WILL HAVE TO BE RESET PRIOR TO PROJECT COMPETITION BY A QUALIFIED REGISTERED SURVEYOR.
9. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT THE NEW WORK, FROM VANDALISM UNTIL THE IMPROVEMENTS HAVE BEEN ACCEPTED BY THE CITY AND A NOTICE OF COMPLETION MUST BE FILED.
10. ALL ASPHALT REMOVALS TO BE MARKED BY THE CITY INSPECTOR PRIOR TO CONTRACTOR BEGINNING WORK ON THAT PARTICULAR STREET SEGMENT.
11. CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA AND OTHER UTILITY COMPANIES AS NEEDED TO COORDINATE FOR PROTECTION AND/OR ADJUSTMENTS OF UTILITIES, AS REQUIRED.
12. CONTRACTOR TO VISIT THE SITE AND FAMILIARIZE HIMSELF WITH THE WORK AND AREA PRIOR TO BIDDING AND NOTIFY THE CITY OF DISCREPANCIES.
13. ALL DIMENSIONS ARE APPROXIMATE CONTRACTOR TO VERIFY IN FIELD.
14. CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL TRAFFIC CONTROL DEVICES AS NEEDED AND PROVIDE TWO–WAY ACCESS AT ALL TIMES THROUGH THE SITE. THE CONTRACTOR SHALL MAINTAIN THESE DEVICES AT ALL TIMES INCLUDING HOLIDAYS AND WEEKENDS. FLAGMAN SHALL BE UTILIZED AS REQUIRED TO PROVIDE TWO–WAY TRAFFIC DURING CONSTRUCTION.
15. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL IN COMPLIANCE WITH WATCH MANUAL, 2009 M.U.T.C.D., OR CURRENT EDITION, AND THE TRAFFIC PLANS PROVIDED HEREIN.
16. THE CONTRACTOR SHALL APPLY TO, AND BE ISSUED A NO FEE ENCROACHMENT PERMIT BY THE CITY OF PERRIS BEFORE BEGINNING ANY WORK WITH AN EXISTING CITY MAINTAINED PUBLIC STREET AND FOR UTILITY WORK WITHIN OFFERS OF DEDICATION FOR PUBLIC USE.
17. EXISTING PUBLIC STREETS, SHALL REMAIN OPEN TO THE PUBLIC DURING CONSTRUCTION AND SHALL BE MAINTAINED BY THE CONTRACTOR UNLESS OTHERWISE PROVIDED IN THE PLANS AND SPECIFICATIONS. PUBLIC INCONVENIENCE WILL BE MINIMIZED AT ALL TIMES AND SUCH STREETS SHALL BE LEFT FREE OF DIRT AND DEBRIS AT THE END OF EACH WORKING DAY UNLESS PERMISSION IS OTHERWISE GRANTED BY THE CITY ENGINEER.
18. THE CONTRACTOR IS RESPONSIBLE FOR CLEARING AND GRUBBING THE PROPOSED WORK AREA AND DISPOSAL OF EXCESS OR UNDESIRABLE MATERIAL CONTRACTOR SHALL RELOCATE OR CAUSE TO BE RELOCATED EXISTING CONFLICTING UTILITIES IF REQUIRED BY CONTRACT.
19. ANY PROPOSED DEVIATION FROM THESE PLANS BY THE CONTRACTOR MUST MET CITY'S APPROVAL. THE CONTRACTOR IS RESPONSIBLE TO REIMBURSE THE CITY FOR ANY RELATED COST TO THE CITY ASSOCIATED WITH SUCH CHANGE. IN THIS EVENT, NO INCREASE IN CONTRACTOR'S COST WILL BE APPROVED.
20. CONTRACTOR IS REQUIRED TO INSTALL BLUE REFLECTIVE PAVEMENT AT ALL FIRE HYDRANT LOCATION IN THE WORK AREA.
21. THE CONTRACTOR IS REQUIRED TO REMOVE ALL CONFLICTING STRIPING AND LEGENDS BY WET SANDBLASTING.
22. APPLY WEED KILL TO ALL EXISTING WEEDS BETWEEN 1–3 WEEKS PRIOR TO CONSTRUCTION AND REMOVE WEEDS. WEEDS SHALL BE REMOVED FROM ALL EXISTING PAVEMENT, MEDIANS, CURB AND GUTTER, SIDEWALK (BETWEEN CURB AND SIDEWALK) AND WHEREVER IMPROVEMENTS ARE PROPOSED, AND UP TO 4.0' BEHIND E.P. OR CURB WHEN NO SIDEWALK EXISTS.
23. CONTRACTOR SHALL REPLACE ALL STRIPING, LEGENDS, AND SIGNS IF THEY ARE DAMAGED DURING CONSTRUCTION AT NO EXTRA COST TO THE CITY. EXISTING STRIPING WITHIN PROJECT VICINITY THAT BECOME DULL, SHALL BE REFRESHED AS DIRECTED BY THE CITY ENGINEER. CONFLICTING SIGNS SHALL BE REMOVED AS DIRECTED BY THE CITY ENGINEER OR HIS REPRESENTATIVE.
24. EXISTING TO PROPOSED CONCRETE PAVEMENT JOINTS SHALL BE CONSTRUCTED PER CALTRANS REVISED STANDARD PLAN RSP P10. 1 INCH MINIMUM DIAMETER DOWEL BARS SHALL BE USED AND AS APPROVED BY THE CITY ENGINEER.
25. ALL GRADING AND CONSTRUCTION ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECTS SWPPP AND NOI. REFER TO NPDES NOTED ON EROSION CONTROL PLANS.
26. ALL STREET SECTION ARE MINIMUM REQUIREMENTS, ADDITIONAL SOILS TESTS SHALL BE TAKEN AFTER ROUGH GRADING TO DETERMINE THE RECOMMENDED STREET SECTIONS REQUIREMENTS. USE RIVERSIDE COUNTY STD 401 IF EXPANSIVE SOILS ARE ENCOUNTERED.
27. ON–SITE LIGHTING, LANDSCAPE, AND LAYOUT TO BE APPROVED BY THE CITY OF PERRIS PLANNING DEPARTMENT.
28. WALLS/FENCE REQUIRE A SEPARATE PERMIT.
29. HAULING ROUTE SHALL BE SUBMITTED FOR APPROVAL BY THE CITY ENGINEER PRIOR TO START OF THE IMPORTATION/EXPORTATION OF DIRT.

CITY OF PERRIS WQMP INSPECTION NOTIFICATION REQUIREMENTS:

1. GENERAL CONTRACTOR IS RESPONSIBLE TO CALL FOR WQMP (WATER QUALITY MANAGEMENT PLAN) INSPECTIONS. A MINIMUM OF TWO (2) WQMP INSPECTIONS ARE REQUIRED IN THE FOLLOWING ORDER:
   A. AT THE TIME OF PRECISE GRADE AND CONSTRUCTION OF FLOW–BASED/VOLUME BASED BMP'S, AND/OR INSTALLATION OF STORM DRAIN AND WQMP EQUIPMENT, WHEN THE TRENCHES ARE STILL OPEN; AND
   B. AT FINAL INSPECTION, WHEN ALL PLANT MATERIALS, STRUCTURAL TREATMENT CONTROL BMP'S, STENCILING, EMPLOYEE SOURCE CONTROL HANDBOOKS, AND WQMP EQUIPMENT HAVE BEEN INSTALLED AND ARE FULLY OPERATIONAL.
2. A WRITTEN CLEARANCE LETTER SHALL BE SIGNED BY THE CITY'S ENGINEERING DEPARTMENT TO SIGNIFY APPROVAL OF WQMP SITE DESIGN, SOURCE CONTROL AND TREATMENT CONTROL BMP'S (BEST MANAGEMENT PRACTICES). THIS LETTER WILL NEED TO BE PRESENTED TO BUILDING AND SAFETY DEPARTMENT AS PART OF THE FINAL APPROVALS.

UTILITY NOTES:

1. THE CONTRACTOR SHALL CONSTRUCT GRAVITY SEWER LATERALS, CLEANOUTS, GRAVITY SEWER LINES, AND DOMESTIC WATER AND FIRE PROTECTION SYSTEM AS SHOWN ON THESE PLANS. THE CONTRACTOR SHALL FURNISH ALL NECESSARY MATERIALS, EQUIPMENT, MACHINERY, TOOLS, MEANS OF TRANSPORTATION AND LABOR NECESSARY TO COMPLETE THE WORK IN FULL AND COMPLETE ACCORDANCE WITH THE SHOWN, DESCRIBED AND REASONABLY INTENDED REQUIREMENTS OF THE CONTRACT DOCUMENTS AND JURISDICTIONAL AGENCY REQUIREMENTS. IN THE EVENT THAT THE CONTRACT DOCUMENTS AND THE JURISDICTIONAL AGENCY REQUIREMENTS ARE NOT IN AGREEMENT, THE MOST STRINGENT SHALL GOVERN.
2. ALL EXISTING UNDERGROUND UTILITY LOCATIONS SHOWN ARE APPROXIMATE THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS FOR UTILITY LOCATION AND COORDINATION IN ACCORDANCE WITH THE NOTES CONTAINED IN THE GENERAL CONSTRUCTION SECTION OF THIS SHEET.
3. THE CONTRACTOR SHALL RESTORE ALL DISTURBED VEGETATION IN KIND, UNLESS SHOWN OTHERWISE.
4. DEFLECTION OF PIPE JOINTS AND CURVATURE OF PIPE SHALL NOT EXCEED THE MANUFACTURER'S SPECIFICATIONS. SECURELY CLOSE ALL OPEN ENDS OF PIPE AND FITTINGS WITH A WATERTIGHT PLUG WHEN WORK IS NOT IN PROGRESS. THE INTERIOR OF ALL PIPES SHALL BE CLEAN AND JOINT SURFACES WIPED CLEAN AND DRY AFTER THE PIPE HAS BEEN LOWERED INTO THE TRENCH. VALVES SHALL BE PLUMB AND LOCATED ACCORDING TO THE PLANS.
5. ALL PHASES OF INSTALLATION, INCLUDING UNLOADING, TRENCHING, LAYING AND BACK FILLING, SHALL BE DONE IN A FIRST CLASS WORKMANLIKE MANNER. ALL PIPE AND FITTINGS SHALL BE CAREFULLY STORED FOLLOWING MANUFACTURER'S RECOMMENDATIONS. ANY PIPE OR FITTING WHICH IS DAMAGED OR WHICH HAS FLAWS OR IMPERFECTIONS WHICH, IN THE OPINION OF THE ENGINEER OR OWNER, RENDERS IT UNFIT FOR USE, SHALL NOT BE USED. ANY PIPE NOT SATISFACTORY FOR USE SHALL BE CLEARLY MARKED AND IMMEDIATELY REMOVED FROM THE JOB SITE, AND SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
6. WATER FOR FIRE FIGHTING SHALL BE AVAILABLE FOR USE PRIOR TO COMBUSTIBLES BEING BROUGHT ON SITE.
7. ALL UTILITY AND STORM DRAIN TRENCHES LOCATED UNDER AREAS TO RECEIVE PAVING SHALL BE COMPLETELY BACK FILLED IN ACCORDANCE WITH THE GOVERNING JURISDICTIONAL AGENCY'S SPECIFICATIONS. IN THE EVENT THAT THE CONTRACT DOCUMENTS AND THE JURISDICTIONAL AGENCY REQUIREMENTS ARE NOT IN AGREEMENT, THE MOST STRINGENT SHALL GOVERN.
8. CONTRACTOR SHALL PERFORM, AT HIS OWN EXPENSE, ANY AND ALL TESTS REQUIRED BY THE SPECIFICATIONS AND/OR ANY AGENCY HAVING JURISDICTION. THESE TESTS MAY INCLUDE, BUT MAY NOT BE LIMITED TO, INFILTRATION AND EXFILTRATION, TELEVISION INSPECTION AND A MANDREL TEST ON GRAVITY SEWER. A COPY OF THE TEST RESULTS SHALL BE PROVIDED TO THE UTILITY PROVIDER, OWNER AND JURISDICTIONAL AGENCY AS REQUIRED.
9. THE EXISTING UTILITIES SHOWN ON THE PLAN ARE BASED ON AVAILABLE RECORDS. THE CONTRACTOR MUST FIELD DETERMINE THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO ANY CONSTRUCTION. REPORT DISCREPANCIES AND POTENTIAL CONFLICTS WITH PROPOSED UTILITIES TO ENGINEER PRIOR TO INSTALLATION OF ANY PIPING.
10. DIMENSIONS PROVIDED ARE TO OUTSIDE PIPE DIAMETERS.
11. ALL WATER LINES ARE TO BE BURIED A MINIMUM OF 40" DEEP, MEASURED TO TOP OF PIPE.
12. WATER PIPE TRENCHING PER EMWD STANDARD DETAIL B–408.
13. SEWER PIPE TRENCHING PER EMWD STANDARD DETAIL SB–157 AND SB–158.
14. CONFIRM UTILITY TIE–IN POINTS IN FIELD AND WITH MEP PLANS PRIOR TO CONSTRUCTION.

DEMOLITION NOTES:

1. REFER TO THE TOPOGRAPHIC SURVEY FOR ADDITIONAL DETAILS OF EXISTING STRUCTURES, ETC., LOCATED WITHIN THE PROJECT SITE. UNLESS OTHERWISE NOTED, ALL EXISTING BUILDINGS, STRUCTURES, SLABS, CONCRETE, ASPHALT, DEBRIS PILES, SIGNS, AND ALL APPURTENANCES ARE TO BE REMOVED FROM THE SITE BY THE CONTRACTOR AND PROPERLY DISPOSED OF IN A LEGAL MANNER AS PART OF THIS CONTRACT. SOME ITEMS TO BE REMOVED MAY NOT BE DEPICTED ON THE TOPOGRAPHIC SURVEY. REFER TO THE DEMOLITION PLAN FOR THE LIMITS OF ASPHALT REMOVAL (THE EXISTING PARKING LOT IS TO REMAIN). IT IS THE CONTRACTOR'S RESPONSIBILITY TO VISIT THE SITE AND DETERMINE THE FULL EXTENT OF ITEMS TO BE REMOVED. IF ANY ITEMS ARE IN QUESTION, THE CONTRACTOR SHALL CONTACT THE OWNER PRIOR TO REMOVAL OF SAID ITEMS.
2. THE CONTRACTOR SHALL CLEAR THE PROJECT SITE AREA WITHIN THE CONFINES OF THE DEMOLITION LIMIT LINE. THE CONTRACTOR SHALL CAP IN PLACE ALL EXISTING UTILITIES AT THE DEMOLITION LIMIT LINE, UNLESS NOTED ON THE PLAN. THE CONTRACTOR SHALL DEMOLISH AND LEGALLY REMOVE/DISPOSE OF ITEMS FROM THE SITE, INCLUDING ALL EXISTING UTILITY STRUCTURES, PLANTERS, TREES, AND ALL OTHER SITE FEATURES, UNLESS OTHERWISE NOTED ON THE PLAN.
3. DEMOLITION OF PAVEMENT INCLUDES PAVEMENT THICKNESS, REBAR IF ENCOUNTERED, AND BASE COURSE.
4. REMOVAL OF LANDSCAPING SHALL INCLUDE ROOTS AND ORGANIC MATERIAL.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY AND ALL PERMITS AND SHALL PAY ALL FEES NECESSARY FOR ENCROACHMENT, GRADING, DEMOLITION, AND DISPOSAL OF SAID MATERIALS AS REQUIRED BY PRIVATE, LOCAL AND STATE JURISDICTIONS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR A SITE INSPECTION TO FULLY ACKNOWLEDGE THE EXTENT OF DEMOLITION WORK.
7. THE CONTRACTOR SHALL VERIFY AND LOCATE ALL EXISTING ABOVE AND UNDERGROUND UTILITIES. LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND ARE SHOWN FOR GENERAL INFORMATION ONLY. CONTRACTOR SHALL ADJUST TO GRADE ANY EXISTING UTILITIES TO REMAIN.
8. DAMAGE TO ANY EXISTING UTILITIES AND SERVICES TO REMAIN SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL REPAIR AND/OR REPLACE IN KIND.
9. EROSION CONTROL MEASURES SHALL BE IMPLEMENTED TO PREVENT DEBRIS AND UNSUITABLE MATERIALS FROM ENTERING SANITARY SEWERS AND STREETS.
10. DUST CONTROL MEASURES SHALL BE IMPLEMENTED DURING DEMOLITION.
11. DEMOLITION IS LIMITED TO WITHIN THE DEMOLITION LIMIT LINE UNLESS OTHERWISE NOTED.
12. CONTRACTOR SHALL REMOVE DEMOLISHED MATERIALS FROM THE SITE AS WORK PROGRESSES.
13. THE DRAWINGS MAY NOT INDICATE IN DETAIL ALL DEMOLITION WORK TO BE PERFORMED. THE CONTRACTOR SHALL EXAMINE EXISTING CONDITIONS TO DETERMINE THE FULL EXTENT OF DEMOLITION.
14. ALL DEMOLITION SHALL COMPLY WITH CHAPTER 24 AND ARTICLE 87 OF THE CALIFORNIA FIRE CODE.
15. CONTRACTOR TO USE CARE IN HANDLING DEBRIS FROM SITE TO ENSURE THE SAFETY OF THE PUBLIC. HAUL ROUTE TO BE CLOSELY MONITORED FOR DEBRIS OR MATERIALS TRACKED ONTO ADJOINING ROADWAYS, SIDEWALKS, ETC. ROADWAYS AND WALKWAYS TO BE CLEARED DAILY OR AS NECESSARY TO MAINTAIN PUBLIC SAFETY.
16. SEE EROSION CONTROL PLAN FOR EROSION PREVENTION.
17. CONTRACTOR TO INSTALL CHAIN LINK FENCE WITH MESH SCREEN TO PROTECT PUBLIC FROM ENTERING CONSTRUCTION AREA.
18. CONTINUOUS ACCESS SHALL BE MAINTAINED FOR SURROUNDING PROPERTIES AT ALL TIMES DURING DEMOLITION OF EXISTING FACILITIES.
19. MONITORING WELLS TO BE REMOVED PRIOR TO BEGINNING OF CONSTRUCTION.
20. FULL DEMOLITION LIMITS DUE TO CONSTRUCTION OF UTILITIES IS NOT SHOWN. CONTRACTOR TO REFER TO SHEET C3 AND UTILITY PLANS TO DETERMINE LIMITS. CONTRACTOR TO USE CAUTION AROUND EXISTING UTILITIES.
21. A CITY–APPROVED WASTE HAULER SHALL BE USED FOR ALL CONSTRUCTION/OTHER WASTE DISPOSAL.
22. CONTRACTOR SHALL ADJUST TO GRADE ANY EXISTING UTILITIES TO REMAIN.

PAVING, GRADING AND DRAINAGE NOTES:

1. ALL PAVING, CONSTRUCTION, MATERIALS, AND WORKMANSHIP WITHIN JURISDICTION'S RIGHT–OF–WAY SHALL BE IN ACCORDANCE WITH LOCAL OR COUNTY SPECIFICATIONS AND STANDARDS (LATEST EDITION) OR SPPWS SPECIFICATIONS AND STANDARDS (LATEST EDITION) IF NOT COVERED BY LOCAL OR COUNTY REGULATIONS.
2. ALL UNPAVED AREAS IN EXISTING RIGHTS–OF–WAY DISTURBED BY CONSTRUCTION SHALL BE REGRADED AND REPAIRED TO EXISTING CONDITION OR BETTER.
3. TRAFFIC CONTROL ON ALL CALTRANS, LOCAL AND COUNTY RIGHTS–OF–WAY SHALL MEET THE REQUIREMENTS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (U.S. DOT/FHA) AND THE REQUIREMENTS OF THE STATE AND ANY LOCAL AGENCY HAVING JURISDICTION. IN THE EVENT THAT THE CONTRACT DOCUMENTS AND THE JURISDICTIONAL AGENCY REQUIREMENTS ARE NOT IN AGREEMENT, THE MOST STRINGENT SHALL GOVERN.
4. THE CONTRACTOR SHALL GRADE THE SITE TO THE ELEVATIONS INDICATED AND SHALL REGRADE WASHOUTS WHERE THEY OCCUR AFTER EVERY RAINFALL UNTIL AN ADEQUATE STABILIZATION OCCURS.
5. ALL AREAS INDICATED AS PAVEMENT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE TYPICAL PAVEMENT SECTIONS AS INDICATED ON THE DRAWINGS.
6. WHERE EXISTING PAVEMENT IS INDICATED TO BE REMOVED AND REPLACED, THE CONTRACTOR SHALL SAW CUT A MINIMUM 2" DEEP FOR A SMOOTH AND STRAIGHT JOINT AND REPLACE THE PAVEMENT WITH THE SAME TYPE AND DEPTH OF MATERIAL AS EXISTING OR AS INDICATED.
7. WHERE NEW PAVEMENT MEETS THE EXISTING PAVEMENT, THE CONTRACTOR SHALL SAW CUT THE EXISTING PAVEMENT A MINIMUM 2" DEEP FOR A SMOOTH AND STRAIGHT JOINT AND MATCH THE EXISTING PAVEMENT ELEVATION WITH THE PROPOSED PAVEMENT UNLESS OTHERWISE INDICATED.
8. IF DEWATERING IS REQUIRED, THE CONTRACTOR SHALL OBTAIN ANY APPLICABLE REQUIRED PERMITS. THE CONTRACTOR IS TO COORDINATE WITH THE OWNER AND THE DESIGN ENGINEER PRIOR TO ANY EXCAVATION.
9. STRIP TOPSOIL AND ORGANIC MATTER FROM ALL AREAS OF THE SITE AS REQUIRED. IN SOME CASES TOPSOIL MAY BE STOCKPILED ON SITE FOR PLACEMENT WITHIN LANDSCAPED AREAS BUT ONLY AS DIRECTED BY THE OWNER.
10. FIELD DENSITY TESTS SHALL BE TAKEN AT INTERVALS IN ACCORDANCE WITH THE LOCAL JURISDICTIONAL AGENCY.
11. ALL SLOPES AND AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED AS PER PLANS. THE AREAS SHALL THEN BE STABILIZED BY MEANS AND METHODS APPROVED BY THE LOCAL AGENCY. ANY AREAS DISTURBED FOR ANY REASON PRIOR TO FINAL ACCEPTANCE OF THE JOB SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. ALL EARTHEN AREAS WILL BE COVERED WITH ROCK OR MULCHED AS SHOWN ON THE LANDSCAPING PLAN.
12. ALL CUT OR FILL SLOPES SHALL BE 4 (HORIZONTAL) :1 (VERTICAL) OR FLATTER UNLESS OTHERWISE SHOWN.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF DUST AND DIRT RISING AND SCATTERING IN THE AIR DURING CONSTRUCTION AND SHALL PROVIDE WATER SPRINKLING OR OTHER SUITABLE METHODS OF CONTROL. THE CONTRACTOR SHALL COMPLY WITH ALL GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.
14. THE CONTRACTOR SHALL TAKE ALL REQUIRED MEASURES TO CONTROL TURBIDITY, INCLUDING BUT NOT LIMITED TO THE INSTALLATION OF TURBIDITY BARRIERS AT ALL LOCATIONS WHERE THE POSSIBILITY OF TRANSFERRING SUSPENDED SOLIDS INTO THE RECEIVING WATER BODY EXISTS DUE TO THE PROPOSED WORK. TURBIDITY BARRIERS MUST BE MAINTAINED IN EFFECTIVE CONDITION AT ALL LOCATIONS UNTIL CONSTRUCTION IS COMPLETED AND DISTURBED SOIL AREAS ARE STABILIZED. THEREAFTER, THE CONTRACTOR MUST REMOVE THE BARRIERS. AT NO TIME SHALL THERE BE ANY OFF–SITE DISCHARGE WHICH VIOLATES THE WATER QUALITY STANDARDS OF THE GOVERNING CODE.
15. EXPOSED SLOPES SHOULD BE STABILIZED WITHIN 48 HOURS OF COMPLETING FINAL GRADING, AND AT ANY OTHER TIME AS NECESSARY, TO PREVENT EROSION, SEDIMENTATION OR TURBID DISCHARGES.
16. THE CONTRACTOR MUST REVIEW AND MAINTAIN A COPY OF THE REQUIRED PERMITS COMPLETE WITH ALL CONDITIONS, ATTACHMENTS, EXHIBITS, AND PERMIT MODIFICATIONS IN GOOD CONDITION AT THE CONSTRUCTION SITE. THE COMPLETE PERMIT MUST BE AVAILABLE FOR REVIEW UPON REQUEST BY GOVERNING JURISDICTIONS.
17. THE CONTRACTOR SHALL ENSURE THAT ISLAND PLANTING AREAS AND OTHER PLANTING AREAS ARE NOT COMPACTED AND DO NOT CONTAIN ROAD BASE MATERIALS. THE CONTRACTOR SHALL ALSO EXCAVATE AND REMOVE ALL UNDESIRABLE MATERIAL FROM ALL AREAS ON THE SITE TO BE PLANTED AND PROPERLY DISPOSED OF IN A LEGAL MANNER.
18. CONTRACTOR TO VERIFY ALL EXISTING TOPOGRAPHY AND STRUCTURES ON THE SITE AND IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO STARTING WORK.
19. ALL PAVEMENT SPOT GRADE ELEVATIONS WITHIN OR ALONG THE CURB REFER TO THE EDGE OF PAVEMENT ELEVATIONS UNLESS OTHERWISE NOTED.
20. ALL ELEVATIONS SHOWN DEPICT FINISHED GRADE UNLESS OTHERWISE NOTED. GENERAL CONTRACTOR TO COORDINATE WITH EXCAVATION, LANDSCAPING, AND PAVING SUBCONTRACTORS REGARDING TOPSOIL THICKNESS FOR LANDSCAPING AREAS AND PAVEMENT SECTION THICKNESS FOR PAVED AREAS TO PROPERLY ENSURE ADEQUATE CUT TO ESTABLISH SUBGRADE ELEVATIONS.
21. NO EARTHEN SLOPE SHALL BE GREATER THAN 4:1 UNLESS OTHERWISE NOTED.
22. MAXIMUM SLOPE IN ACCESSIBLE PARKING SPACES AND LOADING ZONES SHALL NOTE EXCEED 2.0% IN ALL DIRECTIONS.
23. MAXIMUM RUNNING SLOPE SHALL NOTE EXCEED 5% AND CROSS SLOPE SHALL NOTE EXCEED 2.0% ON ALL SIDEWALKS AND ACCESSIBLE ROUTES UNLESS OTHERWISE NOTED.
24. WHEN NATURAL FLOW OF DRAINAGE IS AWAY FROM CURB CONTRACTOR TO INSTALL REVERSE GUTTER PITCH.
25. REFERENCE ARCHITECTURAL PLANS FOR ROOF DRAIN AND LOCATIONS.
26. CONTRACTOR TO USE APPROPRIATE PAINT COLORS PER DETAILS SHEET. ADA BARRIER FREE AREAS TO COMPLY WITH ALL LOCAL AND FEDERAL ADA STANDARDS.
27. ACCESSIBLE ROUTE TO ACCESSIBLE SPACES, BUILDING ENTRANCES, AND PUBLIC STREETS SHALL NOT EXCEED 5% RUNNING SLOPE AND 2% CROSS SLOPE.
28. THE ACCESSIBLE ROUTE IN FRONT OF PARKING SHALL BE A MINIMUM OF 48" WIDE AND NOT REDUCED BY VEHICLE OVERHANGS, CURBING, SIGN POSTS, OR OTHER OBSTRUCTIONS.
29. ANY WALK THAT CROSSES OR ADJOINS A VEHICULAR WAY NOT SEPARATED BY CURBS, RAILINGS, OR OTHER ELEMENTS SHALL BE DEFINED BY A CONTINUOUS 36" WIDE DETECTABLE WARNING.
30. SPECIAL RAMP RULES APPLY FOR ANY RISE GREATER THAN 6" INCLUDING BUT NOT LIMITED TO RESTRICTION ON SLOPE, TOTAL RISE BETWEEN LANDINGS, AND USE OF HANDRAILS.
31. TRANSITION CHANGE IN ELEVATION IS NOT TO EXCEED 1/4" WITHIN AN ACCESSIBLE ROUTE.
32. JOINT WIDTHS ARE NOT TO EXCEED 1/2" OF WIDTH.
33. CURB RAMPS MUST HAVE A DIFFERENT FINISH FROM THE ADJACENT PAVEMENT.
34. 2% SLOPE IN ALL DIRECTIONS WITHIN ADA PARKING STALLS. AFTER PROPOSED GRADE BREAK, ALLOWABLE SLOPE TO MATCH EXISTING IS 5.0%.
35. ALL AREAS WHERE STRIPING IS TO BE ERADICATED. CONTRACTOR IS TO ERADICATE AND SEAL COAT AREA.

PRECISE GRADING NOTES (CITY OF PERRIS):

1. ALL GRADING SHALL CONFORM TO THE UNIFORM CODE, APPENDIX CHAPTER 33, AS AMENDED BY ORDINANCE NO. 457.
2. ALL PROPERTY CORNERS SHALL BE CLEARLY DELINEATED IN THE FIELD PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION/GRADING.
3. DURING ROUGH GRADING OPERATIONS AND PRIOR TO CONSTRUCTION OF PERMANENT DRAINAGE STRUCTURES, TEMPORARY DRAINAGE CONTROL SHOULD BE PROVIDED TO PREVENT PONDING WATER AND DAMAGE TO ADJACENT STRUCTURES.
4. DUST SHALL BE CONTROLLED BY WATERING OR OTHER APPROVED METHODS.
5. NO FILL SHALL BE PLACED ON EXISTING GROUND UNTIL THE GROUND HAS BEEN CLEARED OF WEEDS, DEBRIS, TOPSOIL, AND OTHER DELETERIOUS MATERIAL.
6. MAXIMUM CUT AND FILL SLOPE = 2:1, UNLESS OTHERWISE SHOWN ON PLANS.
7. STABILITY CALCULATIONS WITH A FACTOR OF SAFETY OF AT LEAST ONE AND FIVE TENTHS (1.5) SHALL BE SUBMITTED BY A SOILS ENGINEER TO THE BUILDING AND SAFETY DEPARTMENT FOR CUT AND FILL SLOPES OVER 30' IN VERTICAL HEIGHT.
8. PROVIDE 5' BY 1' HIGH BERM OR EQUIVALENT ALONG THE TOP OF ALL FILL SLOPES OVER 5' HIGH.
9. PROVIDE A BROW DITCH, DESIGNED TO HANDLE 100 YR. Q STORM FLOWS, ALONG THE TOP OF ALL FILL SLOPES OVER 5' HIGH.
10. MINIMUM BUILDING PAD AND DRAINAGE SWALE SLOPE SHALL BE 1% IF CUT OF FILL IS LESS THAN 10'. 2% IF CUT OR FILL IS GREATER THAN 10'. DRAINAGE SWALES SHALL BE A MINIMUM OF 0.2' DEEP AND BE CONSTRUCTED A MINIMUM OF 2' FROM THE TOP OF CUT OR FILL SLOPES.
11. NO OBSTRUCTION OF FLOOD PLAINS OR NATURAL WATER COURSES SHALL BE PERMITTED.
12. ALL EXISTING DRAINAGE COURSES ON THE PROJECT SITE MUST CONTINUE TO FUNCTION, ESPECIALLY DURING STORM CONDITIONS. PROTECTIVE MEASURES AND TEMPORARY DRAINAGE PROVISIONS MUST BE USED TO PROTECT ADJOINING PROPERTIES DURING GRADING OPERATIONS.
13. FINISHED GRADE SHALL BE SLOPED AWAY FROM ALL EXTERIOR WALLS AT NOT LESS THAN $\frac{1}{2}$" PER FOOT FOR A MINIMUM OF 3'.
14. CUT AND FILL SLOPES EQUAL TO OR GREATER THAN 3' IN VERTICAL HEIGHT SHALL BE PLANTED WITH GRASS OR GROUND COVER TO PROTECT THE SLOPE FROM EROSION AND INSTABILITY IN ACCORDANCE WITH ORDINANCE NO. 457 PRIOR TO FINAL GRADING INSPECTION.
15. EROSION CONTROL: ALL SLOPES REQUIRED TO BE PLANTED SHALL BE PROVIDED WITH ROSEA ICE PLANT (OR EQUAL) GROUND COVER AT 12" ON CENTER. SLOPES EXCEEDING 15' IN VERTICAL HEIGHT SHALL BE PLANTED WITH APPROVED TREES SPACED NOT TO EXCEED 20' ON CENTER OR SHRUBS NOT TO EXCEED 10', OR A COMBINATION OF SHRUBS AND TREES NOT TO EXCEED 15' IN ADDITION TO A GRASS MIX OR GROUND COVER. SLOPES EXCEEDING 4' IN VERTICAL HEIGHT SHALL BE PROVIDED WITH AN IN–GROUND IRRIGATION SYSTEM. SLOPES EQUAL TO OR LESS THAN 4' MAY BE IRRIGATED BY HOSE BIB LOCATED AT THE TOP OR TOE OF THE SLOPE, SPACED TO MAKE USE OF A HOUSE NO LONGER THAN 50' IN HEIGHT. THE IRRIGATION SYSTEM SHALL BE PROVIDED WITH AN APPROPRIATE BACKFLOW DEVICE PER U.P.C., CHAPTER 10.
16. ALL GRADING SHALL BE DONE IN CONFORMANCE WITH RECOMMENDATIONS OF THE PRELIMINARY SOILS INVESTIGATION BY SALEM ENGINEERING GROUP, INC. TWO SETS OF THE FINAL COMPACTION REPORT SHALL BE SUBMITTED TO THE BUILDING AND SAFETY DEPARTMENT WHICH SHALL INCLUDE FOUNDATION DESIGN RECOMMENDATIONS AND CERTIFICATION THAT GRADING HAS BEEN DONE IN CONFORMANCE WITH THE RECOMMENDATIONS OF THE SITE INVESTIGATION REPORT.
17. IF STEEP SLOPING TERRAIN OCCURS UPON WHICH FILL IS TO BE PLACED, IT MUST BE CLEARED, KEYED AND BENCHED INTO FIRM NATURAL SOIL FOR FULL SUPPORT. PREPARATION SHALL BE APPROVED BY A SUITABLE QUALIFIED AND REGISTERED PROFESSIONAL PRIOR TO PLACEMENT OF FILL MATERIAL.
18. ALL GRADING SHALL BE DONE UNDER THE SUPERVISION OF A COMPETENT SOILS ENGINEER WHO SHALL CERTIFY THAT ALL FILL HAS BEEN PROPERLY PLACED AND WHO SHALL SUBMIT A FINAL COMPACTION REPORT FOR ALL FILLS OVER 1' DEEP.
19. FINAL COMPACTION REPORT WILL BE REQUIRED FOR ALL FILLS GREATER THAN 1'.
20. A SUITABLY QUALIFIED AND REGISTERED PROFESSIONAL SHALL SUBMIT TO THE BUILDING AND SAFETY DEPARTMENT WRITTEN CERTIFICATION OF COMPLETION OF ROUGH GRADING IN ACCORDANCE WITH THE APPROVED GRADING PLAN PRIOR TO REQUESTING INSPECTION AND ISSUANCE OF THE BUILDING PERMIT. CERTIFICATION SHALL INCLUDE LINE, GRADE, ELEVATION AND LOCATION OF CUT/FILL SLOPES.
21. A SUITABLE QUALIFIED AND REGISTERED PROFESSIONAL SHALL SUBMIT CERTIFICATION OF BUILDING PAD ELEVATION, WHERE SPECIFIC ELEVATIONS ARE REQUIRED. THE ELEVATION (WITH RESPECT TO MEAN SEA LEVEL) SHALL BE GIVEN. IF AN ELEVATION WITH RESPECT TO ADJACENT GROUND SURFACE IS REQUIRED, THE ACTUAL DISTANCE ABOVE THE ADJACENT SHALL BE GIVEN.
22. A SUITABLY QUALIFIED AND REGISTERED PROFESSIONAL SHALL SUBMIT TO THE BUILDING AND SAFETY DEPARTMENT WRITTEN CERTIFICATION OF COMPLETION OF FINAL GRADING IN ACCORDANCE WITH THE APPROVED PLANS FOR ALL GRADING AS "ENGINEERED GRADING".
23. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT TWO DAYS BEFORE YOU DIG AT 1–800–227–2600. A GRADING PERMIT MUST BE OBTAINED FROM THE DEPARTMENT OF BUILDING AND SAFETY, CITY OF PERRIS, PRIOR TO GRADING.
24. THE CONTRACTOR SHALL NOTIFY THE BUILDING AND SAFETY DEPARTMENT, 101 NORTH "D" STREET, PERRIS, CA 92571, TELEPHONE (951) 943–5003, AT LEAST 24 HOURS IN ADVANCE REQUESTING LOT GRADE AND DRAINAGE INSPECTION. THE INSPECTION MUST BE APPROVED PRIOR TO BUILDING PERMIT FINAL INSPECTION.
25. THE EARTHWORK QUANTITIES SHOWN ARE SUBJECT TO FIELD CONDITIONS. THE GRADING CONTRACTOR SHALL SATISFY HIMSELF AS TO THE QUANTITIES AND ADDITIONAL WORK SHOWN ON THIS PLAN AS PART OF THIS BID.
26. CONSTRUCTION ACTIVITIES AND EQUIPMENT MAINTENANCE IS LIMITED TO THE HOURS BETWEEN 7:00 A.M. AND 7:00 P.M. PER ZONING ORDINANCE, NOISE CONTROL, SECTION 7.34.060, IT IS UNLAWFUL FOR ANY PERSONS BETWEEN THE HOURS OF 7:00 P.M. OF ANY DAY AND 7:00 A.M. OF THE FOLLOWING DAY, OR ON A LEGAL HOLIDAY, OR ON SUNDAYS TO ERECT, CONSTRUCT, DEMOLISH, EXCAVATE, ALTER OR REPAIR ANY BUILDING OR STRUCTURE IN A MANNER AS TO CREATE DISTURBING EXCESSIVE OR OFFENSIVE NOISE.
27. STATIONARY CONSTRUCTION EQUIPMENT THAT GENERATES NOISE IN EXCESS OF 65 DBA AT THE PROJECT BOUNDARIES MUST BE SHIELDED AND LOCATED AT LEAST 100 FEET FROM OCCUPIED RESIDENCES. THE EQUIPMENT AREA WITH APPROPRIATE ACOUSTIC SHIELDING SHALL BE DESIGNATED ON BUILDING AND GRADING PLANS. EQUIPMENT AND SHIELDING SHALL REMAIN IN THE DESIGNATED LOCATION THROUGHOUT CONSTRUCTION ACTIVITIES.
28. CONSTRUCTION ROUTES ARE LIMITED TO CITY OF PERRIS DESIGNATED TRUCK ROUTES.
29. WATER TRUCKS OR SPRINKLER SYSTEMS SHALL BE USED DURING CLEANING, GRADING, EARTH MOVING, EXCAVATION, TRANSPORTATION OF CUT OR FILL MATERIALS AND CONSTRUCTION PHASES TO PREVENT DUST FROM LEAVING THE SITE AND TO CREATE A CRUST AFTER EACH DAY'S ACTIVITIES CEASE. AT A MINIMUM, THIS WOULD INCLUDE WETTING DOWN SUCH AREAS IN THE LATER MORNING AND AFTER WORK IS COMPLETED FOR THE DAY AND WHENEVER WIND EXCEEDS 15 MILES PER HOUR.
30. A PERSON OR PERSONS SHALL BE DESIGNATED TO MONITOR THE DUST CONTROL PROGRAM AND TO ORDER INCREASED WATERING AS NECESSARY TO PREVENT TRANSPORT OF DUST OFF–SITE. THE NAME AND TELEPHONE NUMBER OF SUCH PERSON SHALL BE PROVIDED TO THE CITY.
31. PROJECT APPLICANTS SHALL PROVIDE CONSTRUCTION SITE ELECTRICAL HOOK–UPS FOR ELECTRIC HAND TOOLS SUCH AS SAWS, DRILLS, AND COMPRESSORS, TO ELIMINATE THE NEED FOR DIESEL–POWERED ELECTRIC GENERATORS OR PROVIDE EVIDENCE THAT ELECTRICAL HOOK–UPS AT CONSTRUCTION SITES ARE NOT PRACTICAL OR PROHIBITIVELY EXPENSIVE.

811 DIAL TOLL FREE 811
AT LEAST TWO DAYS BEFORE YOU DIG
Know what's below. Call before you dig.
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

BENCH MARK:
COUNTY OF RIVERSIDE BENCHMARK "M 21–1 RESET", 373 FEET EAST ALONG ETHANAC ROAD FROM THE INTERSECTION OF ETHANAC ROAD AND THE SOUTHBOUND LANES OF HIGHWAY 395. 150 FEET SOUTH OF ETHANAC ROAD. 50 FEET SOUTHEAST OF THE NORTHEAST CORNER OF A 6 FOOT CHAIN LINK RIGHT–OF–WAY FENCE. 1 FOOT NORTHEAST OF AN ANGLE–POINT IN THE RIGHT–OF–WAY FENCE. 2 FEET NORTH OF A MARKER POST. A BRASS DISK STAMPED "M–21–1 RESET" SET IN THE TOP OF A CONCRETE POST 3 INCHES ABOVE GROUND. EL = 1421.891 NGVD 29 (5/85)

MARK	BY	DATE	REVISIONS	APPR	DATE
	ENGINEER			CITY	

CITY OF PERRIS
APPROVED BY:
CONTRACT CITY ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER SHEA-MICHAEL ANTI RCE NO. 78274 CIVIL STATE OF CALIFORNIA

Kimley»Horn
765 THE CITY DRIVE SUITE 200, ORANGE, CA 92868
PHONE: 714–939–1030

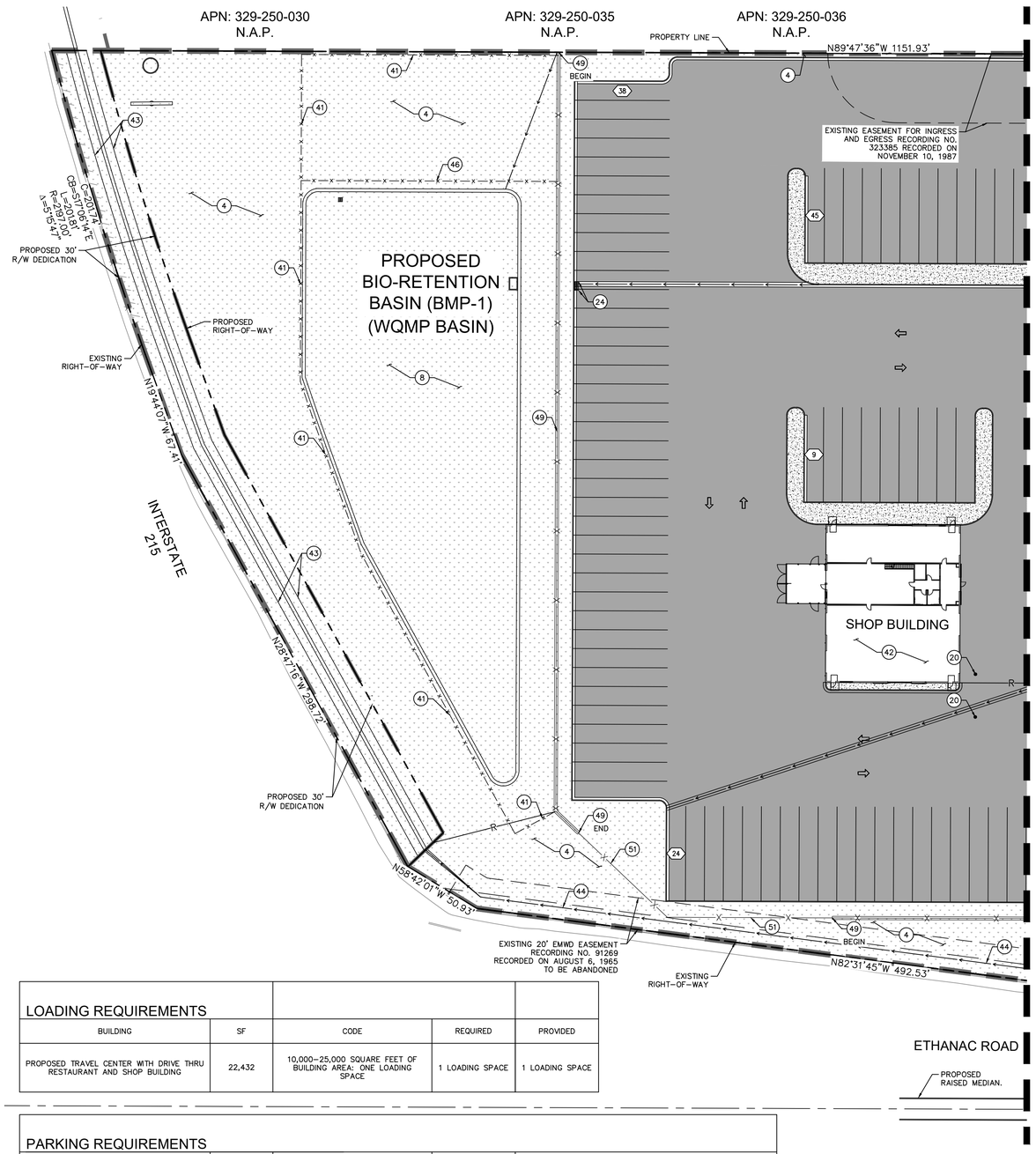
PREPARED BY:
SHEA–MICHAEL ANTI R.C.E 78274 6/8/2022 DATE

GENERAL NOTES
PRELIMINARY PRECISE GRADING PLAN
PILOT PERRIS
ETHANAC ROAD AND TRUMBLE ROAD
APN: 329-250-011 & 329-250-012

PROJECT NUMBER: 095426010

SHEET NO. 2 OF 16 SHTS

FILE NO.:



LEGEND

- PROPERTY LINE CIVIL
- LIMITS OF WORK
- CENTER LINE
- SETBACKS
- EASEMENT LINE
- ACCESSIBLE ROUTE
- FENCE
- GRADE BREAK (GB)
- RIDGE LINE (R)
- PARKING COUNT (#)
- DETECTABLE WARNINGS
- DECORATIVE PAVEMENT
- STANDARD DUTY CONCRETE PAVEMENT
- HEAVY DUTY CONCRETE PAVEMENT
- HEAVY DUTY ASPHALT PAVEMENT
- STANDARD DUTY ASPHALT PAVEMENT
- LANDSCAPE/ PLANTER AREA

DEVELOPMENT STANDARDS

LOT SIZE	MINIMUM LOT SIZE OF ONE ACRE
LOT DIMENSIONS	MINIMUM LOT WIDTH 100 FEET MINIMUM LOT DEPTH 150 FEET
STRUCTURE SIZE	NO MINIMUM SIZE; HOWEVER FLOOR AREA RATION CANNOT EXCEED 0.75
ACCESSORY STRUCTURE	NO MAXIMUM SIZE
LOT COVERAGE	MAXIMUM LOT COVERAGE OF 50%
STRUCTURE HEIGHT	MAXIMUM HEIGHT OF 45 FEET
SETBACKS	FOR BUILDING THAT ARE 25 FEET FOR LESS IN HEIGHT • MIN. FRONT YARD •• LOCAL AND COLLECTOR STREET 5 FEET •• SECONDARY AND PRIMARY ARTERIALS 10 FEET •• EXPRESSWAYS AND FREEWAYS 15 FEET •• FOR BUILDING GREATER THAN 25 FEET IN HEIGHT SHALL BE SETBACK AN ADDITIONAL 5 FEET FOR EACH TEN FEET OF ADDITIONAL STRUCTURE HEIGHT • MAX FRONT YARD: NONE • MIN. SIDE YARD: NONE. IF ADJOINING A RESIDENTIAL ZONE THE SETBACK SHALL NOT BE LESS THAN 10 FEET. IF LOADING AND UNLOADING ARE PROVIDED THE SETBACK SHALL BE NOT LESS THAN 25 FEET. • MIN. STREET SIDE YARD: SEE REQUIREMENTS FOR FRONT YARDS • MIN. REAR YARD: NONE. IF ADJOINING A RESIDENTAIL ZONE THE SETBACK SHALL BE THE DAME AD THE SIDE YARD REQUIREMENTS.
STRUCTURE SEPARATION	NONE REQUIRED
LOT FRONTAGE	MINIMUM LOT FRONTAGE OF 100 FEET

SITE INFORMATION

APN	329-250-011 AND 329-250-012
EXISTING ZONING	COMMERCIAL COMMUNITY (CC)
PROPOSED ZONING	COMMERCIAL COMMUNITY (CC)
EXISTING LOT SIZE	±14.4 ACRES
PROPOSED PARCEL	±14.0 ACRES
DISTURBED AREA	±14.4 ACRES
TOTAL PERVIOUS AREA	±4.5 ACRES
TOTAL IMPERVIOUS (INCLUDING BUILDING)	±9.9 ACRES
TOTAL GROSS FLOOR AREA (INCLUDING FUTURE SHOP BUILDING)	22,432 SQUARE FEET
FLOOR AREA RATIO (FAR) (INCLUDING THE CANOPIES)	0.05
PROPOSED BLDG HEIGHT	PILOT TRAVEL CENTER 31'-10" FUTURE SHOP BUILDING 22'-6"
SITE SETBACKS	SOUTH RIGHT OF WAY 10 FEET EAST RIGHT OF WAY 10 FEET WEST PROPERTY LINE NONE NORTH PROPERTY LINE NONE

CONSTRUCTION NOTES

1. PILOT TRAVEL CENTER BUILDING (SEE ARCHITECTURAL DRAWINGS), INSTALLED BY CONTRACTOR.
2. ABOVE GROUND STORAGE TANK FARM WITH CONTAINMENT. EACH AST FARM CONTAINS (4) 12,000 GALLON TACKS FOR DIESEL AND BIO. SEE PRODUCT PIPING DRAWINGS FOR MORE INFORMATION.
3. 25'-0" x 253'-7" AUTO CANOPY, FURNISHED AND INSTALLED BY CANOPY SUPPLIER. CANOPY FOUNDATIONS INSTALLED BY CONTRACTOR.
4. LANDSCAPE AREA INSTALLED BY CONTRACTOR. REFER TO LANDSCAPE AND IRRIGATION PLANS FOR MORE INFORMATION.
5. GREASE TRAP. FURNISHED AND INSTALLED BY CONTRACTOR.
6. CONCRETE ISLAND WITH A GAS/AUTO DIESEL (3+1) DISPENSER AND CONTAINMENT BOX TYPICAL AT (8) PLACES, INSTALLED BY CONTRACTOR.
7. 2'-0' HIGH GUARDRAIL AROUND CONTAINMENT AREA, 1'-0" OUTSIDE OF FENCE.
8. PROPOSED BIORETENTION BASIN. SEE UTILITY PLAN FOR MORE INFORMATION.
9. 25'-0" x 124'-9" TRUCK CANOPY, FURNISHED AND INSTALLED BY CANOPY SUPPLIER, CANOPY FOUNDATIONS INSTALLED BY CONTRACTOR.
10. TRUCK AIR STAND, TYPICAL AT EVERY OTHER TRUCK FUELING ISLAND, SUPPLIED BY OWNER AND INSTALLED BY CONTRACTOR.
11. CONCRETE ISLAND WITH A DIESEL DISPENSER AND CONTAINMENT BOX TYPICAL AT (8) PLACES, INSTALLED BY CONTRACTOR.
12. PREFABRICATED TRUCK ISLAND CATCH BASIN (TYP (7) PLACES). SUPPLIED BY OWNER INSTALLED BY CONTRACTOR
13. TRUCK FREEZE PROOF WATER STAND TYPICAL AT EVERY OTHER TRUCK FUELING ISLAND FURNISHED AND INSTALLED BY CONTRACTOR.
14. TANK #1, PRODUCT #1. 20,000 GALLON, 10'-0"ø X 37'-8 3/4" LONG, DOUBLE-WALL FIBERGLASS UNDERGROUND REGULAR UNLEADED GASOLINE TANK. FURNISHED BY OWNER, INSTALLED BY CONTRACTOR (TYP (1) PLACE). SEE PP DRAWINGS FOR MORE INFORMATION.
15. TANK #2 AND TANK #3. 20,000 GALLON, 10'-0"ø X 37'-10" LONG (2) CHAMBER UNDERGROUND DOUBLE WALL FIBERGLASS TANK, TANK #2, PRODUCT #2 – 12,000 GALLON SUPER UNLEADED GASOLINE, TANK #3, PRODUCT #3 – 8,000 AUTO DIESEL. FURNISHED BY OWNER, INSTALLED BY CONTRACTOR. (SEE PP DRAWINGS FOR MORE INFORMATION).
16. LOCAL UTILITY ELECTRICAL TRANSFORMER INSTALLED BY CONTRACTOR.
17. TRAVEL CENTER DISTRIBUTION ELECTRICAL TRANSFORMER INSTALLED BY CONTRACTOR.
18. PROPOSED WATER METER AND BACKFLOW. SEE UTILITY PLANS SHEET 11–12 FOR MORE INFORMATION.
19. PROPOSED IRRIGATION METER AND BACKFLOW PREVENTOR. SEE UTILITY PLANS SHEET 11–12 FOR MORE INFORMATION.
20. PROPOSED SEWER CLEANOUT. SEE UTILITY PLANS SHEET 11–12 FOR MORE INFORMATION.
21. PROPOSED U-SHAPED BIKE RACKS PER CITY STANDARDS AND SPECIFICATIONS.
22. INSTALL ACCESSIBLE RAMP. INSTALL CAST-IN-PLACE DETECTABLE WARNING SYSTEM (TRUNCATED DOMES) PER ARMOR TILE – 36" X 48" PANEL. PRODUCT NO. ADA-C-3648W PER DETAIL X, SHEET XX.
23. INSTALL DETECTABLE WARNINGS.
24. PROPOSED CATCH BASIN. SEE STORM DRAIN PLANS SHEET 13–14 FOR MORE INFORMATION.
25. AUTO AIR/VACUUM (PROVIDED BY OWNER, ELECTRICAL BY CONTRACTOR), YARD HYDRANT BY CONTRACTOR.
26. NEW TANK VENT RISER CLUSTER, INSTALLED BY CONTRACTOR.
27. 4,000 GALLON, 6'-0"ø x 21'-11" LONG, SINGLE-WALL FIBERGLASS UNDERGROUND OIL/ WATER SEPARATOR, FURNISHED BY OWNER, INSTALLED BY CONTRACTOR.
28. CLEAN OUT FOR OIL/WATER SEPARATOR FURNISHED AND INSTALLED BY CONTRACTOR.
29. B99 INJECTION SHED WITH SUMP. SUPPLIED BY OWNER. (SEE PRODUCT PIPING DRAWINGS FOR MORE INFORMATION).
30. 4" STEEL PIPE BOLLARD FURNISHED, INSTALLED BY CONTRACTOR (SEE CIVIL DWGS FOR SPECS.).
31. 6" STEEL PIPE BOLLARD FURNISHED, INSTALLED BY CONTRACTOR (SEE CIVIL DWGS FOR SPECS.).
32. 1'-0" CONCRETE BOLLARD FURNISHED, INSTALLED AND PAINTED BY CONTRACTOR (SEE CIVIL DWGS FOR SPECS.).
33. GREASE CONTAINER, PROVIDED BY OWNER.
34. SITE LIGHT, FURNISHED BY OWNER, INSTALLED BY CONTRACTOR. (LOCATION TO BE DETERMINED DURING FINAL ENGINEERING)
35. TRUCK SCALE, CONCRETE TRUCK SCALE PIT AND TRUCK SCALE FURNISHED AND INSTALLED BY TRUCK SCALE SUPPLIER. ELECTRICAL, COMMUNICATIONS AND DRAINAGE PROVIDED TO THE SCALE PIT BY CONTRACTOR, COORDINATION BY CONTRACTOR.
36. PARKING AREA DESIGNATED FOR GOLF CART.
37. TRASH ENCLOSURE 8' CHAIN LINK FENCE WITH VINYL INSERTS MOUNTED ON REINFORCED CONCRETE PAD WITH PROTECTIVE STEEL BOLLARDS, INSTALLED BY CONTRACTOR (SEE ARCH DWGS FOR DETAILS).
38. TRASH COMPACTOR, FURNISHED AND INSTALLED BY TRASH COMPACTOR SUPPLIER.
39. CARDBOARD BAILER OR RECYCLE DUMPSTER, FURNISHED AND INSTALLED BY DUMPSTER SUPPLIER.
40. STORAGE UNIT, FURNISHED BY OWNER. ELECTRICAL & A/C INSTALL BY CONTRACTOR.
41. PROPOSED "CERTAIN TEED BRAND; BUFFTECH VINYL FENCING; PRIVACY SERIES; STYLE "GALVESTON", 8' TALL; COLOR ALMOND." OR APPROVED EQUAL. FURNISHED AND INSTALLED BY CONTRACTOR.
42. PROPOSED SHOP BUILDING LOCATION.
43. PROPOSED CHANNEL (BOTTOM WIDTH 2', DEPTH 3.5', SIDE SLOPE 1.5:1) PER RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT PLAN FOR M.D.P. – ROMOLAND AREA LATERAL A–11A.
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50. PROPOSED 10' CONCRETE MASONRY UNITS WALL.
51. PROPOSED 8' AMETCO TITAN DESIGN ALUMINUM FENCE (COLOR TO MATCH BUILDING) AT GRADE.
52. PROPOSED DECORATIVE PAVEMENT.

LOADING REQUIREMENTS

BUILDING	SF	CODE	REQUIRED	PROVIDED
PROPOSED TRAVEL CENTER WITH DRIVE THRU RESTAURANT AND SHOP BUILDING	22,432	10,000–25,000 SQUARE FEET OF BUILDING AREA: ONE LOADING SPACE	1 LOADING SPACE	1 LOADING SPACE

PARKING REQUIREMENTS

BUILDING	SF	CODE	REQUIRED	PARKING PROVIDED
PROPOSED DRIVE–THRU RESTAURANT	1,688	1 SPACE PER 50 SQUARE FEET OF DINING OR SERVING AREA PLUS 10 SPACES	44 CAR	93 CAR SPACES (88 STANDARD STALL 5 ACCESSIBLE STALLS) 116 TRUCK SPACES 2 BICYCLE SPACES
PROPOSED TRAVEL CENTER RETAIL AREA	3,145	1 SPACE PER 250 SQUARE FEET OF BUILDING AREA	13 CAR	
PROPOSED SHOP BUILDING WITH 3 BAYS	8,452	5 SPACES PER BAY	15 CAR SCAPES	

NORTH

GRAPHIC SCALE IN FEET
0 20 40 80
1" = 40'
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UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

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COUNTY OF RIVERSIDE BENCHMARK "M 21-1 RESET", 373 FEET EAST ALONG ETHANAC ROAD FROM THE INTERSECTION OF ETHANAC ROAD AND THE SOUTHBOUND LANES OF HIGHWAY 395. 150 FEET SOUTH OF ETHANAC ROAD. 50 FEET SOUTHEAST OF THE NORTHEAST CORNER OF A 6 FOOT CHAIN LINK RIGHT-OF-WAY FENCE. 1 FOOT NORTHEAST OF AN ANGLE-POINT IN THE RIGHT-OF-WAY FENCE. 2 FEET NORTH OF A MARKER POST. A BRASS DISK STAMPED "M-21-1 RESET" SET IN THE TOP OF A CONCRETE POST 3 INCHES ABOVE GROUND.
EL = 1421.891 NGVD 29 (5/85)

MARK	BY	DATE	REVISIONS	APPR	DATE

ENGINEER | CITY

CITY OF PERRIS

APPROVED BY:

CONTRACT CITY ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER
SHEA-MICHAEL ANTI
RCE NO. 78274
CIVIL
STATE OF CALIFORNIA

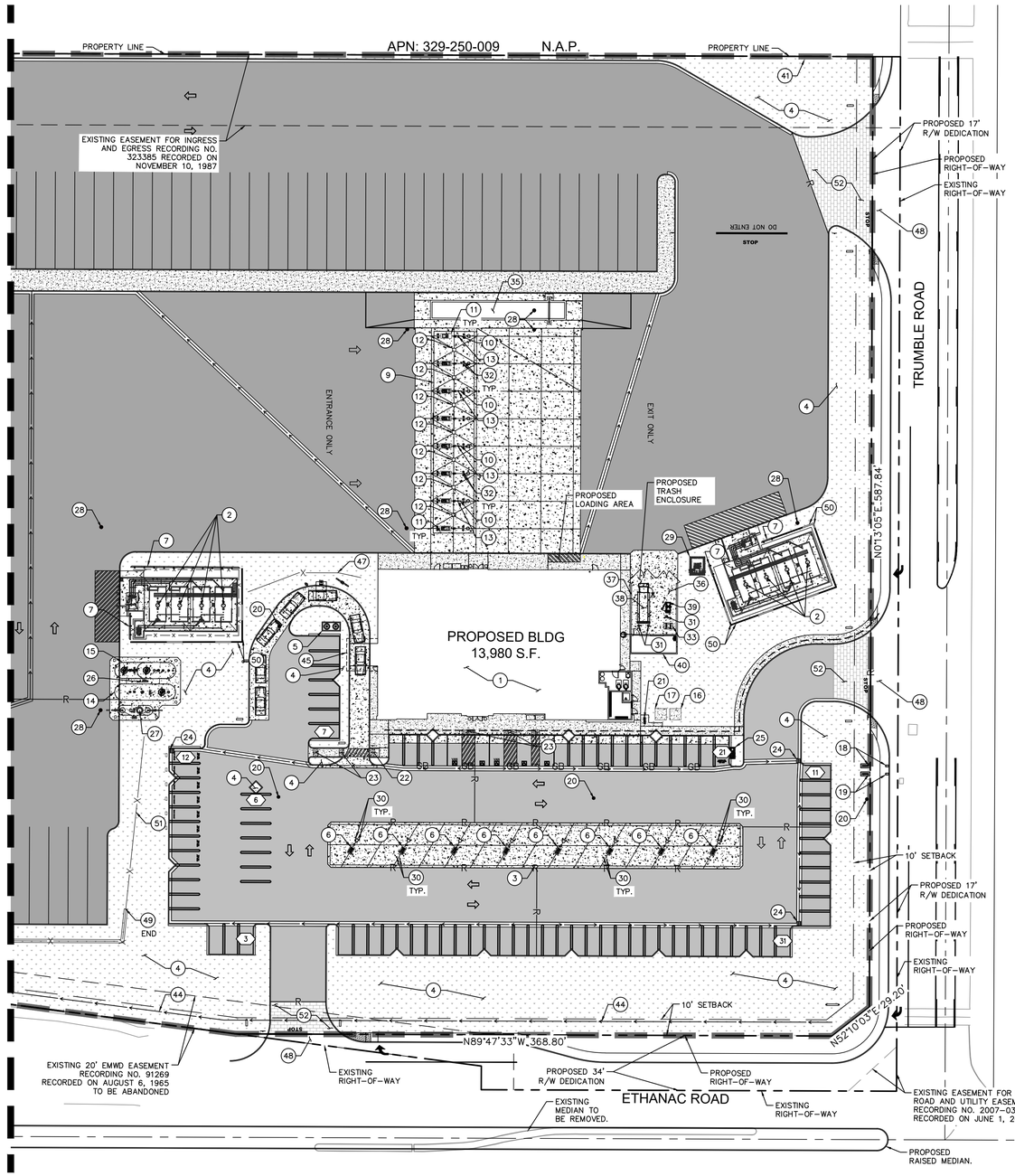
Kimley»Horn
765 THE CITY DRIVE SUITE 200, ORANGE, CA 92868
PHONE: 714-939-1030

PREPARED BY:
SHEA-MICHAEL ANTI R.C.E 78274 6/8/2022 DATE

SITE PLAN
PRELIMINARY PRECISE GRADING PLAN
PILOT PERRIS
ETHANAC ROAD AND TRUMBLE ROAD
APN: 329-250-011 & 329-250-012

SHEET NO. 3 OF 16 SHTS

PROJECT NUMBER: 095426010 FILE NO.:



LEGEND

- PROPERTY LINE CIVIL
- LIMITS OF WORK
- CENTER LINE
- SETBACKS
- EASEMENT LINE
- ACCESSIBLE ROUTE
- FENCE
- GRADE BREAK
- RIDGE LINE
- PARKING COUNT
- DETECTABLE WARNINGS
- DECORATIVE PAVEMENT
- STANDARD DUTY CONCRETE PAVEMENT
- HEAVY DUTY CONCRETE PAVEMENT
- HEAVY DUTY ASPHALT PAVEMENT
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49. PROPOSED 8' AMETCO TITAN DESIGN ALUMINUM FENCE (COLOR TO MATCH BUILDING) ON TOP OF 3' BERM. REFER TO SHEET 9-10 FOR MORE INFORMATION.
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52. PROPOSED DECORATIVE PAVEMENT.

NORTH

GRAPHIC SCALE IN FEET
0 20 40 80
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UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

BENCH MARK:
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MARK	BY	DATE	REVISIONS	APPR	DATE

ENGINEER | CITY

CITY OF PERRIS

APPROVED BY:

CONTRACT CITY ENGINEER | DATE

REGISTERED PROFESSIONAL ENGINEER SHEA-MICHAEL ANTI RCE NO. 78274 CIVIL STATE OF CALIFORNIA

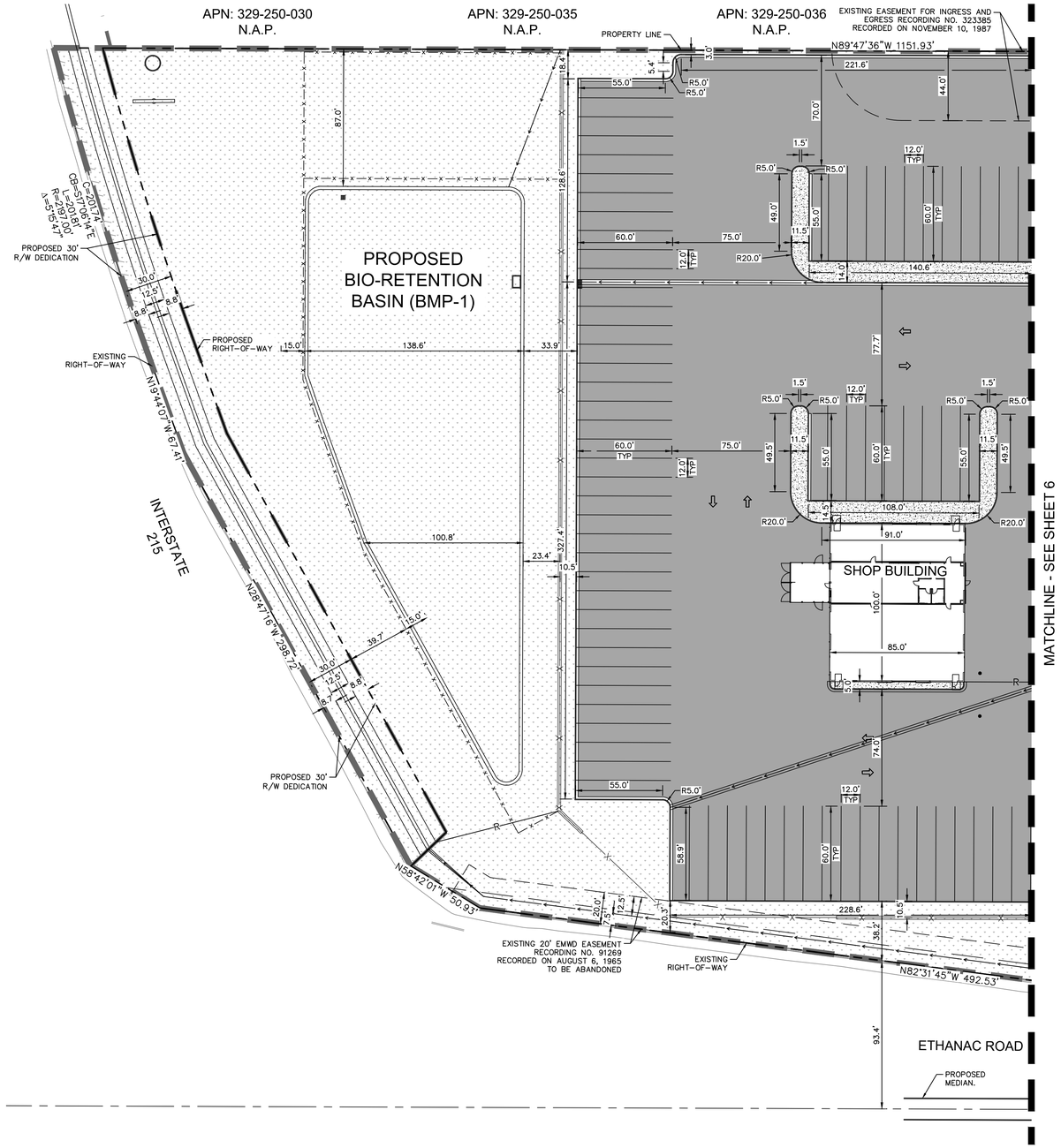
Kimley»Horn
765 THE CITY DRIVE SUITE 200, ORANGE, CA 92868
PHONE: 714-939-1030

PREPARED BY:
SHEA-MICHAEL ANTI R.C.E 78274 | 6/8/2022 DATE

SITE PLAN
PRELIMINARY PRECISE GRADING PLAN
PILOT PERRIS
ETHANAC ROAD AND TRUMBLE ROAD
APN: 329-250-011 & 329-250-012

SHEET NO. 4 OF 16 SHTS

PROJECT NUMBER: 095426010 | FILE NO.:



LEGEND

- PROPERTY LINE CIVIL
- LIMITS OF WORK
- CENTER LINE
- SETBACKS
- EASEMENT LINE
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- DECORATIVE PAVEMENT
- STANDARD DUTY CONCRETE PAVEMENT
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Kimley»Horn
765 THE CITY DRIVE SUITE 200, ORANGE, CA 92868
PHONE: 714-939-1030

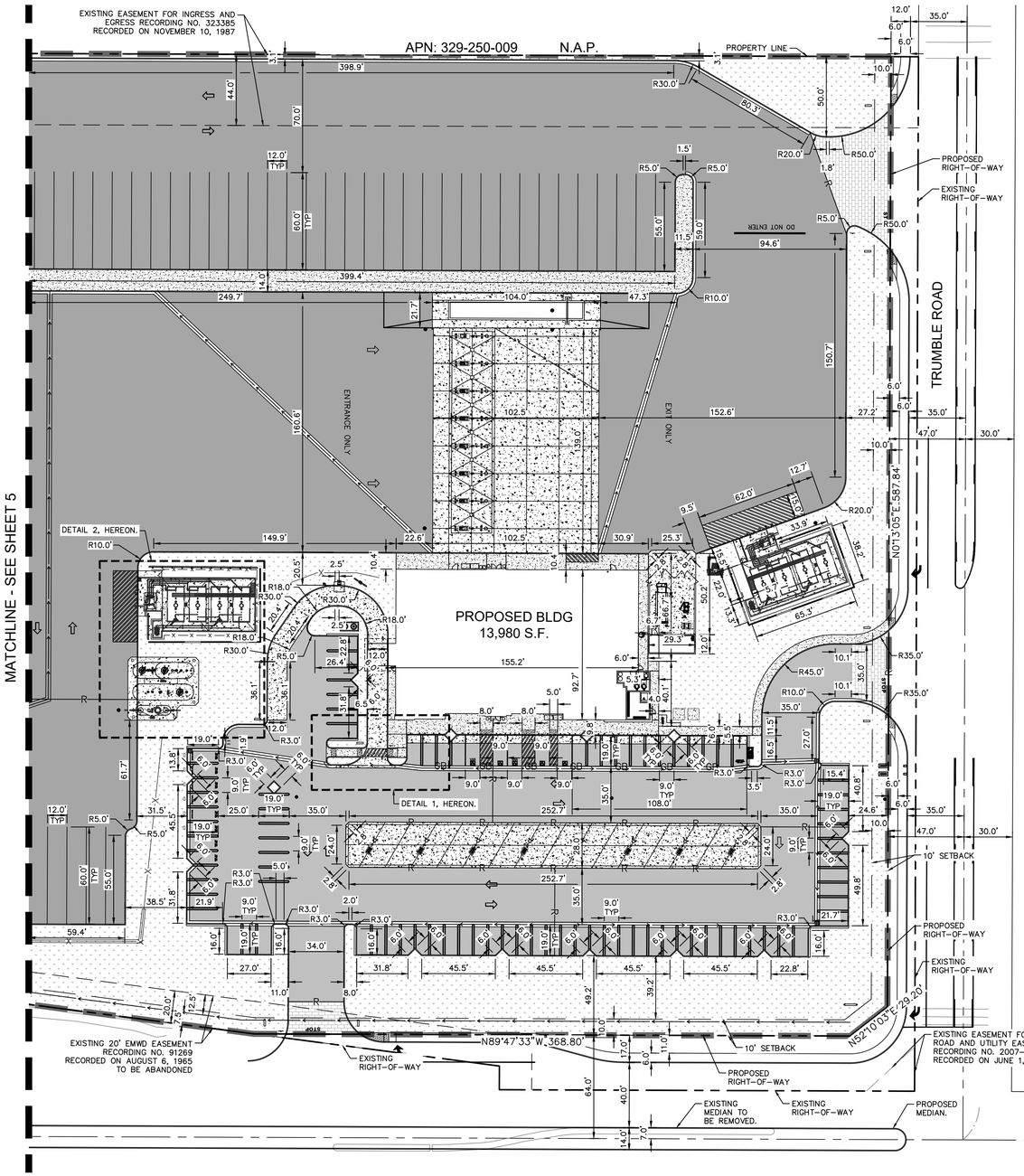
PREPARED BY:
SHEA-MICHAEL ANTI, R.C.E 78274 — 6/8/2022 DATE

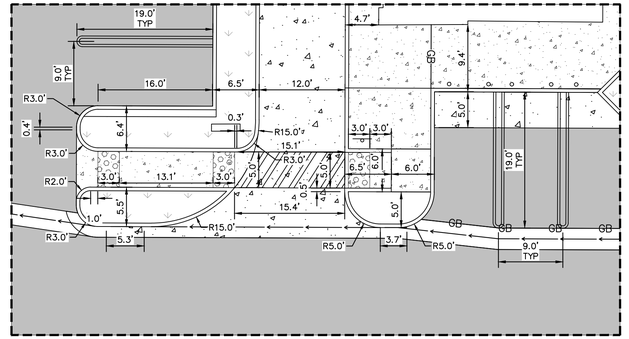
HORIZONTAL CONTROL PLAN
PRELIMINARY PRECISE GRADING PLAN
PILOT PERRIS
ETHANAC ROAD AND TRUMBLE ROAD
APN: 329-250-011 & 329-250-012

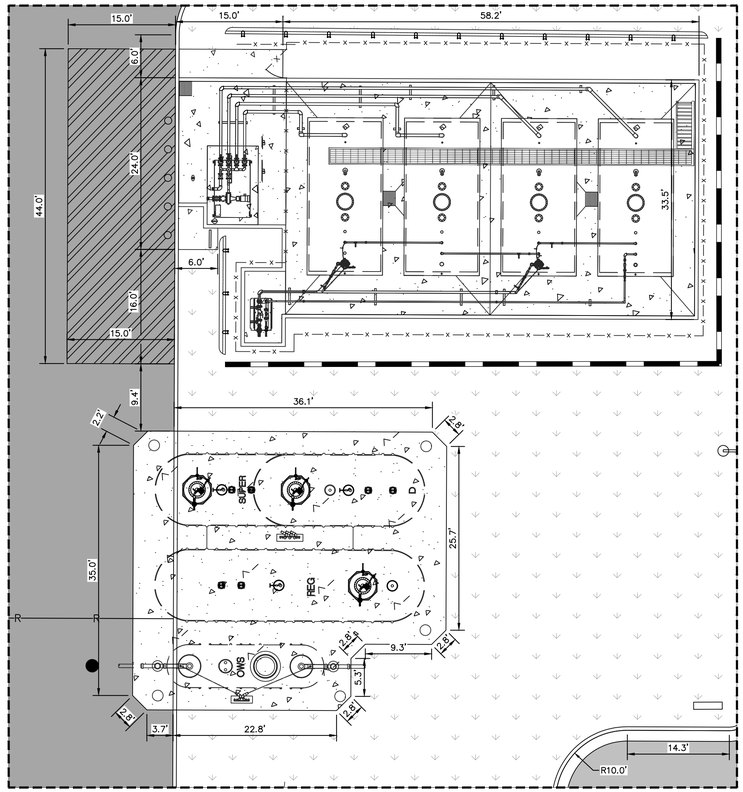
SHEET NO. 5 OF 16 SHTS

PROJECT NUMBER: 095426010

FILE NO.:







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CITY OF PERRIS

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PREPARED BY:
SHEA-MICHAEL ANTI R.C.E 78274 — 6/8/2022 DATE

HORIZONTAL CONTROL PLAN
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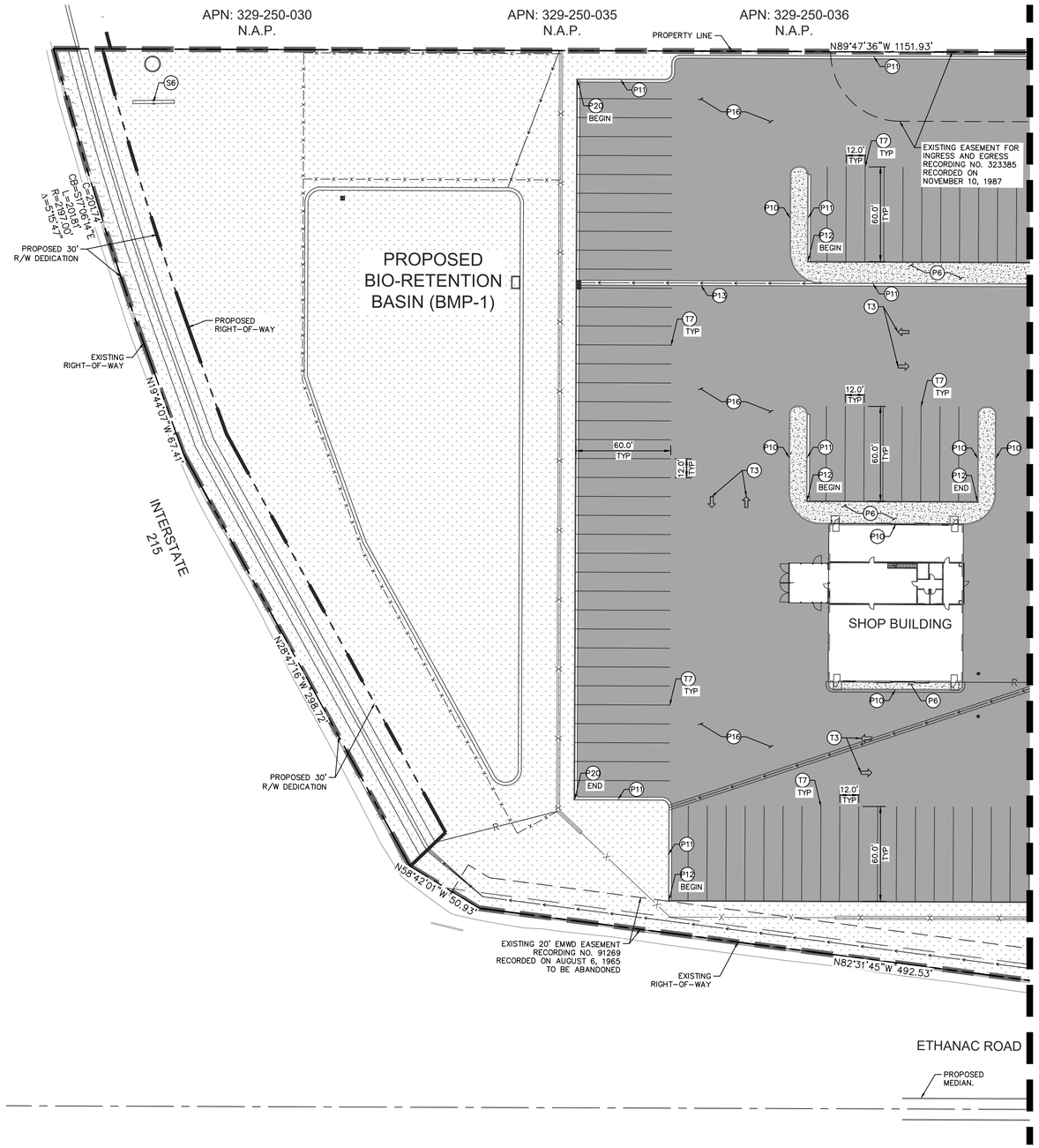
APN: 329-250-011 & 329-250-012

SHEET NO. 6
OF 16 SHTS

PROJECT NUMBER: 095426010
FILE NO.:



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- STANDARD DUTY ASPHALT PAVEMENT
- LANDSCAPE/ PLANTER AREA

PAVEMENT NOTES

(P1) 6" REINFORCED CONCRETE PAD FOR AUTO CANOPY. WATER FROM SITE SHOULD NOT DRAIN ACROSS THE CONCRETE PAD FOR THE AUTO CANOPY. ASPHALT PAVING ON ALL (4) SIDES OF THE CONCRETE PAD SHOULD DRAIN AWAY FROM CONCRETE PAD. SEE DETAIL X SHEET X, INSTALLED BY CONTRACTOR.

(P2) 8" REINFORCED CONCRETE PAD FOR TRUCK CANOPY. WATER FROM SITE SHOULD NOT DRAIN ACROSS THE CONCRETE PAD FOR THE TRUCK CANOPY. ASPHALT PAVING ON BOTH SIDES OF THE CONCRETE PAD SHOULD DRAIN AWAY FROM CONCRETE PAD. CONCRETE PAD FOR THE TRUCK CANOPY MUST DRAIN TO CATCH BASIN. SEE DETAIL X SHEET X. INSTALLED BY CONTRACTOR.

(P3) 8" REINFORCED CONCRETE PAD AT TANK FARM. SEE DETAIL X SHEET X. INSTALLED BY CONTRACTOR.

(P4) 8" REINFORCED CONCRETE PAD TRASH ENCLOSURE. SEE DETAIL X SHEET X. INSTALLED BY CONTRACTOR.

(P5) 6" REINFORCED CONCRETE PARKING APRON AT PARKING SPACES IN FRONT OF BUILDING. SEE DETAIL X SHEET X. INSTALLED BY CONTRACTOR.

(P6) 4" REINFORCED CONCRETE SIDEWALK. SEE DETAIL X SHEET X. INSTALLED BY CONTRACTOR.

(P7) 7'-0" X 7'-0" X 6" REINFORCED CONCRETE PAD FOR ELECTRICAL TRANSFORMER. CONTRACTOR TO COORDINATE WITH UTILITY COMPANY FOR SIZE AND REINFORCING REQUIREMENTS. INSTALLED BY CONTRACTOR.

(P8) 8" REINFORCED CONCRETE PAD AT OIL/WATER SEPARATOR. SEE DETAIL X SHEET X. INSTALLED BY CONTRACTOR.

(P9) SEE BUILDING PLANS FOR AST AND BIO SHED FOUNDATION DESIGN.

(P10) STANDARD DUTY 6" CURB. SEE DETAIL X SHEET X. INSTALLED BY CONTRACTOR.

(P11) STANDARD DUTY CURB AND GUTTER. SEE DETAIL X SHEET X. INSTALLED BY CONTRACTOR.

(P12) HEAVY DUTY CURB. SEE DETAIL X SHEET X. INSTALLED BY CONTRACTOR.

(P13) INSTALL RIBBON GUTTER PER DETAIL X, SHEET X.

(P14) 0" ELEVATION CURB. SEE GRADING PLANS FOR DETAILS AND SPECIFICATIONS.

(P15) 8" REINFORCED CONCRETE RAMP FOR CAT SCALE.

(P16) CONSTRUCT HEAVY DUTY ASPHALT PAVEMENT PER DETAIL X SHEET X.

(P17) CONSTRUCT STANDARD DUTY ASPHALT PAVEMENT DETAIL X SHEET X.

(P18) CONSTRUCT THICKENED EDGE PER DETAIL X, SHEET X.

(P19) CONSTRUCT CONCRETE WALK-OFF PER DETAIL X, SHEET X.

(P20) HEAVY DUTY CURB AND GUTTER PER DETAIL X, SHEET X.

(P21) DECORATIVE PAVEMENT

STRIPING NOTES

(T1) INSTALL ACCESSIBLE PATH OF TRAVEL STRIPING.

(T2) INSTALL ACCESSIBLE STRIPING PARKING STALL AND ACCESSIBLE PARKING SYMBOL.

(T3) ALL DIRECTIONAL AND PARKING STRIPING TO BE SAFETY YELLOW-UNLESS NOTED OTHERWISE (TYP).

(T4) STOP LINE INSTALLED BY CONTRACTOR.

(T5) 5'-0" X 20'-0" PASSENGER DROP-OFF/LOADING ZONE. TRAFFIC STRIPING 4" WIDE PAINTED (SAFETY YELLOW) PARALLEL STRIPES AT 16" O.C. FURNISHED AND INSTALLED BY CONTRACTOR.

(T6) 4" YELLOW DOUBLE HAIRPIN STRIPING, TYP. (COLOR PER CITY CODE).

(T7) 4" YELLOW PAINTED SOLID LINE, TYP. (COLOR PER CITY CODE).

(T8) PROPOSED "PARKING FOR SERVICE ISLAND USE ONLY." PAVEMENT MARKING.

(T9) PROPOSED "CLEAN AIR/ VAN POOL." PAVEMENT MARKING.

(T10) PROPOSED FUTURE EVCS PARKING STALLS.

(T11) PROPOSED "ENTRANCE ONLY" PAVEMENT MARKING.

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SIGNING NOTES

(S1) INSTALL ACCESSIBLE PARKING STALL SIGN PER DETAIL X SHEET X AND SINGLE BASE SIGN POST PER DETAIL X SHEET X.

(S2) INSTALL VAN ACCESSIBLE PARKING STALL SIGN PER DETAIL X SHEET X AND SINGLE BASE SIGN POST PER DETAIL X SHEET X.

(S3) "PASSENGER LOADING ZONE ONLY" SIGN FURNISHED AND INSTALLED BY CONTRACTOR SHALL BE WALL MOUNTED.

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(S5) "PED-XING" SIGN FURNISHED AND INSTALLED BY CONTRACTOR.

(S6) SEE BUILDING PLANS DRAWINGS FOR ALL OTHER SIGNAGE.

(S7) RESTAURANT "DRIVE-THRU" (INTERNALLY ILLUMINATED) DIRECTIONAL SIGN FURNISHED BY OWNER, INSTALLED BY SIGN SUPPLIER. CONCRETE FOUNDATION AND ELECTRICAL INSTALLED BY CONTRACTOR.

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GENERAL PAVING NOTES

1. ALL MANHOLES MUST BE SET 2" HIGHER THAN PAVING TO PROVIDE A CROWN IN A 24"Ø AREA AROUND EACH MANHOLE.
2. SUB-BASE MUST BE COMPACTED TO 95% STANDARD PROCTOR WITH A WATER CONTENT WITHIN 1.5% OF OPTIMUM.
3. STONE BASE MUST BE COMPACTED TO 95% STANDARD PROCTOR WITH A WATER CONTENT WITHIN 1.5% OF OPTIMUM.
4. PRIOR TO INSTALLING BITUMINOUS PAVING CONTRACTOR IS TO PROOF-ROLL SUB-BASE USING HEAVY, PNEUMATIC-TIRED ROLLERS TO LOCATE AREAS THAT ARE UNSTABLE OR THAT REQUIRE FURTHER COMPACTION. NOTIFY CONSTRUCTION MANAGER IN WRITING OF ANY UNSATISFACTORY CONDITIONS. DO NOT BEGIN PAVING INSTALLATION UNTIL THESE CONDITIONS HAVE BEEN SATISFACTORILY CORRECTED.
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6. CONCRETE COLLAR IS REQUIRED FOR ALL STRUCTURES IN PAVEMENT.

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1" = 40'
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MARK	BY	DATE	REVISIONS	APPR	DATE
ENGINEER				CITY	

CITY OF PERRIS

APPROVED BY:

CONTRACT CITY ENGINEER — DATE

REGISTERED PROFESSIONAL ENGINEER SHEA-MICHAEL ANTI RCE NO. 78274 CIVIL STATE OF CALIFORNIA

Kimley»Horn
765 THE CITY DRIVE SUITE 200, ORANGE, CA 92868
PHONE: 714-939-1030

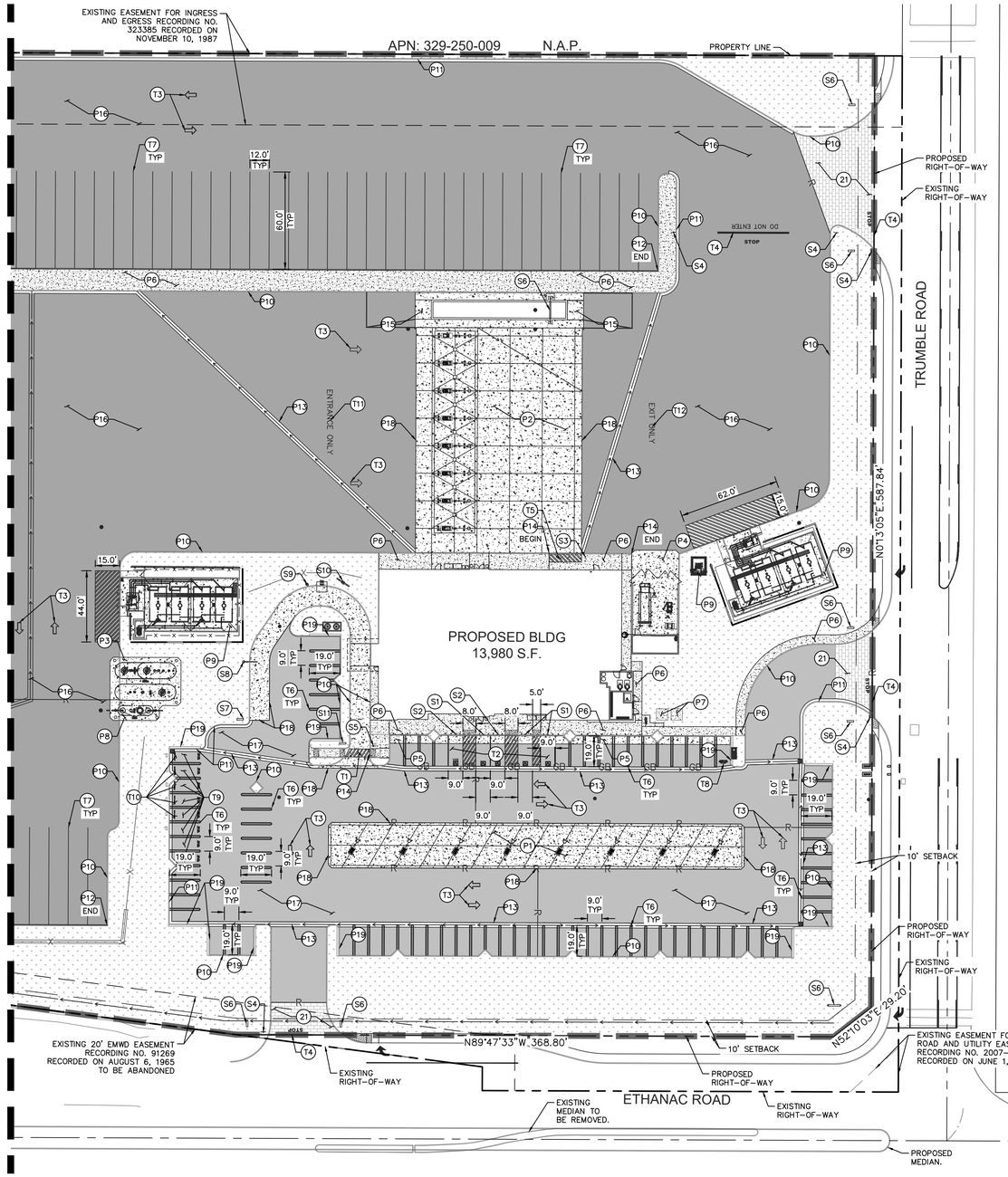
PREPARED BY:
SHEA-MICHAEL ANTI R.C.E 78274 — 6/8/2022 DATE

SIGNING, STRIPING, AND PAVEMENT PLAN
PRELIMINARY PRECISE GRADING PLAN
PILOT PERRIS
ETHANAC ROAD AND TRUMBLE ROAD
APN: 329-250-011 & 329-250-012

SHEET NO. 7 OF 16 SHTS

PROJECT NUMBER: 085426010

FILE NO.:



LEGEND

- PROPERTY LINE CIVIL
- LIMITS OF WORK
- CENTER LINE
- SETBACKS
- EASEMENT LINE
- ACCESSIBLE ROUTE
- FENCE
- DETECTABLE WARNINGS
- DECORATIVE PAVEMENT
- STANDARD DUTY CONCRETE PAVEMENT
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CITY OF PERRIS

APPROVED BY: _____ _____
CONTRACT CITY ENGINEER — DATE

REGISTERED PROFESSIONAL ENGINEER
SHEA-MICHAEL ANTI
RCE NO. 78274
STATE OF CALIFORNIA
CIVIL

Kimley»Horn
765 THE CITY DRIVE SUITE 200, ORANGE, CA 92868
PHONE: 714-939-1030

PREPARED BY: _____ 6/8/2022
SHEA-MICHAEL ANTI R.C.E 78274 DATE

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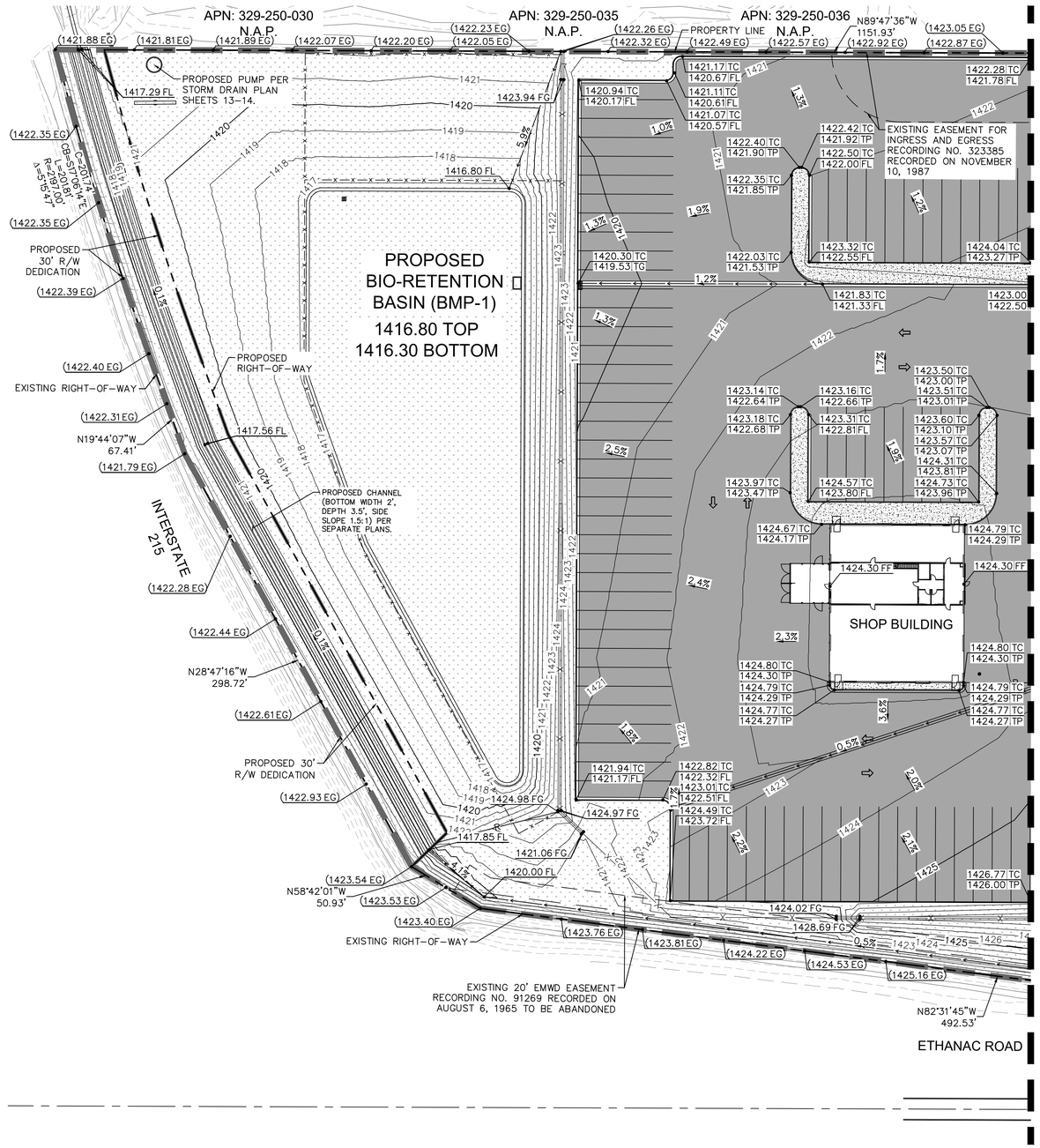
PRELIMINARY PRECISE GRADING PLAN
PILOT PERRIS
ETHANAC ROAD AND TRUMBLE ROAD
APN: 329-250-011 & 329-250-012

SHEET NO. 8 OF 16 SHTS

PROJECT NUMBER: 095426010 — FILE NO.:



LEGEND

- PROPERTY LINE CIVIL
- LIMITS OF WORK
- CENTER LINE
- SETBACKS
- EASEMENT LINE
- GRADE BREAK (GB)
- RIDGE LINE (R)
- PROPOSED ELEVATION (1422.27 TC) (1421.77 TP)
- EXISTING ELEVATION 1422.27 TC 1421.77 TP
- SLOPE 1.2%
- DETECTABLE WARNINGS
- STANDARD DUTY CONCRETE PAVEMENT
- HEAVY DUTY CONCRETE PAVEMENT
- HEAVY DUTY ASPHALT PAVEMENT
- STANDARD DUTY ASPHALT PAVEMENT
- LANDSCAPE/ PLANTER AREA
- DECORATIVE PAVEMENT

ABBREVIATIONS:

EG	EXISTING GROUND
FF	FINISHED FLOOR ELEVATION
FS	FINISH SURFACE
FG	FINISH GROUND
FL	FLOW LINE
GB	GRADE BREAK
HP	HIGH POINT
N.A.P	NOT A PART
TC	TOP OF CURB
TG	TOP OF GRATE
TP	TOP OF PAVEMENT

GRADING NOTES

1. CONTRACTOR TO VERIFY ALL EXISTING TOPOGRAPHY AND STRUCTURES ON THE SITE AND IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO STARTING WORK.
2. ALL PAVEMENT SPOT GRADE ELEVATIONS AND RIM ELEVATIONS WITHIN OR ALONG CURB AND GUTTER REFER TO FLOW LINE ELEVATIONS UNLESS OTHERWISE NOTED.
3. ALL ELEVATIONS SHOWN DEPICT FINISHED GRADE OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED. GENERAL CONTRACTOR TO COORDINATE WITH EXCAVATION, LANDSCAPE AND PAVING SUBCONTRACTORS REGARDING TOPSOIL THICKNESS FOR LANDSCAPE AREAS AND PAVEMENT SECTION THICKNESS FOR PAVED AREAS TO PROPERLY ENSURE ADEQUATE CUT TO ESTABLISH SUBGRADE ELEVATIONS.
4. NO EARTHEN SLOPE SHALL BE GREATER THAN 2:1, UNLESS OTHERWISE NOTED.
5. MAXIMUM SLOPE IN ACCESSIBLE PARKING SPACES AND LOADING ZONES SHALL NOT EXCEED 2.0% IN ALL DIRECTIONS.
6. MAXIMUM RUNNING SLOPE SHALL NOT EXCEED 5% AND CROSS SLOPE SHALL NOT EXCEED 2% ON ALL SIDEWALKS AND ACCESSIBLE ROUTES.
7. MATCH EXISTING ELEVATIONS AT THE PROPERTY LIMITS.
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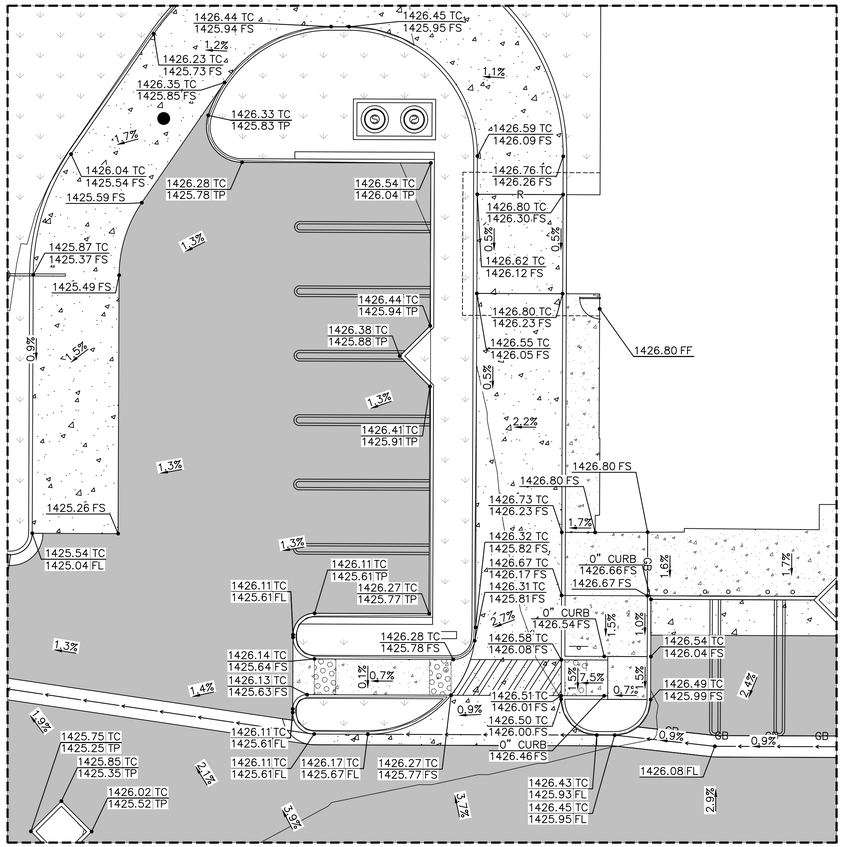
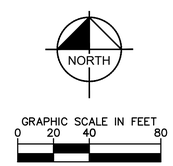
11. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF PERRIS STANDARDS AND SPECIFICATIONS.



DETAIL 1
1"=10'



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ENGINEER | CITY

CITY OF PERRIS

APPROVED BY:

CONTRACT CITY ENGINEER | DATE

REGISTERED PROFESSIONAL ENGINEER
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PREPARED BY:
SHEA-MICHAEL ANTI R.C.E 78274 | 6/8/2022 DATE

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SHEET NO. 9 OF 16 SHTS

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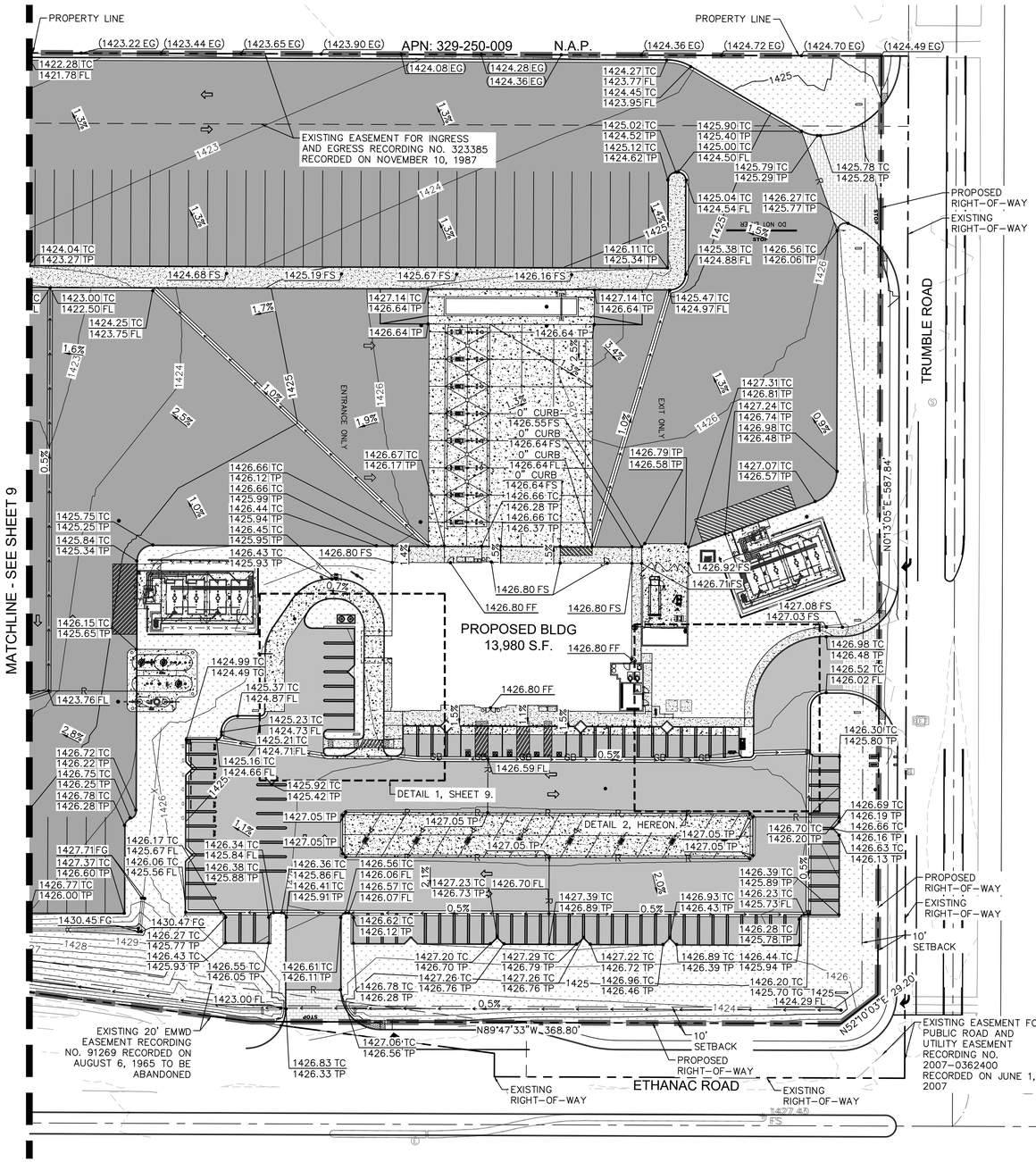

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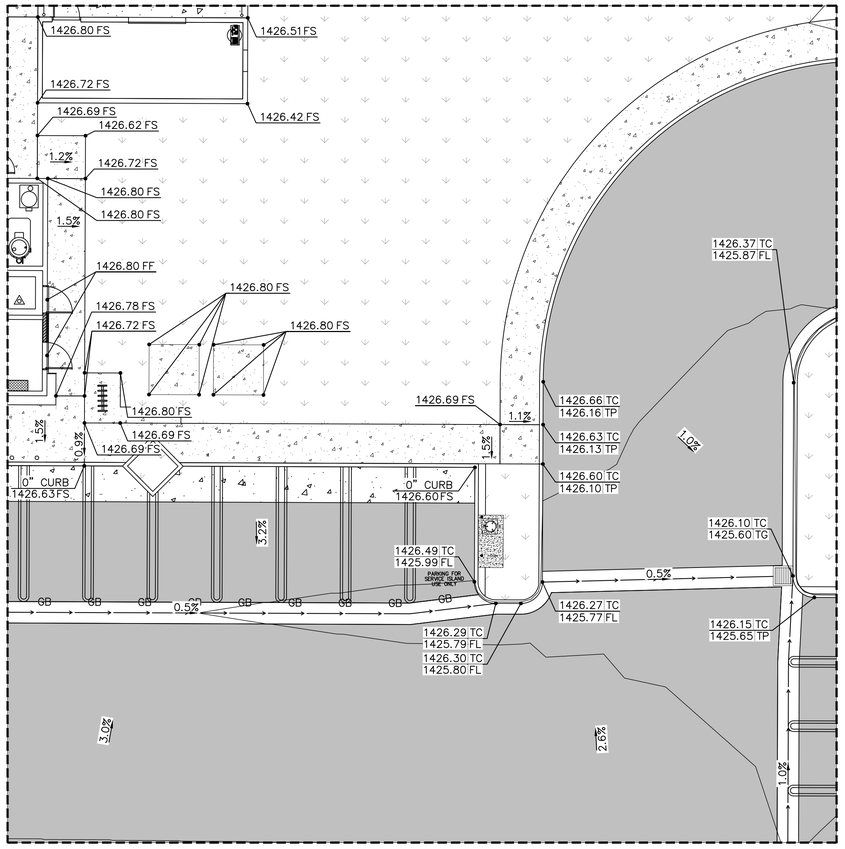
9. EARTHWORK AND PAVING SPECIFICATION PER GEOTECHNICAL REPORT.
10. A GRADING PERMIT FROM THE CITY OF PERRIS WILL BE REQUIRED PRIOR TO COMMENCEMENT OF WORK.
11. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF PERRIS STANDARDS AND SPECIFICATIONS.



DETAIL 2

1"=10'

NORTH

GRAPHIC SCALE IN FEET
0 20 40 80
1" = 40'
WHEN PRINTED AT FULL SIZE (24"X36")

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UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

BENCH MARK:
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MARK	BY	DATE	REVISIONS	APPR	DATE

ENGINEER | CITY

CITY OF PERRIS

APPROVED BY:

CONTRACT CITY ENGINEER — DATE

REGISTERED PROFESSIONAL ENGINEER — SHEA-MICHAEL ANTI — RCE NO. 78274 — STATE OF CALIFORNIA — CIVIL

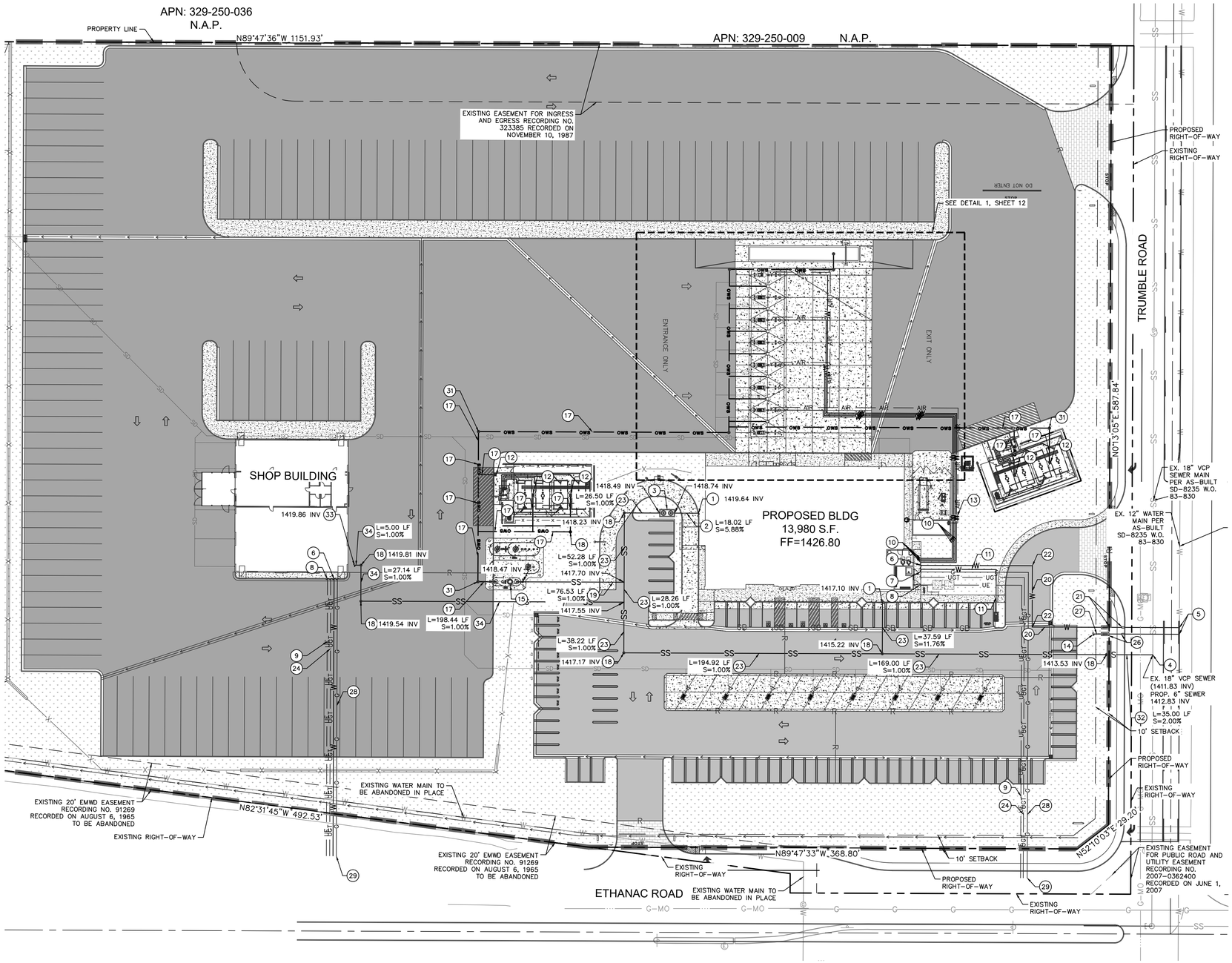
Kimley»Horn
765 THE CITY DRIVE SUITE 200, ORANGE, CA 92868
PHONE: 714-939-1030

PREPARED BY:
SHEA-MICHAEL ANTI R.C.E 78274 — 6/8/2022 DATE

GRADING PLAN
PRELIMINARY PRECISE GRADING PLAN
PILOT PERRIS
ETHANAC ROAD AND TRUMBLE ROAD
APN: 329-250-011 & 329-250-012

SHEET NO. 10 OF 16 SHTS

PROJECT NUMBER: 095426010 | FILE NO.:



LEGEND

- PROPERTY LINE CIVIL
- LIMITS OF WORK
- CENTER LINE
- SETBACKS
- EASEMENT LINE
- SS — PROPOSED SANITARY SEWER
- SD — PROPOSED STORM DRAIN PIPE
- AIR — PROPOSED AIR
- W — PROPOSED WATER PIPE
- OWS — PROPOSED OIL WATER SEPARATOR
- UGT — PROPOSED TELEPHONE LINE
- UE — PROPOSED UNDERGROUND ELECTRIC

UTILITY PLAN CONSTRUCTION NOTES

1. CONTRACTOR TO CONNECT TO 6" BUILDING SANITARY SEWER LINE. (4.00' MIN. BELOW FF)
2. CONTRACTOR TO CONNECT 6" BUILDING SANITARY SEWER LINE FROM BUILDING TO THE GREASE TRAP. INVERT ELEVATION AT THE GREASE TRAP OUTLET PER PLAN.
3. INSTALL GREASE TRAP. REFER TO MEP PLANS FOR MORE INFORMATION.
4. CONNECT INTO EXISTING 18" VCP SEWER MAIN PER EMWD STANDARDS AND SPECIFICATION. GENERAL CONTRACTOR SHALL VERIFY INVERT ELEVATION AT CONNECTION PRIOR TO COMMENCEMENT OF WORK. GENERAL CONTRACTOR TO NOTIFY ENGINEER OF ANY DISCREPANCIES.
5. HOT TAP INTO EXISTING 12" WATER MAIN. CONTRACTOR TO COORDINATE WITH UTILITY SERVICE PROVIDER.
6. CONTRACTOR TO CONNECT TO 2" WATER SERVICE LINE AT THE BUILDING. WATER SERVICE LINE SHALL BE COPPER.
7. CONTRACTOR TO CONNECT TO 3" GAS LINE AT THE BUILDING.
8. CONTRACTOR TO INSTALL ELECTRICAL SERVICE LINE FROM ELECTRICAL TRANSFORMER PAD TO BUILDING ELECTRICAL PANELS.
9. CONTRACTOR TO INSTALL AND/OR COORDINATE ELECTRICAL SERVICE LINE FROM ELECTRICAL TRANSFORMER TO THE LOCATION WHERE THE LOCAL UTILITY BRINGS SERVICE.
10. CONTRACTOR TO INSTALL 3/4" PEX WATER LINES INSIDE OF 2" PVC SLEEVES FROM BUILDING TO TRUCK FREEZE PROOF WATER STAND (FURNISHED AND INSTALLED BY CONTRACTOR) LOCATED AT EVERY OTHER TRUCK FUELING ISLAND. PEX AND PVC SLEEVE TO BE PROVIDED AND INSTALLED BY CONTRACTOR. SEE CIVIL SHEETS FOR DETAILS.
11. CONTRACTOR TO INSTALL 1/2" PEX WATER LINE INSIDE OF 2" PVC SLEEVE FROM BUILDING TO AUTO AIR/WATER STAND (TYP. (1) PLACE). PEX AND SLEEVE TO BE PROVIDED AND INSTALLED BY CONTRACTOR.
12. INSTALL PREFABRICATED TRUCK ISLAND CATCH BASIN 2' BY 2' FOR OIL/WATER SEPARATION.
13. CONTRACTOR TO INSTALL 1/2" COPPER AIR LINE FROM AIR COMPRESSOR IN THE YARD MAINTENANCE BUILDING TO THE TRUCK AIR STAND LOCATED AT EVERY OTHER TRUCK FUELING ISLAND. SEE TC SHEETS FOR DETAILS.
14. REFER TO LANDSCAPE AND IRRIGATION PLANS FOR CONTINUATION.
15. PROPOSED OIL/WATER SEPARATOR.
16. CONTRACTOR TO INSTALL 4" SCHEDULE 40 PVC PIPE AND GLUED FITTINGS FROM THE TRUCK CANOPY PAD CATCH BASIN – TYPICAL AT EACH DRAIN. NO "FERNCO" TYPE FITTINGS ALLOWED AT ANY PART OF THE OWS PIPING SYSTEM.
17. CONTRACTOR TO INSTALL 6" SCHEDULE 40 PVC PIPE AND GLUED FITTINGS FROM 4" PVC CATCH BASIN LINES TO INLET OF OIL/WATER INTERCEPTOR. INVERT ELEVATION AT INTERCEPTOR INLET PER PLAN. NO "FERNCO" TYPE FITTINGS ALLOWED AT ANY PART OF THE OWS PIPING SYSTEM.
18. INSTALL SEWER CLEANOUT PER DETAIL 1, SHEET 12.
19. CONTRACTOR TO FURNISH AND INSTALL 6" SCHEDULE 40 PVC PIPE AND GLUED FITTINGS FROM OIL/WATER SEPARATOR TO THE SEWER PIPE. INVERT ELEVATION AT OIL/WATER SEPARATOR OUTLET PER PLAN. INVERT ELEVATION AT THE STORM POND INLET PER PLAN. NO "FERNCO" TYPE FITTINGS ALLOWED AT ANY PART OF THE OWS PIPING SYSTEM.
20. INSTALL 2-1/2" COPPER WATER SERVICE LINE. MAINTAIN 3' MINIMUM COVER.
21. INSTALL WATER METER AND BACKFLOW PREVENTOR. CONTRACTOR TO COORDINATE WITH UTILITY SERVICE PROVIDER.
22. INSTALL 90° DOMESTIC WATER PIPE BEND.
23. INSTALL 6" SDR-35 PVC AT MINIMUM 1% SLOPE.
24. CONTRACTOR TO INSTALL (2) 4" PVC SCH 40 CONDUIT BURIED TO MIN. DEPTH OF 24" W/200 LB. PULL STRING AND CAPPED ON BOTH ENDS FOR TELEPHONE SERVICE, TO LOCATION WHERE LOCAL UTILITY BRINGS SERVICE. MINIMUM 3 FT. SWEEPING RADIUS (NO RIGHT ANGLES), NO MORE THAN THREE 90 DEGREE TURNS WITHOUT A PULL BOX (12"x12"x18" MINIMUM), AND PATHS LONGER THAN 300 FT. WILL REQUIRE A PULL BOX.
25. CONTRACTOR TO INSTALL 3" PVC FROM TRUCK SCALE SUMP TO 6" TRUNK LINE TO GRIT CHAMBER.
26. INSTALL 1" IRRIGATION METER AND 1.5" BACKFLOW PREVENTOR. CONTRACTOR TO COORDINATE WITH UTILITY SERVICE PURVEYOR.
27. INSTALL 1" IRRIGATION WATER SERVICE LINE. CONTRACTOR TO COORDINATE WITH UTILITY SERVICE PURVEYOR.
28. PROPOSED GAS LINE. COORDINATE WITH GAS UTILITY COMPANY.
29. CONNECT TO EXISTING GAS MAIN BY OTHERS.
30. CONTRACTOR TO MAINTAIN A VERTICAL SEPARATION OF A MINIMUM OF 1-FOOT FOR ALL UTILITY CROSSINGS SHOWN ON THIS PLAN PER DETAIL 2, SHEET 12.
31. CLEANOUT FOR OIL/WATER SEPARATOR. REFER TO MEP PLANS FOR MORE INFORMATION.
32. INSTALL 6" VCP SEWER LATERAL AT MINIMUM 2% SLOPE.
33. CONTRACTOR TO CONNECT TO 4" BUILDING SANITARY SEWER LINE. (4.00' MIN. BELOW FF)
34. INSTALL 4" SDR-35 PVC AT MINIMUM 1% SLOPE.

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- ALL SHUT DOWN OF EXISTING WATER MAIN TO BE DONE BY AND COORDINATED WITH THE CITY UTILITY DIVISION. CONTRACTOR SHALL NOTIFY ALL AFFECTED WATER USERS 72 HOURS IN ADVANCE OF SHUT DOWN.

GENERAL NOTES

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4. STUB POINT OF CONNECTION 5' FROM BUILDING. REFER TO MEP PLAN FOR CONTINUATION OF BUIDING.
5. CONTRACTOR TO MAINTAIN A VERTICAL SEPARATION OF A MINIMUM OF 1-FOOT FOR ALL UTILITY CROSSINGS SHOWN ON THIS PLAN PER DETAIL X, SHEET XX.

WATER AND SEWER UTILITY NOTES

SEE SHEET 2, FOR WATER AND SEWER UTILITY NOTES.

NORTH

GRAPHIC SCALE IN FEET
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1" = 40'
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CITY OF PERRIS

APPROVED BY:

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REGISTERED PROFESSIONAL ENGINEER SHEA-MICHAEL ANTI RCE NO. 78274 CIVIL STATE OF CALIFORNIA

Kimley»Horn
765 THE CITY DRIVE SUITE 200, ORANGE, CA 92868
PHONE: 714-939-1030

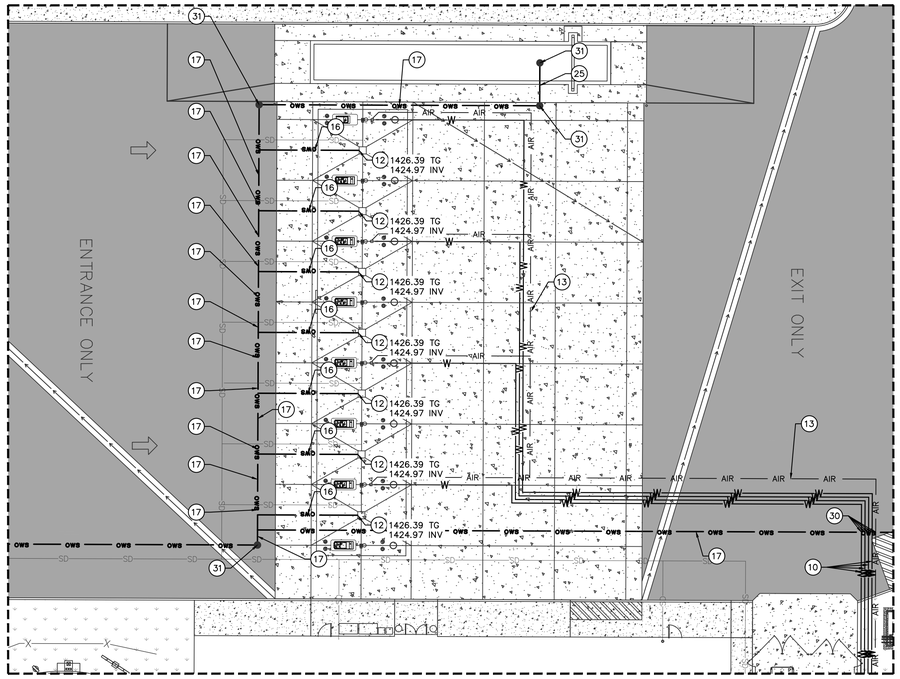
PREPARED BY:
SHEA-MICHAEL ANTI R.C.E 78274 6/8/2022 DATE

UTILITY PLAN
PRELIMINARY PRECISE GRADING PLAN
PILOT PERRIS
ETHANAC ROAD AND TRUMBLE ROAD
APN: 329-250-011 & 329-250-012

SHEET NO. 11 OF 16 SHTS

PROJECT NUMBER: 095426010

FILE NO.:



DETAIL 1
1"=20'

LEGEND

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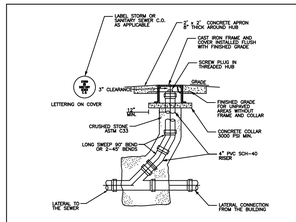
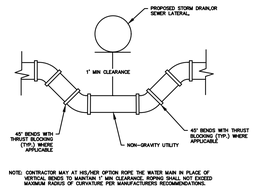


CLEAN OUT DETAIL
N.T.S.

1



NOTE: CONTRACTOR MAY AT HIS/HER OPTION ROPE THE WATER MAIN IN PLACE OF VERTICAL BENDS TO MAINTAIN 1' MIN CLEARANCE. ROPING SHALL NOT EXCEED MAXIMUM RADIUS OF CURVATURE PER MANUFACTURERS RECOMMENDATIONS.

WATER CROSSING DETAIL
N.T.S.

2

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ENGINEER — CITY

CITY OF PERRIS

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SHEA-MICHAEL ANTI
RCE NO. 78274
STATE OF CALIFORNIA
CIVIL

Kimley»Horn
765 THE CITY DRIVE SUITE 200, ORANGE, CA 92868
PHONE: 714-939-1030

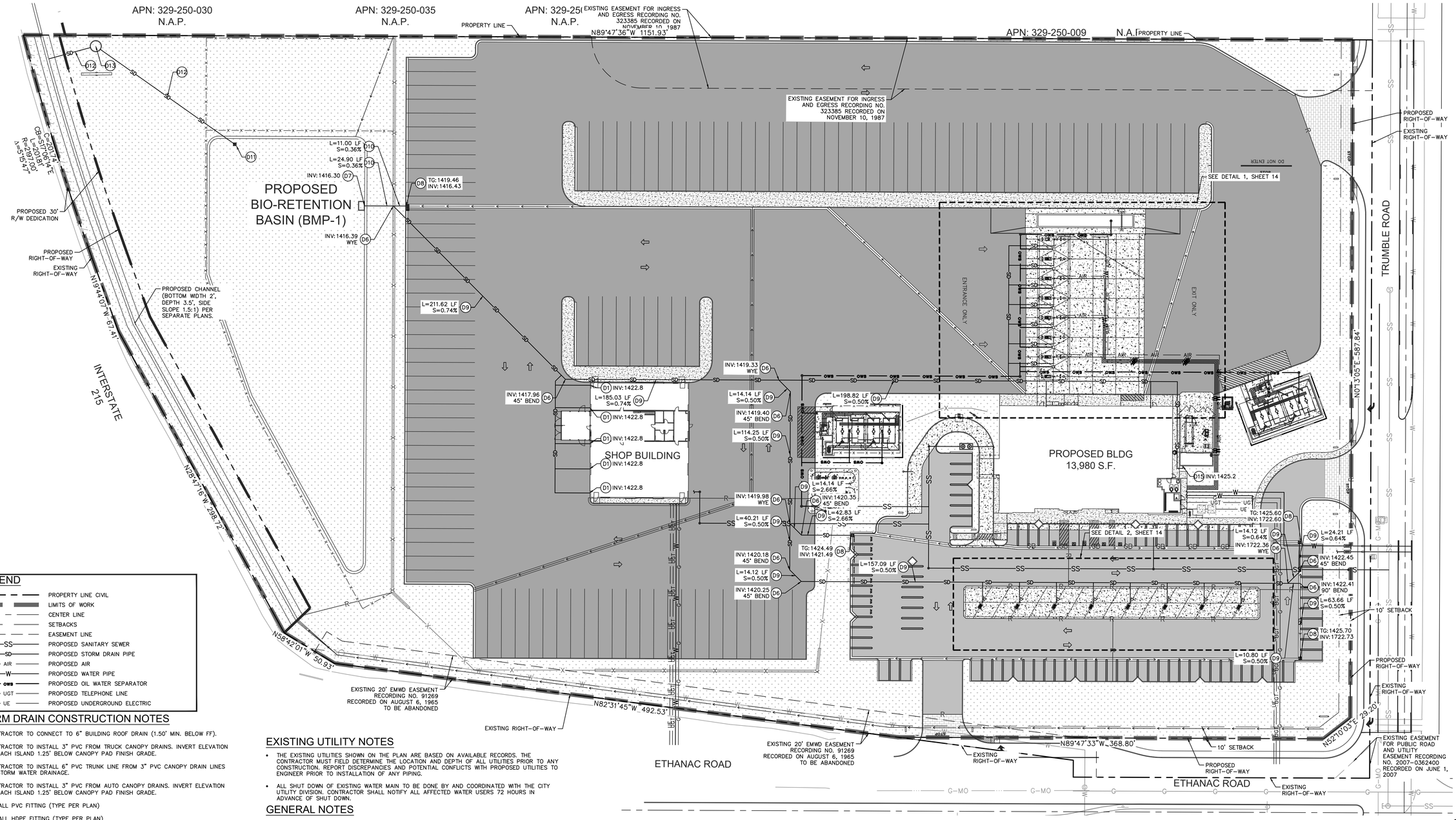
PREPARED BY:
SHEA-MICHAEL ANTI R.C.E 78274 — 6/8/2022 DATE

UTILITY PLAN BLOW UPS
PRELIMINARY PRECISE GRADING PLAN
PILOT PERRIS
ETHANAC ROAD AND TRUMBLE ROAD
APN: 329-250-011 & 329-250-012

PROJECT NUMBER: 095426010

SHEET NO. 12
OF 16 SHTS

FILE NO.:



LEGEND

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STORM DRAIN CONSTRUCTION NOTES

(D1) CONTRACTOR TO CONNECT TO 6" BUILDING ROOF DRAIN (1.50' MIN. BELOW FF).

(D2) CONTRACTOR TO INSTALL 3" PVC FROM TRUCK CANOPY DRAINS. INVERT ELEVATION AT EACH ISLAND 1.25' BELOW CANOPY PAD FINISH GRADE.

(D3) CONTRACTOR TO INSTALL 6" PVC TRUNK LINE FROM 3" PVC CANOPY DRAIN LINES TO STORM WATER DRAINAGE.

(D4) CONTRACTOR TO INSTALL 3" PVC FROM AUTO CANOPY DRAINS. INVERT ELEVATION AT EACH ISLAND 1.25' BELOW CANOPY PAD FINISH GRADE.

(D5) INSTALL PVC FITTING (TYPE PER PLAN)

(D6) INSTALL HDPE FITTING (TYPE PER PLAN)

(D7) CONSTRUCT SAND FOREBAY PER DETAIL X ON SHEET X

(D8) INSTALL NYLOPLAST 12" DRAIN BASIN WITH SUMP INSERT 2' BY 2' ROAD & HIGHWAY GRATE INLET WITH FLEXSTORM PERMANENT USE PURE INLET PER DETAIL X AND X ON SHEET X

(D9) INSTALL 12" HDPE STORM DRAIN PIPE

(D10) INSTALL 24" HDPE STORM DRAIN PIPE

(D11) PROPOSED OVERFLOW STRUCTURE.

(D12) PROPOSED OVERFLOW PIPE.

(D13) PROPOSED PUMP.

(D14) PROPOSED 6" ROOF DRAIN LINE.

(D15) CONTRACTOR TO CONNECT TO 4" ROOF DRAIN (1.5' MN. BELOW FS)

EXISTING UTILITY NOTES

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APPROVED BY:

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REGISTERED PROFESSIONAL ENGINEER SHEA-MICHAEL ANTI RCE NO. 78274 STATE OF CALIFORNIA CIVIL

Kimley»Horn
765 THE CITY DRIVE SUITE 200, ORANGE, CA 92868
PHONE: 714-939-1030

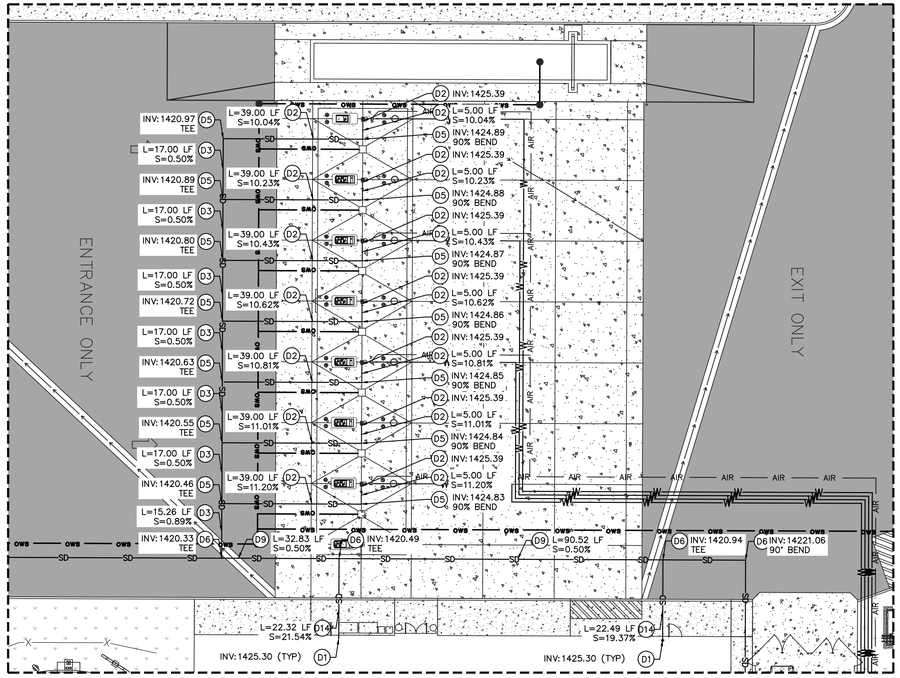
PREPARED BY:
SHEA-MICHAEL ANTI R.C.E 78274 6/8/2022 DATE

STORM DRAIN PLAN
PRELIMINARY PRECISE GRADING PLAN
PILOT PERRIS
ETHANAC ROAD AND TRUMBLE ROAD
APN: 329-250-011 & 329-250-012

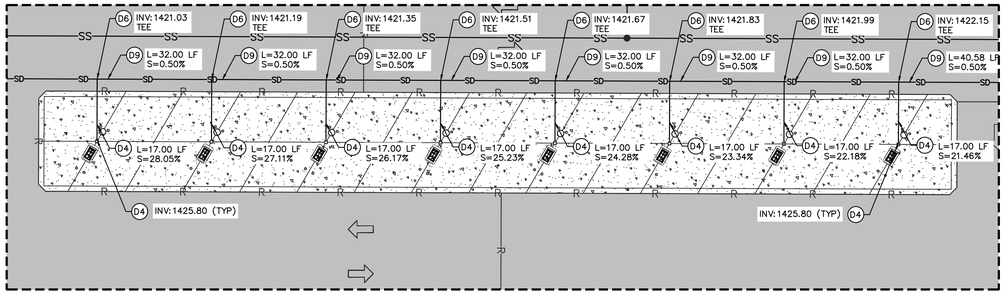
SHEET NO. 13 OF 16 SHTS

PROJECT NUMBER: 095426010

FILE NO.:



DETAIL 1
1"=20'



DETAIL 2
1"=20'

LEGEND

PROPERTY LINE CIVIL	
LIMITS OF WORK	
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(D11) PROPOSED OVERFLOW STRUCTURE.

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(D14) PROPOSED 6" ROOF DRAIN LINE.

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PROJECT NUMBER: 095426010

SHEET NO. 14 OF 16 SHTS

FILE NO.:

Appendix 3: Soils Information

Geotechnical Study and Other Infiltration Testing Data

WQMP Project Report

County of Riverside Stormwater Program

Santa Ana River Watershed Geodatabase

Monday, August 16, 2021

Note: The information provided in this report and on the Stormwater Geodatabase for the County of Riverside Stormwater Program is intended to provide basic guidance in the preparation of the applicantï¿½s Water Quality Management Plan (WQMP) and should not be relied upon without independent verification.

Project Site Parcel Number(s):	329250012, RW, 329250011, 329250009
Latitude/Longitude:	33.744, -117.1866
Thomas Brothers Page:	
Project Site Acreage:	14.52
Watershed(s):	SANTA ANA
This Project Site Resides in the following Hydrologic Unit(s) (HUC):	**HUC Name** - HUC Number **Perris Valley-San Jacinto River** - 180702020306
The HUCs Contribute stormwater to the following 303d listed water bodies and TMDLs which may include drainage from your proposed Project Site:	**WBID Name** - WBID Number **Canyon Lake (Railroad Canyon Reservoir)** - CAL8021100019990208151525 **Elsinore, Lake** - CAL8023100019990208151100
These 303d listed Water bodies and TMDLs have the following Pollutants of Concern (POC):	**Bacterial Indicators** - Pathogens **Nutrients** - Nutrients, Organic Enrichment/Low Dissolved Oxygen **Other Organics** - PCBs (Polychlorinated biphenyls) **Toxicity** - Sediment Toxicity, Unknown Toxicity
Is the Site subject to Hydromodification:	Yes
Limitations on Infiltration:	**Project Site Onsite Soils Group(s)** - C, D **Known Groundwater Contamination Plumes within 1000'** - No **Adjacent Water Supply Wells(s)** - No information available please contact your local water agency for more information. Your local contact agency is EASTERN MUNICIPAL W.D.. Your local wholesaler contact agency is METROPOLITAN WATER DISTRICT.
Environmentally Sensitive Areas within 200'(Fish and Wildlife Habitat/Species):	None
	None

Environmentally Sensitive Areas within 200'(CVMSHCP):	
Environmentally Sensitive Areas within 200'(WRMSHCP):	Burrowing Owl Survey Required Area
Groundwater elevation from Mean Sea Level:	1360
85th Percentile Design Storm Depth (in):	0.604
Groundwater Basin:	Perris-South
MSHCP/CVMSHCP Criteria Cell (s):	No Data
Retention Ordinance Information:	No Data
Studies and Reports Related to Project Site:	Comprehensive Nutrient Reduction Plan IBI Scores - Southern Cal bulletin118_4-sc water_fact_3_7.11 8039-SAR-Hydromodification Romoland MDP West San Jacinto GW Basin Management Plan Homeland/Romoland ADP Map

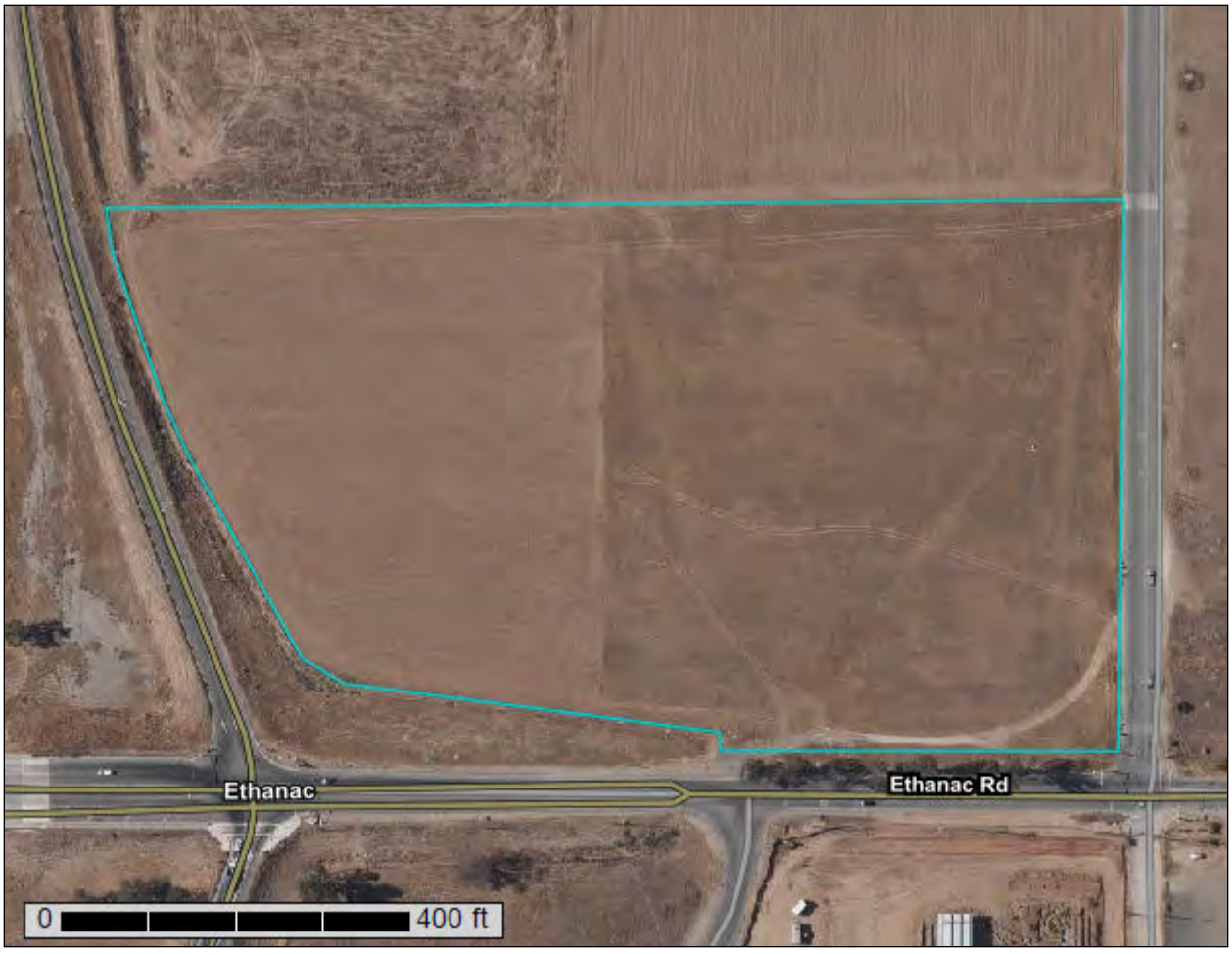
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Western Riverside Area, California



August 16, 2021

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:1,950 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Western Riverside Area, California
Survey Area Data: Version 13, May 27, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 25, 2019—Jun 25, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
EnA	Exeter sandy loam, 0 to 2 percent slopes	0.5	3.3%
MaA	Madera fine sandy loam, 0 to 2 percent slopes	14.0	96.7%
Totals for Area of Interest		**14.5**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Western Riverside Area, California

EnA—Exeter sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hctg
Elevation: 20 to 700 feet
Mean annual precipitation: 7 to 20 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Exeter and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Exeter

Setting

Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 16 inches: sandy loam
H2 - 16 to 37 inches: sandy clay loam
H3 - 37 to 50 inches: indurated
H4 - 50 to 60 inches: stratified sandy loam to silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to duripan
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: C
Ecological site: R019XD029CA
Hydric soil rating: No

Minor Components

Greenfield
Percent of map unit: 4 percent
Hydric soil rating: No

Ramona
Percent of map unit: 4 percent
Hydric soil rating: No

Monserate
Percent of map unit: 4 percent
Hydric soil rating: No

Unnamed
Percent of map unit: 3 percent
Hydric soil rating: No

MaA—Madera fine sandy loam, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: hcwt
Elevation: 20 to 250 feet
Mean annual precipitation: 14 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 250 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Madera and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Madera

Setting
Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile
H1 - 0 to 19 inches: fine sandy loam
H2 - 19 to 26 inches: clay
H3 - 26 to 37 inches: indurated
H4 - 37 to 62 inches: stratified coarse sandy loam to clay loam

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches; 20 to 40 inches to duripan

Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: R019XD061CA
Hydric soil rating: No

Minor Components

Unnamed, ponded

Percent of map unit: 3 percent
Landform: Depressions
Hydric soil rating: Yes

Monserate

Percent of map unit: 3 percent
Hydric soil rating: No

Chino

Percent of map unit: 3 percent
Hydric soil rating: No

Exeter

Percent of map unit: 3 percent
Hydric soil rating: No

Willows

Percent of map unit: 3 percent
Hydric soil rating: No

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GEOTECHNICAL ENGINEERING
PERCOLATION / INFILTRATION
TEST REPORT

TRAVEL PLAZA
PERRIS

AT

CORNER OF TRUMBLE ROAD &
ETHANAC ROAD
PERRIS, CALIFORNIA

PREPARED FOR:

BROADBENT, INC.
8 WEST PACIFIC AVENUE
HENDERSON, NEVADA 89015

PROJECT NO: G-5908-08

JUNE 11, 2021

GEOTECHNICAL SOLUTIONS, INC.
GEOTECHNICAL & ENVIRONMENTAL
ENGINEERING

Geotechnical Solutions, Inc.
Geotechnical, Structural & Environmental Engineering

June 11, 2021

Project: G-5908-08

BROADBENT, INC.
8 West Pacific Avenue
Henderson, Nevada 89015

Attention: **Mr. Mark E. Kazelskis, PG, CHG, CEM**
Principal Geologist

Via Email: mkazelski@broadbentinc.com

Re: **Geotechnical Engineering Percolation / Infiltration Report**
Travel Plaza - Perris
Corner of Trumble Road & Ethanac Road
Perris, California 92570

Gentlemen:

Per your authorization, we have performed our geotechnical engineering field percolation tests to evaluate the subgrade percolation and infiltration rate at the referenced Travel Plaza - Perris site located at the corner of Trumble Road and Ethanac Road, just west of Trumble Road, Perris, San Bernardino County, California. Proposed development consists of improving or incorporating Storm Water Permanent Best Management Practice (BMP).

The accompanying geotechnical engineering report presents the results of our field borings, sampling of subgrade material, field percolation tests, reviewing site plan, performing laboratory tests, analyzing field and laboratory data and our conclusions and recommendations for the project.

Our services were performed using the standard of care ordinarily exercised in this locality, at the time when the report was prepared.

The investigation was made in accordance with generally accepted geotechnical engineering principles and procedures and included such field and laboratory tests considered necessary in the circumstances.

In the opinion of the undersigned, the accompanying report has been substantiated by data, observations, analysis, and opinions and presents fairly the design information requested by you.

This completes our scope of services for the initial design phase of the project. We have appreciated this opportunity to be of service to you on this project.

Respectfully Submitted,

Geotechnical Solutions, Inc.

Dharma Shakya, PhD, PE, GE
Principal Geotechnical Engineer

Abraham S. Baha, PE, MASCE
Sr. Principal

Distribution: (3 +pdf) Addressee

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Introduction

Geotechnical Solutions, Inc. (GSI) has performed field investigations including borings and sampling of earth material and field percolation tests at the proposed locations as shown on Plot Plan & Percolation Tests Location Map (Plate B in Appendix A) at Travel Plaza, Perris, California.

The main purpose of this study is to provide infiltration rates of subgrade material based on field percolation tests so that an appropriate system incorporating Storm Water permanent best management practice (BMP) to manage surface water into the ground and the appropriate infiltration basin or any other approved system may be designed and existing drainage be improved.

Field Exploration

Field exploration consisted of drilling two borings for percolation tests, B-1 (PC-1) and B-2 (PC-2), 8-inches in diameter and extended to 10-feet below existing ground as shown on Plot Plan and Percolation Tests Location Map (Plate B).. The percolation test logs are presented on Plates D-1 and D-2 in Appendix A.

The attached logs tabulate data based on laboratory classification tests and visual observation by the field engineer at the site. During drilling bulk samples of earth material obtained for further laboratory test.

Groundwater

Groundwater was not encountered in any of our borings. Also, in accordance with the available groundwater well maps data, http://wdl.water.ca.gov/water_data_library, historical high groundwater level as shown on Plates C-1 and C-2 presented in Appendix A are much deeper than 50 feet. The potential for ground water to rise to the ground surface in the site area is considered very unlikely.

Laboratory Testing

Laboratory testing was programmed following a review of the field investigation data to be evaluated. Tests included physical testing to determine soil characteristics and selective tests. Test results are presented in Appendix A.

Mechanical Analysis (ASTM D-422)

Mechanical analyses by the hydrometer test method were performed to confirm field classifications. Test results are as follows:

Test Hole No.	Sample Depth (ft)	Sand Percent	Silt Percent	Clay Percent
B-1 (PC-1)	10.0	89	7	4
B-2 (PC-2)	10.0	90	8	2

Field Percolation Tests

We performed field percolation tests at B-1 (PC-1) and B-11 (PC-2) locations as shown on Plot Plan and Percolation Tests Location Map (Plate B). The percolation test procedure performed in accordance with the current acceptable method for shallow percolation test (less than 10 feet) by qualified personnel under the supervision of registered geotechnical engineer as per Technical Guidance Document, Orange County Public Works.

- Borehole diameter was 8 inches.
- Bottom elevation of test holes correspond to bottom elevation of proposed retention basins which are proposed at 10-feet in depth below the ground surface in accordance with the following locations:

B-1 (PC-1) 10 feet below the ground surface

B-11 (PC-2) 10 feet below the ground surface

- The bottom of the test hole was covered with 2 inches of gravel prior to testing.
- Sides of the hole were not smeared after drilling and there was no caving.
- Holes were filled with clear water to appropriate depths from the ground surface (Minimum required is 5 x radius of the hole (5 x 4" = 20 inches) from the bottom.
- On these two locations, two consecutive measurements showed that less than 6 inches of water seeped away in 25 minutes test (Pre-Percolation Data Sheets, Plates 1 and 3 in Appendix B). Thus, pre-soaking overnight for about 24 hours was required.
- The tests were then run the next day for an additional 6-hours duration, measurements being taken every 30 minutes interval (Percolation Test Results).
- The drop that occurs during the final reading is used to calculate the percolation and then infiltration rate.
- Field Percolation Tests for both PC-1 and PC-2 are presented as Plate 2 and 4 in Appendix B.
- Infiltration calculations (Porchet Method) are shown on Plates 5 and 6 and presented in Appendix C.
- Infiltration results using another method, Reduction Factor Method, Rf are presented on Plates 7 and 8 in Appendix D.
- Measurements were taken with a precision of 0.25 inches or better.
- All the field percolation tests are tabulated and are presented in Appendix B.
- The holes were backfilled with soil cuttings.

Percolation Rate Evaluation

To evaluate the percolation rates, testing was performed by filling the borehole with water and observing the rate of water drop from the fixed reference point on the ground surface. The depths of water drop for every 30 minutes intervals were noted and tabulated and plotted as shown on Plates 2 and 4, respectively for PC-1 and PC-2 in Appendix B.

Percolation rate, k can be correlated with the data in the form of the straight line equation as shown below:

$$t/R = b + kt$$

Where, t = average time in minutes

$R = \Delta t / d$

Δt = Time Interval, minutes

d = drop in inch = R1 – R2

R1 = Initial Readings, inch

R2 = Final Readings, inch

k = Percolation Rate inch/minute

R = 1/k at equilibrium rate

t/R is plotted against t as shown on the plots (Plates 2 and 6 for B-1 (PC-1) and B-11 (PC-2), respectively) and the regression analyses were performed to interpolate the data obtained in the field. Straight line interpolation gives the slope as a percolation rate, k.

Results of the Tests

The results obtained from the analyses are as follows:

1. Near surface material consisted of mainly Clayey to Silty Sand (SC/SM), dry to slightly moist, firm, light brown in color having dense to very dense in consistency.

2. Around and below 10 feet, the subgrade materials consisted mainly of the sandy material, Sand (SP) with some gravel, slightly moist to moist, dark brown to gray in color having dense to very dense in consistency.

3. Field Percolation tests were performed at 10-feet depth for both B-1 (PC-1) and B-11 (PC-2) and the results are tabulated as shown on the Table-1 below:

TABLE – 1
Percolation Test Results

Location	Coefficient of Permeability, k			
	Inch/minute	Cm/sec	**Inch/hour Average**	**Inch/hr** based on last 30 Minutes Reading
B-1 (PC-1)	**0.0135**	**6.0 x E-04**	**0.81**	**1.0**
B-11 (PC-2)	**0.0206**	**9.0 x E-04**	**1.236**	**1.5**
Average	**0.0171**	**7.5 x E-04**	**1.023**	**1.25**
		Average:	**1.137 inch/hour**	

4. Based on the data presented in this report and the testing information accumulated, it is our judgment that the percolation rate is an average of **1.137** inch per hour. It takes about **53 minutes to percolate 1 inch**. This conclusion regarding percolation rate is based on the results of our field exploration and testing.

5. General range of permeability for some of the subgrade soils are as follows:

Type of Soil	Permeability (Cm/Sec)
Medium to coarse gravel	$> 10^{-1}$
Coarse sand to fine sand	between $1x10^{-1}$ to $1x10^{-3}$
fine sand and silty sand	between $1x10^{-3}$ to $1x10^{-5}$
silt, clayey silt or silty clay	between $1x10^{-4}$ to $1x10^{-6}$
Clays	$1x10^{-7}$ or less

Since the percolation rate average is **7.5 x E-04 Cm/Sec**, it falls into **fine Sand and silty Sand category** as tabulated above.

As per Technical Guidance Document, Infiltration rate, I_t is calculated based on Percolation Rate Conversion using Porchet Method, aka Inverse Borehole Method.

The bottom of the proposed infiltration basin would be at 10-feet below the existing ground surface. Percolation tests were performed with the depth of the test hole set at the infiltration surface level (bottom of basin).

After the minimum required number of testing intervals, the test was complete. The data collected at the final interval was used to calculate infiltration rates.

The calculations and the results are tabulated and presented on Plates 5 and 6 in Appendix C.

Location	**Percolation Rate inch/hour Based on Average Reading**	**Infiltration Rate Inch/hour Based on Porchet Method aka Inverse Borehole Method**
B-1 (PC-1)	0.810	0.0370

PC-2	1.236	0.0596
Average	**1.137**	**0.0483**

Using factor of safety of 2.0 for uncertainty and bias, **percolation test result is 0.5685 inch per hour** and **Infiltration Rate = 0.0242 "/ hour**, which is less than **0.3"/hour** as per the requirement in accordance with **TGD VII.2.**

Thus, it **does not meet** the standard criteria, hence **FAILED.**

Reduction Factor (R_f) Method

We have used Reduction Factor (R_f) Method which is another acceptable and approved method for calculating Infiltration Rate, I_f.

Infiltration Rates as calculated by this method have been tabulated on Plates 7 and 8 in Appendix D. The results are as follows:

Location	I_f Using (Reduction Factor Method) (inch/hour)
B-1 (PC-1)	0.0559
B-11 (PC-2)	0.0801
AVERAGE:	**0.068**
With FOS = 2	**0.034**
	< 0.3 inch/hour - "FAILED"

Conclusions

The subgrade soils consist entirely of very firm alluvial soils, mainly sand with some gravel, medium to coarse grained, dark brown to gray in color, dry to slightly moist to moist, dense to very dense and hard in consistency. Percolation tests performed at two locations, B-1 (PC-1) and B-11 (PC-2) at 10 feet depth did not meet the prescribed criteria.

Also, since the groundwater is very deep more than 50 feet, there is a room for the basin. However, infiltration rate at both locations indicated that it is much less than the required infiltration rate of 0.3 inch per hour (TGD VII.2), hence we conclude that the project is **not feasible.**

Additional Services

This office will be available for further consultation.

Closure

Based on the data presented in this report and the testing information accumulated, it is the judgment of the writers of this report that BMP infiltration system seems to be **not feasible** at these locations. The conclusions presented in this report are based on the results of our field exploration, percolation tests, infiltration tests, and other laboratory tests.

This report has been compiled for the exclusive use on the above referenced site, for the purpose stated above. It should not be transferred to or used by another party, or applied to any other project on this site, other than as described herein, without consent and/or thorough review by this office.

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References

California Building Code, 2019, California Code of Regulations, Title 24, Volume 2 of Part 2.

California Department of Water Resources groundwater well data **http://wdl.water.ca.gov**.

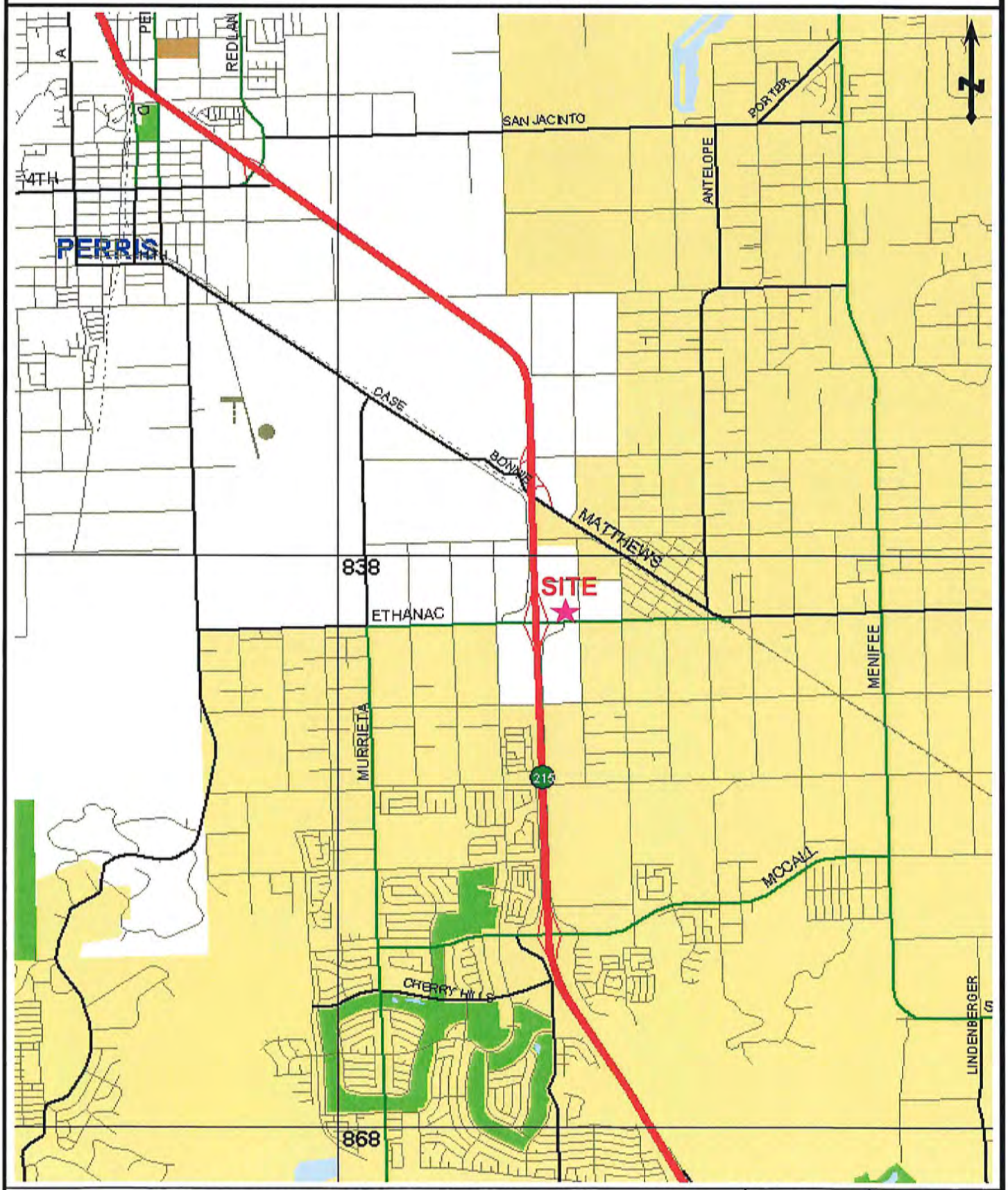
Orange County, Technical Guidance Document (TGD) for the Preparation of Conceptual / Preliminary and/or Project Water Quality Management Plans (WQMPs) dated December, 2013.

Appendix A

Plates:

- Vicinity Map
- Plot Plan & Percolation Tests Location Map
- Groundwater Map (Closest Well Data)
- Groundwater Map – Well Data
- Boring Logs, B-1 (PC-1) & B-11 (PC-2)

VICINITY MAP



Travel Plaza Perris - Percolation Tests	Project No.	G-5908-08
Corner of Trumble Road and Ethanac Road, Perris, California	Plate:	A

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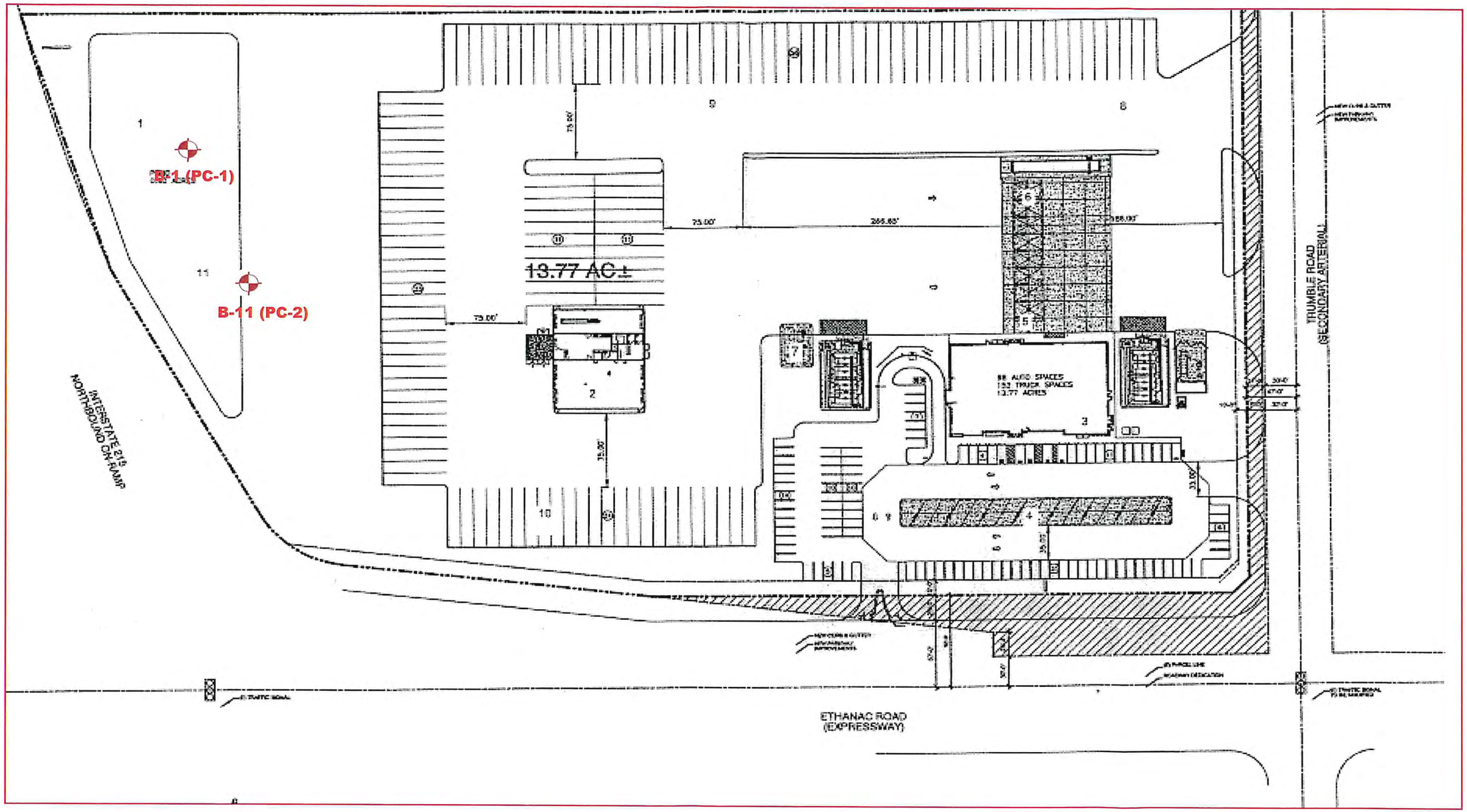
PLOT PLAN & PERCOLATION TEST LOCATIONS MAP



Percolation Tests

B-11 (PC-2)

Approximate Scale 1" = 100'

Travel Plaza Perris - Percolation Tests	Project No.	G-5908-08
Corner of Trumble Road and Ethanac Road, Perris, California	Plate:	B

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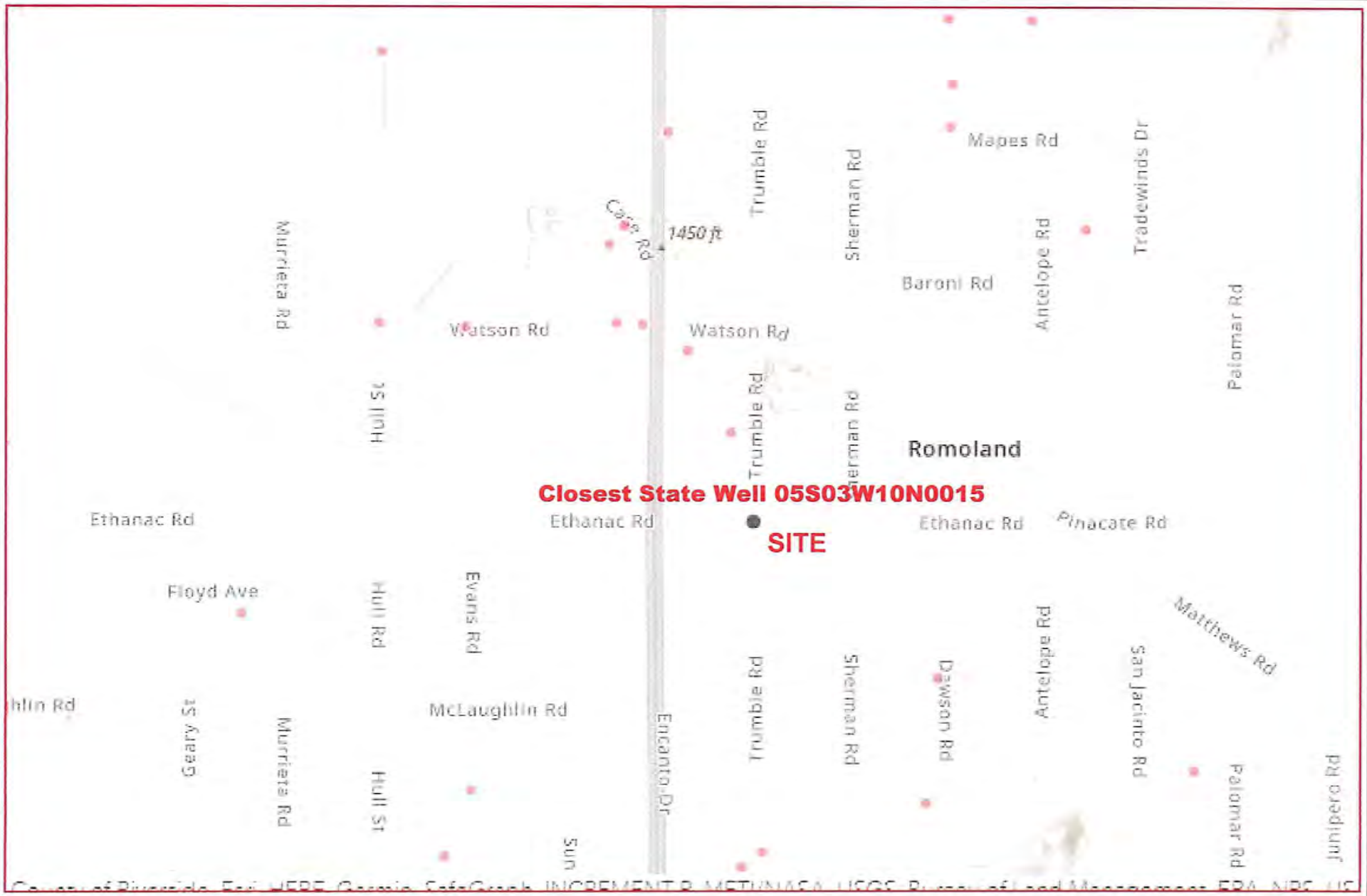
GROUNDWATER MAP - CLOSEST WELL DATA



Travel Plaza - Perris	Project No.	G-5908-01
Corner of Trumble Road and Ethanac, Perris, California	Plate:	C-1

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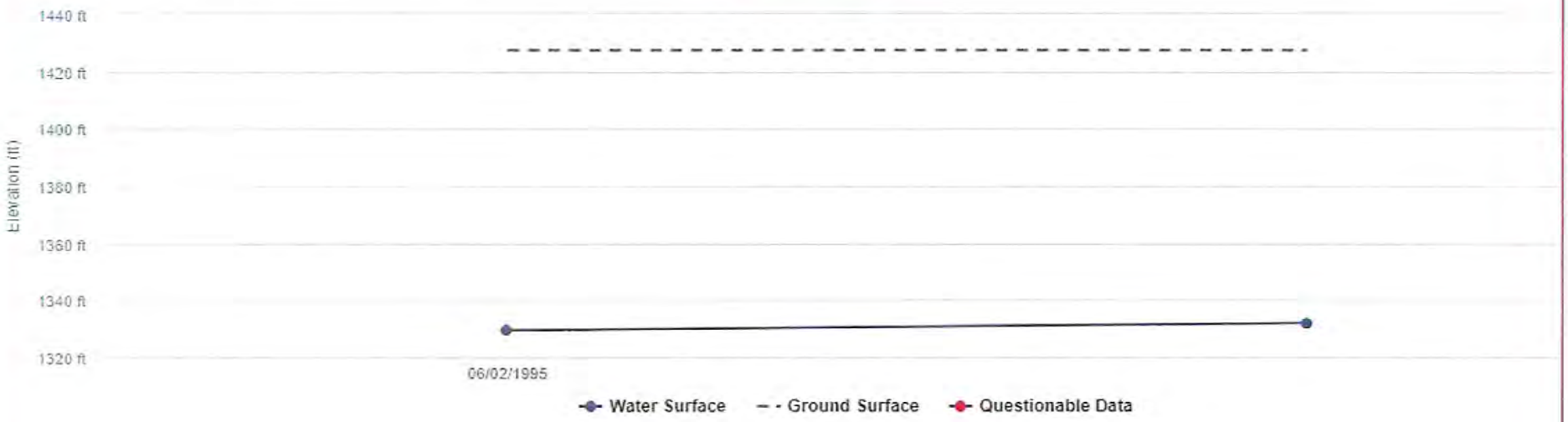
GROUNDWATER MAP - WELL DATA

Groundwater Level Report

Station 337464N1171859W001

Station Data | Groundwater Level Data

Groundwater Levels for Well 337464N1171859W001 **(Site Code)**



Measurement Date (PST)	Reference Point Elevation	Ground Surface Elevation	Distance from RP to WS	Groundwater Elevation	Ground Surface to Water Surface	Measurement Issue	Collecting Agency	W M C
06/02/1995 00:00:00	1427.490	1427.490	97.98	1329.51	97.98		Department of Water Resou...	
09/13/1995 00:00:00	1427.490	1427.490	95.63	1331.86	95.63		Department of Water Resou	

Travel Plaza - Perris	Project No.	G-5908-01
Corner of Trumble Road and Ethanac, Perris, California	Plate:	C-2

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Project :	Travel Plaza - Perris	LOG OF TEST HOLE	Borehole No. B-1 (PC-1)
Project Location :	Corner of Ethanac Road and Trumble Road, Perris, CA		Plate No. D-1
Project Number :	G-5908-08		Page 1 of 1

Date(s) Drilled :	May 24, 2021	Logged By :	BA/AB	Checked By :	DXS
Drilling Method :	Hollow Stem Auger	Drill Bit Size / Type :	8-inch	Total Depth of Borehole, feet :	10
Drill Rig Type :	B-61	Drilling Contractor :	Whitecomb Drilling	Approx. Surface Elevation, feet :	1426 feet MSL
Groundwater Level and Date Measured:	No Water encountered at the time of drilling	Sampling Method :	California (ring), bulk, SPT	Hammer Data :	140 lbs dropping 30 inches
Borehole Backfill :	Drill cuttings	Comments :	Refer to plot plan for location;		

Elevation, feet	Depth, feet	SAMPLES Type	Number	Penetration Resistance, Blows / 6"	Graphics	Blows / 12"	MATERIAL DESCRIPTION	Moisture Content, %	Dry Unit Weight, pcf	Percent Passing No. 200 Sieve (%)	OTHER TESTS AND REMARKS
1426	0						**Covered with dry weeds**				
			Bag #1				Older Alluvium: Silty Sand (SM), light brown, medium dense				
	2		C-1	19-54/6"		> 100	@2': Sand (SP), silty, light brown, slightly moist, very dense	6	127		
1421	5		C-2	20-50/6"		> 100	@5':Sand (SP), poorly graded, very dense, gray, slightly moist, medium to coarse grained	7	122		
1416	10						@10': Same as above			11	HD: 89 (SA) : 7(SI) : 4(CL)
1411	15						End of Boring = 10 feet 2" Gravel on Bottom Drilled for Percolation test No groundwater encountered No Caving Backfilled w/Cuttings after percolation test				
1406	20										
1401	25										
1396	30										
1391	35										
1386	40										
1381	45										

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Project :	Travel Plaza	LOG OF TEST HOLE	Borehole No. B-11 (PC-2)
Project Location :	Corner of Ethanac Road and Trumble Road, Perris, CA		Plate No. D-2
Project Number :	G-5908-08		Page 1 of 1

Date(s) Drilled :	May 24, 2021	Logged By :	BA/AB	Checked By :	DXS
Drilling Method :	Hollow Stem Auger	Drill Bit Size / Type :	8-inch	Total Depth of Borehole, feet :	10
Drill Rig Type :	B-61	Drilling Contractor :	Whitecomb Drilling	Approx. Surface Elevation, feet :	1426 feet MSL
Groundwater Level and Date Measured:	No Water encountered at the time of drilling	Sampling Method :	California (ring), bulk, SPT	Hammer Data :	140 lbs dropping 30 inches
Borehole Backfill :	Drill cuttings	Comments :	Refer to plot plan for location;		

Elevation, feet	Depth, feet	SAMPLES Type	Number	Penetration Resistance, Blows / 6"	Graphics	Blows / 12"	MATERIAL DESCRIPTION	Moisture Content, %	Dry Unit Weight, pcf	Percent Passing No. 200 Sieve (%)	OTHER TESTS AND REMARKS
1426	0						**Covered with dry grass**				
	2						Older Alluvium: Clayey Sand (SC), light brown, dry				
			C-1	32-50/6"		100	@2': Sand (SP), silty, light brown, slighlly moist, very dense	6	122		
1421	5										
			C-2	31-50/6"		100	@5':Sand (SP), poorly graded, very dense, gray, slighlly moist, medium to coarse grained	5	121		
1416	10						@10': Same as above			10	HD: 90 (SA) : 8(SI) : 2(CL)
							End of Boring = 10 feet 2" of Gravel on Bottom Drilled to 10 feet for Percolation Test Backfilled w/ cutlings after the Test				
1411	15										
1406	20										
1401	25										
1396	30										
1391	35										
1386	40										
1381	45										

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Appendix B

Pre-Test & Percolation Test Results

- Pre-Test Percolation Data Sheet (PC-1)
- Percolation Test Result at Location PC-1
- Pre-Test Percolation Data Sheet (PC-2)
- Percolation Test Result at Location PC-2

PRE- PERCOLATION TEST DATA SHEET

Project:	Travel Plaza - Perris	Project No.:	G-5908-08	Date:	5/24/2021
Test Hole Number:	**PC-1**	Tested By:	BA/AB		
Depth of Test Hole, DT	10'	USCS Soil Classification:	Sand (SP)		
Test Hole Dimensions (inches)			Length	Width	
Diameter (if Round) =	8"	Sides (if Rectangular) =			

Sandy Soil Criteria Test *

Trial No.	Start Time	Stop Time	Time Interval (Min)	Initial Depth to Water (in)	Final Depth to Water (in)	Change in Water Level (in)	Greater than or Equal to 6"? y/n
1	8:30 AM	8:55 AM	25	65	66.25	1.3	< 6"
2	8:55 AM	9:20 AM	25	66.25	67.50	1.25	< 6"

* If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute Intervals) with a precision of at least 0.25".

PERCOLATION TEST

Borehole No. **B-1 (PC-1)** Depth **120** inch

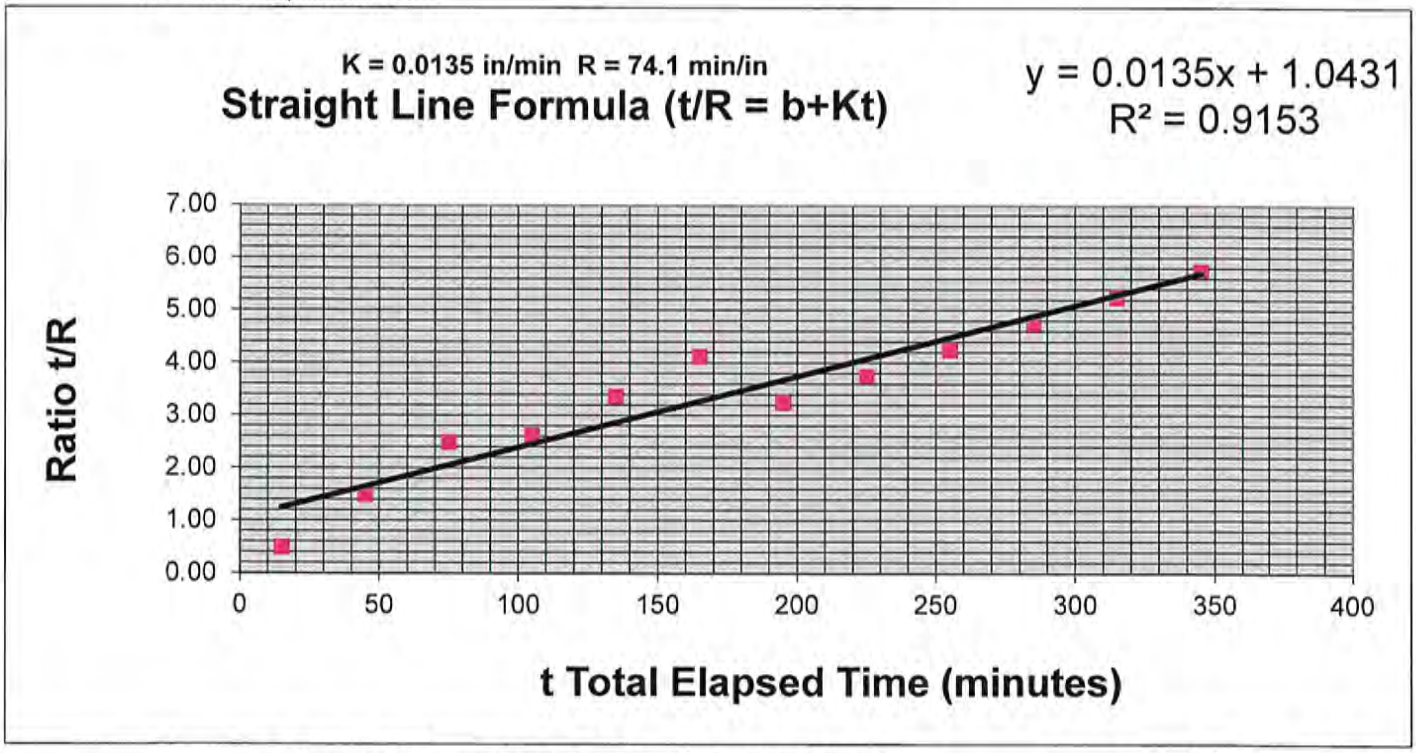
Date	Time of Reading	Δt (min.)	Total Elapsed Time (t)	Average t (minutes)	Reading R_1 (inches)	Reading R_2 (inches)	Drop d (inches)	R=Δt/d (min./in.)	t/R (in.)	k * 1000 (cm/s)
5/25/2021	9:30 AM	0	0							
	10:00 AM	30	30	15	60.00	61.00	1.00	30.00	0.50	1.4
	10:30 AM	30	60	45	61.00	62.00	1.00	30.00	1.50	1.4
	11:00 AM	30	90	75	62.00	63.00	1.00	30.00	2.50	1.4
	11:30 AM	30	120	105	63.00	63.75	0.75	40.00	2.63	1.1
	12:00 PM	30	150	135	63.75	64.50	0.75	40.00	3.38	1.1
	12:30 PM	30	180	165	64.50	65.25	0.75	40.00	4.13	1.1
	1:00 PM	30	210	195	65.25	65.75	0.50	60.00	3.25	0.7
	1:30 PM	30	240	225	65.75	66.25	0.50	60.00	3.75	0.7
	2:00 PM	30	270	255	66.25	66.75	0.50	60.00	4.25	0.7
	2:30 PM	30	300	285	66.75	67.25	0.50	60.00	4.75	0.7
	3:00 PM	30	330	315	67.25	67.75	0.50	60.00	5.25	0.7
	3:30 PM	30	360	345	67.75	68.25	0.50	60.00	5.75	0.7

Plot: t/R as ordinate vs. 't' as abscissa; tanOC = K.

R_1 = Vertical distance from reference point to water level after refilling at beginning of increment period.

R_2 = Vertical distance from reference point to water level at the end of increment period.

R = 1/K at equilibrium rate.



Travel Plaza Perris - Percolation Tests | Project: G-5908-08

Corner of Trumble Road and Ethanac Road, Perris, California | Plate: 2

GEOTECHNICAL SOLUTIONS, INC.

PRE - PERCOLATION TEST DATA SHEET

Project:	Travel Plaza - Perris	Project No.:	G-5908-08	Date:	5/24/2021
Test Hole Number:	**PC-2**	Tested By:	BA/AB		
Depth of Test Hole, DT	10'	USCS Soil Classification:			
Test Hole Dimensions (inches)			Length	Width	
Diameter (if Round) =	8"	Sides (if Rectangular) =			

Sandy Soil Criteria Test *

Trial No.	Start Time	Stop Time	Time Interval (Min)	Initial Depth to Water (in)	Final Depth to Water (in)	Change in Water Level (in)	Greater than or Equal to 6"? y/n
1	9:35 AM	10:00 AM	25	65	67.0	2	< 6"
2	10:00 AM	10:25 AM	25	67	69.0	2	< 6"

* If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute Intervals) with a precision of at least 0.25".

PERCOLATION TEST

Borehole No. B-11 (**PC-2**) Depth **120** inch

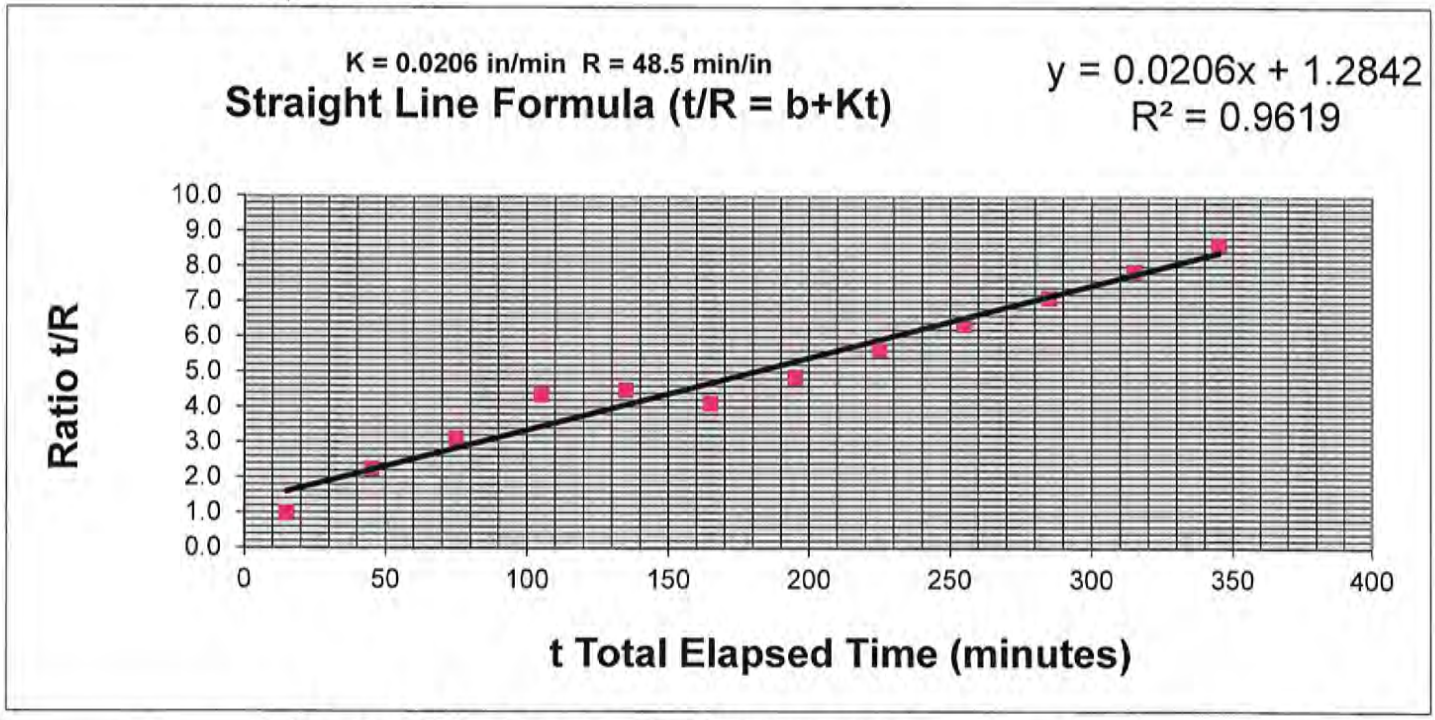
Date	Time of Reading	Δt (min.)	Total Elapsed Time (t)	Average t (minutes)	Reading R_1 (inches)	Reading R_2 (inches)	Drop d (inches)	R=Δt/d (min./in.)	t/R (in.)	k * 1000 (cm/s)
5/25/2021	9:40 AM	0	0							
	10:10 AM	30	30	15	60.00	62.00	2.00	15.00	1.00	2.8
	10:40 AM	30	60	45	62.00	63.50	1.50	20.00	2.25	2.1
	11:10 AM	30	90	75	63.50	64.75	1.25	24.00	3.13	1.8
	11:40 AM	30	120	105	64.75	66.00	1.25	24.00	4.38	1.8
	12:10 PM	30	150	135	66.00	67.00	1.00	30.00	4.50	1.4
	12:40 PM	30	180	165	67.00	67.75	0.75	40.00	4.13	1.1
	1:10 PM	30	210	195	67.75	68.25	0.75	40.00	4.88	1.1
	1:40 PM	30	240	225	68.25	69.00	0.75	40.00	5.63	1.1
	2:10 PM	30	270	255	69.00	69.75	0.75	40.00	6.38	1.1
	2:40 PM	30	300	285	69.75	70.50	0.75	40.00	7.13	1.1
	3:10 PM	30	330	315	70.50	71.25	0.75	40.00	7.88	1.1
	3:40 PM	30	360	345	71.25	72.00	0.75	40.00	8.63	1.1

Plot: t/R as ordinate vs. 't' as abscissa; tanOC = K.

R_1 = Vertical distance from reference point to water level after refilling at beginning of increment period.

R_2 = Vertical distance from reference point to water level at the end of increment period.

R = 1/K at equilibrium rate.



Travel Plaza Perris - Percolation Tests | Project: G-5908-08

Corner of Trumble Road and Ethanac Road, Perris, California | Plate: 4

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Appendix C – Infiltration Rates

Infiltration Rate I_F Calculations

- PC-1
- PC-2

Percolation Rate Conversion
Infiltration Rate, I_t
Porchet Method, aka Inverse Borehole Method

Travel Plaza - Perris
Project No: G-5908-08

Percolation Test PC-1

As per Test Result, Average Percolation Rate = 0.0135 inch/Min = 0.81 inch/hour

Data collected at the Final Interval analysed: 1.0 inch/hour

Time Interval, Δt	=	30	Minutes	Initial Depth to Water, D_0	=	67.75	Inches
Total Depth of Test Hole, D_t	=	120	Inches	Final Depth to Water, D_f	=	68.25	Inches
Test Hole Radius, r	=	4	Inches				

Initial Height of Water at the selected time interval, H_0	=	52.25	Inches	$(D_t - D_0)$
Final Height of Water at the Selected time interval, H_f	=	51.75	Inches	$(D_t - D_f)$
Change in Height over the time interval, ΔH	=	0.5	Inches	$(H_0 - H_f)$
Average Head Height over the time interval, H_{avg}	=	52	Inches	$(H_0 + H_f)/2$

Tested Infiltration Rate, $I_t = \Delta H\ (60\ r)\ /((\Delta t)(r + 2\ H_{avg}))$ **in/hr**

Therefore, I_t = **0.037037 inch/hour**

I_t = **0.018519 inch/hour** **FS: 2**

< 0.3 inch/hour requirement
FAILED

Percolation Rate Conversion
Infiltration Rate, I_t
Porchet Method, aka Inverse Borehole Method

Travel Plaza - Perris
Project No: G-5908-08

Percolation Test PC-2

As per Test Result, Average Percolation Rate = 0.0206 inch/Min = 1.236 inch/hour

Data collected at the Final Interval analysed: 1.5 inch/hour

Time Interval, Δt	= 30	Minutes	Initial Depth to Water, D_0	= 71.25	Inches
Total Depth of Test Hole, D_t	= 120	Inches	Final Depth to Water, D_f	= 72.00	Inches
Test Hole Radius, r	= 4	Inches			

Initial Height of Water at the selected time interval, H_0	= 48.75	Inches	$(D_t - D_0)$
Final Height of Water at the Selected time interval, H_f	= 48	Inches	$(D_t - D_f)$
Change in Height over the time interval, ΔH	= 0.75	Inches	$(H_0 - H_f)$
Average Head Height over the time interval, H_{avg}	= 48.375	Inches	$(H_0 + H_f)/2$

Tested Infiltration Rate, $I_t = \Delta H\,(60\ r)\ /((\Delta t)(r + 2\ H_{avg}))$ **in/hr**

Therefore, I_t = **0.0596 inch/hour**

I_t = **0.029777 inch/hour** **FS: 2**

< 0.3 inch/hour- FAILED

Appendix D

Infiltration Rates Using Reduction Factor Method R_f

- PC-1
- PC-2

REDUCTION FACTOR, R_f

Project:	Travel Plaza - Perris	Project No.:	G-5908-08	Date:	5/25/2021
Test Hole Number:	**PC-1**	Tested By:	BA/AB		
Depth of Test Hole, DT	10'	Initial Water Depth (Inches)	67.75		
Test Hole Dimensions (inches)				Length	Width
Diameter (if Round), Dia =	8	Sides (if Rectangular)	=		

Percolation Test	Pre-Adjusted Percolation Rate, in/hr	Initial Depth to Water, **d1** (in)	Water level Drop, Δ**d** (in)	R_f	I_f
PC-1	1	67.75	0.5	17.88	0.0559

The average drop of the stabilized rate over the last three consecutive readings is the pre-adjusted percolation rate at the test location in inches per hour.

The pre-adjusted percolation rate must be reduced to account for the discharge of water from both the sides and bottom of the boring (non-vertical flow).

Use the Formula: Reduction Factor, $R_f = [(2d1 - \Delta d) / Dia] + 1$ where d_1 = Initial water Depth, in

Δ d = Water level drop of Final Period or Stabilized Rate (in)

REDUCTION FACTOR, R_f

Project:	Travel Plaza - Perris	Project No.:	G-5908-08	Date:	5/25/2021
Test Hole Number:	**PC-2**	Tested By:	BA/AB		
Depth of Test Hole, DT	10'	Initial Water Depth (Inches)	71.25		
Test Hole Dimensions (inches)				Length	Width
Diameter (if Round), Dia =	8	Sides (if Rectangular)	=		

Percolation Test	Pre-Adjusted Percolation Rate, in/hr	Initial Depth to Water, **d1** (in)	Water level Drop, Δ**d** (in)	R_f	I_f
PC-2	1.5	71.25	0.75	18.72	0.0801

The average drop of the stabilized rate over the last three consecutive readings is the pre-adjusted percolation rate at the test location in inches per hour.

The pre-adjusted percolation rate must be reduced to account for the discharge of water from both the sides and bottom of the boring (non-vertical flow).

Use the Formula: Reduction Factor, $R_f = [(2d1 - \Delta d) / Dia] + 1$ where d_1 = Initial water Depth, in

Δ d = Water level drop of Final Period or Stabilized Rate (in)

GEOTECHNICAL EVALUATION REPORT

TRAVEL PLAZA
PERRIS

AT

CORNER OF TRUMBLE ROAD &
ETHANAC ROAD
PERRIS, CALIFORNIA

PREPARED FOR:

BROADBENT, INC.
WEST PACIFIC AVENUE
HENDERSON, NEVADA, 89015

PROJECT NO: G-5908-01

JUNE 11, 2021

PREPARED BY:

GEOTECHNICAL SOLUTIONS, INC.
GEOTECHNICAL & ENVIRONMENTAL
ENGINEERING

Geotechnical Solutions, Inc.
Geotechnical, Structural & Environmental Engineering

June 11, 2021

Project No: G-5908-01

Broadbent, Inc.
8 West Pacific Avenue
Henderson, Nevada, 89015

Attention: Mr. Mark E. Kazelskis, PG, CHG, CEM
Principal Geologist

Via Email: mkazelskis@broadbentinc.com

Re: Geotechnical Engineering Evaluation Report
Travel Plaza Perris
Corner of Trumble Road &
Ethanac Road
Perris, California

Gentlemen:

Submitted herewith is the report of the Geotechnical Engineering evaluation study conducted by this office for Perris Travel Plaza at the referenced vacant site.

The project site is located just northwest corner of Trumble Road and Ethanac Road Intersection, and east of Freeway 215 in Perris, San Bernardino County, California as shown on Vicinity Map (Plate A) and Google Map (Plate D).

Based on our study findings, it is our opinion that the site is suitable for the proposed development from a geotechnical-engineering standpoint, provided that the recommendations of this report are successfully implemented.

The closest known active faults capable of producing major earthquakes are the Elsinore (GI) (6.89 Mw) and Elsinore (W + GI) (7.27 Mw) faults, which are located approximately 9.56 miles (15.3 km) away from the project site.

The site does not lie within Alquist-Priolo Earthquake Fault Zone as designated by the California Geological Survey (CGS). The potential for direct surface fault rupture at the site is considered unlikely.

The investigation was made in accordance with generally accepted geotechnical engineering principles and procedures and included such field and laboratory tests considered necessary under the circumstances.

In the opinion of the undersigned, the accompanying report has been substantiated by mathematical and other data and presents fairly the design information requested by your organization.

Respectfully Submitted,

Geotechnical Solutions, Inc.

Dharma Shakya, PhD, PE, GE
Principal Geotechnical Engineer

REGISTERED PROFESSIONAL ENGINEER
DHARMA R. SHAKYA
No. GE 2773
GEOTECHNICAL
STATE OF CALIFORNIA

Abraham S. Baha, PE, M. ASCE
Sr. Principal

REGISTERED PROFESSIONAL ENGINEER
ABRAHAM S. BAHA
No. C053067
CIVIL
STATE OF CALIFORNIA

Distribution: (3+pdf) Addressee

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1.0 INTRODUCTION

1.1 Purpose and Scope

The primary objectives of this study were to explore subsurface conditions beneath the project site and evaluate the existing earth materials relative to foundation support and lateral pressure design factors, seismic conditions and earthquake-induced liquefaction potential.

In general, the study objectives were met by a visual reconnaissance of the site and vicinity, review of available tentative development plans, exploratory drilling and sampling of earth materials, laboratory testing, seismic evaluations, geologic hazards study, and engineering analysis. The general scope and objectives of the study were established in collaboration with the client/project team. Items considered in our study relevant to this site included the following:

- Near surface and subsurface soil types,
- Expansion potential,
- Settlement and hydro-collapse potential,
- Bearing capacity and Foundation Design Parameters,
- Slabs-on-grade,
- Lateral earth pressures,
- Drainage considerations,
- Temporary excavation support,
- Corrosion potential,
- Groundwater conditions,
- Likely excavation conditions,
- Seismic Conditions,
- Earthquake induced liquefaction potential,

- Pavements,
- Grading considerations, and
- Construction observation and testing considerations.

To address these, the following scope of work was executed:

1. Review of preliminary project plans, available documents, and coordination with the owner's representatives and project design professionals.
2. Site reconnaissance.
3. Evaluation of seismic conditions for the subject location.
4. Excavator and Backhoe drilling, sampling and logging twelve (11) test holes to investigate subsurface conditions.
5. Laboratory testing of soil samples obtained from subsurface explorations, to determine their physical and engineering properties.
6. Geotechnical analysis of the data obtained.
7. Developing conclusions and recommendations for foundation design.
8. Preparation of this report.

1.2 Project Description

Based on the information provided, the proposed Travel Plaza Perris will have total site area of 14.67 acres including 0.9 acre for the pond area and will consist mainly of constructing the Auto Fueling Island / Canopy, Truck Fueling Island / Canopy, Cat Scale, Aboveground (AST's) and underground (UST's) storage tanks, store building, shop building, pond area, and truck approaches at the location shown on Plot Plan and Boring Location Map (Plate B in Appendix A).

Also, the project consists of heavy-duty asphalt pavement for parking and driveways with some rigid concrete pavement sections to accommodate 98 auto parking and 135 truck parking.

1.3 Site Description and Topography

The project site is located just northwest of Trumble Road and Ethanac Road Intersection and just east of freeway 215 as shown on Vicinity Map (Plate A) and Google Map (Plate D) in Appendix A. At the time of our field exploration, the site was vacant and covered mostly with grass and weeds all around.

The site is relatively flat at an elevation of 1,426 feet above the sea level. No hilly terrain or drainage problems exist at the subject property.

1.4 Site Geologic Setting

The Peninsular Ranges province is one of the largest geomorphic units in western North America. Basically, it extends from the Tranverse Ranges geomorphic province and the Los Angeles Basin, roughly 900 miles south to the tip of Baja California. This province varies in width from about 30 to 100 miles. It is bounded on the west by the Pacific Ocean, on the south by the Gulf of California and on the east by the Colorado Desert Province. The Peninsular Ranges are essentially a series of northwest-southeast oriented fault blocks. Three major fault zones are found in this province. The Elsinore Fault zone and the San Jacinto Fault zones trend northwest-southeast and are found in the near the middle of the province. The San Andreas Fault zone borders the northeasterly margin of the province.

The Perris Block is a large mass of granitic rock generally bounded by the San Jacinto Fault, the Elsinore Fault, the Santa Ana River and a non-defined southeast boundary. The Perris Block has had a history of vertical land movements of several thousand feet due to shifts in the Elsinore and San Jacinto Faults. The primary source of strong seismic ground shaking in the project area is the Elsinore Fault Zone and San Jacinto Fault Zone. Other

regional fault zone of significance that could affect the project area is the San Andreas. The Site Regional Geology Map is shown on the enclosed Plate D.

The site is underlain by alluvial soils over Cretaceous aged igneous rocks (Val Verde Tonalite). The materials encountered onsite generally consist of alluvial soils consist of dense to very dense silty sand to sand. The tonalite bedrock is grey in color and moderately weathered and becomes harder with depth. It should be noted that Special handling and coring could be required during the caisson excavation.

The most significant geologic hazard to the project is the potential for moderate to severe ground shaking resulting from earthquakes generated on the faults close to the site. The site is not located in an Alquist-Priolo Special Studies zone for earthquake rupture hazard. The potential for direct surface fault rupture in the project area is considered very low.

1.5 Other Geologic Hazards

Since the site is located in a relatively flat area, we do not consider landslides or other forms of natural slope instability to represent a hazard to the project. The site is not located near any impounded bodies of water therefore tsunamis and seiches are not considered a potential hazard to the project. The proposed project is an area of stable soil conditions with low shrink-swell potential; hence, no impact is anticipated.

In addition to possible strong earthquake ground motion at the site, the secondary effects of earthquake-induced liquefaction, and earthquake-induced landsliding, were considered. Guidelines for evaluating and mitigation seismic hazards in California (CGS, 2008, SP-117A) summarize procedures for evaluating the earthquake-induced landslide and liquefaction potential.

1.5.1 Earthquake-Induced Liquefaction

The site has not been evaluated for earthquake-induced liquefaction potential as per

California Geologic Survey (Plate F, Appendix A). Liquefaction is discussed in more detail in the proceeding sections.

1.5.2 Induced Flooding

The site lies far and/or high enough from the coast or large inland body of water to preclude the hazards of tsunami or seiche waves or inundation from the rupture of an up-gradient reservoir.

1.5.3 Eathquake-Induced Landsliding

The site has not been evaluated by California Geologic Survey (CGS) for earthquake-induced landsliding potential. Since the site is far enough from steep slopes, landsliding will be unlikely.

2.0 FIELD EXPLORATION

2.1 Scope

Hollow Stem auger was used to drill. Eleven (11) borings were drilled to get soil samples from the depths varying from 10- to 51.5-feet below the existing ground level in the proposed development areas. The Boring Logs, B-1 through B-11 are shown on the Plot Plan and Boring Location Map (Plate B) in Appendix A.

2.2 Drilling and Sampling Procedures

A continuous record of the materials encountered during the drilling was made by our field engineer and Log of all the borings are presented on Appendix A The lines designating the interface between soil strata on the log of Test Holes represent approximate boundaries. The transition between strata may be gradual. Undisturbed samples were secured at frequent intervals from various locations for laboratory testing.

Core samples and bulk samples were secured at frequent depth intervals for laboratory examination and testing. Both California standard ring samples (CA) and split spoon

samples with Penetration test (SPT) blow counts were obtained for further evaluation. Disturbed bulk samples, representative of the surficial subgrade materials were also obtained.

The relative sampler penetration resistance (SPT) exhibited by the deposits sample is tabulated in the Blow per Foot column of the pertinent test hole log. Recorded blow counts for 12 inches of sampler penetration were generally indicative of medium to high shear resistance (140 pounds hammer at a 30-inch drop).

2.3 Field Tests and Measurements

The drilled holes were examined and logged in the field. Representative samples were obtained to classify the soils. The Unified Soil Classification System (USCS) was used to classify the soils. The soil classification symbols appear on the boring logs and are briefly described in Appendix A. Local and regional geologic characteristics were used to estimate the seismic design criteria.

In addition, relatively undisturbed California ring samples were obtained for laboratory testing. The attached logs tabulate data based on laboratory classification tests and visual observation by the field geologist at the site.

2.4 Standard Penetration Resistance

A sediment is considered to be susceptible to transformation to a fluid mass during a strong seismic event only if the packing of the grains (relative density) is relatively low. Sediments with high relative densities cannot reduce their total volume through the compactive effort induced by the ground shaking.

The number of blows necessary to drive a standard sampler (1½" I.D.)-12 inches into the individual stratum is a measurement of a specific property that has been correlated to relative density. The sampling (penetration) resistance offered by sediment from

successive blows delivered by a 140-pound hammer falling 30 inches is counted. The number of blows to drive the standard sampler full 12 inches is recorded as the N-Value.

The on-site material yielded penetration resistance which indicates dense to very dense alluvial soils, fine to coarse grained, dry to slightly moist with trace of silt were encountered within the boring depth. The standard penetration resistances of the on-site materials at 5-feet intervals are presented on the boring logs (Appendix A).

3.0 LABORATORY TESTING AND SUMMARY METHODS

Laboratory testing was programmed following a review of field investigation data and after considering the various foundations, floor slabs, and grading elements to be evaluated. In general, this includes physical testing to establish foundation-bearing characteristics, and classification tests.

A. In-Place Moisture & Density (ASTM D2216 & D2937)

In-situ moisture content and density were determined for all the undisturbed core samples obtained during test boring drilling operations. Test results are tabulated on Plates I-1 through I-11, Log of Test Holes.

B. Mechanical Analysis (ASTM D-422)

The texture composition of a selected typical sample determined by the hydrometer test method was as follows:

Boring No.	Depth (Feet)	Percent Sand	Percent Silt	Percent Clay
B-2	0-3	72	10	18
B-7	0-3	61	17	22
B-8	0-3	56	22	22

B-9	0-3	68	12	20

C. Direct Shear (ASTM D-3080)

Direct shear test was performed on the representative sample of native soil and was considered most pertinent in the design of mat/ spread footings, and moderately deep pier. Tests were performed in the saturated condition at the field density. Individual test results are shown on Plate J.

D. Expansion (ASTM D-4829)

Expansion characteristics were determined by the Expansion Index test on a typical bulk sample considered to be generally representative of the near subgrade soils. Test results were as follows:

Test Boring No.	Moisture Content (%)	Dry Density (pcf)	Expansion Index	Remarks
B-8	8.6	115.2	18	Very Low Expansive

According to the test results, the underlying soils generally exhibit very low expansive potential.

E. Consolidation (ASTM D-2435)

Consolidation (load deformation) tests were performed on undisturbed samples at selected depths. Plotted test results are presented on Plates K, L, and M.

F. Chemical Sulfate Analysis (CAL 417-A Method)

Chemical sulfate analysis was performed on a representative sample by the CAL 417-A method. A soluble sulfate of 390 parts per million was indicated, which is negligible exposure to concrete, however we recommend using Type II Portland cement for the foundation elements in contact with the underlying soil.

G. R-Value Test (ASTM D-2844)

Representative samples of the subgrade soils were obtained and tested to determine the R-value. The material is thought to be typical and presumed to be representative of the subgrade soils. Testing was performed in general accordance with the latest revisions to the Department of Transportation, State of California, Material & Research Test Method No. 301. Pavement design recommendations are based on the latest Traffic Indices (TI's) and recently tested R-value.

An R-Value test was conducted on a representative sample of the near surface soil consisting of clayey sand with trace of silt. The specimens were tested in a state as near to full saturation as possible to simulate the condition the soil might attain at typical field density and under adverse moisture conditions. The R-Value for a representative soil was determined to be 30. Test results are as follows:

The R-Value for a representative soil was determined to be 40. Test results are as follows:

Test Number	Moisture @ Compaction (%)	Density (pcf)	Exudation Pressure (psi)	Stabilometer "R"-Value
a	7.4	120.5	200	37
b	7.1	122.0	350	42
c	6.7	123.8	450	47

* Interpolated 300 psi by Exudation , Rv = 40

4.0 SUBSURFACE DISCUSSION

4.1 General

The recommendations presented are based on entirely upon data derived from a limited number of samples obtained from widely spaced borings. The attached logs, B-1 through

B-11 presented in Appendix A are indicators of subsurface conditions only at the specific locations and times noted. This report assumes the uniformity of the geology and soil structure between the borings, however variations can and often do exist. Whenever there is any deviation, difference or change is encountered or becomes known, we should be contacted.

4.2 Material and Soil Conditions Summary

No appreciable artificial fill was encountered at the boring locations during the exploratory drilling. The upper and underlying natural soils are older alluvium, light brown to dark brown, dry to slightly moist, generally fine to coarse grained, medium dense to very dense, sand with gravel, and some rock fragments as well. A more detailed soil profiles are shown on Plates I-1 through I-11, Log of Test Hole (Appendix A).

4.3 Groundwater

Surface water on this site is the likely result of precipitation or surface run-off from surrounding sites. Overall site drainage is in a north and northwesterly direction. Provisions for surface drainage will need to be accounted for by the project civil engineer.

We recommend that all surface runoff should not be allowed to pond above or flow freely over adjacent slope surfaces. Collected water should be conveyed via a non-erosive device to a suitable storm drain system.

Groundwater was not encountered at a drilled hole depth of 51.5-feet during the field study. No springs or perennial stream flow in local drainages exist based on older topographic maps.

The nearest well, 05S03W10N0015 as shown on Closest Well Groundwater Data (Plate H-1) and groundwater well data (Plate H-2) indicated the highest groundwater elevation to be 1331.86 above mean sea level. The elevation of our project area is about 1,426 feet.

Thus we believe the historic groundwater depth was around 95-feet below the existing ground surface.

Groundwater is not anticipated to affect the site adversely. However, these observations reflect site conditions at the time of the investigation and do not preclude changes in local groundwater conditions, localized seepage due to variations in rainfall, heavy irrigation, damaged structure (pipes, etc.), or altered site drainage pattern(s).

Proper surface drainage is imperative to collect and convey any surface water off site to a suitable storm drain system.

4.4 Faulting and Seismicity

The project site is located in the highly seismic Southern California region within the influence of several fault systems that are considered to be active or potentially active. An active fault is defined by the State of California as a "sufficiently active and well-defined fault" that has exhibited surface displacement within the Holocene time (about the last 11,000 years).

A potentially active fault is defined by the State as a fault with a history of movement within Pleistocene time (between 11,000 and 1.6 million years ago).

No faults have been mapped trending towards or through the site area. The site area does not lie within an Alquist-Priolo Earthquake Fault Zone as designated by the California Geological Survey (CGS) (Hart, 1997). For this reason, the potential for direct surface rupture is considered unlikely.

4.4.1 Faults Close to the Site

USGS National Seismic Hazard Maps for Source parameters interactive query has been used to determine the closest fault to the site within 50 miles and has been tabulated on Table – 1 in Appendix B.

The closest known active faults capable of producing major earthquakes are the Elsinore (GI) and Elsinore (W + GI) Faults, which are both located approximately 9.56 miles (15.3 km) away from the project site. The Elsinore (GI) Fault has been assigned to 6.89 Mw magnitude and slip rate of 5 mm/year and Elsinore (W + GI) Fault has been assigned to 7.27 Mw magnitude and slip rate of N/A.

4.4.2 U.S.G.S. Earthquake Hazard Program

Latest Interactive U.S.G.S. Earthquake Hazard Program using Unified Hazard Tool has been utilized for Conterminous U.S. 2008 (v3.2.x) and peak ground acceleration.

Peak Horizontal Ground Acceleration for 10% probability of exceedance in 50 years i.e. return period of 475 years	0.4423g
Peak Horizontal Ground Acceleration for 5% probability of exceedance in 50 years i.e. return period of 975 years	0.5487g
Peak Horizontal Ground Acceleration for 2% probability of exceedance in 50 years i.e. return period of 2,475 years	0.6906g

Interactive **Hazard Curve** and **Uniform Hazard Response Spectrum** have been plotted and presented in Appendix B.

4.4.3 Seismic Factors

The following are the geotechnical parameters for earthquake design data in accordance with ASCE 7-16 and the latest CBC 2019. The details are presented in Appendix B:

Latitude: **33.7441**^{0} and Longitude: **-117.1658**^{0}

NO.	PARAMETERS	VALUES	REFERENCE
1	0.2-Second Mapped Spectral Response Accelerations, **S_s (MCE_R Ground Motion)**	**1.428g**	ASCE 7-16
2	1-Second Mapped Spectral Response Accelerations, **S_1 (MCE_R Ground Motion)**	**0.532g**	ASCE 7-16
3	Site Class	**D**	ASCE 7-16
4	Site Amplification Factor at 0.2 sec, **F_a** According to Section 11.4.4, F_a should not be less than 1.2	**1.0** **1.2**	ASCE 7-16 Use
5	Site Amplification Factor at 1.0 sec, **F_v,** however, according to Table 11.4.2, **F_v should be 1.77**	**Null** **1.77**	ASCE 7-16 Use
6	Site Modified Spectral Acceleration Value, **S_{MS}** $S_{MS} = F_a S_s = 1.2 \times 1.428 = 1.714$	**1.714g** **1.714g**	ASCE 7-16 Use
7	Site Modified Spectral Acceleration Value, **S_{M1}** **$SM_1 = F_v S_1 = 1.77 \times 0.532 = 0.942$**	**Null** **0.942g**	ASCE 7-16 Use
8	Numeric Seismic Design value at 0.2 sec SA, **S_{DS} = 2/3 of S_{MS} = 2/3 x 1.714 = 1.143**	**1.143g** **1.143g**	ASCE 7-16 Use
9	Numeric Seismic Design value at 1.0 sec SA, **S_{D1} = 2/3 of SM_1 = 2/3 x 0.942 = 0.628**	**Null** **0.628g**	ASCE 7-16 Use

Other seismic parameters are as follows:

Closest Fault Distance	9.56 miles (15.3 km)
Fault Name	Elsinore (GI) & Elsinore (W + GI) Faults
Earthquake Magnitude	6.89 M_w & 7.27 Mw
Slip Rate (mm/year)	5.0 & N/A
PGA_M Site Modified Peak Ground Acceleration	**0.600g**
5% Damped Design Spectral Acceleration at short period, S_{DS}	**1.143g**
5% Damped Design Spectral Acceleration at 1-sec period, S_{D1}	**0.628g**
Seismic Design Category	D
Risk Category	II
Soil Site Class	D

4.5 Design Values

Representative values were selected from the test data and other sources for design and is tabulated below:

Field Density	120 pcf
Expansion Index	0 & 18
Angle of Internal Friction (Ult/Peak)	32/33 & 34/35 deg.
Cohesion (Ult/Peak) Remolded	200/250 & 200/250 psf
Subgrade K-Value	100 pci

5.0 SITE CONSIDERATIONS

5.1 Site Preparation

5.1.1 General

It is our professional opinion that the proposed construction will not be subject to geologic hazard from settlement, slippage, or landslide, provided the recommendations of this report are incorporated into the proposed construction. It is also our opinion that the proposed construction will not adversely affect the geologic stability of the site or adjacent properties provided the recommendations contained in this report are incorporated into the proposed construction.

The validity of the conclusions contained in this report is based on compliance with the recommendations presented in this section. Any excavating, trenching, or disturbances that occur after completion of the earthwork must be backfilled, compacted and tested in accordance with the recommendations contained herein. If any unobserved and untested earthwork, trenching, or backfilling occurs, then the conclusions and recommendations in this report may not be relied on.

5.1.2 Site Clearing

Prior to grading, all grasses, bushes, shrubs and debris including construction materials should entirely be removed from the site and disposed of off-site. Existing any undesirable materials should also be removed and hauled off-site. Existing utilities (if Any) should be removed and relocated as required. Any construction debris or ant buried or other contaminated exposed during site clearance should be removed and hauled away from the site. The resulting excavation from any removal should be cleared of loose material then backfilled with compacted soil. Oversized rocks greater than 6 inches should be removed.

5.1.3 Excavation

Excavations into the on-site soils may encounter a variety of challenges for example, firm alluvium, gravels, some fragments of rocks etc. Caving on clean sands may be encountered. The contractor should be made responsible for designing and constructing stable, temporary excavations as required to maintain stability of the excavation sides. All excavations should be sloped or shored in the interest of safety following local and federal regulations including current OSHA excavation and trench safety standards.

Heavy equipment for breaking the very dense and firm alluvium may be required for the excavations for shallow foundations, drilled shafts, and utility trenches for the proposed construction. The speed and ease of excavation are dependent on the nature of the deposit, the type of equipment used, and the skill and experience of the equipment operator.

5.1.4 ASTs Pad Preparation

At the locations where Above Ground Storage tanks (ASTs) are located, proof-roll the exposed subgrade to observe for any loose or disturbed soils that may remain. Remove and replace any loose or disturbed soils prior to placing any additional fill materials required to reach the finished subgrade elevation.

5.1.5 Compliance

Recommendations for foundations and slabs-on-grade supported on compacted fills or prepared subgrade depend upon compliance with the **Site Preparation recommendations** and Recommended Earthwork Specifications in Appendix C.

To assess compliance, observation and testing should be performed under the direction of a geotechnical engineer. Please contact us to provide observation and testing services.

5.2 Lateral Earth Pressures

5.2.1 Lateral Passive Resistance

Horizontal forces may be resisted by passive pressure acting on the side and sliding resistance. The passive pressure may be 300 psf per foot of embedment from the lowest adjacent grade up to a maximum of 4,500 psf.

Friction between base of footings and/or floor slabs, and the underlying soils may be assumed to be 40 percent of the dead loads.

The allowable bearing capacity and the allowable resistance of horizontal forces may be increased one-third for transient forces.

Friction and lateral pressure may be combined, but not to exceed two-thirds of the allowable lateral pressure.

5.2.2 Retaining Wall Recommendations (If Any)

The retaining wall structures may be supported by shallow footings bearing on compacted fill or competent subgrade soil. Following bearing values may be used for foundation design.

Shallow footings for the wall and/or secondary structure may be designed for an allowable bearing value of 1,500 pounds per square foot (psf) embedded at least 18 inches, a minimum width of 12 inches, placed over a minimum of 12-inches thick engineered fill compacted to 90% relative density or over a competent subgrade soil. This basic bearing value may be increased by 200 psf for each one-foot increase in depth, and by 100 psf for each additional 12 inches in width to a maximum value of 2,500 psf.

Recommended bearing values are for dead plus live loads and may be increased by one-third for combined dead, live, and transient forces such as wind load and seismic forces.

It is recommended that all foundations be reinforced per structural design, but no less than a minimum reinforcement of 2#5 bars top and 2#5 bars at the bottom.

It is estimated that total settlement will be less than 0.50" and differential settlement will be less than 0.25" over a horizontal distance of 30 feet.

5.2.3 Active Pressure

Recommended active lateral soil pressure values for design of drained retaining wall are as follows:

Surface Slope of Retained Material (Horizontal:Vertical)	Equivalent Fluid Weight (pcf) (Native Backfill)	Allowable Bearing Capacity
Level	35	1,500 psf

A Pipe and gravel drain (4" perforated PVC embedded in at least three cubic feet of gravel per lineal foot of pipe wrapped with Mirafi geofabric 10N or equivalent) should be provided on the retained earth side and near the base of all the retaining walls. Backfill should consist of sand and/or gravel. While all backfills should be compacted to the required degree, care should be taken when working close to the walls to prevent excessive pressure.

5.2.4 At-Rest Earth Pressure (If Any)

Retaining walls (basement walls, underground vault, if applicable) should be designed for at-rest conditions. The recommended earth pressure for at-rest conditions is an equivalent fluid density of 60 pounds per cubic foot without surcharge loading.

Note:

The equivalent fluid pressures presented herein do not include the lateral pressures arising from the presence of the following:

- Hydrostatic conditions, submergence or partial submergence
- Sloping backfill, positively or negatively
- Surcharge loading, permanent or temporary
- Seismic or dynamic conditions

5.2.5 Seismic Force on Wall

Lateral forces on retaining walls (exceeding 6 feet in height) due to earthquake movements in accordance with Section 1803A.5.12 of the 2019 CBC for active and at-rest conditions may be calculated as follows:

Seismic active Force = 13 H^2 pounds/ft of wall (Inverted triangular distribution, acting at 0.6H from bottom).

Seismic at-rest Force = 24 H^2 pounds/ft of wall (Rectangular Distribution, acting at 0.6H from bottom).

Where, H = Height of the retaining wall in feet

5.3 On-Site Fill Soils

5.3.1 Materials

On-site clean sand (after removing rocks, sizes greater than 6 inches), low-expansive potential soils, or imported materials may be used as fill material for the following:

- Foundation Areas
- Interior Slab Areas
- Pavement Areas
- Backfill

Any earth materials imported or excavated on the property may be utilized in the fill provided that each material has been determined to be suitable by the soil engineer. These materials should be free of roots, tree branches, other organic matter or other deleterious materials. Soils of poor gradation, undesirable expansion potential, or substandard strength characteristics may be designated by the consultant as unsuitable and may require blending with other soils to serve as a satisfactory fill material.

Gradation (as per ASTM C136) should be as follows:

Size	% by Weight
6"	100
4"	85-100
¾"	70-100
No 4 Sieve	50-100
No. 200 Sieve	15 (max)

Any import material should have an expansion Index, EI less than 20.

5.3.2 Placement and Compaction

a. Place and compact approved fill material in nearly horizontal layers that when compacted should not exceed 6 inches in thickness.

b. Use appropriate equipment and procedures that will produce recommended densities and water contents throughout the lift. Moisture condition, blending, and mixing of the fill layer should continue until the fill materials have a uniform moisture content at or above optimum moisture.

c. Uncompacted fill lifts should not exceed 8 inches.

d. Materials should be compacted to the following:

- On-site or imported soil, reworked and fill:

	Minimum % (ASTM D-1557 Laboratory Standard)
Subgrade Below Footings	90
Subgrade Below Slab-on Grade	90
Subgrade Below Pavement	90
Crush Rock Below Slab-on-Grade	95
Aggregate Base below pavement	95

5.4 Soil Corrosivity

5.4.1 Corrosion and Sulfate Attack Protection

A major factor in determining soil corrosivity is electrical Resistivity. The electrical Resistivity of a soil is a measure of its resistance to the flow of electrical current. Corrosion of buried metal is an electrochemical process in which the amount of metal loss due to corrosion is directly proportional to the flow of electrical current (DC) from the metal into the soil. Corrosion currents, following Ohm's Law, are inversely proportional to soil Resistivity. Lower electrical resistivities result from higher moisture and chemical contents and indicate corrosive soil. Other soil characteristics that can influence corrosivity toward metals are pH, chemical content, soil types and site drainage.

Based on test results and our past experience at this site, soils are classified as slightly corrosive to ferrous metals and negligible sulfate exposure to concrete. The type of alluvial deposits encountered at this site and in this area in general is known to cause corrosion problems. Ferrous metals and pipes should be properly coated and wrapped. Please be advised that this firm does not practice corrosion engineering; therefore, we recommend that upon completion of precise grading, onsite soils be

analyzed by a qualified corrosion engineer to evaluate the impact of chemical activity of these soils on buried metallic pipes and other underground structures. If necessary, more elaborate corrosion protection systems may be considered as may be recommended by a corrosion expert.

5.4.2 Concrete

Concrete for foundation where in contact with the underlying soils should be designed in accordance with the 2019 CBC, ACI 318 Section 4.3, Table 4.3.1 (2005). As the potential for sulfate attack on concrete appears negligible, however, we recommend that the use of type II Portland cement, with a maximum water-cement ratio of 0.50, and a minimum compressive strength of 3,000 psi should be taken into consideration for the foundation elements in contact with the soil.

For all concrete in contact with soil, concrete cover over rebar should be maintained per California Building Code (CBC 2019).

5.5 Building Foundation Recommendations

Based upon results of the field explorations, laboratory testing and engineering analysis, it is concluded that the site is suitable for the proposed development at the subject site. The site is subject to ground shaking typical of the Southern California area, any construction should conform to the current seismic design provision of the California Building Code (2019), and/or other regulatory codes.

Following are more specific recommendations:

5.5.1 Conventional/Spread Foundations

The planned ASTs and the proposed building may be supported by conventional continuous and/or isolated shallow spread pad footings, bearing on certified compacted fill. The foundations should bear on engineered fills achieved by removal and re-compaction of the soils below foundation and slab elements.

Footings placed at least 18 inches below finish subgrade and 3 feet x 3 feet spread footings, 24 inches deep may be designed for an allowable bearing value of 1,500 pounds per square foot (psf). The footing width should be a minimum of 18 inches. An increase of 100 psf and 200 psf are allowed for each additional foot of increase in width and depth, respectively to a maximum value of 2,000 psf.

This allowable bearing value is for dead plus live load and may be increased by one-third for combined dead, live, and transient loads such are wind or seismic forces.

All footings at minimum shall be incorporated with 2#5 bars at top and 2#5 bars at the bottom.

Isolated column footings should be connected to other foundation elements with reinforced grade beams.

Total settlement is estimated to be less than ½ inch for loading of 2 kips per square foot. Differential settlement will be 1/3 of an inch maximum for a horizontal distance of 30 feet. Additional foundation movements could occur if water from any source infiltrates the foundation soils. Therefore, proper drainage should be provided in the final design and during construction.

All footings, stem walls, and masonry walls should be steel-reinforced to reduce the potential for distress caused by differential foundation movements. The use of joints at openings or other discontinuities in masonry walls is recommended.

We recommend that geotechnical engineer, or his representative thereof, observe the footing excavations before reinforcing steel and concrete are placed. This observation is to assess whether the soils exposed are similar to those anticipated based on our exploration. Any soft, loose, or otherwise unacceptable soils should be undercut to suitable materials and backfilled with approved fill materials, or

controlled density fill (i.e., lean concrete). Soil backfill should be properly placed and compacted.

5.5.2 Mat Foundation (Alternate Foundation for ASTs)

Alternatively, above ground storage tanks (ASTs) and proposed building may be supported on the mat foundation. The semi-rigid mat foundation should be at least 4-feet or more below the finish grade and may be designed for an allowable bearing capacity of 2,000 pounds per square foot. This basic allowable bearing value is for dead load plus live load and may be increased by one-third for short duration loading, such as wind or seismic forces. Modulus of subgrade reaction, k value may be taken as 150 pci for subgrade soil at 4 feet depth.

For lateral support, an average passive capacity of 300 pounds per square foot per foot to a maximum of 4,500 psf may be used for mat footing.

Minimum thickness of mat footing should be 24 inches. The bottom of excavation at 4 feet below the finish grade should be compacted to 90 % of the maximum density as per ASTM D-1557 Laboratory Standard, certified by the Geotechnical Engineer of record prior to pouring concrete. Other aspects of the design including reinforcement and the thickness of the mat should be determined by the project structural engineer. The mat may be buried and should be backfilled with on-site material compacted to 90 percent.

5.5.3 Drilled Shafts for Canopy Foundation

Proposed truck diesel and gas canopies may be supported by moderately deep cast-in-place concrete caisson bearing into natural subgrade materials. Very hard drilling may be encountered because of the presence of dense to very dense alluvial soils. Heavy-duty equipment may be required.

The lateral forces will be the controlling element in this case depending on the height of the canopies, wind load, and/or seismic loads. Therefore, it is

recommended that the minimum pier diameter should be 36 inches and should be extended to a minimum depth of 10 feet into the native material.

The pier may be designed for an allowable end bearing of 3,000 pounds per square foot or for an average frictional resistance of 300 pounds per square foot. Either skin resistance or end bearing or combined will provide adequate foundation support for the proposed canopies. The uppermost length of the drilled shaft foundation equal to the diameter of the shaft should be ignored when evaluating allowable capacities.

For lateral support, a passive capacity of 350 pounds per square foot per foot to a maximum of 5,000 psf may be used.

It is recommended that concrete be placed immediately after drilling. The concrete for the pier should be placed through tremmie or other directional devices. Pier drilling operations should be subject to observation by this office to confirm the conditions encountered are consistent with the conclusions and recommendations of this report and/or to make any appropriate modifications, if necessary. Please note that caving is very likely to be encountered during caisson drilling. The contractor should be ready to provide either casing or other methods to prevent caving. The contractor should bring the heavy duty equipment because very difficult drilling are anticipated due to presence of boulders and rocks.

We anticipate that total settlement of the proposed structures, supported by drilled shaft foundations as recommended, should be less than ½-inch. Additional foundation could occur if water from any source infiltrates the foundation soils. Therefore, proper drainage should be provided in the final design and during construction.

In case, caisson drilling is not feasible for the canopies, mat foundation as explained on 5.5.2 for the support of the canopies may be anticipated.

5.6 Slab Design Recommendation

Based on test results, the underlying surface soils are very low expansive, therefore it is recommended to maintain subgrade soil at near optimum moisture content during precise grading and / or by periodic watering following grading and incorporated slab reinforcement of No. 3 bars 16 inches center to center cross pattern. The slab thickness should be 5 inches minimum. However, the thickness and reinforcement requirements of the slab should be evaluated by the project structural engineer.

It is further recommended that moisture retarder (Stego 15 mil or approved equivalent) be provided over a minimum of 6 inches of ¾" aggregate rock rolled and compacted to 95% relative compaction, with the gradation (90-100% passing on sieve ¾" size, 1-10% passing on No. 4 sieve, and 0-3% passing on No. 100 sieve) over the compacted fill subgrade compacted to 90% relative compaction.

The modulus of subgrade reaction (k) is estimated to be 125 pounds per cubic inch (pci). All concrete placement and curing operations should follow the American Concrete Institute (ACI 318-19) manual recommendations. Improper curing techniques, high slump (high water-cement ratio), or both, could cause excessive shrinkage, cracking, or curling. Concrete slabs should be allowed to cure properly before placing vinyl or other moisture-sensitive floor coverings.

5.7 General Drainage and Moisture Protection

It is recommended to provide positive surface drainage systems consisting of a combination of sloped concrete flatwork, sheet flow gradients, swales, surface area drains (where needed) around the structures. Ground surface should have a minimum gradient of 2 percent away from any building foundations and similar structures. Surface waters should not be allowed to collect or pond against building foundations and within the level areas of the site. Buildings should be provided with gutters and downspouts. Downspouts shall be connected to area drains by pipes.

Planters near the building should be avoided if possible and if used, they should be water proofed. Irrigation should be controlled and an area drain system should be provided to avoid water intrusion beneath the structure.

5.8 Volume Changes

Based on our experience, there is typically a reduction in soil volume when the native soils are excavated and then compacted. Typical shrinkage percentages are usually in the range of 5 to 10 percent when the soils are compacted depending on the native in-place density.

5.9 Underground Utilities

Utility backfill should be placed and compacted by mechanical means as recommended in this report. Testing of the backfill should be conducted to verify conformance to the required specifications. Ponding or water jetting of the backfill should not be conducted.

Exterior trenches adjacent to, and within areas extending below a 1:1 plane projected from the outside bottom edge of the footing, and all trenches beneath hardscape features should be compacted to at least 90% of the laboratory standard. Sand backfill, unless excavated from the trench, should not be used in these backfill areas. Compaction testing and observations, along with probing, should be accomplished to verify the desired results.

All trench excavations should conform to CAL_OSHA and local safety codes.

5.10 Pavement Design

5.10.1 Pavement Section

The pavement sections presented on the following page are based on the R-value data tested, the assumed TI values, and the guidelines presented in the latest revision to the California Department of Transportation "Highway Design Manual," latest edition.

Typical categories of paved areas with corresponding traffic indices are listed as follows:

T.I. 5.0 Parking Stalls

T.I. 6.0 Driveways

T.I. 8.0 Trucks Route, Fire Lane, Truck Parking

The recommended pavement sections provided below are intended as a minimum guideline. If thinner or highly variable pavement sections are constructed, increased maintenance and repair could be expected.

If the ADT (average daily traffic) or ADTT (average daily truck traffic) increases beyond that intended, as reflected by the TI used for design, increased maintenance and repair could be required for the pavement sections.

Consideration should be given to the increased potential for distress from overuse of paved areas by heavy equipment and/or construction related traffic (e.g., concrete trucks, loaded supply trucks, etc.), particularly when the final section is not in place (i.e., topcoat). Best management construction practices should be followed at all times, especially during inclement weather.

Based on an "R" Value of 40, the following thickness of aggregate base was determined for vehicular and non-vehicular areas.

Asphalt Concrete Pavement Section Design Table

Pavement Areas	Traffic Index, TI	Asphalt Concrete AC (inch)	Aggregate Base AB (inch)
Truck Route, Fire lane Truck Parking	8	4"	12"
Driveway/Under Canopy	6	4"	8"
Parking Stall	5	4"	6"

Rigid Concrete Pavement Section Design Table

Pavement Areas	Traffic Index, TI	Concrete (inch)	Aggregate Base AB (inch)
Heavy Truck Vehicular Areas	6	6"	10"
Walkways	-	4"	4"

For concrete section, #4 reinforcement 12-inch center to center each way cross pattern are recommended. However structural design by structural engineer will suffix.

5.10.2 Pavement Grading Recommendations

5.10.3 General

A representative of Geotechnical Solutions, Inc. (GSI) should be present for the preparation of subgrade, aggregate base, and asphalt concrete for flexible pavement and concrete for rigid pavement.

5.10.4 Subgrade Preparation

After removing the existing deleterious materials on the pavement areas and hauled offsite, all surficial deposits of loose soil material should be removed and excavate 12 inches below the base and recompacted as recommended. The bottom is further scarified to a depth of at least 6 inches; moisture conditioned as necessary and compacted to 90 percent of the maximum laboratory density as determined by ASTM Test Method D-1557.

Deleterious material, grass/weeds, excessively wet or dry pockets, concentrated zones of oversized rock fragments, and any other unsuitable materials encountered during excavation or grading should be removed. The compacted fill material should then be brought to the elevation of the proposed subgrade for the pavement.

The subgrade should be proof-rolled in order to ensure a uniform, firm and unyielding surface. All grading and fill placement should be observed by the project soils engineer and/or his representative.

5.10.5 Aggregate Base

Compaction and rolling are required for the recommended base section. Minimum relative compaction required will be 95 percent of the laboratory maximum density as determined by ASTM Test Designation D-1557. Aggregate base should be in accordance with Crush Rock Class II aggregate base (minimum R-value=78) and sample should be brought for testing and approval prior to delivery to the site. Please note that crush miscellaneous base is not allowed.

5.10.6 Asphalt Concrete Pavement

Asphalt concrete pavement should be Performance Grade PG 64-10 1/2" maximum aggregate size and should be placed and compacted in two layers. Asphalt concrete shall be compacted to 95 percent of the Hveem Laboratory Standard.

5.10.7 Concrete Pavement Areas:

Concrete flatwork including sidewalks, patio-type slabs and concrete sub-slabs to be covered with decorative pavers should be at least 4 inches thick and provided with construction joints or expansion joints every 6 feet or less.

Concrete driveway slabs should be at least 6 inches thick over 6 inches of aggregate base or native base (for vehicular areas) and 4" of concrete over 4" of aggregate base or native base (Non-vehicular areas) over approved subgrade, providing #4 reinforcement 12" center to center each way cross pattern and provided with construction joints or expansion joints every 10 feet or less.

At the driveway areas, the top 12 inches of subgrade should be excavated; moisture conditioned and recompacted with minimum 90% compaction immediately prior to placing the rock base and asphalt concrete. Rock-base material shall be class II aggregate base and to be compacted to 95 percent minimum.

Design section must be verified during site grading, based on R value test and appropriate modifications shall be made, if required.

5.11 Exterior Concrete Flatwork

In order to reduce the potential for unsightly cracking, concrete sidewalks, deck and patio slabs and concrete sub-slabs to be covered with decorative pavers should be at least 4 inches thick and provided with construction joints or expansion joints every 6 feet or less. Concrete driveway slabs should be at least 5 inches thick and provided with construction joints or expansion joints every 10 feet or less.

5.12 Temporary Excavations

Temporary excavations may not be required but in case it is needed then the Contractor should be made fully responsible for adequate support of the excavation at all times. Temporary support of excavation structures plans should be designed by a Professional Engineer licensed in the State of California and experienced in such work and these plans should be reviewed by us and approved by the City of Perris, if necessary.

Since the site has adequate room to lay back with temporary excavation slopes, shoring may not be needed, but this should be evaluated based on field conditions.

The stability of temporary excavations depends on many factors, including the slope angle, the shearing strength of the existing material, orientation and inclination of geologic structure, the height of the slope and the length of time the excavation remains

unsupported and exposed to equipment vibrations and rainfall. All excavations should be observed by the engineering geologist during excavation.

The possibility of temporary excavations failing may be minimized by: 1) keeping the time between cutting and filling operations to a minimum; 2) limiting excavation length exposed at any one time; and, 3) cutting no steeper than a 1:1 (horizontal to vertical [h:v]) inclination and no steeper for false cuts along the toe for key excavations, cleanouts, etc.

Following is the temporary excavation recommendation, subject to field verification by the geotechnical consultant.

Excavation up to 4 feet	Vertical
Excavation over 4' but not to exceed 10'	1:1 (H: V)
Excavation from 10' to 20'	1½:1 (H: V)

6.0 GENERAL COMMENTS AND LIMITATIONS

6.1 Plan Review

Final project plans should be reviewed by this office prior to construction, so that construction is in accordance with the conclusions and recommendations of this report. Based on our review, supplemental recommendations and/or further geotechnical studies may be warranted.

6.2 Geotechnical Observation and Testing

All footing trenches for the proposed structure should be observed by a representative of this firm to verify that they were excavated into competent bearing soils per the recommendations of this report as well as to the minimum depths recommended above. These observations should be performed prior to the placement of forms or reinforcement. The excavations should be trimmed neat, level and square. All loose, sloughed or moisture softened soil should be removed prior to placing concrete.

6.3 Construction Verification Procedure

Construction of foundations and placement of engineered fill should be done under the observation and documentation of a representative of the project Geotechnical Engineer. The following are noted as items requiring verification during construction.

Pre-Grading Meeting:

A pre-grading meeting should be held prior to the start of any grading activities. Attendees of this meeting should include the Owner, the Architect, the Geotechnical Engineer, and the Contractor, to review procedures and scheduling.

Footing Observations:

Construction of foundation and slab should be performed under inspection of the Geotechnical Engineer. Footings should be observed and certified by Geotechnical Engineer of Record after excavation and prior to placement of reinforcing bars.

Earthwork Observations:

Relative compaction of all fill materials placed on site should be tested in accordance with ASTM D6938. All new fill shall be brought to near optimum moisture, placed in layers not exceeding six inches in thickness, and compacted to at least 90 percent relative compaction for subgrade and 95 percent relative compaction for aggregate base. No jetting or water tamping of fill soils shall be permitted. All imported soil for engineered fill should be pre-approved by the Geotechnical Engineer and consist of clean, granular, non-expansive soil, free of vegetation and other debris with an Expansion Index of 20 or less.

At all times, the contractor should have a responsible field superintendent on the project in full charge of the work, with authority to make decisions. He should cooperate fully with the Geotechnical Engineer in carrying out the work.

All footing trenches for continuous and spread footings and subgrade for the slab areas should be observed by the project Geotechnical Engineer to verify that over-excavation and re-compaction operations of adequate depth, thickness, and compaction have been performed as specified. All footing excavations should be trimmed neat, level and square. All loose, sloughed or moisture softened soil should be removed and replaced with properly compacted soil.

6.4 Recommendations for Construction

Surveying: The contractor shall set necessary stakes to verify lines and grades as shown on the plan.

Changed Conditions: Any changed conditions not found during exploration should be brought to the attention of the soil engineer. As a result of the changed conditions, the soil engineer will provide further recommendations.

Site Drainage: The site should be sloped to direct water away from all structures and divert to a positive drainage device at the street. Roof gutters and down spouts shall be provided for roof drainage. Down spouts shall be connected to the positive area drains.

Footing and Utilities Trenches. All the Footing excavations as well as utility trenches should be observed by a representative of Geotechnical Solutions, prior to placement of steel.

6.5 Limitations

This report is issued with the understanding that it is the responsibility of the owner or his representative to see that the information and recommendations contained herein are called to the attention of the other members of the design team for the project and that the applicable information is incorporated into the plans, and that the necessary steps are taken to see that the contractors and the subcontractors carry out such recommendations. The findings of this report are valid as of the present date. However, changes in the

conditions of a property can occur with the passage of time, whether due to natural processes or to the works of man, on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes outside of our control. The validity of the recommendations of this report assumes that Geotechnical Solutions, Inc. will be retained to provide construction monitoring services. The scope of our services did not include any investigation for the presence or absence of hazardous or toxic materials.

6.6 Closure

The Conclusions and recommendations contained herein are based on the findings and observations made at the test boring locations. It is not unusual to find conditions between and beyond such locations, which differ from the conditions encountered. If conditions are encountered during construction, which appear to differ from those previously disclosed, this office should be notified so as to consider the need for modifications. On-site construction observations and wherever appropriate, tests should be performed during the course of construction by a representative of this office to evaluate compliance with the design concepts, specifications, and recommendations contained herein.

This report has been compiled for the exclusive use of our client, it shall not be transferred to, or used by, other parties, or applied to any project on this site other than described herein without consent and /or thorough review by this office.

Geotechnical Solutions, Inc.

References

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Jennings, C.W., 1994, Preliminary Fault Activity Map of California, Scale 1:750,000, DMG Open File Report 92-03.

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Thomas W. Dibblee, Jr., 2003," Geologic Map of the Devore Quadrangle, San Bernardino County, California", Edited by John A. Minch.

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2008 National Seismic Hazard Maps – Source Parameters.
https://earthquake.usgs.gov/cfusion/hazfaults_2008_search/query_results.cfm

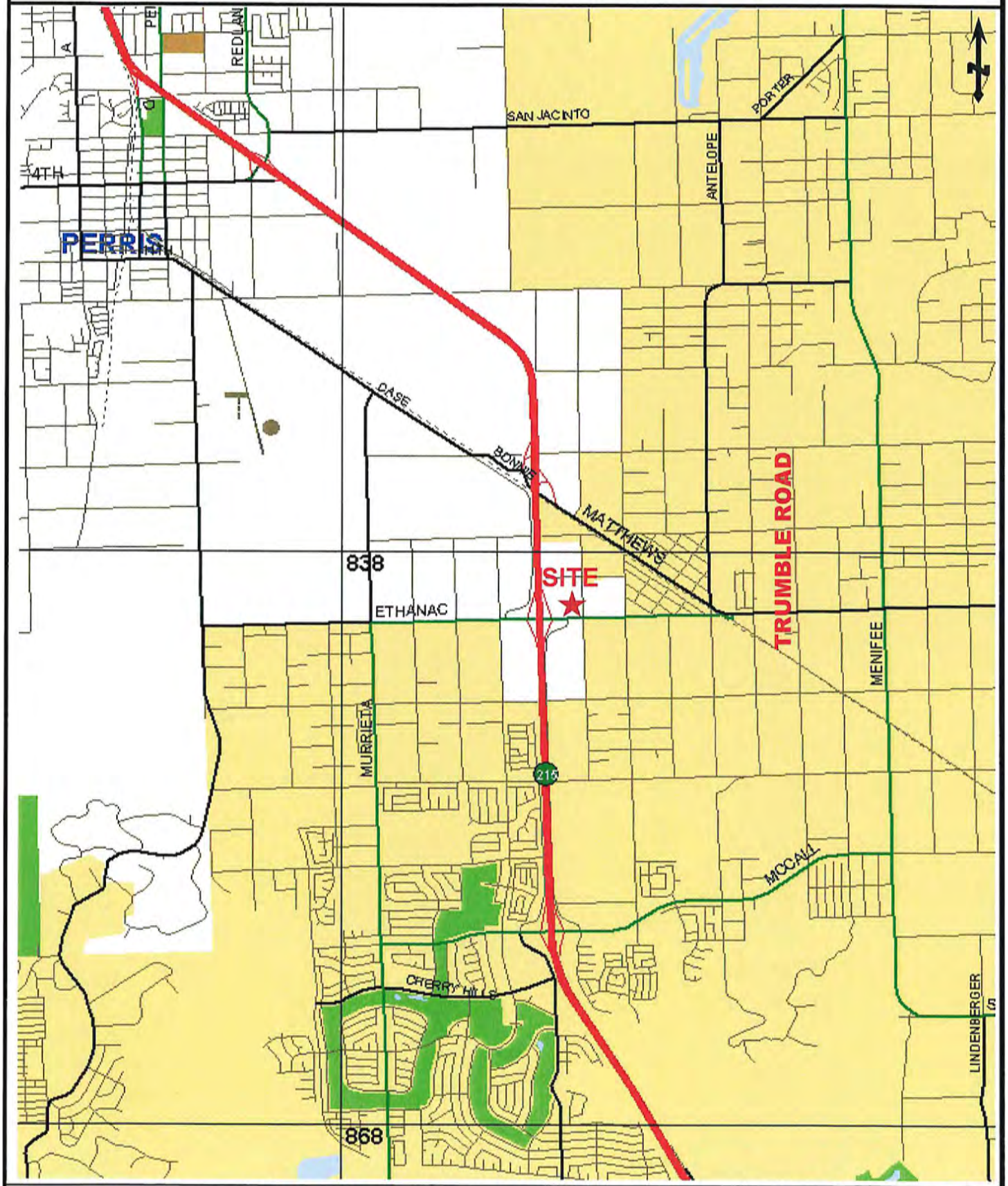
U.S.G.S., Earthquake Hazards Program, Unified Hazard Tool – Interactive Hazard Curve and Interactive Deaggregation web Site.
https://earthquake.usgs.gov/hazards/interactive/

Appendix A

Plates:

- Vicinity Map
- Plot Plan and Boring Location Map
- Topographic Map
- Google Map
- Site Regional Geology Map
- Seismic Hazard Map – CGS
- Fault, Liquefaction and Flood Zones
- Groundwater Closest Well Data
- Groundwater Map – Well Data
- Log of Test Borings
- Direct Shear Tests
- Consolidation Tests

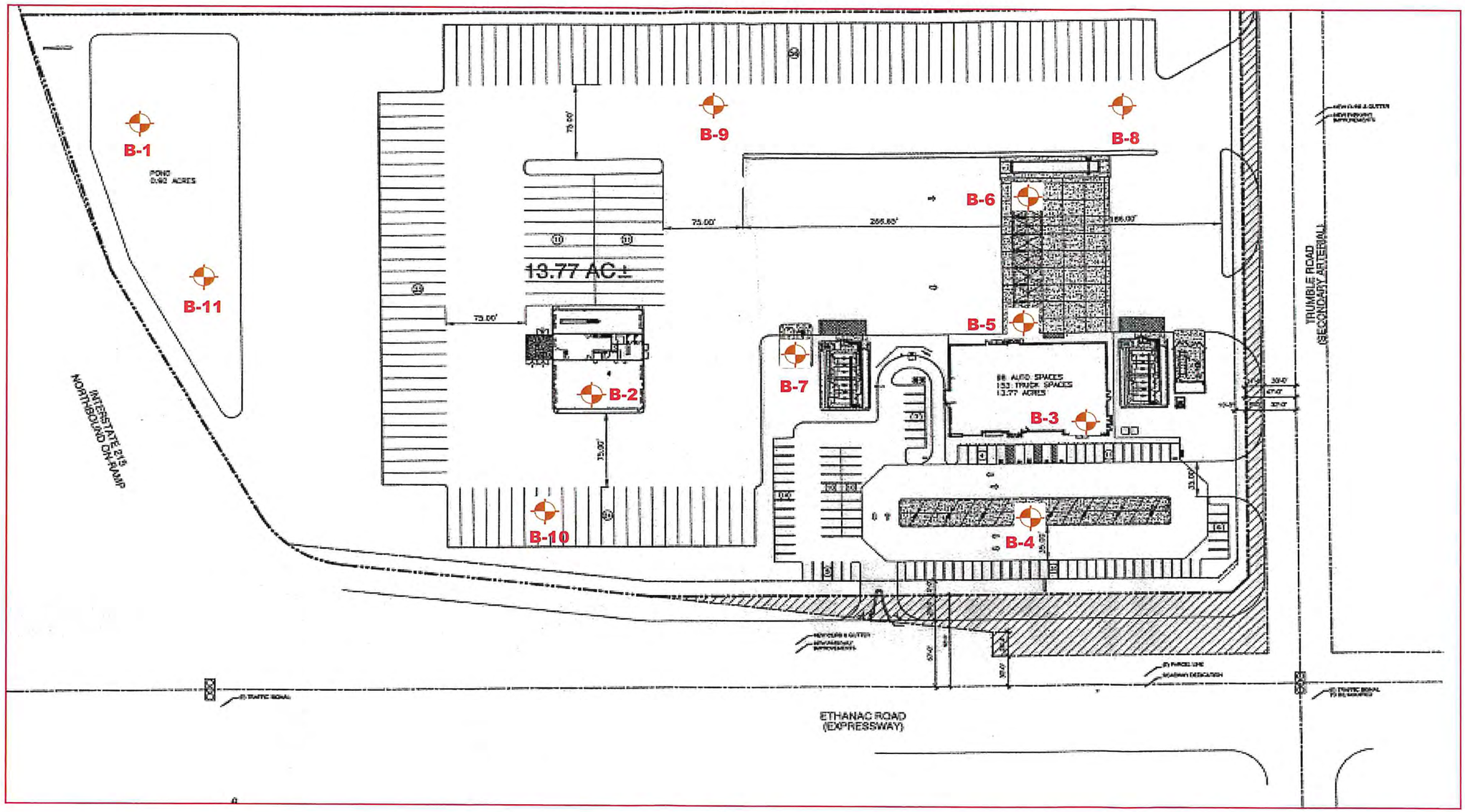
VICINITY MAP



Travel Plaza - Perris	Project No.	G-5908-01
Corner of Trumble Road and Ethanac, Perris, California	Plate:	A

Geotechnical Solutions, Inc.

PLOT PLAN & BORING LOCATION MAP



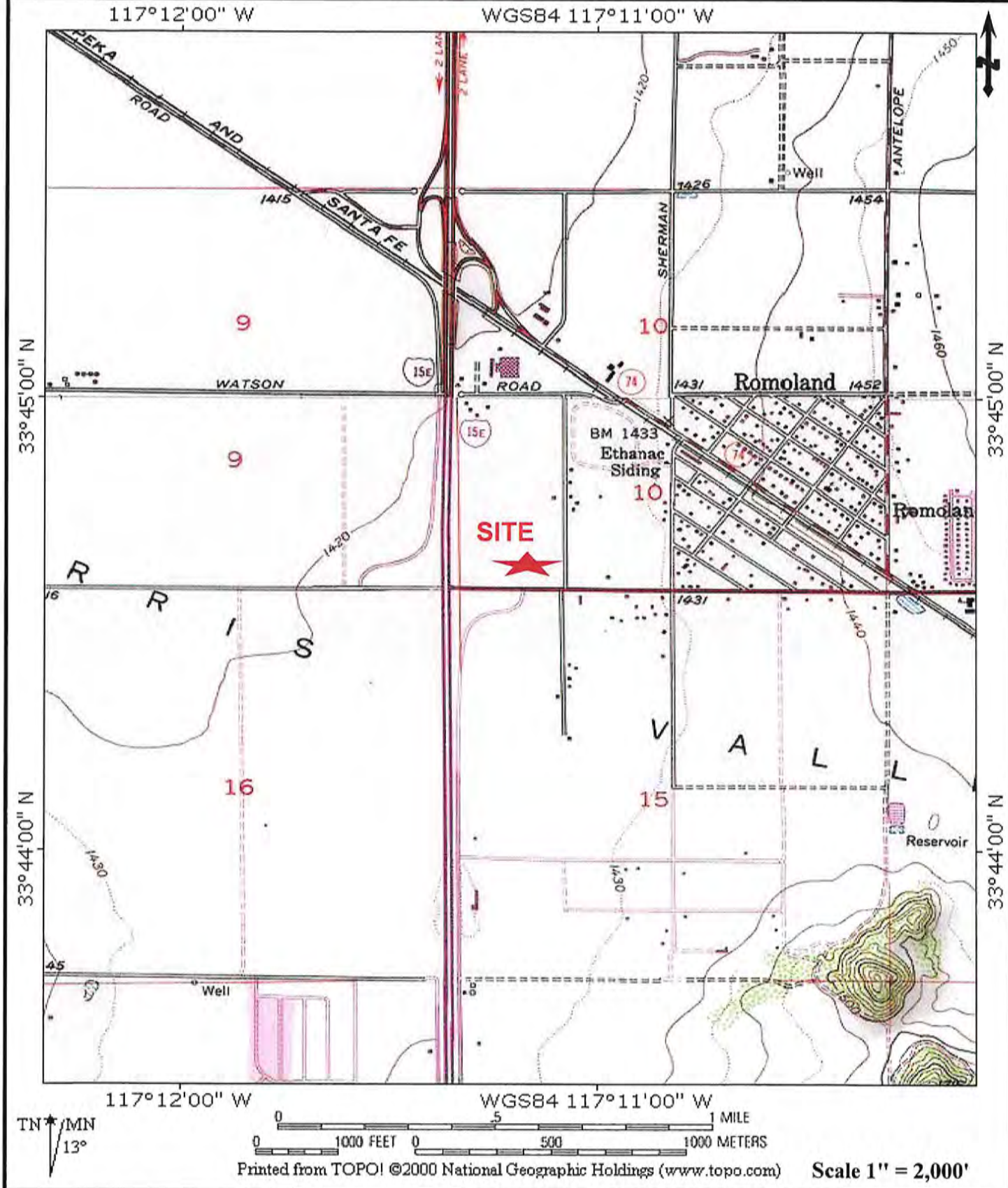
HSA Borings (2021)
B-11

APPROX. SCALE: 1" = 100'

Travel Plaza - Perris	Project No.	G-5908-01
Corner of Trumble Road and Ethanac, Perris, California	Plate:	B

Geotechnical Solutions, Inc.

TOPOGRAPHIC MAP



Travel Plaza - Perris	Project No.	G-5908-01
Corner of Trumble Road and Ethanac, Perris, California	Plate:	C

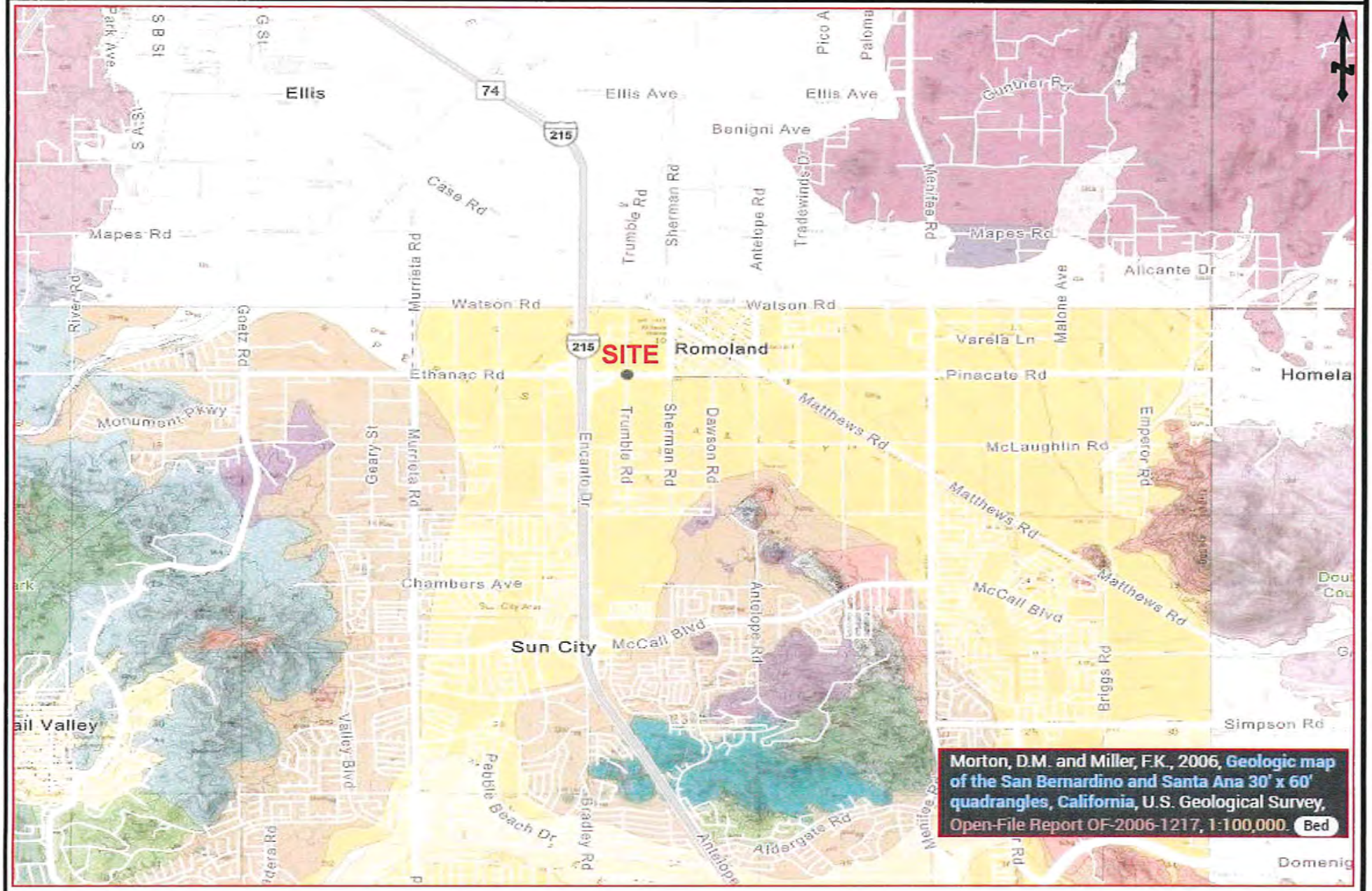
Geotechnical Solutions, Inc.

GOOGLE MAP

Travel Plaza - Perris	Project No.	G-5908-01
Corner of Trumble Road and Ethanac, Perris, California	Plate:	D

Geotechnical Solutions, Inc.

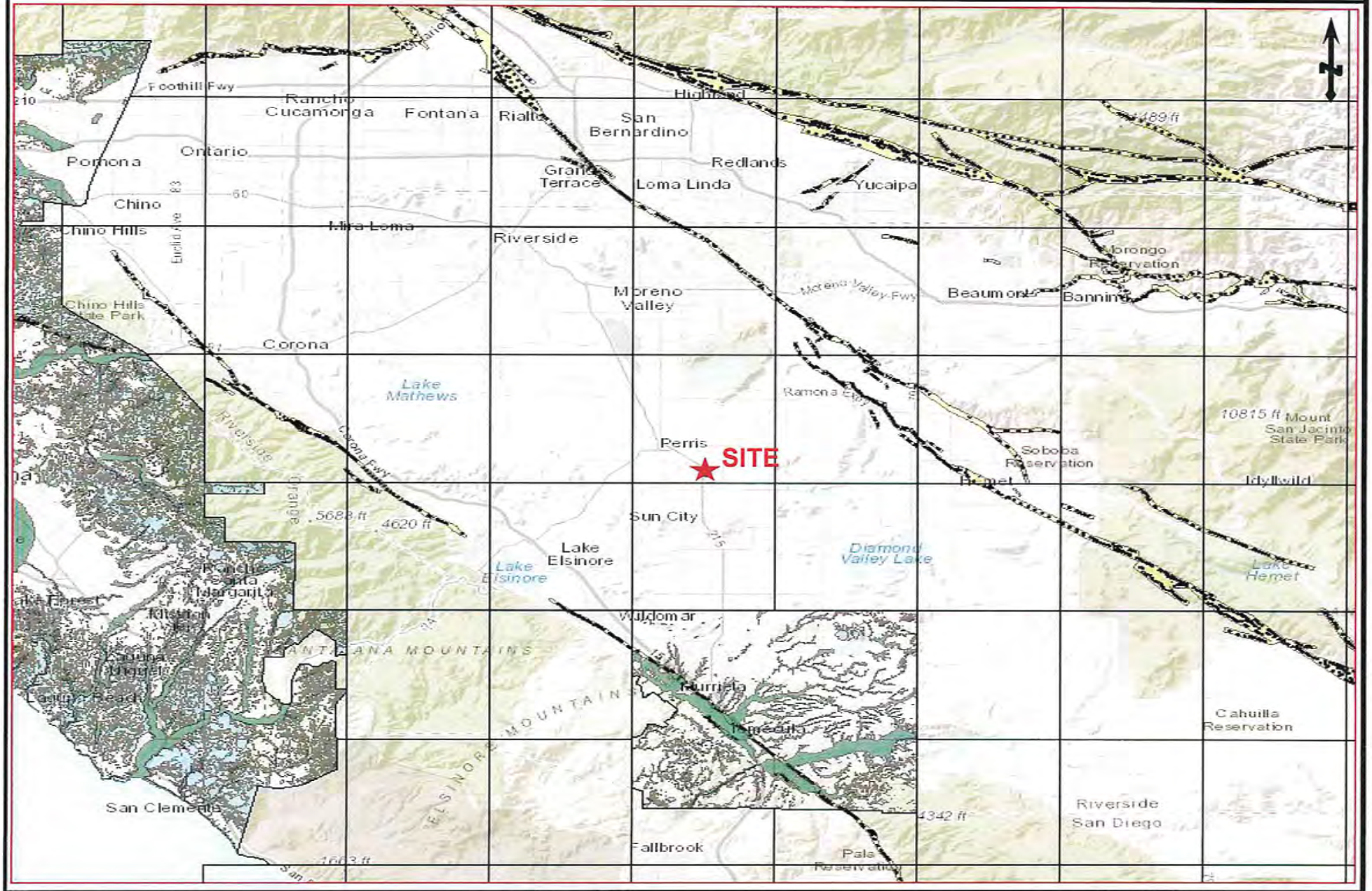
Site Regional Geologic Map



Travel Plaza - Perris	Project No.	G-5908-01
Corner of Trumble Road and Ethanac, Perris, California	Plate:	E

Geotechnical Solutions, Inc.

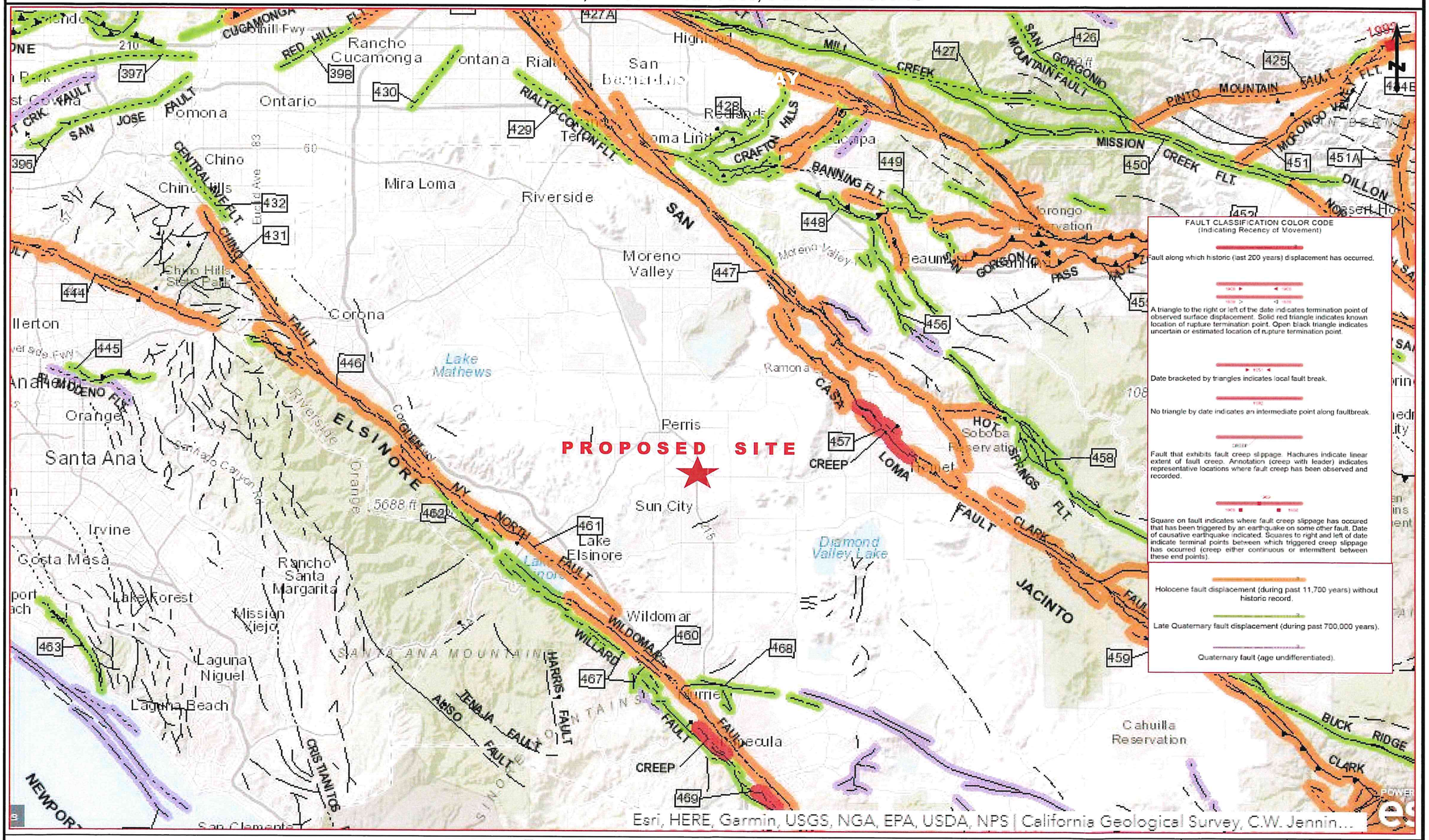
Seismic Hazard Map



Travel Plaza - Perris	Project No.	G-5908-01
Corner of Trumble Road and Ethanac, Perris, California	Plate:	F

Geotechnical Solutions, Inc.

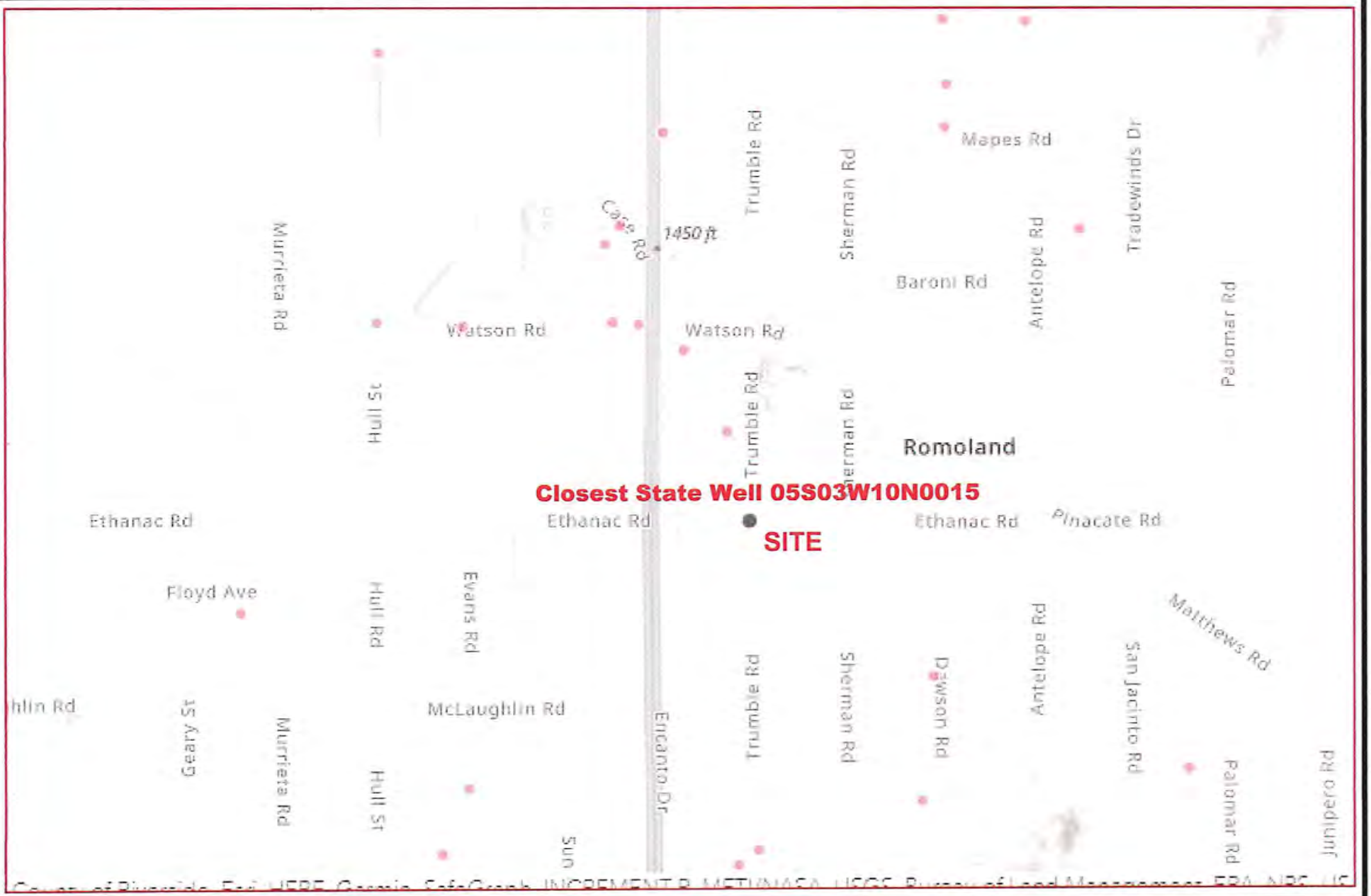
FAULT, LIQUEFACTION, FLOOD ZONES



Travel Plaza - Perris	Project No.	G-5908-01
Corner of Trumble Road and Ethanac, Perris, California	Plate:	G

Geotechnical Solutions, Inc.

GROUNDWATER MAP - CLOSEST WELL DATA



Travel Plaza - Perris	Project No.	G-5908-01
Corner of Trumble Road and Ethanac, Perris, California	Plate:	H-1

Geotechnical Solutions, Inc.

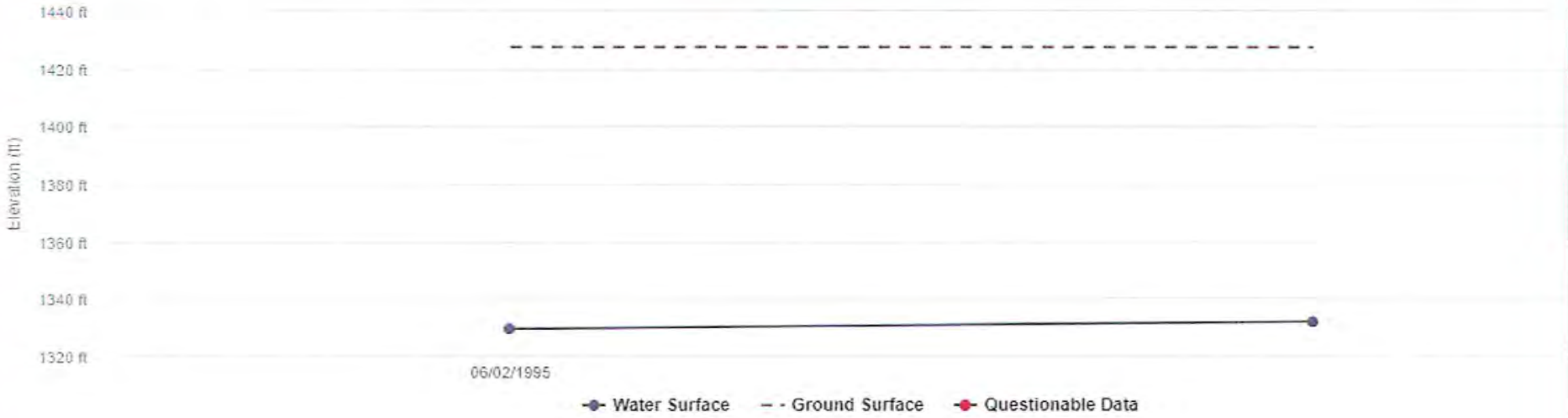
GROUNDWATER MAP - WELL DATA

Groundwater Level Report

Station 337464N1171859W001

Station Data | Groundwater Level Data

Groundwater Levels for Well 337464N1171859W001 **(Site Code)**



Measurement Date (PST)	Reference Point Elevation	Ground Surface Elevation	Distance from RP to WS	Groundwater Elevation	Ground Surface to Water Surface	Measurement Issue	Collecting Agency
06/02/1995 00:00:00	1427.490	1427.490	97.98	1329.51	97.98		Department of Water Resou...
09/13/1995 00:00:00	1427.490	1427.490	95.63	1331.86	95.63		Department of Water Resou...

Travel Plaza - Perris	Project No.	G-5908-01
Corner of Trumble Road and Ethanac, Perris, California	Plate:	H-2

Geotechnical Solutions, Inc.

Project :	Travel Plaza - Perris	LOG OF TEST HOLE	Borehole No. B-1
Project Location :	Corner of Trumble Road and Ethanac, Perris, California		Plate No. I-1
Project Number :	G-5908-01		Page 1 of 1

Date(s) Drilled :	May 24, 2021	Logged By :	BA/AB	Checked By :	DXS
Drilling Method :	Hollow Stem Auger	Drill Bit Size / Type :	8-inch	Total Depth of Borehole, feet :	10
Drill Rig Type :	B-61	Drilling Contractor :	Whitecomb Drilling	Approx. Surface Elevation, feet :	1426 feet MSL
Groundwater Level and Date Measured:	No Water encountered at the time of drilling	Sampling Method :	California (ring), bulk, SPT	Hammer Data :	140 lbs dropping 30 inches
Borehole Backfill :	Drill cuttings	Comments :	Refer to plot plan for location;		

Elevation, feet	Depth, feet	SAMPLES Type	Number	Penetration Resistance, Blows / 6"	Graphics	Blows / 12"	MATERIAL DESCRIPTION	Moisture Content, %	Dry Unit Weight, pcf	Percent Passing No. 200 Sieve (%)	OTHER TESTS AND REMARKS
1426	0						**Covered with dry weeds**				
			Bag #1				Older Alluvium: Silty Sand (SM), light brown, medium dense				
	2		C-1	19-54/6"		> 100	@2': Sand (SP), silty, light brown, slightly moist, very dense	6	127		
1421	5		C-2	20-50/6"		> 100	@5':Sand (SP), poorly graded, very dense, gray, slightly moist, medium to coarse grained	7	122		
1416	10									11	HD: 89(SA) :7(SI) : 4(CL)
1411	15						End of Boring = 10 feet 2" Gravel on Bottom Drilled for Percolation test No groundwater encountered No Caving Backfilled w/Cuttings after percolation test				
1406	20										
1401	25										
1396	30										
1391	35										
1386	40										
1381	45										

Geotechnical Solutions, Inc.

Project :	Travel Plaza - Perris	LOG OF TEST HOLE	Borehole No. B-2
Project Location :	Corner of Trumble Road and Ethanac, Perris, California		Plate No. I-2a
Project Number :	G-5908-01		Page 1 of 2

Date(s) Drilled :	May 24, 2021	Logged By :	BA/AB	Checked By :	DXS
Drilling Method :	Hollow Stem Auger	Drill Bit Size / Type :	8-inch	Total Depth of Borehole, feet :	51.5
Drill Rig Type :	B-61	Drilling Contractor :	Whitecomb Drilling	Approx. Surface Elevation, feet :	1426 feet MSL
Groundwater Level and Date Measured:	No Water encountered at the time of drilling	Sampling Method :	California (ring), bulk, SPT	Hammer Data :	140 lbs dropping 30 inches
Borehole Backfill :	Drill cuttings	Comments :	Refer to plot plan for location;		

Elevation, feet	Depth, feet	SAMPLES Type	Number	Penetration Resistance, Blows / 6"	Graphics	Blows / 12"	MATERIAL DESCRIPTION	Moisture Content, %	Dry Unit Weight, pcf	Percent Passing No. 200 Sieve (%)	OTHER TESTS AND REMARKS
1426	0						**Bareground**				
			Bag #1				Older Alluvium: Clayey Sand (SC), light brown, medium dense			28	HD:72 SA:10 SI: 18 CL
	2		C-1	50/6"		100	@2': Sand (SP), Silty, light brown, slightly moist, very dense	7	121		
1421	5		C-2	18-37-44		81	@5':Sand (SP), poorly graded, very dense, gray, moist, medium to coarse grained	10	126		
1416	10		C-3	17-32-34		66	@10':Sand (SP), variety of color, moist, very dense, medium to coarse grained	9	95		DS: P=Peak / Ult=Ultimate $\phi = 34^0$, c =250 psf (P) $\phi = 33^0$, c = 200 psf (Ult)
1411	15		S-1	14-28-33		61	@15': Sand (SP), hard to drill, slightly moist, dark gray	5	-		
1406	20		S-2	15-34-39		73	@20': Same as above	5	-		
1401	25		S-3	19-31-37		68	@25': Same as above	5	-		
1396	30		S-4	14-19-27		46	@ 30': Same as above	4	-		
1391	35		S-5	11-18-26		44	@ 35': Sand(SP), poorly graded, dark gray, moist, dense, medium to coarse grained	11	-		
1386	40		S-6	20-27-39		66	@40': Sand(SP), poorly graded, dark gray, slightly moist, very dense, medium to coarse grained	3	-		
1381	45										

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Project :	Travel Plaza - Perris	LOG OF TEST HOLE	Borehole No. B-2
Project Location :	Corner of Trumble Road and Ethanac, Perris, California		Plate No. I-2b
Project Number :	G-5908-01		Page 2 of 2

Date(s) Drilled :	May 24, 2021	Logged By :	BA/AB	Checked By :	DXS
Drilling Method :	Hollow Stem Auger	Drill Bit Size / Type :	8-inch	Total Depth of Borehole, feet :	51.5
Drill Rig Type :	B-61	Drilling Contractor :	Whitecomb Drilling	Approx. Surface Elevation, feet :	1426 feet MSL
Groundwater Level and Date Measured:	No Water encountered at the time of drilling	Sampling Method :	California (ring), bulk, SPT	Hammer Data :	140 lbs dropping 30 inches
Borehole Backfill :	Drill cuttings	Comments :	Refer to plot plan for location;		

Elevation, feet	Depth, feet	SAMPLES Type	Number	Penetration Resistance, Blows / 6"	Graphics	Blows / 12"	MATERIAL DESCRIPTION	Moisture Content, %	Dry Unit Weight, pcf	Percent Passing No. 200 Sieve (%)	OTHER TESTS AND REMARKS
1381	45		S-7	21-29-48		77	@45': Sand (SP), poorly graded, dark gray, slightly moist, very dense, coarse grained	4	-		
1376	50		S-8	24-30-61		91	@ 50':Same as above,	3	-		
1371	55						End of Boring = 51.5 feet No groundwater encountered No Caving Backfilled w/Cuttings				
1366	15										
1361	20										
1356	25										
1351	30										
1346	35										
1341	40										
1336	45										

Project :	Travel Plaza - Perris	LOG OF TEST HOLE	Borehole No. B-3
Project Location :	Corner of Trumble Road and Ethanac, Perris, California		Plate No. I-3
Project Number :	G-5908-01		Page 1 of 1

Date(s) Drilled :	May 24, 2021	Logged By :	BA/AB	Checked By :	DXS
Drilling Method :	Hollow Stem Auger	Drill Bit Size / Type :	8-inch	Total Depth of Borehole, feet :	16.5
Drill Rig Type :	B-61	Drilling Contractor :	Whitecomb Drilling	Approx. Surface Elevation, feet :	1426 feet MSL
Groundwater Level and Date Measured:	No Water encountered at the time of drilling	Sampling Method :	California (ring), bulk, SPT	Hammer Data :	140 lbs dropping 30 inches
Borehole Backfill :	Drill cuttings	Comments :	Refer to plot plan for location;		

Elevation, feet	Depth, feet	SAMPLES Type	Number	Penetration Resistance, Blows / 6"	Graphics	Blows / 12"	MATERIAL DESCRIPTION	Moisture Content, %	Dry Unit Weight, pcf	Percent Passing No. 200 Sieve (%)	OTHER TESTS AND REMARKS
1426	0						**Bareground**				
			Bag #1				Older Alluvium: Silty Sand/ Sand (SM/SP), dark brown, dry				
	2		C-1	50/6"		100	@2': Sand (SP), silty, dark brown, slightly moist, very dense fine to coarse grained	6	127		
1421	5		C-2	20-50/6"		100	@5':Sand (SP), poorly graded, very dense, dark brown, moist, medium to coarse grained	7	122		
1416	10		C-3	8-10-33		43	@10':Same as above, slightly moist	3	-		
1411	15		S-1	10-20-40		60	@10':Same as above	3	-		
							End of Boring = 16.5 feet No groundwater encountered No Caving Backfilled w/Cuttings				
1406	20										
1401	25										
1396	30										
1391	35										
1386	40										
1381	45										

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Project :	Travel Plaza - Perris	LOG OF TEST HOLE	Borehole No. B-4
Project Location :	Corner of Trumble Road and Ethanac, Perris, California		Plate No. I-4
Project Number :	G-5908-01		Page 1 of 1

Date(s) Drilled :	May 24, 2021	Logged By :	BA/AB	Checked By :	DXS
Drilling Method :	Hollow Stem Auger	Drill Bit Size / Type :	8-inch	Total Depth of Borehole, feet :	21.5
Drill Rig Type :	B-61	Drilling Contractor :	Whitecomb Drilling	Approx. Surface Elevation, feet :	1426 feet MSL
Groundwater Level and Date Measured:	No Water encountered at the time of drilling	Sampling Method :	California (ring), bulk, SPT	Hammer Data :	140 lbs dropping 30 inches
Borehole Backfill :	Drill cuttings	Comments :	Refer to plot plan for location;		

Elevation, feet	Depth, feet	SAMPLES Type	Number	Penetration Resistance, Blows / 6"	Graphics	Blows / 12"	MATERIAL DESCRIPTION	Moisture Content, %	Dry Unit Weight, pcf	Percent Passing No. 200 Sieve (%)	OTHER TESTS AND REMARKS
1426	0						**Bareground**				
			Bag #1				Older Alluvium: Silty Sand (SM), light brown, dry				
	2		C-1	26-50/6"		100	@2': Sand (SP), Silty, light brown, slightly moist, very dense	8	117		
1421	5		C-2	9-13-16		29	@5':Silty Sand (SM), medium dense, brown, moist, medium to coarse grained	6	113		
1416	10		C-3	10-12-18		30	@10':Silty Sand/Sand (SM/SP), dark brown, moist, medium dense, medium to coarse grained	3	103		
1411	15		S-1	16-26-39		65	@15': Sand (SP), dark brown, slightly moist, very dense, coarse grained	3	-		
1406	20		S-2	20-27-43		70	@20': Same as above	3	-		
1401	25										
1396	30										
1391	35										
1386	40										
1381	45										

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Project :	Travel Plaza - Perris	LOG OF TEST HOLE	Borehole No. B-5
Project Location :	Corner of Trumble Road and Ethanac, Perris, California		Plate No. I-5
Project Number :	G-5908-01		Page 1 of 1

Date(s) Drilled :	May 24, 2021	Logged By :	BA/AB	Checked By :	DXS
Drilling Method :	Hollow Stem Auger	Drill Bit Size / Type :	8-inch	Total Depth of Borehole, feet :	21.5
Drill Rig Type :	B-61	Drilling Contractor :	Whitecomb Drilling	Approx. Surface Elevation, feet :	1426 feet MSL
Groundwater Level and Date Measured:	No Water encountered at the time of drilling	Sampling Method :	California (ring), bulk, SPT	Hammer Data :	140 lbs dropping 30 inches
Borehole Backfill :	Drill cuttings	Comments :	Refer to plot plan for location;		

Elevation, feet	Depth, feet	SAMPLES Type	Number	Penetration Resistance, Blows / 6"	Graphics	Blows / 12"	MATERIAL DESCRIPTION	Moisture Content, %	Dry Unit Weight, pcf	Percent Passing No. 200 Sieve (%)	OTHER TESTS AND REMARKS
1426	0						**covered with dry grass**				
			Bag #1				Older Alluvium: Silty Sand (SM), light brown, dry				
	2										
			C-1	51-50/1"		>100	@2': Sand (SP), trace Silt, light brown, slightly moist, very dense, medium to coarse grained	10	111		
1421	5										
			C-2	26-50/5"		>100	@5':Same as Above	11	103		
1416	10										
			C-3	37-50/4"		>100	@10':Same as above	8	119		
1411	15										
			S-1	29-36-44		80	@15': Sand (SP), dark brown, slightly moist, very dense, coarse grained	5	-		
1406	20										
			S-2	30-35-47		82	@20': Same as above	5	-		
1401	25										
1396	30										
1391	35										
1386	40										
1381	45										

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Project :	Travel Plaza - Perris	LOG OF TEST HOLE	Borehole No. B-6
Project Location :	Corner of Trumble Road and Ethanac, Perris, California		Plate No. I-6
Project Number :	G-5908-01		Page 1 of 1

Date(s) Drilled :	May 24, 2021	Logged By :	BA/AB	Checked By :	DXS
Drilling Method :	Hollow Stem Auger	Drill Bit Size / Type :	8-inch	Total Depth of Borehole, feet :	11.5
Drill Rig Type :	B-61	Drilling Contractor :	Whitecomb Drilling	Approx. Surface Elevation, feet :	1426 feet MSL
Groundwater Level and Date Measured:	No Water encountered at the time of drilling	Sampling Method :	California (ring), bulk, SPT	Hammer Data :	140 lbs dropping 30 inches
Borehole Backfill :	Drill cuttings	Comments :	Refer to plot plan for location;		

Elevation, feet	Depth, feet	SAMPLES Type	Number	Penetration Resistance, Blows / 6"	Graphics	Blows / 12"	MATERIAL DESCRIPTION	Moisture Content, %	Dry Unit Weight, pcf	Percent Passing No. 200 Sieve (%)	OTHER TESTS AND REMARKS
1426	0						Dry grass				
			Bag #1				Older Alluvium: Silty Sand / Sand (SM/SP), light brown, medium dense				
	2		C-1	26-50/4"		> 100	@2': Sand (SP), silty, light brown, slightly moist, very dense	6	123		
1421	5		C-2	28-50/5"		> 100	@5':Sand (SP), very dense, gray, moist, medium to coarse grained	8	129		DS: P=Peak / Ult=Ultimate $\phi = 33^0$, c =250 psf (P) $\phi = 32^0$, c = 200 psf (Ult)
1416	10		S-1	15-25-30		55	@10':Sand/Silty Sand (SP/SM), light gray, slightly moist, very dense, coarse grained	3	-		
1411	15						End of Boring = 11.5 feet No groundwater encountered No Caving but possible Backfilled w/Cuttings				
1406	20										
1401	25										
1396	30										
1391	35										
1386	40										
1381	45										

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Project :	Travel Plaza - Perris	LOG OF TEST HOLE	Borehole No. B-7
Project Location :	Corner of Trumble Road and Ethanac, Perris, California		Plate No. I-7
Project Number :	G-5908-01		Page 1 of 1

Date(s) Drilled :	May 24, 2021	Logged By :	BA/AB	Checked By :	DXS
Drilling Method :	Hollow Stem Auger	Drill Bit Size / Type :	8-inch	Total Depth of Borehole, feet :	21.5
Drill Rig Type :	B-61	Drilling Contractor :	Whitecomb Drilling	Approx. Surface Elevation, feet :	1426 feet MSL
Groundwater Level and Date Measured:	No Water encountered at the time of drilling	Sampling Method :	California (ring), bulk, SPT	Hammer Data :	140 lbs dropping 30 inches
Borehole Backfill :	Drill cuttings	Comments :	Refer to plot plan for location;		

Elevation, feet	Depth, feet	SAMPLES Type	Number	Penetration Resistance, Blows / 6"	Graphics	Blows / 12"	MATERIAL DESCRIPTION	Moisture Content, %	Dry Unit Weight, pcf	Percent Passing No. 200 Sieve (%)	OTHER TESTS AND REMARKS
1426	0						**covered with dry grass**				
			Bag #1				Older Alluvium: Clayey Sand (SC), light brown, dry			39	HD: 61 SA:17 SI: 22 CL
	2		C-1	50/4"		>100	@2': Clayey Sand (SC), trace Silt, light brown, very moist, very dense, medium to coarse grained	18	95		
1421	5		C-2	24-50/5"		>100	@5':Sand (SP), dark brown, very dense, moist, medium to coarse grained	6	127		
1416	10		C-3	18-24-32		56	@10':Sand with Silt (SP/SM), dense, brown, very moist.	14	114		
1411	15		S-1	15-18-18		36	@15': Sand (SP), dark brown, slightly moist, dense, coarse grained	5	-		
1406	20		S-2	20-20-23		43	@20': Same as above	4	-		
1401	25										
1396	30										
1391	35										
1386	40										
1381	45										

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