

### LEGEND

DESCRIPTION	EXISTING	PROPOSED
LOT LINES	—	—
EASEMENT	—	—
PROPERTY LINE	—	—
CENTERLINE	—	—
CURB & GUTTER	—	—
DITCH	—	—
STORM DRAIN	— XX"SD —	SD
SANITARY SEWER	— XX"SS —	SS
WATER	— XX"W —	W
GAS LINE	— G —	G
FIRE SERVICE	— FS —	FS
CULVERT	Y —	Y —
SDMH	○	○
AREA DRAIN	○	○
DROP INLET	□	■
DIRECTION OF SURFACE FLOW	→	→
SSMH	○	●
SSCO	○	●
SEWER SERVICE	—	—
BLOW OFF	□ B0	—
FIRE HYDRANT	○	—
WATER VALVE	□ WM	—
WATER METER	○	—
MONUMENT	○	—
UTILITY POLE	○	—
UTILITY POLE WITH LIGHT	○	—
STREET LIGHT	○	—
POST TOP STREET LIGHT	○	—
FENCE	— X — X —	— X — X —
INDEX CONTOUR	— 25 —	— 25 —
INTERMEDIATE CONTOUR	— 25 —	— 25 —
HEDGE	—	—
JUNCTION/PULL BOX	□ PB	—
SIGN	—	—
GRADE BREAK LINE	— GB —	—
FINISH GRADE ELEVATION	+114.55	57.20
TREE & DRIPLINE	—	—

### ABBREVIATIONS

AC	ASPHALT CONCRETE
AD	AREA DRAIN
A.E.	APPROVED EQUAL
AP	ANGLE POINT
ARV	AIR RELEASE VALVE
BK	BOOK
BOC	BACK OF CURB
BOV	BLOW-OFF VALVE
BW	BOTTOM OF WALL
CG	CURB AND GUTTER
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CONC	CONCRETE
CP	CAR POOL
DELT	DETAIL
DI	DROP INLET
DIP	DUCTILE IRON PIPE
DIST	DISTRICT
DWG	DRAWING
(E)	EXISTING OR EAST
EG	EXISTING GRADE
ELEV	ELEVATION
EP	EDGE OF PAVEMENT
ESMT	EASEMENT
EX	EXISTING
EXIST	EXISTING
EV	ELECTRIC VEHICLE
FF	FINISH FLOOR
FG	FINISH GRADE
FS	FIRE SERVICE
FDC	FIRE DEPARTMENT CONNECTION
FES	FLARED END SECTION
FF	FIRE HYDRANT
FL	FLOW LINE
FP	FINISH PAVEMENT
G	GAS
GB	GRADE BREAK
GR	GRATE
HDPE	HIGH DENSITY POLYETHYLENE
HP	HIGH POINT
INTX	INTERSECTION
INV	INVERT
IRR	IRRIGATION
LF	LINEAR FEET
LT	LEFT
NFPA	NATIONAL FIRE PREVENTION ACT
NO	NUMBER
NG	NATIVE GROUND
NTS	NOT TO SCALE
OG	ORIGINAL GROUND
OMP	OPEN METAL PIPE
P	PAVERS
PIV	POST INDICATOR VALVE
(P)	PROPOSED
PROP	PROPOSED
PCC	PORTLAND CEMENT CONCRETE
POC	POINT OF CONNECTION
PL	PROPERTY LINE
PG	PAGE
PUE	PUBLIC UTILITY EASEMENT
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
RT	RIGHT
ROW	RIGHT-OF-WAY
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SDWK	SIDEWALK
S.O.	SIDE OPENING
SS	SANITARY SEWER
SSCO	SANITARY SEWER CLEAN OUT
SSMH	SANITARY SEWER MANHOLE
STD	STANDARD
SVC	SERVICE
SW	SIDEWALK
TBW	TOP BACK OF WALK
TC	TOP OF CURB
TOE	TOP OF BOTTOM SLOPE
TOE	TOP OF BOTTOM WALL
WALL	TOP OF BOTTOM WALL
TYP	TYPICAL
TS	TOP OF SLOPE
TW	TOP OF WALL
W	WATER
WV	WATER VALVE
WM	WATER METER

### IMPROVEMENT PLANS FOR

# ATRIA PARK OF LAFAYETTE - MAIN ROAD RETROFIT

CITY OF LAFAYETTE, CONTRA COSTA COUNTY, STATE OF CALIFORNIA  
1545 PLEASANT HILL ROAD, LAFAYETTE, CA 95816

APN: 169-090-002

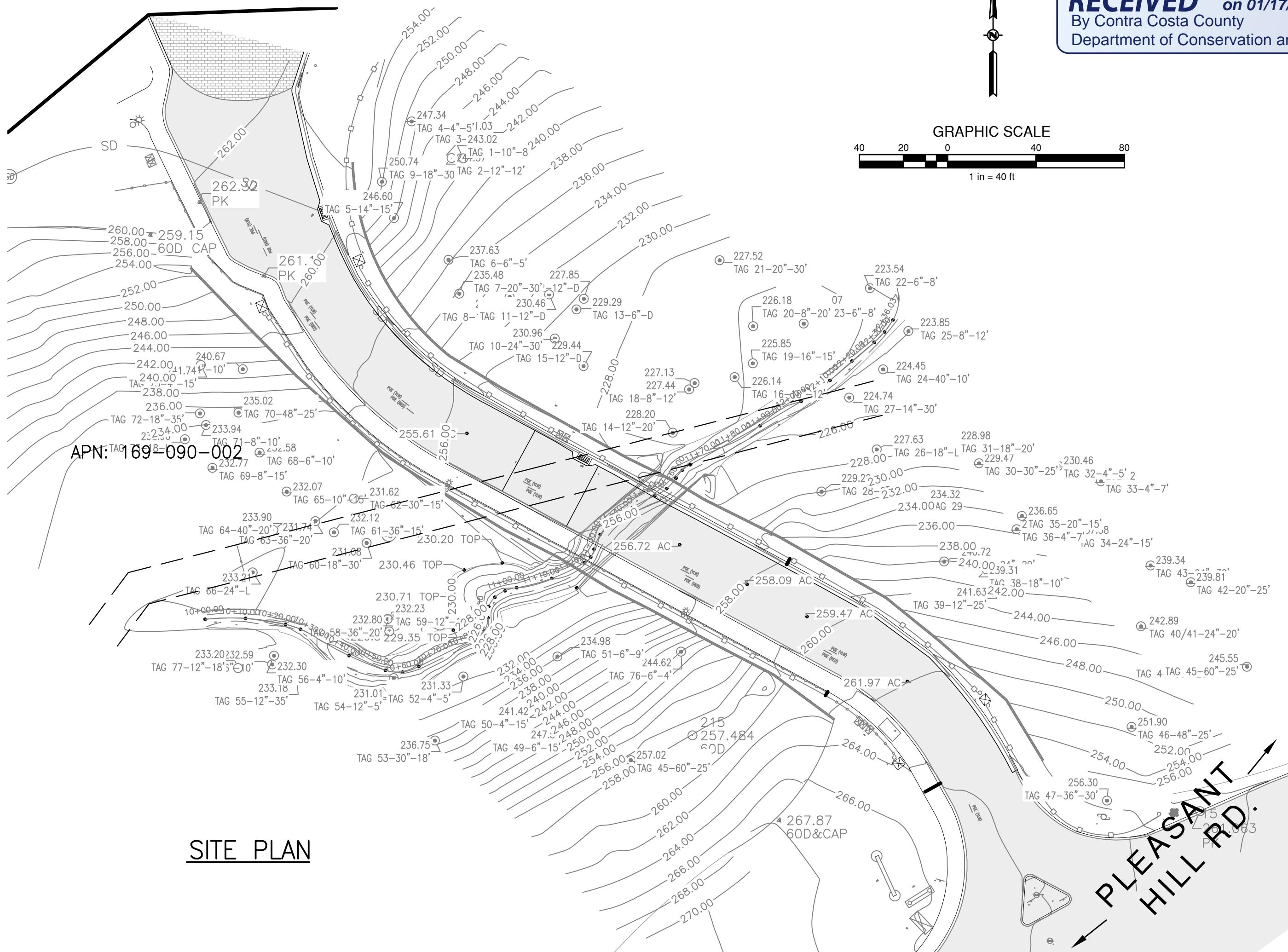
REVISED

RECEIVED on 01/17/2024 CDDP20-03005  
By Contra Costa County  
Department of Conservation and Development

### VICINITY MAP



REVISIONS:



### SITE PLAN

### SHEET INDEX

- C1 TITLE SHEET
- C2 GENERAL NOTES
- C3 OVERALL SITE PLAN
- C4 TOPOGRAPHIC SURVEY
- C5 TOPOGRAPHIC SURVEY
- C6 TREE SURVEY AND REMOVAL PLAN
- C7 CREEK SURVEY
- C8 BRIDGE SURVEY
- C9 ASPHALT DEMOLITION AND REPLACEMENT PLAN
- C10 SECTIONS & DETAILS
- C11 EXISTING PLAN & PROFILE
- C12 CREEK/CULVERT PLAN & PROFILE
- C13 ACCESS PLAN
- C14 EROSION CONTROL PLAN
- C15 EROSION CONTROL NOTES
- S1 STRUCTURAL PLAN-CULVERT
- S2 STRUCTURAL PLAN-CULVERT
- S3 STRUCTURAL PLAN-CULVERT
- S4 STRUCTURAL PLAN-CULVERT
- D1 DRILLTECH SOIL NAIL RETROFIT OF EXISTING WALL NOTES
- D2 DRILLTECH SOIL NAIL RETROFIT OF EXISTING WALL PLAN VIEW
- D3 DRILLTECH SOIL NAIL RETROFIT OF EXISTING WALL WALL ELEVATIONS
- D4 DRILLTECH SOIL NAIL RETROFIT OF EXISTING WALL WALL SECTIONS
- D5 DRILLTECH SOIL NAIL WALL RETROFIT SOIL NAIL DETAILS
- D6 DRILLTECH SOIL NAIL WALL RETROFIT DETAILS
- U1 URETEK PLAN SLOPE SOIL IMPROVEMENT
- U2 URETEK PLAN SLOPE SOIL IMPROVEMENT
- U3 URETEK PLAN CULVERT INJECTION
- U4 URETEK PLAN SLOPE SOIL IMPROVEMENT
- U5 URETEK PLAN CULVERT INJECTION

### SURVEY NOTE

1. TOPOGRAPHIC SURVEY FOR THIS PROJECT WAS PREPARED BY:

GEO-LEGAL  
8850 GREENBACK LANE, STE C  
ORANGEVALE, CA 95662  
P: (916) 871-4789

2. CONSTRUCTION STAKING FOR THIS PROJECT SHALL NOT OCCUR UNTIL AFTER THE PARTY CHIEF FOR THE FIRM PERFORMING THE CONSTRUCTION STAKING HAS NOTIFIED THE ENGINEER OF RECORD IN WRITING THAT HE HAS PERFORMED A TOPOGRAPHIC CHECK OF THE SITE AND THAT THE ELEVATION FOR THE REFERENCED BENCH MARK MATCHES THE SITE TOPOGRAPHY. IF IT IS DETERMINED THAT THE SITE TOPOGRAPHY IDENTIFIED ON THE PLANS DOES NOT MATCH THE IDENTIFIED BENCH MARK FOR THE SITE, THEN THE ENGINEER, CONTRACTOR, AND CONSTRUCTION STAKER SHALL MEET AND DETERMINE HOW TO RESOLVE THE DISCREPANCY. UNDER NO CIRCUMSTANCES SHALL THE SITE BE STAKED UNTIL THE ENGINEER OF RECORD ISSUES A LETTER TO THE CONTRACTOR, CONSTRUCTION STAKER AND TO THE OWNER THAT THE SITE TOPO AND BENCH MARK MATCH.

### BENCH MARK

BASIS OF ELEVATION: CONTRA COSTA COUNTY BENCHMARK #978 – CONTRA COSTA COUNTY BRONZE DISK SET IN THE NORTHEAST CORNER OF BRIDGE ON PLEASANT HILL ROAD OVER PLEASANT HILL OVERPASS.

ELEV: 342.839

### GEOTECHNICAL REPORT

1. A GEOTECHNICAL REPORT FOR THE EXISTING ROAD WAS PREPARED BY GEOTECHNICA ON 06/08/18 PROJECT #172370.
2. AN ADDENDUM TO THE REPORT LISTED ABOVE WAS PREPARED ON 04/16/19, 04/24/23 AND 06/14/23

### UTILITY REPRESENTATIVES

UTILITY	COMPANY	CONTACT	PHONE
GAS	PG&E		800-743-5000
ELECTRICITY	LAFFAYETTE UTILITIES SYSTEM	DARLINE HOBACK	337-291-8975
TELEPHONE	AT&T		800-750-2355
WATER	LAFFAYETTE UTILITIES SYSTEM	STEVE DRONET	337-291-5865
SEWER	CENTRAL CONTRA COSTA SANITARY DISTRICT	CHRIS CARPENTER	925-229-7200
DRAINAGE	CONTRA COSTA COUNTY	BRIAN M BALBAS	925-313-2315
FIRE	CONTRA COSTA COUNTY FIRE PROTECTION DISTRICT	LEWIS BROSHARD	925-941-3300
CABLE T.V.	COMCAST		800-945-2288

APPROVED BY:	EXPIRES IN 1 YEAR	APPROVED BY:	EXPIRES IN 1 YEAR
CONTRA COSTA COUNTY FIRE DISTRICT	DATE	CONTRA COSTA COUNTY – COUNTY ENGINEER	DATE
CONTRA COSTA COUNTY MUNICIPAL SERVICES			
PROJECT NAME:	1545 PLEASANT HILL ROAD		
APN'S:	169-090-002		
COUNTY FILE:	#TP19-0057 & #DP88-3007		
APPROVED:			
ORDER No. N/A	DRAINAGE FEE: N/A		
CHECKED BY:	DRAINAGE APPROVAL:		

WDID:	N/A
CONSTRUCTION START DATE:	N/A
FINAL STABILIZATION DATE:	N/A
AREA OF DISTURBANCE (AC.):	N/A
VOL. OF CUT (CY):	N/A
VOL. OF FILL (CY):	N/A
POST-CONST. STORMWATER BMP'S REQ? (Y/N):	

### TRAFFIC NOTE:

NOTE: THE CONTRACTOR SHALL PREPARE, SUBMIT & OBTAIN APPROVAL ON A TRAFFIC/TRANSPORTATION MANAGEMENT PLAN. THE PLAN SHALL DESCRIBE ANTICIPATED IMPACTS TO TRAFFIC ON PLEASANT HILL RD. AND POTENTIAL CLOSURE/DETOUR FOR THE MAIN ENTRY ROAD.

ATRIA LAFAYETTE  
APN 169-090-002  
CONTRA COSTA COUNTY, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER  
BOBBIE F. BRONKIN  
48856  
Ex. 09-30-2024  
CIVIL  
STATE OF CALIFORNIA  
DRIVEN BY: JIM F. FRANCIS  
CHECKED BY: JEFF BROWNLIN  
AS SHOWN  
SCALE:  
PROJECT NO: 23-001  
THE OLYMPUS GROUP  
ENGINEERING, PLANNING & SURVEYING  
8850 GREENBACK LANE, SUITE 100  
ORANGEVALE, CA 95662  
PHONE: 916-386-6228  
FAX: 916-386-6201  
E-MAIL: info@olympusgroup.net  
WEBSITE: www.olympusgroup.net  
C1  
SHEET 1 OF 30

**GENERAL NOTES:**

- FIELD CONFLICTS: THESE PLANS SHOW EXISTING FEATURES INCLUDING BUT NOT LIMITED TO TREES, UTILITIES AND STRUCTURES THAT MAY BE AFFECTED BY THE CONSTRUCTION OR PLACEMENT OF THE PROPOSED ENGINEERED IMPROVEMENTS. THE CONTRACTOR WILL IMMEDIATELY NOTIFY THE ENGINEER IF THERE ARE ANY EXISTING FEATURES, WHETHER SHOWN OR NOT SHOWN ON THESE PLANS, THAT COULD IN ANY WAY BE IN POTENTIAL CONFLICT WITH THE DESIGN OF THESE PLANS. ALL WORK WITHIN THE VICINITY OF A POTENTIAL CONFLICT SHALL CEASE UNTIL AN ADEQUATE AND APPROPRIATE SOLUTION IS DETERMINED BY THE ENGINEER AND APPROVED BY THE PUBLIC WORKS DEPARTMENT.
- SHOULD IT APPEAR THAT THE WORK TO BE DONE, OR ANY MATTER RELATED THERETO, IS NOT SUFFICIENTLY DETAILED OR EXPLAINED ON THESE PLANS, THE CONTRACTOR SHALL CONTACT (NAME OF PROJECT ENGINEER), FOR SUCH FURTHER EXPLANATIONS AS MAY BE NECESSARY.
- BASIS OF ELEVATION DATUM:** CONTRA COSTA COUNTY BENCHMARK #978—CONTRA COSTA COUNTY BRONZE DISK SET IN THE NORTHEAST CORNER OF BRIDGE ON PLEASANT HILL ROAD OVER PLEASANT HILL ROAD OVER PLEASANT HILL OVERPASS.
- ELEV: 342.839
- ALL STREET IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROVISIONS OF TITLE 9 OF THE CURRENT COUNTY ORDINANCE CODE, COUNTY STANDARD SPECIFICATIONS AND STANDARD PLANS. ALL PEDESTRIAN IMPROVEMENTS SHALL CONFORM WITH THE REQUIREMENTS OF TITLE 24 OF THE CALIFORNIA CODE OF REGULATIONS AND THE AMERICANS WITH DISABILITIES ACT. THE IMPROVEMENTS ARE SUBJECT TO THE INSPECTION AND APPROVAL OF THE PUBLIC WORKS DEPARTMENT. CONTACT THE PUBLIC WORKS DESIGN / CONSTRUCTION DIVISION, 313-2320, AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. ANY WORK ARRANGED FOR INSPECTION, ANY WORK PERFORMED WITHOUT PROVING THE ADVANCED NOTICE WILL BE REJECTED AND THE DEVELOPER/CONTRACTOR MAY BE REQUIRED TO REMOVE THE IMPROVEMENTS AND MAY BE SUBJECT TO PAYMENT OF FINES AS DETERMINED BY THE PUBLIC WORKS DIRECTOR.
- QUALITY CONTROL PLAN:** THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROLLING THE QUALITY OF MATERIAL ENTERING THE WORK AND THE WORK PERFORMED, AND SHALL PERFORM TESTING TO ENSURE CONTROL. PRIOR TO START OF WORK THE CONTRACTOR SHALL SUBMIT A QUALITY CONTROL PLAN THAT MUST DESCRIBE THE METHODS AND FREQUENCY OF TESTING, IMPLEMENTATION OF CORRECTIVE ACTIONS AS NECESSARY, AND REPORTING OF TEST RESULTS, SPECIFIC TO EACH MATERIAL TO BE USED.
- PLAN REVISIONS:** ALL REVISIONS TO THIS PLAN MUST BE REVIEWED BY THE PUBLIC WORKS DEPARTMENT PRIOR TO CONSTRUCTION AND SHALL BE ACCURATELY SHOWN ON REVISED PLANS, STAMPED AND DISTRIBUTED BY THE ENGINEERING SERVICES DIVISION, PRIOR TO ACCEPTANCE OF THE WORK AS COMPLETE.
- EXCAVATION:** THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT AT 811OR (800) 227-2600 TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION. THE USA AUTHORIZATION NUMBER SHALL BE KEPT AT THE JOB SITE.
- ALL UTILITY DISTRIBUTION SERVICES SHALL BE PLACED UNDERGROUND.
- UTILITY CLEARANCE:** PRIOR TO PLACING CURB, SIDEWALK, ASPHALT CONCRETE, SUBBASE OR BASE MATERIAL, AND OTHER UTILITIES WITHIN THE RIGHT OF WAY SHALL BE INSTALLED AND COMPUTED BY THE PUBLIC WORKS DEPARTMENT'S CONSTRUCTION DIVISION NOTIFIED BY EACH OF THE UTILITY COMPANIES HAVING FACILITIES WITHIN THE WORK AREA, THAT THE UTILITY INSTALLATION HAS SATISFACTORILY PASSED ACCEPTANCE TESTS.
- ALL MANHOLES OR INLETS OVER 4 FEET IN DEPTH SHALL BE PROVIDED WITH LADDER STEPS. LADDER STEPS SHALL BE INTEGRALLY CAST INTO THE WALLS OF THE MANHOLE OR INLET WHETHER PRECAST OR FIELD CAST IN ACCORDANCE WITH COUNTY SPECIFICATIONS. LADDER STEPS SHALL BE STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC OR EQUIVALENT.
- PAVEMENT WIDENING:** WHEN WIDENING THE PAVEMENT ON AN EXISTING ROAD, THE EXISTING PAVEMENT SHALL BE CUT TO A NEAT LINE AND REMOVED TO AN EXISTING ADEQUATE STRUCTURAL SECTION, AN EXPLORATORY TRENCH, OR POTHoling, MAY BE REQUIRED TO DETERMINE THE LIMITS OF PAVEMENT REMOVAL.
- RETAINING WALLS:** RETAINING WALLS WITHIN PUBLIC ROAD RIGHTS OF WAY WILL BE INSPECTED BY THE PUBLIC WORKS DEPARTMENT.
- A. A BUILDING PERMIT WILL BE REQUIRED FOR RETAINING WALLS, OUTSIDE PUBLIC ROAD RIGHTS OF WAY, THAT ARE 4 FEET OR HIGHER, OR THAT ARE 3 FEET OR HIGHER WITH SURCHARGE. PRIOR TO ACCEPTANCE OF THE IMPROVEMENTS AS COMPLETE, VERIFICATION THAT THE BUILDING INSPECTION DEPARTMENT HAS SIGNED OFF ON THE PERMIT SHALL BE PROVIDED TO THE CONSTRUCTION INSPECTOR.
- B. RETAINING WALLS UNDER 4 FEET HIGH (3 FEET HIGH WITH SURCHARGE) SHOWN ON THE IMPROVEMENT PLAN TO BE OUTSIDE OF PUBLIC ROAD RIGHT OF WAY, WILL BE INSPECTED BY (NAME OF ENGINEERING FIRM). A LETTER STATING THAT ALL WALLS WERE CONSTRUCTED IN ACCORDANCE WITH THE STRUCTURAL AND/OR GEOTECHNICAL ENGINEERS' RECOMMENDATIONS MUST BE SUBMITTED TO THE PUBLIC WORKS DEPARTMENT, PRIOR TO ACCEPTANCE OF THE IMPROVEMENTS AS COMPLETE.
- REPRODUCIBLE 610MM X 920MM (24" X 36") MYLAR "AS BUILT" RECORD DRAWINGS ARE REQUIRED FOR ENGINEERED STRUCTURES WITHIN PUBLIC RIGHTS OF WAY OR EASEMENTS. STRUCTURES INCLUDE: BRIDGES, RETAINING WALLS, TIE BACKS, SUBDRAINS, ETC.
- TREES:** NO TREES SHALL BE REMOVED UNLESS THEY ARE SHOWN AND NOTED TO BE REMOVED ON THE IMPROVEMENT PLANS. IF ANY TREES ARE TO BE REMOVED, THE IMPROVEMENT PLANS MUST BE REVIEWED AND ACKNOWLEDGED BY THE COMMUNITY DEVELOPMENT DEPARTMENT. ALL TREES CONFLICTING WITH GRADING, UTILITIES, OR OTHER IMPROVEMENTS, OR OVERHANGING THE SIDEWALK OR PAVEMENT SO AS TO FORM A NUISANCE OR HAZARD, SHALL BE TRIMMED, PROPERLY TREATED AND SEALED. A TREE PERMIT MAY BE NECESSARY AND CAN BE OBTAINED FROM THE COMMUNITY DEVELOPMENT DEPARTMENT.
- GRADES LESS THAN 1 PERCENT: WATER TESTING IS REQUIRED FOR ALL CURB GRADES LESS THAN ONE PERCENT.
- ALL ASPHALT CONCRETE PAVING OF PUBLIC ROADS IS SUBJECT TO TESTS REQUIRED BY AMENDED SECTION 39-HOT MIX ASPHALT OF THE CONTRA COSTA COUNTY STANDARD SPECIFICATIONS DATED OCTOBER 16, 2014. BASED ON THESE TESTS, ADDITIONAL PAVEMENT TREATMENT MAY BE NECESSARY.
- EXISTING CURB AND SIDEWALK WITHIN THE PROJECT LIMITS THAT ARE DAMAGED OR DISPLACED, EVEN THOUGH NOT PROPOSED TO BE REMOVED, SHALL BE REPAIRED OR REPLACED, EVEN IF DAMAGE OR DISPLACEMENT OCCURRED PRIOR TO ANY WORK PERFORMED BY THE CONTRACTOR.

**EROSION AND SEDIMENT CONTROL NOTES:**

18. **EROSION CONTROL:** IF PAVING AND STORM DRAIN IMPROVEMENTS ARE NOT COMPLETED BY OCTOBER 1ST, TEMPORARY SILT AND DRAINAGE CONTROL FACILITIES SHALL BE INSTALLED TO CONTROL AND CONTAIN EROSION-CAUSED SILT DEPOSITS AND TO PROVIDE FOR THE SAFE DISCHARGE OF STORM WATERS INTO EXISTING STORM WATER FACILITIES. DESIGN OF THESE FACILITIES MUST BE APPROVED BY THE BUILDING INSPECTION DEPARTMENT.
19. **PAVEMENT STRUCTURAL SECTION:** THE THICKNESS OF SUB-BASE, BASE AND SURFACING WILL BE DETERMINED BY THE COUNTY PUBLIC WORKS DEPARTMENT BASED ON THE TRAFFIC INDEX AND SOILS TESTS FOR "R" VALUE.
20. **PAVEMENT STRIPING:** ALL TRAFFIC STRIPING AND MARKINGS SHALL BE THERMOPLASTIC UNLESS THESE PLANS DESIGNATE THE USE OF TRAFFIC PAINT.
21. ALL STRIPING ON MAJOR ROADS SHALL BE CAT TRACKED PRIOR TO FINAL INSTALLATION. FINAL INSTALLATION OF STRIPING WILL BE ALLOWED ONLY AFTER APPROVAL OF THE STRIPING LAYOUT BY THE CONSTRUCTION INSPECTOR.
22. ALL SUBDIVISION STREETS THAT ARE STUBBED OUT FOR FUTURE USE, SHALL HAVE A SIGN POSTED AT THE END OF THE DEAD END STREET THAT READS: "THIS STREET PLANNED TO BE EXTENDED." THE SIGN SHALL BE REFLECTORIZED WITH BLACK 2-INCH CAPITAL SERIES "E" LETTERS ON A WHITE BACKGROUND, MEASURING 18 INCHES HIGH BY 36 INCHES WIDE, INSTALL WITH W31 ("END") SIGN BEHIND STANDARD END OF STREET BARRICADE. SEE COUNTY STANDARD PLAN CA 30.
23. THE CONTRACTOR SHALL COMPLY WITH ALL RULES, REGULATIONS AND PROCEDURES OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) FOR MUNICIPAL CONSTRUCTION AND INDUSTRIAL ACTIVITIES AS PROMULGATED BY THE CALIFORNIA STATE WATER RESOURCE CONTROL BOARD OR ANY OF ITS REGIONAL WATER QUALITY CONTROL BOARDS.
24. THE CONTRACTOR IS RESPONSIBLE FOR PRESERVATION AND/OR PERPETUALITY OF ALL EXISTING MONUMENTS (THAT CONTROL SUBDIVISIONS, TRACTS, STREETS OR HIGHWAYS, OR PROVIDE SURVEY CONTROL) WHICH WILL BE DISTURBED OR REMOVED DUE TO CONTRACTOR'S WORK. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 10 WORKING DAYS NOTICE, TO PROJECT ENGINEER/SURVEYOR, PRIOR TO DISTURBANCE OR REMOVAL OF EXISTING MONUMENTS. PROJECT ENGINEER/SURVEYOR SHALL COORDINATE WITH THE CONTRACTOR TO RESET MONUMENTS OR PROVIDE PERMANENT WIRE MONUMENTS AND FILE THE REQUIRED DOCUMENTATION WITH THE COUNTY SURVEYOR, PER BUSINESS AND PROFESSIONS CODE SECTION 8771.
25. ANY MATERIAL IMPORTED FOR THE CONSTRUCTION OF EMBANKMENTS OR AS BACKFILL FOR STRUCTURES, CULVERTS AND OTHER FACILITIES SHALL MEET THE FOLLOWING REQUIREMENTS:
 

<b>PH*</b>	<b>&gt;5.5 (&gt;7.3**)</b>
<b>WATER SOLUBLE SULFATE***</b>	<b>&lt;0.2%</b>
<b>RESISTIVITY (R)*</b>	<b>&gt;3000 OHM/CM**</b>

 \* PER CALIFORNIA TEST 532 & 643. \*\* FOR BACKFILL AROUND METAL PIPE/CONDUIT. \*\*\* REPORTED AS SO4
26. **ENCROACHMENT PERMIT:** THE CONTRACTOR IS REQUIRED TO OBTAIN AN ENCROACHMENT PERMIT FOR ALL WORK WITHIN EXISTING COUNTY ROAD RIGHTS OF WAY. APPLICATIONS FOR ENCROACHMENT PERMIT, SUBMITTED MORE THAN 120 DAYS PAST THE PUBLIC WORKS REVIEWED DATE STAMP, MAY REQUIRE UP TO FOUR WEEKS TO PROCESS FOR FURTHER PERMIT INFORMATION. CONTACT THE APPLICATION AND PERMIT CENTER AT (925) 674-7744.
27. THE CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE COUNTY AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT.

**PRECONSTRUCTION & STAKING NOTES:**

1. PRIOR TO COMMENCING CONSTRUCTION, THE CONTRACTOR SHALL ARRANGE A PRE-CONSTRUCTION MEETING AT THE PROJECT SITE WITH THE CIVIL AND ARCHITECTURAL CONSULTANT, IN ORDER TO WALK THE SITE AND FIELD VERIFY OR CLARIFY ANY CONSTRUCTION OR DESIGN RELATED ISSUES PRIOR TO WORK BEGINNING.
2. WHEN REQUESTING CONSTRUCTION STAKES, THE CONTRACTOR IS REQUIRED TO NOTIFY THE PROJECT ENGINEER 48 HOURS IN ADVANCE. THE OLYMPUS GROUP, INC. ASSUMES NO RESPONSIBILITY FOR ANY COSTS INCURRED FOR CONSTRUCTION SHUTDOWNS OR DELAYS WHEN NOT GIVEN THIS ADVANCE NOTICE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING SURVEY MONUMENTS OR MARKERS DESTROYED OR LOST DURING CONSTRUCTION. ALL SUCH MONUMENTS OR MARKERS DESTROYED OR LOST DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE AND WILL REQUIRE 48 HOURS NOTICE FROM THE CONTRACTOR TO REPLACE SAID MONUMENTS.
4. THE CONTRACTOR WILL NOT PERFORM ANY CORRECTIVE WORK DUE TO STAKING ERRORS WITHOUT FIRST CONSULTING WITH THE PROJECT ENGINEER. IN THE EVENT THE COST OF ANY ITEM OF CORRECTIVE WORK EXCEEDS \$500.00, PERMISSION TO PROCEED MUST BE RECEIVED IN WRITING FROM THE PROJECT ENGINEER. NO LIABILITY WILL BE ASSUMED BY THE PROJECT ENGINEER FOR THE COSTS OF WORK PERFORMED IN VIOLATION OF THIS PROVISION.
5. THE OLYMPUS GROUP, INC. ASSUMES NO LIABILITY FOR ANY WORK CONSTRUCTED IF STAKED BY OTHERS.
6. WHENEVER THE NOTE "VERIFY" IS INDICATED ON THESE PLANS, THE CONTRACTOR SHALL EXPOSE THESE FACILITIES PRIOR TO THE START OF ANY CONSTRUCTION. AFTER THE CONTRACTOR HAS COMPLETED EXPOSING SAID FACILITIES, HE SHALL NOTIFY THE PROJECT ENGINEER AND REQUEST THE VERIFICATION THAT THE HORIZONTAL AND VERTICAL ALIGNMENTS, ETC. ARE IN SUBSTANTIAL CONFORMANCE WITH THESE PLANS TO THE PROJECT ENGINEER'S SATISFACTION. IN THE EVENT THAT SAID FACILITIES ARE DETERMINED NOT TO BE IN SUBSTANTIAL CONFORMANCE, THE PROJECT ENGINEER RESERVES THE RIGHT TO REVISE THESE PLANS TO REFLECT THE FOUND CONDITIONS.

**GRADING:**

1. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH FHWA STANDARDS.
2. CONSTRUCTION MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE CONTRA COSTA COUNTY & CALTRANS STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL OBTAIN AND USE ALL APPLICABLE ADDENDUMS.
3. ALL GRADING SHALL COMPLY WITH THE RECOMMENDATIONS OF THE SOIL AND GEOLOGICAL INVESTIGATION.
4. ALL SLOPE BANKS ARE 2:1 MAXIMUM UNLESS OTHERWISE NOTED.
5. ALL GRADING SHALL BE IN CONFORMANCE WITH THE CONTRA COSTA COUNTY GRADING, EROSION, AND SEDIMENT CONTROL SPECIFICATIONS.
6. GRADING, TRENCHING, CUTTING AND/OR FILLING WITHIN THE Drip LINE OF THOSE TREES, DESIGNATED ON THE SITE PLAN FOR PRESERVATION, SHALL NOT OCCUR. NO ACTIONS SHALL BE TAKEN THAT WILL HARM THE HEALTH, VITALITY OR LONGEVITY OF THOSE TREES IDENTIFIED ON THE SITE PLAN FOR PRESERVATION.

**ATRIA LAFAYETTE**

APN 169-090-002

GENERAL NOTES

CONTRA COSTA COUNTY, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER

BOBBIE F. BRONWELL

#48856

Exp. 09-30-2024

CIVIL

STATE OF CALIFORNIA

RECEIVED





SURVEYORS STATEMENT:

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYORS' ACT AT THE REQUEST OF OWNER IN APRIL 2018.

CHRISTOPHER D. JOHNSON, PLS 7576  
EXPIRATION DATE: 12/31/19

DATE:



BENCHMARK

BASIS OF ELEVATION: CONTRA COSTA COUNTY BENCHMARK #978 - CONTRA COSTA COUNTY BRONZE DISK SET IN THE NORTHEAST CORNER OF BRIDGE ON PLEASANT HILL ROAD OVER PLEASANT HILL OVERPASS.  
ELEV: 342.839

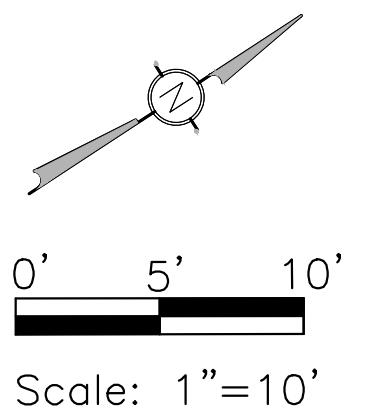
# TOPOGRAPHIC SURVEY

CITY OF LAFAYETTE, CONTRA COSTA COUNTY, STATE OF CALIFORNIA  
1545 PLEASANT HILL ROAD, LAFAYETTE, CA 95816: ATRIA PARK

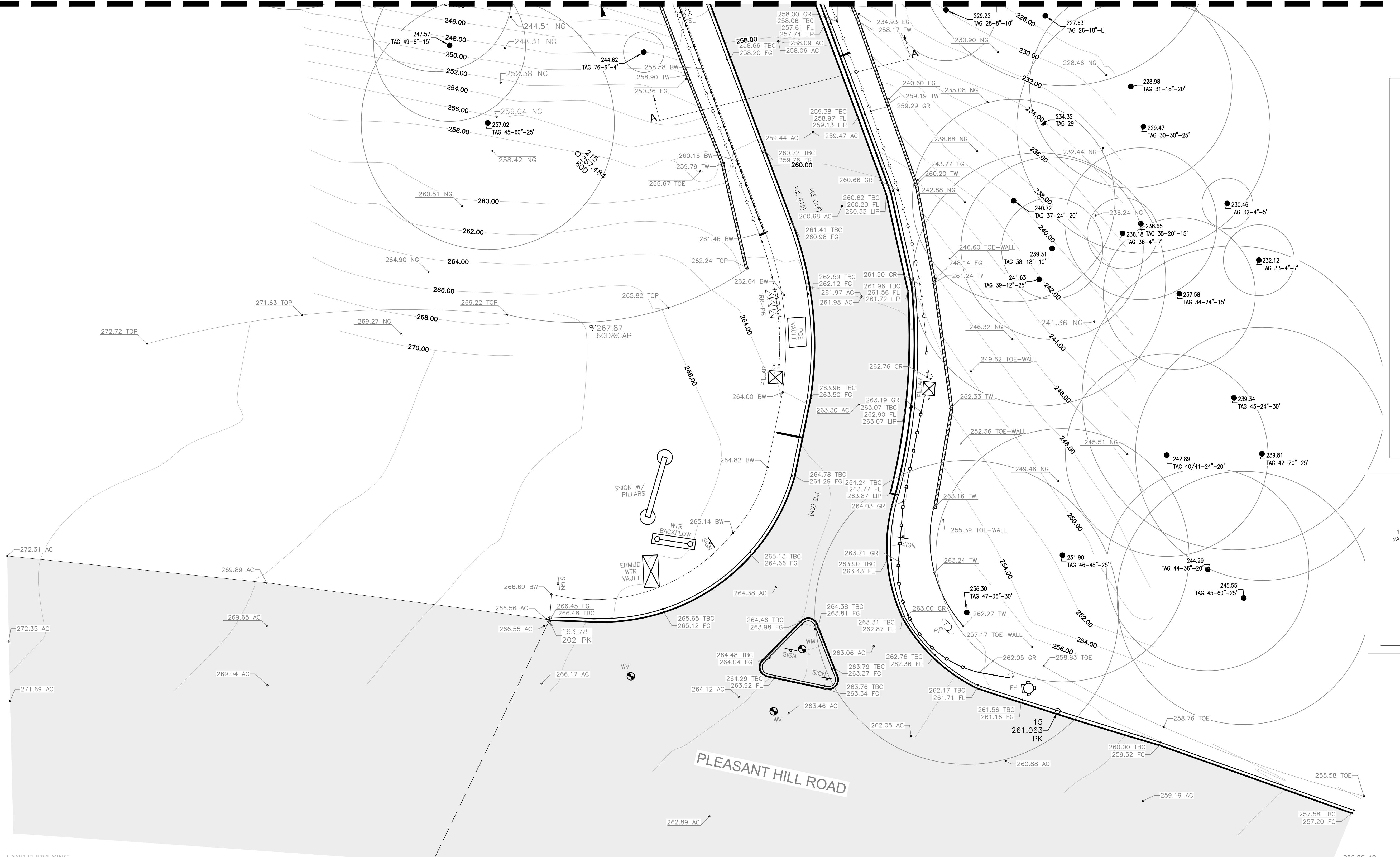


REVISIONS:

JUNE 2023



MATCHLINE - SEE SHEET C4





SURVEYORS STATEMENT:

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYORS' ACT AT THE REQUEST OF OWNER IN APRIL 2018.

CHRISTOPHER D. JOHNSON, PLS 7576  
EXPIRATION DATE: 12/31/19



DATE:

BENCHMARK

BASIS OF ELEVATION: CONTRA COSTA COUNTY BENCHMARK #978 - CONTRA COSTA COUNTY BRONZE DISK SET IN THE NORTHEAST CORNER OF BRIDGE ON PLEASANT HILL ROAD OVER PLEASANT HILL OVERPASS.

ELEV: 342.839

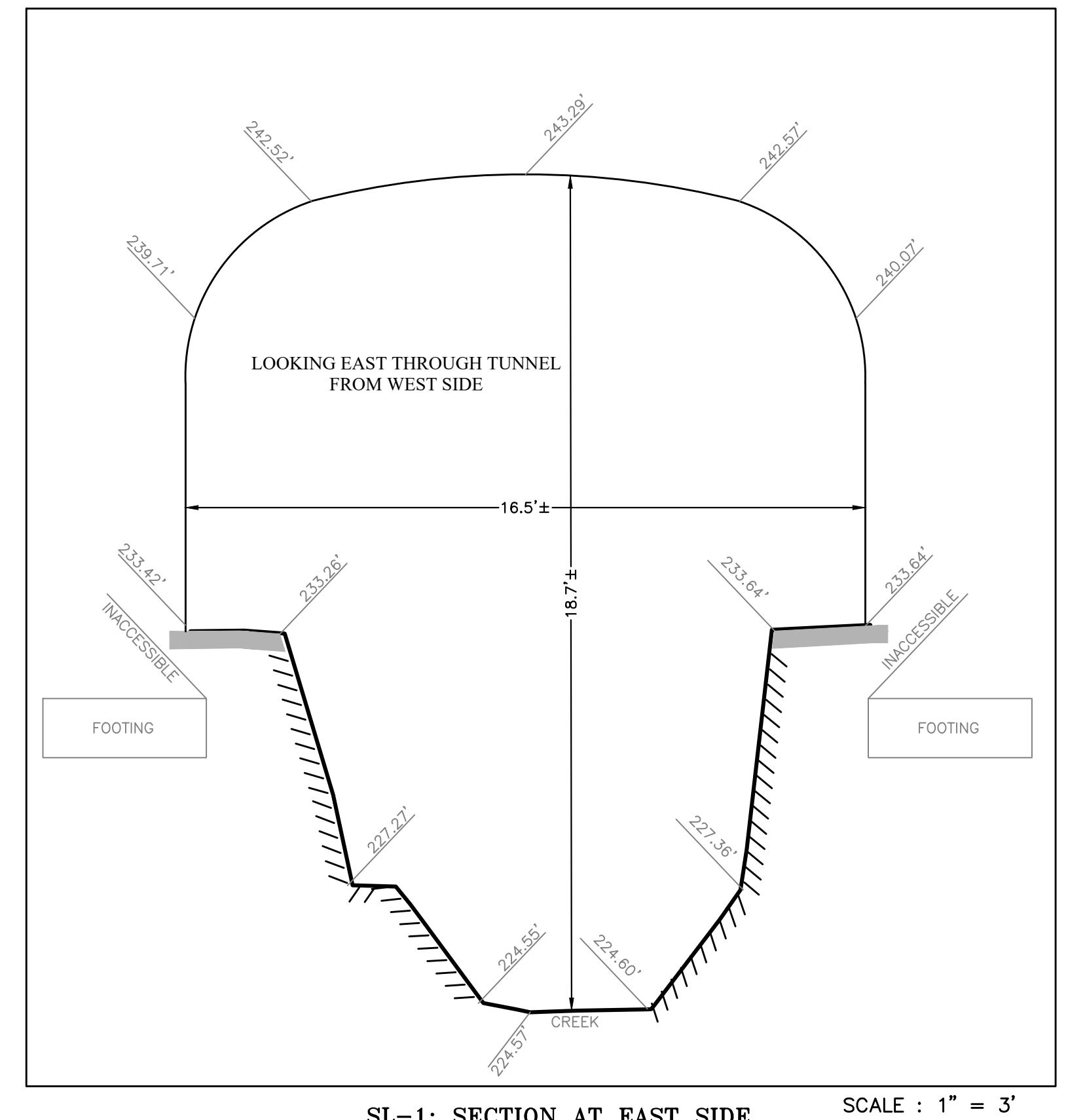
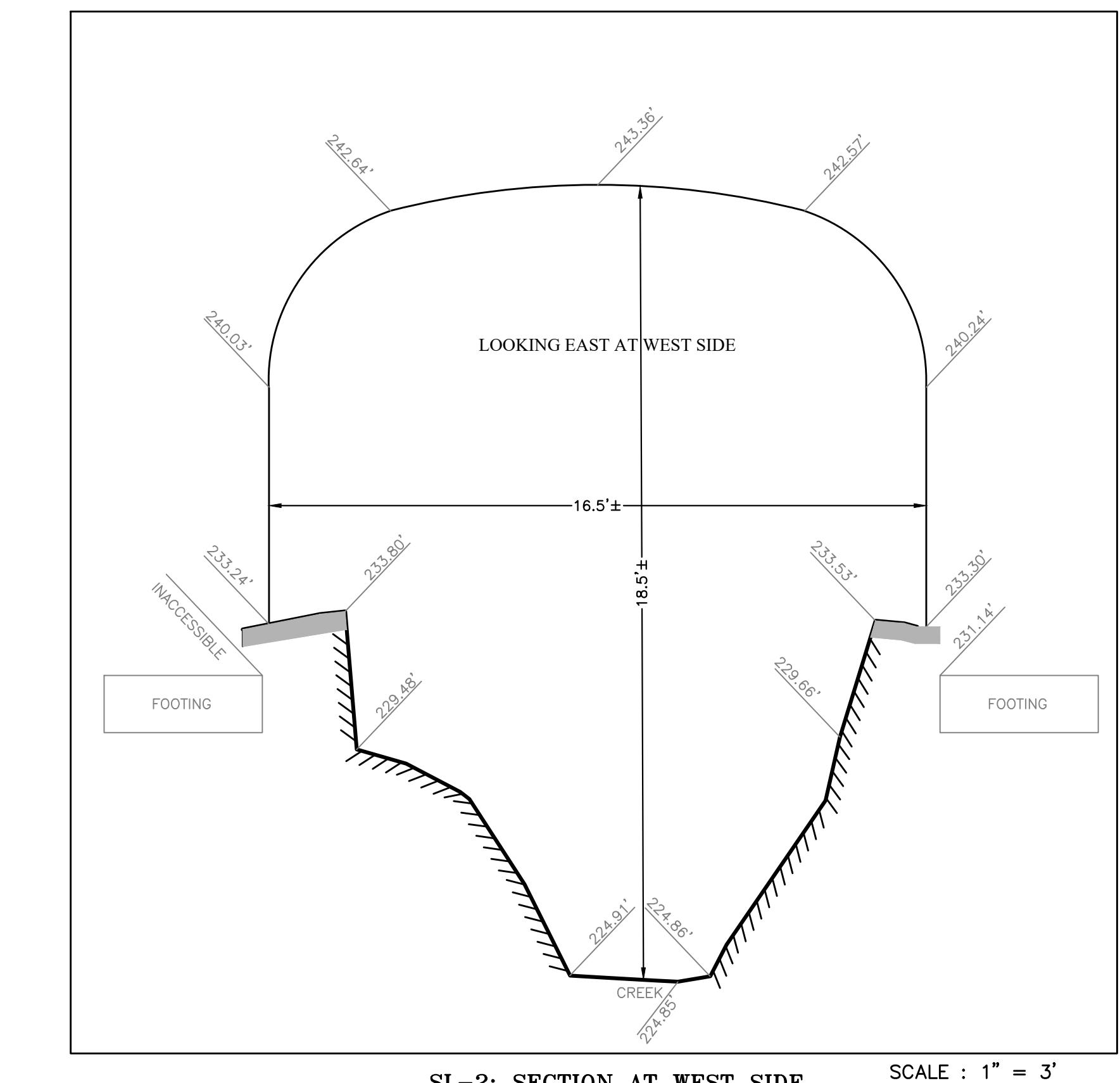
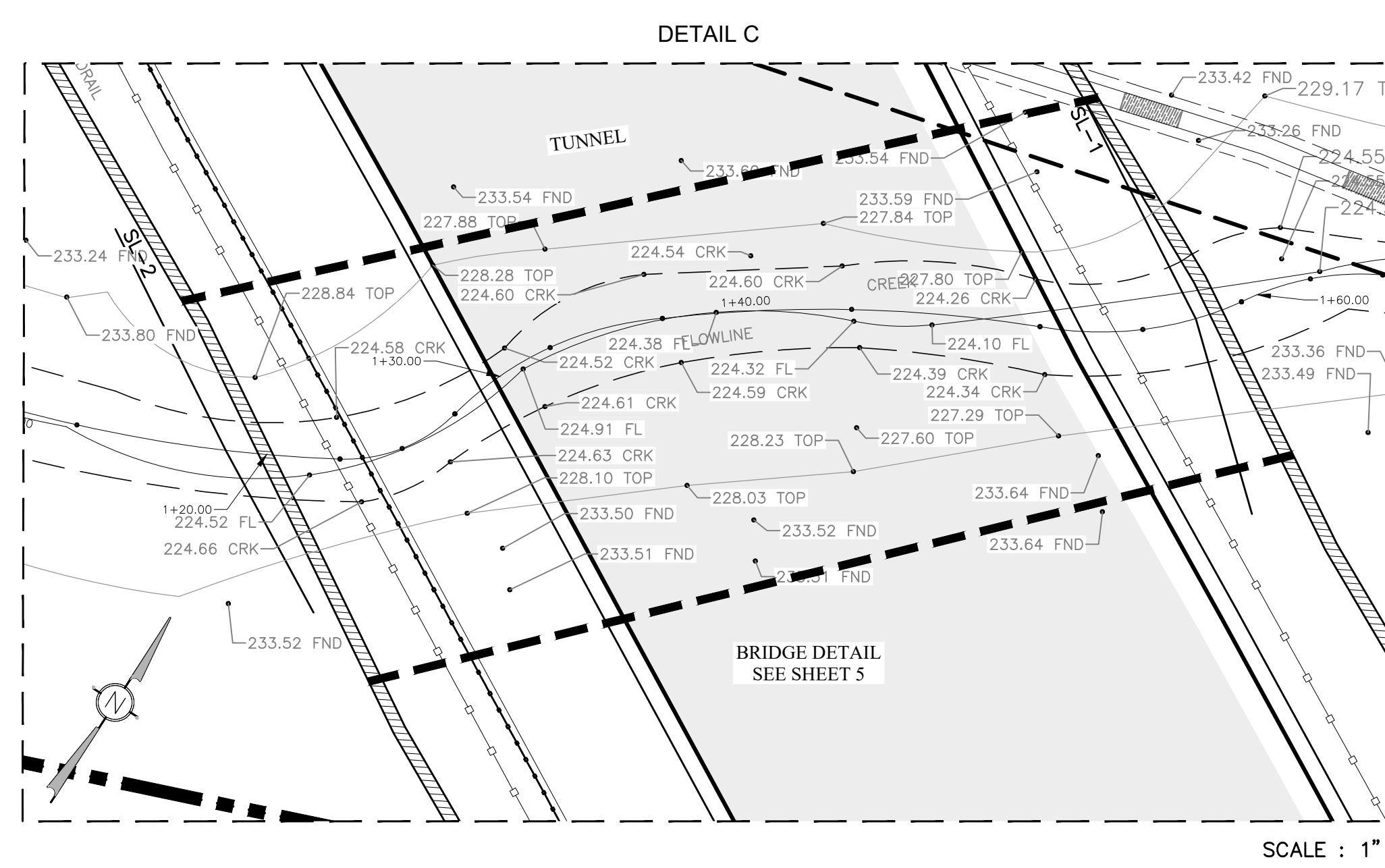
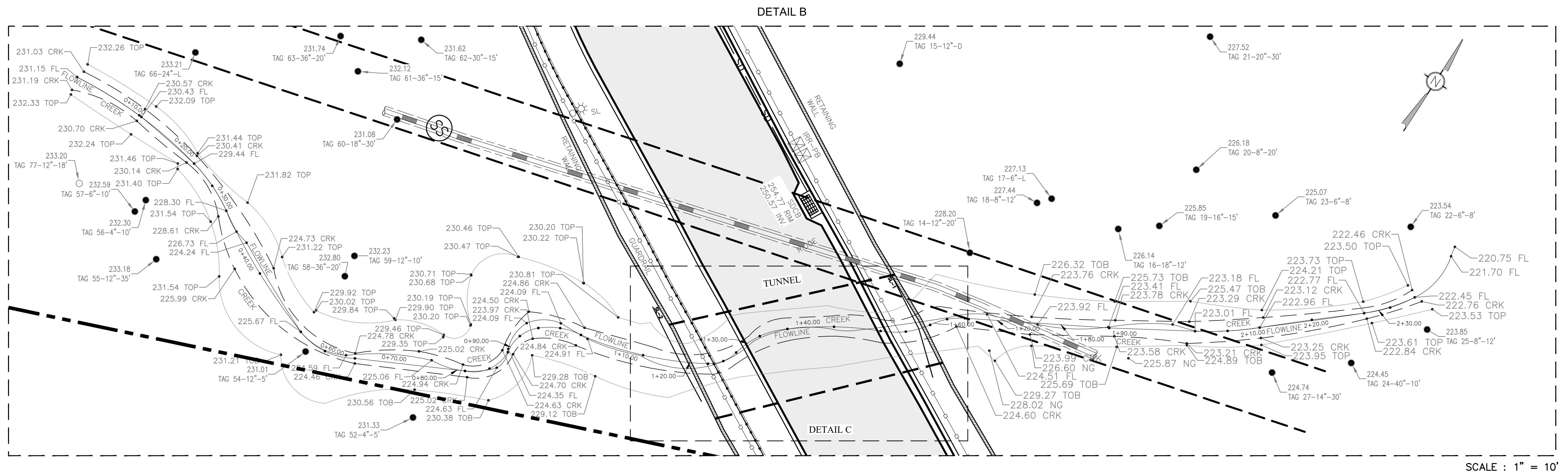
# CREEK SURVEY

CITY OF LAFAYETTE, CONTRA COSTA COUNTY, STATE OF CALIFORNIA  
1545 PLEASANT HILL ROAD, LAFAYETTE, CA 95816: ATRIA PARK



REVISIONS:

JUNE 2023



SURVEYORS STATEMENT:

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYORS' ACT AT THE REQUEST OF OWNER IN APRIL 2018.

CHRISTOPHER D. JOHNSON, PLS 7576  
EXPIRATION DATE: 12/31/19

DATE:



BENCHMARK

BASIS OF ELEVATION: CONTRA COSTA COUNTY BENCHMARK #978 - CONTRA COSTA COUNTY BRONZE DISK SET IN THE NORTHEAST CORNER OF BRIDGE ON PLEASANT HILL ROAD OVER PLEASANT HILL OVERPASS.  
ELEV: 342.839

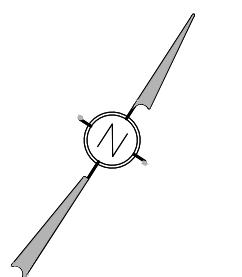
# BRIDGE SURVEY

CITY OF LAFAYETTE, CONTRA COSTA COUNTY, STATE OF CALIFORNIA  
1545 PLEASANT HILL ROAD, LAFAYETTE, CA 95816: ATRIA PARK

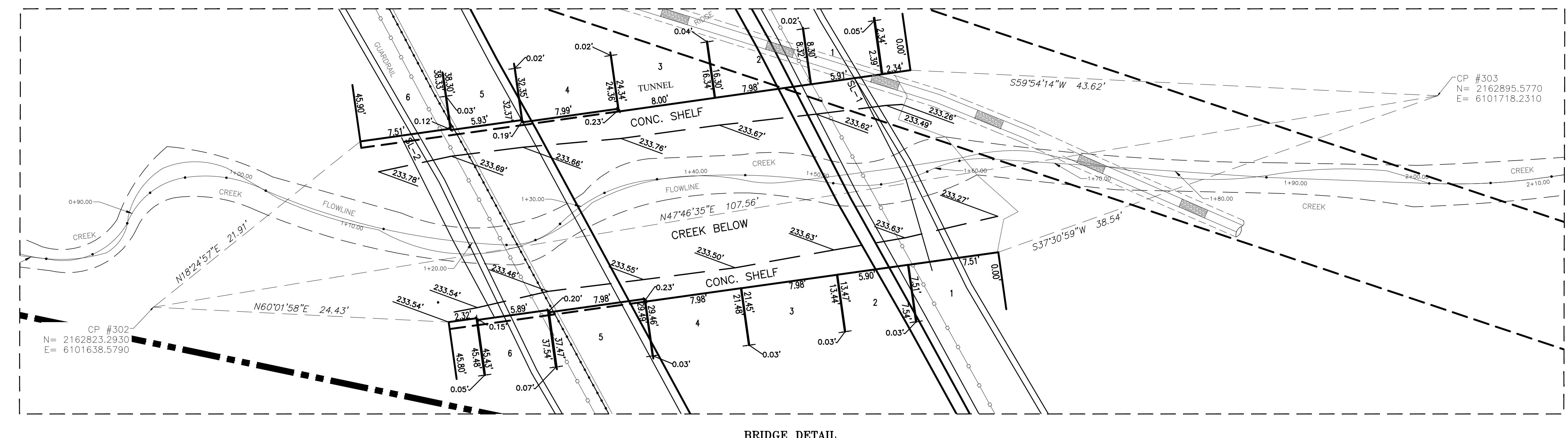


REVISIONS:

JUNE 2023



0' 2.5' 5'  
Scale: 1"=5'



ATRIA LAFAYETTE  
APN 169-090-002  
BRIDGE SURVEY  
CONTRA COSTA COUNTY, CALIFORNIA

DESIGNED BY: JIA FRANCIS  
CHECKED BY: JIA FRANCIS  
AS SHOWN  
SCALE: 1"=5'  
PROJECT NO: 23-001  
C8  
SHEET 8 OF 30















**INTENT OF DRAWINGS**

1. TYPICAL DETAILS AND GENERAL NOTES ON THESE DRAWINGS APPLY TO ALL PARTS OF THE JOB EXCEPT WHERE SPECIFICALLY DETAILED OR NOTED OTHERWISE ON THEIR SHEET.
2. RESOLVE ANY CONFLICTS ON THE DRAWINGS WITH THE ENGINEER BEFORE PROCEEDING WITH CONSTRUCTION. DIMENSIONS TAKE PRECEDENCE OVER SCALE OF DRAWINGS. HOWEVER, ANY SIGNIFICANT CONFLICTS SHOULD BE RESOLVED AS NOTED ABOVE.
3. VERIFY ALL DIMENSIONS AND CONDITIONS ON THE JOB. RESOLVE ANY CONFLICTS BETWEEN EXISTING CONDITIONS AND INFORMATION SHOWN ON THESE DRAWINGS WITH THE ENGINEER BEFORE PROCEEDING WITH CONSTRUCTION.
4. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE THE MEANS OR METHODS OR SEQUENCES OF CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY BRACING, SHORING AND SUPPORT NECESSARY TO ACHIEVE THE FINISHED STRUCTURE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING AND ENFORCING ALL CONSTRUCTION LOAD LIMITS ON THE STRUCTURE.

**GENERAL**

1. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE DRAWINGS AND GENERAL NOTES AND SPECIFICATIONS.
2. ALL APPLICABLE REQUIREMENTS OF THE CALIFORNIA CONSTRUCTION AND GENERAL INDUSTRY SAFETY ORDERS, THE OCCUPATIONAL SAFETY AND HEALTH ACT AND THE CONSTRUCTION SAFETY ACT SHALL BE MET.
3. ALL ERECTION PROCEDURES SHALL CONFORM TO OSHA STANDARDS. ANY DEVIATION MUST BE APPROVED BY OSHA PRIOR TO ERECTION.
4. ALL NECESSARY PERMITS, LICENSES, APPROVALS, FEES, NOTICES, ETC, SHALL BE OBTAINED PRIOR TO BEGINNING CONSTRUCTION.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE STRUCTURE DURING THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL RETAIN A CALIFORNIA REGISTERED CIVIL ENGINEER TO DESIGN ALL TEMPORARY SHORING, BRACING AND GUYS REQUIRED DURING CONSTRUCTION IN ACCORDANCE WITH ALL NATIONAL, STATE AND LOCAL SAFETY ORDINANCES.
6. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL EXCAVATION PROCEDURES INCLUDING LAGGING, SHORING AND PROTECTION OF ADJACENT PROPERTY, STRUCTURES, STREETS AND UTILITIES IN ACCORDANCE WITH ALL NATIONAL, STATE AND LOCAL SAFETY ORDINANCES.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITIES AGENCIES AS TO THE LOCATION OF ALL UNDERGROUND FACILITIES FOR THE PROTECTION OF, AND REPAIR OF DAMAGE TO THEM. CALL "UNDERGROUND SERVICE ALERT" FORTY-EIGHT HOURS BEFORE DIGGING.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES AND SHALL CHECK ALL DIMENSIONS. ALL DISCREPANCIES SHALL BE CALLED TO THE ATTENTION OF THE ENGINEER AND SHALL BE RESOLVED BEFORE PROCEEDING WITH THE WORK.
9. SHOP DRAWINGS REQUIRED BY THE CONTRACT DOCUMENTS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION. ALL SHOP DRAWINGS SHALL BE REVIEWED BY THE GENERAL CONTRACTOR BEFORE SUBMITTAL. THE ENGINEER'S REVIEW IS TO BE FOR CONFORMANCE WITH THE DESIGN CONCEPT AND GENERAL COMPLIANCE WITH THE RELEVANT CONTRACT DOCUMENTS. THE ENGINEER'S REVIEW DOES NOT RELIEVE THE CONTRACTOR OF THE SOLE RESPONSIBILITY TO REVIEW, CHECK AND COORDINATE THE SHOP DRAWINGS PRIOR TO SUBMISSION. THE CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR ERRORS AND OMISSIONS ASSOCIATED WITH THE PREPARATION OF SHOP DRAWINGS AS THEY PERTAIN TO MEMBER SIZES, DETAILS, DIMENSIONS, ETC.
10. ALL DETAILS DESIGNATED AS STANDARD OR TYPICAL SHALL APPLY TO ALL APPLICABLE CONDITIONS IN ADDITION TO OTHER SPECIFICALLY REFERENCED DETAILS AND SECTIONS.
11. DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION, WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO REVIEW BY THE ENGINEER.
12. REFER TO CIVIL, MECHANICAL, HVAC, PLUMBING AND ELECTRICAL DRAWINGS FOR SIZE AND LOCATION OF ALL OPENINGS REQUIRED FOR DUCTS, PIPES AND PIPE SLEEVES, ELECTRICAL CONDUITS AND OTHER ITEMS TO BE EMBEDDED IN CONCRETE OR OTHERWISE INCORPORATED IN STRUCTURAL WORK. NO PIPES OR DUCTS SHALL BE EMBEDDED INTO STRUCTURAL MEMBERS UNLESS SHOWN ON THE PLANS.
13. CIVIL, MECHANICAL, PLUMBING AND ELECTRICAL PLANS ARE CONSIDERED A PART OF THE STRUCTURAL DESIGN DRAWINGS AND ARE TO BE USED TO DEFINE DETAIL CONFIGURATIONS INCLUDING, BUT NOT LIMITED TO RELATIVE LOCATION OF MEMBERS, ELEVATIONS, LOCATION OF ALL OPENINGS, ETC.
14. REFER TO CIVIL PLANS FOR FLOOR DEPRESSIONS, OPENINGS, SLOPES, DRAINS, CURBS, PADS, EMBEDDED ITEMS
15. REFER TO CIVIL DRAWINGS FOR ALL SIDEWALK LOCATIONS AND DETAILING REQUIREMENTS. SIDEWALK INFORMATION IS NOT SHOWN ON STRUCTURAL DRAWINGS.

**TESTS AND INSPECTIONS**

STRUCTURAL TESTS AND SPECIAL INSPECTIONS SHALL BE PROVIDED BY A QUALIFIED TESTING AND INSPECTION AGENCY AS REQUIRED BELOW AND SHALL CONFORM TO THE REQUIREMENTS OF CHAPTER 17 OF THE CBC.

**TESTS:**

- FILL COMPACTION
- REINFORCING STEEL
- CONCRETE
- STRUCTURAL STEEL
- MASONRY
- GROUT AND MORTAR
- EPOXY AND EXPANSION ANCHORS
- SHOTCRETE

**INSPECTIONS:**

- SPECIAL GRADING, EXCAVATION AND FILLING
- PILE/PIER INSTALLATION
- REINFORCEMENT PLACEMENT
- CONCRETE PLACEMENT
- SHOP WELDING
- FIELD WELDING
- HIGH STRENGTH BOLTING
- MASONRY PLACEMENT AND GROUTING
- SHEAR STUD INSTALLATION
- EPOXY AND EXPANSION ANCHORS
- SHOTCRETE
- ANCHOR BOLT SIZE AND PLACEMENT

**DESIGN CRITERIA****1. CODES AND STANDARDS:**

2019 CALIFORNIA BUILDING CODE (CBC)

ACI 318-14 ACI BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE

**2. SEISMIC DESIGN PARAMETERS:**

SITE CLASS D  
SEISMIC DESIGN CATEGORY D  
RISK CATEGORY III

$$\begin{aligned} S_S &= 0.59g & F_a &= 1.33 & S_{DS} &= 0.52g \\ S_1 &= 0.26g & F_v &= 2.08 & S_{D1} &= 0.36g \\ I &= 1.00 & & & & \end{aligned}$$

**3. WIND LOADS**

$$\begin{aligned} \text{RISK CATEGORY} &= II \\ \text{BASIC WIND SPEED} &= 95 \text{ MPH} \\ \text{EXPOSURE CATEGORY} &= C \end{aligned}$$

**GEOTECHNICAL DESIGN PARAMETERS****1. THE STRUCTURAL DESIGN IS BASED ON THE GEOTECHNICAL RECOMMENDATIONS STATED IN THE FOLLOWING GEOTECHNICAL ENGINEERING REPORT:**

TITLE: GEOTECHNICAL STUDY  
DISTRESSED ENTRANCE ACCESS  
ROAD AT ATRIA PARK  
1545 PLEASANT HILL ROAD  
LAFAYETTE, CALIFORNIA  
BY: GEOTECNIA CONSULTING GEOTECHNICAL ENGINEERS  
PROJ No. 172370  
DATE: JUNE 8, 2018

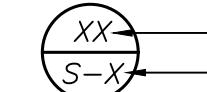
**2. GEOTECHNICAL DESIGN PARAMETERS****ALLOWABLE BEARING PRESSURES**

$$\begin{aligned} \text{DEAD+LIVE} &= 1500 \text{ PSF} \\ \text{DEAD+LIVE+TRANSIENT} &= 2000 \text{ PSF} \end{aligned}$$

**LATERAL EARTH PRESSURES**

$$\begin{aligned} \text{ACTIVE PRESSURE (IN-SITU)} &= 132 \text{ PSF/FT} \\ \text{ACTIVE PRESSURE (URETEK STABILIZED)} &= 105 \text{ PSF/FT} \end{aligned}$$

**DETAIL AND SECTION REFERENCE TAGS**

DETAIL REFERENCE TAG  DRAWING WHERE DETAIL OCCURS

DETAILS ARE NOT CROSS REFERENCED BACK TO SHEETS WHERE DETAIL REFERENCE TAG OCCURS

SECTION REFERENCE TAG  DRAWING WHERE SECTION OCCURS

SECTIONS ARE CROSS REFERENCED BACK TO SHEETS WHERE SECTION REFERENCE TAG OCCURS

 SECTION

S-X SCALE:

DRAWING WHERE SECTION IS REFERENCE ON PLAN

**FOUNDATION AND EARTHWORK**

1. THE FOUNDATION DESIGN IS BASED ON THE GEOTECHNICAL RECOMMENDATIONS STATED IN THE GEOTECHNICAL ENGINEERING REPORT. REFER TO GEOTECHNICAL DESIGN PARAMETERS NOTE 1 ON SHEET S-1.
2. UNLESS OTHERWISE INDICATED, FOUNDATION WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE REFERENCED GEOTECHNICAL ENGINEERING REPORT. THIS REPORT IS SUPPLEMENTAL INFORMATION AND SHOULD BE KEPT ON THE JOB SITE AT ALL TIMES.
3. IT IS RECOMMENDED THAT THE FOUNDATION EXCAVATIONS BE EXAMINED AND APPROVED BY THE GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE PRIOR TO THE PLACEMENT OF ANY REINFORCING STEEL OR CONCRETE.
4. UNEXPECTED SOIL CONDITIONS: FOUNDATION DESIGN IS BASED UPON SOIL CONDITIONS SHOWN BY TEST BORINGS IN THE REFERENCED GEOTECHNICAL ENGINEERING REPORT. ANY SUBSURFACE CONDITIONS NOT IN ACCORDANCE WITH THE REFERENCED GEOTECHNICAL REPORTS SHALL BE REPORTED TO THE GEOTECHNICAL ENGINEER IMMEDIATELY FOR RESOLUTION PRIOR TO CONTINUING ANY WORK.

**5. FOUNDATIONS SHALL BEAR ON APPROVED COMPAKTED SUB-BASE OR COMPAKTED FILL AS REQUIRED BY GEOTECHNICAL ENGINEERING REPORT. SOIL SHALL BE COMPAKTED UNDER AND AROUND THE SIDES OF ALL FOOTINGS AND SLABS.**

6. COMPAKTED FILL: AREAS TO RECEIVE FILL SHOULD BE STRIPPED OF ANY VEGETATION, DEBRIS, ANIMAL BURROWS, EXISTING UNENGINEERED FILL, OR OTHER DELETERIOUS MATERIAL. THE APPROVED EXPOSED SURFACE SHOULD BE SCARIFIED TO A DEPTH OF 8 INCHES; MOISTURE CONDITIONS TO AT, OR ABOVE, THE OPTIMUM MOISTURE, AND COMPAKTED TO AT LEAST 90% OF THE ASTM D1557 MAXIMUM DRY DENSITY. FILL SHALL CONSIST OF ON-SITE, OR SIMILAR, SOIL WHICH IS FREE OF DELETERIOUS MATERIAL AND HAS AN ORGANIC CONTENT LESS THAN 3% BY WEIGHT (ASTM D2321). FILL SHOULD BE MOISTURE CONDITIONED TO AT, OR ABOVE, THE OPTIMUM MOISTURE; SPREAD IN HORIZONTAL LIFTS COMPATIBLE WITH THE COMPAKTION EQUIPMENT; AND, UNIFORMLY COMPAKTED TO AT LEAST 90% OF THE MAXIMUM DENSITY.

7. COMPACTED BACKFILL: BACKFILL FOR STRUCTURES CAN CONSIST OF EXCAVATED ON-SITE, OR SIMILAR, SOIL THAT MEETS THE CRITERIA SPECIFIED IN THE GEOTECHNICAL ENGINEERING REPORT OF THE CONTRACT DOCUMENTS. THE AREA SHALL BE CLEARED OF ALL CONSTRUCTION DEBRIS PRIOR TO BACKFILLING. BACKFILL SHOULD BE MOISTURE CONDITIONED TO, OR ABOVE, THE OPTIMUM MOISTURE; SPREAD IN HORIZONTAL LIFTS; AND, COMPAKTED TO AT LEAST 90% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557. LIFT THICKNESS SHOULD BE SUFFICIENTLY THIN TO ALLOW FOR UNIFORM COMPAKTION THROUGHOUT THE LIFT. ANY LOOSE SOIL ON CONSTRUCTION SLOPES SHOULD BE REMOVED BY USE OF SMALL NOTCHES (MAXIMUM 2'-0" IN HEIGHT) AS THE FILL IS BROUGHT UP. THE INTENT IS FOR BACKFILL TO BE BONDED INTO COMPETENT UNDISTURBED NATURAL SOIL OR PREVIOUSLY COMPAKTED FILL.

8. FORM FOUNDATIONS AS NECESSARY TO ACHIEVE MINIMUM DIMENSIONS SHOWN ON THESE DRAWINGS. EARTH FORMS CAN BE USED. SOIL CONDITIONS PERMIT EXCAVATION WITHOUT SOIL SLOUGHING DURING STEEL AND CONCRETE PLACEMENT. IF EARTH FORMS ARE USED, INCREASE WIDTH OF FOOTING ONE INCH ON EACH SIDE FROM SIZE SHOWN ON DRAWINGS.

9. BOTTOM OF FOUNDATIONS SHALL BE STEPPED AS NECESSARY TO PROVIDE LEVEL BEARING. CONTRACTOR SHALL PROVIDE PROPOSED STEPS WHERE REQUIRED BY SITE CONDITIONS AND BURIED UTILITY LOCATIONS IN ADDITION TO LOCATIONS SPECIFICALLY NOTED ON THE PLANS AND DETAILS FOR REVIEW AND APPROVAL.

10. FOUNDATION EXCAVATIONS SHALL BE CLEARED OF ANY LOOSENEO SOILS, DEBRIS AND STANDING WATER BEFORE PLACING STEEL OR CONCRETE.

**ANCHORAGE TO EXISTING CONCRETE**

1. UON EPOXY ANCHORS AND DOWELS SHALL BE HILTI HIT HY-150 OR EQUIVALENT WITH ENGINEERS PRIOR APPROVAL WHERE DOWELS ARE THROUGH DOWELS USE SIKADUR 35, HI MOD LV OR EQUAL.
2. ALL EPOXY GROUTED WORK AND SURFACE PREPARATION AND INSTALLATION SHALL FOLLOW MANUFACTURER'S PRINTED INSTRUCTIONS.
3. DRILL HOLES TO THE DEPTH AND DIAMETER AS SPECIFIED IN THE PRODUCT LITERATURE. HOLES ARE TO BE CLEANED PER SPECIFICATION AND SHALL BE DRY.
4. POST INSTALLED ANCHORS, (EXPANSION AND ADHESIVE TYPE ANCHORS LOADED WITH EITHER PULLOUT OR SHEAR), SHALL HAVE 10% OF THE ANCHORS TESTED WITH A DIRECT TENSION PULL TEST. THE TENSION TEST LOAD SHALL BE 1.25 TIMES THE MAXIMUM DESIGN STRENGTH OR 80% OF THE YIELD STRENGTH OF THE ANCHOR, (0.8 Ab Fy), WHICHEVER IS LESS. THE MAXIMUM DESIGN STRENGTH IS AS DETERMINED IN ACCORDANCE WITH ACI 318 APPENDIX D PROVISIONS. THE SPECIAL INSPECTOR MAY OBTAIN THE DESIGN STRENGTH FROM THE EQUIPMENT ANCHORAGE DEFERRED SUBMITTAL CALCULATIONS. THE SPECIAL INSPECTOR SHALL SELECT THE ANCHORS TO BE TESTED AT RANDOM. IF ANY ANCHOR FAILS TESTING, ALL ANCHORS OF THE SAME TYPE NOT PREVIOUSLY TESTED SHALL BE TESTED UNTIL 20 CONSECUTIVE ANCHORS PASS. THEN RESUME INITIAL TESTING FREQUENCY.

Ab = AREA OF ANCHOR (in<sup>2</sup>)  
Fy = YIELD STRENGTH OF BOLT (PSI)

5. THE REINFORCEMENT IN EXISTING CONCRETE SHALL NOT BE CUT OR DAMAGED BY THE NEW CONSTRUCTION. THE CONTRACTOR SHALL SUBMIT A PROCEDURE FOR IDENTIFICATION OF EXISTING REINFORCEMENT FOR THE ENGINEER'S APPROVAL BEFORE DRILLING.

6. THE REINFORCING BARS SHALL BE FREE OF OILS, PAINTS, DIRT OR OTHER COATINGS THAT WILL REDUCE THE BOND.

**REINFORCING STEEL**

1. ALL REINFORCING STEEL SHALL CONFORM TO ASTM STANDARD AS NOTED: TYPICAL REBAR: A615 GRADE 60  
REBAR WHERE SPECIFICALLY NOTED: A615 GRADE 40  
REBAR TO BE WELDED: A706 GRADE 60

2. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. MINIMUM LAP AT SPLICES SHALL BE 12 INCHES.

3. ALL CONCRETE SHALL BE REINFORCED UNLESS SPECIFICALLY NOTED "NOT REINFORCED" IN THE DRAWINGS. IF REINFORCING BARS ARE NOT SHOWN OR NOTED, PROVIDE SAME REINFORCEMENT AS FOR SIMILAR CONDITIONS ELSEWHERE IN THE WORK, OR AS DIRECTED BY THE ENGINEER.

4. REINFORCEMENT BARS #5 AND LARGER SHALL NOT BE SPLICED EXCEPT AS DETAILED AND LOCATED ON DRAWINGS. #4 AND SMALLER BARS, WITH LENGTH NOT SHOWN, SHALL BE CONTINUOUS. LAPPING IN CONCRETE 1'-6" MINIMUM. WALL HORIZONTAL REINFORCEMENT SPLICES SHALL BE STAGGERED, VERTICAL REINFORCEMENT SHALL BE SPLICED ONLY AT HORIZONTAL SUPPORTS, SUCH AS ROOF OR FLOOR UNLESS OTHERWISE NOTED ON DRAWINGS. ALL SPLICES SHALL BE CLASS B U.O.N.

5. ANCHOR BOLTS, DOWELS AND OTHER EMBEDDED ITEMS SHALL BE ACCURATELY SET IN PLACE AND FIRMLY SUPPORTED BEFORE CONCRETE IS POURED.

6. REINFORCEMENT BARS SHALL BE ACCURATELY PLACED AND FIRMLY SUPPORTED USING TIES AND SUPPORT BARS IN ADDITION TO REINFORCEMENT SHOWN WHERE FIRM AND ACCURATE PLACING IS NECESSARY AS SPECIFIED IN THE ACI STANDARDS. DOWELS SHOULD BE PROVIDED TO MATCH ALL REINFORCEMENT AT CONSTRUCTION JOINTS UNLESS OTHERWISE NOTED.

7. NO REINFORCEMENT WELDING (TACK WELDING INCLUDED) SHALL BE DONE UNLESS SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER.

8. ALL DIMENSIONS SHOWN FOR LOCATION OF REINFORCING ARE TO THE FACE OF BARS AND DENOTE CLEAR COVERAGE UNLESS OTHERWISE NOTED.

9. MINIMUM CONCRETE COVERAGE OF REINFORCING STEEL SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED ON PLANS:

CONCRETE CAST AGAINST EARTH 3"

FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:  
#6-#18 BARS 2"  
#5 BAR AND SMALLER 1 1/2"

SLABS ON GRADE: 3/4" (FROM TOP)

10. DRAWINGS SHOW TYPICAL REINFORCING CONDITIONS. CONTRACTOR SHALL PREPARE DETAILED PLACEMENT DRAWINGS OF ALL CONDITIONS SHOWING QUANTITY, SPACING, SIZES, CLEARANCE, LAPS, INTERSECTIONS AND COVERAGE REQUIRED BY STRUCTURAL DETAILS, APPLICABLE CODE AND TRADE STANDARDS. CONTRACTOR SHALL NOTIFY REINFORCING INSPECTOR OF ANY ADJUSTMENTS FROM TYPICAL CONDITIONS WHICH ARE PROPOSED IN PLACEMENT DRAWINGS TO FACILITATE FIELD PLACEMENT OF REINFORCING STEEL AND CONCRETE.

**CONCRETE**

1. ALL STRUCTURAL CONCRETE SHALL HAVE A DENSITY AFTER CURING BASED ON WEIGHT CLASSIFICATION AS SHOWN BELOW, UON:

NORMAL WEIGHT: DENSITY = 145 PCF

2. ALL CONCRETE SHALL BE NORMAL WEIGHT UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.

3. ALL STRUCTURAL CONCRETE SHALL BE MADE FROM AGGREGATES BASED ON WEIGHT CLASSIFICATION AS SHOWN BELOW, UON:  
NORMAL WEIGHT: ASTM C33 WITH PROVEN SHRINKAGE CHARACTERISTICS OF LESS THAN 0.05%.

4. ALL CONCRETE SHALL CONFORM TO THE MINIMUM COMPRESSIVE STRENGTHS AND WATER/CEMENTITIOUS MATERIAL RATIOS TABULATED BELOW:

f'c (28 DAY)  
5000 PSI  
5000 PSI

5. ALL CEMENT SHALL CONFORM TO ASTM C150 TYPE II OR V, UON.

6. CONCRETE MIX DESIGNS SHALL BE PREPARED BY AN INDEPENDENT LABORATORY AND REVIEWED BY THE STRUCTURAL ENGINEER.

7. ADMIXTURES SHALL COMPLY WITH ASTM C494 AND BE OF A TYPE THAT INCREASES THE WORKABILITY OF THE CONCRETE, BUT SHALL NOT BE CONSIDERED TO REDUCE THE SPECIFIED MINIMUM CEMENT CONTENT. CALCIUM CHLORIDE SHALL NOT BE USED.

8. PLACEMENT OF CONCRETE SHALL BE IN CONFORMANCE WITH ACI 304.

## CONDUITS AND PIPES EMBEDDED IN REINFORCED CONCRETE STRUCTURES

- THE CONTRACTOR SHALL NOT INSTALL ANY CONDUITS, PIPES, DUCTS, OR SLEEVES THAT ARE NOT SHOWN ON THE PLANS OR NOT APPROVED BY THE ENGINEER.
- CONDUITS AND PIPES OF ALUMINUM SHALL NOT BE EMBEDDED IN STRUCTURAL CONCRETE.
- PIPING AND CONDUIT SHALL BE SO FABRICATED AND INSTALLED SUCH THAT CUTTING, BENDING, OR DISPLACEMENT OF REINFORCEMENT FROM ITS PROPER LOCATION WILL NOT BE REQUIRED.
- PIPES PASSING THROUGH WALLS OF A LIQUID CONTAINING STRUCTURE SHALL INCLUDE AN INTEGRAL WATERSTOP.
- LIQUID, GAS, OR VAPOR, EXCEPT WATER NOT EXCEEDING 90° F NOR 50 PSI PRESSURE, SHALL "NOT" BE PLACED UNTIL THE CONCRETE HAS ATTAINED ITS DESIGN STRENGTH.
- PIPE AND CONDUIT SIZE AND SPACING SHALL BE PER STANDARD DETAILS DESCRIBED WITHIN.

## NON-SHRINK GROUT

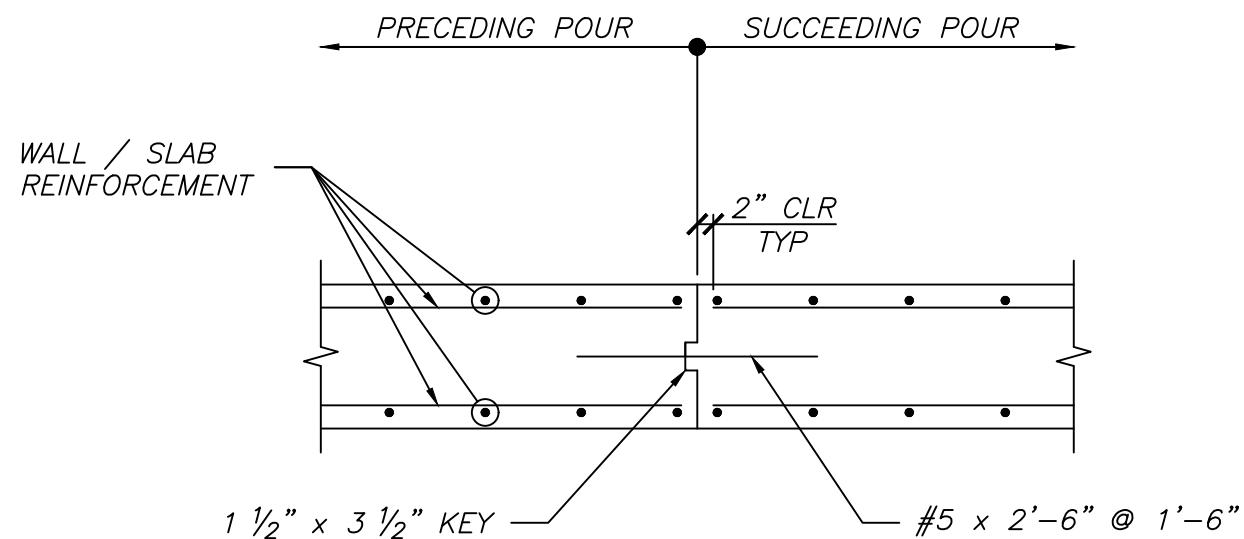
- NON-SHRINK GROUT SHALL BE MASTER BUILDERS EMBECO 713, OR SIKA GROUT 212, OR U.S. GROUT FIVE STAR, OR EQUIVALENT WITH ENGINEER'S PRIOR APPROVAL.
- SURFACE PREPARATION SHALL FOLLOW MANUFACTURER'S PAINTED INSTRUCTIONS. PROPER SURFACE CLEANING AND MOIST CURING IS ESSENTIAL.
- SAND-BLASTING: REMOVE ALL DIRT, OIL, GREASE, AND OTHER BOND-INHIBITING MATERIALS. CONCRETE MUST BE SAND-BLASTED AND ROUGHENED TO PROMOTE MECHANICAL ADHESION. PRIOR TO POURING, SURFACE SHOULD BE BROUGHT TO A SATURATED SURFACE CONDITION.
- FORMING: FOR POURABLE GROUT, CONSTRUCT FORMS TO RETAIN GROUT WITHOUT LEAKAGE. FORMS SHOULD BE LINED OR COATED WITH BOND-BREAKER FOR EASY REMOVAL.
- MIXING: MIX MECHANICALLY WITH LOW-SPEED DRILL (400-600 RPM) AND A MIXING PADDLE AND FOLLOW MANUFACTURER'S RECOMMENDATIONS.
- NON-SHRINK GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 4,000 PSI PER ASTM C109. TESTING REQUIREMENTS SHALL FOLLOW ACI AND ASTM STANDARDS.

## STRUCTURAL STEEL

- STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST EDITIONS OF AISC SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS, AND CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES.
- STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS AND GRADES:  
WIDE FLANGE BEAMS AND COLUMNS: ASTM A992, GRADE 50  
CHANNELS, ANGLES AND PLATES: ASTM A36  
ROUND STEEL PIPE: ASTM A53, TYPE E OR S, GRADE B  
RECTANGULAR STRUCTURAL TUBING: ASTM A500, GRADE B
- MACHINE BOLTS SHALL BE GRADE "A" CONFORMING TO ASTM A307, UON. ANCHOR BOLTS SHALL BE GRADE 36 CONFORMING TO ASTM F1554, UON. NUTS SHALL BE STANDARD HEX, GRADE A, CONFORMING TO ASTM A563.
- WELDING SHALL BE DONE BY A PROCESS APPROVED BY THE ENGINEER AND THE BUILDING DEPARTMENT. WELDERS SHALL BE CERTIFIED IN ACCORDANCE WITH AWS D1.1 LATEST EDITION.
- A SEQUENCE OF FIELD WELDING SHALL BE PLANNED TO MINIMIZE LOCKED-IN STRESSES AND DISTORTION.
- WELDING SHALL CONFORM TO AWS D1.1 LATEST EDITION.
- LENGTHS OF WELDS SHOWN ARE EFFECTIVE LENGTHS AS SPECIFIED IN AWS D1.1. WHERE LENGTH OF WELD IS NOT SHOWN IT SHALL BE FULL LENGTH OF JOINT. ALL BUTT WELDS SHALL BE FULL PENETRATION UNLESS NOTED OTHERWISE.
- WHERE MINIMUM AISC FILLET WELD THICKNESS REQUIREMENTS EXCEED WELDS SHOWN ON DETAILS, PROVIDE MINIMUM AISC WELD.
- ALL SHOP WELDING SHALL BE PERFORMED IN AN APPROVED FABRICATOR'S SHOP IN ACCORDANCE WITH CBC 1704.2.5.2.
- ELECTRODES: AWS D1.1 E70XX SERIES AS REQUIRED FOR INTENDED USE.
- AFTER FABRICATION, ALL STEEL SHALL BE CLEARED FREE OF RUST, LOOSE MILL SCALE AND OIL AND HOT DIPPED GALVANIZED.
- SHOP DRAWINGS: CONTRACTOR SHALL PREPARE STEEL SHOP DRAWINGS INDICATING PROFILES, SIZES, SPACING, LOCATIONS OF STRUCTURAL MEMBERS, OPENINGS, ATTACHMENTS, CONNECTIONS AND CAMBERS.

## ABBREVIATIONS

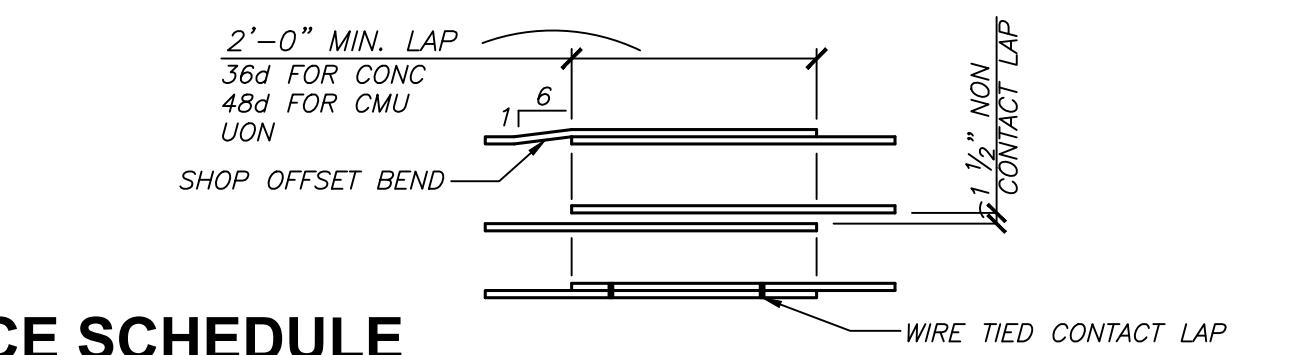
AB	ANCHOR BOLT	KIP	KILOPOUND (1000 POUNDS)
ABV	ABOVE	KO	KNOCKOUT
ACI	AMERICAN CONCRETE INSTITUTE	KS	KING STUD
ADDL	ADDITIONAL	L	ANGLE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	LAM	LAMINATED
		LAT	LATERAL
ALT	ALTERNATE	LB	POUND (WEIGHT)
ALUM	ALUMINUM	LONG	LONGITUDINAL
ANCH	ANCHOR, ANCHORAGE	LLH	LONG LEG HORIZONTAL
APPROX	APPROXIMATE	LLV	LONG LEG VERTICAL
ARCH	ARCHITECT, ARCHITECTURAL	LT WT	LIGHTWEIGHT
A/E	ARCHITECT/ENGINEER	LVL	LAMINATED VENEER LUMBER
ASPH	ASPHALT	LWC	LIGHT WEIGHT CONCRETE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	MAS	MASONRY
		MAT	MATERIAL
		MAX	MAXIMUM
		MB	MACHINE BOLT
		MBM	METAL BUILDING MANUFACTURER
BD	BOARD	MECH	MECHANICAL
BN	BOUNDARY NAILING	MEMBR	MEMBRANE
BTWN	BETWEEN	MEZZ	MEZZANINE
BLDG	BUILDING	MFR	MANUFACTURER
BLKG	BLOCKING	MIN	MINIMUM
BLW	BELOW	MISC	MISCELLANEOUS
BM	BEAM	MTL	METAL
BOT	BOTTOM		
BP	BASE PLATE		
BRG	BEARING		
BRKT	BRACKET		
BOF	BOTTOM OF FRAMING	(N)	NEW
BOS	BOTTOM OF STEEL	NS	NEAR SIDE
		NTS	NOT TO SCALE
		NO	NUMBER
CC	CENTER TO CENTER	OC	ON CENTER
CANT	CANTILEVER	OD	OUTSIDE DIAMETER
CAP	CAPACITY	OF	OUTSIDE FACE
CIP	CAST-IN-PLACE	OPNG	OPENING
CJ	CONTROL JOINT	OPP	OPPOSITE
CLR	CLEAR	OH	OPPOSITE HAND
CLSM	CONTROLLED LOW STRENGTH MATERIAL	PAF	POWDER ACTUATED FASTENERS
CMU	CONCRETE MASONRY UNIT	PAR	PARALLEL
COL	COLUMN	PARTN	PARTITION
CONC	CONCRETE	PCF	POUNDS PER CUBIC FOOT
CONST	CONSTRUCTION	PERIM	PERIMETER
CONN	CONNECTION	PERP	PERPENDICULAR
CONT	CONTINUOUS	PLATE	PLATE
CTR	CONTINUOUS CENTER	PLF	POUNDS PER LINEAL FOOT
CF	CUBIC FEET	PLYWD	PLYWOOD
CY	CUBIC YARD	PN	PLATE NAILING
DBL	DOUBLE	PP	PANAL PEN
DEMO	DEMOLITION	PSF	POUNDS PER SQUARE FOOT
DET	DETAIL	PSI	POUNDS PER SQUARE INCH
DIAG	DIAGONAL	PSL	PARALLEL STRAND LUMBER
DIA	DIA	PT	PRESERVATIVE/PRESSURE
DIM	DIMENSION	QUAL	TREATED
DO	DITTO (REPEAT)	QTY	QUALITY
d	BAR DIAMETER	R	QUANTITY
DWGS	DRAWINGS	RCP	RADIUS
		REINF	REINFORCED CONCRETE PIPE
EA	EACH	REINF	REINFORCEMENT
EF	EACH FACE	REREQ	REQUIRED
EJ	EXPANSION JOINT	REV	REVISION
EL	ELEVATION	SAD	SEE ARCHITECTURAL DRAWINGS
EN	EDGE NAILING	SCH	SCHEDULE
ENGR	ENGINEER	SECT	SECTION
EOR	ENGINEER OF RECORD	SF	SQUARE FOOT
EQ	EQUAL	SHTG	SHEATHING
EQUIP	EQUIPMENT	SIM	SIMILAR
EW	EACH WAY	SMS	SHEET METAL SCREW
(E)	EXISTING	SN	SOLE NAILING
EXP	EXPANSION	SOG	SLAB ON GROUND
EXT	EXTERIOR	SPEC	SPECIFICATIONS
		SQ	SQUARE
FDN	FOUNDATION	SS	STAINLESS STEEL
FIN	FINISH, FINISHED	STD	STANDARD
FLR	FLOOR	STGR	STAGGER
FN	FIELD NAILING	STIFF	STIFFENER
FO	FACE OF	STL	STEEL
FOC	FACE OF CONCRETE	STRUCT	STRUCTURAL
FOF	FACE OF FINISH	SUSP	SUSPENDED
FOM	FACE OF MASONRY	SW	SHEARWALL
FOS	FACE OF STUD	SYM	SYMMETRICAL
FOW	FACE OF WALL	T&B	TOP AND BOTTOM
FP	FIREPROOF	T&G	TONGUE AND GROOVE
FS	FAR SIDE	THK	THICK, THICKNESS
FT	FOOT, FEET	THRU	THROUGH
FTG	FOOTING, FITTING	TOC	TOP OF CONCRETE
GA	GAUGE, GAGE	TOF	TOP OF FRAMING
GALV	GALVANIZED	TOS	TOP OF STEEL
GLB	GLUE LAMINATED BEAM	TR	TRIMMER
GYB	GYPSUM BOARD	TYP	TYPICAL
HDR	HEADER	UON	UNLESS OTHERWISE NOTED
HEX	HEXAGONAL	VERT	VERTICAL
HGR	HANGER		
HT	HEIGHT		
HORIZ	HORIZONTAL		
HSB	HIGH STRENGTH BOLTS		
HSS	HOLLOW STRUCTURAL SECTION		
IBC	INTERNATIONAL BUILDING CODE		
ID	INSIDE DIAMETER		
IF	INSIDE FACE		
IN	INCH		
INT	INTERIOR		
JF	JOINT FILLER		
JST	JOIST		
JT	JOINT		
		w/	WITH
		w/o	WITHOUT
		WF	WIDE FLANGE
		WDW	WINDOW
		WP	WORKING POINT
		WTPF	WATERPROOF
		WS	WATER STOP
		WT	WEIGHT
		WWF	WELDED WIRE FABRIC

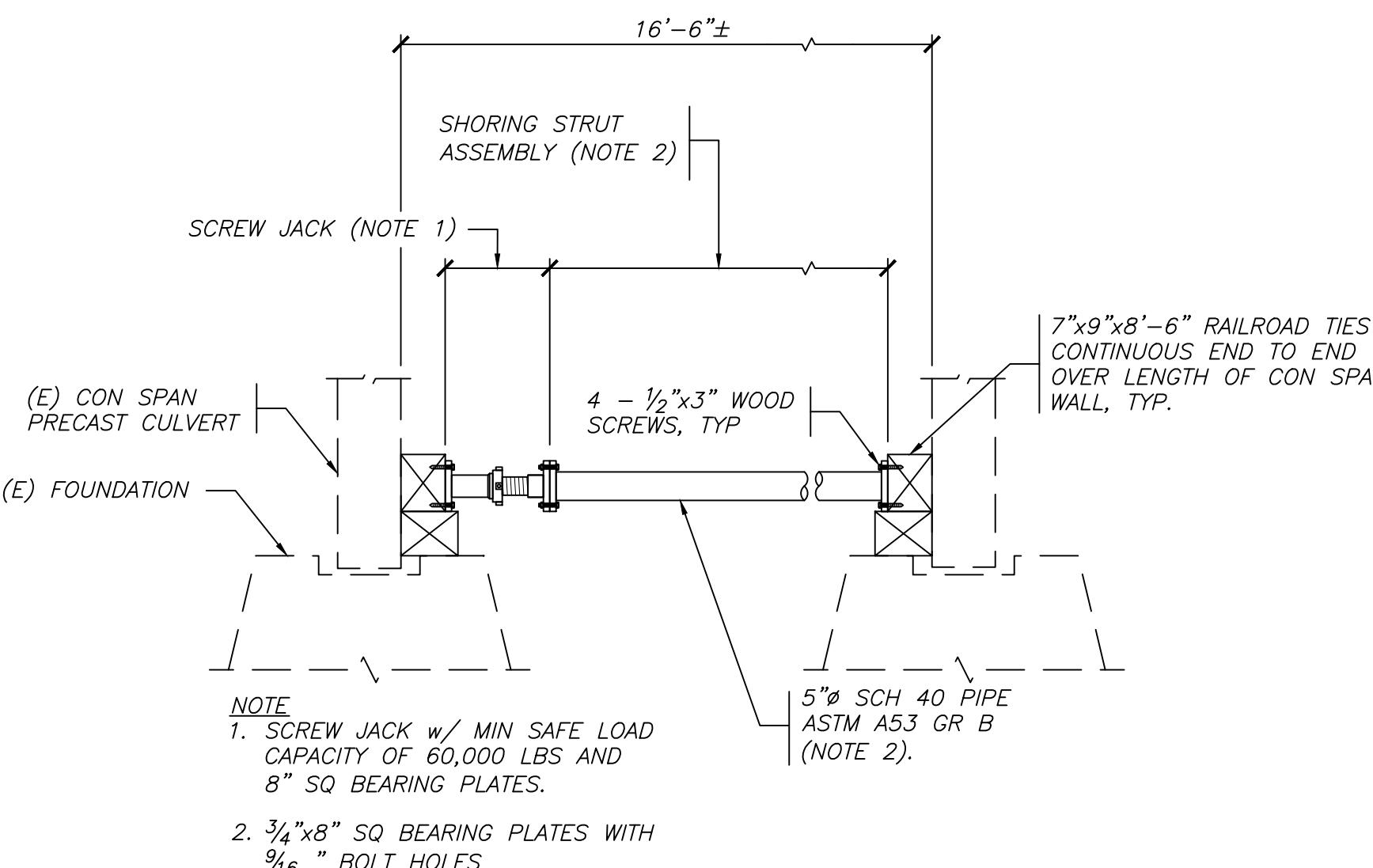


## 1 EXPANSION JOINT

S-2 SCALE: ??=??

REINFORCEMENT PROPERTIES	BAR SIZE	#11	#10	#9	#8	#7	#6	#5	#4	#3	
	REIN. GRADE (ksi)	.60	.60	.60	.60	.60	.60	.500	.40	.60	.40
	NOMINAL AREA (in²)	1.27	1.00	0.79	0.60	0.44	0.31	0.20	0.11	0.11	
	WEIGHT (lb/in)	5.313	4.303	3.400	2.670	2.044	1.502	1.043	0.668	0.376	0.376
	NOMINAL DIA (in)	1.410	1.270	1.128	1.000	0.875	0.750	0.625	.500	.375	.375
DEVELOPMENT OR CLASS A TENSION LAP SPLICE LENGTH IN INCHES	3000	76	62	55	48	33	28	22	15	12	
	SEE NOTE 2	101	91	81	72	63	43	36	29	19	16
	4000	67	61	54	48	32	24	19	13	15	12
	4500	63	57	51	45	39	27	23	18	12	12
CLASS B TENSION LAP SPLICE LENGTH IN INCHES	3000	101	91	81	72	63	43	36	29	19	15
	SEE NOTE 2	131	118	93	81	56	47	37	25	28	19
	4000	87	79	70	62	54	37	31	25	17	13
	4500	82	74	66	58	51	35	28	23	16	12
COMPRESSIVE LAP SPLICE LENGTH IN INCHES	<3000	55	50	44	39	35	30	25	20	13	12
	>3000	43	39	34	30	26	23	19	15	12	12
STANDARD OR CLASS B DEVELOPMENT LENGTH IN INCHES	3000	31	28	25	22	20	17	13	11	8	6
	4000	26	24	22	19	17	15	12	10	7	6
	4500	25	23	20	18	16	14	11	9	7	6





## 1 SHORING STRUT ASSEMBLY

S-3 SCALE: NO SCALE

### NOTES

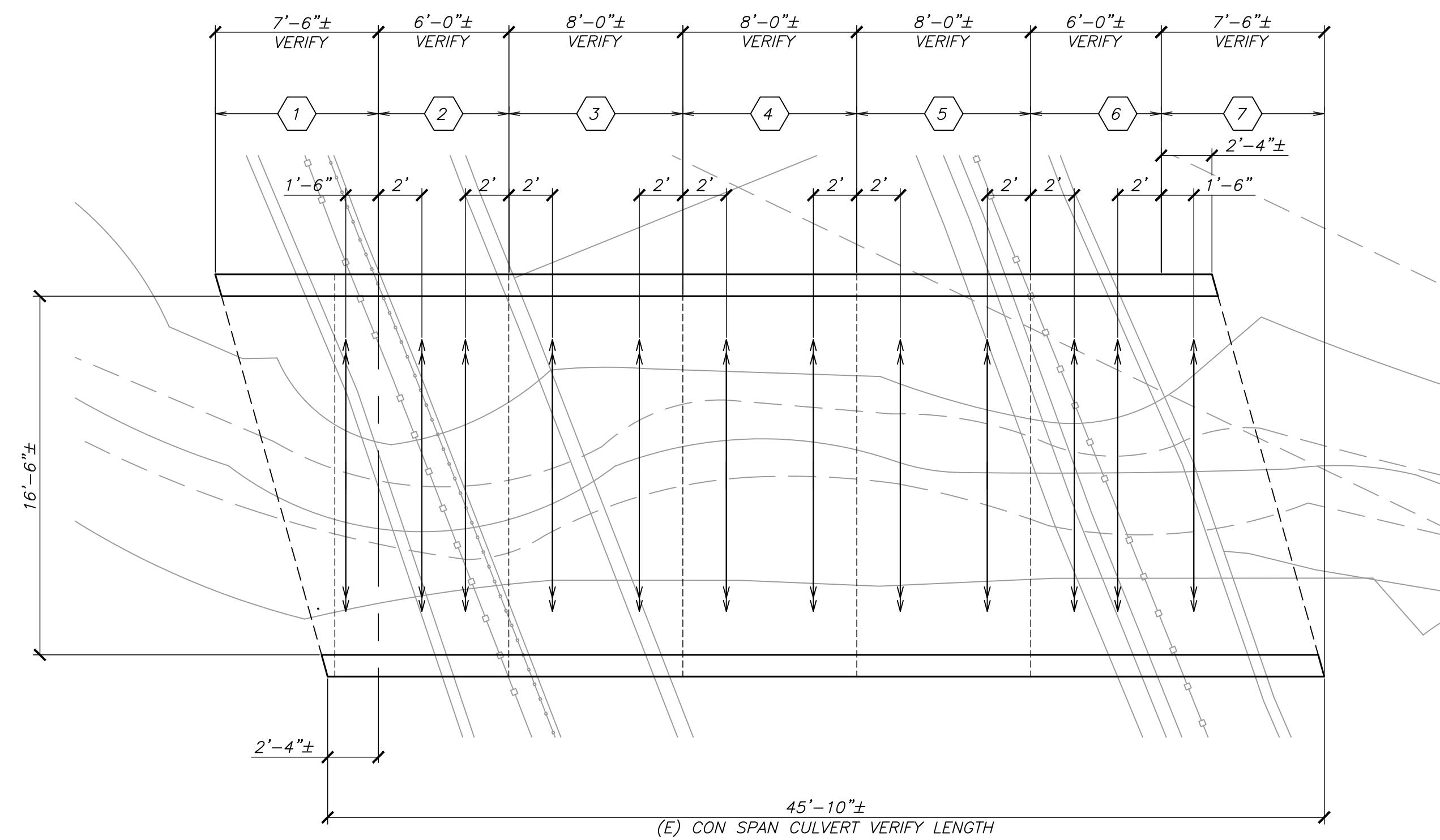
1. SOIL STABILIZATION IMPROVEMENT SHALL BE PERFORMED BEFORE EXCAVATION PROCEEDS. REFER TO URETEK STABILIZATION PLANS AND SPECIFICATIONS.
2. UPON COMPLETION OF SOIL STABILIZATION, THE CONTRACTOR SHALL SEQUENCE CONSTRUCTION IN 4'-0" SEGMENTS, FOLLOWING THE "ACTIVE SLOT" METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUBMIT A DETAILED CONSTRUCTION METHODOLOGY PRIOR TO CONSTRUCTION.

### INTENT OF DRAWINGS

1. REVIEW INTENDED SHORING METHODS WITH ADJACENT PROPERTY OWNERS AND RECEIVE WRITTEN APPROVAL PRIOR TO STARTING ANY WORK. WRITTEN APPROVAL SHALL INCLUDE EXPLICIT APPROVAL OF INSTALLATION OF SOIL IMPROVEMENTS AND FOOTING ELEMENTS TO BE PLACED UNDER EXISTING STRUCTURES. APPROVAL LETTERS SHALL BE PROVIDED TO THE REVIEWING AGENCIES FOR INCLUSION IN THE PROJECT FILE.
2. GENERAL CONTRACTOR SHALL MONITOR THE ADJACENT STRUCTURES FOR ANY MOVEMENT AND SHALL STOP ALL ACTIONS IF MOVEMENT OCCURS AND NOTIFY ENGINEER. THE BUILDING OWNER/GENERAL CONTRACTOR ACCEPTS ALL LIABILITY OF ADJACENT STRUCTURE DAMAGES IF OCCURS.
3. THESE DRAWINGS REPRESENT STANDARD SHORING PRACTICES TO SUPPORT ADJACENT STRUCTURAL SYSTEMS WHILE UNDERMINING THEIR SUPPORT DURING THE CONSTRUCTION PROCESS. IT IS THE OWNER'S RESPONSIBILITY TO GAIN APPROVAL FROM THE ADJACENT STRUCTURES' OWNERS FOR THESE SHORING PRACTICES AND TO MONITOR THE ADJACENT STRUCTURE DURING THE SHORING PROCESS.
4. RESOLVE ANY CONFLICTS ON THE DRAWINGS WITH THE ENGINEER BEFORE PROCEEDING WITH CONSTRUCTION. DIMENSIONS TAKE PRECEDENCE OVER SCALE OF DRAWINGS. HOWEVER, ANY SIGNIFICANT CONFLICTS SHOULD BE RESOLVED AS NOTED ABOVE.

### SHORING SEQUENCE

1. MONITOR ADJACENT STRUCTURES FOR MOVEMENT AS REQUIRED.
2. SOIL ENGINEER SHALL REVIEW AND APPROVE SHORING PARAMETERS AND TECHNIQUES PRIOR TO STARTING ANY WORK.
3. DRAINAGE OR BYPASS SYSTEM SHALL BE DISCUSSED AND PLACED AS REQUIRED PRIOR TO STARTING ANY WORK.
4. SOIL STABILIZATION IMPROVEMENT SHALL BE PERFORMED BEFORE EXCAVATION PROCEEDS, REFER TO URETEK STABILIZATION PLANS AND SPECIFICATIONS.
5. UPON COMPLETION OF SOIL STABILIZATION, THE CONTRACTOR SHALL SEQUENCE CONSTRUCTION IN SEGMENTS, FOLLOWING THE "ACTIVE SLOT" METHOD OF CONSTRUCTION.
6. EXCAVATE/GRADE STARTER 6' STRIP NEXT TO EXISTING ADJACENT FOUNDATION SUPPORTED BY SOIL STABILIZATION IMPROVEMENT NO DEEPER THAN NEW FOUNDATION DEPTH AT CHANNEL.
7. THE 6' STRIPS WILL BE SHARED BY AN "ACTIVE SLOT" - 4' WIDE AND "ADJACENT UNACTIVE SLOT" - 2' WIDE.
8. INSTALL UNDERPINNING REINFORCING FOR "ACTIVE SLOT" AND PROVIDE UNDERPINNING DOWELS BETWEEN SLOT CUT "ACTIVE SLOT" AND ADJACENT "UNACTIVE SLOT".
9. AFTER "ACTIVE SLOT" CONCRETE IS INSTALLED EXCAVATE/GRADE NEW 4' STRIP STARTING AT "UNACTIVE SLOT", AT ANYTIME THE "ACTIVE LOT" AND "UNACTIVE SLOT" DOES NOT EXCEED 6' WIDE.
10. THE CONTRACTOR MAY SUBMIT AN ALTERNATE DETAILED CONSTRUCTION METHODOLOGY PRIOR TO CONSTRUCTION FOR REVIEW BY THE ENGINEER OF RECORD AND GEOTECHNICAL ENGINEER.



## A TEMPORARY SHORING PLAN

S-3 SCALE: 1" = 5'-0"

↔↔↔ DENOTES COMPRESSION SHORING STRUT ASSEMBLY DET3 (1/S-3)



DENOTES CON SPAN SPAN SEGMENT MARK NUMBER



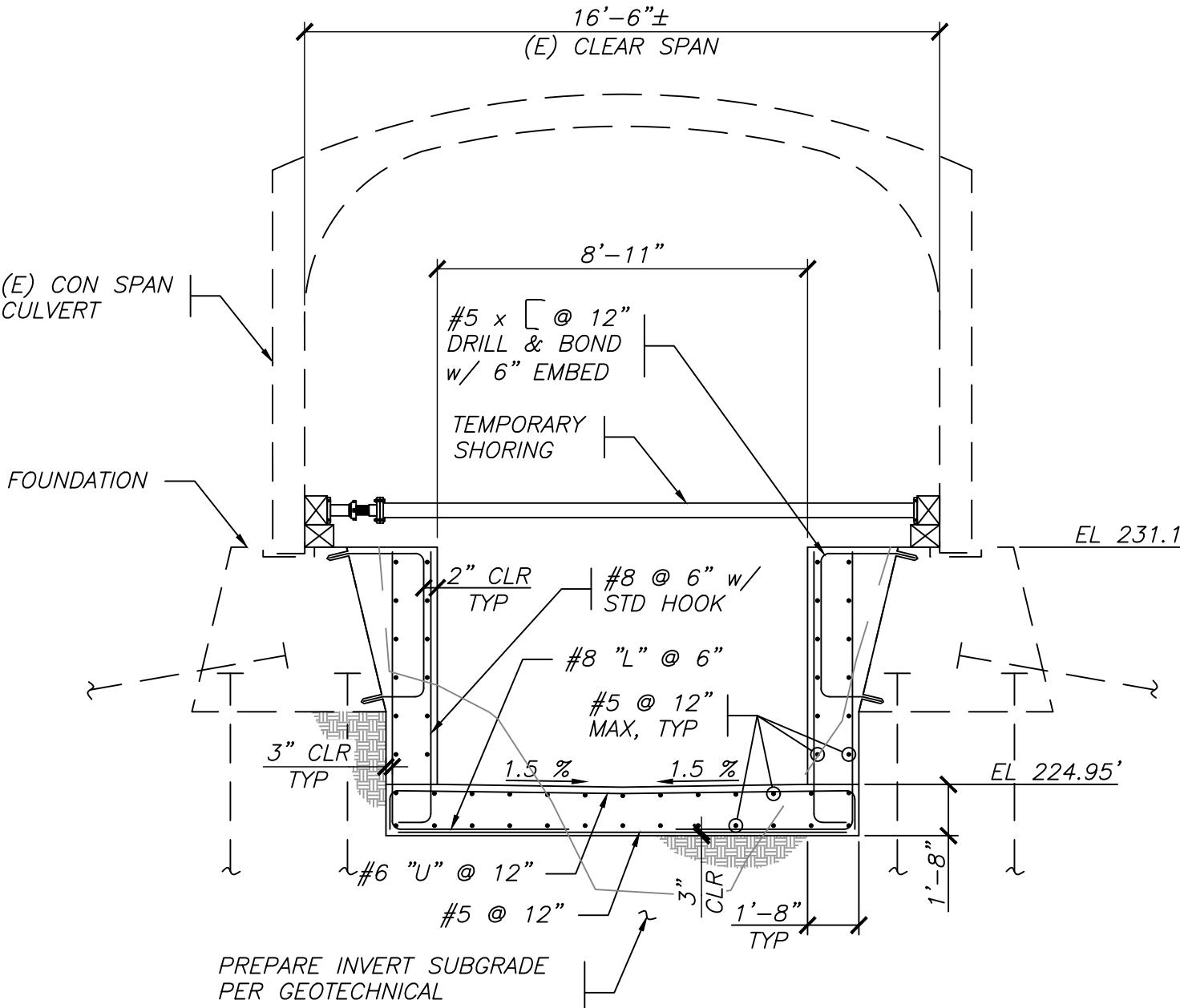
REVISIONS:

ATRIA LAFAYETTE TEMPORARY SHORING PLAN  
APN 169-090-002  
CONTRA COSTA COUNTY, CALIFORNIA



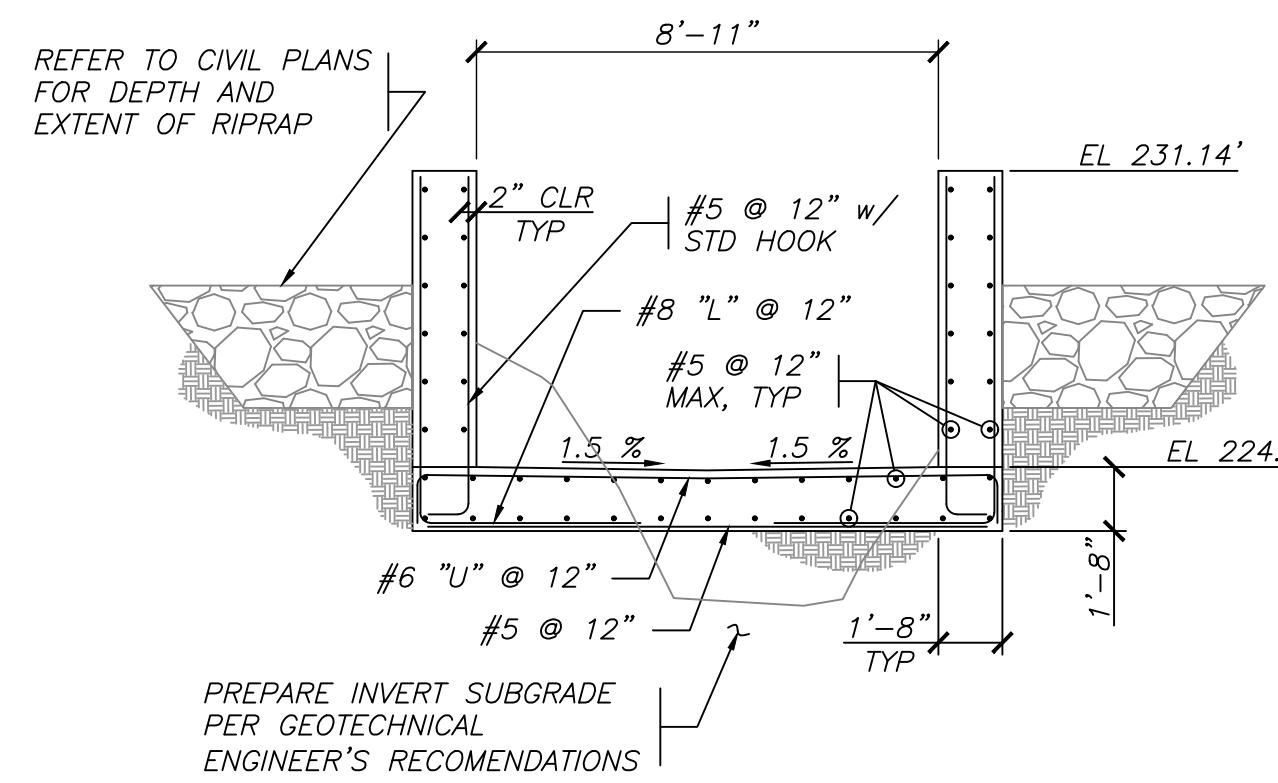
100% SUBMITTAL

THE OLYMPUS GROUP  
ENGINEERING, PLANNING & SURVEYING  
8850 GREENBELT RD, LITE 300, PHONE 408-586-6228  
SAN JOSE, CA 95121-3093 FAX 408-586-6229  
PROJECT NO. 23-001  
DRAWN BY: JAMES T.  
CHECKED BY: JEFF BROWN  
SCALE: AS-1  
DATE: JULY 2023  
S-3  
Sheet 18 of 30



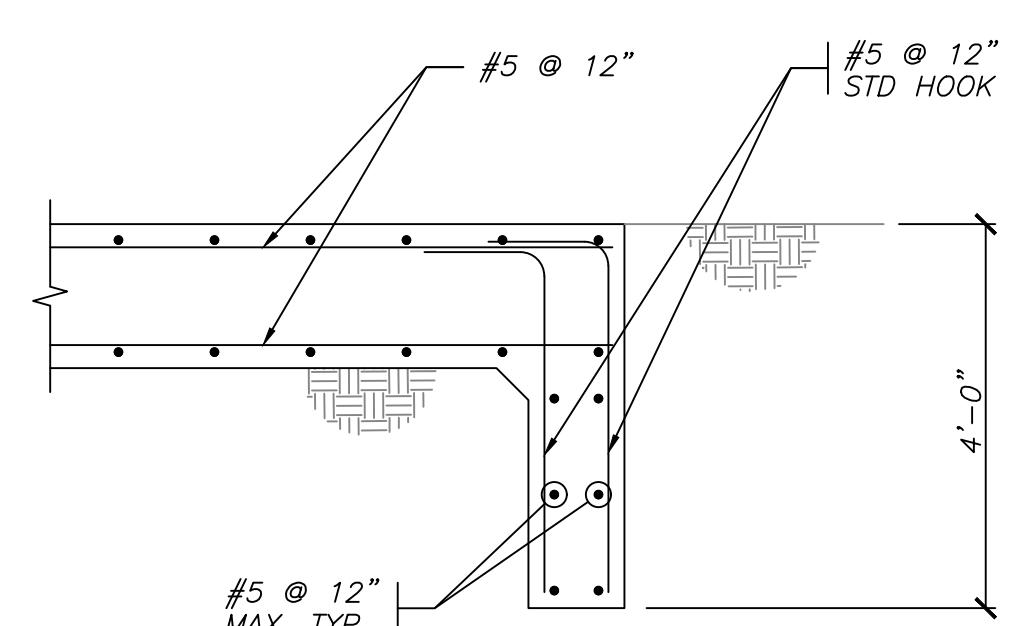
### CULVERT INVERT RETROFIT

1 S-4 SCALE: ??=??



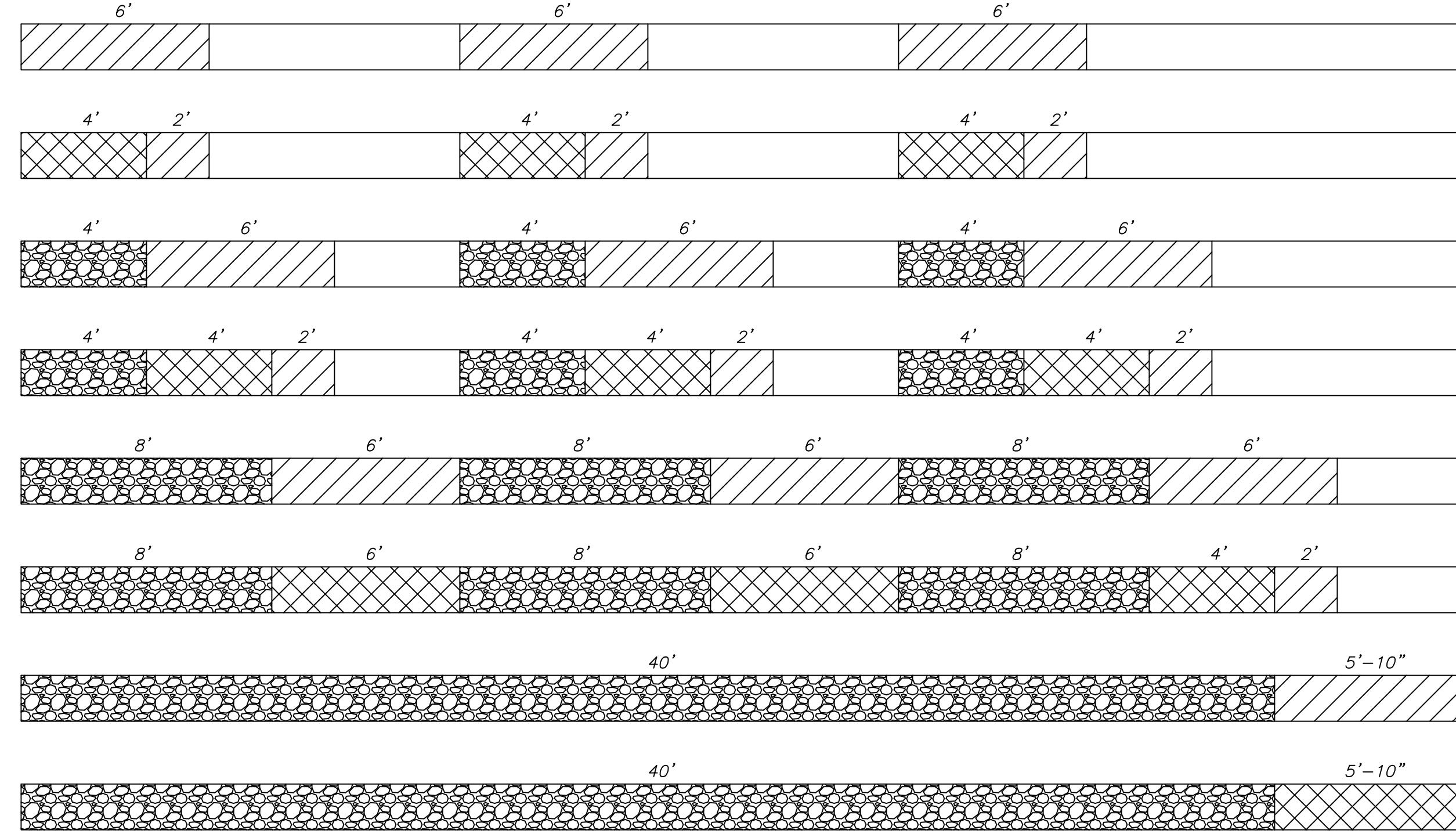
### CULVERT INVERT RETROFIT

2 S-4 SCALE: ??=??



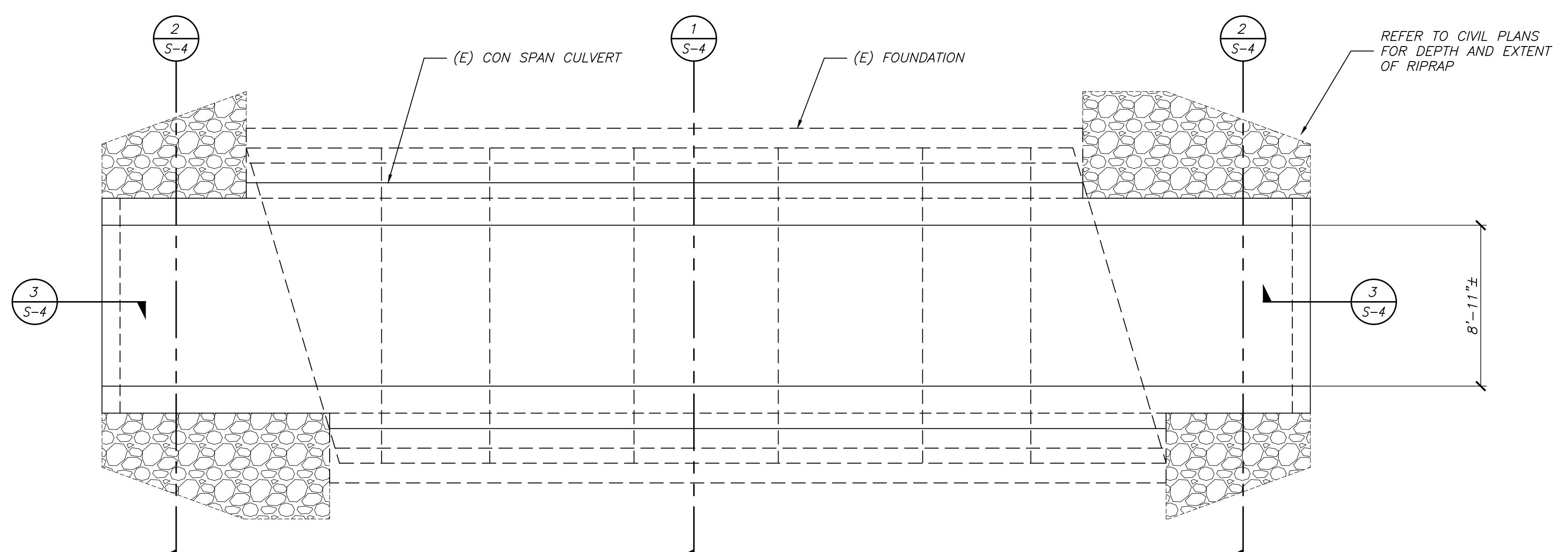
### CULVERT INVERT CUTOFF WALL

3 S-4 SCALE: ??=??



### ACTIVE SLOT CONSTRUCTION SCHEMATIC

B S-4 SCALE: NO SCALE



### FOUNDATION PLAN

A S-4 SCALE: 1" = 5'-0"



100% SUBMITTAL



REVISIONS:

#### GENERAL NOTES:

- ALL MATERIALS AND WORKMANSHIP TO BE IN ACCORDANCE WITH THE THESE SPECIFICATIONS AND THE 2019 EDITIONS OF THE CALIFORNIA BUILDING CODE. WHERE CONFLICTS OCCUR, THESE SPECIFICATIONS SHALL PREVAIL.
- THE SOIL NAIL WALL STRUCTURES HAVE BEEN DESIGNED IN ACCORDANCE WITH THE SLD (SERVICE LOAD DESIGN) PROCEDURES CONTAINED IN THE FHWA "MANUAL FOR DESIGN AND CONSTRUCTION MONITORING OF SOIL NAIL WALLS", REPORT NO. FHWA-SA-96-069, "SOIL NAIL WALLS REFERENCE MANUAL", REPORT NO. FHWA-NHI-14-007 AND THE CALTRANS "SNAIL" DESIGN PROGRAM.
- THE DESIGN IS THE PROPERTY OF DRILL TECH DRILLING & SHORING, INC. (DTS) AND ASSUMES THAT THE CONTRACTOR WILL BE DIRECTLY RESPONSIBLE TO THE DESIGN ENGINEER. THEREFORE THIS DESIGN IS ONLY VALID IF CONSTRUCTED BY DTS.
- REFERENCE MATERIALS:
  - A. "REPORT-SUPPLEMENTAL GEOTECHNICAL STUDY, DISTRESSED ENTRANCE ROAD AT ATRIA PARK" PREPARED BY GEOTECHNIA DATED APRIL 16, 2019.
  - B. "REPORT-FOUR ADDITIONAL BORINGS, DISTRESSED ENTRANCE ROAD AT ATRIA PARK" PREPARED BY GEOTECHNIA DATED APRIL 24, 2023.
  - C. "RECOMMENDED UNIT WEIGHTS AND STRENGTH PARAMETERS, DISTRESSED ENTRANCE ROAD AT ATRIA PARK" PREPARED BY GEOTECHNIA DATED JUNE 14, 2023.
  - D. IMPROVEMENT PLANS FOR "ATRIA PARK OF LAFAYETTE - MAIN ROAD RETROFIT, 1545 PLEASANT HILL ROAD, LAFAYETTE, CA 95816" PREPARED BY THE OLYMPUS GROUP DATED 7/10/23
- DESIGN PARAMETERS FOR SOIL NAIL WALLS ARE IN ACCORDANCE WITH THE REFERENCED GEOTECHNICAL LETTER:

MATERIAL	FRICITION ANGLE (DEGREES)	COHESION (PSF)	UNIT WEIGHT (PCF)	ALLOWABLE SOIL/GROUT BOND STRENGTH, $Q_d$ (K/FT)*
EMBANKMENT FILL	35	0	130	1.13
NATIVE SOIL	18	200	120	1.13
BEDROCK	40	0	140	2.26

\* TO BE VERIFIED BY SOIL NAIL TESTING

- THE GENERAL CONTRACTOR SHALL VERIFY ALL GRADES AND DIMENSIONS. SEE CONTRACT DRAWINGS AND SPECIFICATIONS FOR ALL INFORMATION RELATIVE TO THE NEW AND EXISTING CONSTRUCTION AND CONDITIONS. THE GENERAL CONTRACTOR SHALL RESOLVE CONFLICTS BETWEEN THESE DRAWINGS AND OTHER CONTRACT DRAWINGS WITH THE RETAINING WALL ENGINEER BEFORE PROCEEDING WITH CONSTRUCTION.
- DESIGN OF TEMPORARY AND PERMANENT SLOPES ARE NOT INCLUDED IN THE SCOPE OF THESE DRAWINGS. SLOPES SHOULD BE DESIGNED BY OTHERS AND SHOULD CONFORM TO APPLICABLE CAL OSHA SAFETY ORDERS.
- A SAFETY RAILING ABOVE THE WALL WALL SHALL BE MAINTAINED BY THE GENERAL CONTRACTOR AS LONG AS THE WALL PRESENTS A FALL HAZARD.

#### EXCAVATION NOTES:

- EXCAVATION SHOULD BE PERFORMED UNDER THE DIRECTION OF THE GENERAL CONTRACTOR AND TO THE GRADES SHOWN IN THE PROJECT CIVIL PLANS.
- ALL UTILITIES SHALL BE POTHOLED AND FIELD LOCATED BY THE GENERAL CONTRACTOR PRIOR TO EXCAVATION AND DRILLING. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY CONFLICTS WITH RETAINING WALL ELEMENTS.
- THE GENERAL CONTRACTOR IS RESPONSIBLE FOR SURVEY CONTROL.

#### SOIL NAIL NOTES:

- NAIL GROUT:  $f'_c = 3,000$  PSI MIN. PER AASHTO T106/ASTM C109
- NAIL BARS: OPTION 1: EPOXY COATED (ASTM A775 OR A934) OR SHEATHED AND GROUTED (DCP) GRADE 75 BARS (ASTM A615)  
OPTION 2: GALVANIZED R38N HOLLOW BAR
- AYOUT OF SOIL NAILS IS AS SHOWN. ADJUSTMENTS MAY BE MADE TO ACCOMMODATE FIELD CONDITIONS AS APPROVED BY THE ENGINEER. ADJUSTMENTS OF UP TO ONE FOOT ON ISOLATED NAILS MAY BE MADE WITHOUT NOTIFYING THE ENGINEER. ELEVATION GRADES ARE BASED ON THE REFERENCED GRADING PLAN.
- NAILS IN A GIVEN VERTICAL SECTION SHALL BE INSTALLED ACCORDING TO THE TYPICAL SECTION, DESIGN SCHEDULE, AND THE REFERENCED DETAILS.
- TOTAL LENGTH OF THE TEST SOIL NAIL ASSEMBLY EQUALS EMBEDMENT LENGTH PLUS EXTRA LENGTH REQUIRED FOR JACKING EQUIPMENT.
- TESTING: PROOF TESTING OF THE SOIL NAILS SHALL BE PERFORMED ON A MINIMUM OF 5 PERCENT OF THE NAILS IN ACCORDANCE WITH THE SPECIFICATIONS. MAXIMUM TEST LOADS ARE SHOWN ON THE SOIL NAIL TEST SCHEDULE. VERIFICATION TESTS SHALL BE PERFORMED AT THE LOCATIONS INDICATED, ALSO IN ACCORDANCE WITH THE SPECIFICATIONS PROVIDED. A VERIFICATION TEST NAIL MAY TAKE THE PLACE OF A PROOF TEST NAIL FOR THE PURPOSE OF SATISFYING THE ONE TEST PER 20 NAIL REQUIREMENT. ALL TEST NAILS ARE SACRIFICAL.

#### SHOTCRETE NOTES:

- REINFORCEMENT AND SHOTCRETE:  $f_y = 60,000$  PSI (REBAR PER AASHTO M31 / ASTM A615)  
 $f_y = 65,000$  PSI (WWF PER ASTM A82/A185)  
 $f'_c = 4,000$  PSI (28 DAY SHOTCRETE COMPRESSIVE STRENGTH)
- CEMENT FOR SHOTCRETE SHALL CONFORM TO AASHTO M85/ASTM C150 TYPE I,II,III, OR V. FINE AGGREGATE SHALL CONFORM TO AASHTO M6/ASTM C33.
- UNLESS OTHERWISE NOTED ON THE PLANS, MINIMUM SHOTCRETE COVER MEASURED FROM THE FACE OF THE SHOTCRETE TO THE FACE OF ANY REINFORCING BAR SHALL BE 2 INCHES.
- A SHOTCRETE TEST PANEL SHALL BE MADE FOR EACH DAY OF SHOTCRETE APPLICATION. THESE PANELS SHALL BE CORED AND THE CORES SHALL BE TESTED FOR COMPRESSIVE STRENGTH.
- MINIMUM LAP SPLICE OF STEEL REINFORCEMENT SHALL BE AS FOLLOWS: REBAR: 48 BAR DIAMETERS, WWF: 2 SQUARES
- MINIMUM LAP SPLICE FOR GEOCOMPOSITE DRAINAGE SHALL BE 12 INCHES.
- GEOCOMPOSITE DRAIN BOARDS SHALL BE SECURED TO THE SLOPE IN SUCH A MANNER THAT PREVENTS SHOTCRETE FROM GETTING BETWEEN THE CUT SLOPE AND THE GEOCOMPOSITE DRAIN.
- THE INTEGRITY OF THE GEOCOMPOSITE DRAIN TO WEEPHOLE CONNECTION SHALL BE MAINTAINED WHILE SHOTCRETING.

#### SOIL NAIL TESTING:

TEST NAIL UNBONDED LENGTH  
1. PROVIDE TEMPORARY UNBONDED LENGTHS FOR EACH TEST NAIL. THE MINIMUM UNBONDED LENGTH SHALL BE 3 FEET. ISOLATE THE TEST NAIL BAR FROM THE SHOTCRETE FACING AND/OR THE REACTION FRAME USED DURING TESTING. ISOLATION OF A TEST NAIL THROUGH THE SHOTCRETE FACING SHALL NOT AFFECT THE LOCATION OF THE REINFORCING STEEL UNDER THE BEARING PLATE.

TESTING EQUIPMENT  
2. TESTING EQUIPMENT SHALL INCLUDE DIAL OR DIGITAL GAUGES, GAUGE SUPPORT, JACK AND PRESSURE GAUGE, AND A REACTION FRAME. THE TESTING REACTION FRAME SHALL BE SUFFICIENTLY RIGID AND OF ADEQUATE DIMENSIONS SUCH THAT EXCESSIVE DEFORMATION OF THE TESTING EQUIPMENT DOES NOT OCCUR. IF THE REACTION FRAME WILL BEAR DIRECTLY ON THE SHOTCRETE FACING, IT SHALL PREVENT CRACKING OF THE SHOTCRETE. INDEPENDENTLY SUPPORT AND CENTER THE JACK OVER THE NAIL BAR SO THAT THE BAR DOES NOT CARRY THE WEIGHT OF THE TESTING EQUIPMENT. ALIGN THE JACK, BEARING PLATES, AND STRESSING ANCHORAGE WITH THE BAR SUCH THAT UNLOADING AND REPOSITIONING OF THE EQUIPMENT WILL NOT BE REQUIRED DURING THE TEST.

3. APPLY AND MEASURE THE TEST LOAD WITH A HYDRAULIC JACK AND PRESSURE GAUGE. THE PRESSURE GAUGE SHALL BE GRADUATED IN 100 PSI OR LESS INCREMENTS. JACK RAM TRAVEL SHALL BE SUFFICIENT TO ALLOW THE TEST TO BE DONE WITHOUT RESETTING THE EQUIPMENT.

4. MEASURE THE NAIL HEAD MOVEMENT WITH A DIAL OR DIGITAL GAUGE CAPABLE OF MEASURING TO 0.001 INCHES. THE GAUGE SHALL HAVE A TRAVEL SUFFICIENT TO ALLOW THE TEST TO BE DONE WITHOUT HAVING TO RESET THE GAUGE. VISUALLY ALIGN THE GAUGE TO BE PARALLEL WITH THE AXIS OF THE NAIL AND SUPPORT THE GAUGE INDEPENDENTLY FROM THE JACK, WALL OR REACTION FRAME.

VERIFICATION TESTING  
5. THE VERIFICATION TEST NAIL LOCATIONS ARE SHOWN ON THE DEVELOPED ELEVATIONS FOR REFERENCE, HOWEVER THE LOCATION OF EACH TEST NAIL SHALL BE DETERMINED IN THE FIELD BY A DRILL TECH REPRESENTATIVE.

6. TEST NAILS SHALL HAVE BOTH BONDED AND UNBONDED LENGTHS. THE UNBONDED LENGTH OF THE TEST NAIL SHALL BE A MINIMUM OF 3 FEET. THE BONDED LENGTH OF THE TEST NAIL SHALL BE MINIMUM 10 FEET.

7. THE ALLOWABLE BAR STRUCTURAL LOAD DURING TESTING SHALL NOT EXCEED 80% OF THE ULTIMATE STRENGTH FOR GRADE 75 BAR AND 80% OF THE ULTIMATE STRENGTH FOR GRADE 150 BAR.

8. THE DESIGN TEST LOAD (DTL) DURING VERIFICATION TESTING SHALL BE DETERMINED BY THE FOLLOWING EQUATION:

DTL = Design Test Load (kips) =  $LBL \times Q_d$   
LBL = As-built bonded test length (feet)  
 $Q_d$  = Allowable pullout resistance (kips per foot of grouted nail length)  
MTL =  $2.0 \times DTL$  = Maximum Test Load (kips)

9. VERIFICATION TESTS SHALL BE PERFORMED BY INCREMENTALLY LOADING THE TEST NAIL TO A MAXIMUM TEST LOAD OF 200 PERCENT OF THE DESIGN TEST LOAD (DTL). THE NAIL MOVEMENT AT EACH LOAD SHALL BE MEASURED AND RECORDED BY THE ENGINEER. THE TEST LOAD SHALL BE MONITORED BY A JACK PRESSURE GAUGE WITH A SENSITIVITY AND RANGE MEETING THE REQUIREMENTS OF PRESSURE GAUGES USED FOR VERIFICATION TEST NAILS. AT LOAD INCREMENTS BELOW 1.0 DTL, THE LOAD SHALL BE HELD LONG ENOUGH TO OBTAIN A STABLE READING. INCREMENTAL LOADING FOR TESTS SHALL BE IN ACCORDANCE WITH THE FOLLOWING LOADING SCHEDULE. THE SOIL NAIL MOVEMENTS SHALL BE RECORDED AT EACH LOAD INCREMENT.

#### VERIFICATION TEST LOADING SCHEDULE

LOAD	HOLD TIME
AL (.10 DTL)	UNTIL STABLE
0.25 DTL	UNTIL STABLE
0.50 DTL	UNTIL STABLE
0.75 DTL	UNTIL STABLE
1.00 DTL	UNTIL STABLE
1.25 DTL	UNTIL STABLE
1.50 DTL	60 MINUTES
1.75 DTL	UNTIL STABLE
2.00 DTL	UNTIL STABLE

10. THE ALIGNMENT LOAD (AL) SHOULD BE THE MINIMUM LOAD REQUIRED TO ALIGN THE TESTING APPARATUS. DIAL GAUGES SHOULD BE SET TO "ZERO" AFTER THE ALIGNMENT LOAD HAS BEEN APPLIED.

11. ALL LOAD INCREMENTS SHALL BE MAINTAINED WITHIN 5 PERCENT OF THE INTENDED LOAD. A 60-MINUTE CREEP TEST SHALL BE PERFORMED AT 1.50 DTL. THE CREEP PERIOD SHALL START AS SOON AS THE TEST LOAD IS APPLIED AND THE NAIL MOVEMENT SHALL BE MEASURED AND RECORDED AT 1, 2, 3, 5, 6, 10, 20, 30, 50, AND 60 MINUTES.

#### PROOF TESTING OF PRODUCTION NAILS

12. PERFORM PROOF TESTING FOR 5 PERCENT (1 IN 20) OF THE PRODUCTION NAILS AND 1 PER DISTINCT SOIL TYPE. THE PROOF TEST NAIL LOCATIONS ARE SHOWN ON THE DEVELOPED ELEVATIONS FOR REFERENCE, HOWEVER THE LOCATION OF EACH TEST NAIL SHALL BE DETERMINED IN THE FIELD BY A DRILL TECH REPRESENTATIVE.

13. TEST NAILS SHALL HAVE BOTH BONDED AND UNBONDED LENGTHS. THE UNBONDED LENGTH OF THE TEST NAIL SHALL BE AT LEAST 3 FEET AND THE BONDED LENGTH OF THE TEST NAIL SHALL BE 10 FEET.

14. THE ALLOWABLE BAR STRUCTURAL LOAD DURING TESTING SHALL NOT EXCEED 80% OF THE ULTIMATE STRENGTH FOR GRADE 75 BAR AND 80% OF THE ULTIMATE STRENGTH FOR GRADE 150 BAR.

15. THE DESIGN TEST LOAD (DTL) DURING PROOF TESTING SHALL BE DETERMINED BY THE FOLLOWING EQUATION:

DTL = Design Test Load (kips) =  $LBL \times Q_d$   
LBL = As-built bonded test length (feet)  
 $Q_d$  = Allowable pullout resistance (kips per foot of grouted nail length)  
MTL =  $1.5 \times DTL$  = Maximum Test Load (kips)

16. PROOF TESTS SHALL BE PERFORMED BY INCREMENTALLY LOADING THE PROOF TEST NAIL TO A MAXIMUM TEST LOAD OF 150 PERCENT OF THE DESIGN TEST LOAD (DTL). THE NAIL MOVEMENT AT EACH LOAD SHALL BE MEASURED AND RECORDED BY THE CONTRACTOR. THE TEST LOAD SHALL BE MONITORED BY A JACK PRESSURE GAUGE. AT LOAD INCREMENTS OTHER THAN MAXIMUM TEST LOAD, THE LOAD SHALL BE HELD LONG ENOUGH TO OBTAIN A STABLE READING. INCREMENTAL LOADING FOR PROOF TESTS SHALL BE IN ACCORDANCE WITH THE FOLLOWING LOADING SCHEDULE. THE SOIL NAIL MOVEMENTS SHALL BE RECORDED

#### PROOF TEST LOADING SCHEDULE

LOAD	HOLD TIME
AL (.10 DTL)	UNTIL STABLE
0.25 DTL	UNTIL STABLE
0.50 DTL	UNTIL STABLE
0.75 DTL	UNTIL STABLE
1.00 DTL	UNTIL STABLE
1.25 DTL	UNTIL STABLE
1.50 DTL	10 OR 60 MINUTES

17. THE ALIGNMENT LOAD (AL) SHOULD BE THE MINIMUM LOAD REQUIRED TO ALIGN THE TESTING APPARATUS. DIAL GAUGES SHOULD BE SET TO "ZERO" AFTER THE ALIGNMENT LOAD HAS BEEN APPLIED.

18. ALL LOAD INCREMENTS SHALL BE MAINTAINED WITHIN 5 PERCENT OF THE INTENDED LOAD. DEPENDING ON PERFORMANCE, EITHER 10 MINUTE OR 60 MINUTE CREEP TESTS SHALL BE PERFORMED AT THE MAXIMUM TEST LOAD (1.50 DTL). THE CREEP PERIOD SHALL START AS SOON AS THE MAXIMUM TEST LOAD IS APPLIED AND THE NAIL MOVEMENT SHALL BE MEASURED AND RECORDED AT 1, 2, 3, 5, 6, AND 10 MINUTES. WHERE THE NAIL MOVEMENT BETWEEN 1 MINUTE AND 10 MINUTES EXCEEDS 0.04 INCH, THE MAXIMUM TEST LOAD SHALL BE MAINTAINED AN ADDITIONAL 50 MINUTES AND MOVEMENTS SHALL BE RECORDED AT 20 MINUTES, 30, 50, AND 60 MINUTES.

19. TEST NAIL ACCEPTANCE CRITERIA - A TEST NAIL SHALL BE CONSIDERED ACCEPTABLE WHEN:

19.A. TOTAL CREEP MOVEMENT OF LESS THAN 0.04 INCH IS MEASURED BETWEEN THE 1 AND 10 MINUTE READINGS, OR A TOTAL CREEP MOVEMENT OF LESS THAN 0.08 INCHES IS MEASURED BETWEEN THE 6 AND 60 MINUTE READINGS.

19.B. THE TOTAL MEASURED MOVEMENT AT THE MAXIMUM TEST LOAD EXCEEDS 80 PERCENT OF THE THEORETICAL ELASTIC ELONGATION OF THE TEST NAIL UNBONDED LENGTH.

19.C. A PULLOUT FAILURE DOES NOT OCCUR AT THE MAXIMUM TEST LOAD. PULLOUT FAILURE IS DEFINED AS THE LOAD AT WHICH ATTEMPTS TO FURTHER INCREASE THE TEST LOAD SIMPLY RESULT IN CONTINUED PULLOUT MOVEMENT OF THE TEST NAIL. THE PULLOUT FAILURE LOAD SHALL BE RECORDED AS PART OF THE TEST DATA.

20. TEST NAIL REJECTION - IF A TEST NAIL DOES NOT SATISFY THE ACCEPTANCE CRITERION, THE CONTRACTOR SHALL DETERMINE THE CAUSE. THE NEED FOR DESIGN AND/OR CONSTRUCTION PROCEDURE MODIFICATIONS SHALL BE DETERMINED BY THE DESIGN ENGINEER. THE DESIGN ENGINEER MAY REQUIRE ADDITIONAL NAILS IN THE AREA OF THE FAILED VERIFICATION TESTS AND/OR IN THE NEXT LOWER ROW OF NAILS, LONGER NAILS, THE INSTALLATION OF ADDITIONAL TEST NAILS, INCREASED DRILL HOLE DIAMETERS, MODIFIED INSTALLATION OR GROUTING METHODS, OR CLOSER NAIL SPACINGS. ALTERNATIVELY, THE DESIGN ENGINEER MAY REQUIRE THE INSTALLATION AND TESTING OF ADDITIONAL VERIFICATION OR PROOF TEST NAILS TO VERIFY THAT ADJACENT PREVIOUSLY INSTALLED PRODUCTION NAILS HAVE SUFFICIENT LOAD CARRYING CAPACITY.

#### SPECIAL INSPECTION REQUIREMENTS:

PER CBC 2019 CHAPTER 17

INSPECTION TASK	CONTINUOUS*	PERIODICALLY
1. INSPECT REINFORCING STEEL.		X
2. VERIFY SHOTCRETE STRENGTH PER NOTE 4 OF SHOTCRETE NOTES.		X
3. OBSERVE SHOTCRETE PLACEMENT.	X	
4. OBSERVE SOIL NAIL LOAD TESTING.	X	

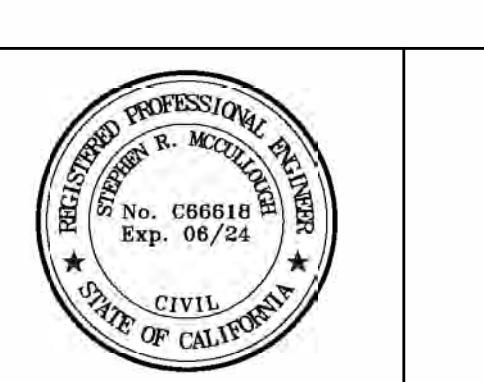
\* CONTINUOUS DURING TASK LISTED

#### DRAWING LIST:

RW1 NOTES  
RW2 SITE PLAN  
RW3 ELEVATIONS  
RW4 SECTIONS  
RW5 SOIL NAIL DETAILS  
RW6 DETAILS

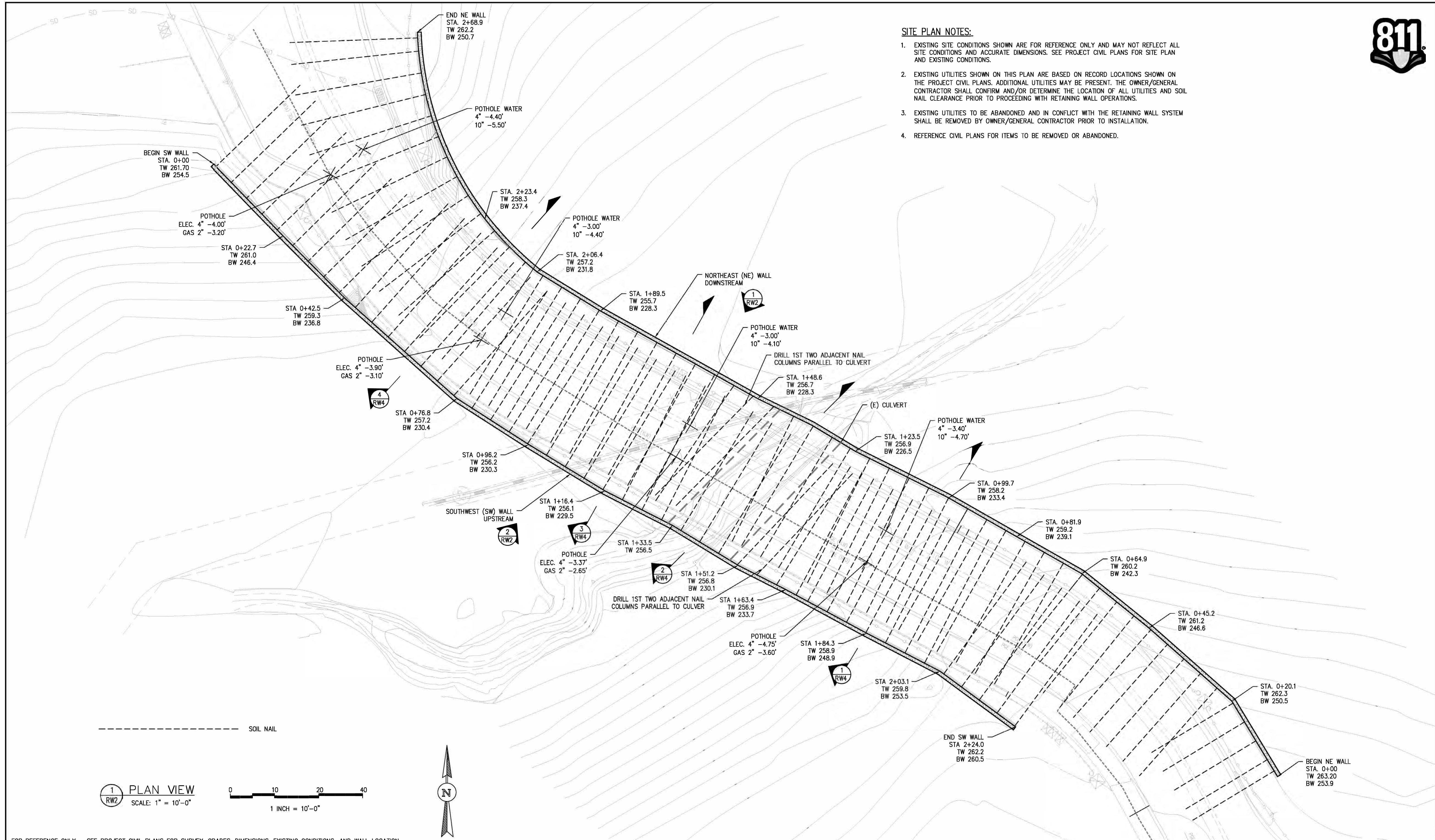
REVISION:	DATE:	DESCRIPTION/REASON:	DESIGN BY:	SCALE:
			SM	AS SHOWN
			CHECKED BY:	JOB NUMBER:
			DB	23016

DATE:	CONTRACT NO:
AUGUST 23, 2023	



ATRIA PARK OF LAFAYETTE  
SOIL NAIL RETROFIT OF EXISTING WALL  
1545 PLEASANT HILL ROAD, LAFAYETTE, CA  
2200 Wymore Way - Antioch, CA 94509-8518  
Phone: 925/978-2060 - Fax: 925/978-2063  
NOTES

<

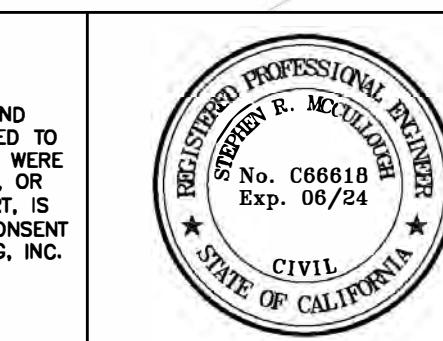


FOR REFERENCE ONLY - SEE PROJECT CIVIL PLANS FOR SURVEY, GRADES, DIMENSIONS, EXISTING CONDITIONS, AND WALL LOCATION.

REVISION:	DATE:	DESCRIPTION/REASON:	DESIGN BY:	SCALE:
			SM	AS SHOWN
		CHECKED BY:	JOB NUMBER:	
		DB	23016	

DATE:	CONTRACT NO:
AUGUST 23, 2023	



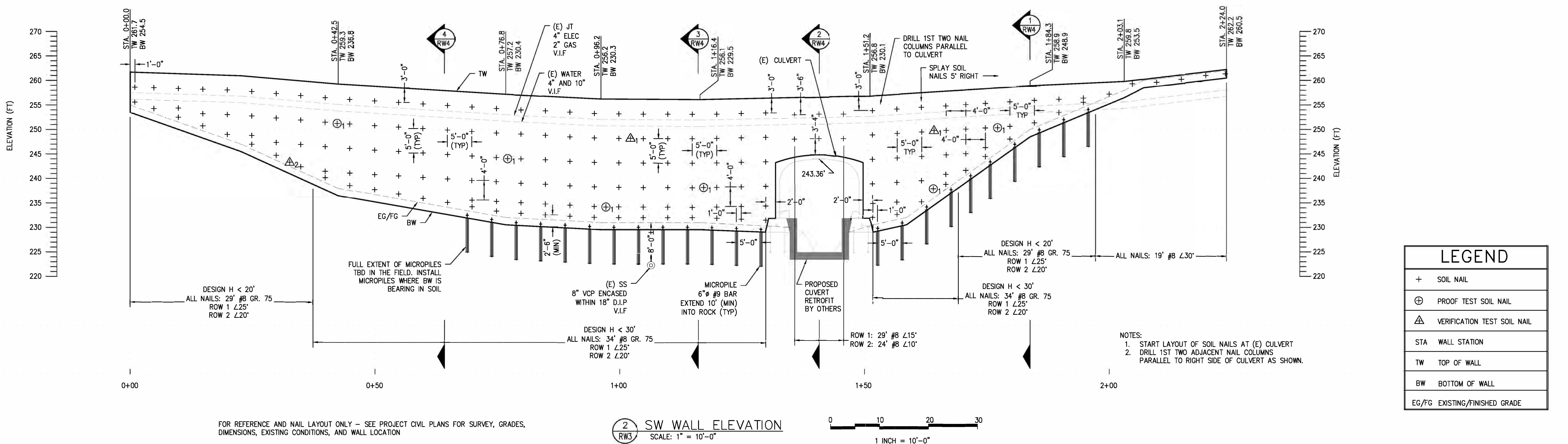
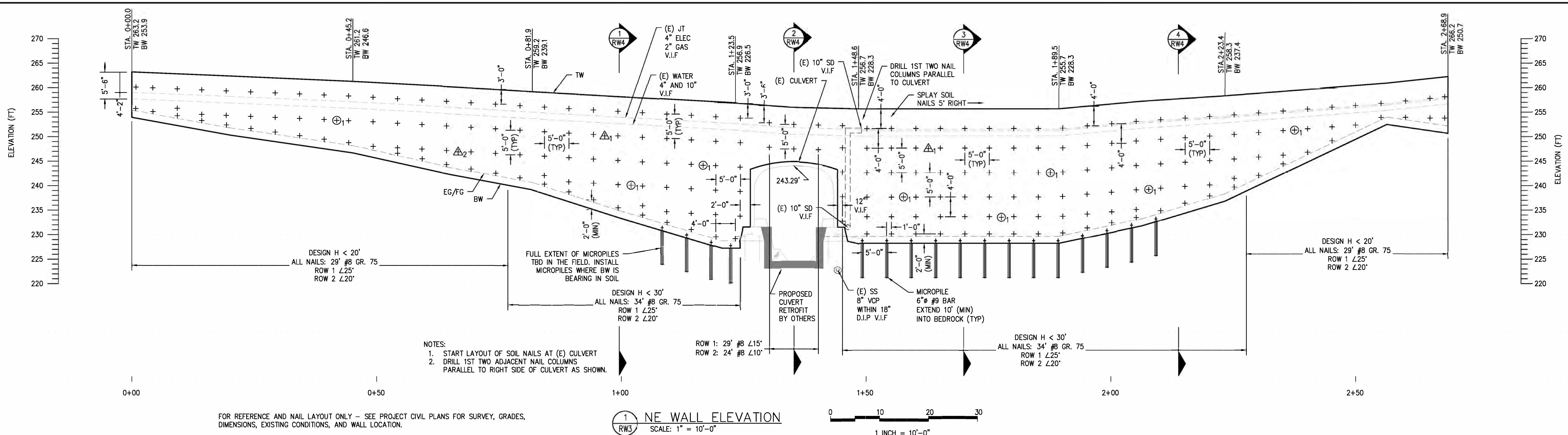
2200 Wymore Way - Antioch, CA 94509-8518  
Phone: 925/978-2060 - Fax: 925/978-2063

**ATRIA PARK OF LAFAYETTE**  
SOIL NAIL RETROFIT OF EXISTING WALL  
1545 PLEASANT HILL ROAD, LAFAYETTE, CA

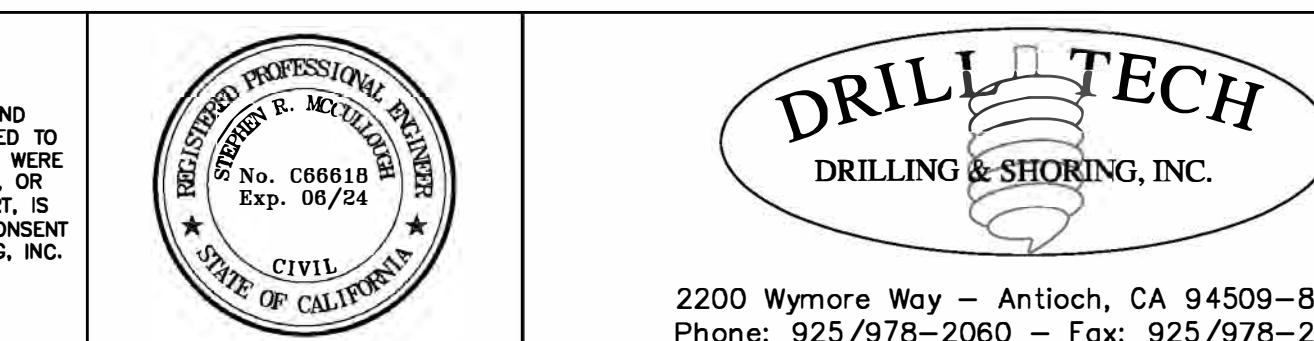
PLAN VIEW

SHEET:	D2
SHEET	OF

21 30



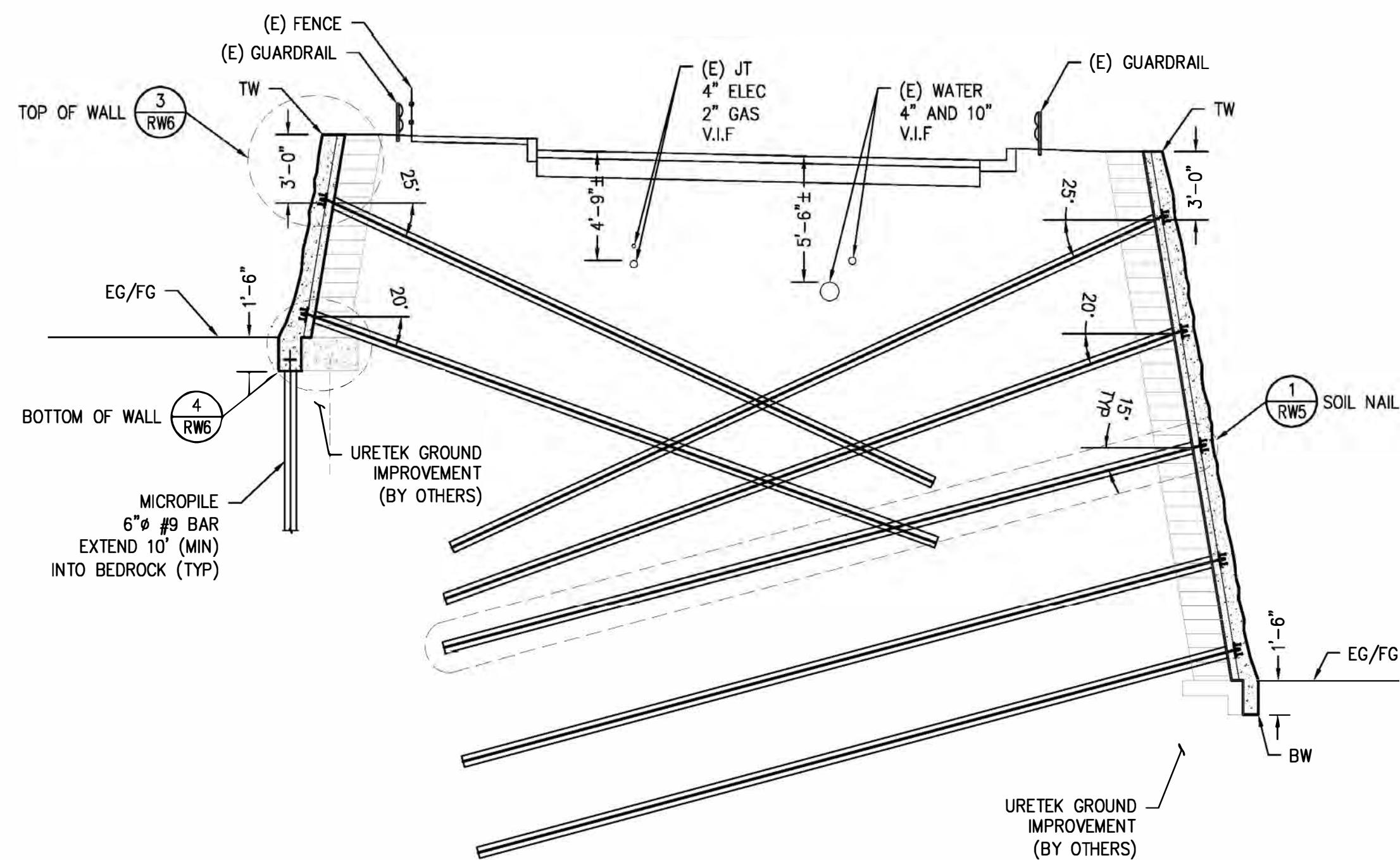
REVISION:	DATE:	DESCRIPTION/REASON:	DESIGN BY:	SCALE:
			SM	AS SHOWN
CHECKED BY:		JOB NUMBER:	DB	23016
DATE:		CONTRACT NO:		AUGUST 23, 2023



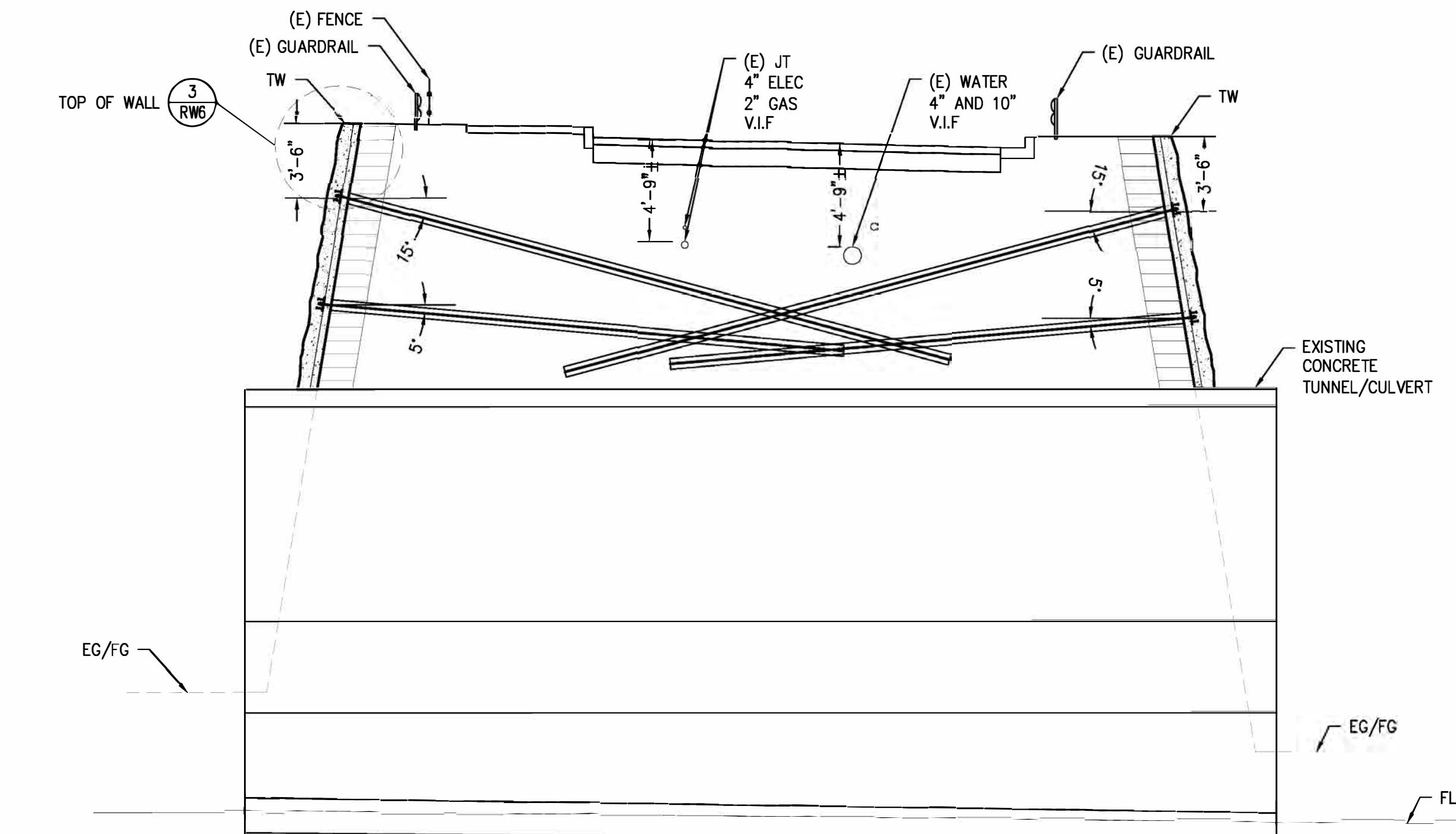
**ATRIA PARK OF LAFAYETTE**  
SOIL NAIL RETROFIT OF EXISTING WALL  
1545 PLEASANT HILL ROAD, LAFAYETTE, CA

WALL ELEVATIONS

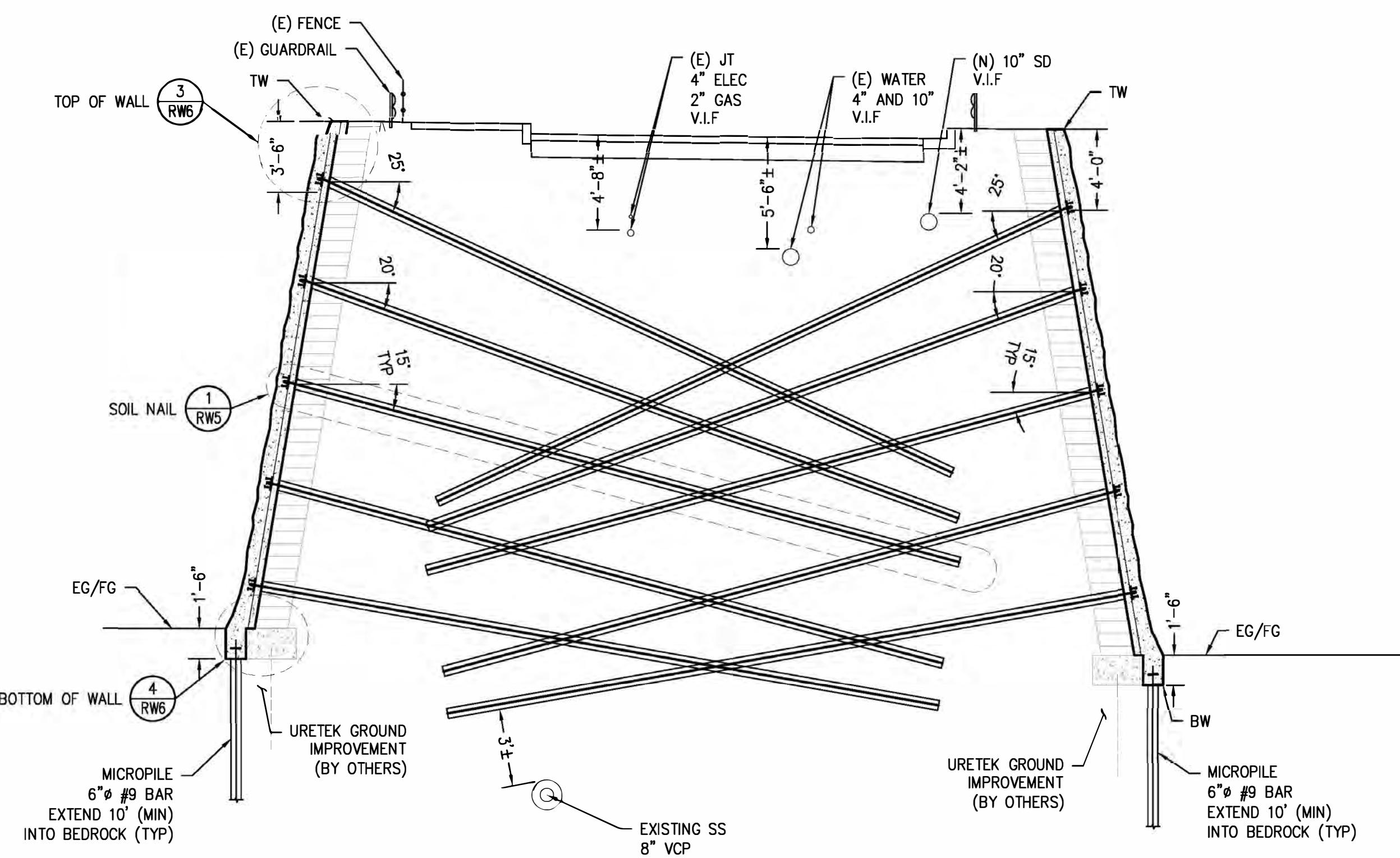
SHEET: D3  
SHEET: 22 OF 30



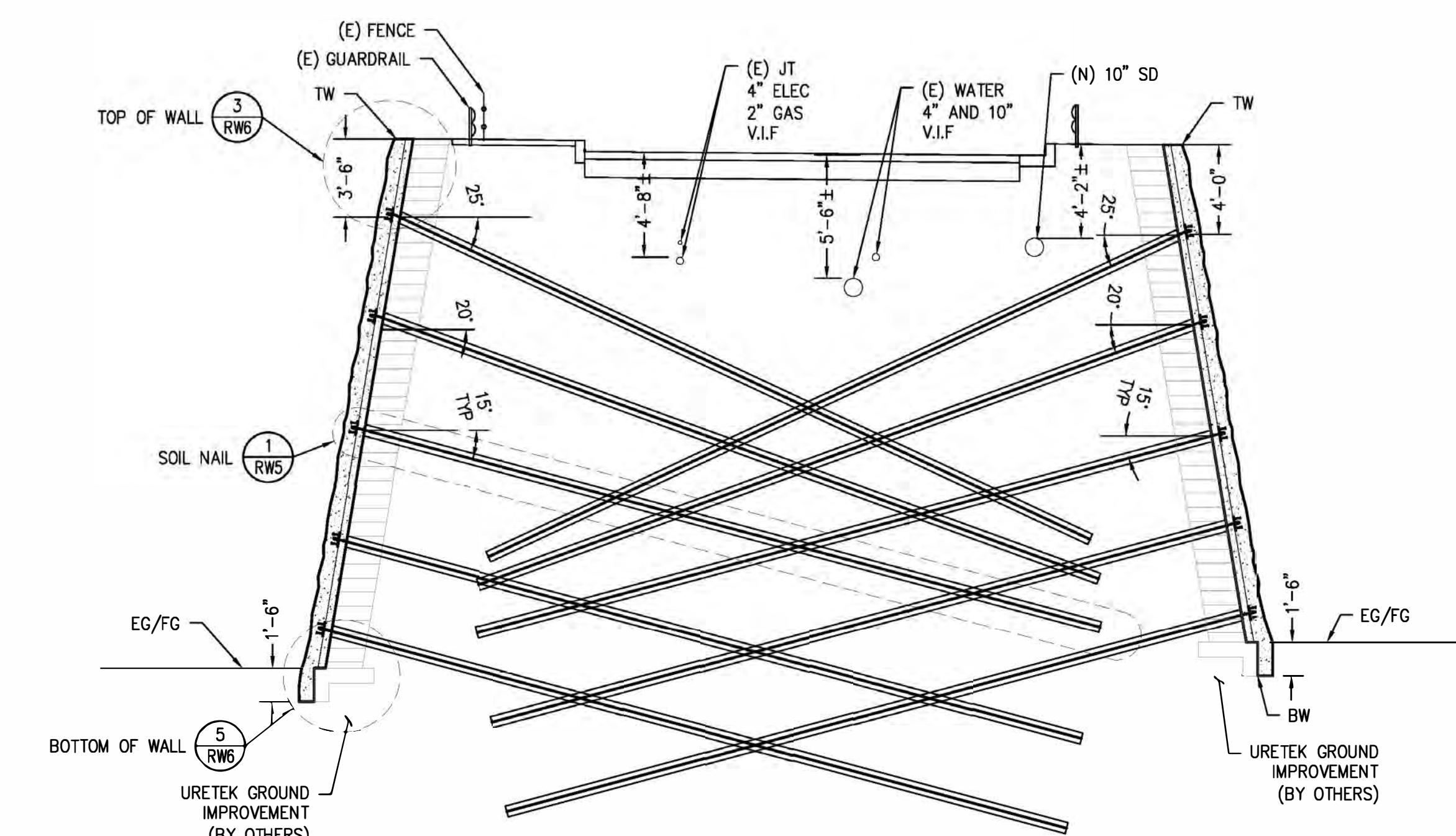
WALL - SECTION  
SCALE: 1/8" = 1'-0"  
RW4



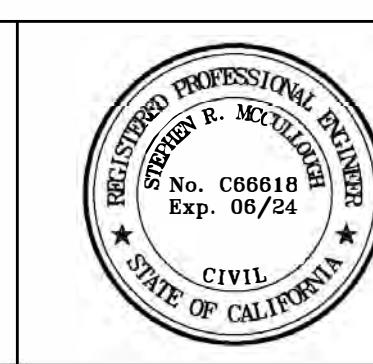
2  
RW4 WALL - SECTION  
SCALE: 1/8" = 1'-0"



3  
RW4 WALL - SECTION  
SCALE: 1/8" = 1'-0"



4 WALL - SECTION  
RW4 SCALE: 1/8" = 1'-0"



2200 Wymore Way – Antioch, CA 94509-8518  
Phone: 925/978-2060 – Fax: 925/978-2063

# ATRIA PARK OF LAFAYETTE

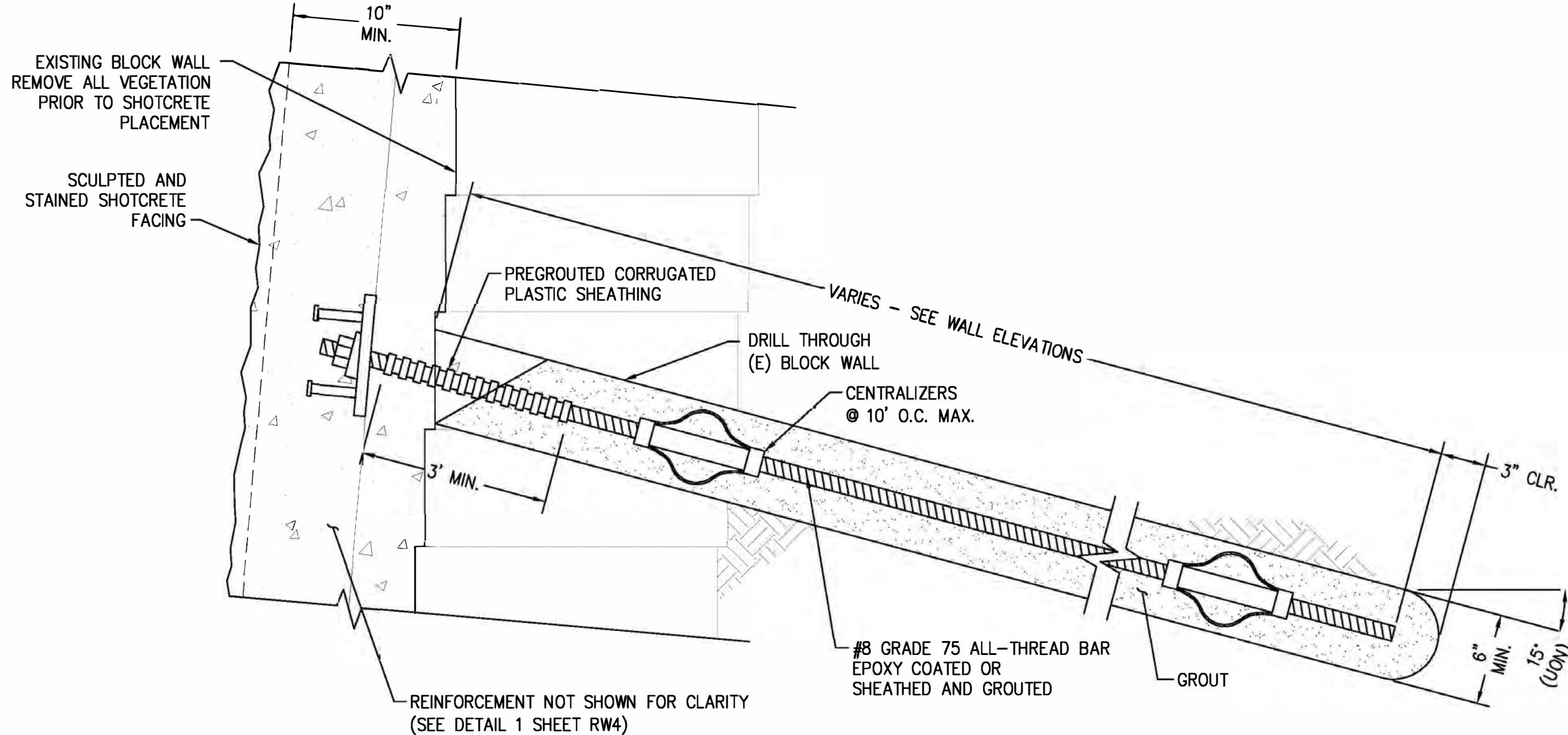
## SOIL NAIL RETROFIT OF EXISTING WALL

### 1545 PLEASANT HILL ROAD, LAFAYETTE, CA

## WALL SECTIONS

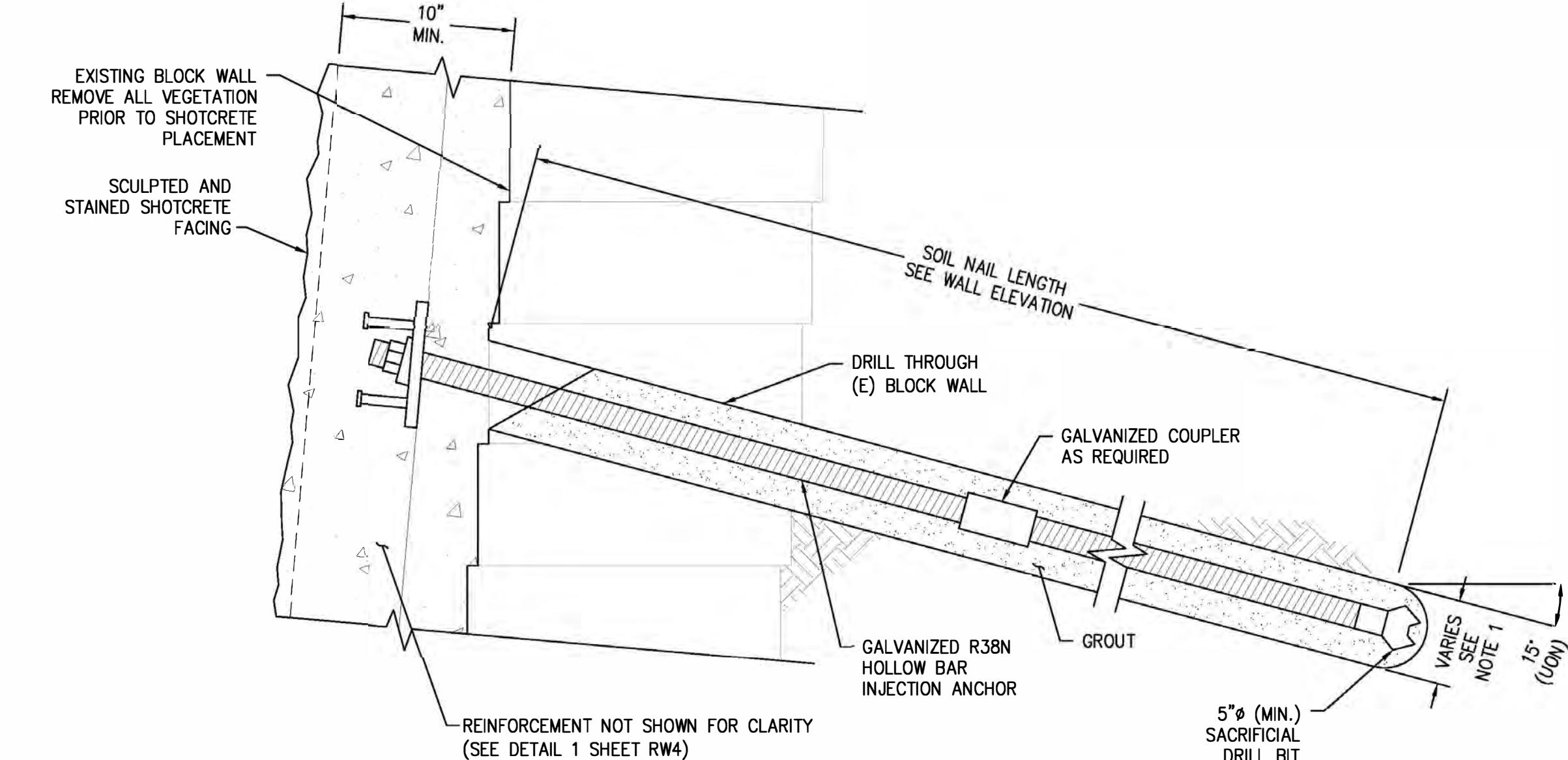
SHEET:  
D4

### OPTION 1 – SOLID BAR SOIL NAIL



1 SOIL NAIL ASSEMBLY – SECTION  
-- NO SCALE

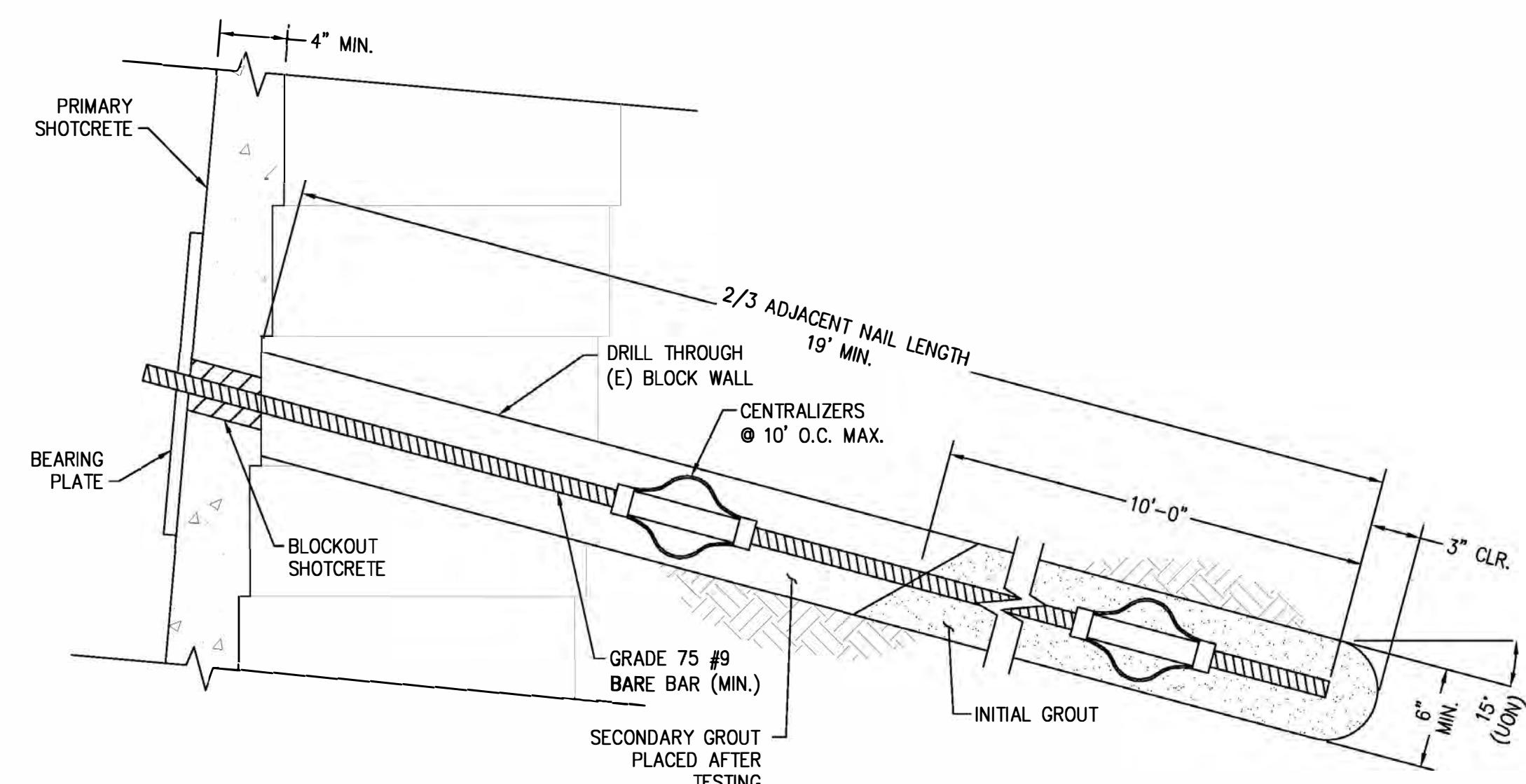
### OPTION 2 – HOLLOW BAR INJECTION SOIL NAIL



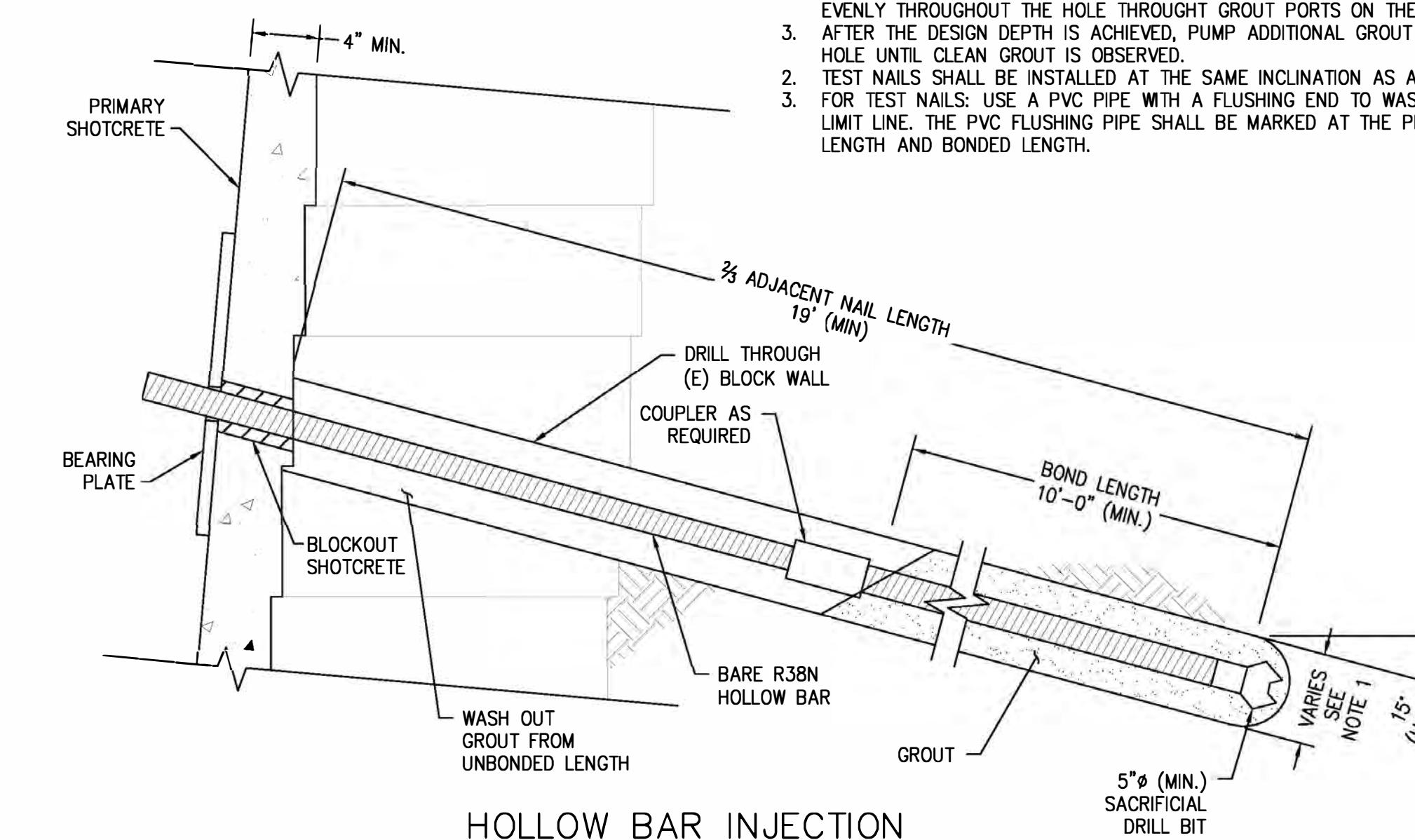
1 SOIL NAIL ASSEMBLY – SECTION  
-- NO SCALE

#### HOLLOW BAR INJECTION ANCHOR INSTALLATION NOTES:

1. GROUTED HOLE DIAMETER TYPICALLY VARIES FROM 1.5X TO 2X THE DRILL BIT DIAMETER.
2. THE GROUTING AND DRILLING OPERATIONS WILL BE PERFORMED SIMULTANEOUSLY FROM THE POINT OF ENTRY UNTIL THE REQUIRED DEPTH IS ACHIEVED. THE GROUT WILL BE INJECTED THROUGH THE TOP OF THE BAR AT A CONTINUOUS RATE AND BE DISTRIBUTED EVENLY THROUGHOUT THE HOLE.
3. AFTER THE DESIGN DEPTH IS ACHIEVED, PUMP ADDITIONAL GROUT AS NECESSARY TO FLUSH ANY RESIDUAL SOIL SPOILS FROM THE HOLE UNTIL CLEAN GROUT IS OBSERVED.
4. TEST NAILS SHALL BE INSTALLED AT THE SAME INCLINATION AS ADJACENT PRODUCTION NAILS.
5. FOR TEST NAILS: USE A PVC PIPE WITH A FLUSHING END TO WASH OUT THE GROUT FROM THE SURFACE DOWN TO THE BONDED LIMIT LINE. THE PVC FLUSHING PIPE SHALL BE MARKED AT THE PRESCRIBED UNBONDED LENGTH TO INSURE CORRECT WASHED LENGTH AND BONDED LENGTH.



2 TEST NAIL ASSEMBLY – SECTION  
-- NO SCALE



2 TEST NAIL ASSEMBLY – SECTION  
-- NO SCALE

#### SOIL NAIL TEST SCHEDULE

SOIL/ROCK TYPE	DESIGN LOAD (KIPS)*	MAX. PROOF TEST LOAD (KIPS)*	MAX. VERIFICATION TEST LOAD (KIPS)*
1. FILL/NATIVE SOIL	11.3	17.0	22.6
2. BEDROCK	22.6	34.0	45.2

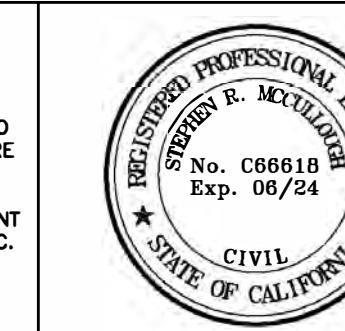
\* BASED ON 10' BONDED LENGTH. IF AS-BUILT BONDED LENGTH DIFFERS FROM THIS VALUE, THE ENGINEER SHALL BE NOTIFIED AND WILL MODIFY THE TEST LOADS.

REVISION:	DATE:	DESCRIPTION/REASON:	DESIGN BY:	SCALE:
			SM	AS SHOWN
			CHECKED BY:	JOB NUMBER:
			DB	23016

DATE:  
AUGUST 23, 2023

CONTRACT NO:

THE USE OF THESE DRAWINGS AND SPECIFICATIONS SHALL BE RESTRICTED TO THE ORIGINAL USE FOR WHICH THEY WERE PREPARED. REUSE, REPRODUCTION, OR PUBLICATION WHOLE OR IN PART IS PROHIBITED WITHOUT THE WRITTEN CONSENT OF DRILL TECH DRILLING & SHORING, INC.

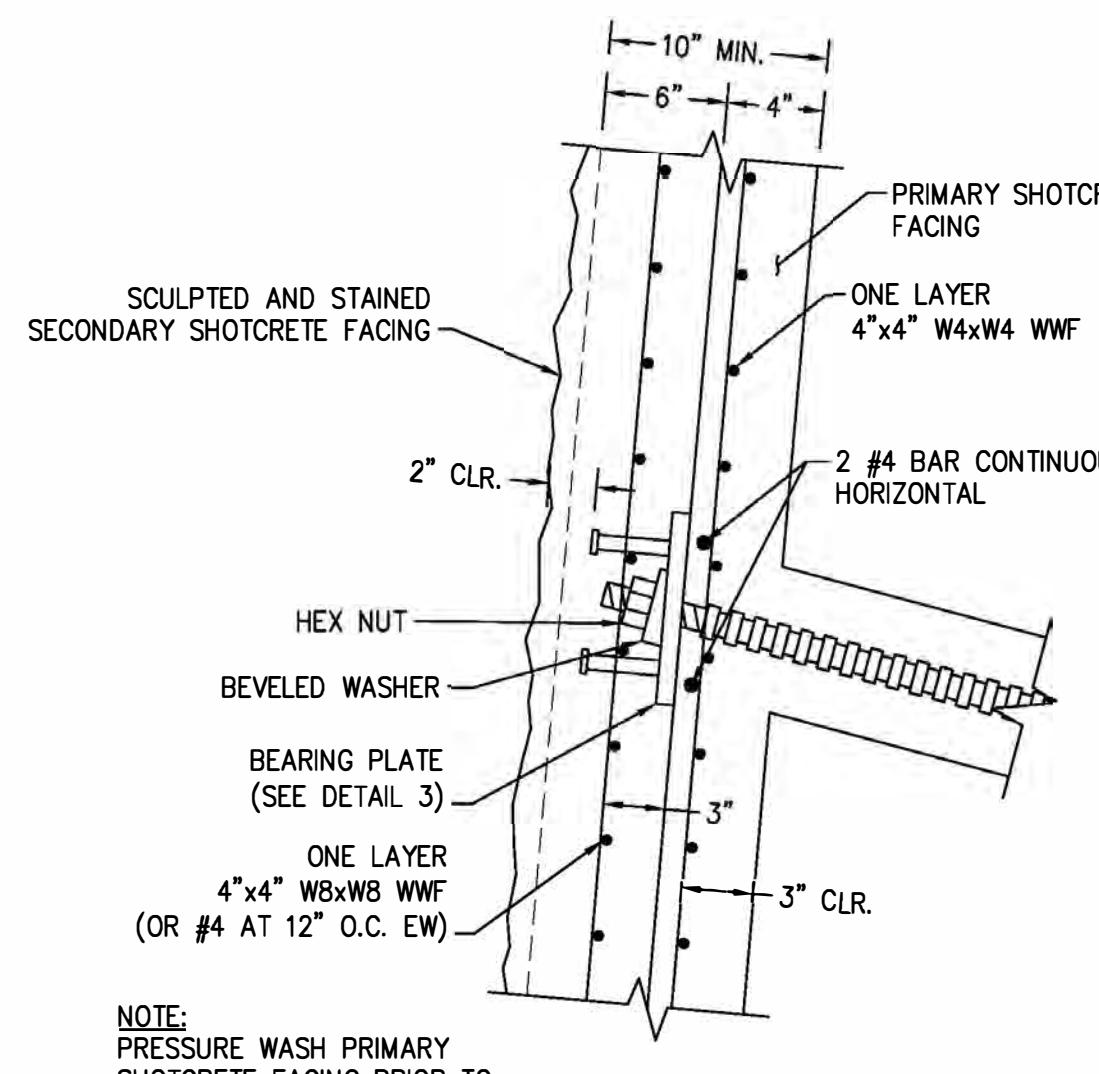


2200 Wymore Way – Antioch, CA 94509-8518  
Phone: 925/978-2060 – Fax: 925/978-2063

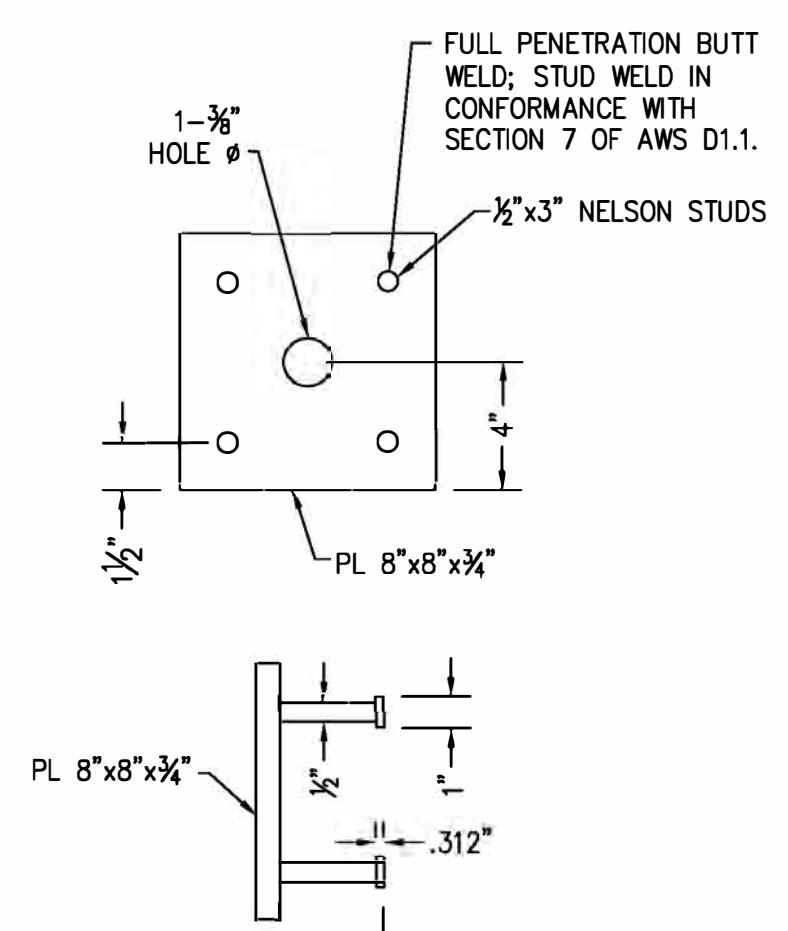
ATRIA PARK OF LAFAYETTE  
SOIL NAIL WALL RETROFIT  
1545 PLEASANT HILL ROAD, LAFAYETTE, CA

SOIL NAIL DETAILS

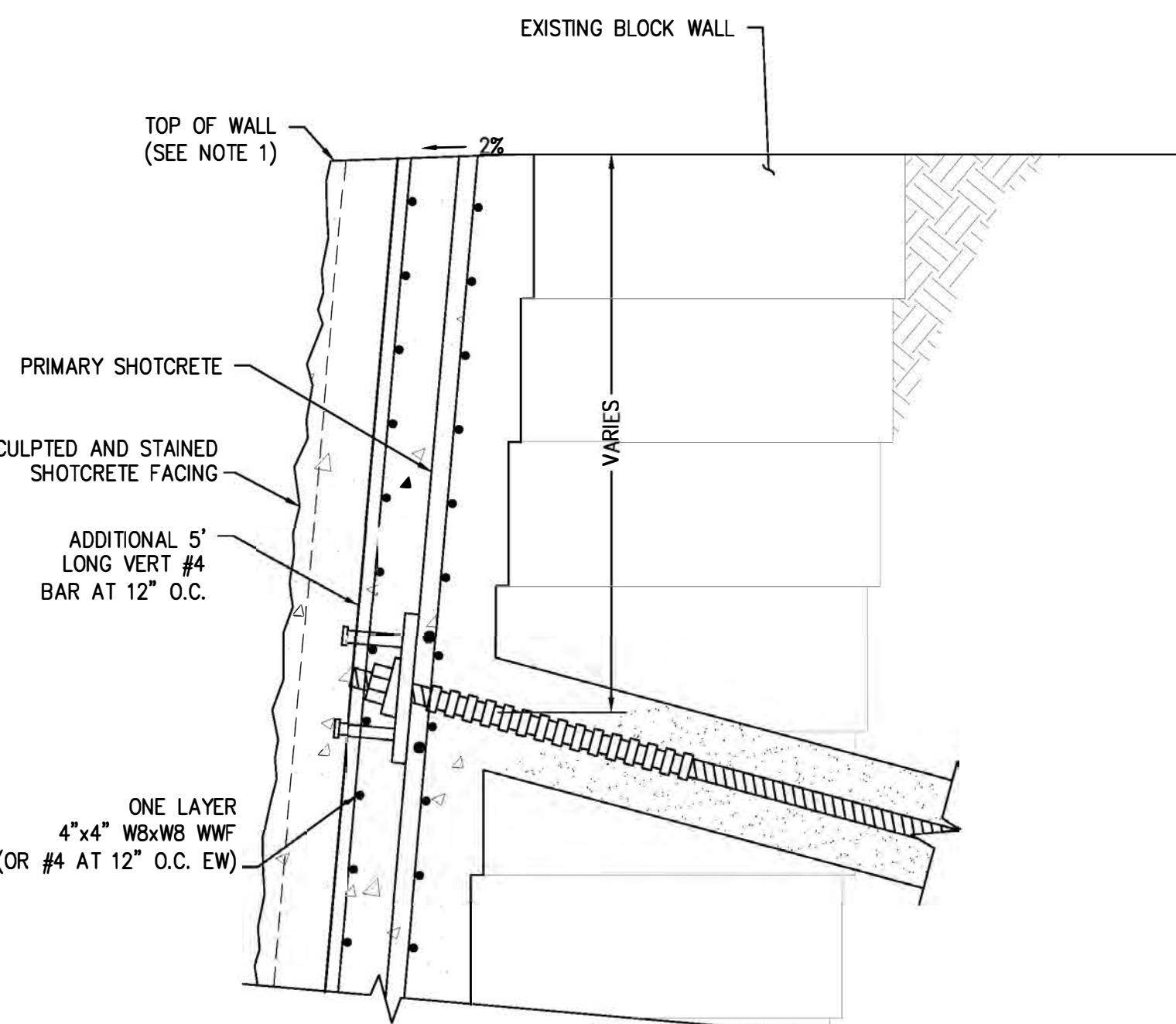
SHEET: D5  
24 OF 30



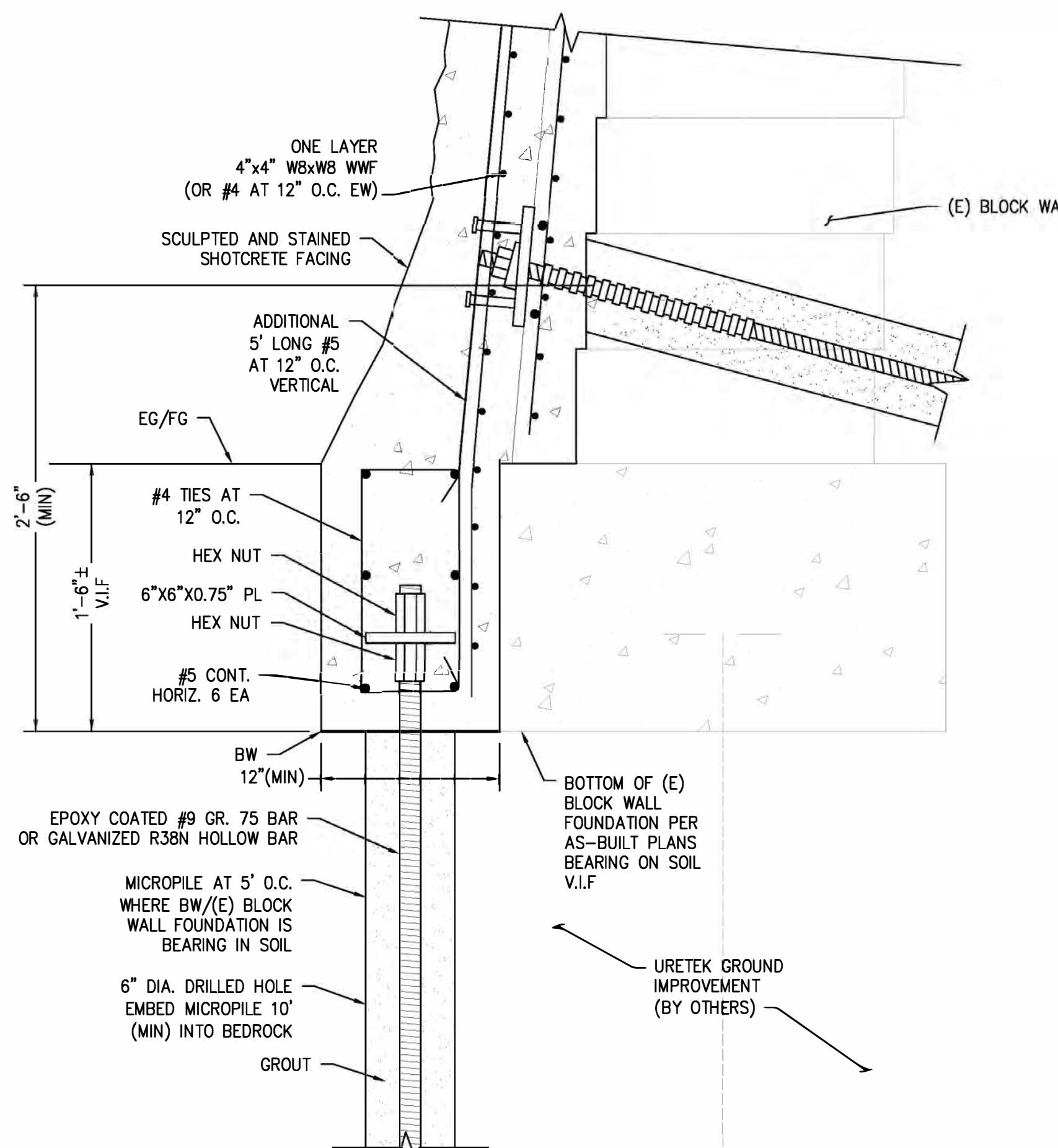
**NAIL ANCHORAGE ASSEMBLY  
AND SHOTCRETE FACING DETAIL**  
1  
-- NO SCALE



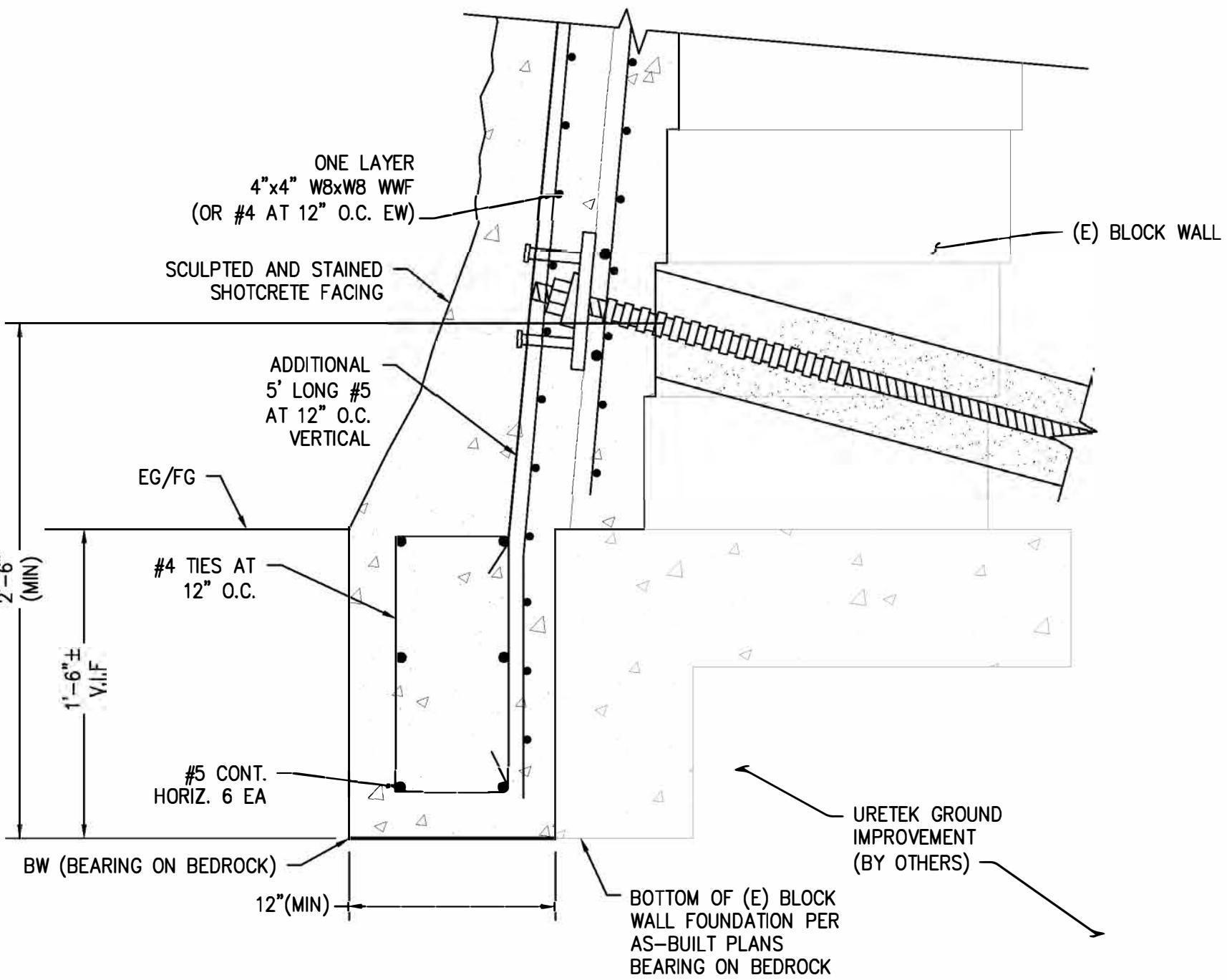
**BEARING PLATE DETAIL**  
2  
-- NO SCALE



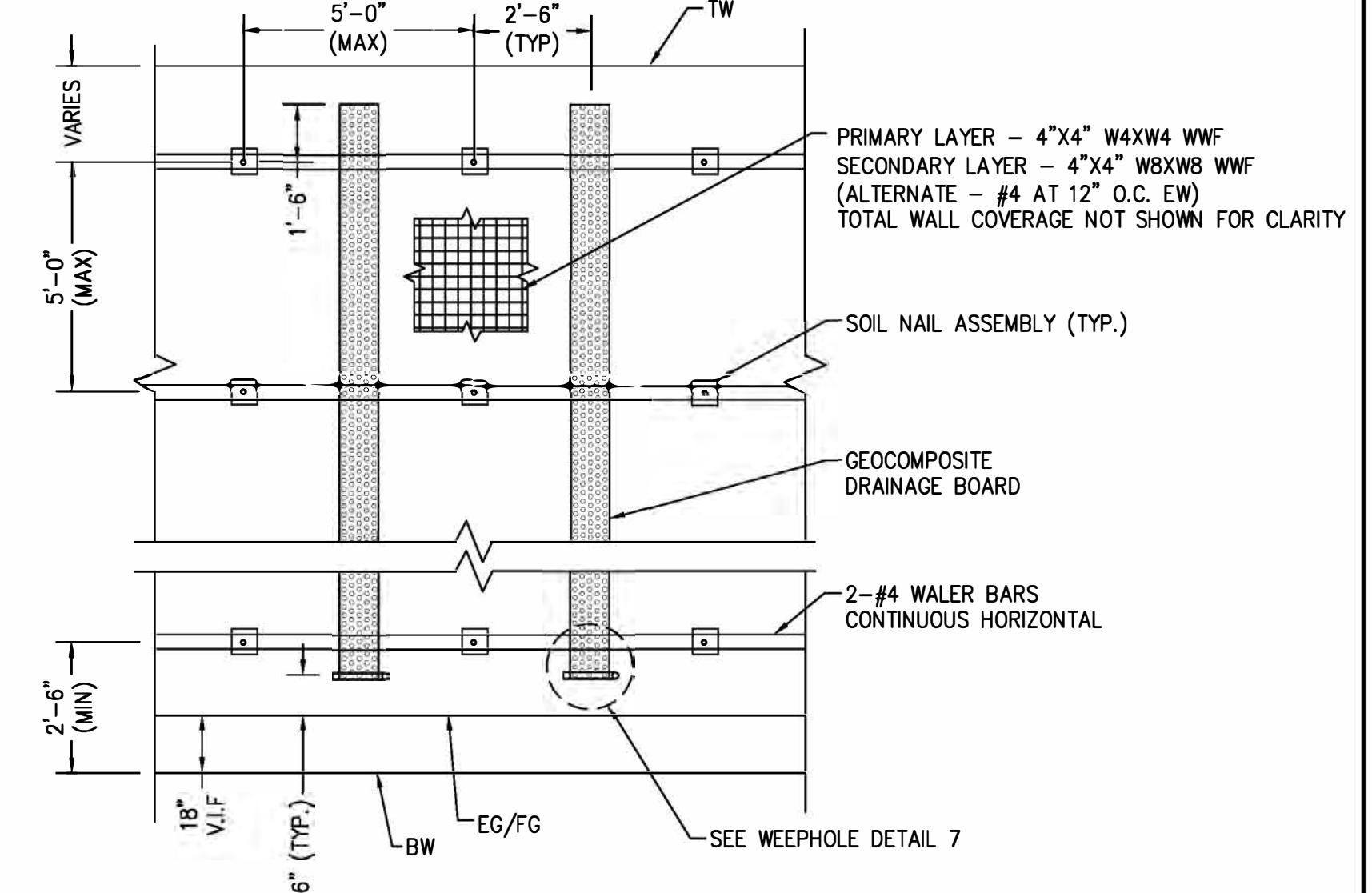
**TOP OF WALL DETAIL**  
3  
-- NO SCALE



**BEARING ON SOIL  
BOTTOM OF WALL DETAIL**  
4  
-- NO SCALE

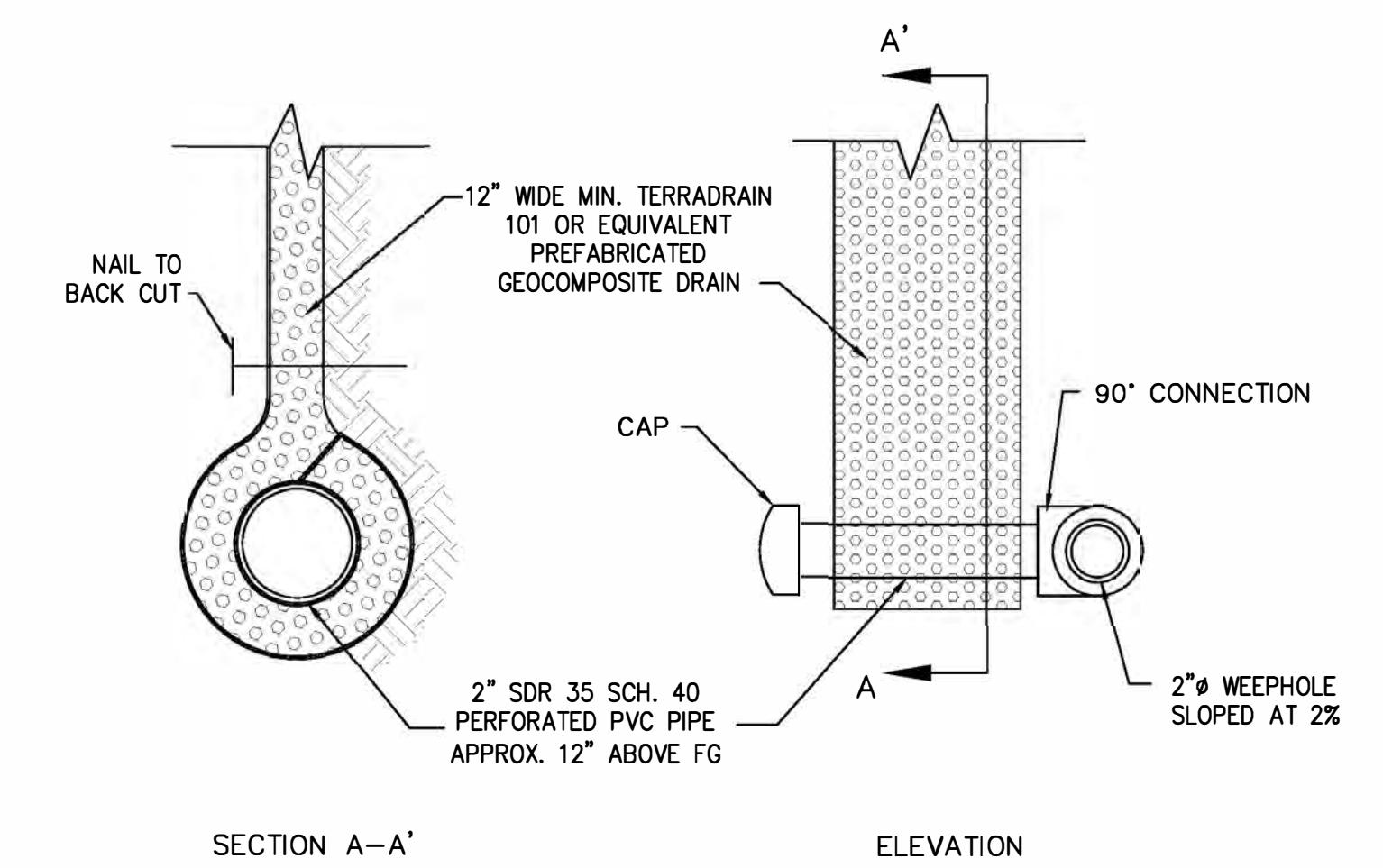


**BEARING ON BEDROCK  
BOTTOM OF WALL DETAIL**  
5  
-- NO SCALE



**NOTES:**  
1. NAIL LOCATION MAY VARY IN ISOLATED CASES UP TO 12" FROM DESIGN LOCATION.  
2. OVERLAP GEOCOMPOSITE DRAINS AT BOTTOM OF WALL TO "WRAP AROUND" WEEPHOLE PIPE.

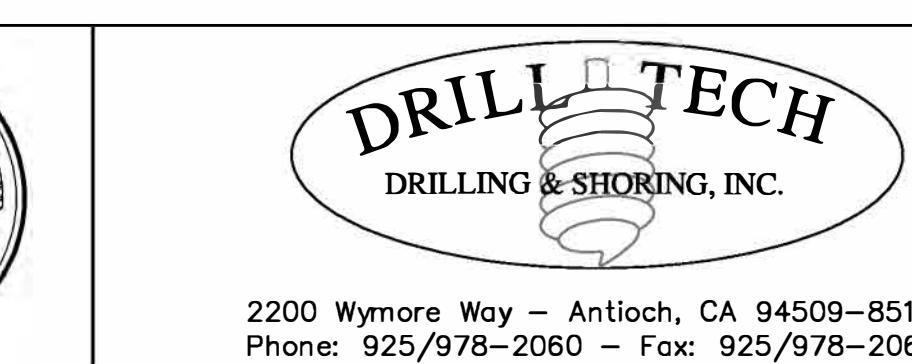
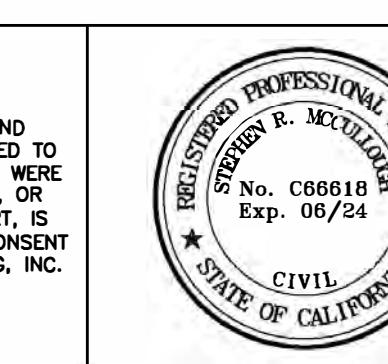
**PARTIAL ELEVATION**  
6  
-- NO SCALE



**WEEPHOLE DETAIL**  
7  
-- NO SCALE

REVISION:	DATE:	DESCRIPTION/REASON:	DESIGN BY:	SCALE:
			SM	AS SHOWN
			CHECKED BY:	JOB NUMBER:
			DB	23016

DATE:	CONTRACT NO:
AUGUST 23, 2023	



2200 Wymore Way - Antioch, CA 94509-8518  
Phone: 925/978-2060 - Fax: 925/978-2063

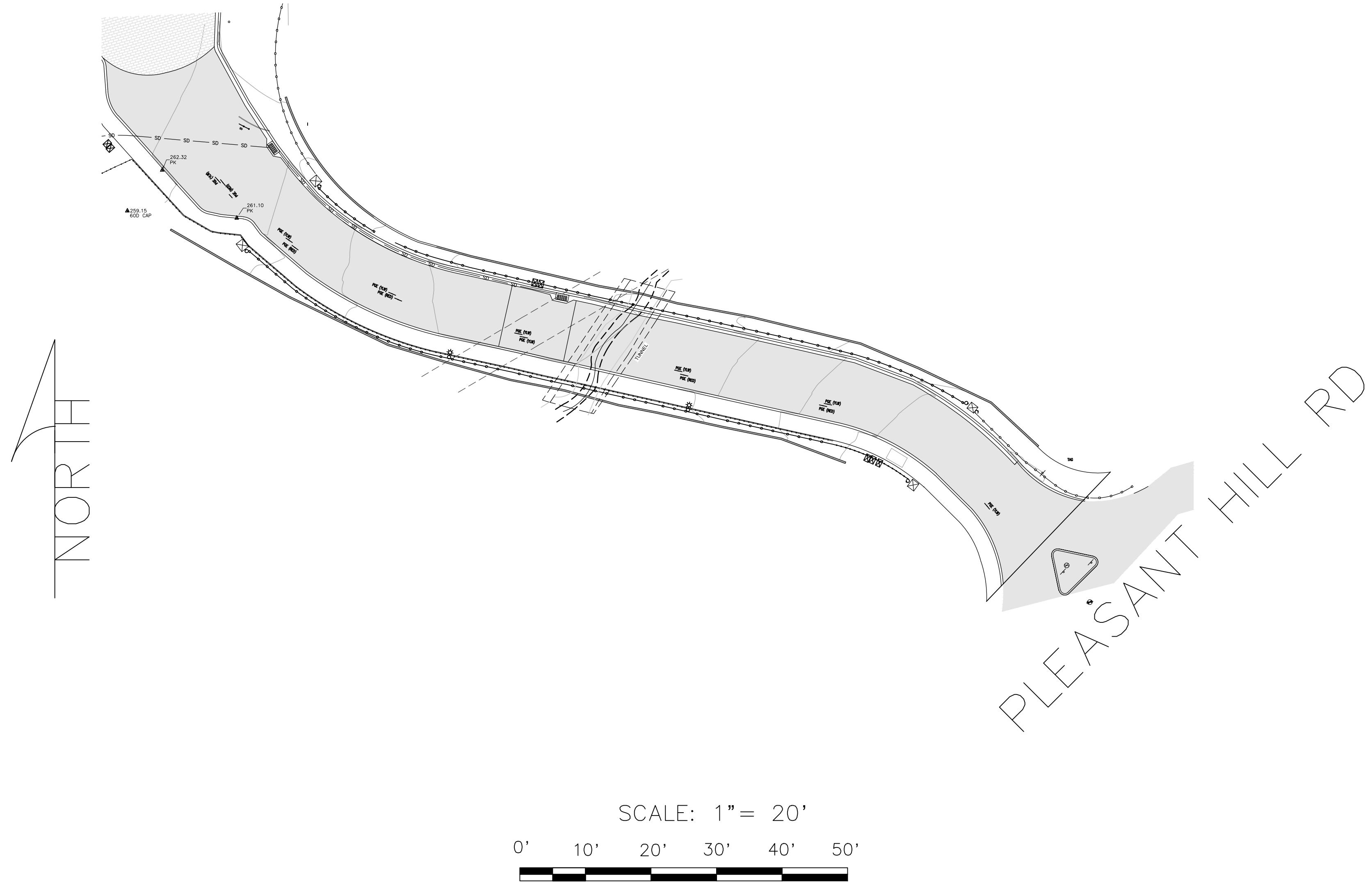
**ATRIA PARK OF LAFAYETTE**  
SOIL NAIL WALL RETROFIT  
1545 PLEASANT HILL ROAD, LAFAYETTE, CA

DETAILS

SHEET:	D6
SHEET	OF

25 30

# SITE PLAN



WORK SCOPE	PROPERTY DATA	<b>SLOPE SOIL IMPROVEMENT</b> ATRIA BRIDGE SLOPE STABILITY 1545 PLEASANT HILL RD. LAFAYETTE, CA 94549
1. GROUND IMPROVEMENT WITH CHEMICAL GROUTING (POLYURETHANE)	1. OCCUPANCY: N/A (ROADWAY) 2. TYPE OF CONSTRUCTION: N/A 3. STORIES: N/A 4. OWNER'S NAME: ATRIA SENIOR LIVING 5. APN: 169-090-002	
SHEET INDEX	CURRENT CODES	
NO. DESCRIPTION	CALIFORNIA BUILDING STANDARD CODES 2019 CALIFORNIA BUILDING CODE (CBC) 2019 CAL EXIST BUILDING CODE	
1 SITE PLAN/ SHEET INDEX 2 GROUND IMPROVEMENT POLYURETHANE DEEP INJECTION		
CITY REQUIREMENTS		
<ol style="list-style-type: none"> <li>1. PERIODIC INSPECTION REQUIRED FOR ALL DEEP INJECTION.</li> <li>2. THE ISSUE OF A PERMIT SHALL NOT PREVENT THE BUILDING OFFICIAL FROM REQUIRING CORRECTIONS OF ERRORS ON THE PLANS OF FROM PREVENTING ANY VIOLATION OF THE CODES ADOPTED BY THE CITY, RELEVANT LAWS, ORDINANCES, RULES AND/OR REGULATIONS.</li> </ol>		
VICINITY MAP		
DATE: 8-26-2023		
DRAWN BY: K.O.		
REV:		
SHEET U1		

## FIELD NOTES

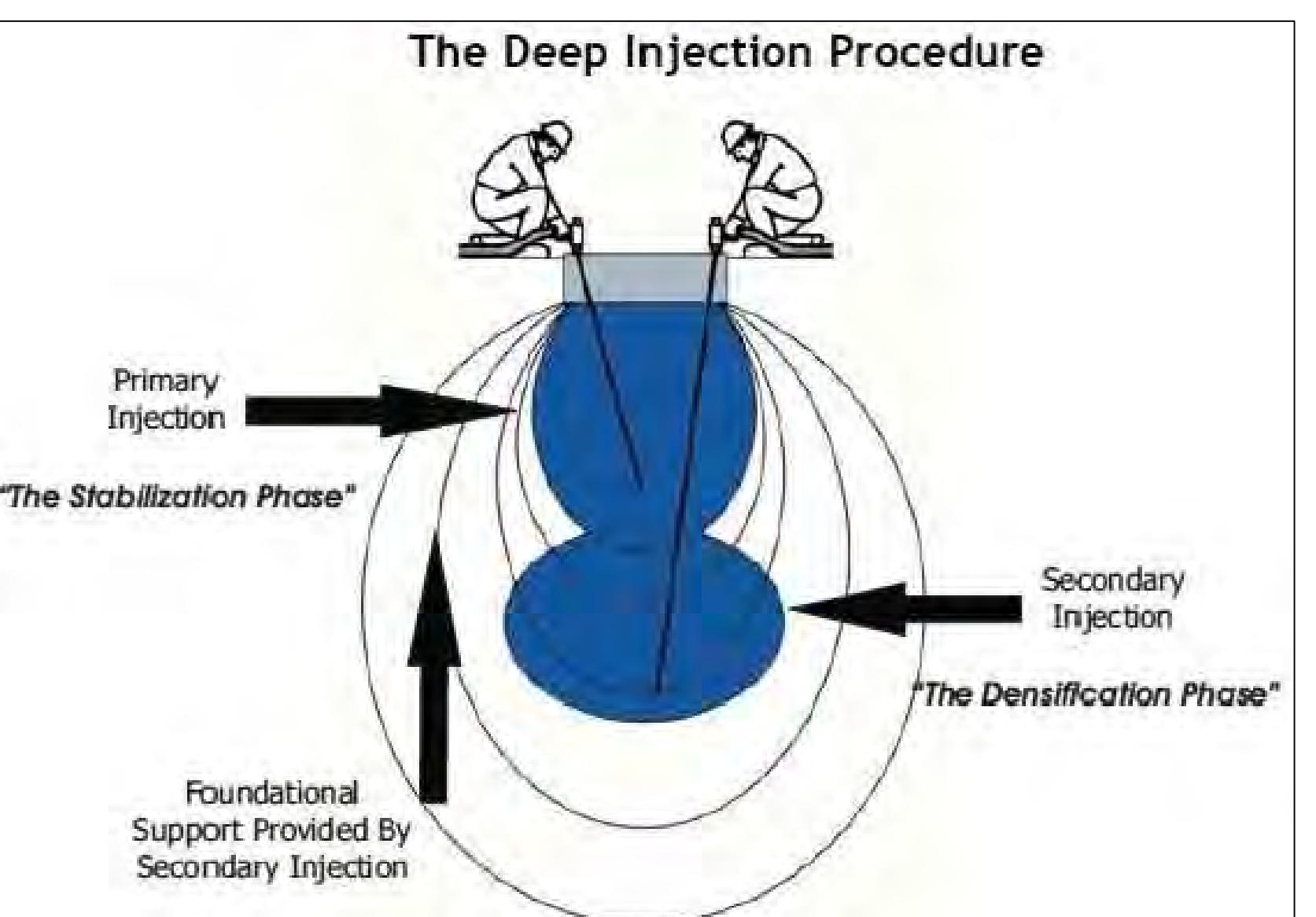
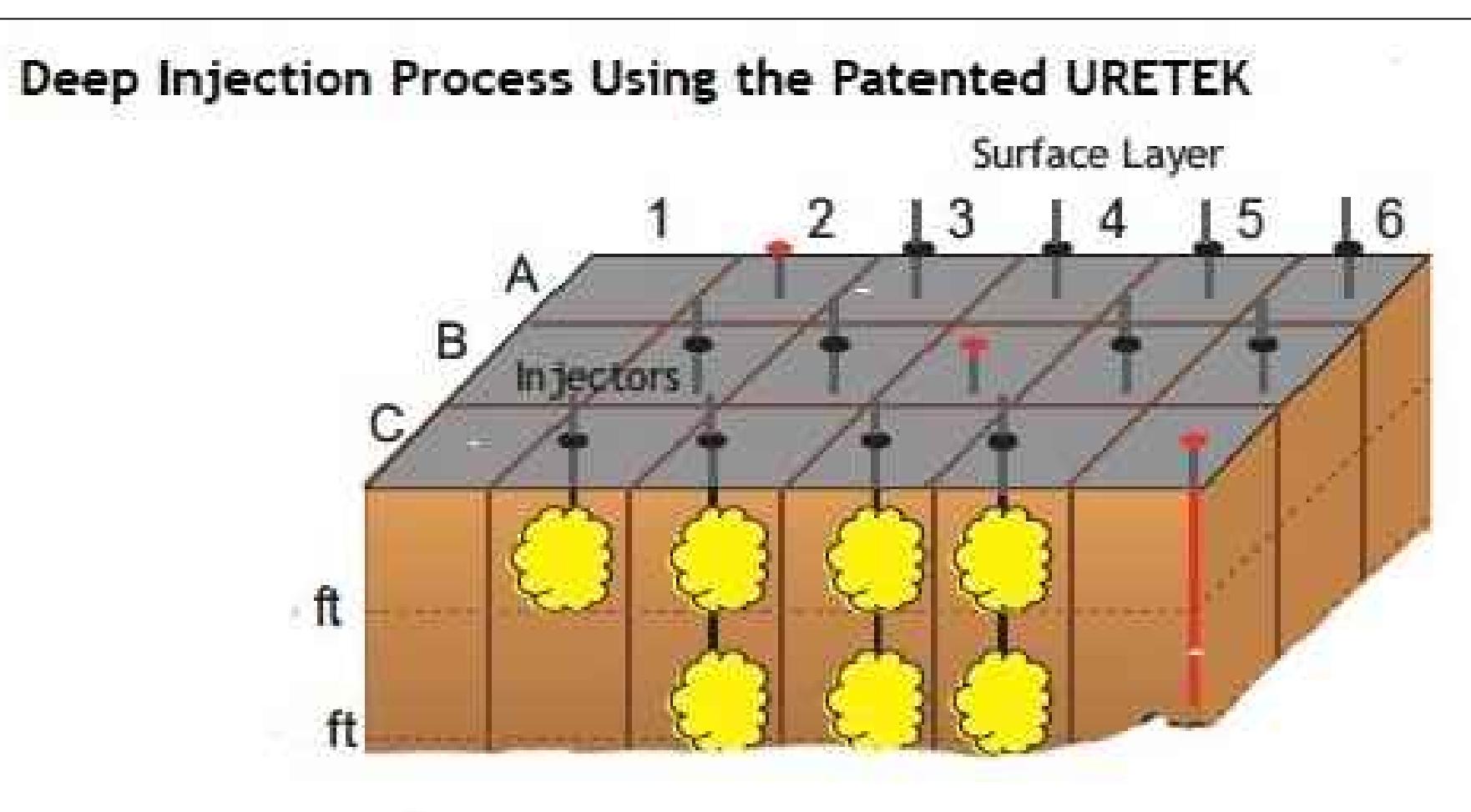
1. PERFORM LEAK DETECTION TEST TO DETERMINE IF EXISTING LEAKS OR CRACKS EXIST WITHIN PLUMBING AND DRAINAGE. ANY (E) LEAKS MAY RESULT IN POLYMER INTRUSION.
2. PERFORM LEAK DETECTION TEST FOLLOWING INJECTIONS. POLYMERS MAY INVADE PLUMBING AND DRAINAGE LINES, AND IT MUST BE CLEANED PRIOR TO RETURNING TO SERVICE.

## CONSTRUCTION NOTES

1. INJECTION SPACING NOT TO EXCEED 4'-0" OC.
2. CONTACT PROJECT MANAGER FOR ANY UNFORESEEN CONDITIONS.
3. LOCATE AND PROTECT ALL UNDERGROUND AND OVERHEAD UTILITY LINES PRIOR TO CONSTRUCTION.

## MATERIAL NOTES

1. HYDRO-INSENSITIVE PROPERTIES WILL REDUCE SWELL POTENTIAL OF EXPANSIVE CLAY SOIL. PRODUCT MUST DISPLAY PASSING TEST RESULTS OF NYDOT'S GTP-9 PANEL TEST.
2. TESTING AT TTCI FACILITY DISPLAYS REDUCTION OF LATERAL EARTH PRESSURE BY APPROXIMATELY 40%.
3. MATERIAL SPECIFIED MUST BE LOS ANGELES LISTING PRODUCT THROUGH LOS ANGELES RESEARCH BUREAU, (RESEARCH REPORT #26197) TO COMPLY WITH ACCREDITED TESTING OF THE PRODUCTS THROUGH ACCREDITED AGENCIES.



<p><b>SPECIFICATIONS</b></p> <p><b>STRUCTURE AND FOUNDATION SOILS</b></p> <p>STABILIZATION, AND LIFTING WHERE NECESSARY, UTILIZING A TWO-PART 1:1 BY VOLUME, WATER RESISTANT, HIGH-DENSITY POLYURETHANE FOAM (HDPE)</p> <p><b>DESCRIPTION:</b></p> <p>This work shall consist of soil densification to strengthen base and sub-base soils under flexible asphalt, concrete, or composite pavement, and structures such as bridge approaches with sleeper slabs, by furnishing and injecting expansive polyurethane material into the foundation soils beneath the pavement through holes or injection tubes inserted into drilled holes at locations and depths, as shown on the plans or as directed by the Engineer, while monitoring for movement at the surface. If necessary, injection of material shall continue as needed to lift the pavement to grade.</p> <p><b>MATERIAL:</b></p> <p><b>1. High Density Polyurethane Foam.</b></p> <p>Certify that the material conforms to the following requirements listed in this section:</p> <table border="1"> <thead> <tr> <th>PROPERTY</th> <th>TEST</th> <th>RESULTS</th> </tr> </thead> <tbody> <tr> <td>• Density, lbs./cu. ft.</td> <td>ASTM D-1622</td> <td>3.5 - 4.5</td> </tr> <tr> <td>• Compressive Strength, psi (min.)</td> <td>ASTM D-1621</td> <td>55</td> </tr> <tr> <td>• Tensile Strength, psi (min.)</td> <td>ASTM D-1623</td> <td>90</td> </tr> <tr> <td>• Shear Strength, psi (min.)</td> <td>ASTM C-273</td> <td>45</td> </tr> <tr> <td>• Flexural Strength, psi (min.)</td> <td>ASTM D-790</td> <td>90</td> </tr> <tr> <td>• Closed Cell Content (%)</td> <td>ASTM D-1940</td> <td>+85</td> </tr> </tbody> </table> <p>HDPE shall reach 90% compressive strength within 30 minutes of injection. The material used shall be a two-part 1:1 by volume HDPE, such as URETEK 486 STAR. Other polyurethanes submitted must meet all of the required specifications and be prepared by the Owner. The material shall be water-blown, not chemically blown. The material shall be a polyurethane-forming mixture, having water-insoluble diluents, which permits the formation of polyurethanes in the presence of water. Water insoluble diluents shall provide polyurethane foam with improved dimensional stability properties. The presence of water insoluble diluents and the characteristics and properties listed above must be certified by the manufacturer (paragraph 3). The certification from the polyurethane manufacturer must be submitted with the bid documents.</p>	PROPERTY	TEST	RESULTS	• Density, lbs./cu. ft.	ASTM D-1622	3.5 - 4.5	• Compressive Strength, psi (min.)	ASTM D-1621	55	• Tensile Strength, psi (min.)	ASTM D-1623	90	• Shear Strength, psi (min.)	ASTM C-273	45	• Flexural Strength, psi (min.)	ASTM D-790	90	• Closed Cell Content (%)	ASTM D-1940	+85	<p><b>2. Aquatic and Terrestrial Toxicity Testing.</b></p> <p>Polyurethane must pass aquatic and terrestrial toxicity testing and chemical analysis (RCRA metals, TOC, and COD). The polyurethane must show a lack of toxicity at 200 ppm TCLP leachate and show non-toxic for all test species. Testing must have been performed by an independent third-party testing laboratory. The certification from the independent third-party testing laboratory must be submitted with the bid documents.</p> <p><b>3. Panel Test for Hydro-Insensitivity of High-Density Polyurethane Grout.</b></p> <p>Polyurethane must pass the Panel Test for Hydro-Insensitivity of High-Density Polyurethane Grout (see the attached testing protocol). The Panel Test must be performed by an independent third-party testing laboratory, under the supervision and review of a licensed Professional Engineer, and must certify that the polyurethane material meets or exceeds the limits set forth in the panel test specification. The certification from the independent third-party testing laboratory must be submitted with the bid documents.</p> <p><b>4. ASTM D1621 and ASTM D1622 Requirements.</b></p> <p>Prior to beginning work and with the inspector observing, the Contractor must prepare 5 machine mixed field samples for density and compressive strength determination. The samples shall then be transported to an independent third-party testing laboratory at the Contractor's expense. At the laboratory, a nominal 2" by 2" by 2" sample shall be taken from the center of each of the field samples and the density of the material shall be determined in accordance with ASTM D1622. The compressive strength shall then be determined by testing in accordance with ASTM D1621.</p> <p>The Contractor shall submit electronic copies to the Owner's Representative of the stress strain curves (ASTM D1621 showing force, lbs. vs. deflection, %) as well as density calculations, including measured specimen dimensions (ASTM D1622) for each specimen tested. Field samples shall be prepared and sent for testing for each individual batch/lot number of resin component used on the project.</p> <p>The compressive strength and density determined from ASTM D1621 and ASTM D1622 shall be used to determine the percent of pay for this item as outlined in Measurement and Payment.</p> <p><b>5. Non-shrink grout to patch drill holes.</b></p> <p>Non-shrink grout must be supplied by a manufacturer on the approved products list and must be used within the shelf life and temperature limitation set by the manufacturer.</p>
PROPERTY	TEST	RESULTS																				
• Density, lbs./cu. ft.	ASTM D-1622	3.5 - 4.5																				
• Compressive Strength, psi (min.)	ASTM D-1621	55																				
• Tensile Strength, psi (min.)	ASTM D-1623	90																				
• Shear Strength, psi (min.)	ASTM C-273	45																				
• Flexural Strength, psi (min.)	ASTM D-790	90																				
• Closed Cell Content (%)	ASTM D-1940	+85																				
<p><b>EQUIPMENT:</b></p> <p><b>1. Portable Dynamic Cone Penetrometer (DCP).</b></p> <p>Provide a portable DCP for on-site soils investigation to assist in location and depth of weak foundation soils and determination of correct injection pattern and injection elevations through tubes to densify weak soils. The DCP must be a Paganini DPM 30 or similar, capable of taking readings up to 30 feet below grade. DCP testing may be required, as directed by the Owner's Representative, to confirm existing sub-grade soil conditions. The name, model number, and description of the DCP(s) intended for use must be submitted with the bid documents.</p> <p><b>2. Pumping Units.</b></p> <p>Ensure that all pumping units used are equipped with certified flow meters to precisely measure the amount of each component injected, so that the 1:1 ratio by volume is maintained for quality control and a certified volume of injected polyurethane material is obtained for proper payment. Flow meters must be recalibrated annually (once every 12 months) to ensure accuracy. Certifications from the manufacturer (or an independent third party) demonstrating that each flow meter intended for use has been tested within the past 12 months must be submitted with the bid documents.</p> <p><b>QUALITY MANAGEMENT:</b></p> <p><b>1. Drilling Holes and Installation of Injection Tubes.</b></p> <p>Drill injection holes in the pattern shown on the Standard Drawings, or as indicated on the approved field Quality Control (QC) plan, as approved by the Owner's Representative. Drill 5/8" to 2" diameter holes, vertical and round, and to a depth indicated on the approved field QC plan. Install injection tubes to the prescribed injection depth(s). Tubes must be pushed a minimum of 4" below the grade of the road and/or runway prior to the commencement of injections.</p> <p><b>2. Injection of the HDPE.</b></p> <p>Inject the HDPE through holes, via injection tubes when needed, to fill voids and into the foundation soils beneath the pavement to the prescribed injection depth(s). Continuously monitor for movement of the structure. Foundations soils are sufficiently stabilized when movement of the structure is detected. If necessary, injection of material shall continue as needed to lift the pavement to grade.</p>	<p><b>3. Hole Patching.</b></p> <p>Install a rapid set, non-shrink patching material into the drilled-out hole and strike patches flush with the surface of the surrounding pavement.</p> <p><b>EXPERIENCE:</b></p> <p>Have a minimum 3 years of experience injecting 1:1 by volume, two-part, expansive polyurethane through holes or tubes into soils while monitoring at the surface of the pavement for movement to demonstrate sufficient densification of the soils. Evidence of prior experience must be submitted with the bid documents. 5 awarded contracts within each of the previous 3 years.</p> <p>Have an employee of the company, a licensed Professional Engineer (P.E.) with a minimum of 3 years of experience in stabilization of pavement foundations soils by injecting 1:1 by volume, two-part, expansive polyurethane through holes or tubes into soils while monitoring at the surface of the pavement for movement to demonstrate sufficient densification of the soils. The name, hire date, and resume of the licensed Professional Engineer must be submitted with the bid documents.</p>																					

URETEK USA, INC.  
1925 E HIGHLAND COURT  
ONTARIO, CA 91764-1626  
PH: 909-816-4038

DATE:  
8-26-2023

DRAWN BY:  
K.O.

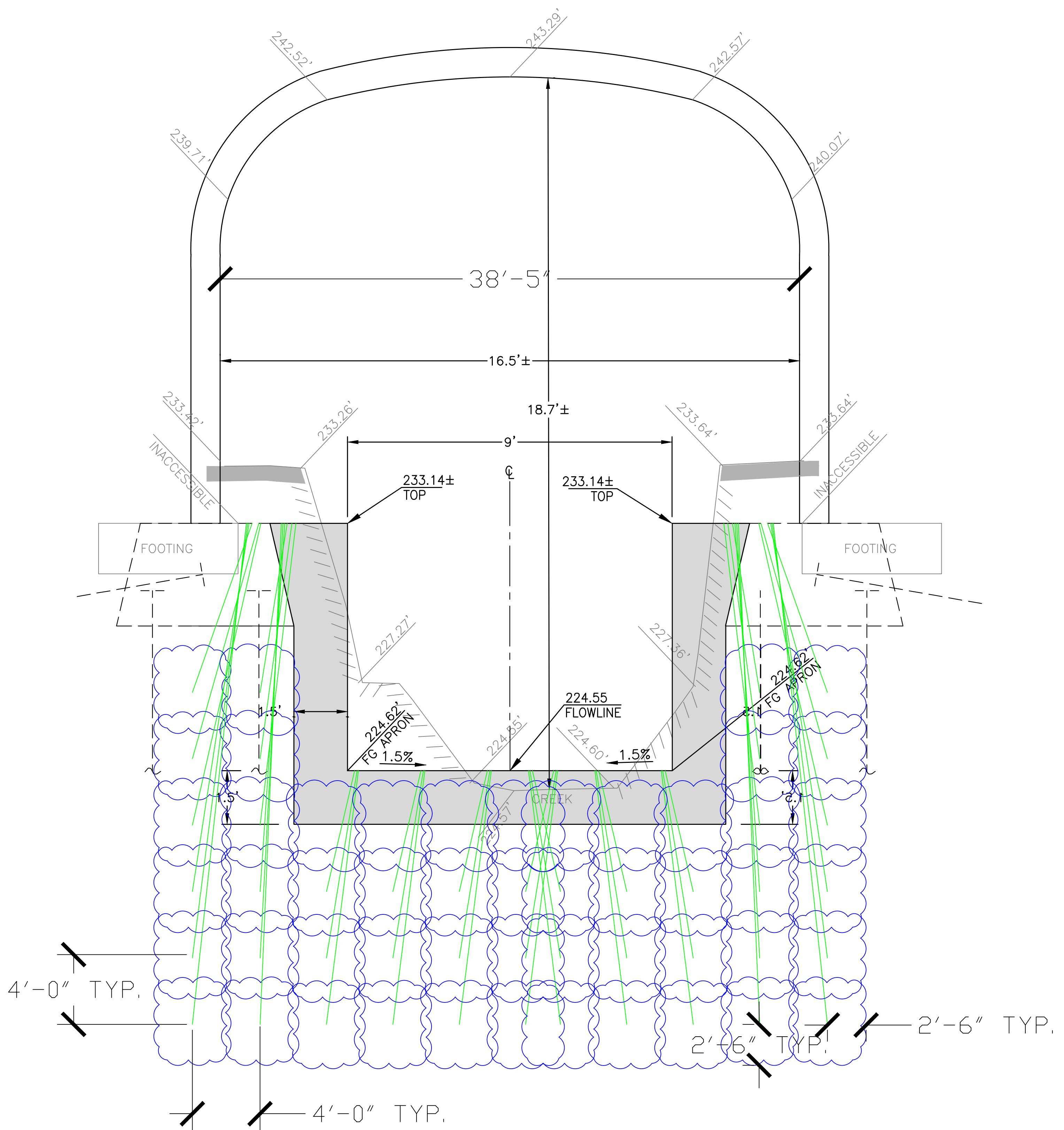
REV:

SHEET

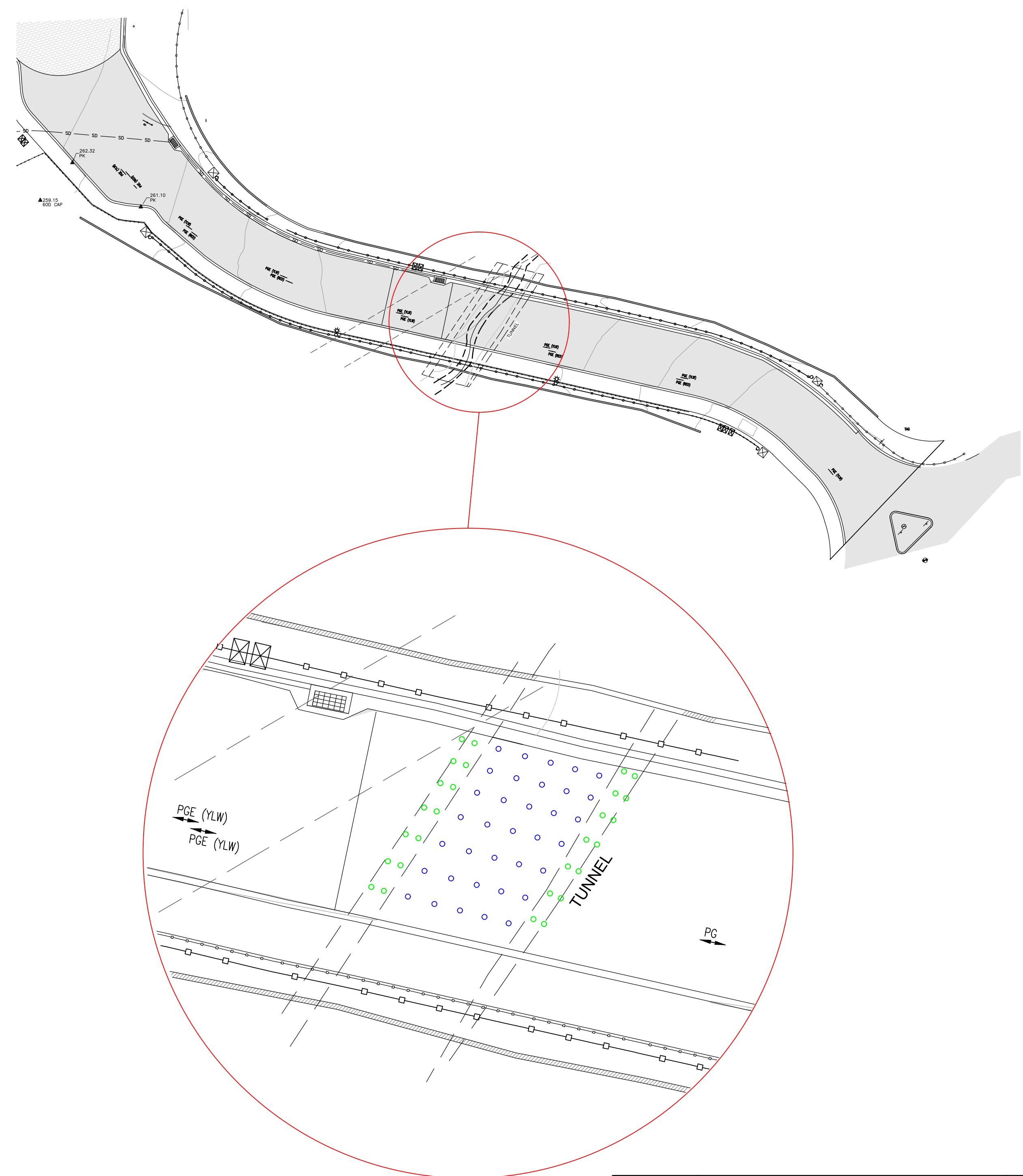
U2

SLOPE SOIL IMPROVEMENT  
ATRIA BRIDGE SLOPE STABILITY  
1545 PLEASANT HILL RD.  
LAFAYETTE, CA 94549

PROFILE VIEW



PLAN VIEW



**CULVERT INJECTION**

ATRIA BRIDGE SLOPE STABILITY  
1545 PLEASANT HILL RD.  
LAFAYETTE, CA 94549

**URETEK USA, INC.**

1925 E HIGHLAND COURT  
ONTARIO, CA 91764-1626  
PH: 909-816-4038

DATE:  
8-26-2023  
DRAWN BY:  
K.O.

SHEET

**U3**

\*NOTE: DEPTH OF INJECTIONS REQUIRE ARE BASED ON BEDROCK DEPTH(S) NOTED IN GEO REPORT

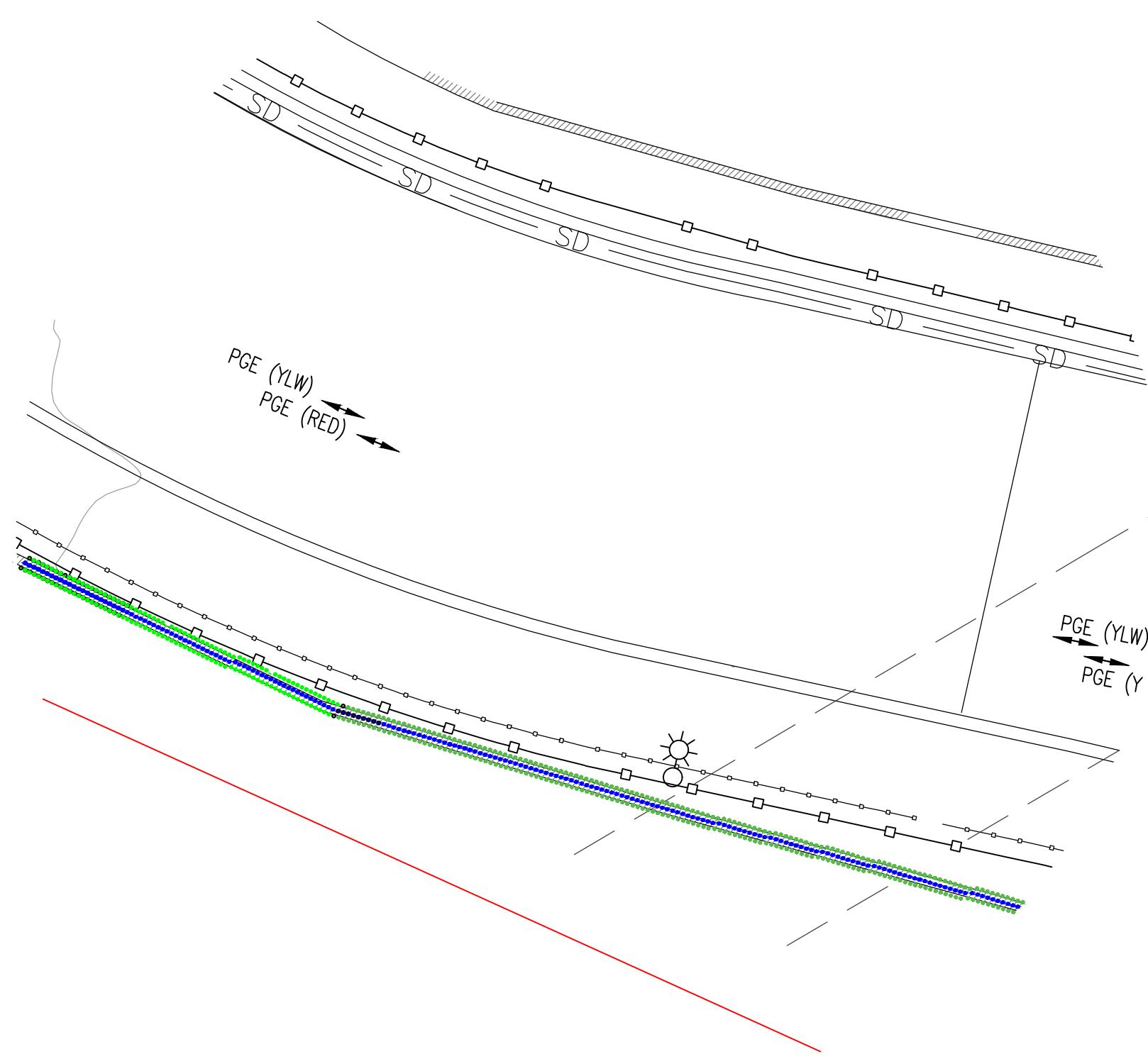
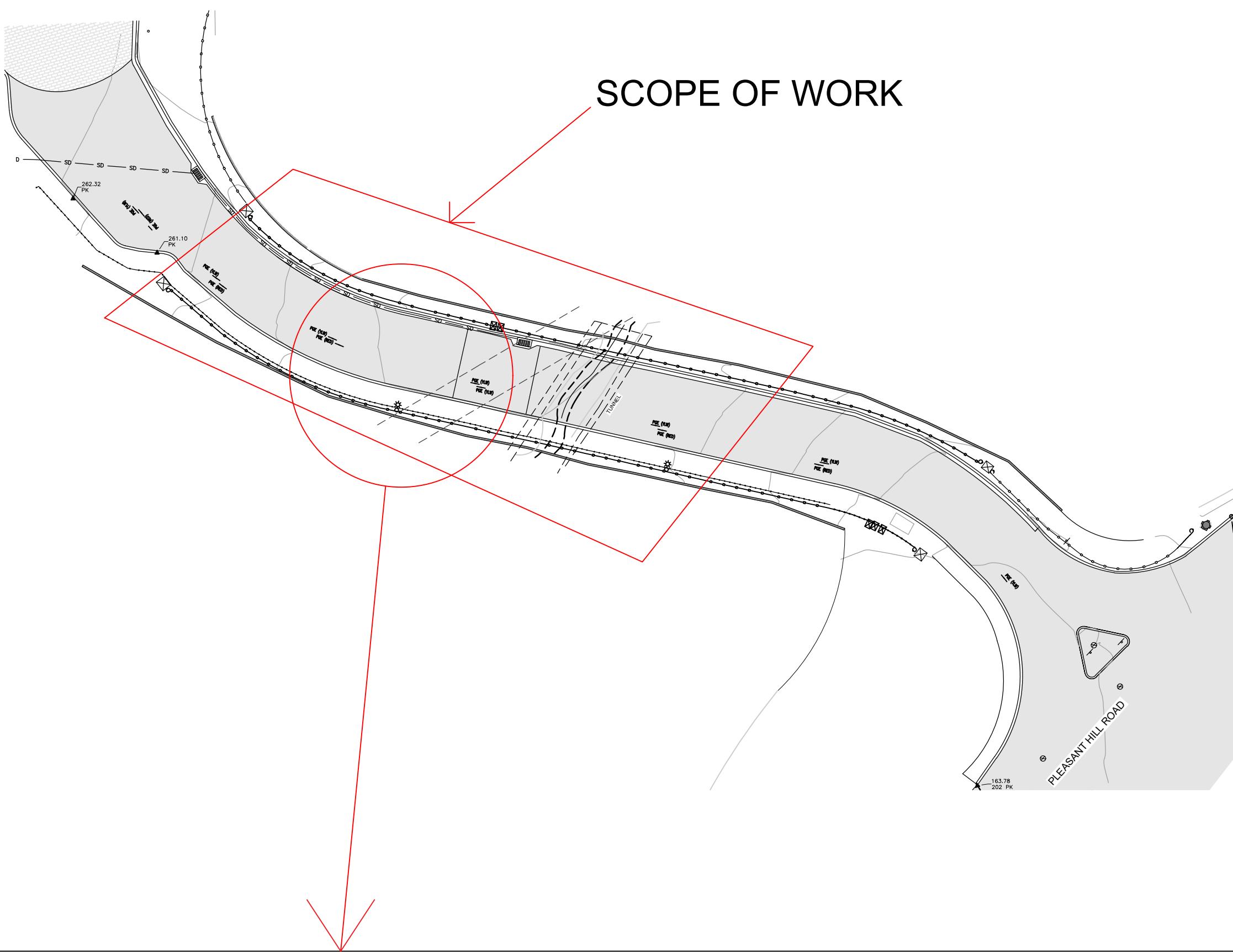
**LEGEND**

INJECTION TUBE

INJECTION INFLUENCE

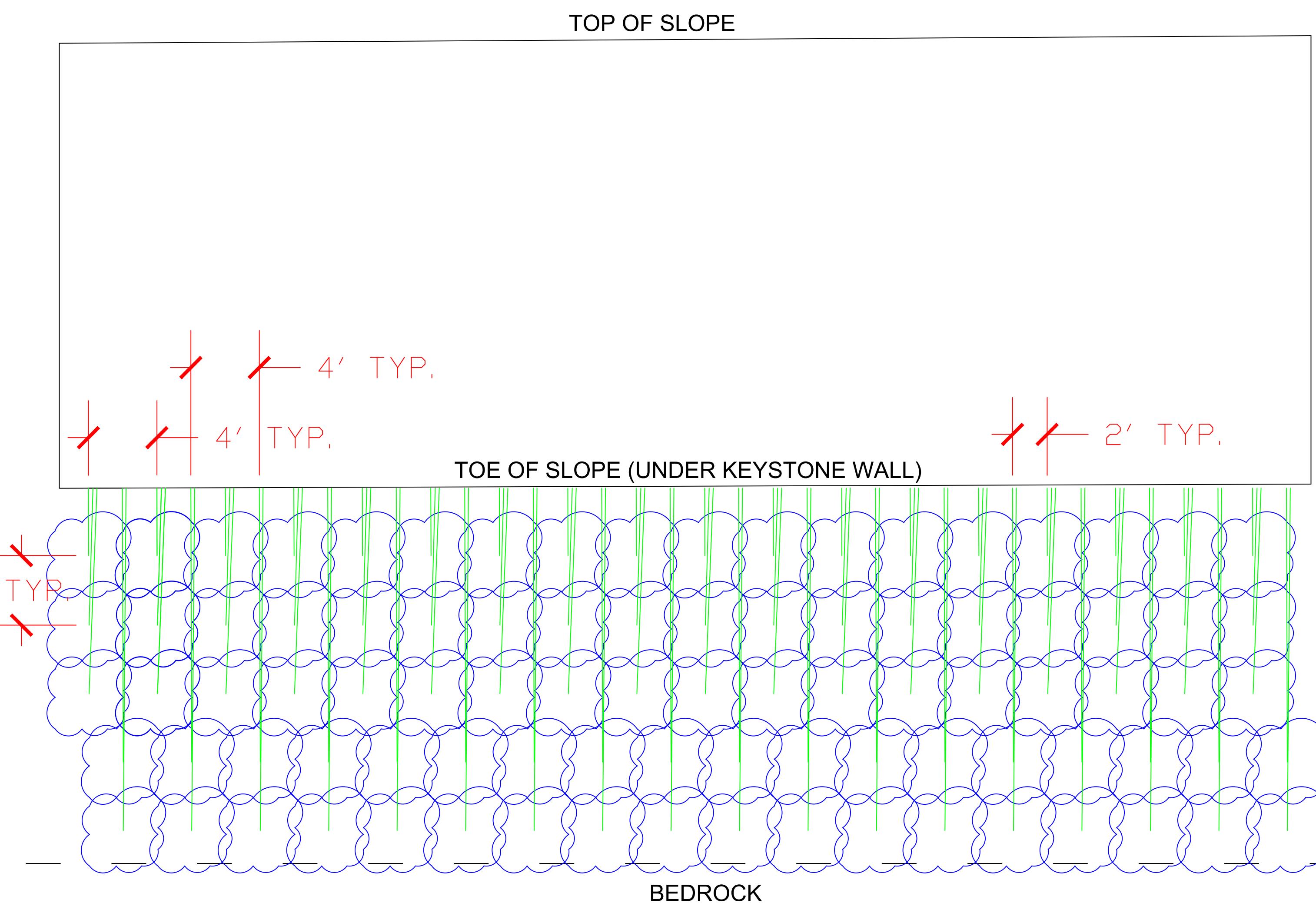
SLAB INJ. (3 DEPTHS)

PER. INJ. (6 DEPTHS)



LEGEND:

- 4'-0" AND 8'-0" INJECTIONS
- 12'-0" AND 16'-0" INJECTIONS



SLOPE SOIL IMPROVEMENT  
ATRIA BRIDGE SLOPE STABILITY  
1545 PLEASANT HILL RD.  
LAFAYETTE, CA 94549

URETEK USA, INC.  
1925 E HIGHLAND COURT  
ONTARIO, CA 91764-1626  
PH: 909-816-4038

DATE:  
8-26-2023

DRAWN BY:  
K.O.

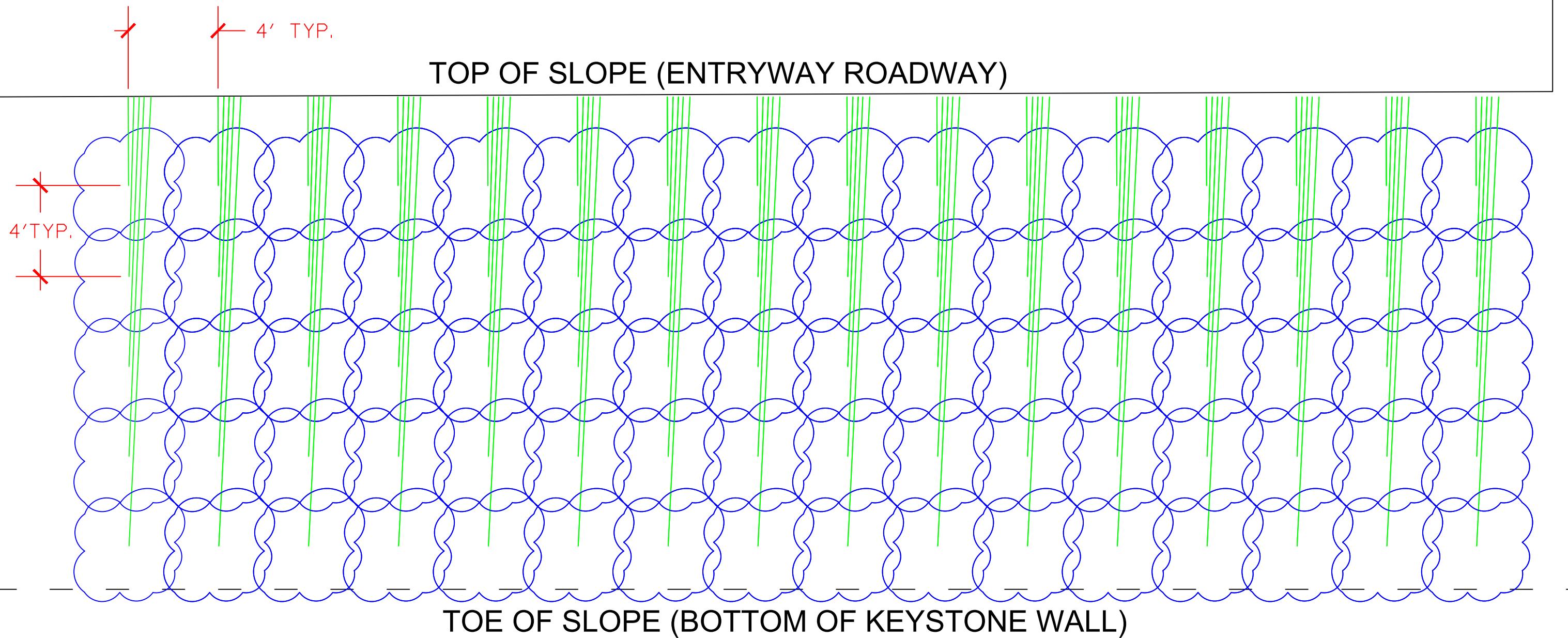
REV:

SHEET

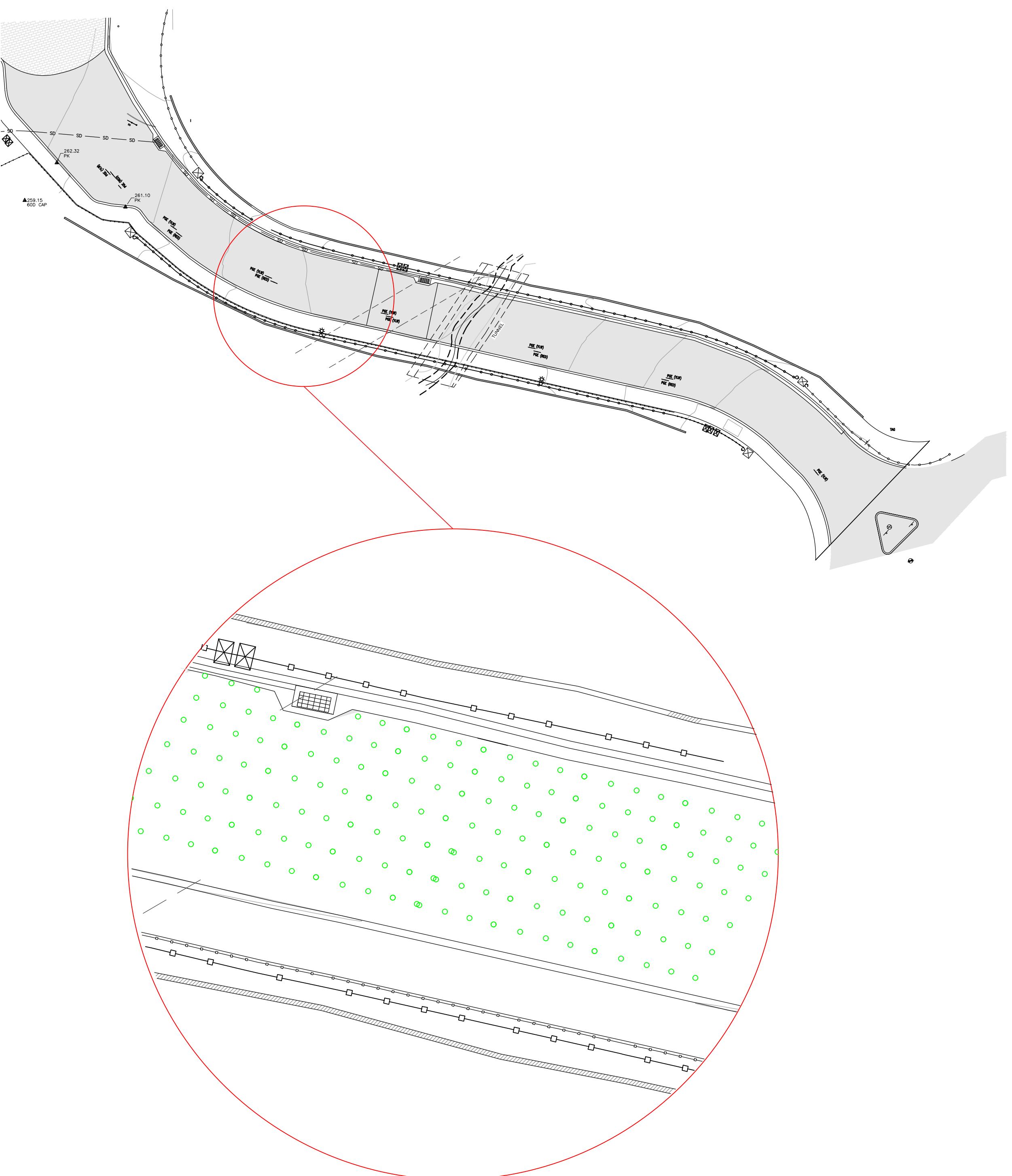
**U4**

## PROFILE VIEW

TOP OF SLOPE



## PLAN VIEW



## CULVERT INJECTION

ATRIA BRIDGE SLOPE STABILITY  
1545 PLEASANT HILL RD  
LAFAYETTE, CA 94549

## URETEK USA, INC.

1925 E HIGHLAND COURT  
ONTARIO, CA 91764-1626  
PH: 909-816-4038

DATE:  
8-26-2023

DRAWN BY:  
K.O.

### LEGEND

INJECTION TUBE

INJECTION INFLUENCE

SLAB INJ. (3 DEPTHS)

PER. INJ. (6 DEPTHS)

SHEET

**U5**

\*NOTE: DEPTH OF INJECTIONS REQUIRE ARE BASED ON BEDROCK DEPTH(S) NOTED IN GEO REPORT