

GENERAL GRADING NOTES:

- APPROVAL OF THIS GRADING PLAN DOES NOT CONSTITUTE APPROVAL OF VERTICAL OR HORIZONTAL ALIGNMENT OF ANY PRIVATE ROAD SHOWN HEREON FOR COUNTY ROAD PURPOSES.
- FINAL APPROVAL OF THESE GRADING PLANS IS SUBJECT TO FINAL APPROVAL OF THE ASSOCIATED IMPROVEMENT PLANS WHERE APPLICABLE. FINAL CURB GRADE ELEVATIONS MAY REQUIRE CHANGES IN THESE PLANS.
- IMPORT MATERIAL SHALL BE OBTAINED FROM A LEGAL SITE.
- A CONSTRUCTION, EXCAVATION OR ENCROACHMENT PERMIT FROM THE DEPARTMENT OF PUBLIC WORKS WILL BE REQUIRED FOR ANY WORK IN THE COUNTY RIGHT-OF-WAY.
- ALL SLOPES OVER THREE FEET IN HEIGHT WILL BE PLANTED IN ACCORDANCE WITH SAN DIEGO COUNTY SPECIFICATIONS.
- THE CONTRACTOR SHALL VERIFY THE EXISTENCE AND LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK. NOTICE OF PROPOSED WORK SHALL BE GIVEN TO THE FOLLOWING AGENCIES:

PHONE NUMBER  
SAN DIEGO GAS & ELECTRIC 800-227-2600  
AT & T 800-288-2020  
CATV (AGENCY NAME) 888-892-2253  
COUNTY SANITATION DISTRICT 619-660-2007  
SWEETWATER AUTHORITY 619-409-6751

- A SOILS REPORT MAY BE REQUIRED PRIOR TO THE ISSUANCE OF A BUILDING PERMIT.
- APPROVAL OF THESE PLANS BY THE DIRECTOR OF PUBLIC WORKS DOES NOT AUTHORIZE ANY WORK OR GRADING TO BE PERFORMED UNTIL THE PROPERTY OWNERS PERMISSION HAS BEEN OBTAINED AND VALID GRADING PERMIT HAS BEEN ISSUED.
- THE DIRECTOR OF PUBLIC WORKS APPROVAL OF THESE PLANS DOES NOT CONSTITUTE COUNTY BUILDING OFFICIAL APPROVAL OF ANY FOUNDATION FOR STRUCTURES TO BE PLACED ON THE AREA COVERED BY THESE PLANS. NO WAIVER OF THE GRADING ORDINANCE REQUIREMENTS CONCERNING MINIMUM COVER OVER EXPANSIVE SOIL IS MADE OR IMPLIED (SECTIONS 87.403 & 87.410). ANY SUCH WAIVER MUST BE OBTAINED FROM THE DIRECTOR OF PLANNING AND DEVELOPMENT SERVICES.
- ALL OPERATIONS CONDUCTED ON THE PREMISES, INCLUDING THE WARMING UP, REPAIR, ARRIVAL, DEPARTURE OR RUNNING OF THE TRUCKS, EARTHMOVING EQUIPMENT, CONSTRUCTION EQUIPMENT AND ANY OTHER ASSOCIATED GRADING EQUIPMENT SHALL BE LIMITED TO THE PERIOD BETWEEN 7:00 AM AND 6:00 PM EACH DAY, MONDAY THROUGH SATURDAY, AND NO EARTHMOVING OR GRADING OPERATIONS SHALL BE CONDUCTED ON THE PREMISES ON SUNDAYS OR HOLIDAYS.
- ALL MAJOR SLOPES SHALL BE ROUNDED INTO EXISTING TERRAIN TO PRODUCE A CONTOURED TRANSITION FROM CUT TO FILL FACES TO NATURAL GROUND AND ABUTTING CUT OR FILL SURFACES.
- NOTWITHSTANDING THE MINIMUM STANDARDS SET FORTH IN THE GRADING ORDINANCE AND NOTWITHSTANDING THE APPROVAL OF THESE GRADING PLANS, THE PERMITTEE IS RESPONSIBLE FOR THE PREVENTION OF DAMAGE TO ADJACENT PROPERTY. NO PERSON SHALL EXCAVATE ON LAND SO CLOSE TO THE PROPERTY LINE AS TO ENDANGER ANY ADJOINING PUBLIC STREET, SIDEWALK, ALLEY, FUNCTION OF ANY SEWAGE DISPOSAL SYSTEM, OR ANY OTHER PUBLIC OR PRIVATE PROPERTY WITHOUT SUPPORTING AND PROTECTING SUCH PROPERTY FROM SETTLING, CRACKING, EROSION, SILTING, SCOUR OR OTHER MIGHT RESULT FROM THE GRADING DESCRIBED ON THIS PLAN. THE COUNTY WILL HOLD THE PERMITTEE RESPONSIBLE FOR THE CORRECTION OF NON-DEDICATED IMPROVEMENTS WHICH DAMAGE ADJACENT PROPERTY.
- SLOPE RATIOS:  
CUT - 1 1/2:1 FOR MINOR SLOPES (SLOPES <15'), 2:1 FOR MAJOR SLOPES.  
FILL - 2:1  
EXCAVATION: 2,700 C.Y. FILL: 14,300 C.Y. IMPORT 11,600 C.Y.

- SPECIAL CONDITION: IF ANY ARCHEOLOGICAL RESOURCES ARE DISCOVERED ON THE SITE DURING GRADING OPERATIONS, SUCH OPERATIONS WILL CEASE IMMEDIATELY, AND THE PERMITTEE WILL NOTIFY THE DIRECTOR OF PUBLIC WORKS OF THE DISCOVERY. GRADING OPERATIONS WILL NOT RESUME UNTIL THE PERMITTEE HAS RECEIVED WRITTEN AUTHORITY FROM THE DIRECTOR OF PUBLIC WORKS TO DO SO.

- PERMANENT POST-CONSTRUCTION BMP DEVICES SHOWN ON PLAN SHALL NOT BE REMOVED OR MODIFIED WITHOUT THE APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.

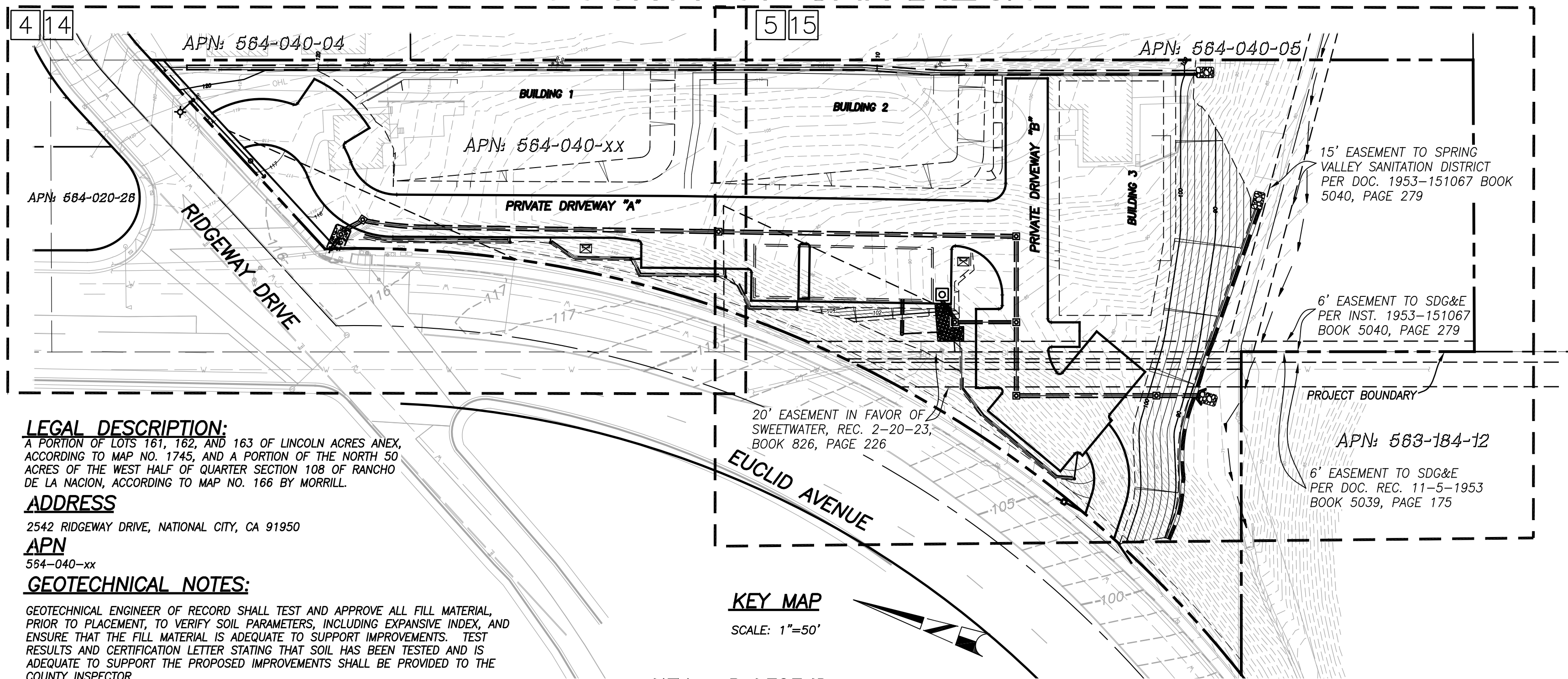
- THE APPLICANT IS RESPONSIBLE FOR THE ROAD MAINTENANCE (SWEEPING AS NECESSARY) AND REPAIRS OF ANY DAMAGE CAUSED BY THEM TO THE ON-SITE AND OFF-SITE COUNTY MAINTAINED OR PRIVATE ROADS THAT SERVE THE PROPERTY EITHER DURING CONSTRUCTION OR SUBSEQUENT OPERATIONS. THE APPLICANT WILL REPAIR THOSE PORTIONS OF THE ROUTE THAT WOULD BE DAMAGED BY THE HEAVY LOADS THAT LOADED TRUCKS PLAN ON THE ROUTE IDENTIFIED.

- FINAL APPROVAL OF THIS GRADING PLAN IS SUBJECT TO FINAL APPROVAL OF THE ASSOCIATED IMPROVEMENT PLANS WHERE APPLICABLE. FINAL CURB GRADE ELEVATIONS MAY REQUIRE CHANGE TO THESE PLANS.

- THE ENGINEER-OF-WORK SHALL COMPLY WITH ALL PROJECT APPLICABLE LAWS THAT INCLUDE, BUT ARE NOT LIMITED TO, HEALTH SAFETY, AND ENVIRONMENTAL LAWS, ORDINANCES, AND REGULATIONS RELATING TO THE COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, AND U.S. FEDERAL GOVERNMENT. THE PROJECT IS SUBJECT TO ENFORCEMENT UNDER PERMITS FROM THE SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD (RWQCB) AND THE COUNTY OF SAN DIEGO WATERSHED PROTECTION, STORMWATER MANAGEMENT, AND DISCHARGE CONTROL ORDINANCE NO. 10410, COUNTY OF SAN DIEGO HYDRAULIC DESIGN MANUAL, AND ALL OTHER APPLICABLE ORDINANCES AND STANDARDS FOR THE LIFE OF THIS PERMIT. THE PROJECT SITE SHALL BE IN COMPLIANCE WITH ALL APPLICABLE STORMWATER REGULATIONS REFERENCED ABOVE AND ALL OTHER APPLICABLE ORDINANCES AND STANDARDS. THIS INCLUDES COMPLIANCE WITH THE APPROVED STORM WATER QUALITY MANAGEMENT PLAN (SWQMP). ALL REQUIREMENTS FOR LOW IMPACT DEVELOPMENT (LID), HYDROMODIFICATION, DETENTION FACILITIES, MATERIALS, AND WASTES CONTROL, EROSION CONTROL, AND SEDIMENT CONTROL ON THE PROJECT SITE.

- THE ISSUANCE OF THIS PERMIT/APPROVAL BY THE COUNTY OF SAN DIEGO DOES NOT AUTHORIZE THE APPLICANT FOR THE PERMIT/APPROVAL TO VIOLATE ANY FEDERAL, STATE OF COUNTY LAWS, ORDINANCES, REGULATIONS, OR POLICIES INCLUDING, BUT NOT LIMITED TO, THE FEDERAL ENDANGERED SPECIES ACT, GRADING AND/OR FURTHER DEVELOPMENT ARE PROHIBITED WITHIN THE AREAS DESIGNATED "LIMITS OF JURISDICTIONAL HABITAT" UNTIL FEDERAL PERMITS AND STATE PERMITS (IF ANY) HAVE BEEN ACQUIRED.

# GRADING AND PRIVATE IMPROVEMENT PLANS FOR: 2542 RIDGEWAY DRIVE COUNTY OF SAN DIEGO



LEGAL DESCRIPTION:

A PORTION OF LOTS 181, 182, AND 163 OF LINCOLN ACRES ANEX, ACCORDING TO MAP NO. 1745, AND A PORTION OF THE NORTH 50 ACRES OF THE WEST HALF OF QUARTER SECTION 108 OF RANCHO DE LA NACION, ACCORDING TO MAP NO. 166 BY MORRILL.

ADDRESS

2542 RIDGEWAY DRIVE, NATIONAL CITY, CA 91950

APN

564-040-xx

GEOTECHNICAL NOTES:

GEOTECHNICAL ENGINEER OF RECORD SHALL TEST AND APPROVE ALL FILL MATERIAL PRIOR TO PLACEMENT, TO VERIFY SOIL PARAMETERS, INCLUDING EXPANSIVE INDEX, AND ENSURE THAT THE FILL MATERIAL IS ADEQUATE TO SUPPORT IMPROVEMENTS. TEST RESULTS AND CERTIFICATION LETTER STATING THAT SOIL HAS BEEN TESTED AND IS ADEQUATE TO SUPPORT THE PROPOSED IMPROVEMENTS SHALL BE PROVIDED TO THE COUNTY INSPECTOR.

PURSUANT TO COUNTY GRADING ORDINANCE SECTION 87.420 THE GEOTECHNICAL ENGINEER OF RECORD AND THE CIVIL ENGINEER OF RECORD SHALL SUPERVISE GRADING OPERATIONS AND SHALL COMPLY WITH THE REPORTING REQUIREMENTS OF COUNTY OF SAN DIEGO GRADING ORDINANCE SECTIONS 87.421 TO 87.430.

NOTES: IMPORT/EXPORT Q>1,000 CY

PRIOR TO BEGINNING OF GRADING, SUBMIT A TRAFFIC CONTROL PLAN AND HAUL ROUTE PLAN TO TRAFFIC DIVISION, DEPARTMENT OF PUBLIC WORKS (DPW) FOR APPROVAL INCLUDING:

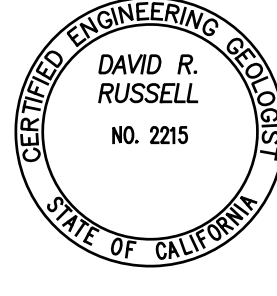
- SPECIFIC TRUCK TRAVEL ROUTES
- ANTICIPATED LENGTH OF GRADING PERIOD INVOLVING THE NEED FOR TRUCK IMPORTS OF SOIL
- TIME OF OPERATIONS.
- EXISTING CONDITIONS OF THE IMPACTED ROAD AREAS - INCLUDING TRAFFIC AND ROAD CONDITIONS.
- TRAFFIC SAFETY INCLUDING SAFETY TO RESIDENTS ON FOOT, ON BICYCLE AND IN VEHICLES, AND POSSIBLE MITIGATION FOR AVOIDANCE OF SIGNIFICANT PEAK HOUR TRAFFIC AT CERTAIN INTERCHANGES.
- INTERCHANGE GEOMETRY TO DETERMINE IF IT WILL ALLOW SAFE USE BY THE TRUCKS.

SOIL ENGINEERING CERTIFICATION

THESE GRADING PLANS HAVE BEEN REVIEWED BY THE UNDERSIGNED AND FOUND TO BE IN CONFORMANCE WITH THE RECOMMENDATIONS AS OUTLINED IN OUR SOILS AND GEOTECHNICAL REPORT FOR THIS PROJECT. THE SOILS REPORT SHALL BE CONSIDERED PART OF THIS PLAN AND ALL GRADING WORK SHALL BE DONE IN ACCORDANCE WITH THE SPECIFICATION AND RECOMMENDATIONS OF SAID REPORTS:

- REVIEW OF PLANS AND SPECIFICATIONS, KRAZAN & ASSOCIATES PROJECT NO. 112-20017 DATED SEPTEMBER 17, 2021
- UPDATED GEOTECHNICAL ENGINEERING INVESTIGATION, KRAZAN & ASSOCIATES PROJECT NO. 112-20017 DATED OCTOBER 25, 2021
- RETAINING WALL GLOBAL SLOPE STABILITY ANALYSIS, KRAZAN & ASSOCIATES PROJECT NO. 112-20017 DATED OCTOBER 25, 2021
- CHANGE OF GEOTECHNICAL ENGINEER OF RECORD AND UPDATE, CHRISTIAN WHEELER ENGINEERING PROJECT NO. CWE 2210655.01R DATED DECEMBER 17, 2021.

RGE NO.: 2748 DATE: EXP.:  
CEG NO.: 2215 DATE: EXP.:



KEY MAP

SCALE: 1"=50'

KEY MAP LEGEND

BOUNDARY	---
SHEET NUMBER	3
SHEET LIMITS	---
PVT. STORM DRAIN	==
PVT. SD CLEANOUT/INLET	⊠

SHEET INDEX

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SHEET 13	POST CONSTRUCTION BMP PLAN SWQMP DMA/SITE PLAN
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PDS ENVIRONMENTAL NOTES:

THE ISSUANCE OF THIS PERMIT/APPROVAL BY THE COUNTY OF SAN DIEGO DOES NOT AUTHORIZE THE APPLICANT FOR SAID PERMIT/APPROVAL TO VIOLATE ANY FEDERAL, STATE, OR COUNTY LAWS, ORDINANCES, REGULATIONS, OR POLICIES INCLUDING, BUT NOT LIMITED TO, THE FEDERAL ENDANGERED SPECIES ACT AND ANY AMENDMENTS THERETO.

MONUMENTATION GENERAL NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE TO LOCATE AND PROTECT ALL SURVEY CONTROL MONUMENTS, WHETHER SHOWN ON THESE PLANS OR NOT, WITHIN THE PROJECT AREA. ALL SURVEY MONUMENTS, WHETHER FOR HORIZONTAL OR VERTICAL CONTROL, THAT WILL OR COULD BE DISTURBED OR REMOVED BY THE CONTRACTOR, OR HIS EMPLOYEES, AGENTS, SUBCONTRACTORS, CONSULTANT OR LICENSEES, SHALL BE LOCATED PRIOR TO BEING DISTURBED OR REMOVED AND REPLACED OR RESET, IN ACCORDANCE WITH THE CALIFORNIA BUSINESS & PROFESSIONS CODE SECTION 8771(b), AT THE CONTRACTOR'S SOLE EXPENSE. UNDER THE SUPERVISION OF A LICENSED LAND SURVEYOR OR REGISTERED CIVIL ENGINEER AUTHORIZED TO PRACTICE LAND SURVEYING IN THE STATE OF CALIFORNIA, IN ADDITION, A RECORD OF SURVEY OR CORNER RECORD, AS APPLICABLE, SHALL BE FILED AND/OR RECORDED, IN ACCORDANCE WITH PROVISIONS OF SAID CODE.

CONSTRUCTION NOTE:

PRIOR TO COMMENCING CONSTRUCTION OF RETAINING WALLS ALONG THE EUCLID AVENUE PROJECT FRONTAGE AND ALONG THE SLOPE AT THE SOUTHERN LIMITS OF THE PROJECT SITE THE CONTRACTOR SHALL SUBMIT TO THE COUNTY INSPECTOR A TEMPORARY SHORING PLAN WITH STRUCTURAL CALCULATIONS TO THE COUNTY INSPECTOR. SAID PLAN AND CALCULATIONS REPORT SHOULD CONTAIN A DECLARATION OF RESPONSIBLE CHARGE, SIGNED AND STAMPED BY A CALIFORNIA REGISTERED CIVIL ENGINEER, AND REFERENCE PROJECT GEO-TECHNICAL REPORT REGARDING GEO-TECHNICAL DESIGN PARAMETERS.

STORMWATER STRUCTURAL POLLUTANT CONTROL & HYDROMODIFICATION CONTROL BMPS				
DESCRIPTION/TYPE	PLAN SHEET	BMP ID#	MAINTENANCE CATEGORY	MAINTENANCE AGREEMENT RECORDED DOC #
DMA #1 FILTERRA BIOSCAPE BIOFILTRATION	13	1	CATEGORY 1	
STORM DRAIN DETENTION	13	2	CATEGORY 1	

BMPS APPROVED AS A PART OF THIS STORMWATER QUALITY MANAGEMENT PLAN (SWQMP) DATED 11/9/2022 ON FILE WITH THE DPW. ANY CHANGES TO THE ABOVE BMPS WILL REQUIRE SWQMP REVISION AND PLAN CHANGE APPROVALS.



SEWER AGENCY

SAN DIEGO COUNTY SANITATION DISTRICT  
SPRING VALLEY SERVICE AREA

APPROVED BY: DATE:  
VALID FOR ONE YEAR FROM DATE SIGNED

NOTE: PROPOSED PRIVATE SEWER, WATER AND FIRE PER PRIVATE SEPARATE PERMIT NO.

NOTE: NEW WATER FACILITIES FOR THIS PROJECT SHALL BE SHOWN ON THE AUTHORITY'S WATER MAIN EXTENSION PLANS UNDER A SEPARATE PERMIT TO BE OBTAINED BY THE AUTHORITY.

WORK TO BE DONE:

IMPROVEMENTS CONSIST OF THE FOLLOWING WORK TO BE DONE ACCORDING TO THESE PLANS, THE CURRENT COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS STANDARD SPECIFICATIONS FOR IMPROVEMENT OF SUBDIVISION STREETS AND STANDARD REFERENCE DRAWINGS AND THE SAN DIEGO AREA REGIONAL STANDARD DRAWINGS AND SWEETWATER AUTHORITY DESIGN STANDARDS AND STANDARD SPECIFICATIONS FOR CONSTRUCTION OF WATER FACILITIES.

STANDARD DRAWINGS:

- CALTRANS STANDARD PLANS AND STANDARD SPECIFICATIONS (2018)
- CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (CA MUTCD) (2014)
- SAN DIEGO COUNTY DESIGN STANDARDS (OCTOBER 2012)
- SAN DIEGO REGIONAL STANDARD DRAWINGS (2018)
- GREEN STREETS STANDARD DRAWINGS, COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS (OCT 2019)
- COUNTY OF SAN DIEGO STREET LIGHTING SPECIFICATIONS - REVISED JANUARY 2020
- PUBLIC WATER SYSTEM IMPROVEMENTS SHALL BE INSTALLED IN ACCORDANCE WITH THE SWEETWATER AUTHORITY DESIGN STANDARDS AND STANDARD SPECIFICATIONS FOR CONSTRUCTION OF WATER FACILITIES

LEGEND

	STD. DWG. NO.	SYMBOL
PROPERTY LINE		---
EXISTING CONTOURS		600
PROPOSED FINISH CONTOURS		600
CUT SLOPE (2:1 MAXIMUM)		Y Y Y
FILL SLOPE (2:1 MAXIMUM)		Y Y Y
CUT AND FILL LINE (DAYLIGHT)		6
EXISTING FINISH SURFACE ELEVATIONS		(600.00)
FLOW LINE ELEVATIONS		600.00
TOP OF CURB		600.00
FINISH GRADE ELEVATIONS		600.00
AC PAVEMENT (PAVEMENT SECTION PER SOIL ENGINEER'S RECOMMENDATION)		27,000 S.F.
6" CURB AND GUTTER	G-2	790 L.F.
6" CURB	G-1	470 L.F.
4" MODIFIED ROLLED CURB	SEE DETAIL SHEET 2	355 L.F.
0" HEADER	SEE DETAIL SHEET 2	145 L.F.
CROSS GUTTER	G-12	450 S.F.
RIBBON GUTTER	SEE DETAIL SHEET 2	800 S.F.
18" HDPE STORM DRAIN	SDRSD D-60, D-61 (AGGREGATE TO SPRINGLINE)	9 L.F.
24" HDPE STORM DRAIN	SDRSD D-60, D-61 (AGGREGATE TO SPRINGLINE)	600 L.F.
PVT. MOD. TYPE A7X7 CLEANOUT	SDRSD D-9, D-11 & DETAIL SHT. 13	1 EA.
PVT. TYPE A4 CLEANOUT	SDRSD D-9, D-11	6 EA.
WING HEADWALL	D-34	1 EA.
SIDEWALK UNDERDRAIN	PER DETAIL SHT. 2 (GS-5.04a)	1 EA.
DRAINAGE DITCH	PER DETAIL SHT. 2	1,100 L.F.
PVT INLET TYPE 1 & 3" UNDERDRAIN	SEE DETAIL SHEET 2 & D-27	6 EA.
BIOSCAPE BASIN	SEE DETAIL SHEET 13	550 S.F.
GUARD RAIL	PER CALTRANS DETAIL A77L1	30 L.F.
MODULAR DETENTION VAULT	SEE DETAIL SHEET 13	16,800 C.F.
TYPE 1 RIPRAP ENERGY DISSIPATER	RSD D-40	10 C.Y.
RETAINING WALL	STRUCTURAL DETAIL PER SHEETS 7-11	36,000 S.F.
24" WIDE DRIVEWAY	G-14A	2 EA.
4" SIDEWALK	G-7	5,120 S.F.
PVT. 8" PVC SEWER MAIN	SDRSD SP-02	400 L.F.
PVT. SEWER MANHOLE (48" DIA)	SDRSD SM-01, SM-03, SM-04	5 EA.
PVT. 6" SEWER LATERAL W/CO	SDRSD SC-01 - TYPE B, SP-01, SS-01 OR SS-02, SS-03	3 EA.
PVT. PVC WATER MAIN- POTABLE (SIZE PER PLAN)	SWA 16	580 L.F.
PVT. PVC FIRE MAIN- (SIZE PER PLAN)	SWA 16	630 L.F.
PVT. 6" FIRE HYDRANT	SWA 7 & 8	3 EA.
INSTALL NEW SWA 8" WELDED STEEL WATER MAIN	SWA 16 & 24	160 L.F.
2" WATER SERVICE	SWA 2 & SWA 4A	
1" WATER SERVICE	SWA 1, SWA 3 & SWA 4A	
8" FIRE SERVICE	SWA 26	
1" TO 2" BACKFLOW	SWA 15B	
>2"-10" BACKFLOW	SWA 15A AND 15C	
TRANSFORMER	PER SEPARATE PERMIT	
EXISTING:		
EXIST. PUBLIC SEWER MAIN		
EXIST. PUBLIC WATER MAIN		
EXIST. WATER SERVICE		
EXIST. 2" GAS MAIN		
EXISTING UTILITY POLE		
EXISTING OVERHEAD POWER LINES		

PERMITS

LANDSCAPE PERMIT NO. PDS2022-LP-22-024  
W.D.I.D. NO. 9 37C398915 RISK LEVEL 1  
WASTE WATER PERMIT NO. DPW2021-WWSWCP-00064  
IMPROVEMENT PLAN NO.

BENCHMARK

DESCRIPTION: CITY OF SAN DIEGO BENCHMARK NO. 16070  
LOCATION: BRASS PLUG IN TOP OF NORTHEAST CURB  
RETURN AT INTERSECTION OF RACHEL AVE.  
AND ROANOKE ST.  
RECORD FROM: CITY OF SAN DIEGO  
ELEVATION: 167.361 DATUM: NGVD-29

PRIVATE CONTRACT

SHEET 1 COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS 18 SHEET

GRADING PLANS FOR :

2542 RIDGEWAY DRIVE  
NATIONAL CITY, CA 91950  
CALIFORNIA COORDINATE INDEX 182-1743

APPROVED FOR: WILLIAM P. MORGAN  
COUNTY ENGINEER  
BY: DATE:  
ENGINEER OF WORK: WILLIAM LUNDSTROM  
EXP. 6-30-23 R.C.E. 61630  
GRADING PERMIT NO. PDS2020-LDGRW-30273

**Lundstrom**  
Engineering and Surveying, Inc.  
3333 Camino del Rio South, #330 • San Diego, CA 92108  
Phone (619) 814-1220 • Fax (619) 641-5910

Drawing: z:\proj\209-04\dwg\lp\209-04 gp-01.dwg Plot Date: 11/9/2022 12:39 PM

DPW2021-WWSWCP-00064

J.N. L209-04

ENGINEER'S NAME: LUNDSTROM ENGINEERING & SURVEYING



SPECIAL NOTES:

THE FOLLOWING NOTES ARE PROVIDED TO GIVE DIRECTION TO THE CONTRACTOR BY THE ENGINEER OF WORK. THE COUNTY ENGINEER'S SIGNATURE ON THESE PLANS DOES NOT CONSTITUTE APPROVAL OF THESE NOTES AND THE COUNTY WILL NOT BE RESPONSIBLE FOR THEIR ENFORCEMENT.

- CONTRACTOR AGREES THAT HE 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; THAT THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO INSURE THAT ALL SLOPES AND STORM RUNOFF FACILITIES INCLUDING BROW DITCHES, SWALES, AND OUTLET PIPES OF DESILTING BASINS ARE BUILT IN ACCORDANCE WITH THESE PLANS. THE CONTRACTOR SHALL ALSO TAKE THE NECESSARY STEPS TO PROTECT THE PROJECT AND ADJACENT PROPERTY FROM ANY EROSION AND SILTATION THAT RESULT FROM HIS OPERATIONS BY APPROPRIATE MEANS (GRAVEL BAGS, HAY BALES, TEMPORARY DESILTING BASINS, SILT FENCES, DIKES, SHORING, ETC.) UNTIL SUCH TIME THAT THE TOTAL PROJECT IS COMPLETED AND ACCEPTED FOR MAINTENANCE BY OWNER.
- NEITHER THE OWNER NOR THE ENGINEER OF WORK WILL ENFORCE SAFETY MEASURES OR REGULATIONS. THE CONTRACTOR SHALL DESIGN, CONSTRUCT AND MAINTAIN ALL SAFETY DEVICES, INCLUDING SHORING, AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATION.
- IF THERE IS ANY QUESTION REGARDING THESE PLANS OR FIELD STAKES, THE CONTRACTOR SHALL REQUEST AN INTERPRETATION BEFORE DOING ANY WORK BY CALLING THE ENGINEER OF WORK AT (619) 814-1220.
- WHERE TRENCHES ARE ADJACENT TO FUTURE BUILDING SITES, SOILS REPORTS SHALL BE SUBMITTED TO THE ENGINEER OF WORK BY A QUALIFIED SOILS ENGINEER WHICH CERTIFY THAT TRENCH BACKFILL WAS COMPACTED AS DIRECTED BY THE SOILS ENGINEER IN ACCORDANCE WITH THE ON-SITE EARTHWORK SPECIFICATIONS.
- BEFORE EXCAVATING FOR THIS CONTRACT, VERIFY LOCATION OF UNDERGROUND UTILITIES. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS HAS BEEN OBTAINED FROM AVAILABLE RECORDS ONLY AND MAY NOT REFLECT ALL EXISTING UTILITIES LOCATIONS OF ALL EXISTING UTILITIES SHALL BE CONFIRMED BY FIELD MEASUREMENTS BY CONTRACTOR PRIOR TO CONSTRUCTION OF WORK.
- CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN HEREON AND ANY OTHER EXISTING LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS.
- EXISTING UTILITIES SHOWN HEREON ARE BASED ON AVAILABLE RECORD INFORMATION. CONTRACTOR IS TO NOTIFY ENGINEER OF WORK OF ANY CONFLICTS OR ANY OTHER UTILITIES ENCOUNTERED PRIOR TO PROCEEDING WITH CONSTRUCTION.
- THE CONTRACTOR SHALL UNCOVER ALL UTILITIES THAT HE MAY BE JOINING, CROSSING, OR PARALLELING TO VERIFY BOTH HORIZONTAL AND VERTICAL LOCATION PRIOR TO ANY CONSTRUCTION. ANY CONFLICT OR DISCREPANCY SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO CONSTRUCTION. OTHERWISE THE CONTRACTOR ACCEPTS FULL RESPONSIBILITY FOR ANY ADDITIONAL CONSTRUCTION OR RELOCATION COSTS.
- CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF OTHER CONTRACTORS WORKING ON THE SITE, INCLUDING GRADING, DRAINAGE, LANDSCAPING AND IRRIGATION.
- CONTRACTOR WILL MAKE EXPLORATION EXCAVATIONS AND LOCATE EXISTING UNDERGROUND FACILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS IF REVISIONS ARE NECESSARY BECAUSE OF LOCATION OF EXISTING FACILITIES.
- CONTRACTOR SHALL NOTIFY SAN DIEGO GAS AND ELECTRIC COMPANY PRIOR TO STARTING WORK NEAR COMPANY FACILITIES AND SHALL COORDINATE HIS WORK WITH COMPANY REPRESENTATIVES.
- CONTRACTOR SHALL NOTIFY AT&T TELEPHONE COMPANY PRIOR TO STARTING WORK NEAR COMPANY FACILITIES AND SHALL COORDINATE HIS WORK WITH COMPANY REPRESENTATIVES.
- BEFORE EXCAVATING FOR THIS CONTRACT, VERIFY LOCATION OF UNDERGROUND UTILITIES, THE CONTRACTOR SHALL TELEPHONE FOR:  

UNDERGROUND SERVICE ALERT	(800) 422-4133
STREET DIVISION	(619) 527-7500
FACILITIES MAINTENANCE DIVISION (BUILDINGS)	(619) 525-8540
PARK & RECREATION DEPARTMENT (IRRIGATION)	(619) 235-1179
- CAUTION : THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

H.D.P.E. 48" DIAMETER AND SMALLER

PIPE SHALL BE BACKFILLED WITH CRUSHED ROCK IN ACCORDANCE WITH CITY OF SAN DIEGO STANDARD DRAWING SDD-110, TYPE C ROCK ENVELOPE, INCLUDING APPROPRIATE FILTER FABRIC LINING.

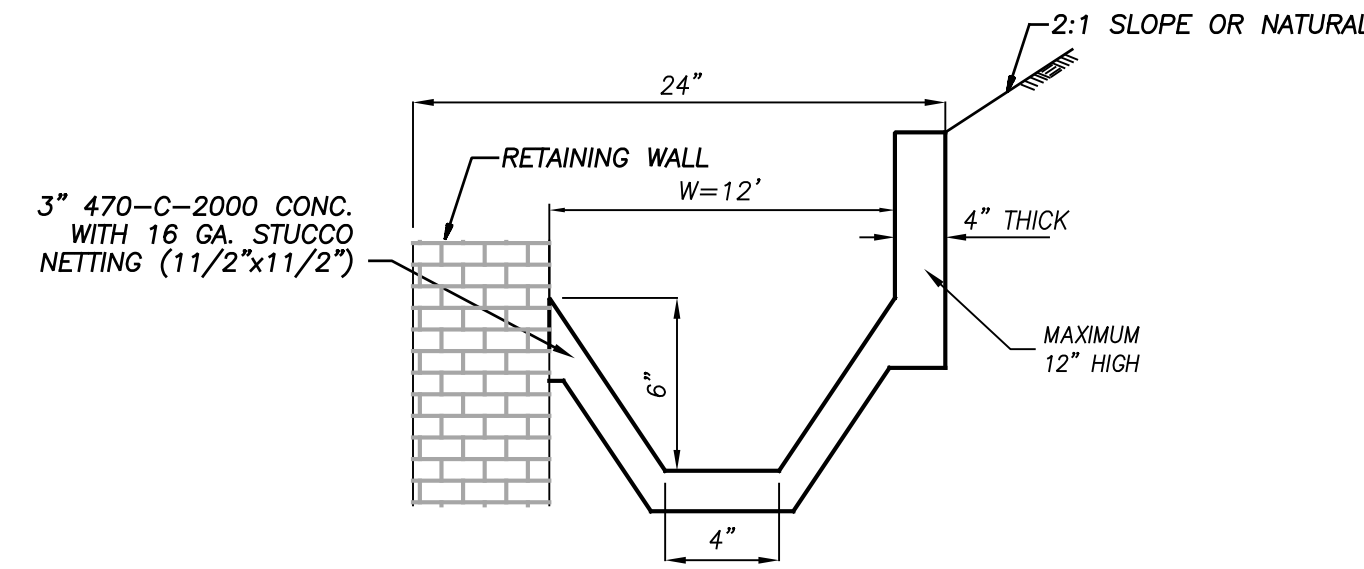
THE REMAINDER OF THE TRENCH SHALL BE BACKFILLED WITH THE SPECIFIED BACKFILL MATERIAL COMPACTED TO 90 PERCENT RELATIVE COMPACTION PER CALIFORNIA TEST METHOD 216, AS MODIFIED BY THE COUNTY OF SAN DIEGO OR ASTM D-1557, EXCEPT FOR THE PORTION IN THE PAVEMENT SUBGRADE, WHICH SHALL BE COMPACTED TO 95 PERCENT RELATIVE COMPACTION.

PIPE WITH LESS THAN 2 FEET OF COVER UNDER HIGHWAY LOADING SHALL BE CONCRETE-ENCASED IN ACCORDANCE WITH CITY OF SAN DIEGO STANDARD DRAWING SDD-110. THE PORTION ABOVE THE ENCASMENT SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THE PARAGRAPH ABOVE.

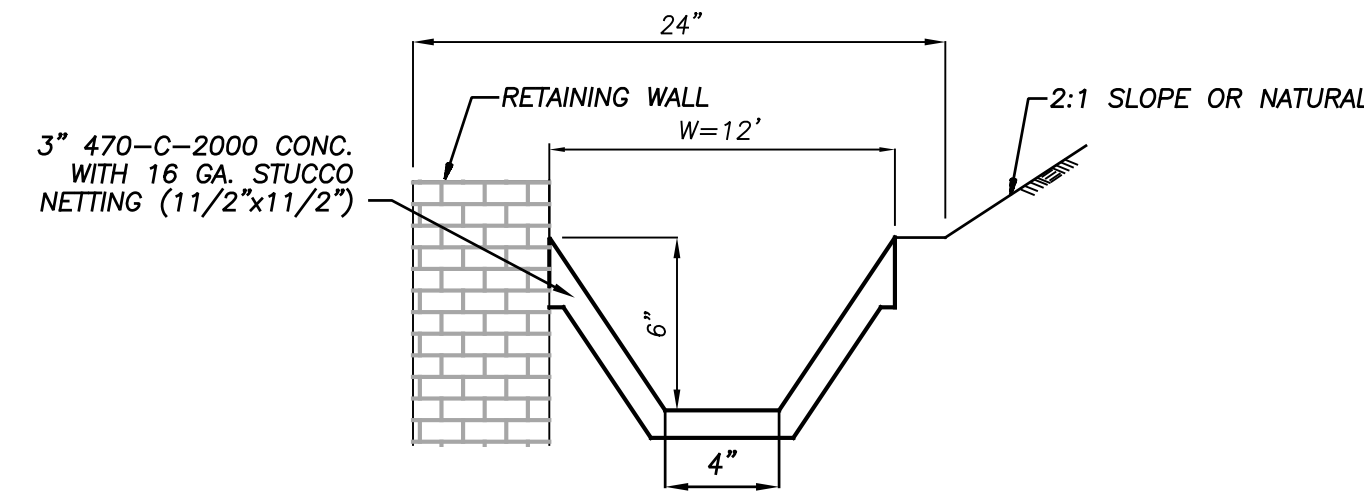
MAXIMUM PIPE COVER SHALL NOT EXCEED THE AMOUNT SPECIFIED IN THE CURRENT CALTRANS DESIGN MANUAL.

STORM WATER MANAGEMENT NOTES:

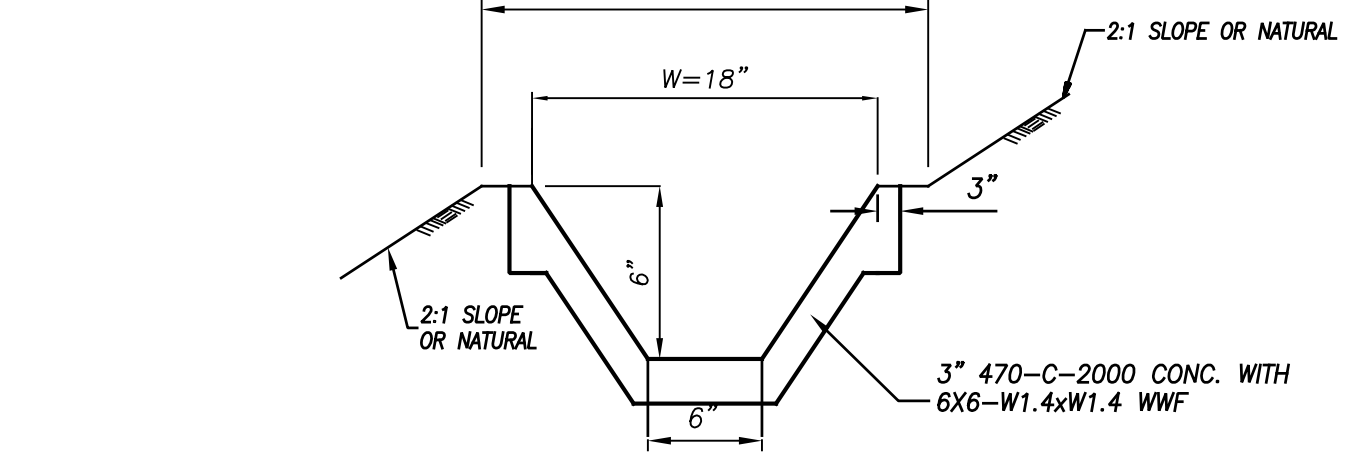
- DURING THE RAINY SEASON THE AMOUNT OF EXPOSED SOIL ALLOWED AT ONE TIME SHALL NOT EXCEED THAT WHICH CAN BE ADEQUATELY PROTECTED BY THE PROPERTY OWNER IN THE EVENT OF A RAINSTORM. 125% SHALL BE RETAINED ON THE JOB SITE IN A MANNER THAT ALLOWS FULL DEPLOYMENT AND COMPLETE INSTALLATION IN 48 HOURS OR LESS OF A FORECAST RAIN.
- NO AREA BEING DISTURBED SHALL EXCEED 50 ACRES AT ANY GIVEN TIME WITHOUT DEMONSTRATING TO THE SAN DIEGO COUNTY D.P.W. DIRECTOR'S SATISFACTION THAT ADEQUATE EROSION AND SEDIMENT CONTROL CAN BE MAINTAINED. ANY DISTURBED AREA THAT IS NOT ACTIVELY GRADED FOR 15 DAYS MUST BE FULLY PROTECTED FROM EROSION. UNTIL ADEQUATE LONG-TERM PROTECTIONS ARE INSTALLED, THE DISTURBED AREA SHALL BE INCLUDED WHEN CALCULATING THE ACTIVE DISTURBANCE AREA. ALL EROSION CONTROL MEASURES SHALL REMAIN INSTALLED AND MAINTAINED DURING ANY INACTIVE PERIOD.
- THE PROPERTY OWNER IS OBLIGATED TO ENSURE COMPLIANCE WITH ALL APPLICABLE STORM WATER REGULATIONS AT ALL TIMES. THE B.M.P.'S (BEST MANAGEMENT PRACTICES) THAT HAVE BEEN INCORPORATED INTO THIS PLAN SHALL BE IMPLEMENTED AND MAINTAINED TO EFFECTIVELY PREVENT THE POTENTIALLY NEGATIVE IMPACTS OF THIS PROJECT'S CONSTRUCTION ACTIVITIES ON STORM WATER QUALITY. THE MAINTENANCE OF THE B.M.P.'S IS THE PERMITEE'S RESPONSIBILITY, AND FAILURE TO PROPERLY INSTALL OR MAINTAIN THE B.M.P.'S MAY RESULT IN ENFORCEMENT ACTION BY THE COUNTY OF SAN DIEGO OR OTHERS. IF INSTALLED B.M.P.'S FAIL, THEY MUST BE REPAIRED OR REPLACED WITH AN ACCEPTABLE ALTERNATE WITHIN 24 HOURS, OR AS SOON AS SAFE TO DO SO.
- ON PROJECTS OF GREATER THAN ONE ACRE ADD THE FOLLOWING NOTE: A NOTICE OF INTENT (N.O.I.) HAS BEEN, OR WILL BE FILED WITH THE STATE WATER RESOURCES CONTROL BOARD (SWRCB) AND THAT A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) HAS BEEN OR WILL BE PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF CALIFORNIA GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY (PERMIT NO. CAS000002) FOR ALL OPERATIONS ASSOCIATED WITH THESE PLANS. THE N.O.I. NUMBER ASSIGNED BY SWRCB FOR THIS PROJECT IS: [VOID]



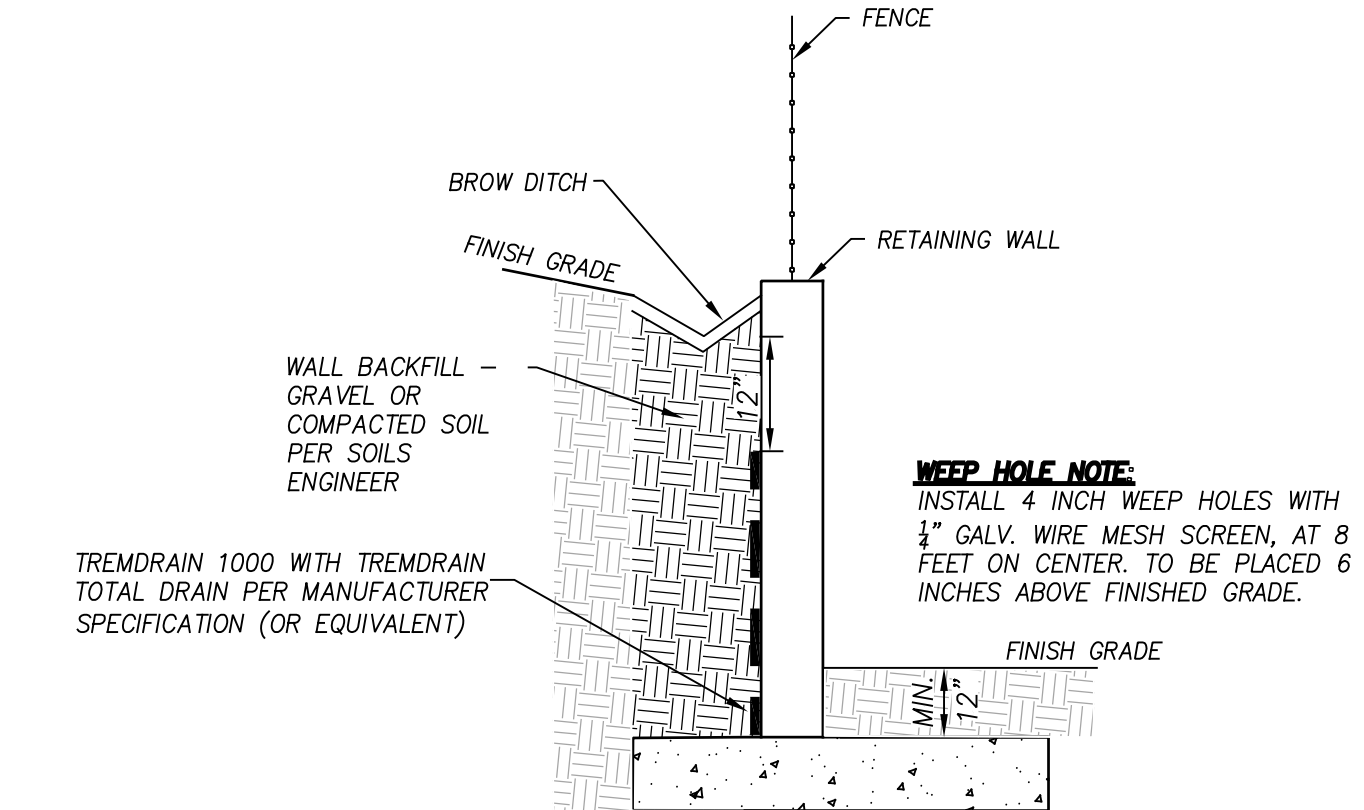
DETAIL: BROW DITCH BEHIND WALL W/ STEMWALL (PRIVATE)



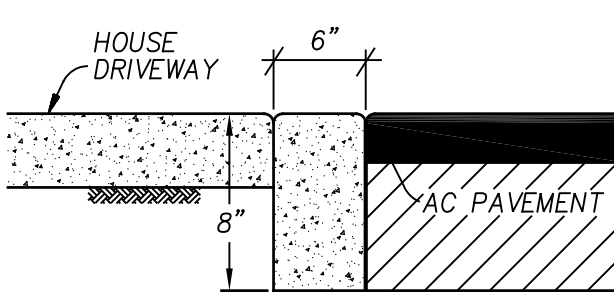
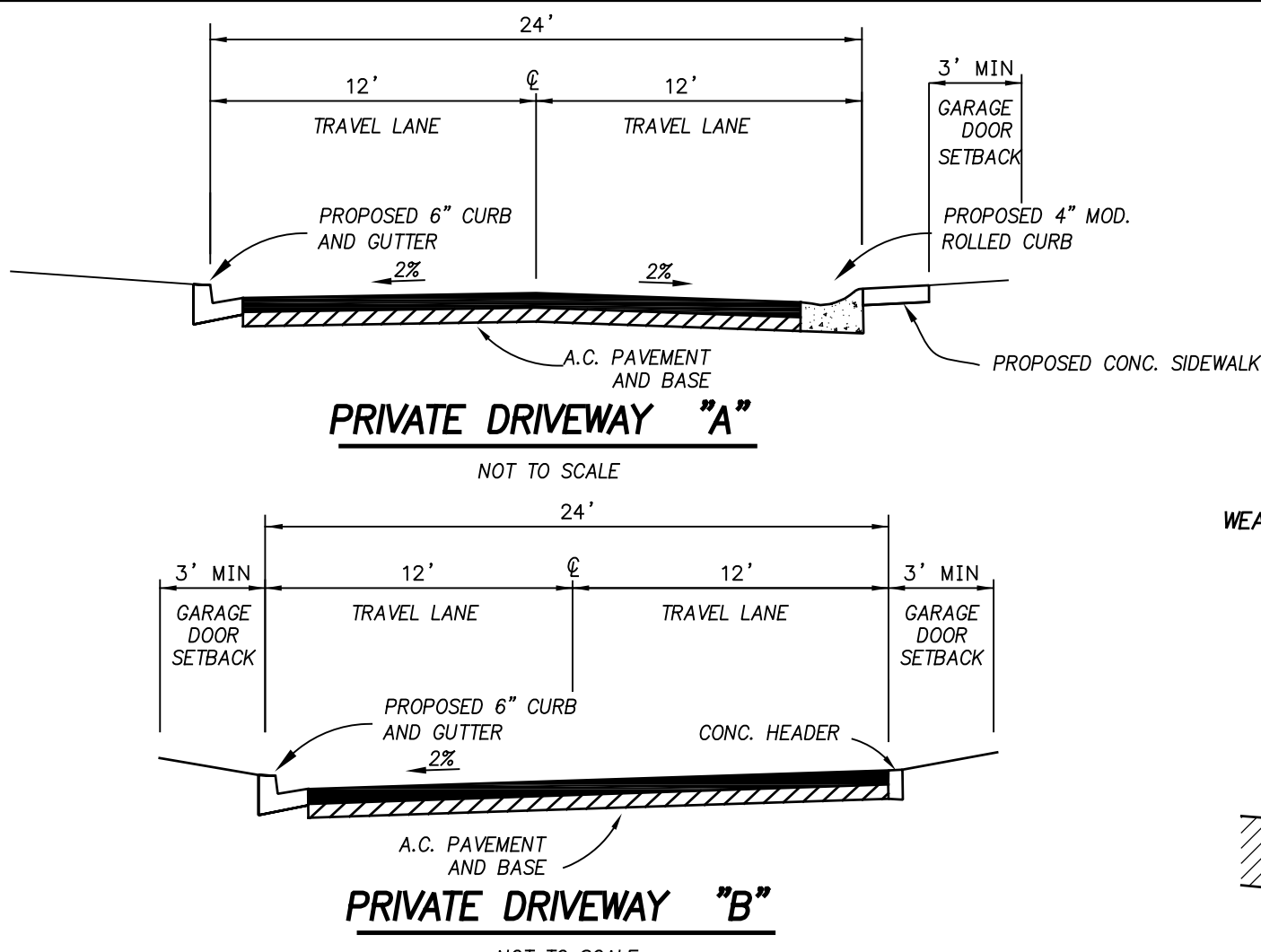
DETAIL: BROW DITCH BEHIND WALL (PRIVATE)



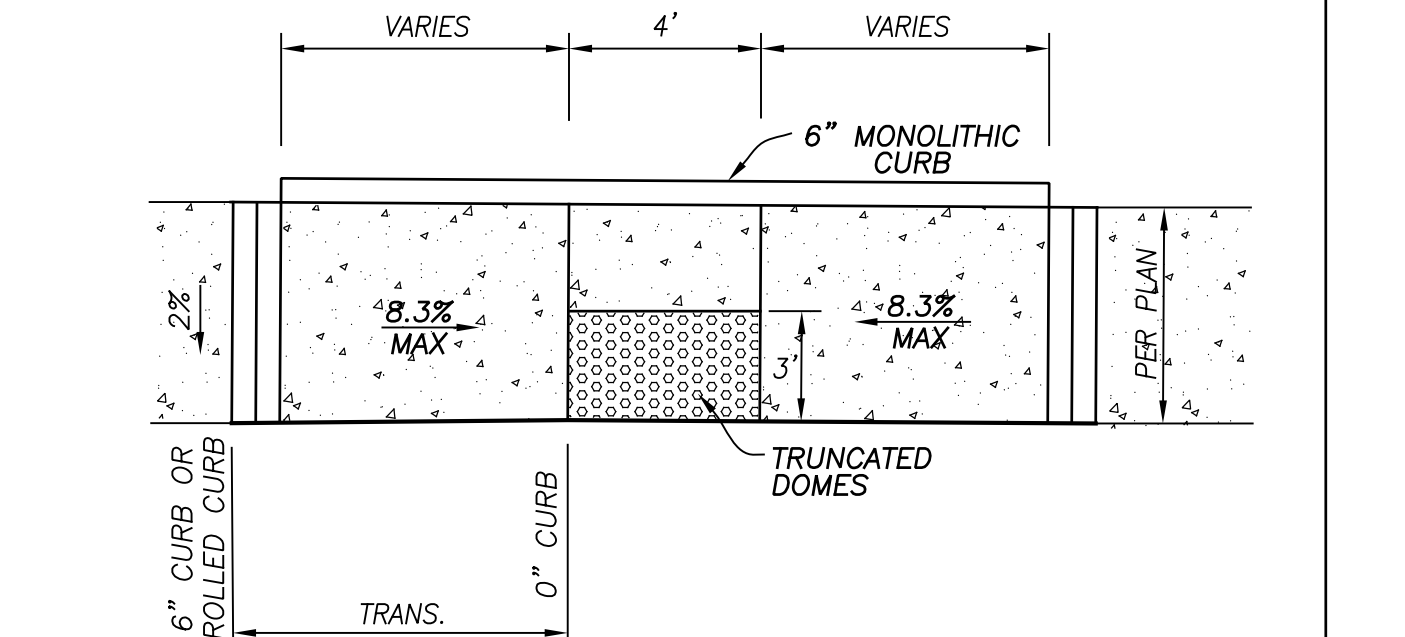
DETAIL: PVT. BROW DITCH (PRIVATE)



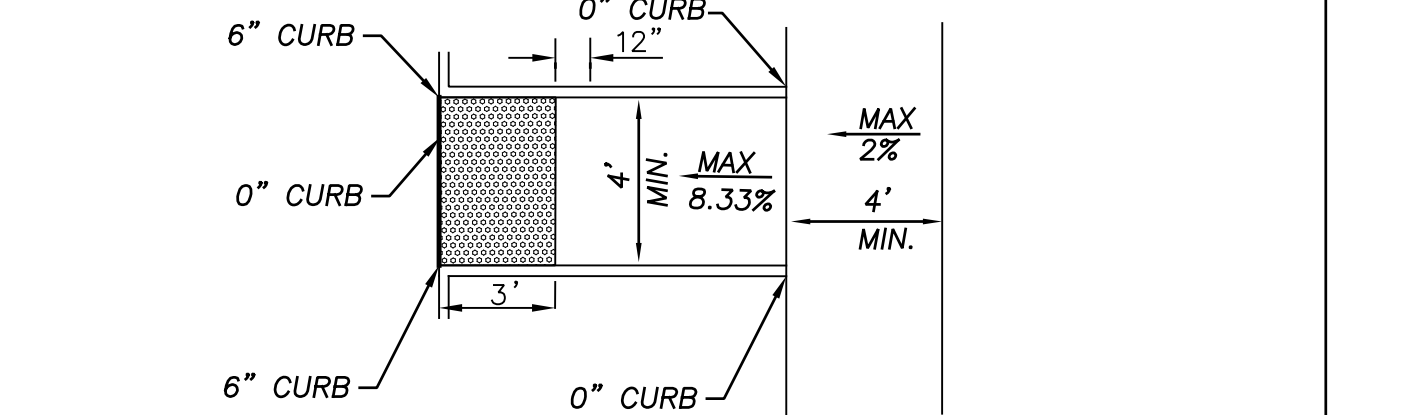
CMU RETAINING WALL DRAIN DETAIL



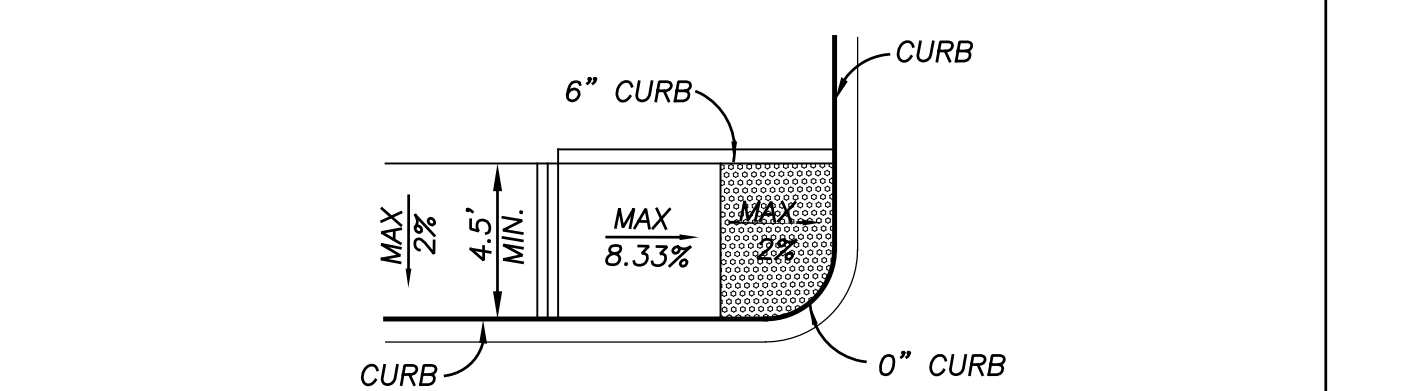
CONCRETE HEADER (PVT.)



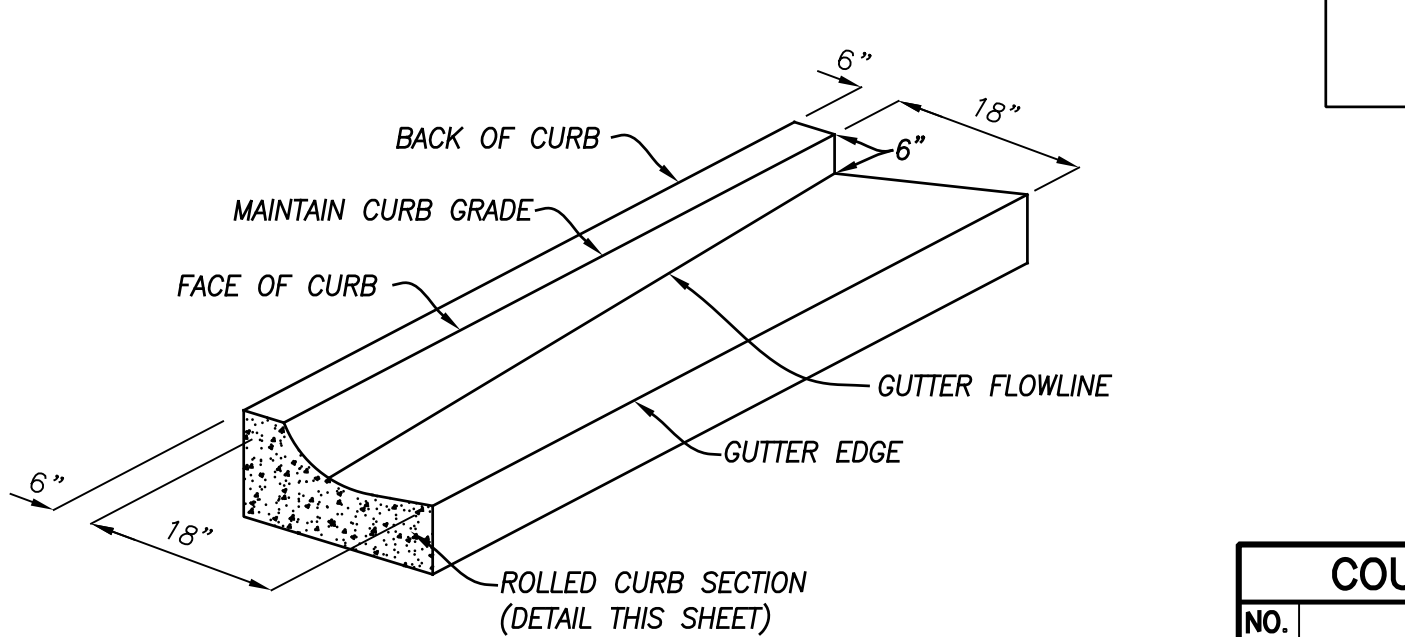
DETAIL 3: PEDESTRIAN RAMP TO SIDEWALK TRANSITION



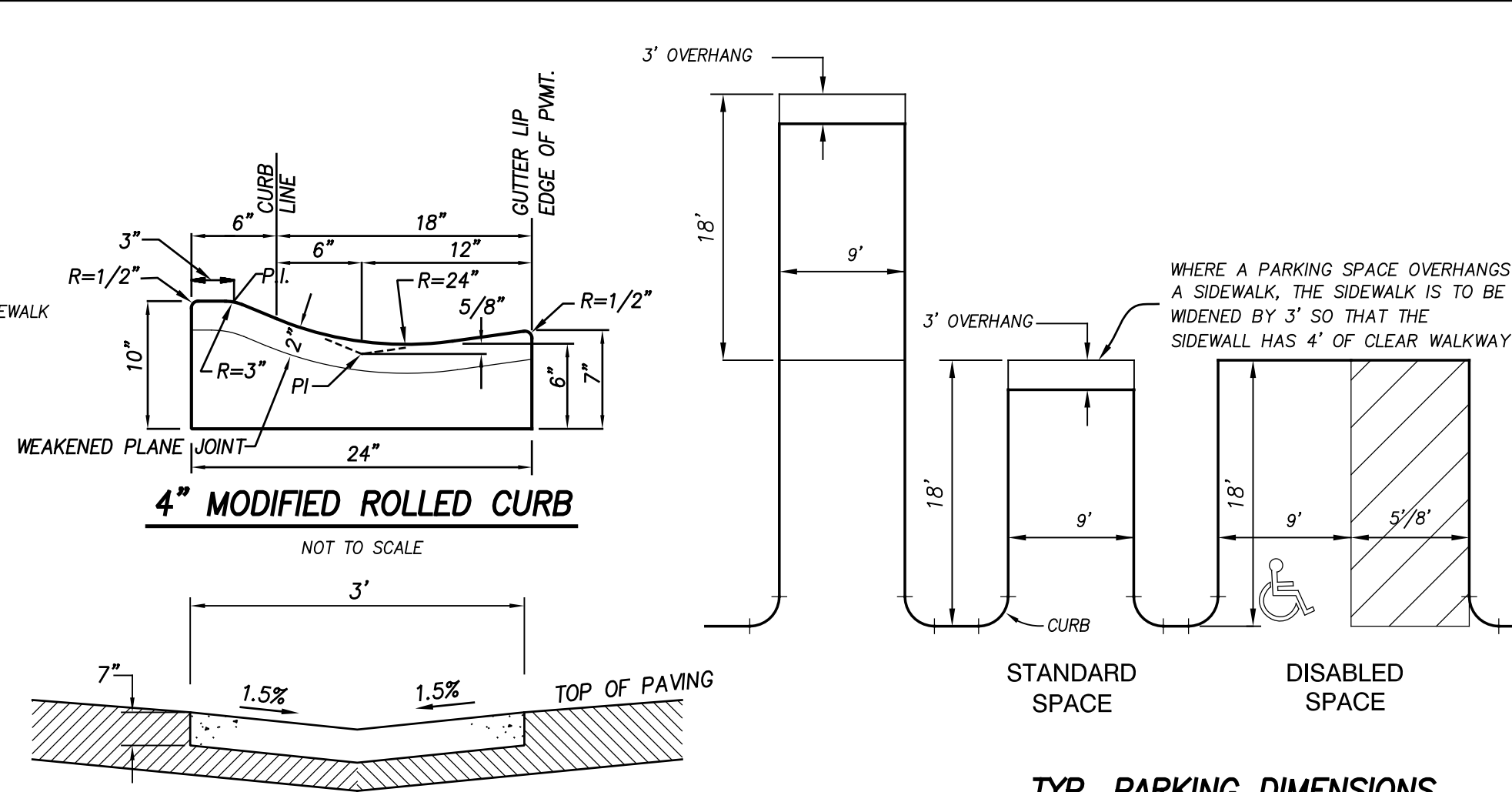
DETAIL 2: PEDESTRIAN RAMP TO SIDEWALK TRANSITION



DETAIL 1: PEDESTRIAN RAMP TO SIDEWALK TRANSITION



ROLLED CURB TO TYPE G CURB TRANSITION



- NOTES:
- CONCRETE SHALL BE 560-C-3250
  - IN ALL CASES SUBGRADE SHALL BE COMPACTED TO 95% MIN RELATIVE COMPACTION TO THE DEPTH OF 12"

RIBBON GUTTER

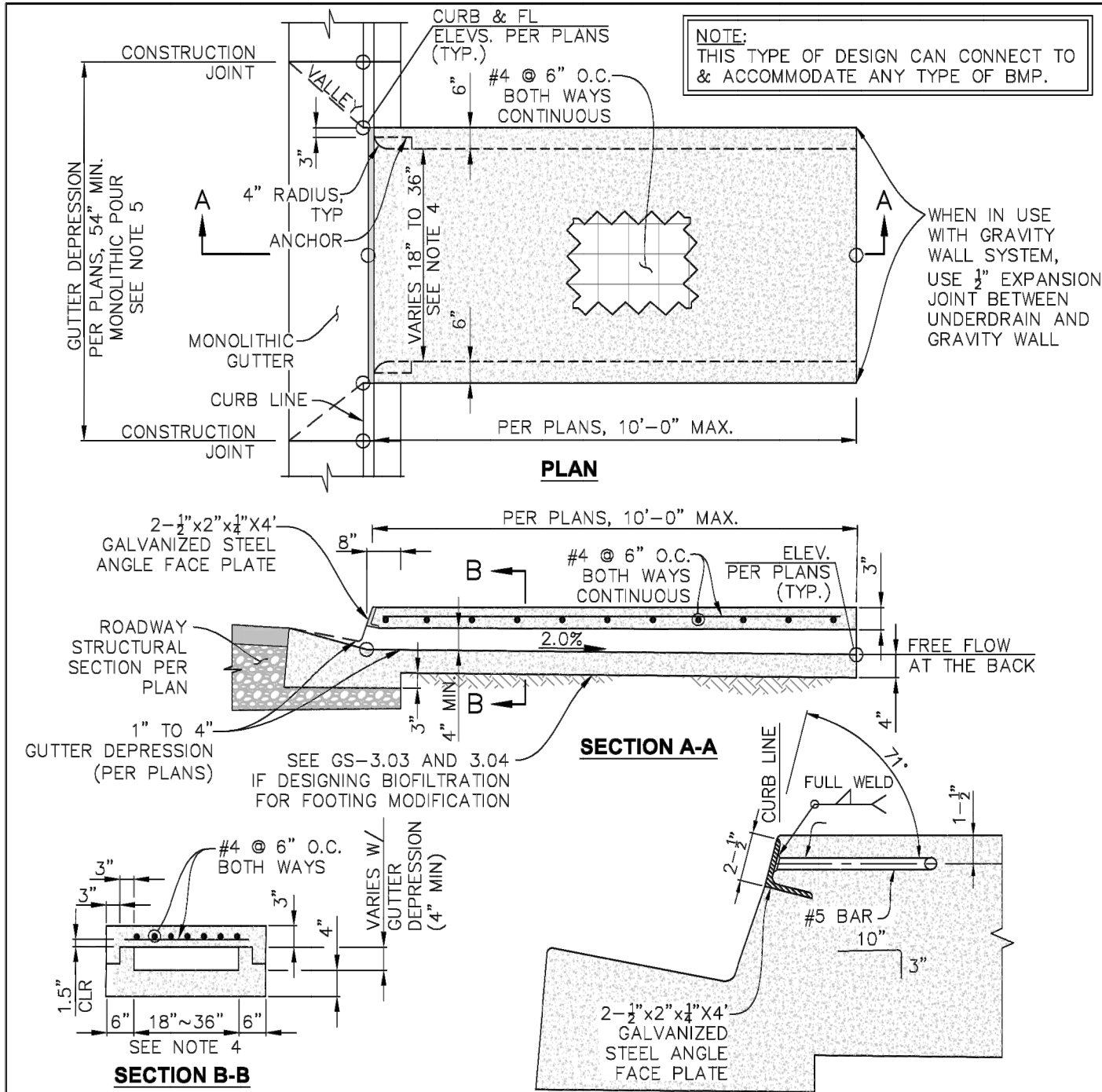
NOT TO SCALE

TYP. PARKING DIMENSIONS

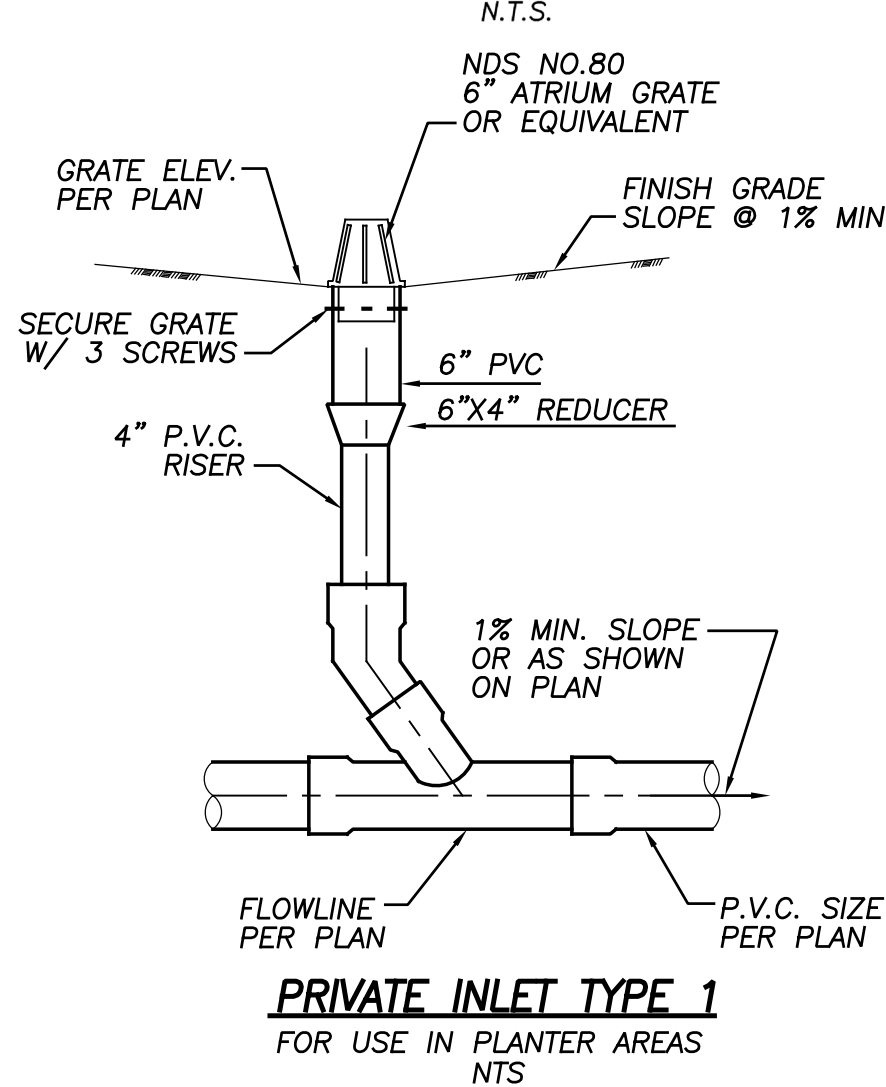
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ABBREVIATIONS:

AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
BC	BEGIN OF CURVE
BVC	BEGIN VERTICAL CURVE
CB	CATCH BASIN
CF	CURB FACE
CI	CURB INLET
CL	CENTER LINE
EC	END OF CURVE
EVC	END VERTICAL CURVE
EPA	ENVIRONMENTAL PROTECTION AGENCY
FH	FIRE HYDRANT
FL	FLOW LINE
GV	GATE VALVE
GB	GRADE BREAK
HDPE	HIGH DENSITY POLYETHYLENE
IE	INVERT ELEVATION
PCR	POINT OF CURB RETURN
PVC	POLY VINYL CHLORIDE
PCC	PORTLAND CEMENT CONCRETE
PP	POWER POLE
PL	PROPERTY LINE
ROS	RECORD OF SURVEY
RCP	REINFORCED CONCRETE PIPE
ROS	RECORD OF SURVEY
RC	TOP OF ROLLED CURB
SCO	SEWER CLEANOUT
SD	STORM DRAIN
TB	THRUST BLOCK
ST. LT.	STREET LIGHT
TC	TOP OF CURB
TH	TOP OF HEADER
TP	TOP OF PIPE



DETAIL 4: PRIVATE ROLLED CURB RAMP



PRIVATE INLET TYPE 1 FOR USE IN PLANTER AREAS NTS

COUNTY APPROVED CHANGES				BENCHMARK	
NO.	DESCRIPTION	APPROVED BY	DATE	DESCRIPTION:	CITY OF SAN DIEGO BENCHMARK NO. 16070
				LOCATION:	BRASS PLUG IN TOP OF NORTHEAST CURB
					RETURN AT INTERSECTION OF RACHEL AVE.
					AND ROANOKE ST.
				RECORD FROM:	CITY OF SAN DIEGO
				ELEVATION:	167.361
				DATUM:	NGVD-29

PRIVATE CONTRACT		
SHEET 2	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	18 SHEET
NOTES & DETAILS FOR:		
2542 RIDGEWAY DRIVE NATIONAL CITY, CA 91950		
CALIFORNIA COORDINATE INDEX 182-1743		
APPROVED FOR: WILLIAM P. MORGAN COUNTY ENGINEER	ENGINEER OF WORK: WILLIAM LUNDSTROM	
BY:	EXP. 6-30-23 R.C.E. 61630	
DATE:	GRADING PERMIT NO. PDS2020-LDGRW-30273	



SWEETWATER AUTHORITY GENERAL NOTES – WITHIN EASEMENT AREA

1. THE WATER FACILITIES SHOWN ON THESE PLANS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SWEETWATER AUTHORITY STANDARD SPECIFICATIONS FOR CONSTRUCTION OF WATER FACILITIES AND STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREENBOOK), USING THE LATEST REVISIONS OF BOTH, EFFECTIVE AT THE TIME PLANS ARE SIGNED.
2. SWEETWATER AUTHORITY STANDARD SPECIFICATIONS TAKE PRECEDENCE IN CASE OF CONFLICT WITH THESE PLANS.
3. ANY WATER FACILITIES BACKFILLED WITHOUT INSPECTION BY SWEETWATER AUTHORITY ARE SUBJECT TO EXCAVATION AND REMOVAL.
4. THE CONTRACTOR WILL SUPPLY ALL MATERIAL FOR WATER IMPROVEMENTS INCLUDING SHOP DRAWINGS WHERE APPROPRIATE.
5. APPROVED CONSTRUCTION MATERIALS ARE THOSE LISTED ON THE SWEETWATER AUTHORITY APPROVED MATERIALS LIST.
6. WET TAPS, IF REQUIRED, WILL BE ACCOMPLISHED BY A SWEETWATER AUTHORITY APPROVED TAPPING CONTRACTOR, FOLLOWING THE CONTRACTOR EXCAVATING, PLACING, TAPPING FITTINGS, HYDROTESTING WITH CHLORINATED WATER AND PUMPING TO 150 P.S.I. TO VERIFY THAT NO LEAKS OCCUR AROUND FLANGES, JOINTS OR WELDS, PLACING CONCRETE THRUST BLOCKS AND MAKING ALL PREPARATION AS REQUIRED BY THE ENGINEER. THE CONTRACTOR IS TO PROVIDE BACKFILLING AND PAVING PER SPECIFICATIONS. NOTIFY THE SWEETWATER AUTHORITY INSPECTION DEPARTMENT 5 DAYS PRIOR TO MAKING ACTUAL WET TAP.
7. THE CONTRACTOR IS REQUIRED TO VERIFY LOCATION OF ALL EXISTING UTILITIES WHICH MAY NOT ALL BE SHOWN ON THESE PLANS.
8. WATER SERVICES AND SEWER LATERALS TO HAVE 10 FOOT HORIZONTAL SEPARATION.
9. THE CONTRACTOR SHALL NOTIFY ALL CONSUMERS OF CONSTRUCTION RELATED WATER SHUTDOWNS ACCORDING TO SHUTDOWN NOTIFICATION PROCEDURE.
10. CONCRETE THRUST BLOCKS SHALL BE INSTALLED ACCORDING TO SECTION 12–02 AND STANDARD DWG. NO.11 OF THE SWEETWATER AUTHORITY STANDARD SPECIFICATIONS. THRUST BLOCKS FOR MAINS 12" AND LARGER ARE SHOWN ON THE PLANS.
11. ALL PUBLIC IMPROVEMENTS TO BE REPLACED PER COUNTY OF SAN DIEGO REGIONAL STANDARD DRAWINGS, AND THE GREEN BOOK, USING THE LATEST REVISIONS OF BOTH, EFFECTIVE AT THE TIME PLANS ARE SIGNED.
12. THE SWEETWATER AUTHORITY CANNOT GUARANTEE DRY SHUT DOWNS DURING CONNECTIONS AND/OR CUT AND PLUGS OF EXISTING WATER LINES.
13. ALL ADJUSTED, RELOCATED, OR RENEWED WATER SERVICES SHALL BE INSTALLED WITH A CONSUMER BALL VALVE AND METER BOX PER SWEETWATER STANDARD SPECIFICATION DRAWING NO. 1, 2, AND 20.
14. ALL CONNECTIONS TO EXISTING MAINS, FIRE HYDRANTS, FIRE SERVICES, AND NEW FIRE HYDRANT LATERALS, 12" AND SMALLER SHALL BE CONSTRUCTED WITH P.V.C. PIPE, USING CLOSURE COUPLINGS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. NO SAW CUTTING OF A.C. PIPE WILL BE ALLOWED. ONLY A.C. PIPE SNAPPING WITH APPROVED TOOLS IS ALLOWED.
15. NEW PIPELINE TRENCHES ARE TO BE BACKFILLED, RESURFACED AND STRUCTURAL REPAIRED IN ACCORDANCE WITH THE COUNTY OF SAN DIEGO STD. DWG. 0–24
16. BACKFILLING OF TRENCHES, STREET RESURFACING, STRIPING AND INSTALLATION OF PAVEMENT MARKERS, (PER CALTRANS SPECS), AND INSTALLATION OF PUBLIC IMPROVEMENTS SHALL BE SUBJECT TO APPROVAL BY THE COUNTY OF SAN DIEGO.
17. NO WORK SHALL COMMENCE ON THE SITE PRIOR TO A PRE–CONSTRUCTION MEETING WITH THE SWEETWATER AUTHORITY. CALL 619–409–6884 TO SCHEDULE A MEETING.
18. CROSS GUTTERS SHALL BE REPLACED ACCORDING TO SAN DIEGO REGIONAL STANDARD DRAWING G–12, WITH THE FOLLOWING EXCEPTIONS: CONCRETE SHALL BE 8–INCHES THICK PLACED OVER 10–INCHES CLASS 2 AGGREGATE BASE, COMPACTED 95%. CONCRETE SHALL BE REINFORCED WITH 6x6x10 WIRE MESH.
19. A PERMIT SHALL BE OBTAINED FROM THE COUNTY OF SAN DIEGO ENGINEERING DEPARTMENT FOR ALL IMPROVEMENT WORK WITHIN THE PUBLIC RIGHT–OF–WAY. THE CONTRACTOR SHALL SUBMIT TO THE COUNTY OF SAN DIEGO ENGINEERING DEPARTMENT A PROPOSED PROJECT SCHEDULE FOR ALL PHASES AND LOCATIONS OF THE PROJECT INCLUDING DATES, HOURS OF WORK, AND PROPOSED STREET CLOSURES, PRIOR TO OBTAINING PERMIT.
20. ALL OPERATIONS CONDUCTED ON THE COUNTY OF SAN DIEGO RIGHT–OF–WAY, INCLUDING THE IDLING, REPAIR, ARRIVAL, DEPARTURE, OR RUNNING OF TRUCK EARTH MOVING EQUIPMENT, CONSTRUCTION EQUIPMENT AND ANY OTHER ASSOCIATED EQUIPMENT SHALL BE LIMITED TO THE PERIOD BETWEEN 7:00 A.M. AND 5:00 P.M. EACH DAY, MONDAY – FRIDAY. PRIOR APPROVAL OF THE COUNTY FIRE DEPARTMENT FOR WORK BEFORE 7:00AM & AFTER 5:00PM
21. THE CONTRACTOR SHALL MAKE EXPLORATORY EXCAVATIONS TO VERIFY EXISTING UTILITY LOCATIONS SUFFICIENTLY AHEAD OF CONSTRUCTION TO ALLOW TIME FOR REVISION REQUIRED BY EXISTING CONDITIONS.
22. SERVICE SADDLE AND DRY PACK OF PORTLAND CEMENT ARE REQUIRED ON ALL NEW SERVICE LATERALS FOR PVC PIPE, SEE SWEETWATER AUTHORITY STANDARD DRAWING NO. 3 FOR PIPE SERVICE SADDLE REQUIREMENTS.
23. THE CONTRACTOR SHALL REPLACE STREET PAVEMENT SURFACE WITH MATERIAL THAT CONFORMS WITH THE ORIGINAL SURFACING PRIOR, INCLUDING CHIP SEALS.
24. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL SUBSTRUCTURES WHETHER SHOWN OR NOT AND PROTECT THEM FROM DAMAGE. THE EXPENSE OF REPAIR AND OR REPLACEMENT OF SAID SUBSTRUCTURES SHALL BE BORNE BY THE CONTRACTOR.
25. ALL MECHANICAL JOINT SYSTEMS TO BE INSTALLED WITH "ROMAC GRIPRING" JOINT RESTRAINTS OR EQUAL. THEY SHALL HAVE A RATED WORKING PRESSURE OF 350 P.S.I. FOR PIPE 16" AND SMALLER, AND 250 P.S.I. FOR PIPE GREATER THEN 16".
26. NEITHER THE OWNER, NOR THE ENGINEER OF WORK WILL ENFORCE SAFETY MEASURES OR REGULATIONS, THE CONTRACTOR SHALL DESIGN, CONSTRUCT, AND MAINTAIN ALL SAFETY DEVICES, INCLUDING SHORING, AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATIONS.
27. THE CONTRACTOR AGREES THAT IT SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROTECTION OF PROPERTY, THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT.
28. ADEQUATE COMPACTION TESTING SHALL BE PERFORMED AND RESULTS SUBMITTED TO THE SWEETWATER AUTHORITY ENGINEERING INSPECTOR.
29. DAMAGED TRAFFIC DETECTOR LOOPS MUST BE REPLACED PRIOR TO FINAL INSPECTION BY THE AUTHORITY INSPECTOR.
30. ALL IMPROVEMENTS DAMAGED DURING CONSTRUCTION INCLUDING CURBS, GUTTERS, SIDEWALKS AND CROSS GUTTERS SHALL BE REPLACED TO COUNTY OF SAN DIEGO STANDARDS.
31. ALL SIDEWALKS THAT ARE DAMAGED DURING CONSTRUCTION SHALL BE REPLACED FROM JOINT TO JOINT OR AS DETERMINED BY THE COUNTY OF SAN DIEGO.
32. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT AND OBTAIN APPROVAL ON A SEPARATE TRAFFIC CONTROL PLAN.
33. THE CONTRACTOR SHALL DEPOSIT INSPECTION FEES TO THE COUNTY OF SAN DIEGO PRIOR TO BEGINNING WORK ON THE PROJECT.
34. THE DISCHARGE OF NON STORMWATER POLLUTANTS TO THE STORMWATER CONVEYANCE SYSTEM IS PROHIBITED. ALL STORMDRAIN INLETS SHALL BE PROTECTED USING THE STANDARDIZED BEST MANAGEMENT PRACTICES AND THE USE OF GRAVEL BAGS AND/OR OTHER PROTECTIVE BARRICADES. THE CONTRACTOR SHALL BE REQUIRED TO CONSTRUCT, MONITOR, AND MAINTAIN ALL STORM WATER STANDARDIZED BEST MANAGEMENT PRACTICES AT THE SITE.
35. ALL WATER DISCHARGES RESULTING FROM TESTING AND FLUSHING SHALL BE DECHLORINATED PRIOR TO RELEASE IN ANY STORM DRAIN SYSTEM OR WATER COURSE. ALL SAWCUT SLURRY SHALL BE REMOVED BY USE OF VACUUM.

SEWER NOTES:

UNLESS OTHERWISE INDICATED HEREIN, ALL WORK SHALL BE DONE IN ACCORDANCE WITH:

- A. THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (SSPWC) LATEST APPROVED EDITION.
- B. THE REGIONAL SUPPLEMENTAL AMENDMENTS TO THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS' CONSTRUCTION.
- C. THE SAN DIEGO REGIONAL STANDARD DRAWINGS (SDRSD), LATEST APPROVED EDITION.

SEWER NOTES SHALL INCLUDE THE FOLLOWING SPECIAL PROVISIONS:

1. TRENCH WIDTH SHALL BE PER SDRSD NO. SP–02, FOR PIPE UP TO 15 INCHES, UNLESS OTHERWISE NOTED. FOR PIPE 15 INCHES AND OVER, TRENCH WIDTH SHALL BE PER SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 306–3.
2. PIPE AND BEDDING CONDITIONS INCLUDING FILTER FABRIC WRAP "BURRITO WRAP" WITH 12 INCH OVERLAP, SHALL BE PER SDRSD SP–02, FOR PIPE UP TO 18 INCHES. FOR PIPE 18 INCHES AND ABOVE, REFER TO SSPWC SECTION 306.7.7. WHENEVER THE EXCAVATED MATERIAL IS NOT SUITABLE FOR BACKFILL, THE CONTRACTOR SHALL REMOVE THIS MATERIAL AND ARRANGE FOR AND FURNISH SUITABLE IMPORTED BACKFILL MATERIAL WHICH IS CAPABLE OF ATTAINING THE REQUIRED RELATIVE DENSITY. IMPORTED BACKFILL MATERIAL, OR OTHER BACKFILL MATERIAL SHALL BE APPROVED BY THE ENGINEER, AND PER SECTION 306–12 OF THE "GREENBOOK" STANDARD SPECIFICATIONS.
3. PVC PIPE BEDDING FROM THE BOTTOM OF PIPE TO 12 INCHES MINIMUM ABOVE THE PIPE SHALL BE ¾ INCH CRUSHED ROCK. FILTER FABRIC WRAP "BURRITO WRAP" IS REQUIRED WHERE CRUSHED ROCK ENVELOPE IS USED.
4. AFTER COMPLETION OF PIPE LAYING, ALL MAIN LINE SEWERS, SERVICE LATERALS AND STRUCTURES SHALL BE TESTED IN THE PRESENCE OF THE INSPECTOR. AIR PRESSURE TEST, PER SSPWC SECTION 306–7.8.2.4, AND MANDREL TEST, PER SECTION 306–7.8.3.2 SHALL BE USED UNLESS OTHERWISE DIRECTED BY THE COUNTY INSPECTOR.

FINAL ACCEPTANCE OF SEWER LINES WILL BE SUBJECT TO INTERNAL CLOSED CIRCUIT TELEVISION (CCTV) INSPECTION. IT WILL BE THE PERMITEE'S RESPONSIBILITY FO PAY FOR THE COST OF THIS WORK.

A. CCTV INSPECTION PROCEDURES:

- 1) VIDEO INSPECTION SHALL SHOW WITH HIGH RESOLUTION, OPERATIONAL AND STRUCTURAL DEFECTS E.G., INFLOWS, SAGS, OFFSET JOINTS, CRACKS, ROUGHNESS, "FINS" OR FOLDS IN THE PIPELINES, COMPLETE WITH AUDIO COMMENTARY AND INSPECTION LOG.
- 2) THE SANITATION DISTRICT ENGINEER AND COUNTY INSPECTOR SHALL BE NOTIFIED A MINIMUM OF TWO (2) WORKING DAYS IN ADVANCE OF VIDEO INSPECTING.
- 3) VIDEO INSPECTION SHALL BE PERFORMED ONE PIPE REACH (E.G., MANHOLE TO MANHOLE) AT A TIME.
- 4) THE CONTRACTOR SHALL VIDEO INSPECT THE PIPELINE WITH MAXIMUM FLOW DIVERTED (IF REQUIRED) FROM THE PIPELINE. THE PIPE REACH BEING INSPECTED SHALL BE ISOLATED FROM THE REMAINDER OF THE PIPELINES WITH THE UPSTREAM SEWAGE FLOW BYPASSED (IF REQUIRED). IN THE EVENT THAT THE EXISTING FLOW IS INTERFERING WITH THE VIDEO OPERATION, A BYPASS SHALL BE PERFORMED BY THE CONTRACTOR TO LOWER THE FLOW VOLUME SUFFICIENTLY TO ALLOW FOR A CLEAR VIDEO PICTURE. SUFFICIENT WATER SHALL BE SUPPLIED TO THE ISOLATED SECTION TO CAUSE DRAINAGE REACHING THE DOWNSTREAM MANHOLE PRIOR TO VIDEO INSPECTING. IF EXISTING FLOWS ARE HIGH, PRE–CONSTRUCTION VIDEO INSPECTION CAN BE DONE WITH PARTIAL FLOW. DEPTH OF THE FLOW SHALL NOT EXCEED:

A. PIPES 6" – 10" – 20% OF THE PIPE DIAMETER.

B. PIPES 12" – 24" – 25% OF THE PIPE DIAMETER.

C. PIPES 27" AND UP – 30% OF THE PIPE DIAMETER.

- 5) THE CAMERA SHALL BE MOVED THROUGH THE PIPELINE IN A DOWNSTREAM DIRECTION AT A UNIFORM RATE BY MEANS OF POWER CABLE WINCHES OR SELF–PROPELLED TRACTORS AT EACH MANHOLE, STOPPING AND ROTATING THE CAMERA HEAD AT EACH LATERAL CONNECTION, DEFECT, OR BOTH TO ALLOW FOR ADEQUATE EVALUATION. THE CONTRACTOR SHALL STOP WHEN NECESSARY TO ENSURE PROPER DOCUMENTATION OF THE PIPE CONDITION, BUT IN NO CASE SHALL THE CAMERA BE PULLED AT A SPEED GREATER THAN 30' PER MINUTE. A CLEAR PICTURE SHALL BE PROVIDED LOOKING INTO EACH SERVICE CONNECTION. BOTH PRE AND POST VIDEO INSPECTIONS SHALL BE SUBMITTED TO THE ENGINEER.
- 6) MEASUREMENT FOR LOCATION OF DEFECTS SHALL BE ABOVE GROUND BY MEANS OF A MEASURING DEVICE. FOOTAGES SHOWN IN THE DIGITAL FILES SHALL COINCIDE WITH HORIZONTAL LENGTHS FROM STATIONING AS SHOWN ON THE PLANS. FOOTAGE MEASUREMENTS SHALL BEGIN AT THE CENTERLINE OF THE UPSTREAM MANHOLE OR STORM DRAIN ACCESS POINT, UNLESS PERMISSION IS GIVEN BY THE ENGINEER TO DO OTHERWISE.
- 7) THE CONTRACTOR SHALL CLEAN THE SEWER MAINS PRIOR TO VIDEO INSPECTING AS NECESSARY TO ADEQUATELY PERFORM THE VIDEO RECORDING OPERATIONS. IF THE CAMERA WILL NOT PASS THROUGH THE ENTIRE PIPELINE SECTION, THE CONTRACTOR SHALL RESET THE EQUIPMENT AT THE DOWNSTREAM MANHOLE AND ATTEMPT TO INSPECT THE SECTION OF THE PIPE FROM THE OPPOSITE DIRECTION. IF THE CAMERA FAILS TO PASS THROUGH THE ENTIRE SECTION, IT SHALL BE ASSUMED THAT AN OBSTRUCTION EXISTS. EFFORTS TO VIDEO RECORD THAT SECTION OF PIPE SHALL BE TEMPORARILY SUSPENDED AND THE CONTRACTOR SHALL NOTIFY THE ENGINEER. UPON REMOVAL OF THE OBSTRUCTION, THE CONTRACTOR SHALL COMPLETE THE INSPECTION.

- 8) IF AN OBSTRUCTION IS ENCOUNTERED DURING THE POST–CONSTRUCTION VIDEO INSPECTION, THE CONTRACTOR SHALL REMOVE THE OBSTRUCTION BY EXCAVATION, REPAIR, OR OTHER MEANS APPROVED BY THE ENGINEER AT THE CONTRACTOR'S EXPENSE, IN ORDER THAT VIDEO INSPECTION MAY CONTINUE.

- 9) THE SYSTEM USED TO MOVE THE CAMERA THROUGH THE PIPE SHALL NOT OBSTRUCT THE CAMERA'S VIEW. THE CONTRACTOR SHALL CALIBRATE THE MEASURING DEVICE EACH DAY WITH A KNOWN DISTANCE TO THE SATISFACTION OF THE ENGINEER PRIOR TO STARTING THE INSPECTION AND VIDEO RECORDING PROCESS.

- 10) THE CONTRACTOR SHALL OBTAIN THE ENGINEER'S APPROVAL FOR ANY ADDITIONAL POINT REPAIRS.

B. TOLERANCES ENCOUNTERED FOLLOWING INSPECTION SHALL BE ADDRESSED AS FOLLOWS:

- 1) FOR NEW UNDERGROUND SEWER INSTALLATIONS, THE MAXIMUM OPERATIONAL TOLERANCE FOR SAG SHALL BE ¼". WHEN VIDEO RECORDED INSPECTION IS USED TO CHECK FOR SAG, A CALIBRATED ¼" DIAMETER STEEL BAR/"SAG GAGE" OR APPROVED EQUAL DEVICE, MOUNTED IN FRONT OF THE CAMERA, SHALL BE USED TO MEASURE THE DEPTH OF SAG.
- 2) IF THE ENGINEER DETERMINES THAT THE DEFICIENCIES OR SAGS ARE NON–REPAIRABLE IN PLACE, THE AFFECTED PORTION(S) SHALL BE RECONSTRUCTED.

SEWER NOTES (CONT.):

5. THE CONSTRUCTION OF PCC SEWER MANHOLE PER SDRSD SM–01 OR SM–02 POURED–IN–PLACE MANHOLE BASES SHALL BE A MONOLITHIC POUR FINISHED COMPLETED AT THE TIME OF POUR. EACH NEW MANHOLE SHALL BE VACUUM TESTED PRIOR TO BACK FILLING. THE TEST SHALL BE CONDUCTED IMMEDIATELY AFTER PLACEMENT OF PRE–CAST UNITS WITH POLYMER MORTAR/BUTYL SEALANT. ALL PIPES IN THE MANHOLE SHALL BE SECURELY PLUGGED. THE TEST HEAD SHALL BE PLACED AT THE INSIDE OF THE TOP PRE–CAST UNIT PRIOR TO THE INSTALLATION OF THE GRADE RING, AND THE SEAL INFLATED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

A VACUUM OF 10 PSI SHALL BE DRAWN AND THE VACUUM PUMP SHUT OFF. WITH THE VALVE CLOSED, THE TIME SHALL BE MEASURED FOR THE VACUUM TO DROP TO 9 PSI. THE MANHOLE SHALL PASS IF THE TIME IS GREATER THAN 75 SECONDS FOR SDRSD SM–2 AND 60 SECONDS FOR SDRSD SM–1 MANHOLE. IF THE MANHOLE FAILS THE INITIAL TEST, NECESSARY REPAIRS SHALL BE MADE WITH NO SHRINK GROUT WHILE VACUUM IS STILL BEING DRAWN. RETESTING SHALL PROCEED UNTIL A SATISFACTORY TEST IS OBTAINED.

6. THE CONSTRUCTION OF 4–INCH SEWER LATERALS SHALL BE PER SDRSD SS–01 AND SS–02. LATERALS SHALL NOT DISCHARGE DIRECTLY INTO MANHOLES. A CLEANOUT SHALL BE INSTALLED APPROXIMATELY 2 FEET INSIDE THE PROPERTY LINE.

7. THE CONSTRUCTION OF CUT–OFF WALLS SHALL BE PER SDRSD NO. SP–07 ON ALL SEGMENTS HAVING A SLOPE OF 20% TO 50%. CONSTRUCTION OF SLOPE PROTECTION WALLS SHALL BE PER SP–05.

8. ALL MAINS AND LATERALS SHALL BE CONSTRUCTED WITH 48 INCHES MINIMUM COVER, PROVIDED THAT THE INVERT OF THE LATERAL AT THE PROPERTY LINE IS ABOVE THE SOFFIT LINE OF THE SEWER MAIN.

9. THE FINAL LOCATION AND ELEVATION OF SEWER AND WATER LATERALS SHALL BE SHOWN ON ORIGINAL PLANS, PRIOR TO ACCEPTANCE FOR PUBLIC USE.

10. ALL DESIGN CHANGES OF SEWER MAINS SHALL BE APPROVED BY THE DISTRICT ENGINEER, IN WRITING, PRIOR TO ACCEPTANCE OF WORK.

11. FILL AREAS MUST BE COMPACTED TO 90% PRIOR TO PIPE INSTALLATION.

12. THE CONTRACTOR SHALL NOTIFY THE PRIVATE DEVELOPMENT CONSTRUCTION INSPECTION DEPARTMENT OR SAN DIEGO COUNTY SANITATION DISTRICT OFFICE 48 HOURS IN ADVANCE OF BEGINNING WORK TO ARRANGE FOR INSPECTION OF THE PROJECT.

13. THE CONTRACTOR SHALL PURCHASE A PERMIT FROM THE COUNTY DEPARTMENT OF PUBLIC WORKS FOR ANY EXCAVATION WITHIN EXISTING COUNTY RIGHTS–OF–WAY.

14. THE CONTRACTOR RECORD DRAWINGS MUST BE SUBMITTED PRIOR TO FINAL ACCEPTANCE OF THE WORK. THEY MUST REFLECT POST CONSTRUCTION VERIFICATION OF PIPE LENGTHS AND INVERT ELEVATIONS.

15. THE CONTRACTOR SHALL GUARANTEE ALL WORK FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF ACCEPTANCE OF THE WORK BY THE OWNER AND SHALL REPAIR OR REPLACE ANY OR ALL SUCH WORK TOGETHER WITH ANY OTHER WORK THAT MAY BE DISPLACED IN SO DOING, THAT MAY PROVE DEFECTIVE IN WORKMANSHIP AND/OR MATERIALS WITHIN THE ONE 1–YEAR PERIOD FROM THE DATE OF ACCEPTANCE WITHOUT EXPENSE WHATSOEVER TO THE OWNER, ORDINARY WEAR AND TEAR, UNUSUAL ABUSE OR NEGLECT EXCEPTED.

16. THE CONTRACTOR SHALL FURNISH AND INSTALL, PER SPECIFICATIONS, THE APPROPRIATE BURIED UTILITY WARNING AND IDENTIFICATION TAPE ABOVE ALL PUBLIC SEWER LINES, INCLUDING SEWER LATERALS, LOCATED IN THE PUBLIC RIGHT–OF–WAY.

17. THE CONTRACTOR MUST CALL "DIG–ALERT" OF SOUTHERN CALIFORNIA TO HAVE UNDERGROUND SERVICE UTILITIES LOCATED PRIOR TO CONSTRUCTION. THE CALL WILL BE MADE AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION. 1–800–422–4133.

18. AT ALL MANHOLES, THE MINIMUM FALL ACROSS MANHOLE SHALL BE 0.1 FEET. AT ANGLES LARGER THAN 45 DEGREES, ALLOW 0.2 FEET FALL.

19. JOINT SEALANT AND EXTERIOR WATER PROOFING (WHERE SPECIFIED)

POLYMER MORTAR SHALL BE USED TO JOIN PRE–CAST COMPONENTS ON ALL MANHOLES TO CREATE WATERTIGHT JOINTS TO RESIST INFILTRATION. THE MORTAR SHALL BE MIXED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND SHALL NOT EXCEED FIVE PARTS SAND TO ONE PART POLYMER. ACCEPTABLE JOINT SEALANT PRODUCTS SHALL BE SKIDDER 31 AND 32 HI–MOD GEL MANUFACTURED BY SIKA CORPORATION, 490 EPOXY PUTTY AND 498 UNDERWATER EPOXY PUTTY MANUFACTURED BY ENGARD COATINGS, AND CS 102 BUTYL GASKETS (ROPE FORM) MANUFACTURED BY CONCRETE SEALANTS OR APPROVED EQUAL.

THE CONCRETE OR OTHER SURFACES THAT ARE TO ADHERE TO POLYMER MORTAR SHALL BE FREE FROM DUST, LOOSE AGGREGATES, OIL, GREASE OR OTHER CONTAMINANTS.

ON ALL MANHOLES, CONTRACTOR SHALL APPLY WATERPROOFING AGENT CONSISTING OF A COAL TAR EMULSION ON ALL EXTERIOR SURFACES. THE EMULSION SHALL BE TNEMEC 46–465, OR APPROVED EQUAL. THE EMULSION SHALL BE APPLIED IN NO LESS THAN TWO COATS TO ACHIEVE A TOTAL DRY THICKNESS OF 25 MILS MINIMUM. THE EXTERIOR EMULSION COATINGS SHALL BE APPLIED PRIOR TO DELIVERY TO THE JOBSITE. IN ADDITION, A BITUMASTIC BAND 6 INCHES WIDE SHALL BE APPLIED AT ALL JOINTS ON EXTERIOR OF SUCH MANHOLES THAT SHALL BE WATERPROOFED. FULL COMPENSATION FOR THE WATERPROOFING OF MANHOLES SHALL BE AWARDED. WHEN COMPLETED, ALL MANHOLES SHALL BE WATERTIGHT WITH ZERO INFILTRATION OF GROUNDWATER.

20. EPOXY LINING COATING (WHERE SPECIFIED).

SM–01 OR SM–02 CONSTRUCTED MANHOLES AS IDENTIFIED ON EACH PROPOSED SEWER MAIN PROFILE: THE ENTIRE INTERIOR OF THE SEWER MANHOLE INCLUDING THE MANHOLE BOTTOM SHALL BE LINED WITH EPOXY. THE EPOXY PRODUCT SHALL BE RAVEN 405 MANUFACTURED BY RAVEN LINING SYSTEMS OR APPROVED EQUIVALENT.

THE PRIMER MATERIAL SHALL BE 100% SOLIDS, MOISTURE TOLERANT EPOXY CAPABLE OF SPRAY APPLICATION TO 5 MILS THICKNESS IN ONE CONTINUOUS COAT.

THE LINING MATERIAL SHALL BE 100% SOLID, HIGH BUILD EPOXY CAPABLE OF SPRAY APPLICATION TO 125 MILS THICKNESS IN ONE CONTINUOUS COAT. THE MATERIAL SHALL MEET THE REQUIREMENTS OF THE SSPWC SECTION 210–2.3.3, "CHEMICAL RESISTANCE TEST", AND THE SSPWC SECTION 500–2.4.10, "APPLICABLE STANDARD".

ONLY WORKERS TRAINED BY, AND QUALIFIED AS INSTALLERS BY THE MANUFACTURER, SHALL BE USED ON THIS WORK. CONTRACTOR SHALL PROVIDE MANUFACTURER'S CERTIFICATIONS.

THE EPOXY LINING SHALL BE CONTINUOUS WITHOUT SEAMS, UNIFORM IN COLOR, FULLY CURED, AND FREE OF PINHOLES, SURFACE IMPERFECTIONS, AND BLISTERS. THE LINING MUST COMPLETELY BOND TO THE CONCRETE. THE COLOR SHALL BE LIGHT BLUE.

TESTING OF MANHOLE

THE CURED EPOXY LINING SHALL BE SPARK TESTED FOR PINHOLES AT 15,000 VOLTS MINIMUM. ALL PINHOLES SHALL BE REPAIRED AS SPECIFIED IN SECTION 500–2.4.9, "REPAIR METHODS" OF THE SSPWC (GREENBOOK).

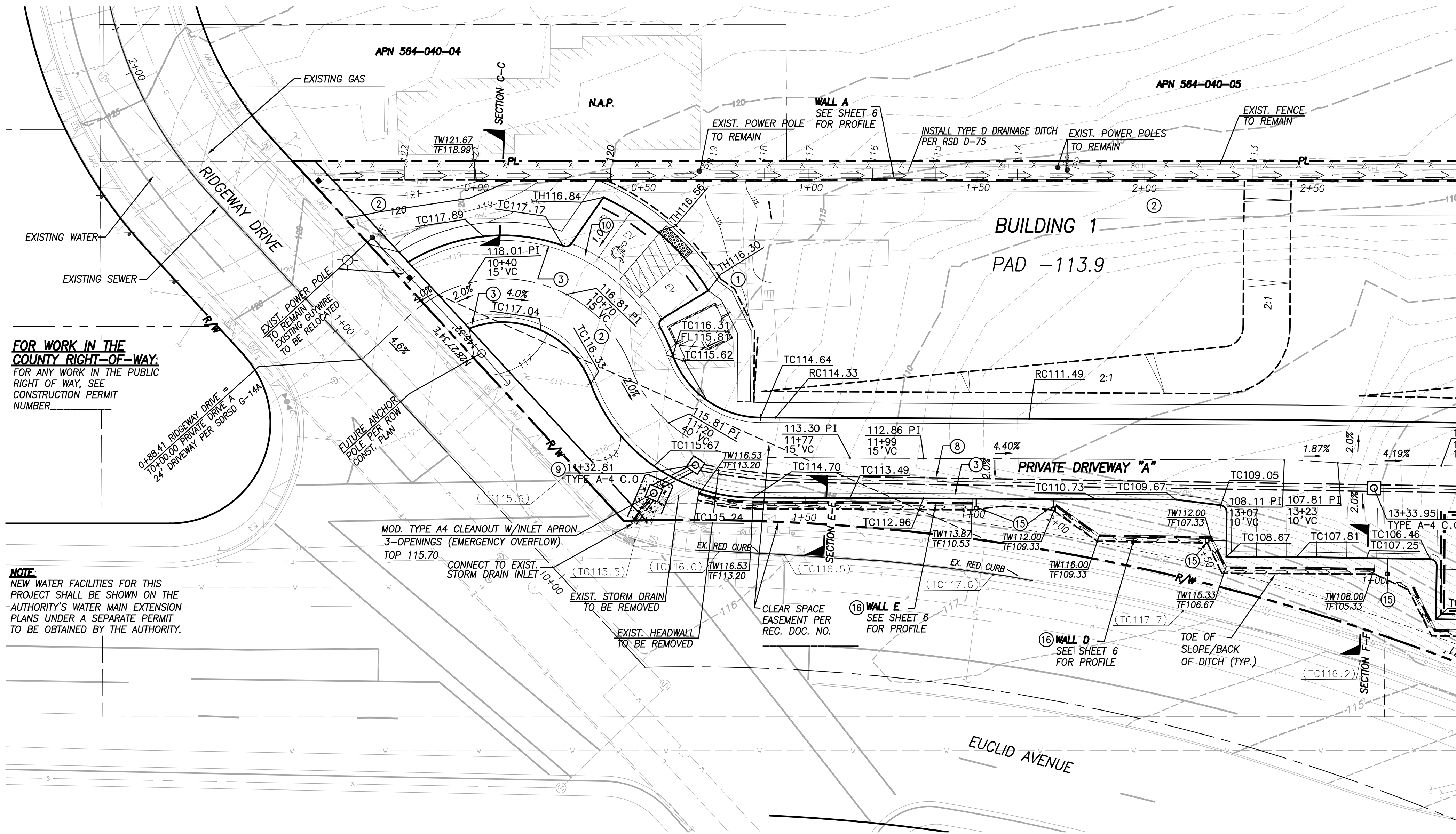
21. PROPOSED PRIVATE SEWER COLLECTION FACILITIES AND LATERALS SHALL BE REVIEWED, PERMITTED AND INSPECTED BY THE PLANNING & DEVELOPMENT SERVICES (PDS) BUILDING PERMIT DIVISION. PDS BUILDING PERMIT NO.

WATER AGENCY		COUNTY APPROVED CHANGES			BENCHMARK	
SWEETWATER AUTHORITY		NO.	DESCRIPTION	APPROVED BY	DATE	DESCRIPTION:
REVIEWED BY: _____						CITY OF SAN DIEGO BENCHMARK NO. 16070
ERICK DEL BOSQUE DATE _____						BRASS PLUG IN TOP OF NORTHEAST CURB
DIRECTOR OF ENGINEERING AND OPERATIONS						RETURN AT INTERSECTION OF RACHEL AVE.
VALID FOR 18 MONTHS FROM DATE OF SIGNATURE						AND ROANOKE ST.
						CITY OF SAN DIEGO
						ELEVATION: 167.361 DATUM: NGVD–29



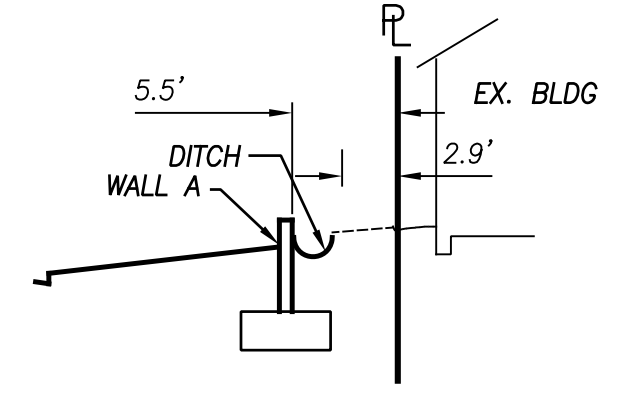
PRIVATE CONTRACT		
SHEET 3	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	18 SHEET
WATER AND SEWER NOTES FOR:		
2542 RIDGEWAY DRIVE NATIONAL CITY, CA 91950		
CALIFORNIA COORDINATE INDEX 182–1743		
APPROVED FOR: WILLIAM P. MORGAN COUNTY ENGINEER	ENGINEER OF WORK: WILLIAM LUNDSTROM	
BY: _____	EXP. 6–30–23 R.C.E. 61630	
DATE: _____	GRADING PERMIT NO. PDS2020–LDGRW–30273	



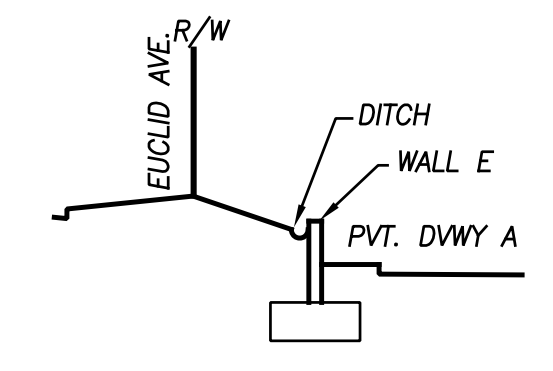


FOR WORK IN THE COUNTY RIGHT-OF-WAY:  
FOR ANY WORK IN THE PUBLIC RIGHT OF WAY, SEE CONSTRUCTION PERMIT NUMBER.

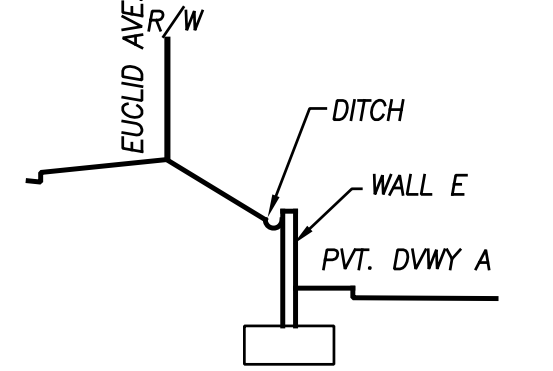
NOTE:  
NEW WATER FACILITIES FOR THIS PROJECT SHALL BE SHOWN ON THE AUTHORITY'S WATER MAIN EXTENSION PLANS UNDER A SEPARATE PERMIT TO BE OBTAINED BY THE AUTHORITY.



SECTION C-C  
SCALE: 1"=10'



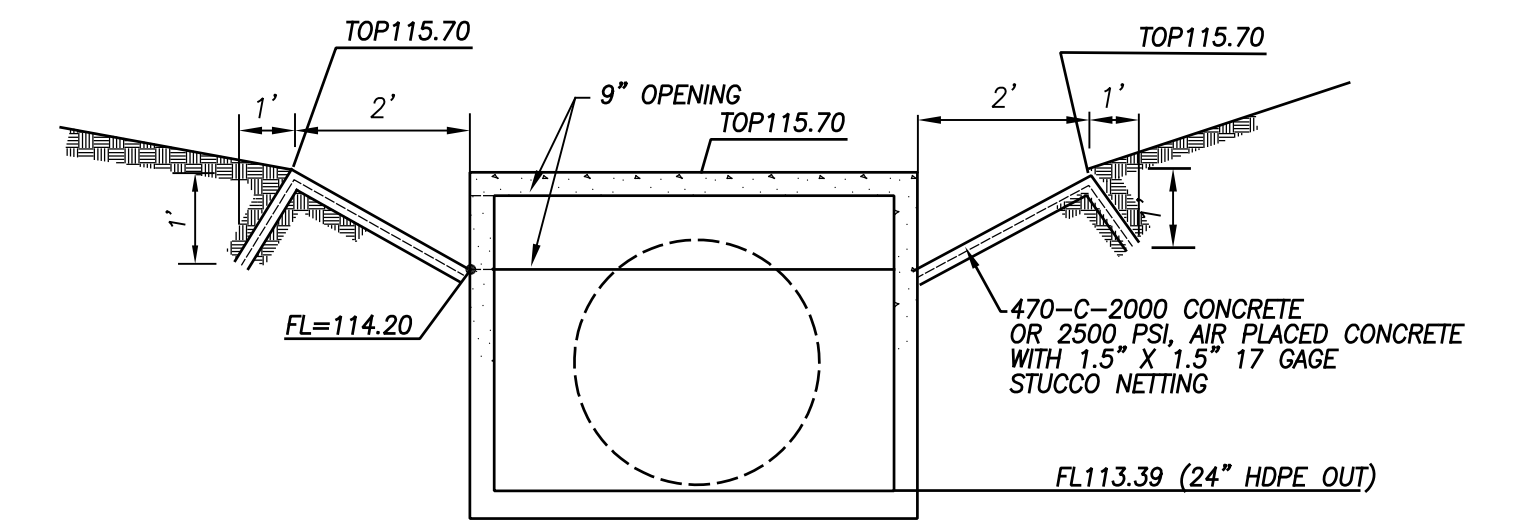
SECTION E-E  
SCALE: 1"=10'



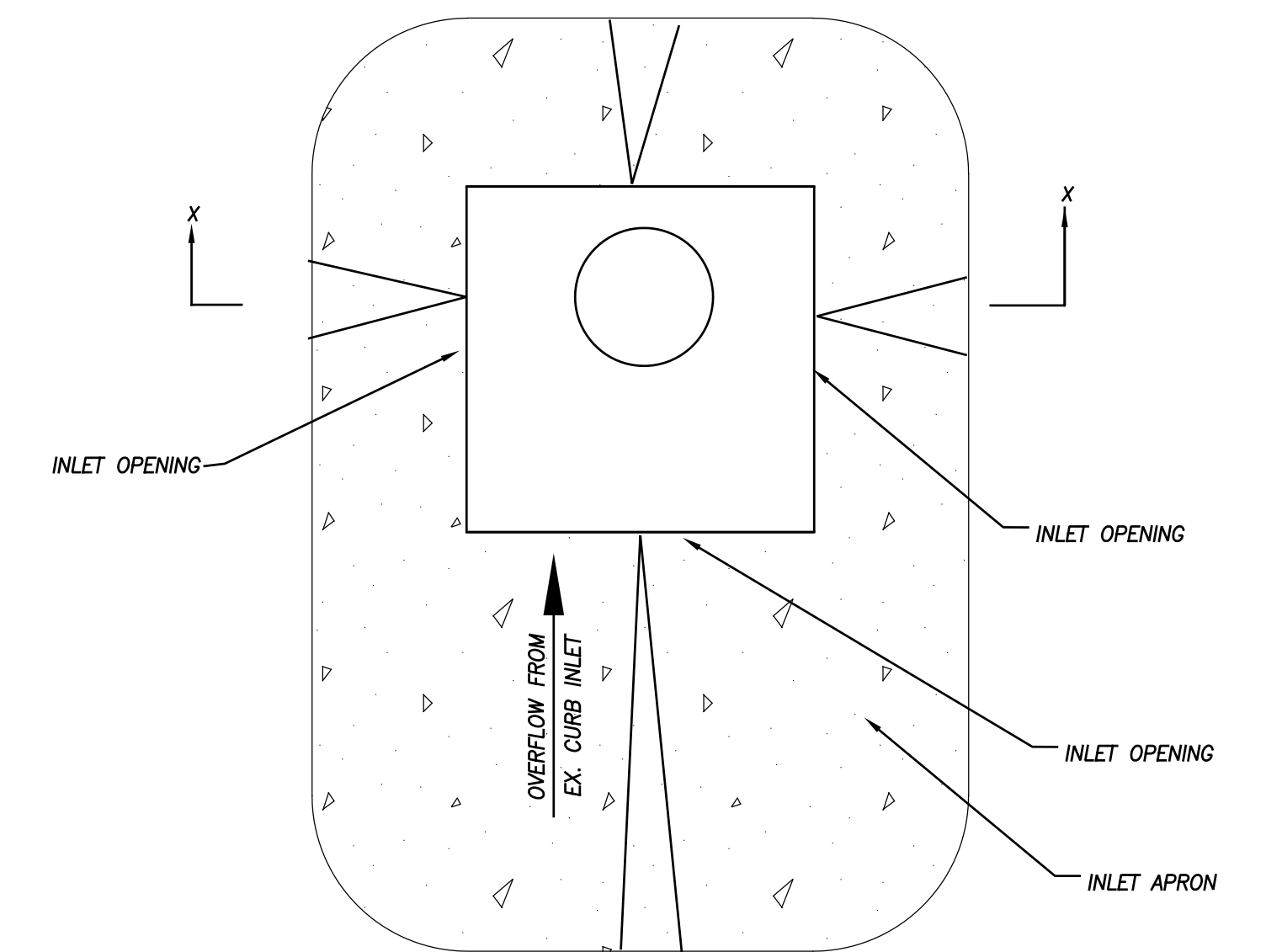
SECTION F-F  
SCALE: 1"=10'

CONSTRUCTION NOTES:

- 1 EXISTING BUILDING STRUCTURE TO BE DEMOLISHED PER DEMO PLAN PDS-2021-
- 2 EXISTING PAVEMENT TO BE DEMOLISHED PER DEMO PLAN PDS-2021-
- 3 PROPOSED 6" CURB & GUTTER PER RSD G-2
- 6 PROPOSED RSD D-40 TYPE 1 RIPRAP ENERGY DISSIPATER.
- 8 PROPOSED 24" HDPE STORM DRAIN PIPE, SEE SHEETS 14 & 15.
- 9 PROPOSED A4 CO PER RSD D-9, SEE SHEETS 14 & 15.
- 10 PROPOSED 3' WIDE CONCRETE RIBBON GUTTER DETAIL SHEET 2
- 15 PVT INLET TYPE 1 PER DETAIL SHEET 2 & 3" PVC UNDERDRAIN PER RSD D-27.
- 16 PROPOSED RETAINING WALL PER DETAILS ON SHEETS 6-11.



SECTION X-X  
N.T.S.



PLAN  
N.T.S.

MODIFIED TYPE A4 CLEANOUT/INLET APRON  
N.T.S.

TEMPORARY SHORING NOTE:  
TEMPORARY VERTICAL CUTS OVER 4 FEET REQUIRES TEMPORARY SHORING SYSTEM AND TO BE CONFIRMED BY THE GEOTECHNICAL ENGINEER FOR THE PROJECT.

SECTION B-B  
SCALE: 1"=10'

PROPERTY LINE/WALL DETAIL  
SCALE: 1"=10'

SECTION A-A  
SCALE: 1"=10'

**Lundstrom**  
Engineering and Surveying, Inc.  
3333 Camino del Rio South, #330 • San Diego, CA 92108  
Phone (619) 814-1220 • Fax (619) 641-5910

Professional Engineer Seal for William P. Lundstrom, No. 016130, Expires 6/30/23, State of California.

North Arrow

Graphic Scale: 1"=20'

WATER AGENCY		RECORD PLAN		COUNTY APPROVED CHANGES		BENCHMARK	
SWEETWATER AUTHORITY		NAME: _____ R.C.E. _____ DATE: _____		NO. DESCRIPTION APPROVED BY DATE		CITY OF SAN DIEGO BENCHMARK NO. 16070 BRASS PLUG IN TOP OF NORTHEAST CURB RETURN AT INTERSECTION OF RACHEL AVE. AND ROANOKE ST. CITY OF SAN DIEGO ELEVATION: 167.361 DATUM: NGVD-29	
REVIEWED BY: ERICK DEL BOSQUE DATE _____ DIRECTOR OF ENGINEERING AND OPERATIONS VALID FOR 18 MONTHS FROM DATE OF SIGNATURE						APPROVED FOR: WILLIAM P. MORGAN COUNTY ENGINEER BY: _____ DATE: _____	

PRIVATE CONTRACT

SHEET 4	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	18 SHEET
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GRADING PLANS FOR :

2542 RIDGEWAY DRIVE  
NATIONAL CITY, CA 91950

CALIFORNIA COORDINATE INDEX 182-1743

APPROVED FOR: WILLIAM P. MORGAN  
COUNTY ENGINEER

ENGINEER OF WORK: WILLIAM LUNDSTROM  
EXP. 6-30-23 R.C.E. 61630

GRADING PERMIT NO. PDS2020-LDGRW-30273







RECORD PLAN

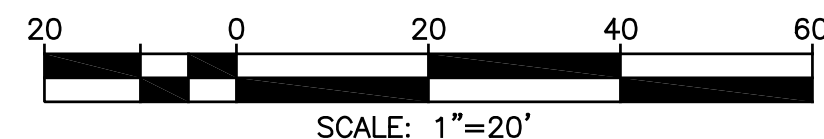
NAME: \_\_\_\_\_  
R.C.E. \_\_\_\_\_  
DATE: \_\_\_\_\_

COUNTY APPROVED CHANGES

NO.	DESCRIPTION	APPROVED BY	DATE

BENCHMARK

DESCRIPTION: CITY OF SAN DIEGO BENCHMARK NO. 16070  
LOCATION: BRASS PLUG IN TOP OF NORTHEAST CURB  
RETURN AT INTERSECTION OF RACHEL AVE.  
AND ROANOKE ST.  
RECORD FROM: CITY OF SAN DIEGO  
ELEVATION: 167.361 DATUM: NGVD-29

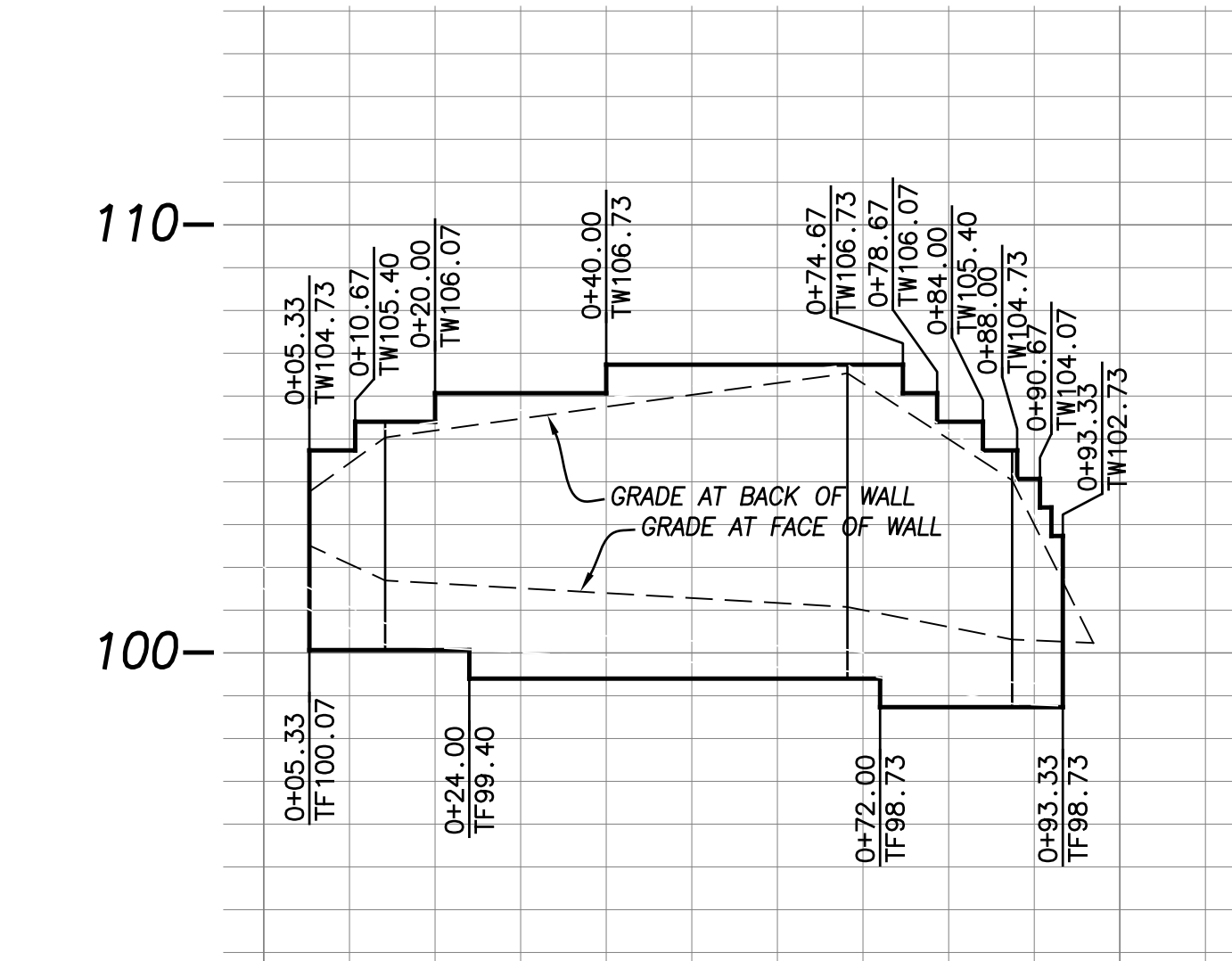


PRIVATE CONTRACT

SHEET 6 COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS 18 SHEET

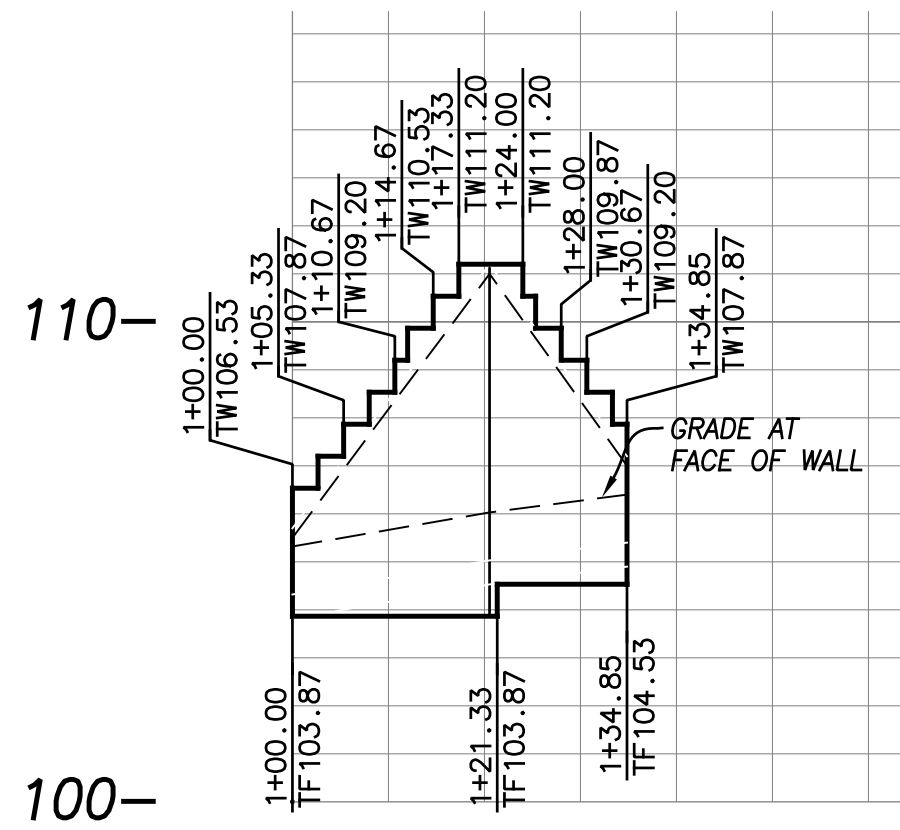
GRADING PLANS FOR :  
**2542 RIDGEWAY DRIVE**  
**NATIONAL CITY, CA 91950**  
CALIFORNIA COORDINATE INDEX 182-1743

APPROVED FOR: WILLIAM P. MORGAN  
COUNTY ENGINEER  
BY: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ENGINEER OF WORK: WILLIAM LUNDSTROM  
EXP. 6-30-23 R.C.E. 61630  
GRADING PERMIT NO. POS2020-LDGRW-30273



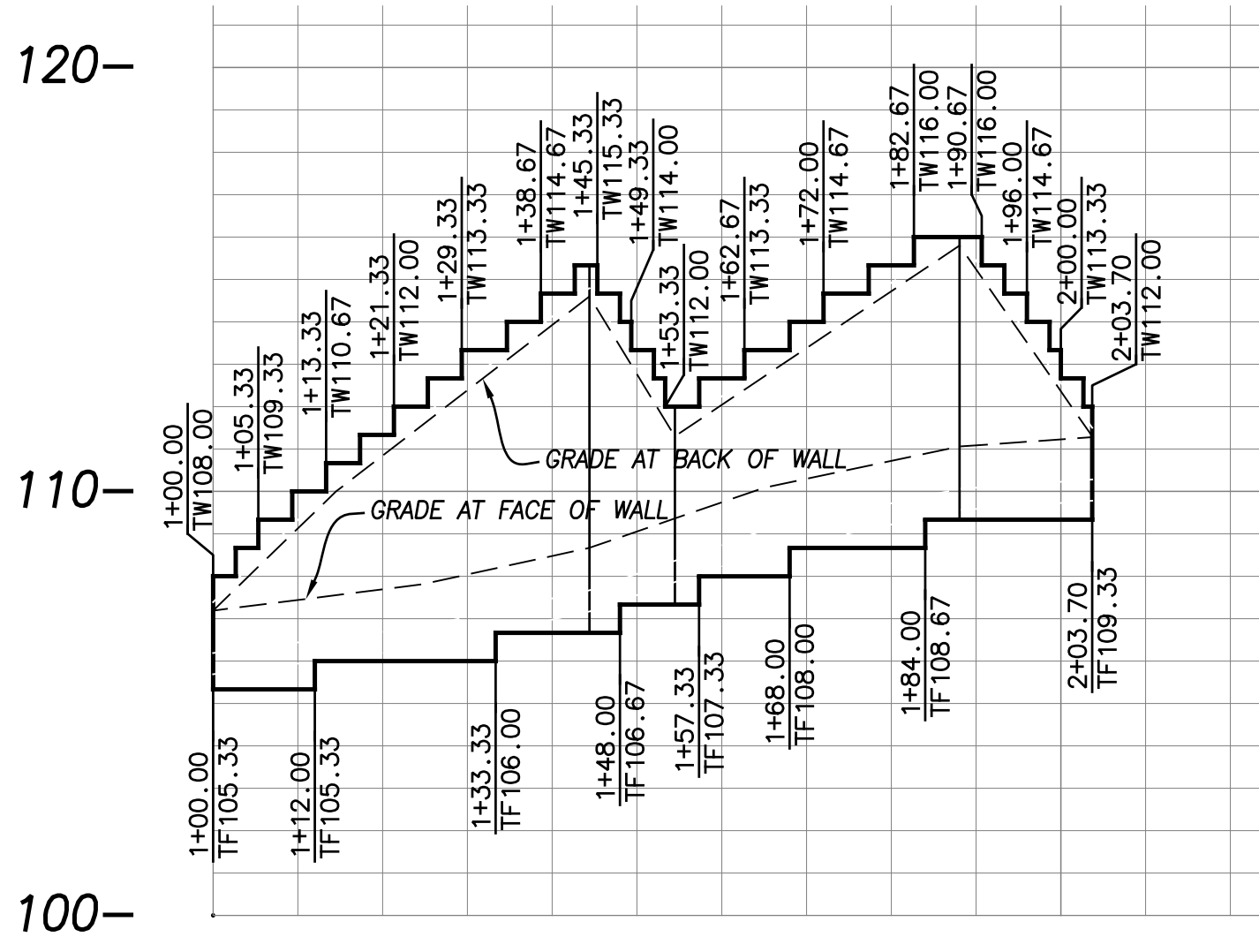
PROFILE: WALL B

SCALE: HORIZ. 1"=20', VERT 1"=4'  
PER CMU STRUCTURAL ENGINEER  
SHEETS 7-8



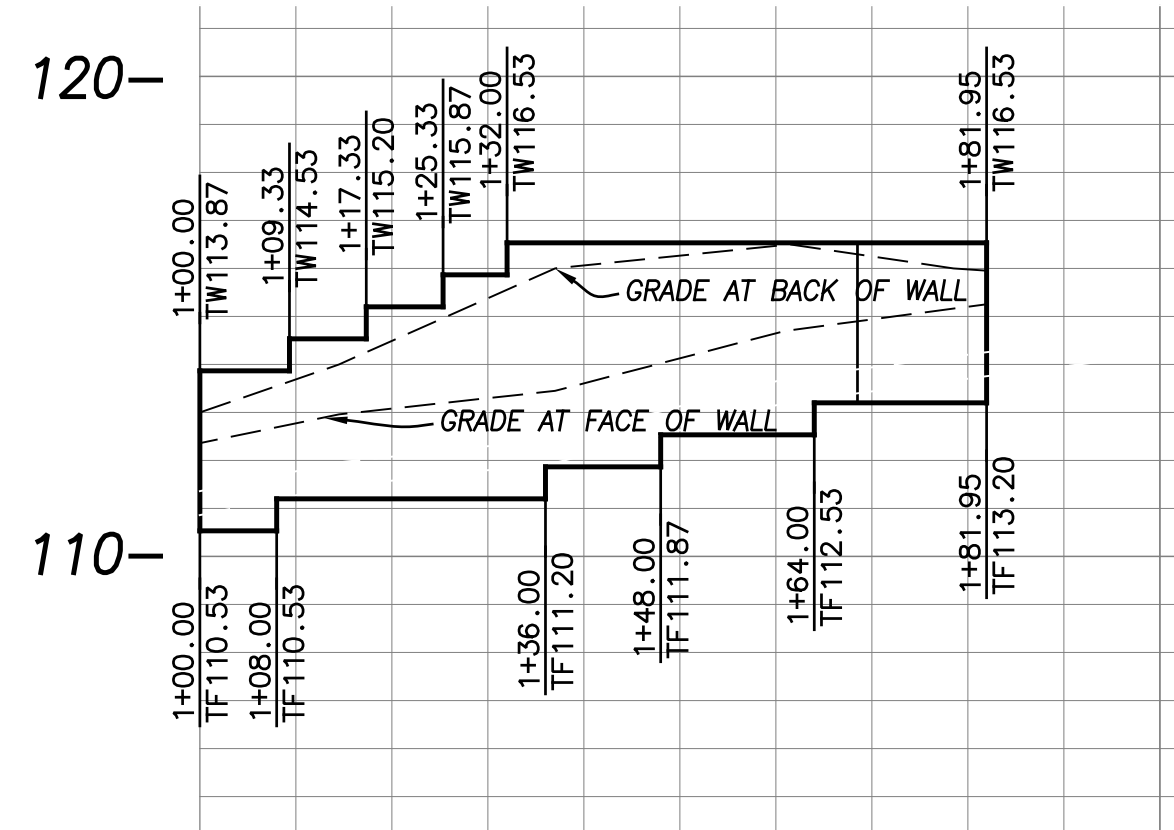
PROFILE: WALL C

SCALE: HORIZ. 1"=20', VERT 1"=4'  
PER CMU STRUCTURAL ENGINEER  
SHEETS 7-8



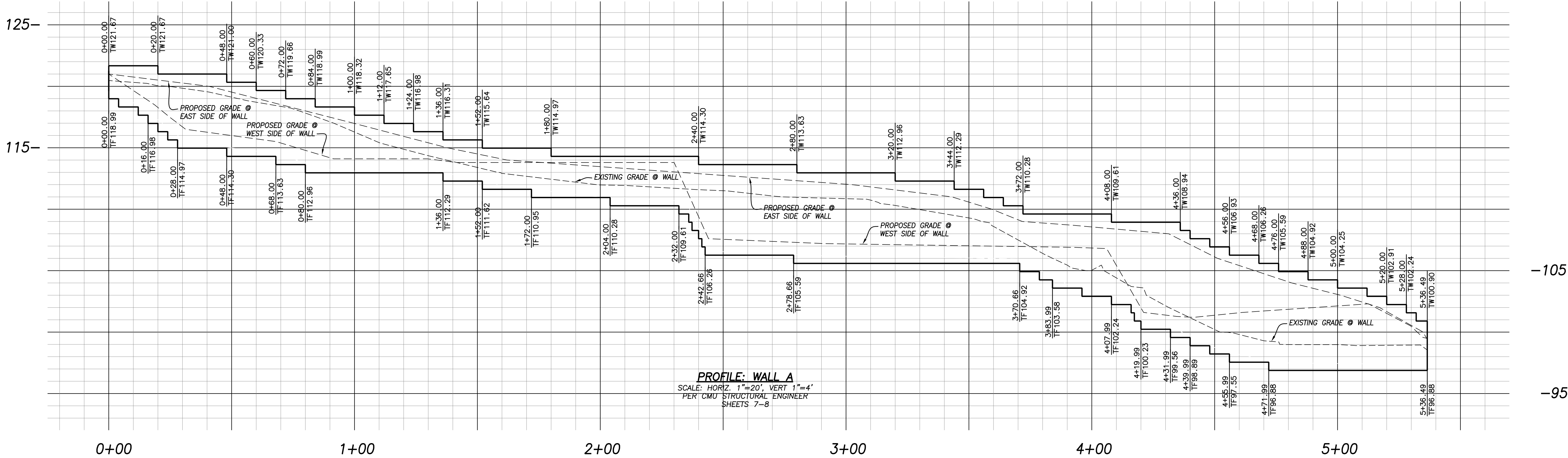
PROFILE: WALL D

SCALE: HORIZ. 1"=20', VERT 1"=4'  
PER CMU STRUCTURAL ENGINEER  
SHEETS 7-8



PROFILE: WALL E

SCALE: HORIZ. 1"=20', VERT 1"=4'  
PER CMU STRUCTURAL ENGINEER  
SHEETS 7-8



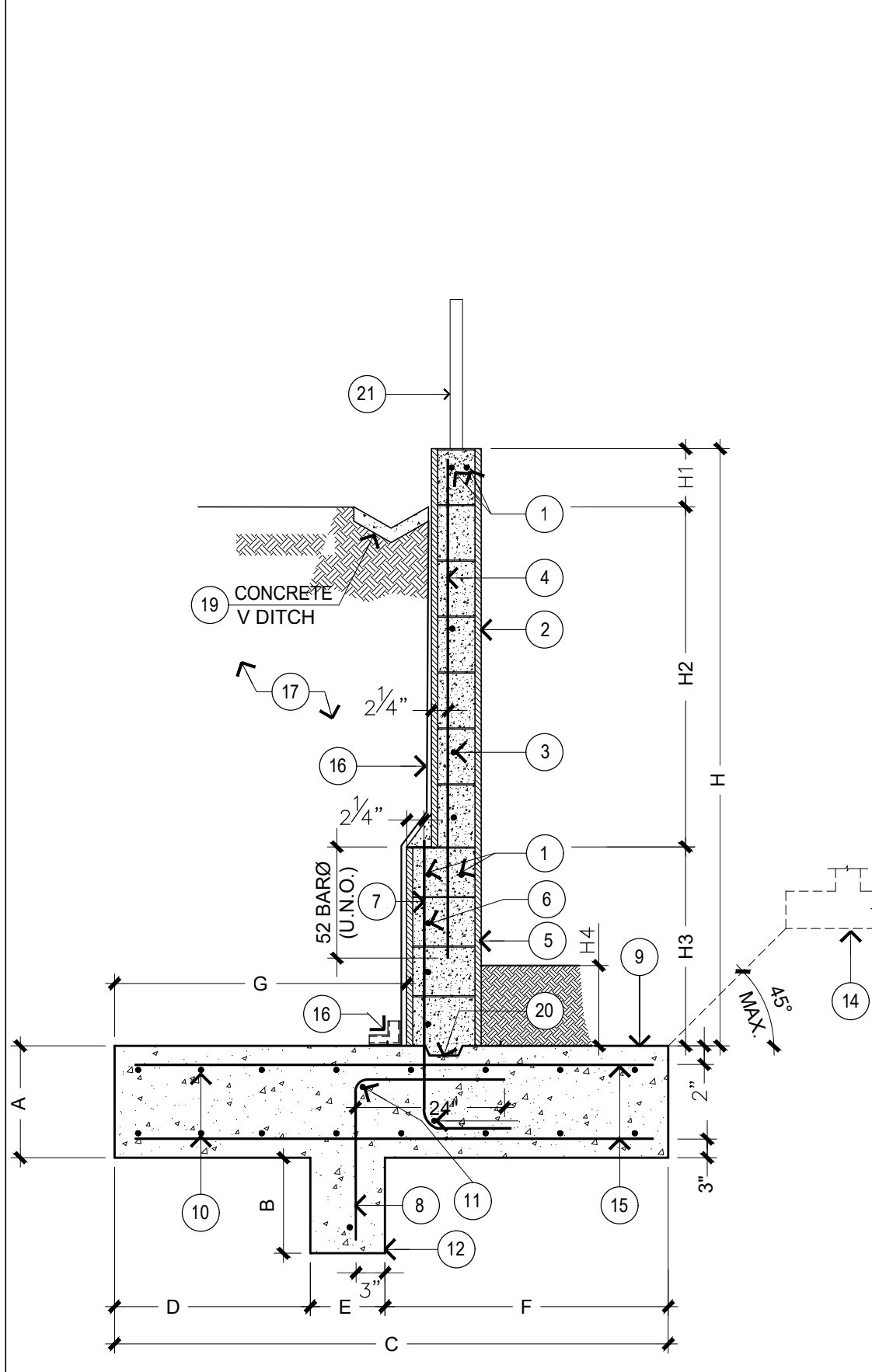
PROFILE: WALL A

SCALE: HORIZ. 1"=20', VERT 1"=4'  
PER CMU STRUCTURAL ENGINEER  
SHEETS 7-8



BY: _____ _____ DATE: _____	GRADING PERMIT _____ _____
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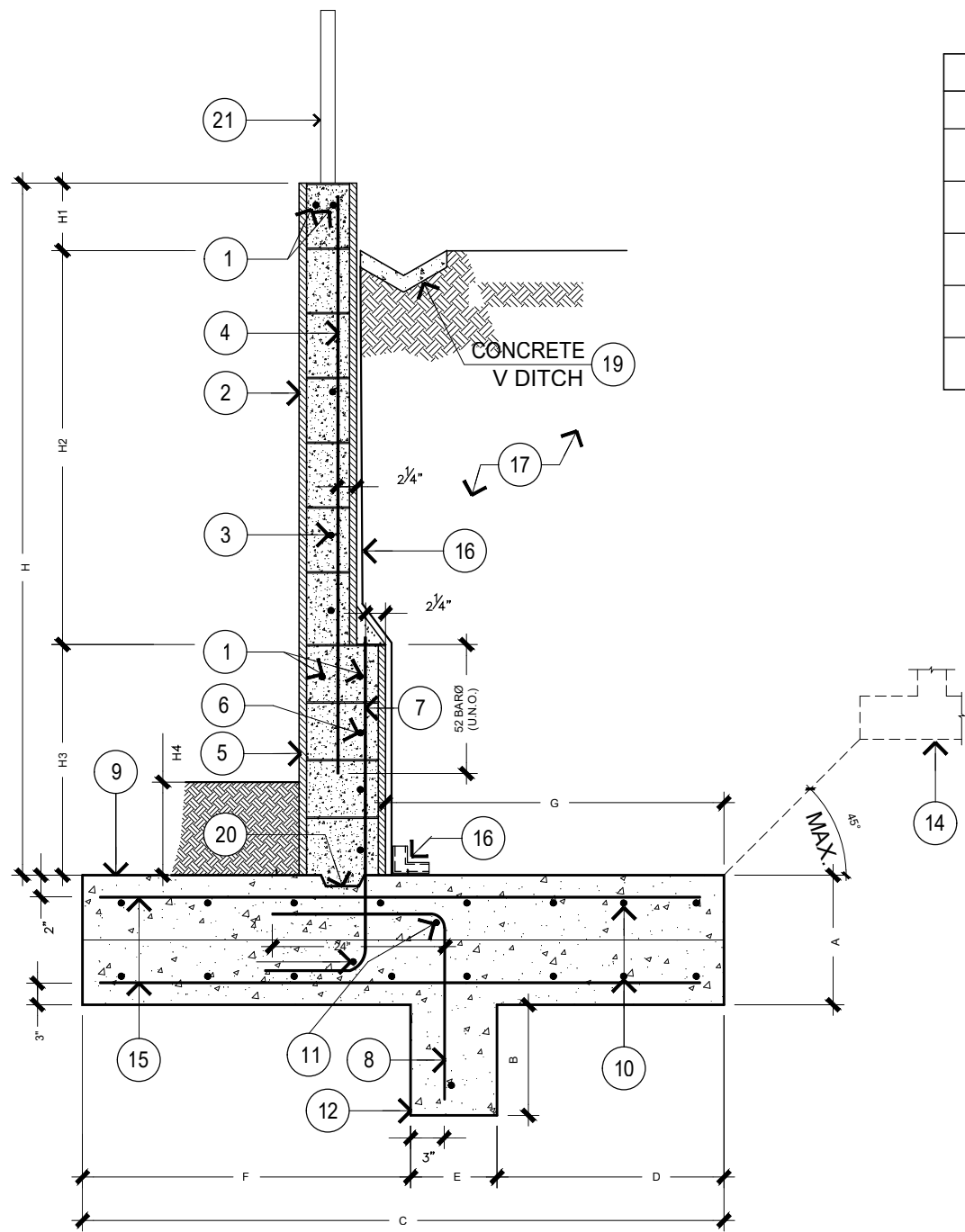
STEM (MAX)							FOUNDATION (FT)						
H	W1	W2	H1	H2	H3	H4 (MIN)	A	B	C	D	E	F	G
2'-8"	N/A	0'-8"	0'-8"	N/A	2'-0"	0'-6"	1'-0"	N/A	2'-0"	N/A	N/A	N/A	0'-8"
4'-8"	N/A	0'-8"	0'-8"	N/A	4'-0"	0'-6"	1'-0"	1'-0"	2'-6"	0'-11"	0'-8"	0'-11"	0'-11"
6'-8"	N/A	0'-8"	0'-8"	N/A	6'-0"	0'-6"	1'-3"	2'-0"	4'-6"	1'-5"	0'-8"	2'-5"	1'-5"
8'-8"	0'-8"	0'-12"	0'-8"	4'-0"	4'-0"	0'-6"	1'-3"	3'-0"	5'-6"	1'-6"	1'-0"	3'-0"	1'-6"
10'-8"	0'-8"	0'-12"	0'-8"	5'-0"	5'-0"	0'-6"	1'-6"	3'-4"	7'-6"	1'-6"	1'-0"	5'-0"	1'-6"

REINFORCEMENT						
H	X1	X2	Y1	Y2	Z	Z1
2'-8"	N/A	#4 @ 16" O.C.	N/A	#4 @ 16" O.C.	#4 @ 9" O.C. BOT.	N/A
4'-8"	N/A	#4 @ 16" O.C.	N/A	#4 @ 16" O.C.	#4 @ 9" O.C. BOT.	#4 @ 9" O.C.
6'-8"	N/A	#4 @ 12" O.C.	N/A	#5 @ 8" O.C.	#5 @ 9" O.C. TOP & BOT.	#4 @ 9" O.C.
8'-8"	#4 @ 12" O.C.	#4 @ 12" O.C.	#4 @ 8" O.C.	#5 @ 8" O.C.	#5 @ 9" O.C. TOP & BOT.	#5 @ 9" O.C.
10'-8"	#4 @ 12" O.C.	#4 @ 12" O.C.	#5 @ 8" O.C.	#7 @ 8" O.C.	#5 @ 8" O.C. TOP & BOT.	#5 @ 9" O.C.

- (2) #4 CONTINUOUS
- "W1" SOLID GROUTED CMU.
- X1-BARS PER SCHEDULE
- Y1-BARS PER SCHEDULE
- "W2" SOLID GROUTED C.M.U.
- X2-BARS PER SCHEDULE
- Y2-BARS PER SCHEDULE
- DOWEL INTO FOOTING AS SHOWN W/ STD. HOOK
- Z1-VERT. BARS PER SCHEDULE & #4 @ 12" O.C. HORIZONTAL U.N.O. CONC. FOOTING
- #4 @ 12" O.C. T & B.
- ADD #5
- CONC. KEY PER SCHEDULE
- DRAINAGE BY OTHERS
- FOOTING @ ADJACENT STRUCTURE-BUILDING
- Z-BARS PER SCHEDULE
- WATERPROOFING & DRAINAGE BY PER SOILS ENGINEER REPORT
- COMPACTED BACKFILL APPROVED BY SOILS ENGINEER
- 12"-18" COMPACTED NATIVE BACK-FILL
- IF REQUIRED PER CIVIL DWGS.
- 2X6 CONT. SHEAR KEY (ALT. PLACE 1st BLK. INTO WET CONC. W/ MIN. 2" EMBED.)

21. FENCE & CONNECTION PER DETAIL 5/- ON THIS SHEET.

- \*NOTES:
- WATERPROOFING, EXTENT OF BACKFILL, BACKFILL MATERIAL & DRAINAGE SYSTEM TO BE REVIEWED & APPROVED BY GEOTECHNICAL ENGINEER.
  - EDGE DISTANCE TO REBAR INDICATED IS CLEAR DIMENSION.
  - FOR DRAINAGE REQUIREMENTS SEE SHEET 2



STEM (MAX)							FOUNDATION (FT)						
H	W1	W2	H1	H2	H3	H4 (MIN)	A	B	C	D	E	F	G
2'-8"	N/A	0'-8"	0'-8"	N/A	2'-0"	0'-6"	1'-0"	N/A	2'-0"	N/A	N/A	N/A	0'-8"
4'-8"	N/A	0'-8"	0'-8"	N/A	4'-0"	0'-6"	1'-0"	1'-0"	2'-6"	0'-11"	0'-8"	0'-11"	0'-11"
6'-8"	N/A	0'-8"	0'-8"	N/A	6'-0"	0'-6"	1'-3"	2'-0"	4'-0"	1'-8"	0'-8"	1'-8"	1'-8"
8'-8"	0'-8"	0'-12"	0'-8"	4'-0"	4'-0"	0'-6"	1'-3"	3'-0"	5'-0"	2'-0"	1'-0"	2'-0"	2'-0"
10'-8"	0'-8"	0'-12"	0'-8"	5'-0"	5'-0"	0'-6"	1'-6"	3'-6"	6'-6"	1'-6"	2'-9"	2'-9"	2'-9"

REINFORCEMENT						
H	X1	X2	Y1	Y2	Z	Z1
2'-8"	N/A	#4 @ 16" O.C.	N/A	#4 @ 16" O.C.	#4 @ 9" O.C. BOT.	N/A
4'-8"	N/A	#4 @ 16" O.C.	N/A	#4 @ 16" O.C.	#4 @ 9" O.C. BOT.	#4 @ 9" O.C.
6'-8"	N/A	#4 @ 12" O.C.	N/A	#5 @ 8" O.C.	#5 @ 9" O.C. TOP & BOT.	#4 @ 9" O.C.
8'-8"	#4 @ 12" O.C.	#4 @ 12" O.C.	#4 @ 8" O.C.	#5 @ 8" O.C.	#5 @ 9" O.C. TOP & BOT.	#5 @ 9" O.C.
10'-8"	#4 @ 12" O.C.	#4 @ 12" O.C.	#5 @ 8" O.C.	#6 @ 8" O.C.	#5 @ 8" O.C. TOP & BOT.	#5 @ 9" O.C.

- (2) #4 CONTINUOUS
- "W1" SOLID GROUTED CMU.
- X1-BARS PER SCHEDULE
- Y1-BARS PER SCHEDULE
- "W2" SOLID GROUTED C.M.U.
- X2-BARS PER SCHEDULE
- Y2-BARS PER SCHEDULE
- DOWEL INTO FOOTING AS SHOWN W/ STD. HOOK
- Z1-VERT. BARS PER SCHEDULE & #4 @ 12" O.C. HORIZONTAL U.N.O. CONC. FOOTING
- #4 @ 12" O.C. T & B.
- ADD #5
- CONC. KEY PER SCHEDULE
- DRAINAGE BY OTHERS
- FOOTING @ ADJACENT STRUCTURE-BUILDING
- Z-BARS PER SCHEDULE
- WATERPROOFING & DRAINAGE BY PER SOILS ENGINEER REPORT
- COMPACTED BACKFILL APPROVED BY SOILS ENGINEER
- 12"-18" COMPACTED NATIVE BACK-FILL
- IF REQUIRED PER CIVIL DWGS.
- 2X6 CONT. SHEAR KEY (ALT. PLACE 1st BLK. INTO WET CONC. W/ MIN. 2" EMBED.)

21. FENCE & CONNECTION PER DETAIL 5/- ON THIS SHEET
- \*NOTES:
- WATERPROOFING, EXTENT OF BACKFILL, BACKFILL MATERIAL & DRAINAGE SYSTEM TO BE REVIEWED & APPROVED BY GEOTECHNICAL ENGINEER.
  - EDGE DISTANCE TO REBAR INDICATED IS CLEAR DIMENSION.
  - FOR DRAINAGE REQUIREMENTS SEE SHEET 2

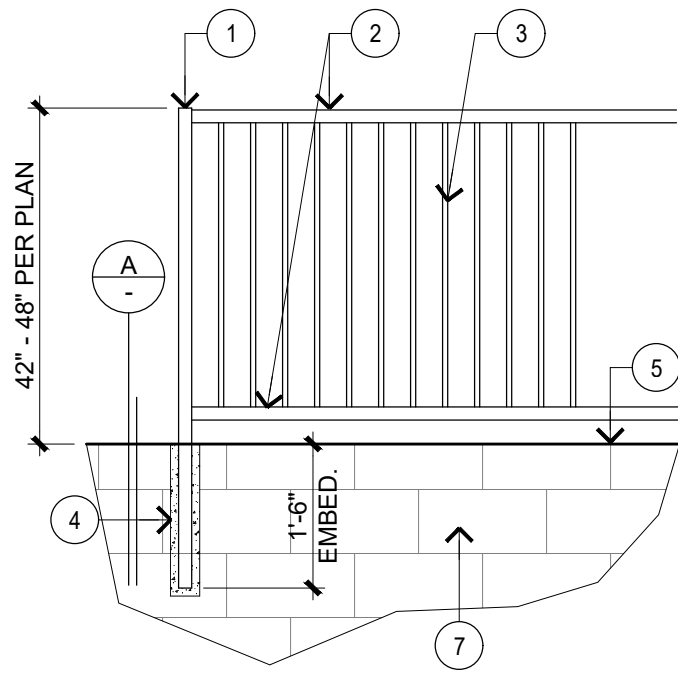
## RETAINING WALL B

RW17

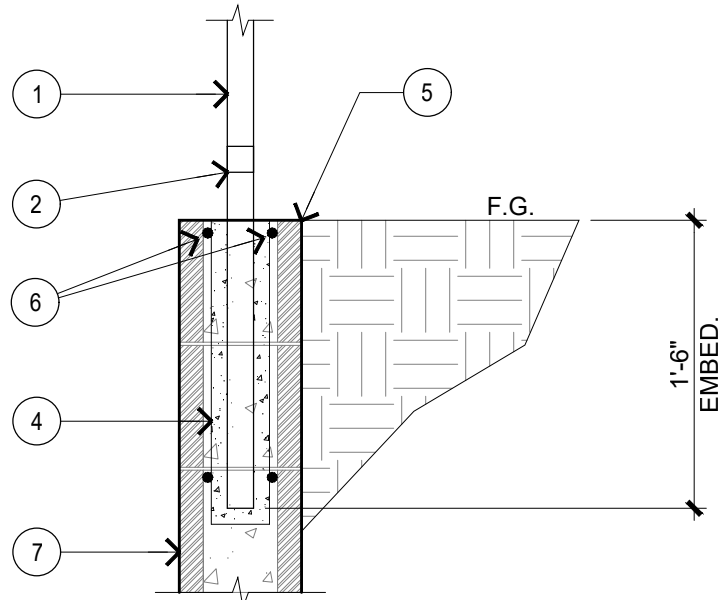
## RETAINING WALL A

RW17

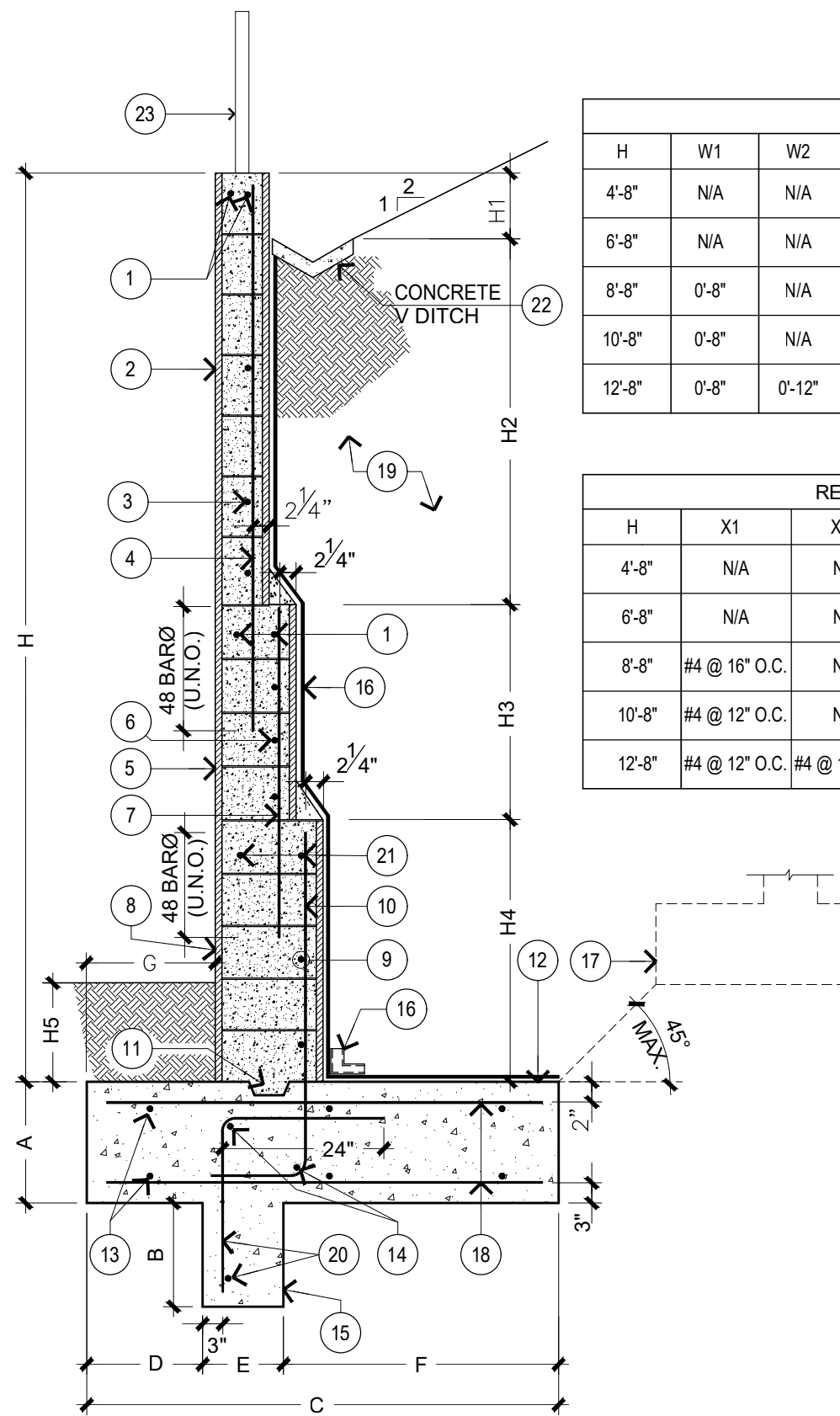
1



- 1-5/8"Ø ROUND TUBULAR STEEL POST @ 8'-0"
- 1-5/8"Ø ROUND TOP AND BOTTOM RAIL
- 5/8"Ø ROUND PICKETS @ 4" O.C.
- SLEEVE +1" POST DIA. AND SOLID GROUT (2500 PSI) W/ 18" EMBED CENTERED IN RETAINING WALL CMU BLOCK
- T.O. CMU RETAINING WALL
- (1) #4 BAR X 4'-0" LONG EACH SIDE OF POST CENTERED LONGITUDINALLY AS SHOWN
- CMU RETAINING WALL PER PLAN



SECTION "A"



STEM (MAX)									FOUNDATION (FT)						
H	W1	W2	W3	H1	H2	H3	H4	H5 (MIN)	A	B	C	D	E	F	G
4'-8"	N/A	N/A	0'-8"	0'-8"	N/A	N/A	4'-0"	0'-6"	1'-0"	N/A	3'-0"	N/A	N/A	N/A	1'-2"
6'-8"	N/A	N/A	0'-8"	0'-8"	N/A	N/A	6'-0"	0'-6"	1'-3"	1'-0"	5'-3"	2'-4"	0'-8"	2'-4"	2'-4"
8'-8"	0'-8"	N/A	0'-12"	0'-8"	4'-0"	N/A	4'-0"	0'-6"	1'-3"	2'-0"	7'-3"	3'-2"	1'-0"	3'-2"	3'-2"
10'-8"	0'-8"	N/A	0'-12"	0'-8"	5'-0"	N/A	5'-0"	0'-6"	1'-9"	3'-0"	9'-0"	4'-0"	1'-0"	4'-0"	4'-0"
12'-8"	0'-8"	0'-12"	0'-16"	0'-8"	4'-0"	4'-0"	4'-0"	0'-6"	1'-9"	4'-0"	10'-9"	4'-9"	1'-0"	5'-1"	4'-9"

REINFORCEMENT						
H	X1	X2	X3	Y1	Y2	Z1
4'-8"	N/A	N/A	#4 @ 16" O.C.	N/A	N/A	#4 @ 8" O.C.
6'-8"	N/A	N/A	#4 @ 12" O.C.	N/A	N/A	#5 @ 8" O.C.
8'-8"	#4 @ 16" O.C.	N/A	#4 @ 12" O.C.	#4 @ 8" O.C.	N/A	#5 @ 8" O.C.
10'-8"	#4 @ 12" O.C.	N/A	#4 @ 12" O.C.	#5 @ 8" O.C.	N/A	#6 @ 8" O.C.
12'-8"	#4 @ 12" O.C.	#4 @ 12" O.C.	#4 @ 12" O.C.	#5 @ 8" O.C.	#7 @ 8" O.C.	#8 @ 8" O.C.

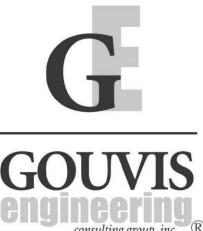
- (2) #4 CONTINUOUS
- "W1" SOLID GROUTED CMU.
- X1-BARS PER SCHEDULE
- Y1-BARS PER SCHEDULE
- "W2" SOLID GROUTED C.M.U.
- X2-BARS PER SCHEDULE
- Y2-BARS PER SCHEDULE
- "W3" SOLID GROUTED C.M.U.
- X3-BARS PER SCHEDULE
- Y3-BARS PER SCHEDULE
- DOWEL INTO FTWQ AS SHOWN W/ STD. HOOK
- 2X6 CONT. SHEAR KEY (ALT. PLACE 1st BLK. INTO WET CONC. WITH MIN. 2" EMBED.)
- CONCRETE FOOTING
- #4 @ 12" O.C. T & B.
- ADD #5
- CONC. KEY PER SCHEDULE

16. WATERPROOFING & DRAINAGE BY PER SOILS ENGINEER REPORT
  17. FOOTING @ ADJACENT STRUCTURE-BUILDING
  18. Z-BARS PER SCHEDULE
  19. COMPACTED BACKFILL APPROVED BY SOILS ENGINEER
  20. #5 @ 18" O.C. VERT. AND #4 @ 16" O.C. HORIZONTAL U.N.O.
  21. (2) #5 HORIZ. CONTINUOUS
  22. IF REQUIRED PER CIVIL DWGS.
  23. FENCE & CONNECTION PER DETAIL 5/- ON THIS SHEET.
- \*NOTES:
- WATERPROOFING, EXTENT OF BACKFILL, BACKFILL MATERIAL & DRAINAGE SYSTEM TO BE REVIEWED & APPROVED BY GEOTECHNICAL ENGINEER.
  - EDGE DISTANCE TO REBAR INDICATED IS CLEAR DIMENSION.
  - FOR DRAINAGE REQUIREMENTS SEE SHEET 2

## RETAINING WALL C, D, E

RW1

3



15 Studebaker  
Irvine  
CA 92618  
  
Irvine  
tel 949.752.1612  
fax 949.752.5321  
  
Palm Springs  
tel 760.323.5090

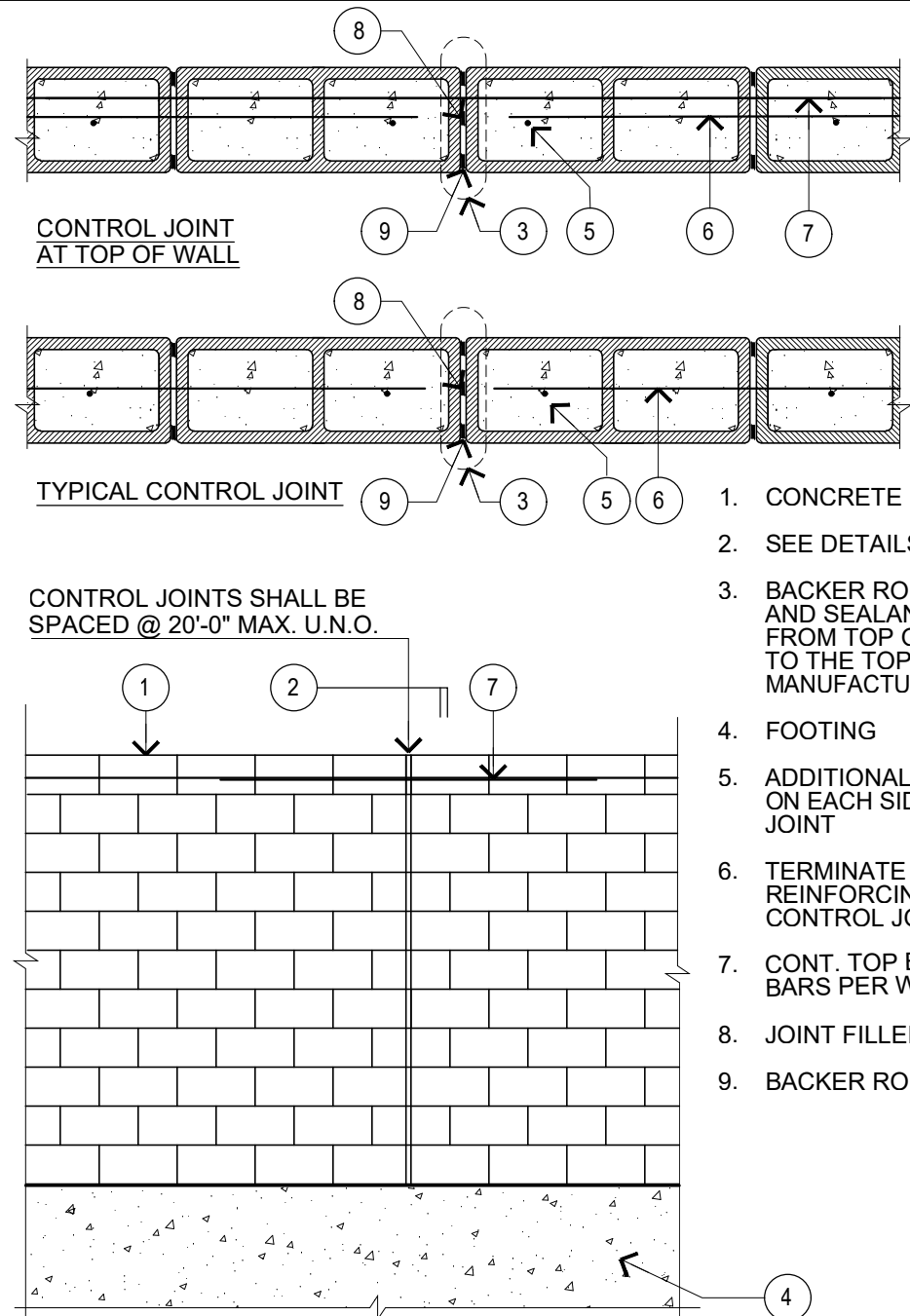


### COUNTY APPROVED CHANGES

NO.	DESCRIPTION	APPROVED BY	DATE

### BENCHMARK

DESCRIPTION:	CITY OF SAN DIEGO BENCHMARK NO. 16070
LOCATION:	BRASS PLUG IN TOP OF NORTHEAST CURB
RECORD FROM:	CITY OF SAN DIEGO
ELEVATION:	167.361
DATUM:	NGVD-29



## TYP. CMU WALL CONTROL JOINT DET.

D5125-110208

4

### RECORD PLAN

NAME: \_\_\_\_\_  
R.C.E.: \_\_\_\_\_  
DATE: \_\_\_\_\_

### PRIVATE CONTRACT

SHEET 8 COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS 18 SHEET

STRUCTURAL PLANS FOR :

2542 RIDGEWAY DRIVE  
NATIONAL CITY, CA 91950  
CALIFORNIA COORDINATE INDEX 182-1743

APPROVED FOR: COUNTY ENGINEER WILLIAM P. MORGAN ENGINEER OF WORK: HUAN NGUYEN  
EXP. 6-30-23 R.C.E. C64238

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
GRADING PERMIT NO. EC68022-LOGRAJ-93073

## Tubular Steel Fence/Rail

5



ANCHOR BLOCK RETAINING WALL PLAN  
FOR  
2542 RIDGEWAY DRIVE  
NATIONAL CITY, CALIFORNIA

SHEET INDEX	
NUMBER	TITLE
9	GENERAL NOTES
10	TYPICAL DETAILS
11	SITE PLAN, TYP. SECTIONS, & WALL ELEVATIONS

PRIVATE ENGINEER'S NOTICE TO CONTRACTORS:  
THE CONTRACTOR IS REQUIRED TO TAKE ALL PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES ON SITE, AND ANY OTHER LINES OR STRUCTURES NOT SHOWN ON THESE PLANS, AND IS RESPONSIBLE FOR THE PROTECTION OF AND ANY DAMAGE TO THESE LINES OR STRUCTURES.

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

THE CONTRACTOR SHALL BE RESPONSIBLE TO REPORT DISCREPANCIES IN PLANS AND/OR FIELD CONDITIONS IMMEDIATELY TO THE DESIGN ENGINEER FOR RESOLUTION PRIOR TO CONSTRUCTION, AND SHALL BE RESPONSIBLE FOR DISCREPANCIES NOT SO REPORTED AND RESOLVED.

NOTE:  
REFER TO GRADING PLANS FOR WALL LOCATIONS, FINISHED GRADE ELEVATIONS, AND WALL STATIONING. THE WALL BOTTOM ELEVATION IS BASED ON FINISHED GRADE ELEVATION PLUS EMBEDMENT REQUIRED FOR THE WALL. ANY DISCREPANCY IN WALL ELEVATIONS SHOULD BE BROUGHT TO OUR ATTENTION.

**CONSTRUCTION NOTES:**

1. STAKE WALL ALIGNMENT AND BACK-CUT LIMITS.
2. EXCAVATE AND STOCKPILE SOIL.
3. EXCAVATE TRENCH FOR LEVELING PAD.
4. INSTALL LEVELING PAD, BACK-CUT DRAIN AND SUBDRAIN.
5. INSTALL ANCHOR BLOCKS AND GEGRID REINFORCEMENT.
6. PLACE UNIT FILL IN AND BEHIND ANCHOR BLOCKS.
7. PLACE BACKFILL AND COMPACT.
8. FINISH GRADING BEHIND THE WALL.

ALL WORK ON THIS PROJECT SHALL CONFORM TO THE 2019 CALIFORNIA BUILDING CODE

**SPECIAL INSPECTION ITEMS:**

- SOIL TYPE, CLASSIFICATION, SHEAR STRENGTH PARAMETERS, AND COMPACTION FOR SUBGRADE.
- SOIL TYPE, CLASSIFICATION, SHEAR STRENGTH PARAMETERS, AND COMPACTION FOR BACKFILL.
- COMPACTION OF SUBGRADE PRIOR TO LEVELING PAD PLACEMENT.
- COMPACTION OF BACKFILL TO 90% OF MAX. DRY DENSITY PER ASTM D1557.
- SOIL TYPE TO MEET MINIMUM DESIGN REQUIREMENT.
- PLACEMENT OF LEVELING PAD.
- PLACEMENT OF BLOCKS AND GEOTRIGS.
- SUB-DRAIN PLACEMENT.
- WALL BATTER (SEE DRAWING).

MINIMUM SOIL PROPERTIES:		
REINFORCED FILL: Φ = 29 DEGREES	RETAINED SOIL: Φ = 29 DEGREES	FOUNDATION SOIL: Φ = 29 DEGREES
γ = 130 PCF	γ = 130 PCF	γ = 130 PCF
C = 0 PSF	C = 0 PSF	C = 0 PSF
SEISMIC DESIGN ACCELERATION: USED IN ANCHOR WALL DESIGN = 0.40g		

REFERENCE:  
GRADING PLAN:  
LUNDSTROM ENGINEERING AND SURVEYING, INC., GRADING PLAN, 2542 RIDGEWAY DRIVE,  
NATIONAL CITY, COUNTY OF SAN DIEGO, CALIFORNIA, RECEIVED SEPTEMBER 15, 2021.  
SOIL REPORT:  
KRAZAN & ASSOCIATES, INC., UPDATED GEOTECHNICAL ENGINEERING INVESTIGATION, 2542  
RIDGEWAY DRIVE, NATIONAL CITY, CALIFORNIA, DATED FEBRUARY 24, 2020.  
GEORGD RETAINING WALL SYSTEM, INC., REQUEST FOR SOIL PARAMETERS, PROPOSED  
RESIDENTIAL DEVELOPMENT RIDGEWAY, NATIONAL CITY, CALIFORNIA, DATED JULY 8, 2021.  
ES REPORT:  
ICC EVALUATION SERVICE, INC., ES REPORT NO. ESR-1959 FOR ANCHOR WALL SYSTEMS,  
REISSUED JULY 2022.

**SPECIAL INSPECTION REQUIRED**

PRIVATE CONTRACT

SHEET 9	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	18 SHEET
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GRADING PLANS FOR :

2542 RIDGEWAY DRIVE  
NATIONAL CITY, CA 91950

APPROVED FOR: WILLIAM P. MORGAN  
COUNTY ENGINEER

ENGINEER OF WORK: JIMMY WANG  


BY:	GRADING PERMIT NO. <u>PDS2020-LDGRMJ-30273</u>
DATE:	

ABI PROJECT NO.: 21225      DATE: 08/23/2022      IN 1209-0

## SLEEVE-IT ASSEMBLY AND INSTALLATION NOTES:

1. GENERAL: THE SLEEVE-IT POST FOUNDATION SYSTEM SHALL BE INSTALLED DURING THE CONSTRUCTION OF THE RETAINING WALLS TO FACILITATE FUTURE FENCE POST INSTALLATION. CONTRACTOR SHALL VERIFY PROPER SPACING REQUIREMENTS PRIOR TO INSTALLATION.

2. GENERAL: THE SLEEVE-IT FOUNDATION REQUIREMENTS RELY ON INSTRUCTIONS PROVIDED WITH UNITS FOR SPECIFIC INFORMATION RELATED TO THE ASSEMBLY OF THE SLEEVE-IT SYSTEM AND THE CORRECT INSTALLATION PROCEDURE. WHEN THE SEGMENTAL RETAINING WALL HAS BEEN CONSTRUCTED TO TWO FEET FROM TOP NOT INCLUDING THE CAPSTONE:

STEP 1: PREPARE A LEVEL AREA APPROXIMATELY 24" WIDE X 36" DEEP BEHIND THE WALL FACE. THE PREPARED AREA SHOULD BE 24" BELOW THE PROPOSED TOP OF WALL (NOT INCLUDING THE CAP STONE).

STEP 2: PLACE THE SLEEVE-IT UNIT ON THE LEVEL SURFACE IN AN UPRIGHT POSITION WITH THE FRONT EDGE OF THE UNIT FLUSH AGAINST THE BACK OF THE WALL. MULTIPLE UNITS SHOULD BE SPACED IN ACCORDANCE WITH FENCE SPECIFICATIONS.

STEP 3: ENCAPSULATE AND STABILIZE THE SLEEVE-IT UNIT BY PLACING AND COMPACTING SUFFICIENT BACKFILL MATERIAL LAYER AS REQUIRED. THE GEGRID IS REQUIRED. SLIT THE GEGRID PERPENDICULAR TO THE WALL FACE TO PROVIDE A FIT AROUND THE SLEEVE-IT UNIT. WHILE ENSURING THAT THE GEGRID REMAINS PROPERLY ATTACHED TO THE WALL, CONTINUE THE BACKFILLING PROCESS UNTIL THE MATERIAL REACHES THE TOP OF THE TOWER. DO NOT REMOVE PERFORATED LID UNIT READY TO PLACE POST. DO NOT STEP ON PERFORATED LID, AS THIS COULD CAUSE SERIOUS BODILY INJURY.

STEP 4: AFTER THE BACKFILLING IS COMPLETED, USING A Mallet or HAMMER TO EXPOSE THE INSIDE OF THE SLEEVE-IT UNIT. DETACHED LIDS CAN BE LEFT INSIDE THE UNIT OR DISCARDED PRIOR TO POURING THE INFILL MATERIAL.

STEP 5: PLACE POST THROUGH THE EXPOSED AREA AND REST ON THE FLAT GROUND SURFACE AREA INSIDE THE SLEEVE-IT Cavity. ENSURE THAT THE POST IS UPRIGHT AND LEVEL AND HOLD IN PLACE WHILE CAREFULLY POURING INFILL MATERIAL SUCH AS CONCRETE INTO THE EXPOSED Cavity. FOLLOW GUIDELINES AS SPECIFIED BY INFILL SUPPLIER. CONCRETE IS HIGHLY RECOMMENDED AS INFILL MATERIAL.

**IMPORTANT NOTE:** BACKFILL SOIL AS PRESCRIBED BY PROJECT'S GEOTECHNICAL ENGINEER. BACKFILL MATERIAL ABOVE AND SURROUNDING THE SLEEVE-IT SYSTEM MUST BE COMPACTED TO A MINIMUM OF 90% OF THE MATERIAL'S COMPACTING SPECIFICATION AS DETERMINED BY ASTM D1557 (MODIFIED PROCTOR). THE WALL AND COMPACTED SOIL WITHIN TWO FEET OF THE WALL FACE SHOULD BE PERFORMED WITH HAND OPERATED EQUIPMENT AS RECOMMENDED BY THE NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA) SRW GUIDELINES.

FENCE POSTS SHALL EXTEND A MINIMUM DISTANCE OF 18" INTO THE SLEEVE TO ENSURE PROPER ENGAGEMENT WITH THE SLEEVE-IT SYSTEM. ALL POSTS MUST BE ON THE INBOARD SIDE OF THE VERTICAL PORTION OF THE CANTILEVER BASE. FILL CAVITY COMPLETELY WITH CONCRETE. WHEN CONCRETE CURES, TOPSOIL OR OTHER SURFICIAL COVER MAY BE PLACED OVER THE SLEEVE-IT SYSTEM TO CREATE FINAL, FINISHED APPEARANCE.

THE SLEEVE-IT PRODUCT SHALL BE EVENLY SPACED NO FARTHER APART THAN 6 FEET ON CENTERS IN ANY CASE. USE OF THE SLEEVE-IT SYSTEM IS LIMITED TO THE FOLLOWING FENCING APPLICATIONS WITHOUT CONSIDERATION OF WIND LOAD:

- 8' HIGH AND UNDER CHAIN LINK FENCES
- 6' HIGH AND UNDER WOOD FENCE WITH GAPS BETWEEN BOARDS
- 6' HIGH AND UNDER BALLUSTRADED PVC, STEEL, ALUMINUM OR WROUGHT IRON FENCES.

## SPECIAL INSPECTION NOTES:

1. NOTICE TO THE APPLICANT/OWNER'S AGENT/ARCHITECT OR ENGINEER OF RECORD: BY USING THIS PERMITTED CONSTRUCTION DRAWINGS FOR CONSTRUCTION/INSTALLATION OF THE WORK SPECIFIED HEREIN, YOU AGREE TO COMPLY WITH THE REQUIREMENTS OF COUNTY OF SAN DIEGO FOR SPECIAL INSPECTIONS, STRUCTURAL OBSERVATIONS, CONSTRUCTION MATERIAL TESTING AND OFF-SITE FABRICATION OF BUILDING COMPONENTS, CONTAINED IN THE STATEMENT OF SECTION INSPECTION AND, AS REQUIRED BY THE CALIFORNIA CONSTRUCTION CODES.
2. THE SPECIAL INSPECTOR SHALL BE CERTIFIED BY THE COUNTY OF SAN DIEGO, DEVELOPMENT SERVICES, IN THE CATEGORY WORK REQUIRED TO HAVE SPECIAL INSPECTIONS.
3. THE SPECIAL INSPECTOR SHALL BE CERTIFIED BY THE COUNTY OF SAN DIEGO, DEVELOPMENT SERVICES, IN THE CATEGORY WORK REQUIRED TO HAVE SPECIAL INSPECTIONS.
4. THE SPECIAL INSPECTOR SHALL BE CERTIFIED BY THE COUNTY OF SAN DIEGO, DEVELOPMENT SERVICES, FOR TESTING OF MATERIALS, COMPONENTS AND EQUIPMENTS.
5. THE SPECIAL INSPECTIONS IDENTIFIED ON PLANS ARE, IN ADDITION TO, AND NOT SUBSTITUTE FOR, THOSE INSPECTIONS REQUIRED TO BE PERFORMED BY THE COUNTY'S PDCI.

VERIFICATION AND INSPECTION	FREQUENCY OF INSPECTION	
	CONTINUOUS DURING TASK LISTED	PERIODIC DURING TASK LISTED
1. VERIFY MATERIAL BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	--	X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	--	X
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	--	X
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	--
5. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	--	X
NOTE: SOILS SPECIAL INSPECTIONS SHALL BE OBSERVED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE (SOILS ENGINEER OR GEOTECHNICAL ENGINEER OF RECORD, WHO HAS PREPARED THE APPROVED GEOTECHNICAL INVESTIGATION REPORT.		

SPECIAL INSPECTION ITEMS FOR ANCHOR RETAINING WALL PER ICC-ES EVALUATION REPORT NO. ESR-1959 SECTION 4.3		
VERIFICATION AND INSPECTION	FREQUENCY OF CONTINUOUS DURING TASK LISTED	INSPECTION PERIODIC DURING TASK LISTED
1. VERIFY THE MODULAR CONCRETE UNIT DIMENSIONS.	---	X
2. VERIFY ANCHOR WALL UNIT IDENTIFICATION OF COMPLIANCE WITH ASTM C1372, INCLUDING COMPRESSIVE STRENGTH AND WATER ABSORPTION, AS DESCRIBED IN SECTION 3.1 OF ICC-ES ESR-1959 REPORT.	---	X
3. VERIFY FOUNDATION PREPARATION.	---	X
4. VERIFY ANCHOR WALL UNIT PLACEMENT, INCLUDING ALIGNMENT AND INCLINATION.	---	X
5. VERIFY GEOSYNTHETIC REINFORCEMENT TYPE (MANUFACTURER AND MODEL NUMBER) AND PLACEMENT.	---	X
6. VERIFY BACKFILL PLACEMENT AND COMPACTION PERFORMED BY PROJECT GEOTECHNICAL ENGINEER OF RECORD.	X	---
7. VERIFY DRAINAGE PROVISIONS.	---	X

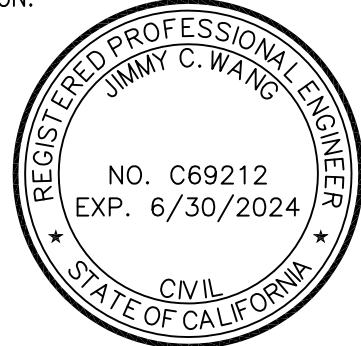
**DECLARATION OF RESPONSIBLE CHARGE ~**  
**ANCHOR RETAINING WALL WORK:**

I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSIONS CODE, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY COUNTY OF SAN DIEGO IS CONFINED TO REVIEW ONLY AND DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN.

JIMMY WANG, RCE 69212 08/23/2022  
EXPIRATION DATE: 06/30/2022 DATE

ABI ENGINEERING CONSULTANTS, INC.  
1701 EAST EDINGER AVENUE, #A9  
SANTA ANA, CALIFORNIA 92705  
TEL: (888) 220-5596



PREPARED BY:	COUNTY APPROVED CHANGES			BENCHMARK	
<b>ABI ENGINEERING</b> <b>CONSULTANTS, INC.</b>  1701 EAST EDINGER AVENUE, SUITE A9 SANTA ANA, CALIFORNIA 92705 TEL: (888) 220-5596 FAX: (714) 866-4171	NO.	DESCRIPTION	APPROVED BY	DATE	DESCRIPTION: <u>CITY OF SAN DIEGO BENCHMARK NO. 16070</u> LOCATION: <u>BRASS PLUG IN TOP OF NORTHEAST CURB</u> <u>RETURN AT INTERSECTION OF RACHEL AVE.</u> <u>AND ROANOKE ST.</u>  RECORD FROM: <u>CITY OF SAN DIEGO</u> ELEVATION: <u>167.361</u> DATUM: <u>NGVD-29</u>

ENGINEER'S NAME: ABI ENGINEERING CONSULTANTS, INC.  
PHONE NO. (888) 220-5596

CONCRETE SEGMENTAL RETAINING WALL SYSTEM

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. RETAINING WALL SYSTEM CONSTRUCTED OF CONCRETE SEGMENTAL RETAINING WALL UNITS.

B. GEOSYNTHETIC REINFORCEMENT FABRIC

C. LEVELING PAD BASE

D. DRAINAGE AGGREGATE

E. BACKFILL

F. DRAINAGE PIPE

G. ADHESIVES

1.2 REFERENCES

A. AMERICAN ASSOCIATION OF STATE HIGHWAY TRANSPORTATION OFFICIALS (AASHTO)

1. AASHTO M288 GEOTECHNICAL SPECIFICATION FOR HIGHWAY APPLICATIONS

2. AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES

B. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

1. ASTM C140 STANDARD TEST METHODS FOR SAMPLING AND TESTING CONCRETE MASONRY UNITS AND RELATED UNITS

2. ASTM C1262 STANDARD TEST METHOD FOR EVALUATING THE FREEZE–THAW DURABILITY OF MANUFACTURED CONCRETE MASONRY UNITS AND RELATED CONCRETE UNITS

3. ASTM C1372 STANDARD SPECIFICATION FOR SEGMENTAL RETAINING WALL UNITS

4. ASTM D448 STANDARD CLASSIFICATION FOR SIZES OF AGGREGATE FOR ROAD AND BRIDGE CONSTRUCTION

5. ASTM D698 STANDARD TEST METHODS FOR LABORATORY COMPACTION CHARACTERISTICS OF SOIL USING STANDARD EFFORT (12,400 FT-LBF/F3)

6. ASTM D1556 STANDARD TEST METHOD FOR DENSITY AND UNIT WEIGHT OF SOIL IN PLACE BY THE SAND CONE METHOD

7. ASTM D1557 STANDARD TEST METHODS FOR LABORATORY COMPACTION CHARACTERISTICS OF SOIL USING MODIFIED EFFORT (56,000 FT-LBF/F3)

8. ASTM D2487 STANDARD CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES (UNIFIED SOIL CLASSIFICATION SYSTEM)

9. ASTM D2922 STANDARD TEST METHODS FOR DENSITY OF SOIL AND SOIL-AGGREGATE IN PLACE BY NUCLEAR METHODS (SHALLOW DEPTH)

10. ASTM D3034 STANDARD SPECIFICATION FOR TYPE PSM POLY(VINYL CHLORIDE) (PVC) SEWER PIPE AND FITTINGS

11. ASTM D4318 STANDARD TEST METHODS FOR LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS

12. ASTM D4595 STANDARD TEST METHOD FOR TENSILE PROPERTIES OF GEOTEXTILES BY THE WIDE-WIDE STRIP METHOD

13. ASTM D5262 STANDARD TEST METHOD FOR EVALUATING THE UNCONFINED TENSION CREEP BEHAVIOR OF GEOSYNTHETICS

14. ASTM F405 STANDARD SPECIFICATION FOR CORRUGATED POLYETHYLENE (PE) TUBINGS AND FITTINGS

15. ASTM G51 STANDARD TEST METHOD FOR MEASURING PH OF SOIL FOR USE IN CORROSION TESTING

C. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)

1. NCMA DESIGN MANUAL FOR SEGMENTAL RETAINING WALLS, SECOND EDITION, SECOND PRINTING (1997)

2. NCMA SRWU-1 DETERMINATION OF CONNECTION STRENGTH BETWEEN GEOSYNTHETICS AND SEGMENTAL CONCRETE UNITS

3. NCMA SRWU-2 DETERMINATION OF SHEAR STRENGTH BETWEEN SEGMENTAL CONCRETE UNITS

1.3 DEFINITIONS

A. BACKFILL: SOIL WHICH IS USED AS FILL BEHIND THE DRAINAGE AGGREGATE, AND WITHIN THE REINFORCED SOIL MASS (IF APPLICABLE).

B. DRAINAGE AGGREGATE: MATERIAL USED WITHIN (IF APPLICABLE), BETWEEN, AND DIRECTLY BEHIND THE CONCRETE RETAINING WALL UNITS.

C. FILTER FABRIC: MATERIAL USED FOR SEPARATION AND FILTRATION OF DISSIMILAR SOIL TYPES.

D. FOUNDATION SOIL: SOIL MASS SUPPORTING THE LEVELING PAD AND REINFORCED SOIL ZONE OF THE RETAINING WALL SYSTEM.

E. GEOSYNTHETIC REINFORCEMENT: MATERIAL SPECIFICALLY FABRICATED FOR USE AS A SOIL REINFORCEMENT.

F. GLOBAL STABILITY: THE GENERAL MASS MOVEMENT OF A SOIL REINFORCED SEGMENTAL RETAINING WALL STRUCTURE AND ADJACENT SOIL MASS.

G. PROJECT GEOTECHNICAL ENGINEER: A REGISTERED ENGINEER EMPLOYED BY THE OWNER TO PERFORM SITE OBSERVATIONS, PROVIDE RECOMMENDATIONS FOR FOUNDATION SUPPORT, AND VERIFY SOIL SHEAR STRENGTH PARAMETERS.

1.4 SUBMITTALS

A. SUBMIT THE FOLLOWING IN ACCORDANCE WITH SECTION 01300:

1. PRODUCT DATA: MATERIAL DESCRIPTION AND INSTALLATION INSTRUCTIONS FOR EACH MANUFACTURED PRODUCT SPECIFIED.

2. SHOP DRAWINGS: RETAINING WALL SYSTEM DESIGN, INCLUDING WALL ELEVATION VIEWS, GEOSYNTHETIC REINFORCEMENT LAYOUT, PERTINENT DETAILS, AND DRAINAGE PROVISIONS. THE SHOP DRAWINGS SHALL BE SIGNED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF WALL INSTALLATION.

3. DESIGN CALCULATIONS: ENGINEERING DESIGN CALCULATIONS PREPARED IN ACCORDANCE WITH THE NCMA DESIGN MANUAL FOR SEGMENTAL RETAINING WALLS, OR THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SECTION 5.8 (WHICHEVER IS APPLICABLE). ANALYSIS OF GLOBAL STABILITY MUST BE ADDRESSED AND INCORPORATED INTO THE SHOP DRAWINGS.

4. SAMPLES

A. FURNISH ONE UNIT IN THE COLOR AND FACE PATTERN SPECIFIED, IF REQUESTED.

B. FURNISH 12 INCH SQUARE OR LARGER PIECE OF THE GEOSYNTHETIC REINFORCEMENT SPECIFIED.

5. TEST REPORTS: INDEPENDENT LABORATORY REPORTS STATING MOISTURE ABSORPTION AND COMPRESSIVE STRENGTH PROPERTIES OF THE CONCRETE RETAINING WALL UNITS MEET THE PROJECT SPECIFICATIONS WHEN TESTED IN ACCORDANCE WITH ASTM C140, SECTIONS 6, 8 AND 9.

1.5 DELIVERY, STORAGE AND HANDLING

A. DELIVER, STORE, AND HANDLE MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, IN SUCH A MANNER AS TO PREVENT DAMAGE. CHECK THE MATERIALS UPON DELIVERY TO ASSURE THAT PROPER MATERIAL HAS BEEN RECEIVED. STORE ABOVE GROUND ON WOOD PALETS OR BLOCKING. REMOVE DAMAGED OR OTHERWISE UNSUITABLE MATERIAL, WHEN SO DETERMINED, FROM THE SITE.

1. EXPOSED FACES OF CONCRETE WALL UNITS SHALL BE FREE OF CHIPS, CRACKS, STAINS, AND OTHER IMPERFECTIONS DETRACTING FROM THEIR APPEARANCE, WHEN VIEWED FROM A DISTANCE OF 10 FEET.

2. PREVENT MUD, WET CEMENT, ADHESIVES AND SIMILAR MATERIALS WHICH MAY HARM APPEARANCE OF UNITS, FROM COMING IN CONTACT WITH SYSTEM COMPONENTS.

1.6 EXTRA MATERIALS

A. FURNISH OWNER WITH 3 REPLACEMENT UNITS IDENTICAL TO THOSE INSTALLED ON THE PROJECT.

PART 2 – PRODUCTS

2.1 MATERIALS

A. CONCRETE RETAINING WALL UNITS: "ANCHOR BLOCK VERTICAL RETAINING WALL UNITS" WITH TEXTURED SPLIT FACE AS MANUFACTURED UNDER LICENSE FROM ANCHOR WALL SYSTEMS.

1. PHYSICAL REQUIREMENTS

A. MEET REQUIREMENTS OF ASTM C1372, EXCEPT THE MAXIMUM WATER ABSORPTION SHALL BE LIMITED TO 7 PERCENT, AND UNIT HEIGHT DIMENSIONS SHALL NOT VARY MORE THAN PLUS OR MINUS 1/16 INCH FROM THAT SPECIFIED IN THE ASTM REFERENCE, NOT INCLUDING TEXTURED FACE.

B. UNIT FACE AREA: NOT LESS THAN 0.94 SQUARE FEET.

C. COLOR: SELECTED BY THE OWNER FROM MANUFACTURER'S FULL RANGE OF STANDARD COLORS.

D. FACE PATTERN GEOMETRY: STRAIGHT OR BEVELED.

E. TEXTURE: SPLIT ROCK FACE.

F. INCLUDE AN INTERNAL CONCRETE SHEAR CONNECTION FLANGE/LOCATOR.

B. GEOSYNTHETIC REINFORCEMENT: AS SPECIFIED ON THE DRAWINGS.

C. LEVELING PAD BASE

1. AGGREGATE BASE: CRUSHED STONE OR GRANULAR FILL MEETING THE FOLLOWING GRADATION AS DETERMINED IN ACCORDANCE WITH ASTM D448:

SIZE, INCHES PERCENT PASSING

1/4 INCH 100

NO. 4 35 TO 70

NO. 40 10 TO 35

NO. 200 3 TO 10

2. ALTERNATE CONCRETE BASE: NONREINFORCED LEAN CONCRETE BASE.

A. COMPRESSIVE STRENGTH: 500 PSI (MAXIMUM).

B. BASE THICKNESS: AT LEAST 2 INCHES, BUT NOT MORE THAN 3 INCHES.

D. DRAINAGE AGGREGATE: CLEAN CRUSHED STONE OR GRANULAR FILL MEETING THE FOLLOWING GRADATION AS DETERMINED IN ACCORDANCE WITH ASTM D448:

SIZE, INCHES PERCENT PASSING

1/4 INCH 100

3/4 INCH 75 TO 100

NO. 4 0 TO 60

NO. 40 0 TO 50

NO. 200 0 TO 5

E. BACKFILL: SOIL FREE OF ORGANICS AND DEBRIS AND CONSISTING OF EITHER GP, GW, SP, SW, OR SM TYPE, CLASSIFIED IN ACCORDANCE WITH ASTM D2487 AND THE USCS CLASSIFICATION SYSTEM.

1. SOILS CLASSIFIED AS SC AND CL ARE CONSIDERED SUITABLE SOILS FOR SEGMENTAL RETAINING WALLS WITH A TOTAL HEIGHT OF LESS THAN 15 FEET UNLESS THE PLASTICITY INDEX (PI) IS 10 OR MORE.

2. UNSUITABLE SOILS ARE ORGANIC SOILS AND THOSE SOILS CLASSIFIED AS CH, OH, MH, OL, OR PT.

F. IMPERVIOUS MATERIAL: CLAYEY SOIL OR OTHER SIMILAR MATERIAL WHICH WILL PREVENT PERCOLATION INTO THE DRAINAGE ZONE BEHIND THE WALL.

G. DRAINAGE PIPE: PERFORATED OR SLOTTED PVC PIPE MANUFACTURED IN ACCORDANCE WITH D3034 AND/OR ASTM F405. THE PIPE MAY BE COVERED WITH A GEOTEXTILE FILTER FABRIC TO FUNCTION AS A FILTER.

H. CONSTRUCTION ADHESIVE: EXTERIOR GRADE ADHESIVE AS RECOMMENDED BY THE RETAINING WALL UNIT MANUFACTURER.

PART 3 – EXECUTION

3.1 EXAMINATION

A. EXAMINE THE AREAS AND CONDITIONS UNDER WHICH THE RETAINING WALL SYSTEM IS TO BE ERECTED, AND NOTIFY THE CONTRACTOR IN WRITING OF CONDITIONS UNFAVORABLE TO THE PROJECTIONS TIMELY COMPLETION OF THE WORK. DO NOT PROCEED WITH THE WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

B. PROMPTLY NOTIFY THE WALL DESIGN ENGINEER OF SITE CONDITIONS WHICH MAY AFFECT WALL PERFORMANCE, SOIL CONDITIONS OBSERVED OTHER THAN THOSE ASSUMED, OR OTHER CONDITIONS THAT MAY REQUIRE A REEVALUATION OF THE WALL DESIGN.

C. VERIFY THE LOCATION OF EXISTING STRUCTURES AND UTILITIES PRIOR TO EXCAVATION.

3.2 PREPARATION

A. ENSURE SURROUNDING STRUCTURES ARE PROTECTED FROM THE EFFECTS OF WALL EXCAVATION.

B. EXCAVATION SUPPORT, IF REQUIRED, IS THE RESPONSIBILITY OF THE CONTRACTOR, INCLUDING THE STABILITY OF THE EXCAVATION AND ITS INFLUENCE ON ADJACENT PROPERTIES AND STRUCTURES.

3.3 EXCAVATION

A. EXCAVATE TO THE LINES AND GRADES SHOWN ON THE DRAWINGS. OVER-EXCAVATION NOT APPROVED BY THE OWNER (OR OWNER'S REPRESENTATIVE) WILL NOT BE PAID FOR BY THE OWNER. REPLACEMENT OF THESE SOILS WITH COMPACTED FILL AND/OR WALL SYSTEM COMPONENTS WILL BE REQUIRED AT THE CONTRACTOR'S EXPENSE. USE CARE IN EXCAVATING TO PREVENT DISTURBANCE OF THE BASE BEYOND THE LINES SHOWN.

3.4 FOUNDATION PREPARATION

A. EXCAVATE FOUNDATION SOIL AS REQUIRED FOR FOOTING OR BASE DIMENSION SHOWN ON THE DRAWINGS, OR AS DIRECTED BY THE PROJECT GEOTECHNICAL ENGINEER.

B. THE PROJECT GEOTECHNICAL ENGINEER WILL EXAMINE FOUNDATION SOIL TO ENSURE THAT THE ACTUAL FOUNDATION SOIL STRENGTH MEETS OR EXCEEDS THAT INDICATED ON THE DRAWINGS. REMOVE SOIL NOT MEETING THE REQUIRED STRENGTH. OVERSIZE RESULTING SPACE SUFFICIENTLY FROM THE FRONT OF THE BLOCK TO THE BACK OF THE REINFORCEMENT, AND BACKFILL WITH SUITABLE COMPACTED BACKFILL SOILS.

C. THE PROJECT GEOTECHNICAL ENGINEER WILL DETERMINE IF THE FOUNDATION SOILS WILL REQUIRE SPECIAL TREATMENT OR CORRECTION TO THE TOTAL ELEVATION OF EACH UNIT WITHIN EACH SECTION OF THE BASE COURSE.

D. FILL OVER-EXCAVATED AREAS WITH SUITABLE COMPACTED BACKFILL, AS RECOMMENDED BY THE PROJECT GEOTECHNICAL ENGINEER.

3.5 BASE COURSE PREPARATION

A. PLACE BASE MATERIALS TO THE DEPTHS AND WIDTHS SHOWN ON THE DRAWINGS, UPON UNDISTURBED SOILS, OR FOUNDATION SOILS PREPARED IN ACCORDANCE WITH ARTICLE 3.04.

1. EXTEND THE LEVELING PAD LATERALLY AT LEAST 6 INCHES IN FRONT AND BEHIND THE LOWERMOST CONCRETE RETAINING WALL UNIT.

2. PROVIDE AGGREGATE BASE COMPACTED TO 6 INCHES THICK (MINIMUM).

3. THE CONTRACTOR MAY AT THEIR OPTION, PROVIDE A CONCRETE LEVELING PAD AS SPECIFIED IN SUBPARAGRAPH 2.01.C.2, IN LIEU OF THE AGGREGATE BASE.

4. WHERE A REINFORCED FOOTING IS REQUIRED BY LOCAL CODE OFFICIAL, PLACE FOOTING BELOW FROST DEPTH.

B. COMPACT AGGREGATE BASE MATERIAL TO PROVIDE A LEVEL, HARD SURFACE ON WHICH TO PLACE THE FIRST COURSE OF UNITS.

C. PREPARE BASE MATERIALS TO ENSURE COMPLETE CONTACT WITH RETAINING WALL UNITS. GAPS ARE NOT ALLOWED.

3.6 ERECTION

A. GENERAL: ERECT UNITS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS, AND AS SPECIFIED HEREIN.

B. PLACE FIRST COURSE OF CONCRETE WALL UNITS ON THE PREPARED BASE MATERIAL. CHECK UNITS FOR LEVEL AND ALIGNMENT. MAINTAIN THE SAME ELEVATION AT THE TOP OF EACH UNIT WITHIN EACH SECTION OF THE BASE COURSE.

C. ENSURE THAT FOUNDATION UNITS ARE IN FULL CONTACT WITH NATURAL OR COMPACTED SOIL BASE.

D. PLACE CONCRETE WALL UNITS SIDE-BY-SIDE FOR FULL LENGTH OF WALL WITH ALIGNMENT. ALIGNMENT MAY BE DONE BY USING A STRING LINE MEASURED FROM THE BACK OF THE BLOCK. GAPS ARE NOT ALLOWED BETWEEN THE FOUNDATION CONCRETE WALL UNITS.

E. PLACE 12 INCHES (MINIMUM) OF DRAINAGE AGGREGATE BETWEEN, AND DIRECTLY BEHIND THE CONCRETE WALL UNITS. FILL VOIDS IN RETAINING WALL UNITS WITH DRAINAGE AGGREGATE. PROVIDE A DRAINAGE ZONE WITHIN THE WALL UNITS TO WITHIN 9 INCHES OF THE FINAL GRADE. CAP THE BACKFILL AND DRAINAGE AGGREGATE ZONE WITH 9 INCHES OF IMPERVIOUS MATERIAL.

F. INSTALL DRAINAGE PIPE AT THE LOWEST ELEVATION POSSIBLE, TO MAINTAIN GRAVITY FLOW OF WATER TO OUTSIDE OF THE REINFORCED ZONE. SLOPE THE MAIN COLLECTION DRAINAGE PIPE, LOCATED JUST BEHIND THE CONCRETE RETAINING WALL UNITS, 2 PERCENT (MINIMUM) TO PROVIDE GRAVITY FLOW TO THE DAYLIGHTED AREAS. DAYLIGHT THE MAIN COLLECTION DRAINAGE PIPE TO AN APPROPRIATE LOCATION AWAY FROM THE WALL SYSTEM AT EACH LOW POINT OR AT 50 FOOT (MAXIMUM) INTERVALS ALONG THE WALL.

G. REMOVE EXCESS FILL FROM TOP OF UNITS AND INSTALL NEXT COURSE. ENSURE DRAINAGE AGGREGATE AND BACKFILL ARE COMPACTED BEFORE INSTALLATION OF NEXT COURSE.

H. CHECK EACH COURSE FOR LEVEL AND ALIGNMENT. ADJUST UNITS AS NECESSARY WITH REINFORCEMENT SHIMS TO MAINTAIN LEVEL, ALIGNMENT, AND SETBACK PRIOR TO NEXT COURSE.

I. INSTALL EACH SUCCEEDING COURSE. BACKFILL AS EACH COURSE IS COMPLETED. PULL THE UNITS FORWARD UNTIL THE LOCATING SURFACE OF THE UNIT CONTACTS THE LOCATING SURFACE OF THE UNITS IN THE PRECEDING COURSE. INTERLOCK WALL SEGMENTS THAT MEET AT CORNERS BY OVERLAPPING SUCCESSIVE COURSES. ATTACH CONCRETE RETAINING WALL UNITS AT EXTERIOR CORNERS WITH ADHESIVE SPECIFIED.

J. INSTALL GEOSYNTHETIC REINFORCEMENT IN ACCORDANCE WITH GEOSYNTHETIC MANUFACTURER'S RECOMMENDATIONS AND THE SHOP DRAWINGS.

1. ORIENT GEOSYNTHETIC REINFORCEMENT WITH THE HIGHEST STRENGTH AXIS PERPENDICULAR TO THE WALL FACE.

2. PRIOR TO GEOSYNTHETIC REINFORCEMENT PLACEMENT, PLACE THE BACKFILL AND COMPACT TO THE ELEVATION OF THE TOP OF THE WALL UNITS AT THE ELEVATION OF THE GEOSYNTHETIC REINFORCEMENT.

3. PLACE GEOSYNTHETIC REINFORCEMENT AT THE SPECIFICATIONS AND TO THE LENGTHS SHOWN ON THE DRAWINGS.

4. LAY GEOSYNTHETIC REINFORCEMENT HORIZONTALLY ON TOP OF THE CONCRETE RETAINING WALL UNITS AND THE COMPACTED BACKFILL SOILS. PLACE THE GEOSYNTHETIC REINFORCEMENT WITHIN ONE INCH OF THE FACE OF THE CONCRETE RETAINING WALL UNITS. PLACE THE NEXT COURSE OF CONCRETE RETAINING WALL UNITS ON TOP OF THE GEOSYNTHETIC REINFORCEMENT.

5. THE GEOSYNTHETIC REINFORCEMENT SHALL BE IN TENSION AND FREE FROM WRINKLES PRIOR TO PLACEMENT OF THE BACKFILL SOILS. PULL THE GEOSYNTHETIC REINFORCEMENT IN THIS ZONE HAND-TAUT AND SECURE IN PLACE WITH STAPLES, STAKES, OR BY HAND-TENSIONING UNITS. THE GEOSYNTHETIC REINFORCEMENT IS COVERED BY 6 INCHES OF LOOSE FILL.

6. THE GEOSYNTHETIC REINFORCEMENTS SHALL BE CONTINUOUS THROUGHOUT THEIR EMBEDMENT LENGTHS. SPLICES IN THE GEOSYNTHETIC REINFORCEMENT STRENGTH DIRECTION ARE NOT ALLOWED.

7. DO NOT OPERATE TRACKED CONSTRUCTION EQUIPMENT DIRECTLY ON THE GEOSYNTHETIC REINFORCEMENT. AT LEAST 6 INCHES OF COMPACTED BACKFILL SOIL IS REQUIRED PRIOR TO OPERATION OF TRACKED VEHICLES OVER THE GEOSYNTHETIC REINFORCEMENT. KEEP TURNING OF TRACKED CONSTRUCTION EQUIPMENT TO A MINIMUM.

8. RUBBER-TIRED EQUIPMENT MAY PASS OVER THE GEOSYNTHETIC REINFORCEMENT AT SPEEDS OF LESS THAN 5 MILES PER HOUR. TURNING OF RUBBER-TIRED EQUIPMENT IS NOT ALLOWED ON THE GEOSYNTHETIC REINFORCEMENT.

3.7 BACKFILL PLACEMENT

A. PLACE REINFORCED BACKFILL, SPREAD AND COMPACT IN A MANNER THAT WILL MINIMIZE SLACK IN THE REINFORCEMENT.

B. PLACE FILL WITHIN THE REINFORCED ZONE AND COMPACT IN LIFTS NOT EXCEEDING 6 TO 8 INCHES (LOOSE THICKNESS) WHERE HAND-OPERATED COMPACTION EQUIPMENT IS USED, AND NOT EXCEEDING 8 INCHES (LOOSE THICKNESS) WHERE HEAVY, SELF-PROPELLED COMPACTION EQUIPMENT IS USED.

1. ONLY LIGHTWEIGHT HAND-OPERATED COMPACTION EQUIPMENT IS ALLOWED WITHIN 4 FEET OF THE BACK OF THE RETAINING WALL UNITS. IF THE SPECIFIED COMPACTION CANNOT BE ACHIEVED WITHIN 4 FEET OF THE BACK OF THE RETAINING WALL UNITS, REPLACE THE DRAINAGE AGGREGATE MATERIAL.

C. MINIMUM COMPACTION REQUIREMENTS FOR FILL PLACED IN THE REINFORCED ZONE

1. COMPACT TO 90 PERCENT OF THE SOIL'S MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D1557) FOR THE ENTIRE WALL HEIGHT.

2. UTILITY TRENCH BACKFILL: COMPACT UTILITY TRENCH BACKFILL IN OR BELOW THE REINFORCED SOIL ZONE TO 95 PERCENT OF THE SOIL'S MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D1557), OR AS RECOMMENDED BY THE PROJECT GEOTECHNICAL ENGINEER.

A. UTILITIES MUST BE PROPERLY DESIGNED (BY OTHERS) TO WITHSTAND ALL FORCES FROM THE RETAINING WALL UNITS, REINFORCED SOIL MASS, AND SURCHARGE LOADS, IF ANY.

3. MOISTURE CONTENT: WITHIN 2 PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT FOR ALL WALL HEIGHTS.

4. THESE SPECIFICATIONS MAY BE CHANGED BASED ON RECOMMENDATIONS BY THE PROJECT GEOTECHNICAL ENGINEER. IF CHANGES ARE REQUIRED, THE CONTRACT SUM WILL BE ADJUSTED BY WRITTEN CHANGE ORDER.

D. AT THE END OF EACH DAY'S OPERATION, SLOPE THE LAST LAYER OF COMPACTED BACKFILL AWAY FROM THE INTERIOR (CONCEALED) FACE OF THE WALL TO DIRECT SURFACE WATER RUNOFF AWAY FROM THE WALL FACE.

1. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THE FINISHED SITE DRAINAGE IS DIRECTED AWAY FROM THE RETAINING WALL SYSTEM.

2. IN ADDITION, THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT SURFACE WATER RUNOFF FROM ADJACENT CONSTRUCTION AREAS IS NOT ALLOWED TO ENTER THE RETAINING WALL AREA OF THE CONSTRUCTION SITE.

3.8 CAP UNIT INSTALLATION

A. APPLY ADHESIVE TO THE TOP SURFACE OF THE UNIT BELOW AND PLACE THE CAP UNIT INTO DESIRED POSITION.

B. CUT CAP UNITS AS NECESSARY TO OBTAIN THE PROPER FIT.

C. BACKFILL AND COMPACT TO TOP OF CAP UNIT.

3.9 SITE CONSTRUCTION TOLERANCES

A. SITE CONSTRUCTION TOLERANCES

1. VERTICAL ALIGNMENT: PLUS OR MINUS 1-1/2 INCHES OVER ANY 10-FOOT DISTANCE, WITH A MAXIMUM DIFFERENTIAL OF 3 INCHES OVER THE LENGTH OF THE WALL.

2. HORIZONTAL LOCATION CONTROL: FROM GRADING PLAN

A. STRAIGHT LINES: PLUS OR MINUS 1-1/2 INCHES OVER ANY 10-FOOT DISTANCE.

B. CORNER AND RADIUS LOCATIONS: PLUS OR MINUS 12 INCHES.

C. CURVES AND SERPENTINE RADII: PLUS OR MINUS 2 FEET.

3. IMMEDIATE POST CONSTRUCTION WALL BATTER: WITHIN 2 DEGREES OF THE DESIGN BATTER OF THE CONCRETE RETAINING WALL UNITS.

4. BULGINGS: PLUS OR MINUS 1-1/4 INCHES OVER ANY 10-FOOT DISTANCE.

3.10 FIELD QUALITY CONTROL

A. INSTALLER IS RESPONSIBLE FOR QUALITY CONTROL OF INSTALLATION OF SYSTEM COMPONENTS. EMPLOY A QUALIFIED INDEPENDENT THIRD PARTY TO VERIFY THE CORRECT INSTALLATION OF SYSTEM COMPONENTS IN ACCORDANCE WITH THESE SPECIFICATIONS AND THE DRAWINGS.

B. THE OWNER, AT THEIR EXPENSE, WILL RETAIN A QUALIFIED PROFESSIONAL TO PERFORM QUALITY ASSURANCE CHECKS OF THE INSTALLER'S WORK.

C. CORRECT WORK WHICH DOES NOT MEET THESE SPECIFICATIONS OR THE REQUIREMENTS SHOWN ON THE DRAWINGS AT THE INSTALLER'S EXPENSE.

D. PERFORM COMPACTION TESTING OF THE REINFORCED BACKFILL PLACED AND COMPACTED IN THE REINFORCED BACKFILL ZONE.

1. TESTING FREQUENCY

A. ONE TEST FOR EVERY 2 FEET (VERTICAL) OF FILL PLACED AND COMPACTED, FOR EVERY 50 LINEAL FEET OF RETAINING WALL.

B. VARY COMPACTION TEST LOCATIONS TO COVER THE ENTIRE AREA OF THE REINFORCED SOIL ZONE, INCLUDING THE AREA COMPACTED BY THE HAND-OPERATED COMPACTION EQUIPMENT.

3.11 ADJUSTING AND CLEANING

A. REPLACE DAMAGED UNITS WITH NEW UNITS AS THE WORK PROGRESSES.

B. REMOVE DEBRIS CAUSED BY WALL CONSTRUCTION AND LEAVE ADJACENT PAVED AREAS BROOM CLEAN.

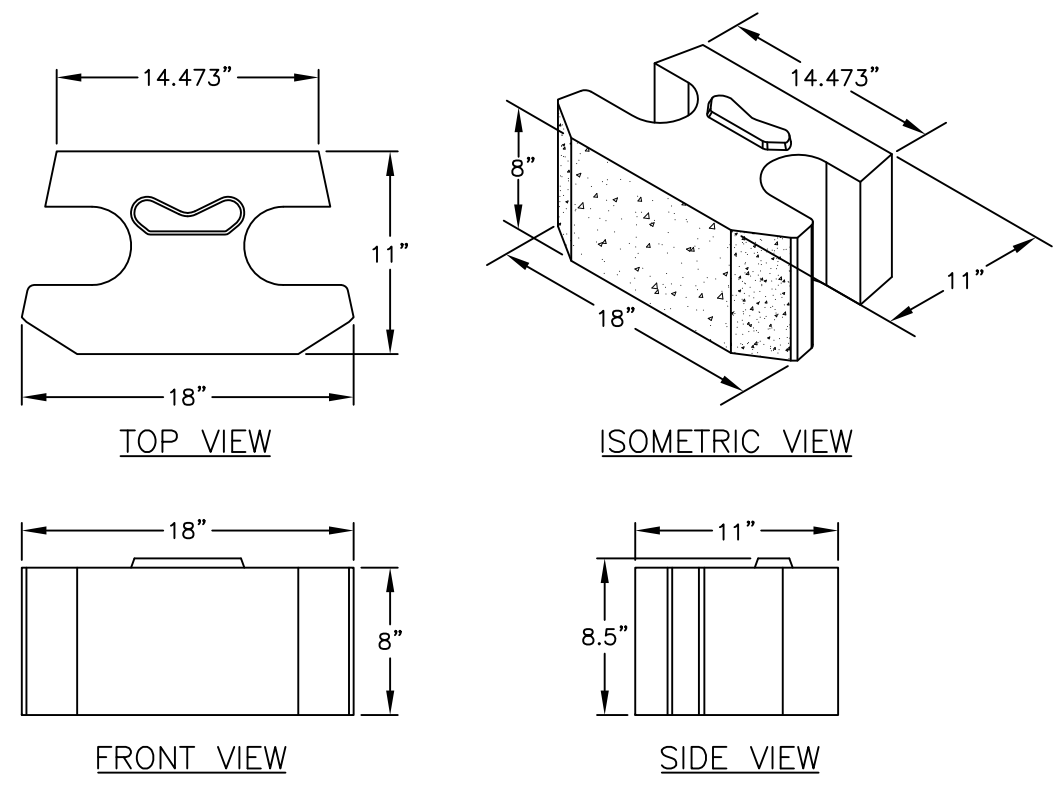
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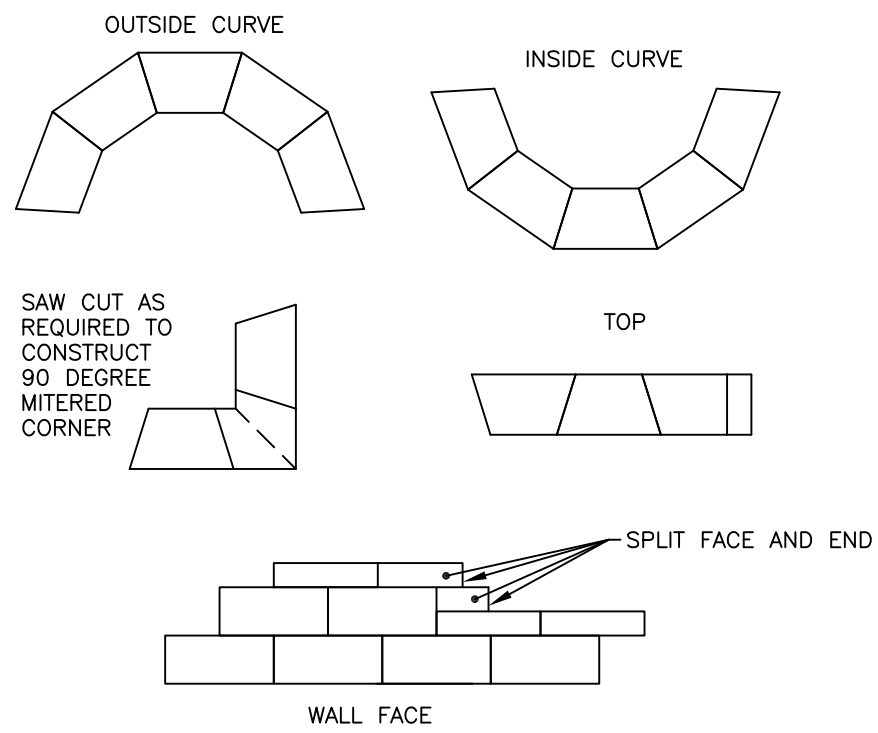
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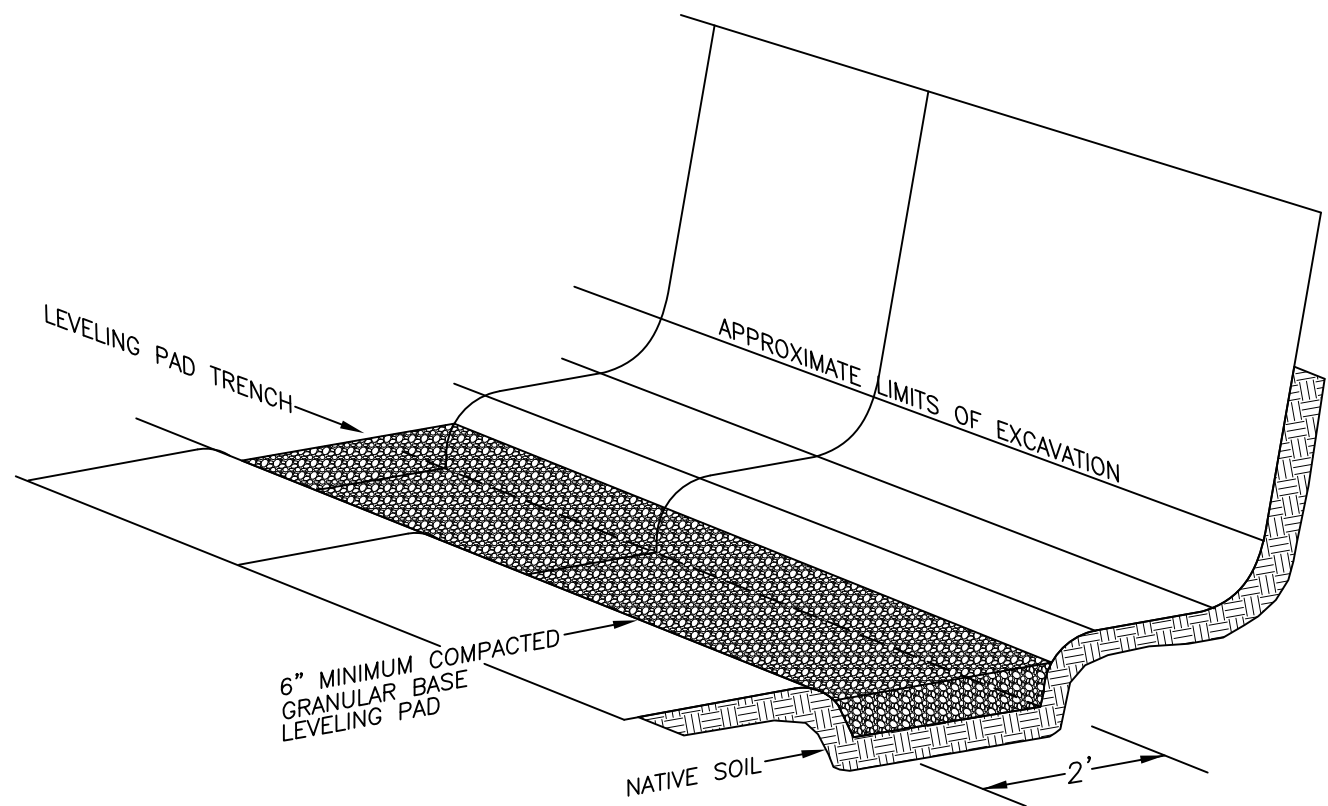


**1** **ANCHOR VERTICA®**  
**VERTICA 2® UNIT DIMENSIONS**  
**10** (NOT TO SCALE)

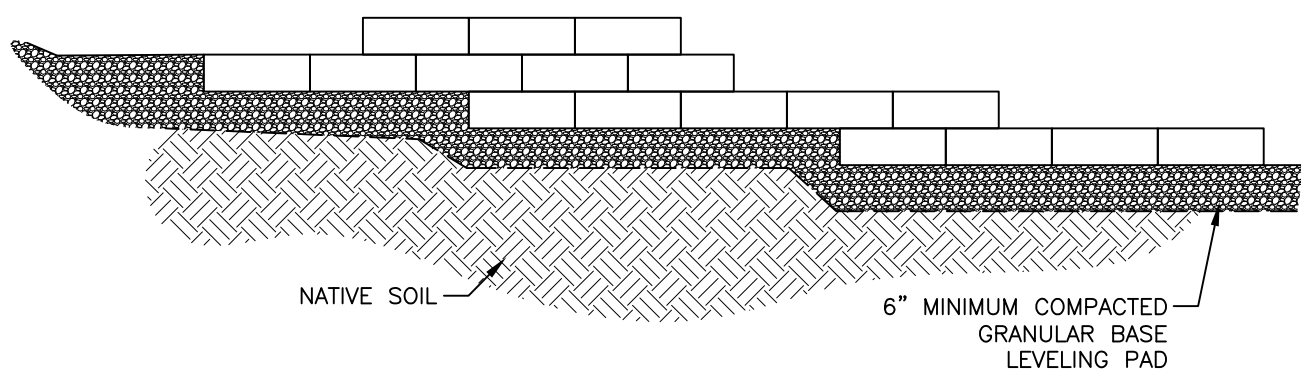


1. ALWAYS START CAPPING WALL FROM THE LOWEST ELEVATION.
2. LAYOUT CAPS PRIOR TO USING ADHESIVE.
3. CUT CAPS TO FIT. VARIOUS COMBINATIONS OF LONG AND SHORT CAP FACES WILL BE NECESSARY FOR RADII GREATER THAN THE MINIMUM.
4. ALTERNATE SHORT AND LONG CAP FACES EVERY OTHER CAP TO ACHIEVE A STRAIGHT ROW OF CAPS.
5. USE EXTERIOR-GRADE CONSTRUCTION ADHESIVE TO SECURE CAPS.

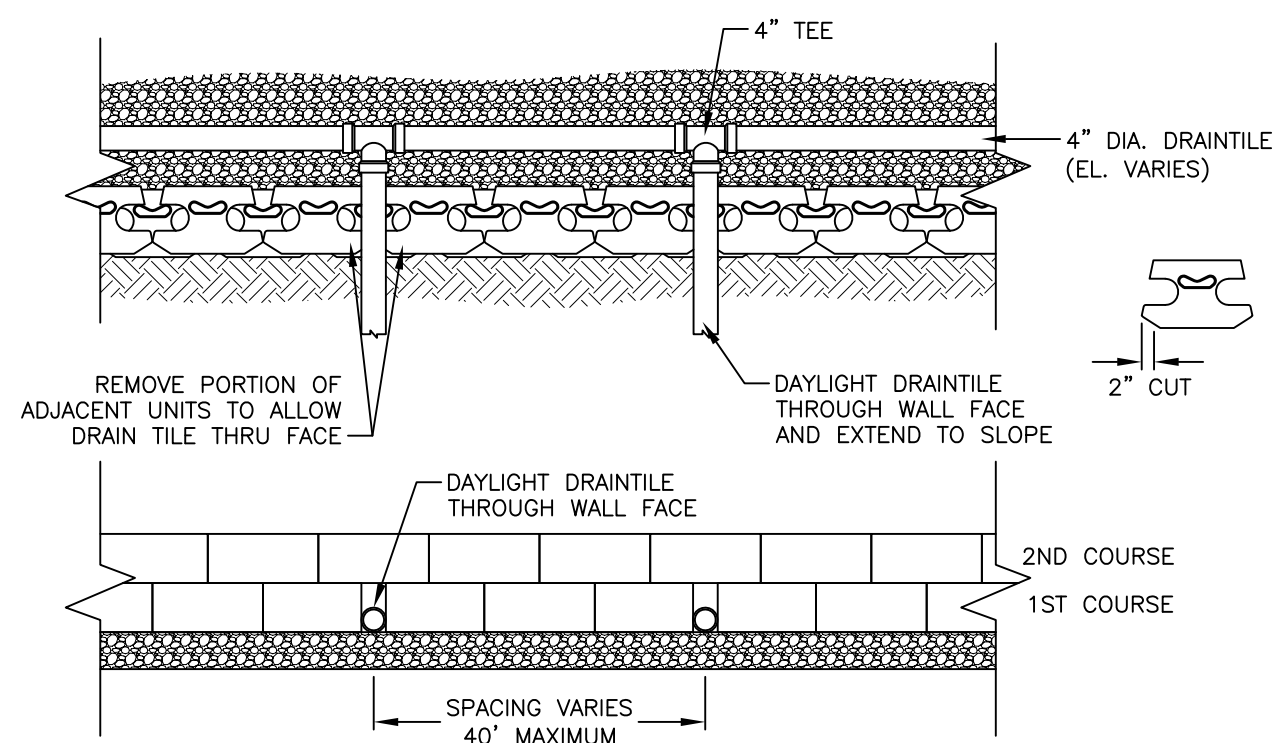
**2** **ANCHOR VERTICA®**  
**CAP BLOCK DESIGN DETAILS**  
**10** (NOT TO SCALE)



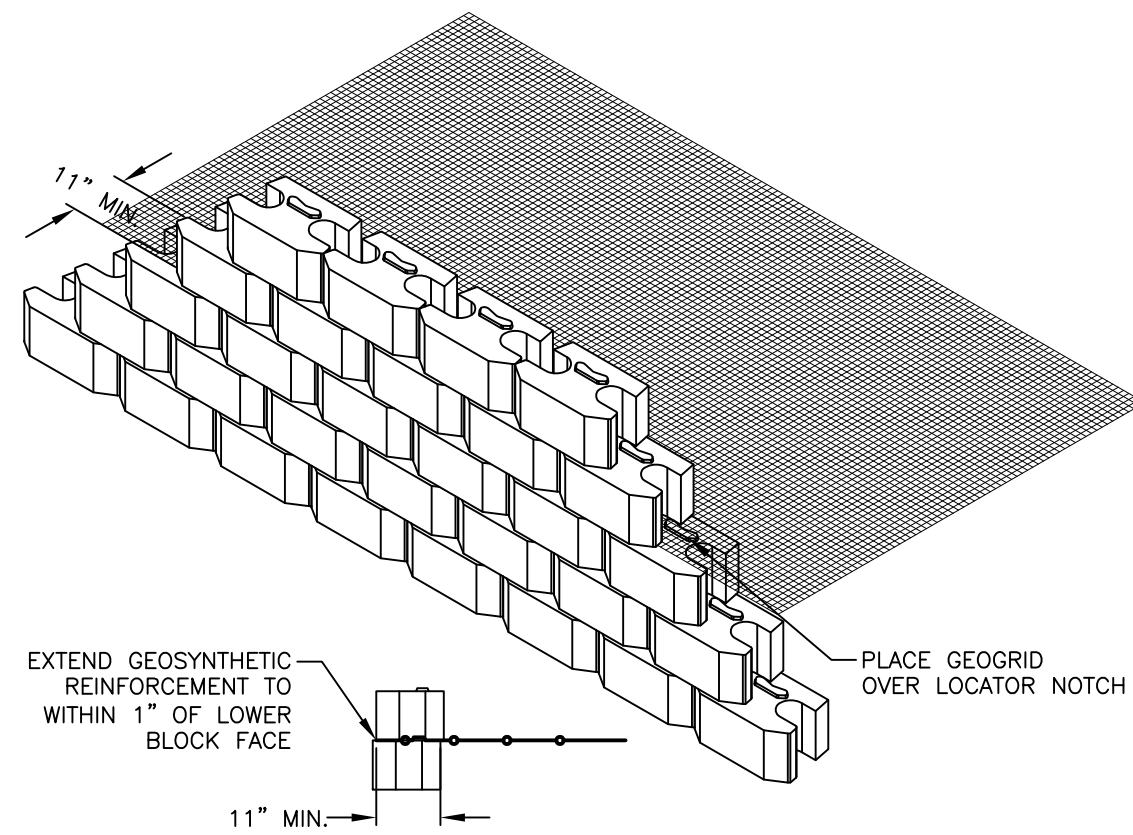
**3** **ANCHOR VERTICA®**  
**TYPICAL BASE PREPARATION**  
**10** (NOT TO SCALE)



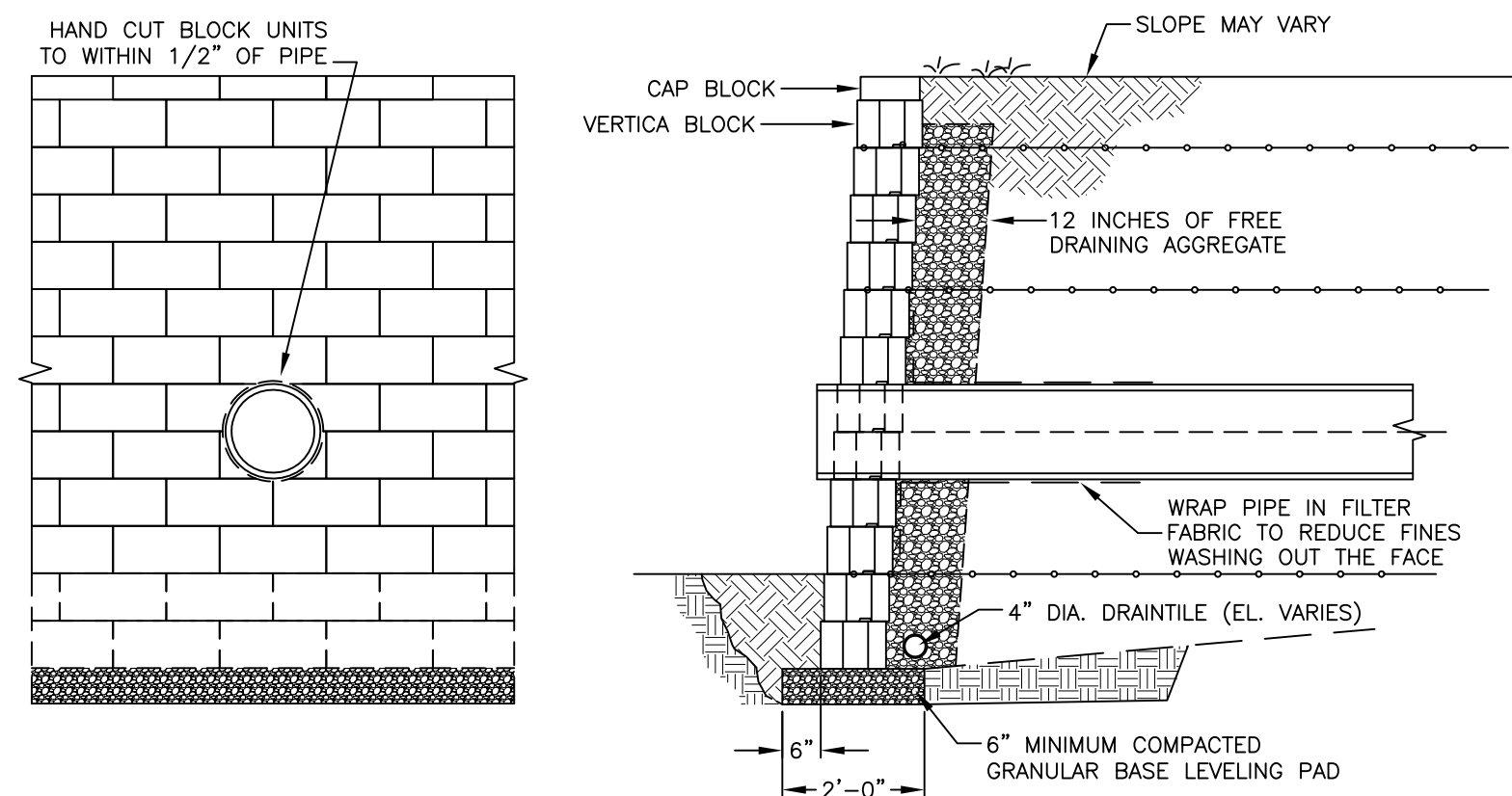
**4** **ANCHOR VERTICA®**  
**TYPICAL STEP-UP DETAIL**  
**10** (NOT TO SCALE)



**5** **ANCHOR VERTICA®**  
**DAYLIGHT DRAINTILE THROUGH TOE SLOPE**  
**10** (NOT TO SCALE)

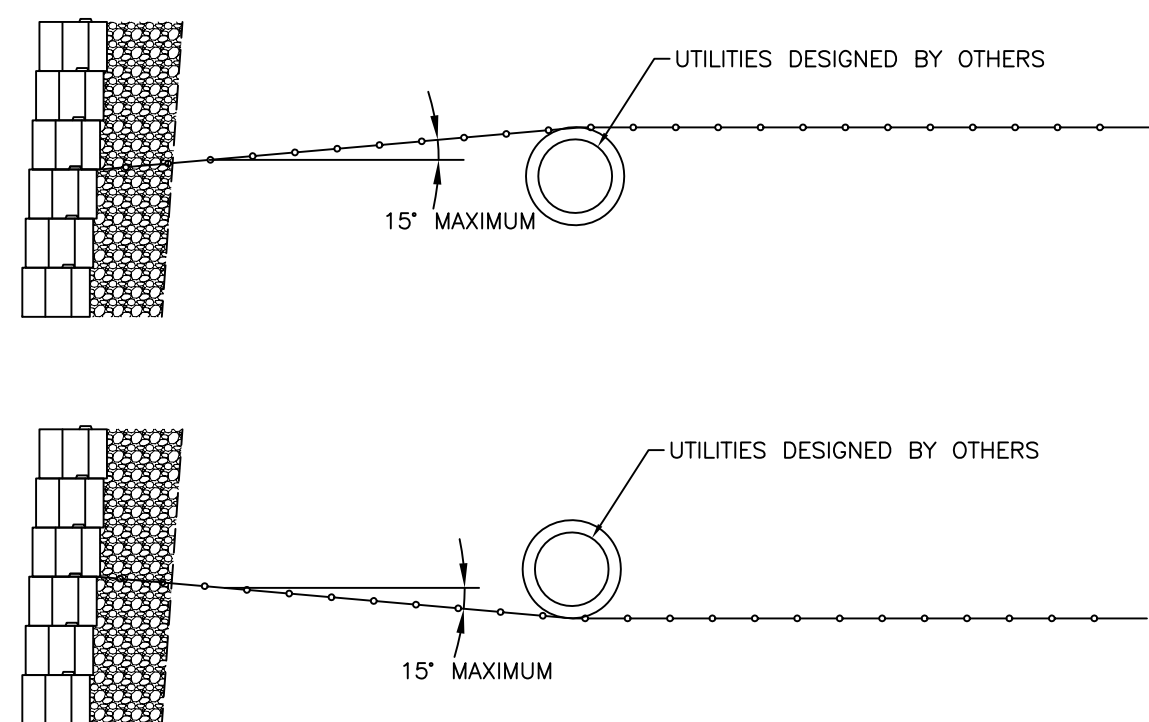


**6** **ANCHOR VERTICA®**  
**REINFORCEMENT CONNECTION DETAIL**  
**10** (NOT TO SCALE)



FACE VIEW SECTION VIEW

**7** **ANCHOR VERTICA®**  
**PIPE THRU WALL DETAILS**  
**10** (NOT TO SCALE)



**8** **ANCHOR VERTICA®**  
**UTILITIES IN REINFORCED ZONE**  
**10** (NOT TO SCALE)

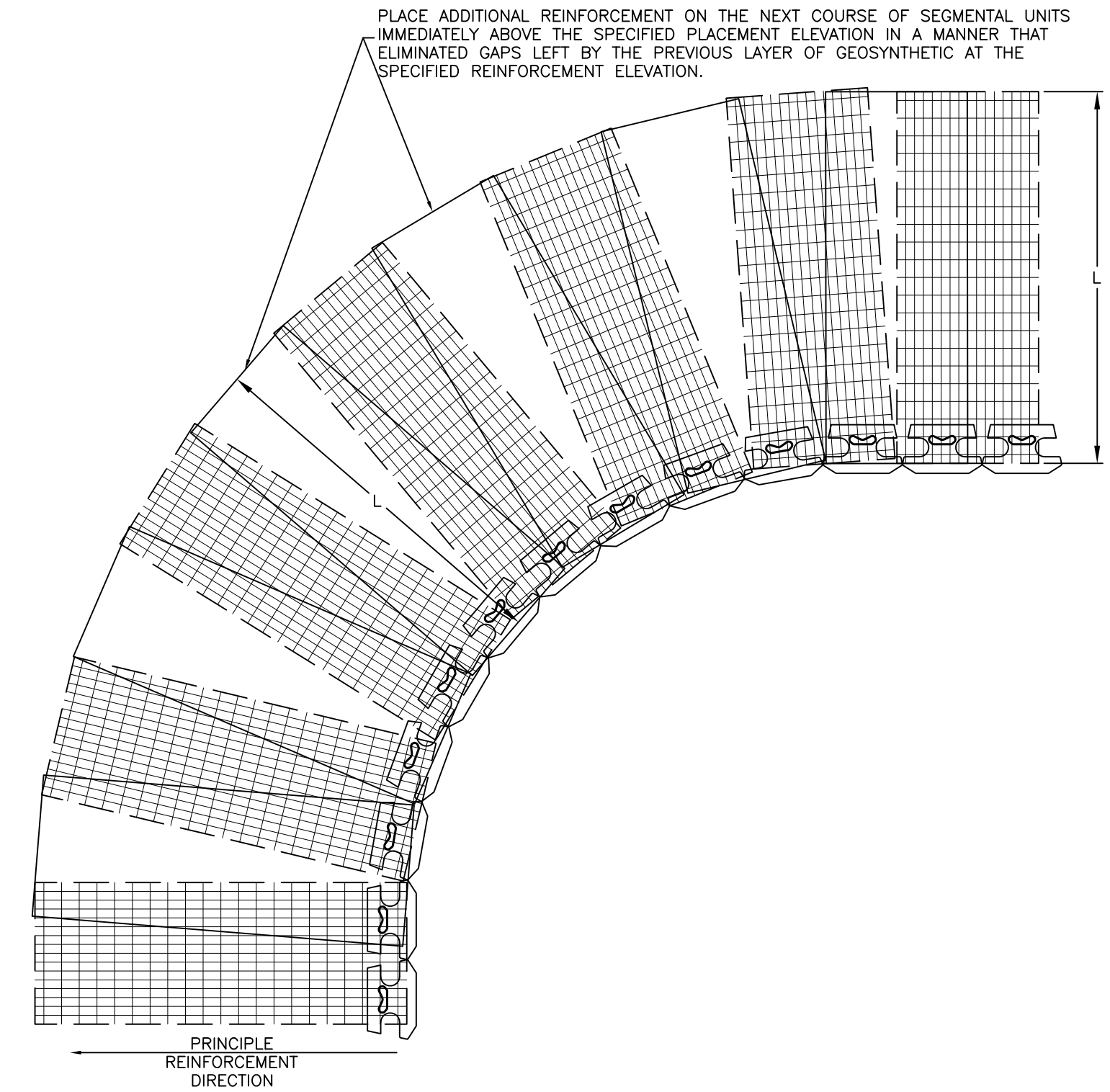
STEP 1 - PLACE REINFORCEMENT SO LITTLE OR NO OVERLAP OCCURS IN THE RADIUS AREA. IF OVERLAP OCCURS, PLACE 2 TO 3 INCHES OF SAND BETWEEN THE REINFORCEMENT LAYERS.

2" TO 3" OF SOIL FILL REQUIRED BETWEEN OVERLAPPED REINFORCEMENT FOR PROPER SOIL AND REINFORCEMENT INTERACTION

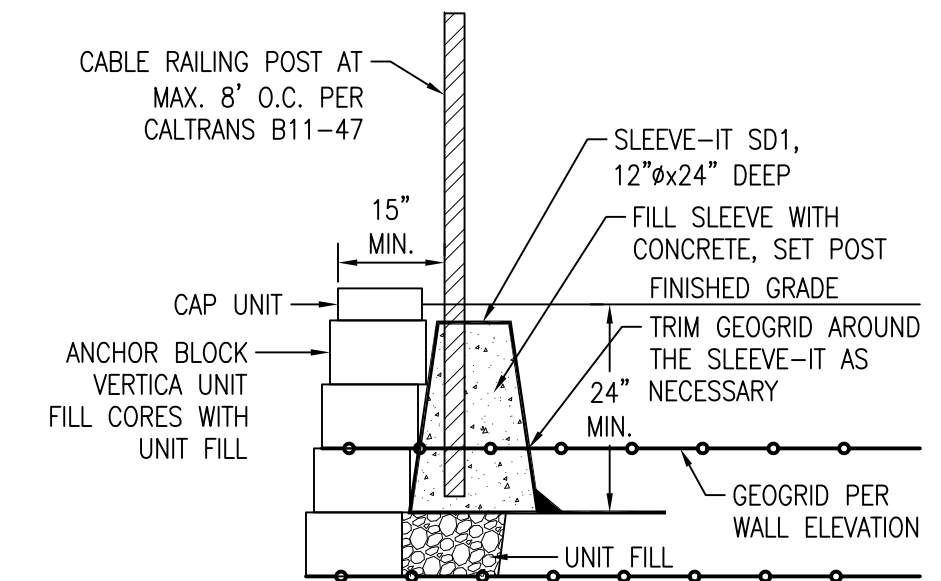
STEP 2 - LAY THE NEXT COURSE OF BLOCK. MAKE A MARK ON THE BACK OF THE BLOCKS IN THE AREAS THAT ARE NOT REINFORCED. BACKFILL AND COMPACT THAT COURSE.

STEP 3 - PLACE REINFORCEMENT IN THE AREAS WHERE THE MARKS SHOW GAPS IN THE LOWER REINFORCEMENT PATTERN. CONTINUE NORMAL WALL CONSTRUCTION, REPEATING THESE STEPS AS NEEDED.

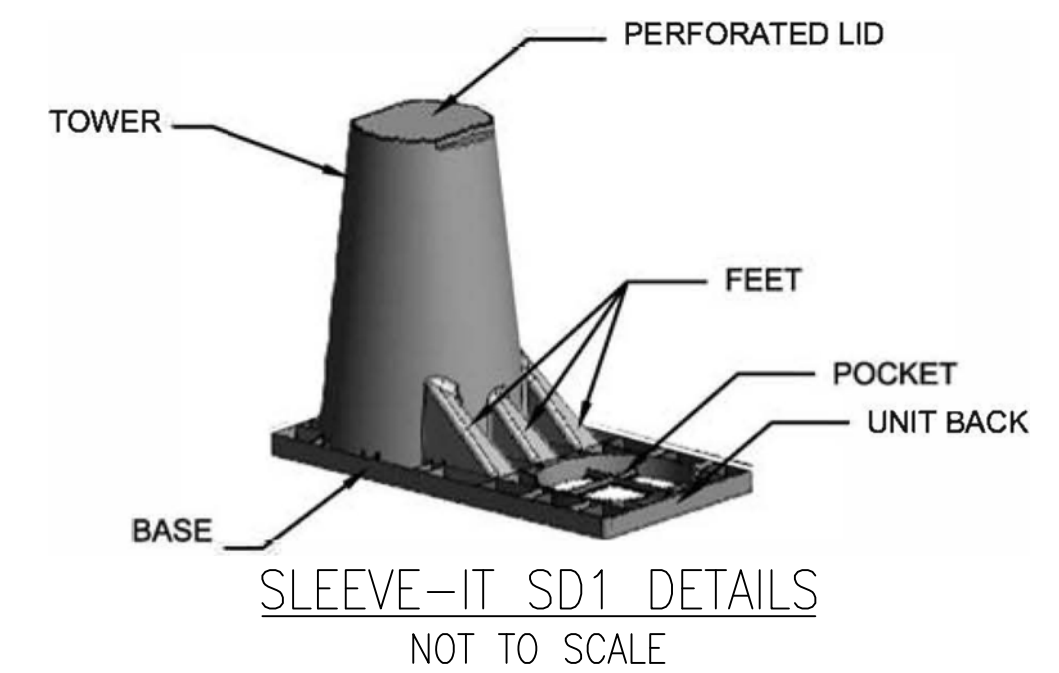
**9** **ANCHOR VERTICA®**  
**OUTSIDE CURVE WITH GRID**  
**10** (NOT TO SCALE)



**10** **ANCHOR VERTICA®**  
**INSIDE CURVE WITH GRID**  
**10** (NOT TO SCALE)



**FENCE POST BEHIND BLOCKS**  
**NOT TO SCALE**



**SLEEVE-IT SD1 DETAILS**  
**NOT TO SCALE**



**RECORD PLAN**

BY: \_\_\_\_\_ NAME \_\_\_\_\_ DATE: \_\_\_\_\_  
R.C.E. \_\_\_\_\_  
EXPIRES: \_\_\_\_\_

**BENCHMARK**

CITY OF SAN DIEGO BENCHMARK NO. 16070  
BRASS PLUG IN TOP OF NORTHEAST CURB  
RETURN AT INTERSECTION OF RACHEL AVE.  
AND ROANOKE ST.  
CITY OF SAN DIEGO  
RECORD FROM: \_\_\_\_\_  
ELEVATION: 167.361 DATUM: NGVD-29

**SPECIAL INSPECTION REQUIRED**

**PRIVATE CONTRACT**

SHEET 10 COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS 18 SHEET

GRADING PLANS FOR :  
2542 RIDGEWAY DRIVE  
NATIONAL CITY, CA 91950  
CALIFORNIA COORDINATE INDEX 182-1743

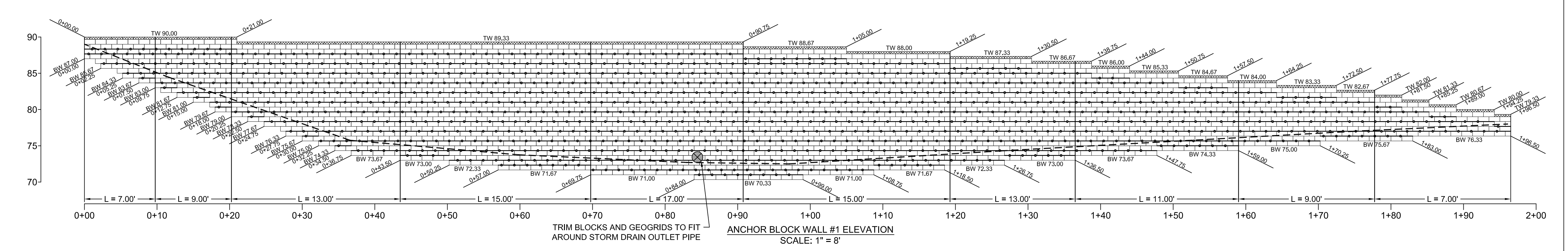
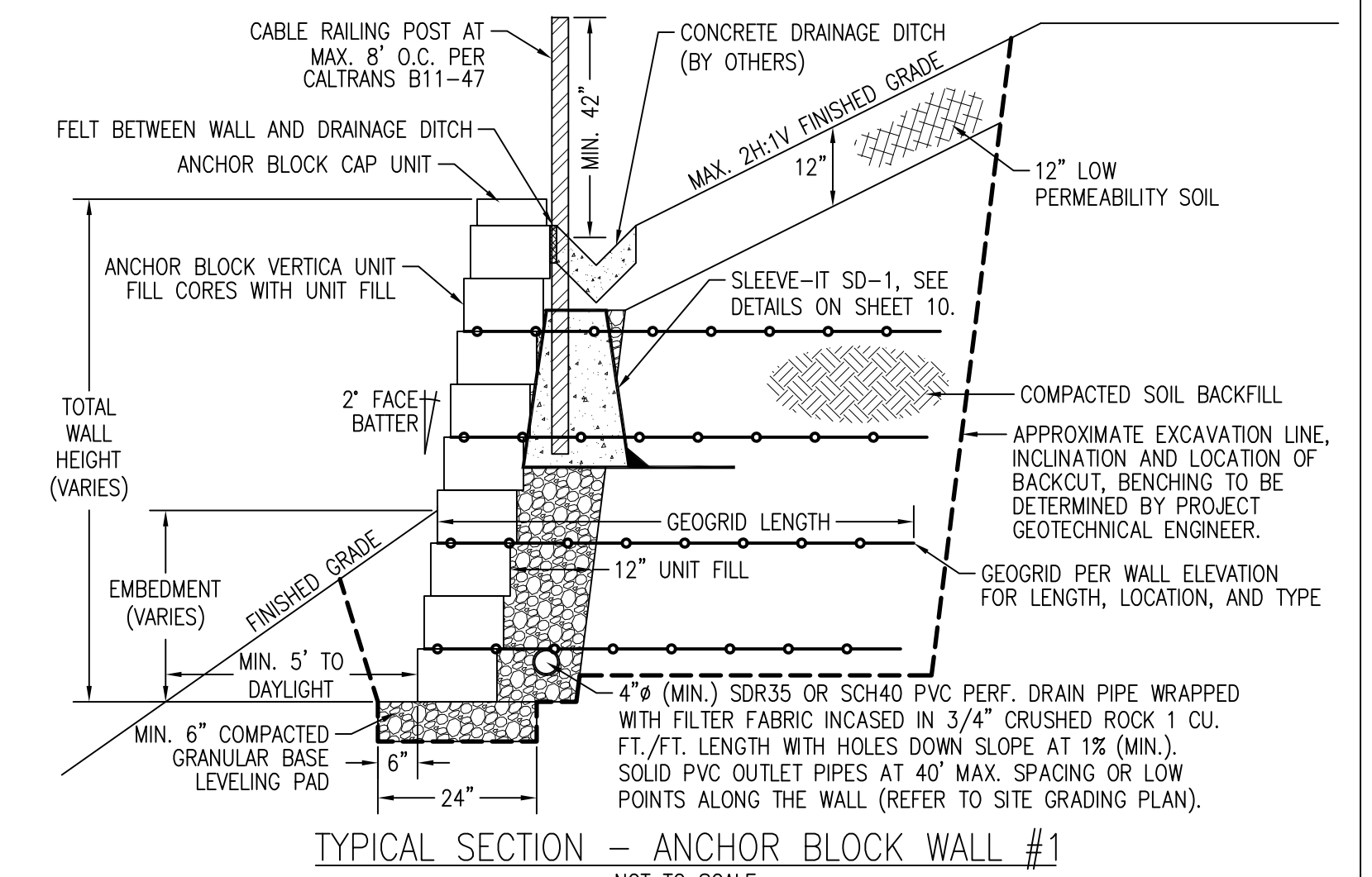
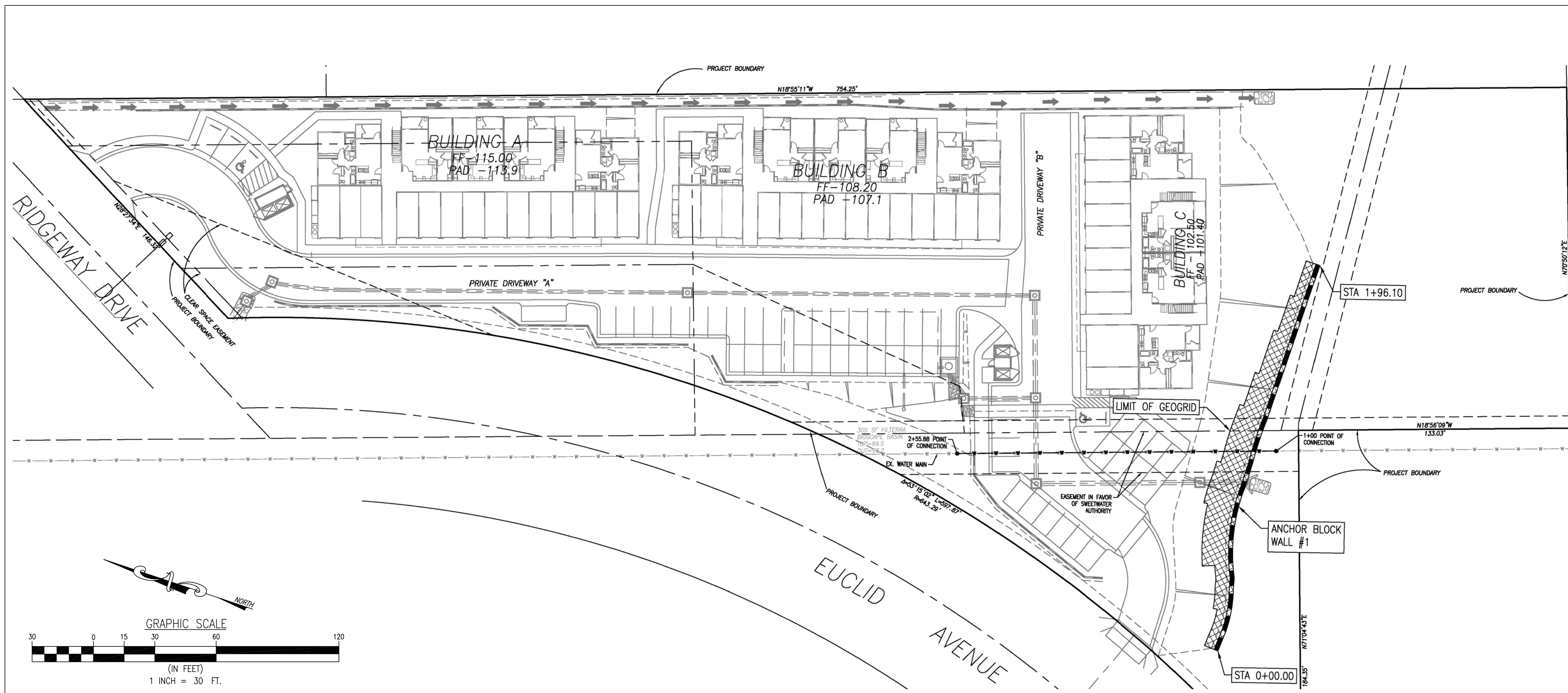
APPROVED FOR: WILLIAM P. MORGAN COUNTY ENGINEER  
ENGINEER OF WORK: JIMMY WANG  
EXP. 6-30-24 R.C.E. 69212  
GRADING PERMIT NO. PDS2020-LDGRMJ-30273  
DATE: \_\_\_\_\_

PREPARED BY:  
**ABI ENGINEERING CONSULTANTS, INC.**  
1701 EAST EDINGER AVENUE, SUITE A9  
SANTA ANA, CALIFORNIA 92705  
TEL: (888) 220-5596  
FAX: (714) 866-4171

COUNTY APPROVED CHANGES			
NO.	DESCRIPTION	APPROVED BY	DATE

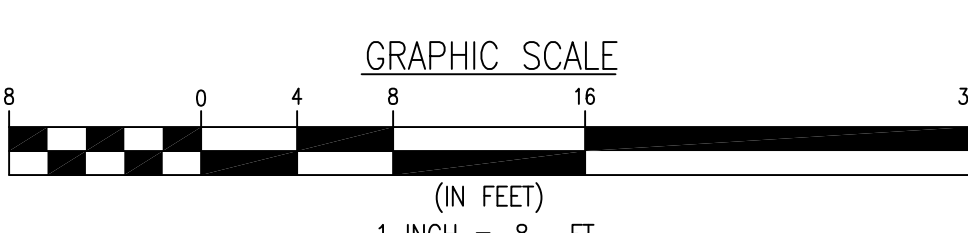
BENCHMARK	
DESCRIPTION:	CITY OF SAN DIEGO BENCHMARK NO. 16070
LOCATION:	BRASS PLUG IN TOP OF NORTHEAST CURB RETURN AT INTERSECTION OF RACHEL AVE. AND ROANOKE ST.
RECORD FROM:	CITY OF SAN DIEGO
ELEVATION:	167.361 DATUM: NGVD-29





NOTES:  
1. GRADING PLAN LINES, GRADES, AND ELEVATIONS ARE SHOWN FOR REFERENCE ONLY. PLEASE SEE PROJECT GRADING PLAN FOR SITE INFORMATION.  
2. GENERAL CONTRACTOR AND WALL CONSTRUCTION CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL SUBTERRANEAN CONSTRUCTION WITHIN THE REINFORCED ZONE. ABI ENGINEERING CONSULTANTS, INC. SHALL BE CONSULTED PRIOR TO ANY EXCAVATION WITHIN THE REINFORCED ZONE. ALL EFFORTS SHALL BE MADE TO COORDINATE INSTALLATION OF SUBTERRANEAN FEATURES DURING WALL CONSTRUCTION.  
3. DURING CONSTRUCTION AND AFTER WALL COMPLETION THE FINISHED GRADE SHALL BE GRADED TO DRAIN AWAY FROM THE RETAINING WALL UNTIL FINAL DRAINAGE SYSTEM IS COMPLETED. NO STANDING WATER SHALL BE ALLOWED TO POND ABOVE THE RETAINING WALL.

SITE PLAN SOURCE:  
LUNDSTROM ENGINEERING AND SURVEYING, INC., GRADING PLAN, 2542 RIDGEWAY DRIVE, NATIONAL CITY, COUNTY OF SAN DIEGO, CALIFORNIA, RECEIVED SEPTEMBER 15, 2021.



PREPARED BY:  
**ABI ENGINEERING CONSULTANTS, INC.**  
1701 EAST EDINGER AVENUE, SUITE A9  
SANTA ANA, CALIFORNIA 92705  
TEL: (888) 220-5596  
FAX: (714) 866-4171

WATER AGENCY  
**SWEETWATER AUTHORITY**

REVIEWED BY: \_\_\_\_\_ DATE \_\_\_\_\_  
ERICK DEL BOSQUE  
DIRECTOR OF ENGINEERING AND OPERATIONS  
VALID FOR 18 MONTHS FROM DATE OF SIGNATURE

COUNTY APPROVED CHANGES

NO.	DESCRIPTION	APPROVED BY	DATE

RECORD PLAN

BY: \_\_\_\_\_ NAME \_\_\_\_\_ DATE: \_\_\_\_\_  
R.C.E. \_\_\_\_\_  
EXPIRES: \_\_\_\_\_

BENCHMARK  
CITY OF SAN DIEGO BENCHMARK NO. 16070  
BRASS PLUG IN TOP OF NORTHEAST CURB  
RETURN AT INTERSECTION OF RACHEL AVE.  
AND ROANOKE ST.  
CITY OF SAN DIEGO  
ELEVATION: 167.361 DATUM: NGVD-29

**SPECIAL INSPECTION REQUIRED**

PRIVATE CONTRACT

SHEET 11 COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS 18 SHEET

GRADING PLANS FOR :  
**2542 RIDGEWAY DRIVE  
NATIONAL CITY, CA 91950**  
CALIFORNIA COORDINATE INDEX 182-1743

APPROVED FOR: WILLIAM P. MORGAN  
COUNTY ENGINEER

ENGINEER OF WORK: JIMMY C. WANG  
EXP. 6-30-24 R.C.E. 69212

GRADING PERMIT NO. PDS2020-LDGRWJ-30273

DATE: \_\_\_\_\_



EMERGENCY EROSION CONTROL MEASURES NOTES:

- ALL BUILDING PADS TO BE DIKED AND THE DIKES MAINTAINED TO PREVENT WATER FROM FLOWING FROM THE PAD UNTIL THE STREETS AND DRIVEWAYS ARE PAVED AND WATER CAN FLOW FROM THE PADS WITHOUT CAUSING EROSION, OR CONSTRUCT DRAINAGE FACILITIES TO THE SATISFACTION OF THE COUNTY DEPARTMENT OF PUBLIC WORKS THAT WILL ALLOW WATER TO DRAIN FROM THE PAD WITHOUT CAUSING EROSION.
- TOPS OF ALL SLOPES TO BE DIKED OR TRENCHED TO PREVENT WATER FROM FLOWING OVER THE CREST OF THE SLOPES.
- MANUFACTURED SLOPES AND PADS SHALL BE ROUNDED VERTICALLY AND HORIZONTALLY AS APPROPRIATE TO BLEND WITH THE SURROUNDING TOPOGRAPHY.
- AS SOON AS CUTS OR EMBANKMENTS ARE COMPLETED, BUT NOT LATER THAN OCTOBER 1, ALL CUT AND FILL SLOPES SHALL BE STABILIZED WITH A HYDROMULCH MIXTURE OR AN EQUAL TREATMENT APPROVED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS. BETWEEN OCTOBER 1 AND APRIL 15, APPROVED SLOPE PROTECTION MEASURES SHALL PROCEED IMMEDIATELY BEHIND THE EXPOSURE OF CUT SLOPES AND/OR THE CREATION OF EMBANKMENT SLOPES.
- CATCH BASINS, DESILTING BASINS AND STORM DRAIN SYSTEMS SHALL BE INSTALLED TO THE SATISFACTION OF THE COUNTY DEPARTMENT OF PUBLIC WORKS.
- GRAVEL BAG CHECK DAMS TO BE PLACED IN A MANNER APPROVED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS IN UNPAVED STREETS WITH GRADIENTS IN EXCESS OF 2% AND ON OR IN OTHER GRADED OR EXCAVATED AREAS AS REQUIRED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS.
- THE DEVELOPER SHALL MAINTAIN THE PLANTING AND EROSION CONTROL MEASURES DESCRIBED ABOVE UNTIL RELIEVED OF SAME BY THE COUNTY DEPARTMENT OF PUBLIC WORKS. THE DEVELOPER SHALL REMOVE ALL SOIL INTERCEPTED BY THE GRAVEL BAGS, CATCH BASINS AND DESILTING BASINS AND KEEP THESE FACILITIES CLEAN AND FREE OF SILT AND SAND AS DIRECTED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS. THE DEVELOPER SHALL REPAIR ANY ERODED SLOPES AS DIRECTED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS.

SILTATION AND SEDIMENT CONTROL MEASURES NOTES:

- THE SEDIMENT BASINS SHALL BE PROVIDED AT THE LOWER END OF EVERY DRAINAGE AREA PRODUCING SEDIMENT RUNOFF. THE BASINS SHALL BE MAINTAINED AND CLEANED TO DESIGN CONTOURS AFTER EVERY RUNOFF PRODUCING STORM. THE BASINS SHOULD BE SEMI-PERMANENT STRUCTURES THAT WOULD REMAIN UNTIL SOIL STABILIZING VEGETATION HAS BECOME WELL ESTABLISHED ON ALL ERODIBLE SLOPES.
- SEDIMENTATION BASINS MAY NOT BE REMOVED OR MADE INOPERATIVE WITHOUT PRIOR APPROVAL OF THE COUNTY ENGINEER.
- SEWER OR STORM DRAIN TRENCHES THAT ARE CUT THROUGH BASIN DIKES OR BASIN INLET DIKES SHALL BE PLUGGED WITH GRAVEL BAGS FROM TOP OF PIPE TO TOP OF DIKE.
- ALL UTILITY TRENCHES SHALL BE BLOCKED AT THE PRESCRIBED INTERVALS WITH A DOUBLE ROW OF GRAVEL BAGS WITH A TOP ELEVATION LEVEL, AND TWO GRAVEL BAGS BELOW, THE GRADED SURFACE OF THE STREET. GRAVEL BAGS ARE TO BE PLACED WITH LAPPED COURSES. THE INTERVALS PRESCRIBED BETWEEN GRAVEL BAG BLOCKING SHALL DEPEND ON THE SLOPE OF THE GROUND SURFACE, BUT NOT TO EXCEED THE FOLLOWING:

GRADE OF THE STREET	INTERVALS
LESS THAN 2 %	AS REQUIRED
2% TO 4%	100 FEET
4% TO 10%	50 FEET
OVER 10%	25 FEET

- AFTER UTILITY TRENCHES ARE BACKFILLED AND COMPACTED, THE SURFACES OVER SUCH TRENCHES SHALL BE MOUNDED SLIGHTLY TO PREVENT CHANNELING OF WATER IN THE TRENCH AREA. CARE SHOULD BE EXERCISED TO PROVIDE FOR CROSS FLOW AT FREQUENT INTERVALS WHERE TRENCHES ARE NOT ON THE CENTERLINE OF A CROWNED STREET.
- ALL BUILDING PADS SHOULD BE SLOPED TOWARDS THE DRIVEWAYS AND VELOCITY CHECK DAMS PROVIDED AT THE BASE OF ALL DRIVEWAYS DRAINING INTO THE STREET.
- PROVIDE VELOCITY CHECK DAMS IN ALL UNPAVED GRADED CHANNELS AT THE INTERVALS INDICATED BELOW:

GRADE OF CHANNEL	INTERVALS BETWEEN CHECK DAMS
LESS THAN 3 %	100 FEET
3% TO 6%	50 FEET
OVER 6%	25 FEET

- PROVIDE VELOCITY CHECK DAMS IN ALL STREET AREAS ACCORDING TO INTERVALS INDICATED BELOW. VELOCITY CHECK DAMS MAY BE CONSTRUCTED OF GRAVEL BAGS, TIMBER, OR OTHER EROSION RESISTANT MATERIALS APPROVED BY THE COUNTY ENGINEER, AND SHALL EXTEND COMPLETELY ACROSS THE STREET OR CHANNEL AT RIGHT ANGLES TO THE CENTERLINE. VELOCITY CHECK DAMS MAY ALSO SERVE AS SEDIMENT TRAPS.
- | GRADE OF STREET          | INTERVAL     | NO. OF BAGS HIGH |
|--------------------------|--------------|------------------|
| LESS THAN 2% AS REQUIRED | 200 FEET MAX | 1                |
| 2% TO 4%                 | 100 FEET     | 1                |
| 4% TO 6%                 | 50 FEET      | 1                |
| 6% TO 10%                | 50 FEET      | 2                |
| OVER 10%                 | 25 FEET      | 2                |
- PROVIDE A GRAVEL BAG SILT BASIN OR TRAP BY EVERY STORM DRAIN INLET TO PREVENT SEDIMENT FROM ENTERING DRAIN SYSTEM.
  - GRAVEL BAGS AND FILL MATERIAL SHALL BE STOCKPILED AT INTERVALS, READY FOR USE WHEN REQUIRED.
  - ALL EROSION CONTROL DEVICES WITHIN THE DEVELOPMENT SHOULD BE MAINTAINED DURING AND AFTER EVERY RUNOFF PRODUCING STORM, IF POSSIBLE, MAINTENANCE CREWS WOULD BE REQUIRED TO HAVE ACCESS TO ALL AREAS.
  - PROVIDE ROCK RIPRAP ON CURVES AND STEEP DROPS IN ALL EROSION PRONE DRAINAGE CHANNELS DOWNSTREAM FROM THE DEVELOPMENT. THIS PROTECTION WOULD REDUCE EROSION CAUSED BY THE INCREASED FLOWS THAT MAY BE ANTICIPATED FROM DENUDED SLOPES, OR IMPERVIOUS SURFACES.
  - ANY PROPOSED ALTERNATE CONTROL MEASURES MUST BE IMPROVED IN ADVANCE BY ALL RESPONSIBLE AGENCIES; I.E., COUNTY ENGINEER, DEPARTMENT OF ENVIRONMENTAL HEALTH, FLOOD CONTROL AND OFFICE OF ENVIRONMENTAL MANAGEMENT, ETC.

BONDED FIBER MATRIX (BFM) NOTES:

THE USE OF BFM IS SUBJECT TO THE FOLLOWING LIMITATIONS AND RESTRICTIONS:

- APPLICATION RATES SHALL BE 3500 POUNDS PER ACRE MINIMUM FOR 2:1 OR SHALLOWER SLOPES AND 4000 POUNDS PER ACRE FOR SLOPES STEEPER THAN 2:1.
- BFM SHALL BE APPLIED AT LEAST 24 HOURS BEFORE OR AFTER RAINFALL.
- THE SITE MUST BE PROTECTED WITH BROW DITCHES AND/OR DIVERSION BERMS AT THE TOP OF SLOPES TO DIVERT FLOW FROM THE FACE OF THE SLOPE.
- BFM SHALL BE APPLIED TO PROVIDE 100% COVERAGE (I.E. APPLICATION FROM MULTIPLE ANGLES).
- FOR PERMANENT EROSION CONTROL PURPOSES, BFM MUST BE INSTALLED IN CONJUNCTION WITH SEEDED EROSION CONTROL VEGETATION.
- A LETTER FROM THE HYDROSEED CONTRACTOR CERTIFYING THAT THE BFM HAS BEEN INSTALLED IN ACCORDANCE WITH THE APPROVED APPLICATION RATES AND COVERAGE REQUIREMENTS SHALL BE SUBMITTED TO THE COUNTY INSPECTOR FOR APPROVAL.

BMP STENCIL PLACEMENT NOTES

- ALL STORM DRAIN INLETS AND CATCH BASINS WITHIN THE PROJECT AREA SHALL HAVE A STENCIL OR TILE PLACED WITH THE PROHIBITIVE LANGUAGE (SUCH AS: "NO DUMPING - I LIVE IN << NAME RECEIVED WATER>>") AND/OR GRAPHICAL ICONS TO DISCOURAGE ILLEGAL DUMPING.
- SIGNS AND PROHIBITIVE LANGUAGE AND/OR GRAPHICAL ICONS, WHICH PROHIBIT ILLEGAL DUMPING, MUST BE POSTED AT PUBLIC ACCESS POINTS ALONG CHANNELS AND CREEKS WITHIN THE PROJECT AREA.
- LEGIBILITY OF STENCILS, TILES AND SIGNS MUST BE MAINTAINED AND TILES MUST BE PLACED FLUSH WITH THE TOP OF CONCRETE TO REDUCE TRIPPING BY PEDESTRIANS.

RECORD PLAN		COUNTY APPROVED CHANGES			BENCHMARK	
NAME:		NO.	DESCRIPTION	APPROVED BY	DATE	DESCRIPTION:
R.C.E.						CITY OF SAN DIEGO BENCHMARK NO. 16070
DATE:						BRASS PLUG IN TOP OF NORTHEAST CURB
						RETURN AT INTERSECTION OF RACHEL AVE.
						AND ROANOKE ST.
						CITY OF SAN DIEGO
						RECORD FROM: ELEVATION: 167.361
						DATUM: NGVD-29

BMP LEGEND

PDS 659

DIRECTION OF LOT DRAINAGE

TEMPORARY RUNOFF CONTROL BMPs

- SS-3 BONDED OR STABILIZED FIBER MATRIX (WINTER)
- SC-5 FIBER ROLLS
- SC-1 SILT FENCE
- SC-10 STORM DRAIN INLET PROTECTION
- TC-1 STABILIZED CONSTRUCTION ENTRANCE
- SC-7 STREET SWEEPING AND VACUUMING

PERMANENT BMPs

- SD-13 STORM DRAIN STENCILING AND POSTING OF SIGNAGE
- EC-10 OUTLET PROTECTION

MATERIALS AND WASTE MANAGEMENT BMPs

- WM-1 MATERIAL DELIVERY & STORAGE
- WM-9 SANITARY WASTE MANAGEMENT
- WM-5 SOLID WASTER MANAGEMENT
- WM-6 HAZARDOUS WASTE MANAGEMENT
- WM-8 CONCRETE WASTE MANAGEMENT

POST-CONSTRUCTION BMP NOTES

- PROVIDE STORM DRAIN STENCILING OR SIGNAGE FOR ONSITE STORM DRAIN INLETS.
- PROTECT TRASH STORAGE AREAS FROM RAINFALL, RUN-ON, RUNOFF, AND WIND DISPERSAL.
- PROVIDE FUTURE INDOOR AND STRUCTURAL PEST CONTROL.
- ALLOW FOR LANDSCAPE/OUTDOOR PESTICIDE USE.
- PROVIDE SWEEPING OF PLAZAS, SIDEWALKS, DRIVEWAYS AND PARKING LOTS.
- MAINTAIN NATURAL DRAINAGE PATHWAYS AND HYDROLOGIC FEATURES.
- CONSERVE NATURAL AREAS, SOILS, AND VEGETATION.
- MINIMIZE IMPERVIOUS AREA AND SOIL COMPACTION.
- DRAIN ROOFTOPS, IMPERVIOUS PARKING LOTS, SIDEWALKS, WALKWAYS, TRAILS AND PATIOS INTO ADJACENT LANDSCAPE AREAS.
- PROVIDE AREA DRAINS FOR RUNOFF COLLECTION.

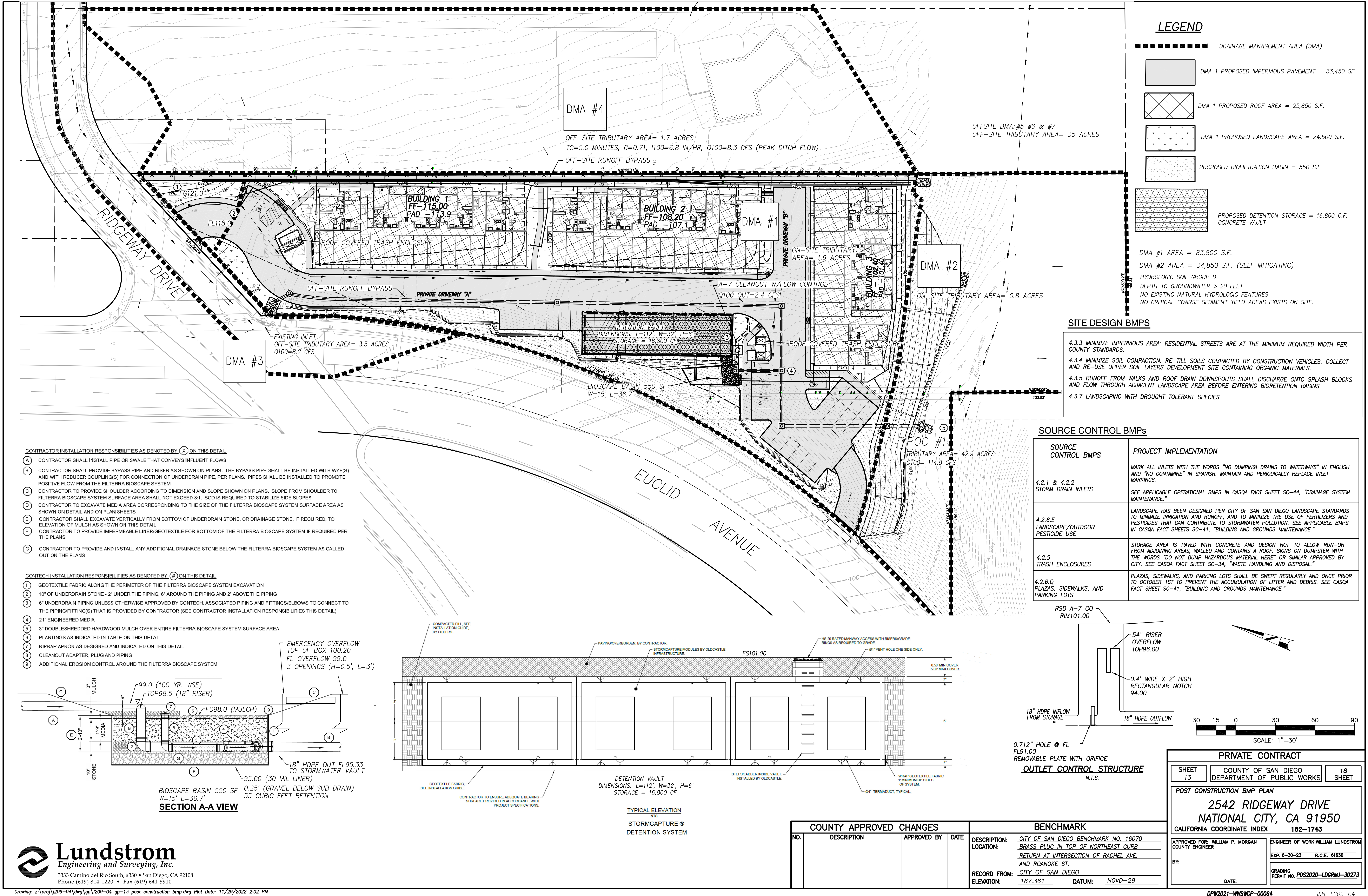
FLAT AREAS OF LESS THAN 5%:

FLAT AREAS OF LESS THAN 5% (LIKE BUILDING PADS, PARKING AREAS, LEACH FIELDS) SHALL HAVE 100% PROTECTION USING GEOTEXTILES, MATS (SS-7 OR ESC20), OR OTHER MATERIAL APPROVED BY THE COUNTY FOR STABILIZING SLOPES, OR USING TRACKING AND SOIL STABILIZERS/BINDERS (SS-5), TEMPORARY SEEDING (SS-4), MULCH/WOOD CHIPS (SS-3, SS-6, SS-8), OR JUTE MATTING (SS-7). THE COUNTY MAY REDUCE THIS REQUIREMENT FOR FLAT AREAS PROVIDED FULL SEDIMENT CONTROL IS PROVIDED THROUGH CONSTRUCTED AND MAINTAINED DESILTATION BASINS (SC-2) AT ALL PROJECT DISCHARGE POINTS.



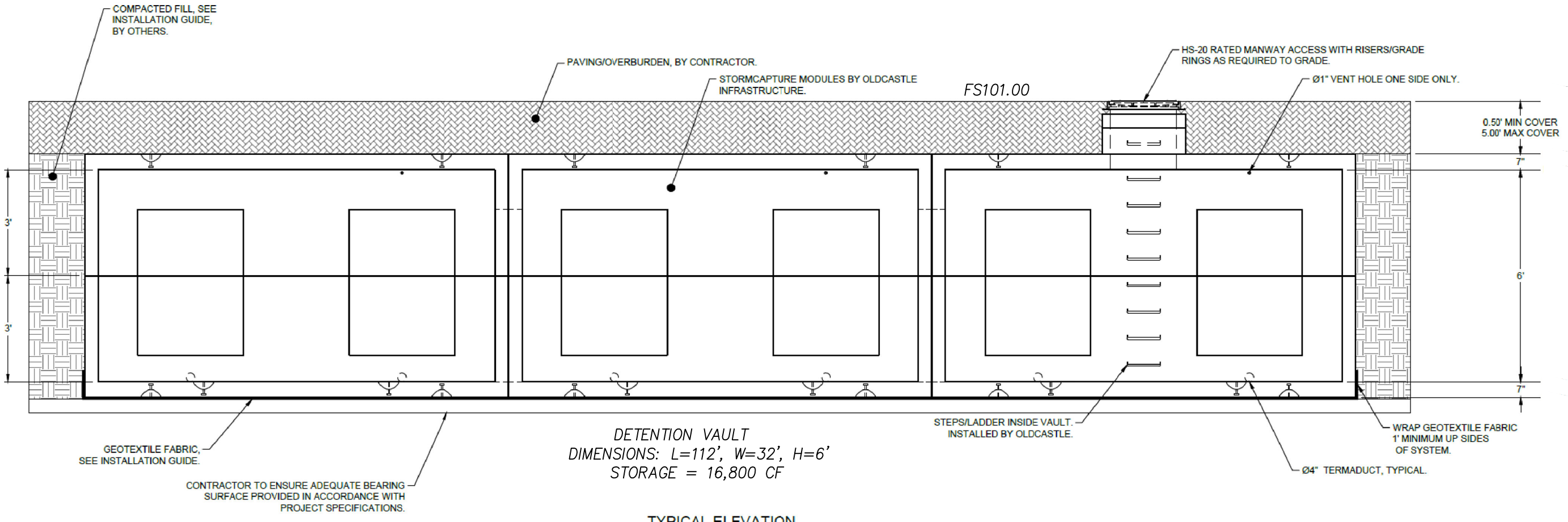
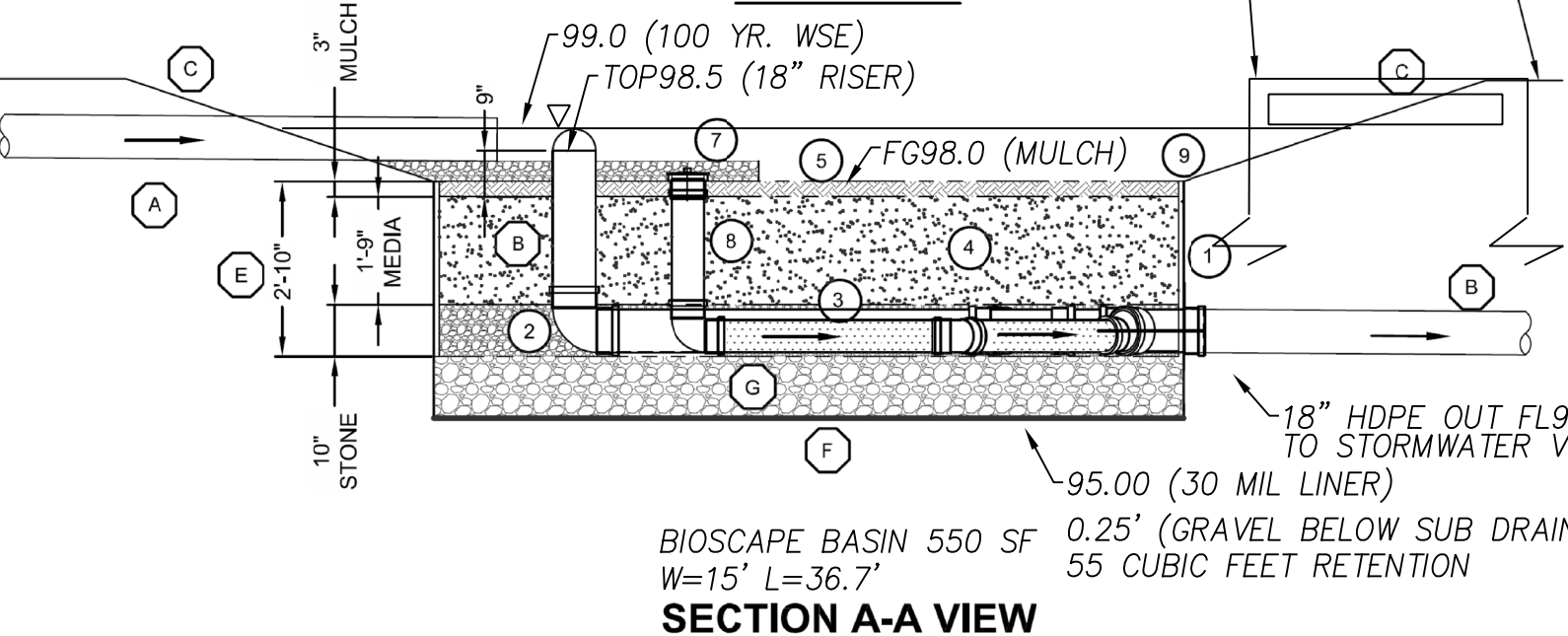
PRIVATE CONTRACT		
SHEET 12	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	18 SHEET
EROSION CONTROL NOTES AND PLAN FOR:		
2542 RIDGEWAY DRIVE NATIONAL CITY, CA 91950		
CALIFORNIA COORDINATE INDEX 182-1743		
APPROVED FOR: WILLIAM P. MORGAN COUNTY ENGINEER	ENGINEER OF WORK: WILLIAM LUNDSTROM	
BY:	EXP. 6-30-23 R.C.E. 61630	
DATE:	GRADING PERMIT NO. PDS2020-LDGRW-30273	



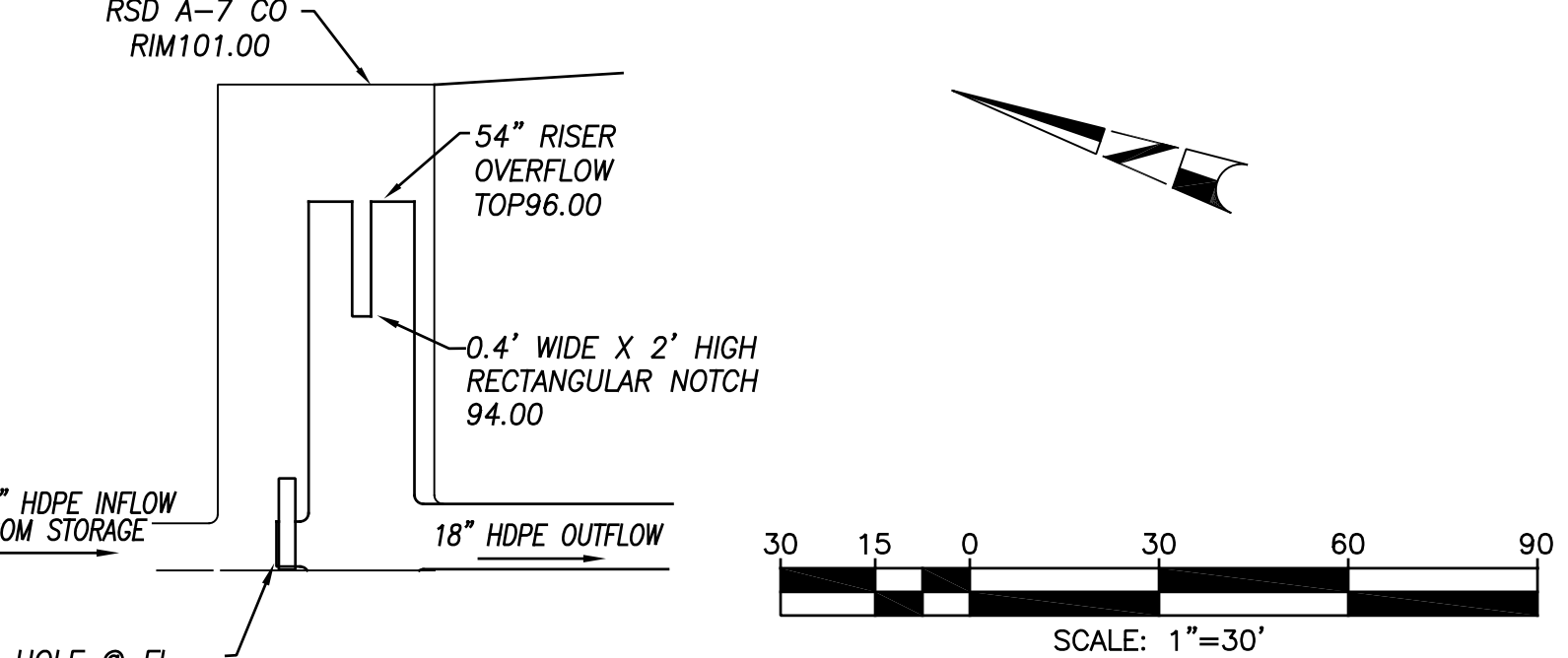


- CONTRACTOR INSTALLATION RESPONSIBILITIES AS DENOTED BY (X) ON THIS DETAIL
- (A) CONTRACTOR SHALL INSTALL PIPE OR SWALE THAT CONVEYS INFLUENT FLOWS
  - (B) CONTRACTOR SHALL PROVIDE BYPASS PIPE AND RISER AS SHOWN ON PLANS. THE BYPASS PIPE SHALL BE INSTALLED WITH WYE(S) AND WITH REDUCER COUPLING(S) FOR CONNECTION OF UNDERDRAIN PIPE, PER PLANS. PIPES SHALL BE INSTALLED TO PROMOTE POSITIVE FLOW FROM THE FILTERRA BIOSCAPE SYSTEM
  - (C) CONTRACTOR TO PROVIDE SHOULDER ACCORDING TO DIMENSION AND SLOPE SHOWN ON PLANS. SLOPE FROM SHOULDER TO FILTERRA BIOSCAPE SYSTEM SURFACE AREA SHALL NOT EXCEED 3:1. SCD IS REQUIRED TO STABILIZE SIDE SLOPES
  - (D) CONTRACTOR TO EXCAVATE MEDIA AREA CORRESPONDING TO THE SIZE OF THE FILTERRA BIOSCAPE SYSTEM SURFACE AREA AS SHOWN ON DETAIL AND ON PLAN SHEETS
  - (E) CONTRACTOR SHALL EXCAVATE VERTICALLY FROM BOTTOM OF UNDERDRAIN STONE, OR DRAINAGE STONE, IF REQUIRED, TO ELEVATION OF MULCH AS SHOWN ON THIS DETAIL
  - (F) CONTRACTOR TO PROVIDE IMPERMEABLE LINER/GEOTEXTILE FOR BOTTOM OF THE FILTERRA BIOSCAPE SYSTEM IF REQUIRED PER THE PLANS
  - (G) CONTRACTOR TO PROVIDE AND INSTALL ANY ADDITIONAL DRAINAGE STONE BELOW THE FILTERRA BIOSCAPE SYSTEM AS CALLED OUT ON THE PLANS

- CONTECH INSTALLATION RESPONSIBILITIES AS DENOTED BY (P) ON THIS DETAIL
- (1) GEOTEXTILE FABRIC ALONG THE PERIMETER OF THE FILTERRA BIOSCAPE SYSTEM EXCAVATION
  - (2) 10" OF UNDERDRAIN STONE - 2" UNDER THE PIPING, 6" AROUND THE PIPING AND 2" ABOVE THE PIPING
  - (3) 6" UNDERDRAIN PIPING UNLESS OTHERWISE APPROVED BY CONTECH, ASSOCIATED PIPING AND FITTINGS/ELBOWS TO CONNECT TO THE PIPING/FITTING(S) THAT IS PROVIDED BY CONTRACTOR (SEE CONTRACTOR INSTALLATION RESPONSIBILITIES THIS DETAIL)
  - (4) 21" ENGINEERED MEDIA
  - (5) 3" DOUBLESHEPDEDDED HARDWOOD MULCH OVER ENTIRE FILTERRA BIOSCAPE SYSTEM SURFACE AREA
  - (6) PLANTINGS AS INDICATED IN TABLE ON THIS DETAIL
  - (7) RIPRAP APRON AS DESIGNED AND INDICATED ON THIS DETAIL
  - (8) CLEANOUT ADAPTER, PLUG AND PIPING
  - (9) ADDITIONAL EROSION CONTROL AROUND THE FILTERRA BIOSCAPE SYSTEM



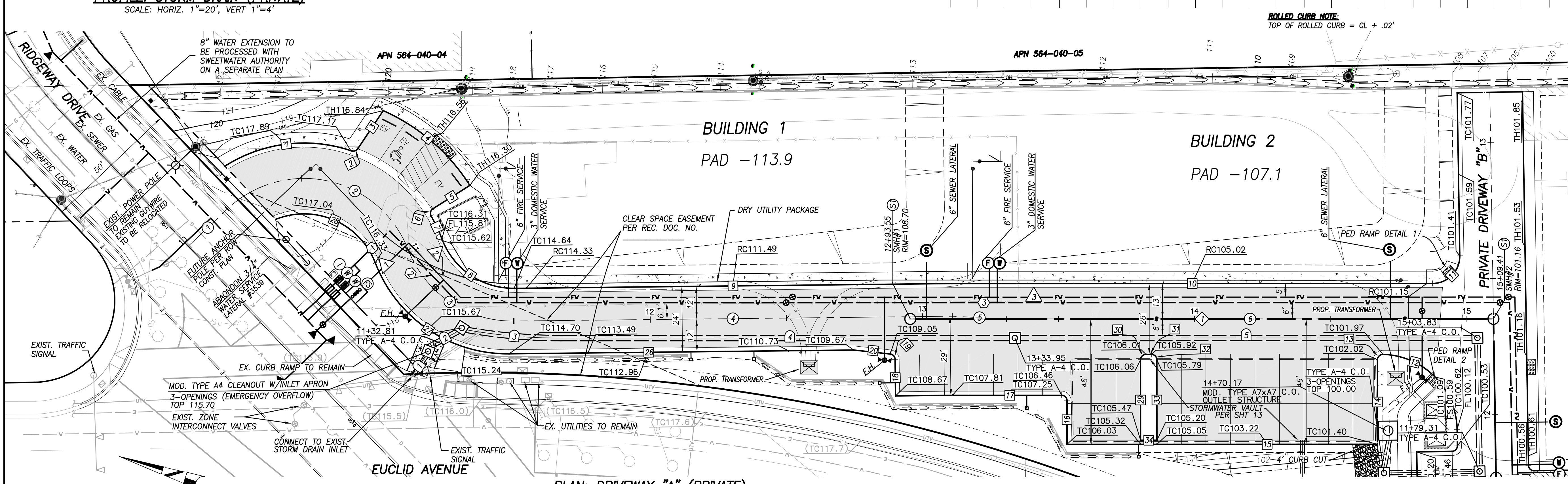
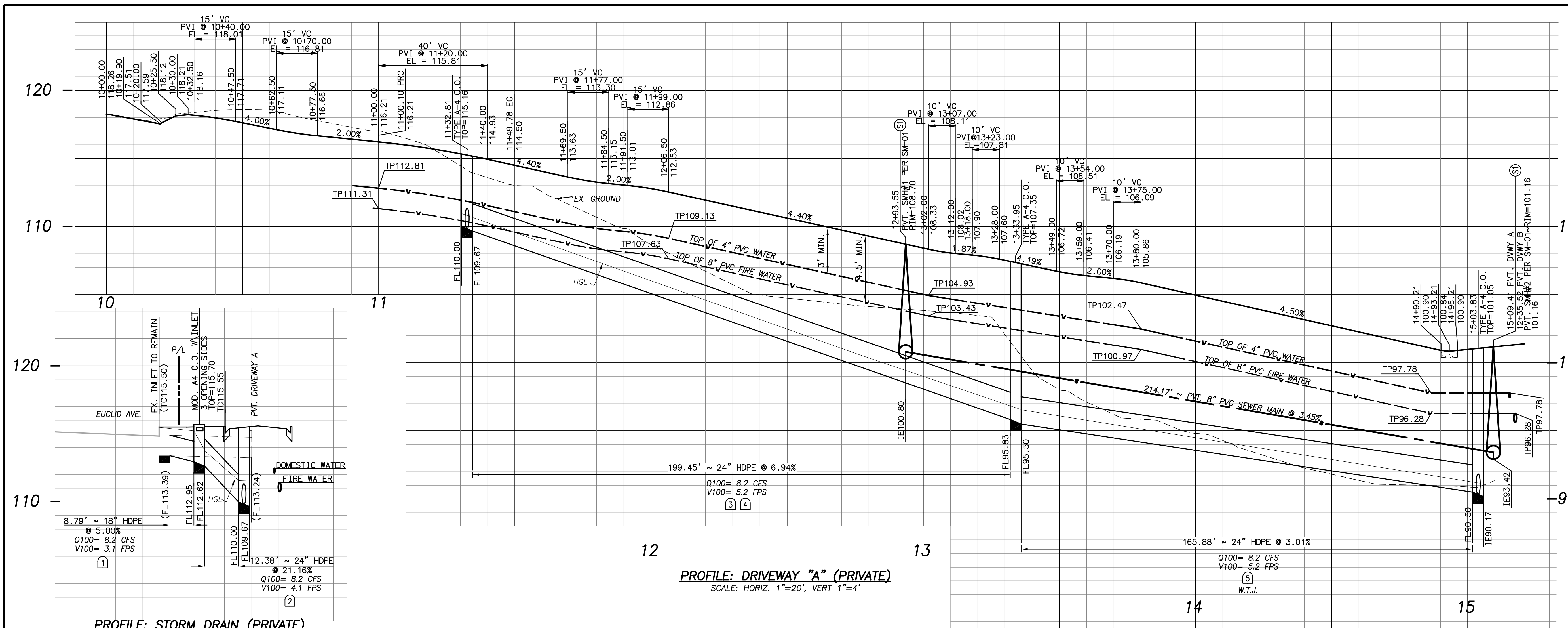
SOURCE CONTROL BMPs	PROJECT IMPLEMENTATION
4.2.1 & 4.2.2 STORM DRAIN INLETS	MARK ALL INLETS WITH THE WORDS "NO DUMPING! DRAINS TO WATERWAYS" IN ENGLISH AND "NO CONTAMINE" IN SPANISH. MAINTAIN AND PERIODICALLY REPLACE INLET MARKINGS. SEE APPLICABLE OPERATIONAL BMPs IN CASQA FACT SHEET SC-44, "DRAINAGE SYSTEM MAINTENANCE."
4.2.6.E LANDSCAPE/OUTDOOR PESTICIDE USE	LANDSCAPE HAS BEEN DESIGNED PER CITY OF SAN SAN DIEGO LANDSCAPE STANDARDS TO MINIMIZE IRRIGATION AND RUNOFF, AND TO MINIMIZE THE USE OF FERTILIZERS AND PESTICIDES THAT CAN CONTRIBUTE TO STORMWATER POLLUTION. SEE APPLICABLE BMPs IN CASQA FACT SHEETS SC-41, "BUILDING AND GROUNDS MAINTENANCE."
4.2.5 TRASH ENCLOSURES	STORAGE AREA IS PAVED WITH CONCRETE AND DESIGN NOT TO ALLOW RUN-ON FROM ADJOINING AREAS, WALLED AND CONTAINS A ROOF. SIGNS ON DUMPSTER WITH THE WORDS "DO NOT DUMP HAZARDOUS MATERIAL HERE" OR SIMILAR APPROVED BY CITY. SEE CASQA FACT SHEET SC-34, "WASTE HANDLING AND DISPOSAL."
4.2.6.Q PLAZAS, SIDEWALKS, AND PARKING LOTS	PLAZAS, SIDEWALKS, AND PARKING LOTS SHALL BE SWEEPED REGULARLY AND ONCE PRIOR TO OCTOBER 1ST TO PREVENT THE ACCUMULATION OF LITTER AND DEBRIS. SEE CASQA FACT SHEET SC-41, "BUILDING AND GROUNDS MAINTENANCE."



COUNTY APPROVED CHANGES				BENCHMARK	
NO.	DESCRIPTION	APPROVED BY	DATE	DESCRIPTION:	CITY OF SAN DIEGO BENCHMARK NO. 16070
				LOCATION:	BRASS PLUG IN TOP OF NORTHEAST CURB RETURN AT INTERSECTION OF RACHEL AVE. AND ROANOKE ST.
				RECORD FROM:	CITY OF SAN DIEGO
				ELEVATION:	167.361 DATUM: NGVD-29

PRIVATE CONTRACT		
SHEET 13	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	18 SHEET
POST CONSTRUCTION BMP PLAN		
2542 RIDGEWAY DRIVE NATIONAL CITY, CA 91950		
CALIFORNIA COORDINATE INDEX 182-1743		
APPROVED FOR: WILLIAM P. MORGAN COUNTY ENGINEER	ENGINEER OF WORK: WILLIAM LUNDSTROM	EXP. 6-30-23 R.C.E. 61630
BY:	GRADING PERMIT NO. POS2020-LDRW-30273	DATE:





CURB DATA				
NO	BEARING/DELTA	RADIUS	LENGTH	NOTE
1	Δ=51°22'52"	54.00	48.44	6" CURB AND GUTTER
2	Δ=75°04'33"	2.00	2.62	6" CURB AND GUTTER
3	N16°16'03"W	---	16.81	6" CURB
4	Δ=33°55'58"	72.00	42.64	6" CURB
5	N50°16'11"W	---	16.04	6" CURB
6	Δ=87°57'12"	2.00	3.07	6" CURB AND GUTTER
7	Δ=09°44'58"	54.00	9.19	6" CURB AND GUTTER
8	Δ=70°02'56"	28.00	34.29	6" CURB AND GUTTER
9	N18°38'21"W	---	160.78	4" ROLLED CURB
10	N18°01'15"W	---	176.54	4" ROLLED CURB
11	Δ=90°54'40"	10.00	15.87	4" ROLLED CURB
12	Δ=67°28'15"	28.00	42.75	6" CURB AND GUTTER
13	Δ=91°37'05"	2.00	3.20	6" CURB AND GUTTER
14	N71°58'45"E	---	30.99	6" CURB AND GUTTER
15	N18°01'15"W	---	81.00	6" CURB AND GUTTER
16	N71°58'45"E	---	18.00	6" CURB AND GUTTER
17	N18°01'15"W	---	42.06	6" CURB AND GUTTER
18	N71°21'39"E	---	13.41	6" CURB AND GUTTER
19	Δ=83°09'06"	2.00	2.90	6" CURB AND GUTTER
20	N11°47'27"W	---	13.48	6" CURB AND GUTTER
26	N18°38'21"W	---	126.62	6" CURB AND GUTTER
27	Δ=69°38'53"	52.00	63.21	6" CURB AND GUTTER
28	Δ=91°01'24"	28.00	44.48	6" CURB AND GUTTER
29	N71°58'45"E	---	29.50	6" CURB
30	Δ=90°00'00"	2.00	3.14	6" CURB
31	N18°01'15"W	---	2.11	6" CURB
32	Δ=90°00'00"	2.00	3.14	6" CURB
33	N71°58'45"E	---	29.50	6" CURB
34	N18°01'15"W	---	6.00	6" CURB

CENTERLINE DATA			
NO	BEARING/DELTA	RADIUS	LENGTH
1	N61°32'26"W	---	19.73
2	Δ=112°19'21"	41.00	80.38
3	Δ=69°25'16"	41.00	49.68
4	N18°38'21"W	---	161.16
5	N15°09'10"W	---	20.00
6	N18°01'15"W	---	178.80

PVT. STORM DRAIN DATA				
NO	BEARING/DELTA	RADIUS	LENGTH	NOTE
1	N73°13'46"W	---	8.79	18" HDPE
2	N46°23'50"W	---	12.38	24" HDPE
3	Δ=09°57'16"	200.00	34.75	24" HDPE
4	N18°01'15"W	---	164.70	24" HDPE
5	N18°01'15"W	---	165.88	24" HDPE

PVT. FIRE WATER DATA				
NO	BEARING/DELTA	RADIUS	LENGTH	NOTE
1	N61°32'26"W	---	23.35	8" PVC
2	N28°27'34"E	---	27.42	8" PVC
3	N18°01'15"W	---	387.33	8" PVC

PVT. WATER DATA				
NO	BEARING/DELTA	RADIUS	LENGTH	NOTE
1	N61°32'26"W	---	18.09	4" PVC
2	N28°27'34"E	---	36.28	4" PVC
3	N18°01'15"W	---	386.23	4" PVC

PVT. SEWER MAIN DATA				
NO	BEARING/DELTA	RADIUS	LENGTH	NOTE
1	N18°01'15"W	---	214.17	8" PVC

**SEWER CONSTRUCTION NOTE:**  
⑤ JOINT SEALING AND EXTERIOR WATER PROOFING PER SEWER NOTE 19 ON SHEET 3

**NOTE:**  
CONTRACTOR TO POTHOLE UTILITY PRIOR TO START OF CONSTRUCTION TO VERIFY ELEVATION. NOTIFY ENGINEER OF WORK IF REVISIONS ARE NEEDED.

**NOTE:**  
PROPOSED PRIVATE SEWER, WATER AND FIRE PRIVATE SEPARATE PERMIT NO.

**NOTE:**  
THE AUTHORITY'S PUBLIC 8-INCH WATER MAIN LOCATED WITHIN ITS EASEMENT CROSSING THE PROJECT SITE WILL BE RELOCATED BY THE AUTHORITY AT THE OWNER'S EXPENSE.

PRIVATE CONTRACT		
SHEET 14	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	18 SHEET
IMPROVEMENT PLAN FOR:		
2542 RIDGEWAY DRIVE NATIONAL CITY, CA 91950		
CALIFORNIA COORDINATE INDEX 182-1743		
APPROVED FOR: WILLIAM P. MORGAN COUNTY ENGINEER	ENGINEER OF WORK: WILLIAM LUNDSTROM EXP. 6-30-23 R.C.E. 61630	
BY:	GRADING PERMIT NO. POS2020-LDGRW-30273	
DATE:		

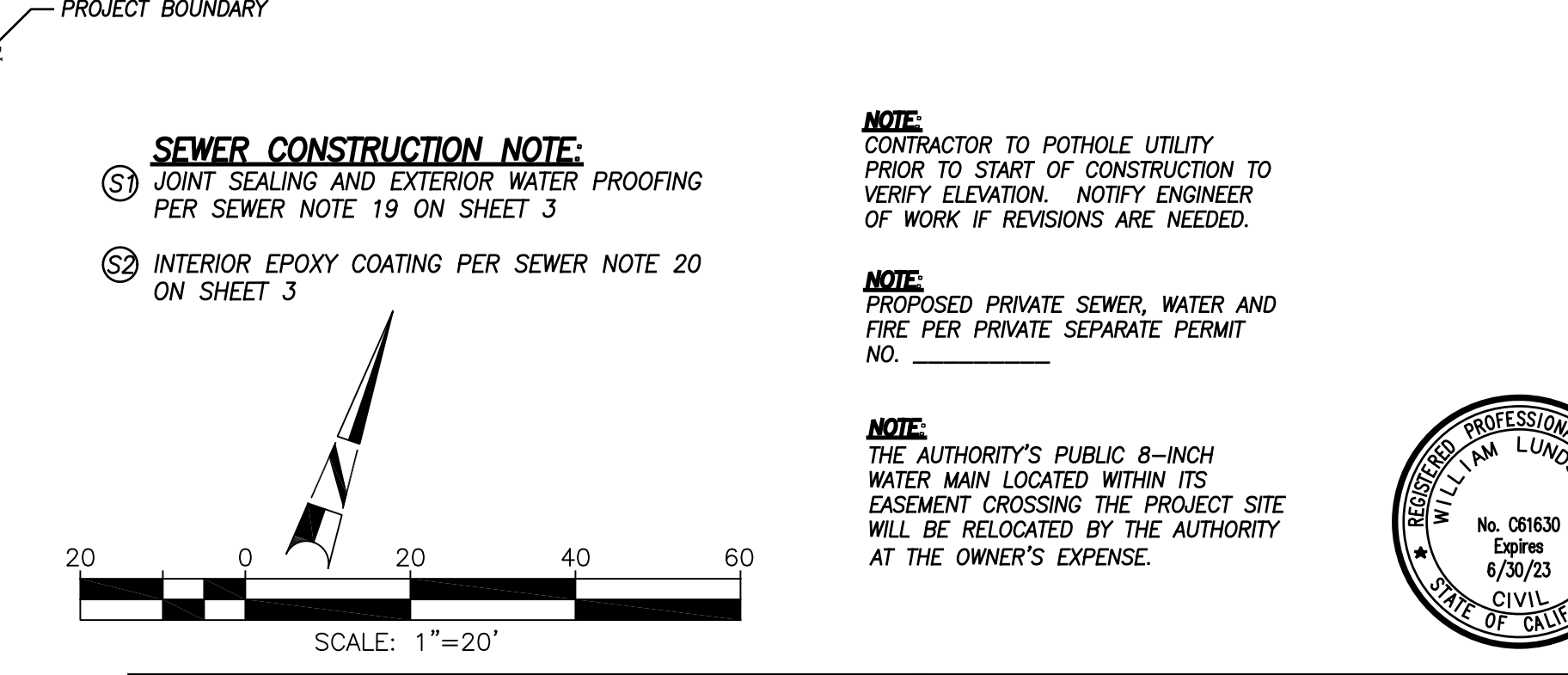
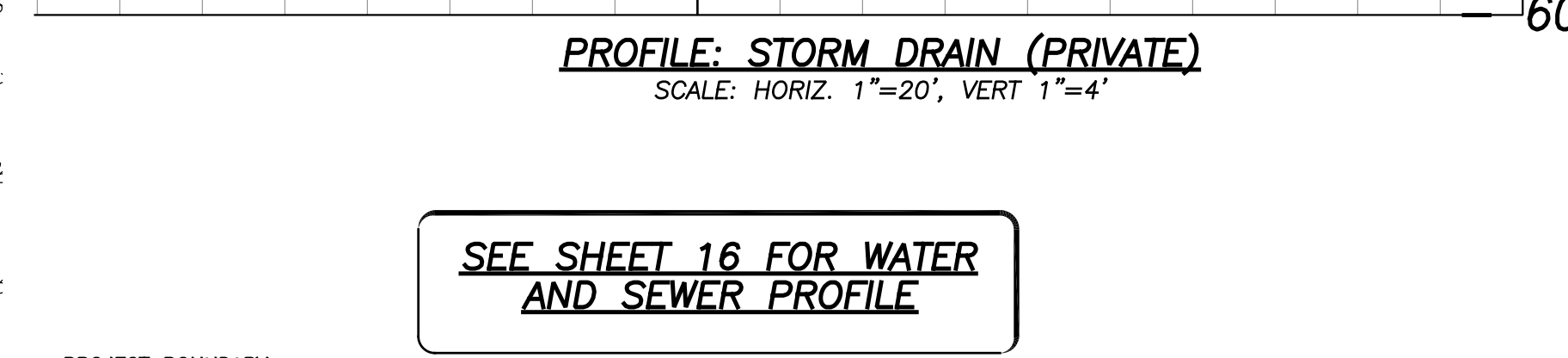
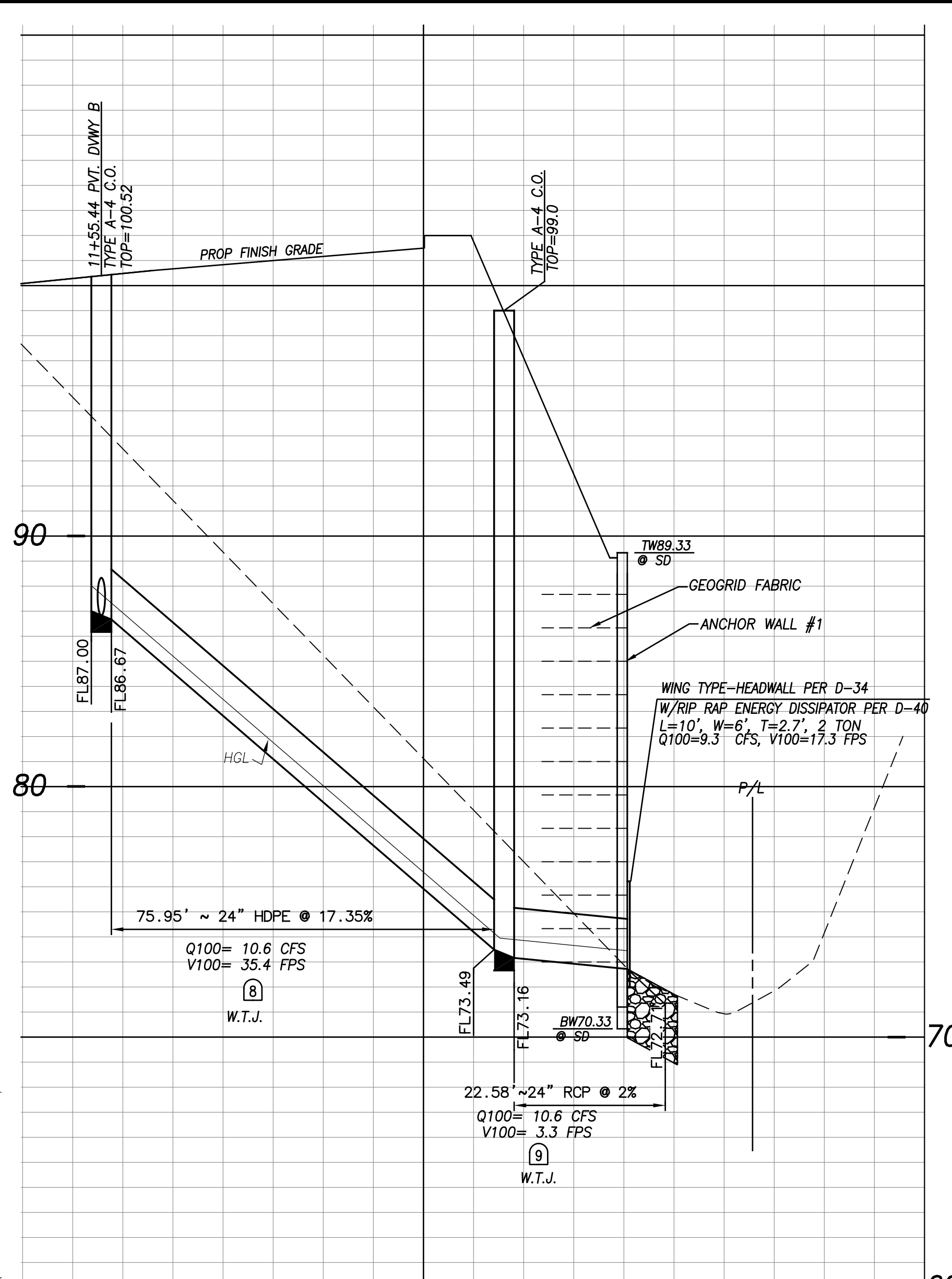
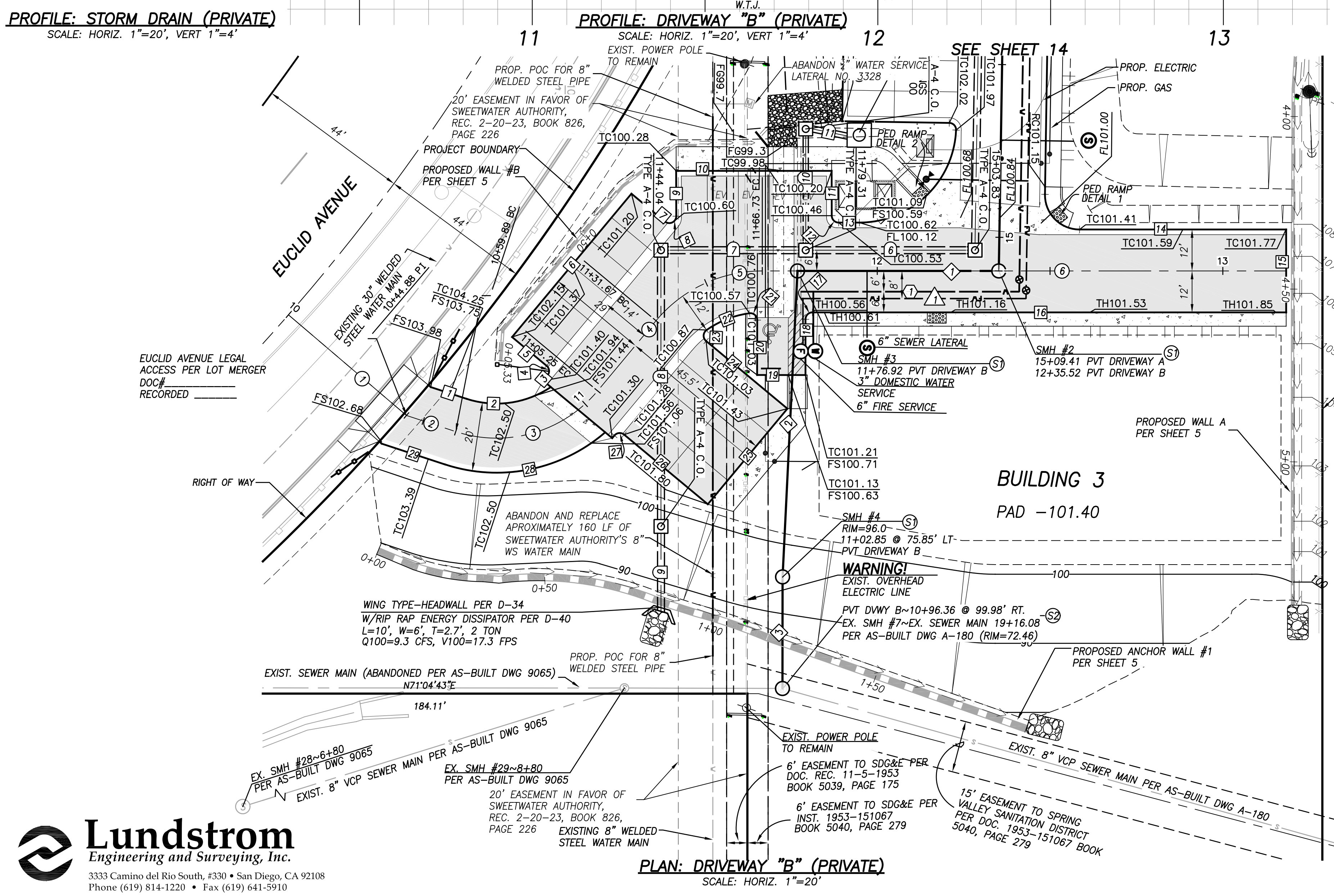
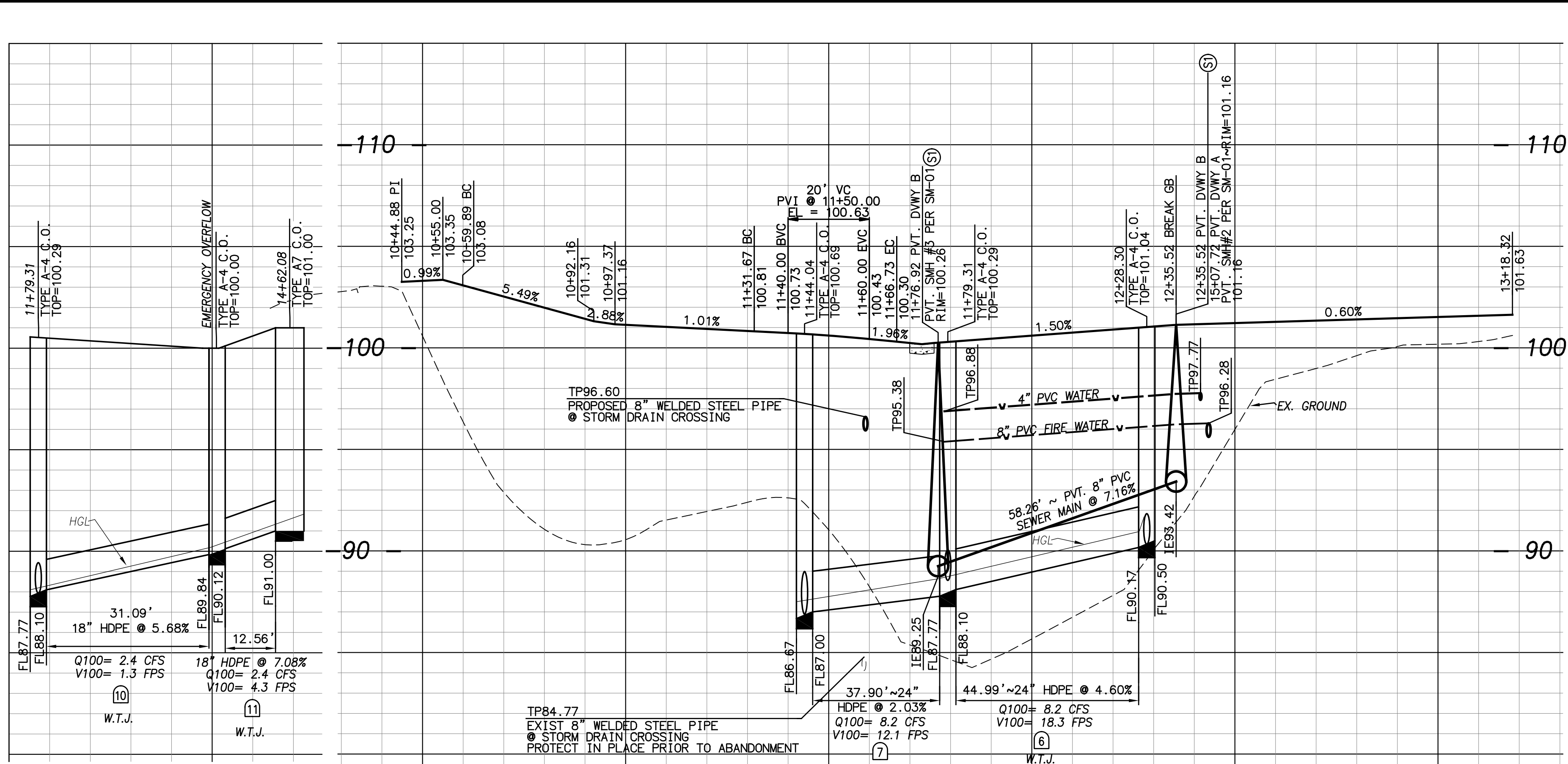
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**Lundstrom**  
Engineering and Surveying, Inc.  
3333 Camino del Rio South, #330 • San Diego, CA 92108  
Phone (619) 814-1220 • Fax (619) 641-5910

REGISTERED PROFESSIONAL ENGINEER  
WILLIAM LUNDSTROM  
No. 051630  
Expires 6/30/23  
CIVIL  
STATE OF CALIFORNIA

SEWER AGENCY	WATER AGENCY	RECORD PLAN	COUNTY APPROVED CHANGES	BENCHMARK
SAN DIEGO COUNTY SANITATION DISTRICT SPRING VALLEY SERVICE AREA	SWEETWATER AUTHORITY	NAME: _____ R.C.E. _____ DATE: _____	NO. _____ DESCRIPTION _____ APPROVED BY _____ DATE _____	DESCRIPTION: CITY OF SAN DIEGO BENCHMARK NO. 16070 LOCATION: BRASS PLUG IN TOP OF NORTHEAST CURB RETURN AT INTERSECTION OF RACHEL AVE. AND ROANOKE ST. RECORD FROM: CITY OF SAN DIEGO ELEVATION: 167.361 DATUM: NGVD-29
APPROVED BY: _____ DATE: _____ VALID FOR ONE YEAR FROM DATE SIGNED	REVIEWED BY: ERICK DEL BOSQUE DATE: _____ DIRECTOR OF ENGINEERING AND OPERATIONS VALID FOR 18 MONTHS FROM DATE OF SIGNATURE			





CURB DATA				
NO	BEARING/DELTA	RADIUS	LENGTH	NOTE
1	N89°14'05"E	---	10.90	6" CURB
2	Δ=52°10'05"	28.00'	25.49	6" CURB
3	N20°50'20"E	---	1.96	6" CURB & GUTTER
4	Δ=90°00'00"	2.00'	3.14	6" CURB & GUTTER
5	N69°09'40"W	---	13.00	6" CURB
6	N20°50'20"E	---	54.00	6" CURB
7	N69°09'40"W	---	12.61	6" CURB
8	Δ=129°54'45"	2.00'	4.53	6" CURB & GUTTER
9	N19°04'25"W	---	13.11	6" CURB & GUTTER
10	N71°04'05"E	---	45.00	6" CURB & GUTTER
11	N19°04'25"W	---	12.98	6" CURB & GUTTER
12	Δ=89°51'30"	2.00'	3.14	6" CURB & GUTTER
13	N71°04'05"E	---	6.00	6" CURB & GUTTER
14	N71°04'05"E	---	59.79	6" CURB & GUTTER
15	N18°55'55"W	---	24.03	6" CURB
16	N71°04'05"E	---	142.05	CONCRETE HEADER
17	Δ=89°51'31"	2.00'	3.14	6" CURB & GUTTER
18	N18°47'26"W	---	16.14	6" CURB
19	N71°12'34"E	---	14.00	6" CURB
20	N18°47'26"W	---	15.88	6" CURB
21	Δ=97°46'56"	2.00'	3.41	6" CURB & GUTTER
22	Δ=27°31'39"	28.00'	13.45	6" CURB & GUTTER
23	Δ=105°03'39"	2.00'	3.67	6" CURB & GUTTER
24	N69°09'40"W	---	30.61	6" CURB
25	N20°50'20"E	---	36.00	6" CURB
26	N69°09'40"W	---	31.50	6" CURB
27	Δ=90°00'00"	2.00'	3.14	6" CURB & GUTTER
28	Δ=59°00'50"	48.00'	49.44	6" CURB & GUTTER
29	N89°14'05"E	---	19.28	6" CURB & GUTTER

CENTERLINE DATA			
NO	BEARING/DELTA	RADIUS	LENGTH
1	N68°28'12"W	---	44.88
2	N89°14'05"E	---	15.01
3	Δ=68°23'45"	38.00'	45.36
4	N20°50'20"E	---	26.42
5	Δ=50°13'45"	40.00'	35.07
6	N71°04'05"E	---	151.59

PVT. STORM DRAIN DATA				
NO	BEARING/DELTA	RADIUS	LENGTH	NOTE
6	N71°04'05"E	---	44.99	24" HDPE
7	N71°04'05"E	---	37.90	24" HDPE
8	N18°56'09"W	---	75.95	24" HDPE
9	N18°56'09"W	---	22.58	24" RCP
10	N18°55'55"W	---	31.09	18" HDPE
11	N35°58'05"E	---	12.56	18" HDPE

PVT. FIRE WATER DATA				
NO	BEARING/DELTA	RADIUS	LENGTH	NOTE
1	N71°04'05"E	---	65.03	8" PVC

PVT. WATER DATA				
NO	BEARING/DELTA	RADIUS	LENGTH	NOTE
1	N71°04'05"E	---	63.06	4" PVC

PVT. SEWER MAIN DATA				
NO	BEARING/DELTA	RADIUS	LENGTH	NOTE
1	N71°04'05"E	---	58.26	8" PVC
2	N15°30'17"W	---	88.78	* 8" PVC
3	N18°52'11"W	---	32.24	* 8" PVC

\* INDICATES SDR-26

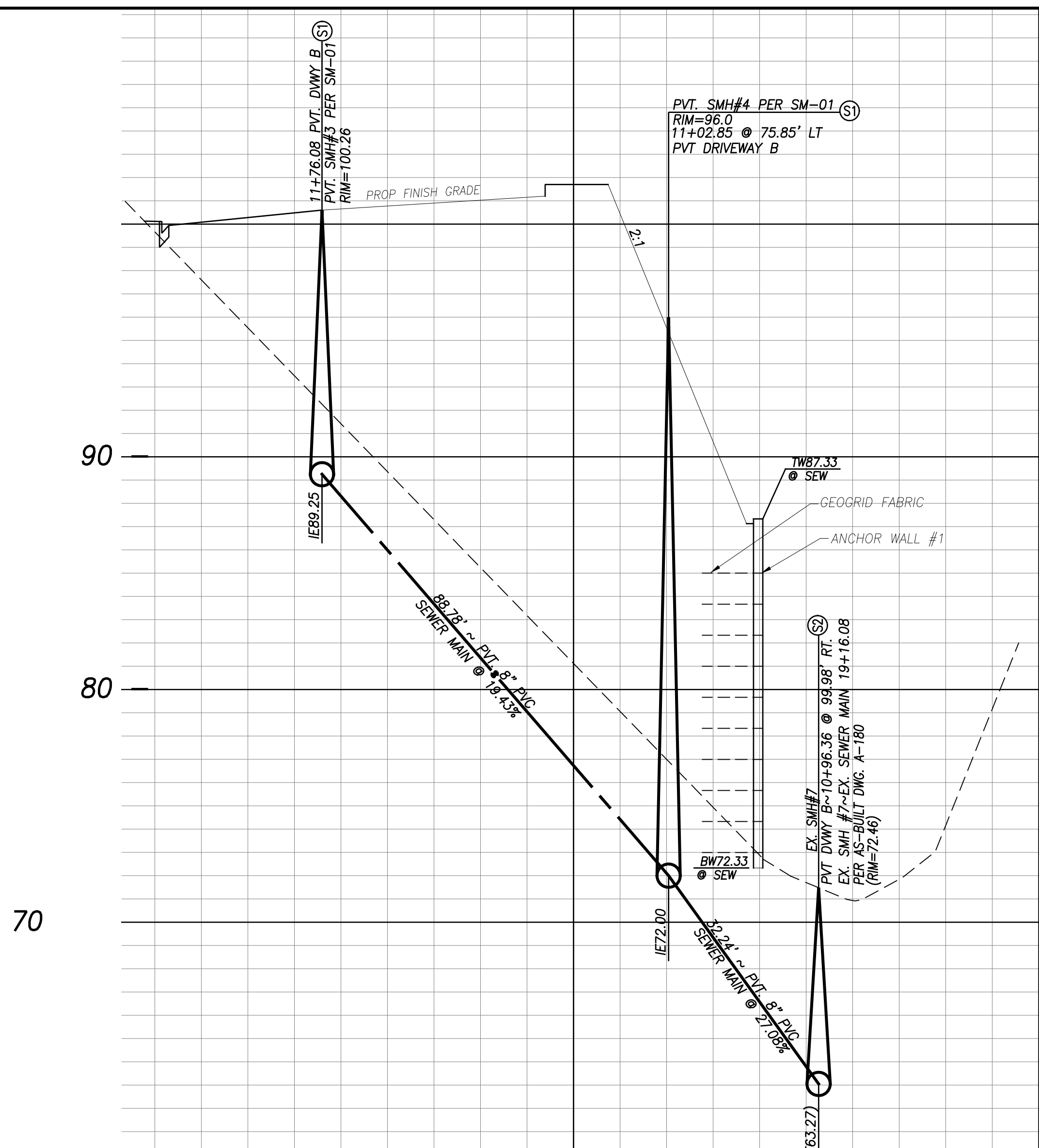


<b>WATER AGENCY</b> <b>SWEETWATER AUTHORITY</b> REVIEWED BY: _____ DATE _____ DIRECTOR OF ENGINEERING AND OPERATIONS VALID FOR 18 MONTHS FROM DATE OF SIGNATURE		<b>SEWER AGENCY</b> <b>SAN DIEGO COUNTY SANITATION DISTRICT</b> <b>SPRING VALLEY SERVICE AREA</b> APPROVED BY: _____ DATE _____ VALID FOR ONE YEAR FROM DATE SIGNED									
<b>COUNTY APPROVED CHANGES</b> <table border="1"> <tr> <th>NO.</th> <th>DESCRIPTION</th> <th>APPROVED BY</th> <th>DATE</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>		NO.	DESCRIPTION	APPROVED BY	DATE					<b>BENCHMARK</b> DESCRIPTION: CITY OF SAN DIEGO BENCHMARK NO. 16070 LOCATION: BRASS PLUG IN TOP OF NORTHEAST CURB RETURN AT INTERSECTION OF RACHEL AVE. AND ROANOKE ST. RECORD FROM: CITY OF SAN DIEGO ELEVATION: 167.361 DATUM: NGVD-29	
NO.	DESCRIPTION	APPROVED BY	DATE								

<b>PRIVATE CONTRACT</b> SHEET 15 COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS 18 SHEET IMPROVEMENT PLAN FOR: <b>2542 RIDGEWAY DRIVE</b> <b>NATIONAL CITY, CA 91950</b> CALIFORNIA COORDINATE INDEX 182-1743 APPROVED FOR: WILLIAM P. MORGAN COUNTY ENGINEER BY: _____ DATE: _____ ENGINEER OF WORK: WILLIAM LUNDSTROM EXP. 6-30-23 R.C.E. 61630 GRADING PERMIT NO. POS2020-LDRGW-30273	
--	--

ENGINEER'S NAME: LUNDSTROM ENGINEERING & SURVEYING





PROPOSED 8" WELDED STEEL WATER

WELDED STEEL TRANSITION COUPLING

**SOUTH WATER CONNECTION DETAIL~1+00.00**

NTS

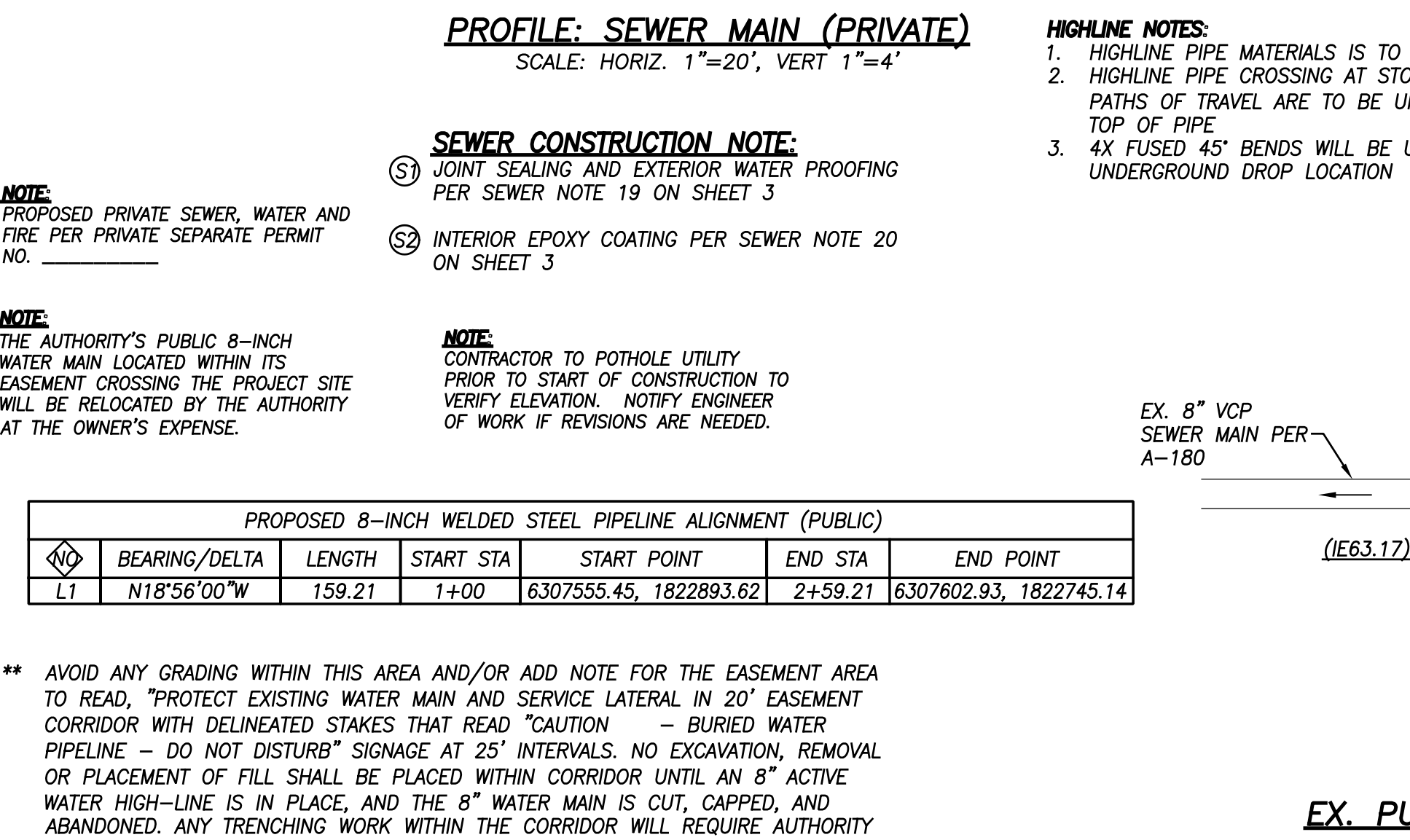
EX. 8" WELDED STEEL WATER

PROPOSED 8" WELDED STEEL WATER

WELDED STEEL TRANSITION COUPLING

**NORTH WATER CONNECTION DETAIL~2+59.21**

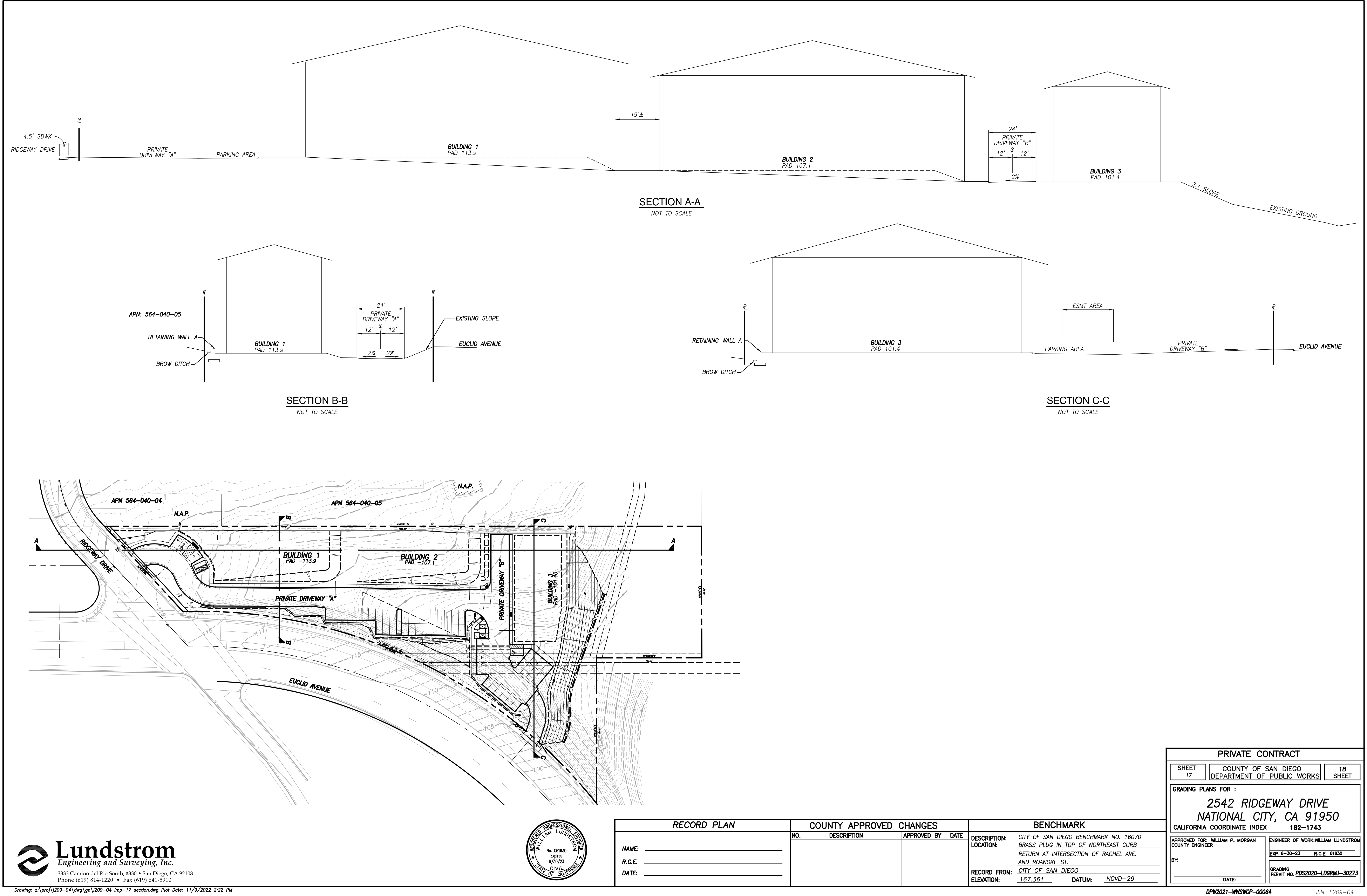
NTS



\*\*\* AVOID ANY GRADING WITHIN THIS AREA AND/OR ADD NOTE FOR THE EASEMENT AREA TO READ, "PROTECT EXISTING WATER MAIN AND SERVICE LATERAL IN 20' EASEMENT CORRIDOR WITH DELINEATED STAKES THAT READ "CAUTION BURIED WATER PIPELINE - DO NOT DISTURB" SIGNAGE AT 25' INTERVALS. NO EXCAVATION, REMOVAL OR PLACEMENT OF FILL SHALL BE PLACED WITHIN CORRIDOR UNTIL AN 8" ACTIVE WATER HIGH-LINE IS IN PLACE, AND THE 8" WATER MAIN IS CUT, CAPPED, AND ABANDONED. ANY TRENCHING WORK WITHIN THE CORRIDOR WILL REQUIRE AUTHORITY OBSERVED STAND-BY.

WATER AGENCY				RECORD PLAN				PRIVATE CONTRACT											
SWEETWATER AUTHORITY				NAME: _____ R.C.E. _____ DATE: _____				SHEET 16		COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS		18 SHEET							
REVIEWED BY: _____ DATE _____ ERICK DEL BOSQUE DIRECTOR OF ENGINEERING AND OPERATIONS VALID FOR 18 MONTHS FROM DATE OF SIGNATURE								IMPROVEMENT PLAN FOR:  2542 RIDGEWAY DRIVE NATIONAL CITY, CA 91950  CALIFORNIA COORDINATE INDEX 182-1743											
COUNTY APPROVED CHANGES								BENCHMARK											
NO.		DESCRIPTION		APPROVED BY		DATE		DESCRIPTION: CITY OF SAN DIEGO BENCHMARK NO. 16070 LOCATION: BRASS PLUG IN TOP OF NORTHEAST CURB RETURN AT INTERSECTION OF RACHEL AVE. AND ROANOKE ST. RECORD FROM: CITY OF SAN DIEGO ELEVATION: 167.361 DATUM: NGVD-29				APPROVED FOR: WILLIAM P. MORGAN COUNTY ENGINEER  BY: _____  DATE: _____				ENGINEER OF WORK: WILLIAM LUNDSTROM  EXP. 6-30-23 R.C.E. 61630  GRADING PERMIT NO. POS2020-LDGRM-130723			





**Lundstrom**  
Engineering and Surveying, Inc.  
3333 Camino del Rio South, #330 • San Diego, CA 92108  
Phone (619) 814-1220 • Fax (619) 641-5910

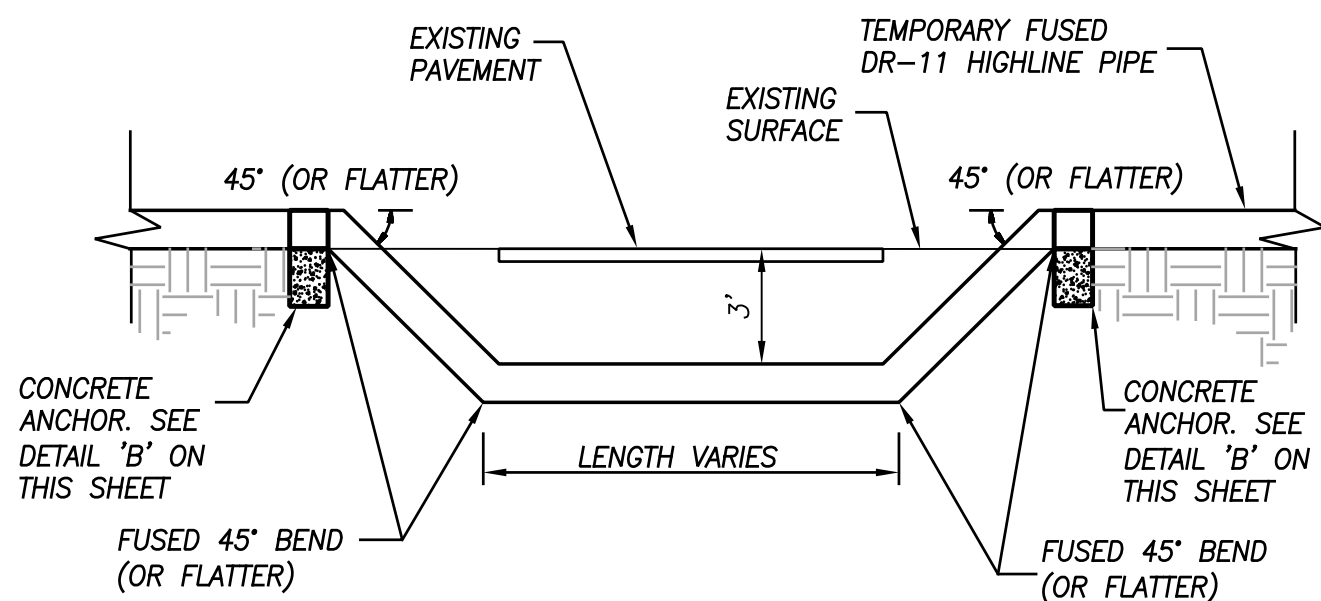


RECORD PLAN		COUNTY APPROVED CHANGES			BENCHMARK	
NAME:		NO.	DESCRIPTION	APPROVED BY	DATE	DESCRIPTION:
R.C.E.						LOCATION:
DATE:						RECORD FROM:
						ELEVATION:

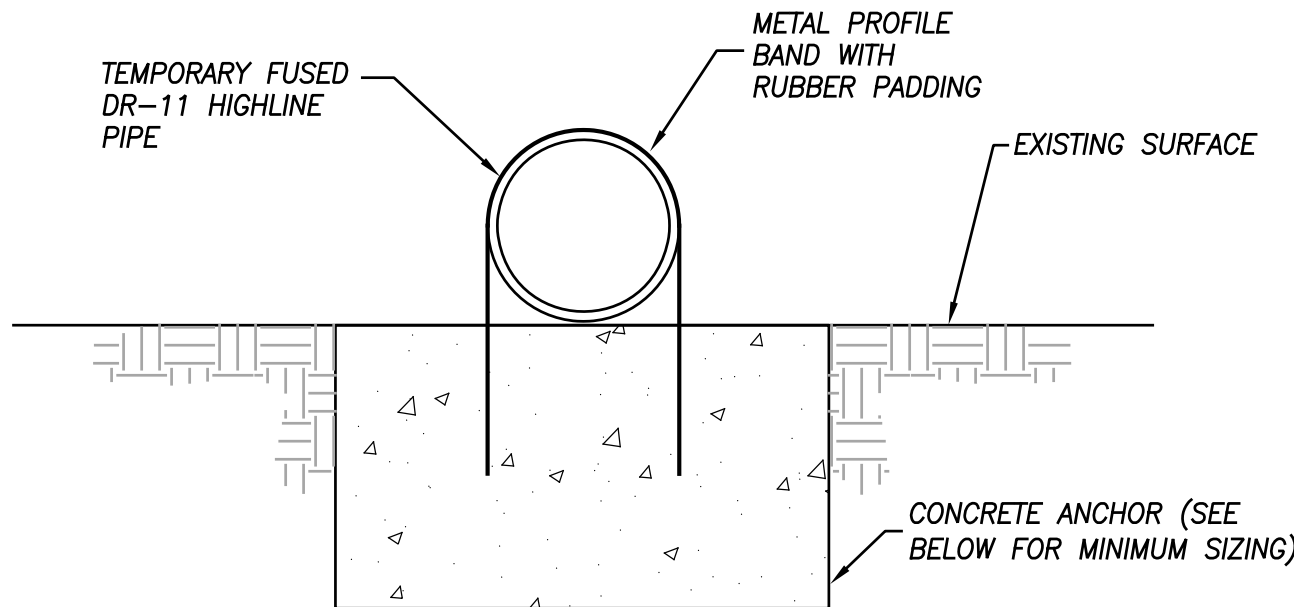
PRIVATE CONTRACT	
SHEET 17	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS
18 SHEET	
GRADING PLANS FOR :	
2542 RIDGEWAY DRIVE NATIONAL CITY, CA 91950	
CALIFORNIA COORDINATE INDEX 182-1743	
APPROVED FOR: WILLIAM P. MORGAN COUNTY ENGINEER	ENGINEER OF WORK: WILLIAM LUNDSTROM EXP. 6-30-23 R.C.E. 61630
BY:	GRADING PERMIT NO. PDS2020-LDGRW-30273
DATE:	

ENGINEER'S NAME: LUNDSTROM ENGINEERING & SURVEYING





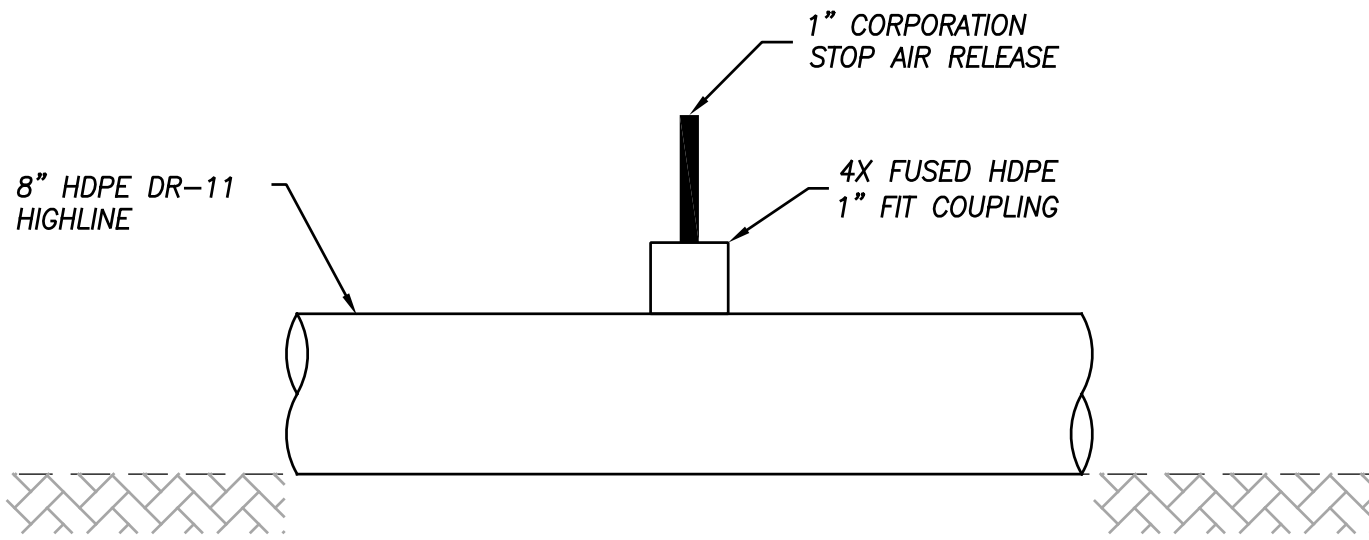
DETAIL 'A' - UNDERGROUND  
HIGHLINE SECTION  
NO SCALE



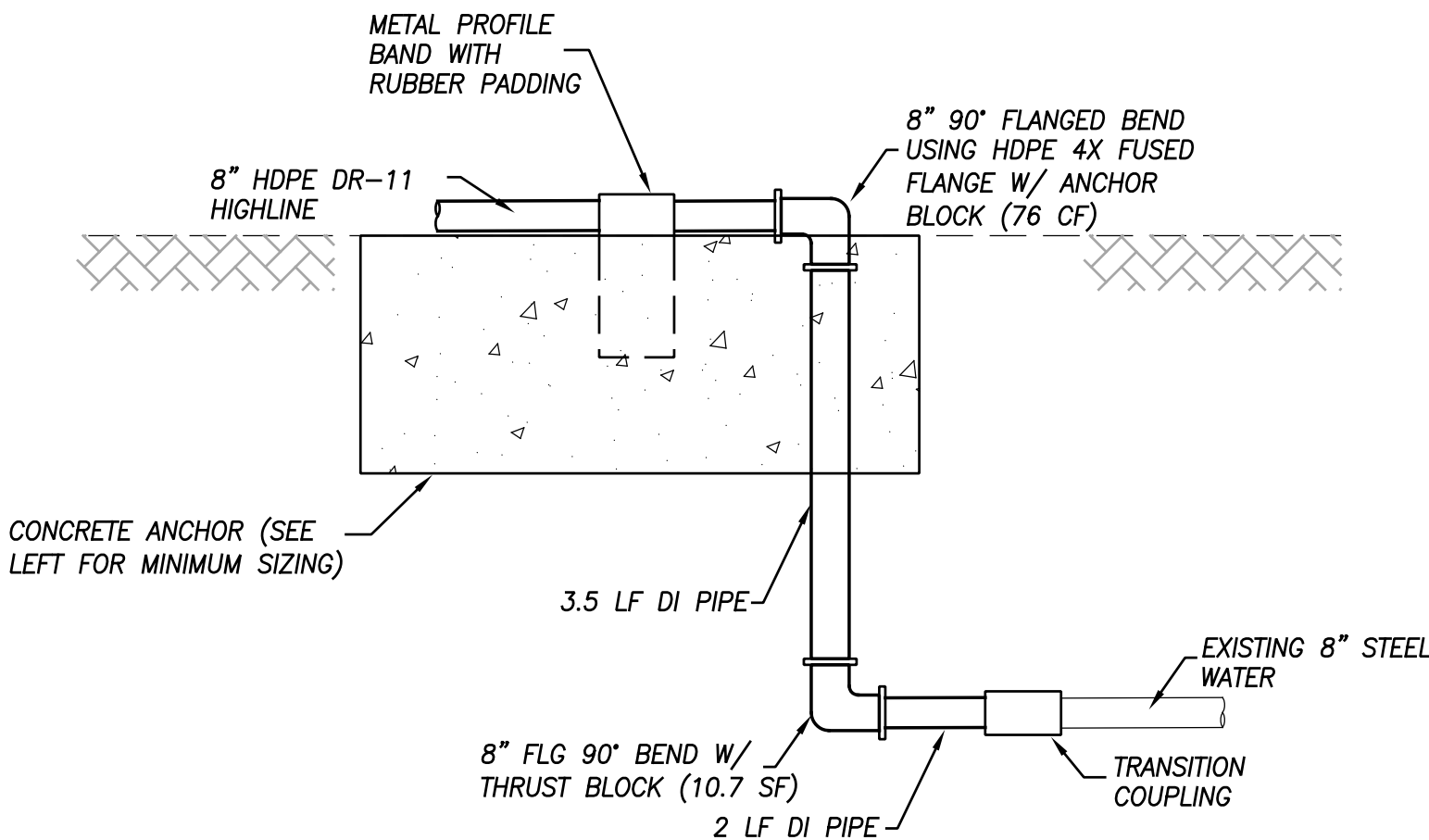
8-INCH HIGHLINE ANCHOR TABLE		
BEND	MIN. VOLUME	RECOMMENDED SIZE
11.25'	11 CF	2'4" x 2'4" x 2'
22.5'	20 CF	3'2" x 3'2" x 2'
45'	41 CF	3'8" x 3'8" x 3'
90'	76 CF	5' x 5' x 3'

NOTE: BASED ON A MAXIMUM 100 PSI  
OPERATING PRESSURE.

DETAIL 'B' - HIGHLINE ANCHOR  
NO SCALE



DETAIL 'C' - 1" CORPORATION STOP  
NO SCALE



HIGHLINE CONNECTION DETAIL 1  
NO SCALE

NOTE:  
THE AUTHORITY'S PUBLIC 8-INCH  
WATER MAIN LOCATED WITHIN ITS  
EASEMENT CROSSING THE PROJECT SITE  
WILL BE RELOCATED BY THE AUTHORITY  
AT THE OWNER'S EXPENSE.



<b>WATER AGENCY</b> SWEETWATER AUTHORITY		<b>RECORD PLAN</b>	
REVIEWED BY: _____ DATE: _____ ERICK DEL BOSQUE DIRECTOR OF ENGINEERING AND OPERATIONS VALID FOR 18 MONTHS FROM DATE OF SIGNATURE		NAME: _____ R.C.E. _____ DATE: _____	
<b>COUNTY APPROVED CHANGES</b>		<b>BENCHMARK</b>	
NO.	DESCRIPTION	APPROVED BY	DATE
DESCRIPTION: CITY OF SAN DIEGO BENCHMARK NO. 16070		BENCHMARK	
LOCATION: BRASS PLUG IN TOP OF NORTHEAST CURB			
RETURN AT INTERSECTION OF RACHEL AVE.			
AND ROANOKE ST.			
RECORD FROM: CITY OF SAN DIEGO			
ELEVATION: 167.361		DATUM: NGVD-29	

<b>PRIVATE CONTRACT</b>	
SHEET 18	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS
IMPROVEMENT PLAN FOR: <b>2542 RIDGEWAY DRIVE NATIONAL CITY, CA 91950</b>	
CALIFORNIA COORDINATE INDEX 182-1743	
APPROVED FOR: WILLIAM P. MORGAN COUNTY ENGINEER	ENGINEER OF WORK: WILLIAM LUNDSTROM EXP. 6-30-23 R.C.E. 61830
BY: _____	GRADING PERMIT NO. PDS2020-LDGRW-30273
DATE: _____	