CALIFORNIA
AMERICAN WATER

TRANSMISSION MAINS FOR MONTEREY PENINSULA WATER SUPPLY PROJECT (MPWSP)

CASTROVILLE PIPELINE DETAILS

DRAWING INDEX No. 0000

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AECOM

AUGUST 2018

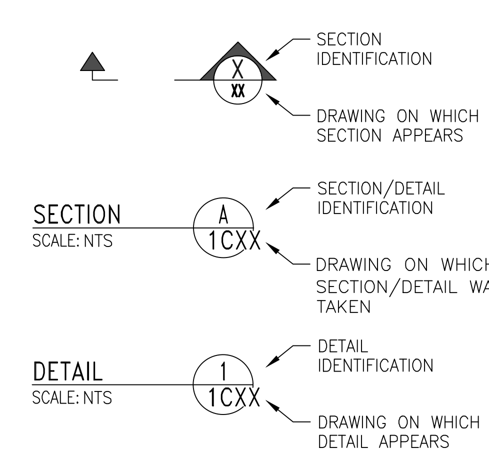
GENERAL LEGEND

Symbol	Description
M	WATER METER
	EXISTING CONTROL POINT
	NEW CONTROL POINT/ ELEVATION POINT
	TEST PITS
	EXPLORATORY BORING
	PIEZOMETERS
	PIPE W/ CAP
x	SPOT ELEVATION
	TREE, SHRUB
	WATER LEVEL ELEVATION
1.5:1	SLOPE GRADIENT (HOR. : VERT.)
	FLOW LINE
	CUT SLOPE
	FILL SLOPE
230	EXISTING GRADE CONTOUR
245	FINISHED GRADE CONTOUR
GP	GATE POST
	GUY ANCHOR
	POWER POLE, STEEL
W MH/AV	WATER PIPE MANHOLE/AIR RELEASE VALVE
	CHECK VALVE
	REDUCER
	UTILITY POLE
IN-3	EXISTING INCLINOMETER
TP	TELEPHONE POLE
	BFV COVER AND CONCRETE PAD
G	GAS VALVE
T	TELELPHONE MH OR BOX
C	COMMUNICATION BOX
	TRANSMISSION TOWER
RI	SANITARY SEWER RODDING INLET
WV	WATER VALVE
BO	BLOWOFF VALVE
AIR	COMBINATION AIR RELEASE VALVE
	ANODE
CO	CLEAN-OUT

Symbol	Description
B	BUBBLE UP
D	STORM DRAIN MANHOLE
S	SEWER MANHOLE
	EXISTING WATER VALVE
	FIRE HYDRANT
W	WATER STRUCTURE
W	WELL
WV	WATER VAULT
	CATCH BASIN
	TRANSFORMER W/PAD
	TRANSFORMER SUBSURFACE
E	ELECTRICAL BOX
	STREETLIGHT
	STREETLIGHT AND UTILITY POLE
E	MANHOLE ELECTRICAL
	ELECTRIC TEST STATION
	ROCK SURFACE
	NATURAL GROUND OR GRADE
	BACKFILL
	AC BERM
	CONCRETE
	STAGING AREA
	(E) UTILITY REMOVED FROM SERVICE
	(E) UTILITY REMOVED FROM SERVICE AND FILLED WITH CONCRETE SLURRY
	AGGREGATE / BALLAST
	HYDROSEED
	CLEAR & GRUB
	EXISTING TO BE DEMOLISHED
	(N) ASPHALTIC CONCRETE
	AGGREGATE BASE
	(E) ASPHALTIC CONCRETE
	FOUNDATION STONE
	INITIAL BACKFILL
	UNDISTURBED SOIL
	BUILDING

Line	Description
—X—X—X—	FENCE
	COASTAL BOUNDARY
	TAMC RIGHT OF WAY
	CALTRANS RIGHT OF WAY
	PARCEL BOUNDARY
	CITY LIMITS
	LIMITS OF WORK
— — G — — G —	GAS LINE
— — — W —	WATER LINE
—W—W—	NEW WATER LINE
— — RW — — RW —	RECYCLED WATER LINE
— — — SS —	SANITARY SEWER LINE
— — — SD —	STORMDRAIN LINE
— — E — — E —	ELECTRICAL LINE
— — — (E)OH —	ELECTRICAL OVERHEAD LINE
— ATT —	TEL/AT&T LINE
— IR — IR — IR —	IRRIGATION LINE
	DRAIN SWALE
— — CC — — CC —	COMCAST UNDERGROUND
—CC—CC—	COMCAST OVERHEAD
— — T — — T —	TELEPHONE LINE
—BL—BL—	BRINE LINE WASTE WATER
— — FO — — FO —	FIBER OPTIC
— — — SSFM —	SANTARY SEWER FORCED MAIN
— — SO — — SO —	SANTARY OUTFALL

TYPICAL SECTION/DETAIL NUMBERING SYSTEM



REGISTERED PROFESSIONAL ENGINEER JENNIFER A. HYMAN No. C-50926 CIVIL STATE OF CALIFORNIA
8/17/18

REVISIONS

TRANSMISSION MAINS FOR MPWSP
GENERAL
CASTROVILLE PIPELINE DETAILS
LEGEND

CALIFORNIA AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

DRAWN BY K. LEE
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH

DATE MARCH 2018
PROJECT 60489016

USE DIMENSIONS ONLY
SCALE AS SHOWN

USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES

0000G01

10000000G01

GENERAL ABBREVIATIONS

A	AMPERE
AB	AGGREGATE BASE/ANCHOR BOLT
AC	ASPHALT CONCRETE/AESBESTOS CEMENT
ADAS	AUTOMATIC DATA ACQUISITION SYSTEM
ADD	ADDITION(AL)
AFF	ABOVE FINISHED FLOOR
ALT	ALTERNATE
AL	ALUMINUM
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASSY	ASSEMBLY
ATS	ANODE BED TEST STATION
AV	AIR VALVE
AVG	AVERAGE
AVMH	AIR VALVE MANHOLE
AUX	AUXILIARY
BB	BEGINNING OF BRIDGE
BC	BEGIN CURVE
BEG	BEGIN(NING)
BF	BLIND FLANGE
BFV	BUTTERFLY VALVE
BG	BILLION GALLONS
BLDG	BUILDING
BLK	BLACK
BLVD	BOULEVARD
BO	BLOW OFF
BOMH	BLOW-OFF MANHOLE
BOT	BOTTOM
BOF	BOTTOM OF FOOTING
BRG	BEARING
C	CONDUIT
CAP	CAPACITY
CAVV	COMBINATION AIR VACUUM RELEASE VALVE
CAW	CALIFORNIA AMERICAN WATER
CB	CATCH BASIN/CIRCUIT BREAKER
C/C or CC	CENTER TO CENTER
CCSD	CASTROVILLE COMMUNITY SERVICE DISTRICT
℄	CENTER LINE
CF	CUBIC FEET
CFS	CUBIC FEET PER SECOND
CI	CAST IRON
CIDH	CAST IN PLACE DRILLED HOLE
CIR	CIRCLE
CJ	CONSTRUCTION JOINT
CJP	COMPLETE JOINT PENETRATION
CKT. NO.	CIRCUIT NUMBER
CK PL	CHECKER PLATE
CLR	CLEARANCE
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
COMM	COMMUNICATION
CONC	CONCRETE
CONN	CONNECTION
COND	CONDUIT
CONT	CONTINUE/CONTINUOUS
CONST	CONSTRUCTION
CPLG	COUPLING
CTE	COAL TAR ENAMEL
CTEL	CONNECT TO EXISTING LINE
CTR	CENTER
D	DEPTH/DIAMETER
DET	DETAIL
DFT	DRY FILL THICKNESS
DI	DRAINAGE INLET
DIA	DIAMETER
DIAG	DIAGRAM
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DN	DOWN
DR	DRAINAGE, DOOR
DWG	DRAWING
E	EAST
EA	EACH
EB	END OF BRIDGE/EAST BOUND
EC	END CURVE
EE	EACH END
EF	EACH FACE
EG	EXISTING GROUND
EL	ELEVATION
ELEC	ELECTRICAL
ELL	ELBOW
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EACH SIDE
EW	EACH WAY
(E)	EXISTING
EXP	EXPANSION
FCA	FLANGE COUPLING ADAPTER
FDN	FOUNDATION
FE	FLANGE END
FF	FAR FACE
FG	FINISHED GRADE
FIG	FIGURE
FIN	FINISHED
FL	FLOOR, FLOW LINE
FLEX	FLEXIBLE
FLG	FLAG(GED)
Fm	FRANCISCAN COMPLEX FORMATION
FPS	FEET PER SECOND
FS	FACTOR OF SAFETY
FT	FOOT
FUT	FUTURE
F/I	FURNISH AND INSTALL
GA	GAGE
GALV	GALVANIZED
GEN	GENERAL
GPM	GALLONS PER MINUTE
GR	GRADE
GRD	GROUND
GRS	GALVANIZED RIGID STEEL
GRTG	GRATING
GSKT	GASKET
GV	GATE VALVE
HDPE	HIGH DENSITY POLYETHYLENE
HGT	HEIGHT
H or HOR	HORIZONTAL
HPI	HORIZONTAL POINT OF INTERSECTION
HR	HANDRAIL, HOUR
HV	HOSE VALVE
HW	HIGH WATER
HWY	HIGHWAY
HYD	HYDRAULIC
ID	INSIDE DIAMETER
IFJ	INSULATED FLANGE JOINT
IN	INCH
INFO	INFORMATION
INST	INSTRUMENTATION
INV	INVERT
IR	IRRIGATION
JT	JOINT
JCT	JUNCTION
JP	JOINT POLE
L	LENGTH
LB	POUND
LEV	LEVEL
LT	LEFT
LONG	LONGITUDINAL
LP	LOW POINT, LOW PRESSURE
LTG	LIGHTING
MB	MACHINE BOLT
MAN	MANUAL
MATL	MATERIAL
MAX	MAXIMUM
MCU	MEASUREMENT CONTROL UNIT
MECH	MECHANICAL
MFR	MANUFACTURE(R)
MH	MANHOLE
MIN	MINIMUM, MINUTE
MISC	MISCELLANEOUS
M, MTR	MOTOR
N	NORTH
NB	NORTH BOUND
NC	NORMALLY CLOSED
NEC/N.E.C.	NATIONAL ELECTRICAL CODE
NF	NEAR FACE
NIC	NOT IN CONTRACT
NJD	NOMINAL JOINT DIAMETER
NO	NORMALLY OPEN, NUMBER
NPT	NATIONAL PIPE THREAD
NMWS	NORMAL MAXIMUM WATER SURFACE
NOM	NOMINAL
NTS	NOT TO SCALE
(N)	NEW
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OG	ORIGINAL GROUND SURFACE
OH	OVERHEAD/OPPOSITE HAND
OPNG	OPENING
P	POLE
PB	PULL BOX
PC	PIECE, POINT OF CURVE
PCC	PORTLAND CEMENT CONCRETE
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
PE	PLAIN END
PG	PRESSURE GAGE/PRONG
PH	PHASE
PL, P̲	PLATE OR PROPERTY LINE
PI	POINT OF INTERSECTION
PMF	PROBABLE MAXIMUM FLOOD
POC	POINT OF CONNECTION
PRS	PRESSURE REGULATING STATION
PRV	PRESSURE REGULATING VALVE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSL	PIPE SLEEVE
PT	POINT, POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
PVMT	PAVEMENT
R	RADIUS, RISER
RCP	REINFORCED CONCRETE PIPE
RC	REINFORCED CONCRETE
RD	ROAD OR ROOF DRAIN
RED	REDUCER
REF	REFERENCE
REINF	REINFORCEMENT
REM	REMOVABLE
REQ'D/REQ	REQUIRED
RT	RIGHT
RUB	RUBBER
ROW	RIGHT OF WAY
RWQCB	REGIONAL WATER QUALITY CONTROL BOARD
R/W	RIGHT OF WAY
S	SLOPE
SB	SOUTH BOUND
SCH	SCHEDULE
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SECT	SECTION
SFPUC	SAN FRANCISCO PUBLIC UTILITIES COMMISSION
SFWD	SAN FRANCISCO WATER DEPARTMENT
SHT	SHEET
SIM	SIMILAR
SPEC	SPECIFICATION(S)
SQ	SQUARE
SS	SANITARY SEWER/STAINLESS STEEL
SSMH	SANITARY SEWER MANHOLE
STA	STATION
STD	STANDARD
STL	STEEL, STREET LIGHTING
STRUCT	STRUCTURE
SURF	SURFACE
SVU	SALINAS VALLEY RETURN PIPELINES
SYM ABT	SYMMETRIC ABOUT
t	THICKNESS
T & B	TOP & BOTTOM
TAMC	TRANSPORTATION AGENCY OF MONTEREY COUNTY
TEL	TELEPHONE/TELECOM
TEMP	TEMPORARY
TO	TOP OF
TOC	TOP OF CURB, TOP OF CONCRETE
TOW	TOP OF WALL
TYP	TYPICAL
THK	THICK
Tts	TEMBLOR SANDSTONE FORMATION
THRU	THROUGH
TS	TEST STATION
TYP	TYPICAL
UG, U/G	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
USD	UNION SANITARY DISTRICT
U/N, U.O.N.	UNLESS OTHERWISE NOTED
V/VERT	VERTICAL
VAC	VACUUM
VC	VERTICAL CURVE
VL	VALVE
VOL	VOLUME
VPI	VERTICAL POINT OF INTERSECTION
V.I.F.	VERIFY IN FIELD
WB	WEST BOUND
WEF	WILDLIFE EXCLUSION FENCE
WI	WROUGHT IRON
W/	WITH
W/O	WITHOUT
W	WIDTH, WEST, WATER, WIRE
WD	WOOD
WHT	WHITE
WS	WATER SURFACE
WSE	WATER SURFACE EXIST
WSL	WATER SURFACE LEVEL
WSP	WELDED STEEL PIPE
WT	WATER TIGHT, WEIGHT
WV	WATER VALVE
YD	YARD
1d	EMBEDMENT LENGTH
#	NUMBER

REGISTERED PROFESSIONAL ENGINEER A. PAUL No. C-50926 CIVIL STATE OF CALIFORNIA

8/17/18

REVISIONS		

TRANSMISSION MAINS FOR MPWSP
CIVIL
CASTROVILLE PIPELINE DETAILS
ABBREVIATIONS

CALIFORNIA
AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

AECOM

CALIFORNIA AMERICAN WATER

DRAWN BY K. LEE
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH

DATE MARCH 18
PROJECT 60489016

USE DIMENSIONS ONLY
SCALE AS SHOWN

USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES

0000G02

10000000G02

GENERAL NOTES:

1. DIMENSIONS TAKE PRECEDENCE OVER GENERAL NOTES, TYPICAL DETAILS AND SCALED DETAILS.

2. THE UNDERGROUND UTILITIES SHOWN IN PLAN DRAWINGS ARE FOR INFORMATION ONLY. CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LOCATION OF ALL EXISTING UTILITIES. CONTRACTOR SHALL POTHOLE EXISTING PIPELINES TO VERIFY THE VERTICAL AND HORIZONTAL ALIGNMENT PRIOR TO PERFORMING EARTHWORK ADJACENT TO SAID PIPELINES. CONTACT USA (1–800–227–2600) PRIOR TO CONSTRUCTION.

3. THE OWNER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY AND COMPLETENESS OF UTILITY INFORMATION. THE CONTRACTOR SHALL EXERCISE CAUTION WHILE EXCAVATING AND SHALL PROTECT ALL EXISTING SERVICES FROM DAMAGE DUE TO HIS OPERATIONS. SUPPORT EXISTING UTILITIES THAT ARE EXPOSED DUE TO CONSTRUCTION ACTIVITIES.

4. UTILITY LATERALS SUCH AS WATER, GAS AND SEWER LATERALS ARE GENERALLY NOT SHOWN. IF THEY ARE DISPLAYED, LOCATIONS ARE APPROXIMATE, CONTRACTOR SHALL LOCATE AND PROTECT UTILITY LATERALS.

5. A. SEWER LINES BASED ON MAPS PROVIDED BY MRWPCA
   B. UTILITIES IN TAMC ROW ARE FROM CADD PROVIDED BY TAMC, SURVEYED BY TOWILL IN 2005.

SURVEY NOTES:

1. THE COORDINATES FOR THIS PROJECT ARE DERIVED FROM GPS OBSERVATIONS OVER A TWO MONTH PERIOD FROM NOVEMBER TO DECEMBER OF 2014. EQUIPMENT UTILIZED WAS A LEICA GS–14 GPS ROVER AND LEICA 1200 GPS ROVER. THE MEASUREMENTS WERE OBTAINED USING THE LEICA REAL TIME NETWORK, SMARTNET, AS THE BASE STATION. DATA WAS DOWNLOADED AND POST PROCESSED FOR THE SMARTNET–MONTEREY BASE STATION AND THREE LOCAL CORS STATIONS FOR TWO SEPARATE DAYS. THESE OBSERVATIONS WERE POST PROCESSED TO OBTAIN COORDINATES FOR THE MONTEREY BASE STATION.

2. THE COORDINATES WERE PROCESSED FROM THE PUBLISHED DATUM FOR THE CONTROL STATION (NAD 83(2011) EPOCH 2010.00) TO A MORE CURRENT DATUM (NAD 83(2011) EPOCH 2014.25) USING THE HORIZONTAL TIME–DEPENDANT POSITIONING (HTDP) TOOL PROVIDED BY NGS ON THEIR WEB SITE.

3. EACH CONTROL POINT IS MEASURED AT LEAST FOUR TIMES AT TWO DIFFERENT TIMES OF DAY TO CAPTURE DIFFERENT SATELLITE CONFIGURATIONS. THE DATA WAS ANALYZED TO BE SURE THAT THE MEAN VALUES OBTAINED USING LEICA SMARTWORK SOFTWARE FOR ALL COORDINATES WERE WITHIN LESS THAN +/–0.035' HORIZONTALLY AND +/–0.05' VERTICALLY.

4. ELEVATIONS ARE BASED ON NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88) AT NATIONAL GEODETIC SURVEY (NGS) BENCHMARK PID GU4116 DESIGNATED 941 3450M TIDAL WITH ELEVATION OF 11.70 FEET.

5. BASIS OF BEARING
   BEARINGS ARE BASED ON THE MERIDIAN OF THE CALIFORNIA STATE PLANE COORDINATE SYSTEM, ZONE 4, NAD 83 (2011), EPOCH 2014.25. THEY ARE DERIVED FROM NATIONAL GEODETIC SURVEY CONTINUOUSLY OPERATING REFERENCE STATIONS (NGS CORS) DATA PROCESSED USING HORIZONTAL TIME–DEPENDANT POSITIONING (HTDP) FROM NAD 83(2011) EPOCH 2010.00 TO NAD 83(2011) EPOCH 2014.25.

6. CORS STATIONS UTILIZED WERE ELKHORN SLOUGH (D17526 DESIGNATION – ELKHRNSLGHCN2005 CORS ARP), SANTA LUCIA (DH3876 DESIGNATION – SANTALUCIACN2004 CORS ARP) AND HOPKINS (DN7560 DESIGNATION – HDPKINSSTNCN2006 CORS ARP).

TOPOGRAPHICAL MAPPING

1. THE TOPOGRAPHIC/PLANIMETRIC MAPPING SHOWN HEREIN WAS COMPILED BY AERIAL PHOTOMAPPING SERVICES USING AERIAL PHOTOGRAPHY DATED 12/23/14 AT THE REQUEST OF URS/AECOM. THE STRIP MAPPING BEGINS AT PACIFIC GROVE TO THE SOUTH AND CONTINUES NORTH WHERE IT ENDS AT THE MRWPCA. CONTROL WAS PROVIDED BY POLARIS CONSULTING, CARMEL VALLEY CA. 831–659–9564.

2. AERIAL PHOTOGRAPHY OUTSIDE THE PIPELINE 150 FEET IS FROM U.S. GEOLOGICAL SURVEY, ORTHORECTIFIED BY HJW GEOSPATIAL, INC. 2011. EXCEPT FOR THE GENERAL JIM MOORE BLVD. AREA. DIGITAL GLOBE GEOEYE–1 SATELLITE; ORTHORECTIFIED BY APOLLO IMAGING 2013. 0.5–METER PIXELS.

UTILITY CONTACTS FOR PROJECT AREA

AGENCY	TYPE	CONTACT	TITLE	PHONE	EMAIL
AT&T	Communications	ps	Admin Manager Construction and Engineering	(408) 635-8781	jc4636@att.com
California American Water	Water	Don Monette	Assistant Engineering Manager	(831) 646-3290	Donald.Monette@amwater.com
Castroville Community Service District	Water	Eric Tynan	General Manager	(831) 633-2560	Eric@Castrovillecsd.org
Comcast	Communications	Mark Rose	Cable Contractor	(831) 633-2392	mark.rose@cablecomllc.net
County of Monterey	Sewer and Storm Drain	Chad Alinio	Civil Engineer	(831) 755-4937	aliniocs@co.monterey.ca.us
Dole Fresh Vegatables	Comercial Property Owner	n/a	n/a	(831) 758-6540	n/a
Monterey County Water Resources Agency-O&M	Water	Mark Foxworthy	Assoc. Engineer	(831) 755-8984	FoxworthyME1@Co.Monterey.ca.us
Monterey Regional Water Pollution Control Agency	Sewer and Recycled Water	Jennifer Gonzalez	Engineering Manager	(831) 883-6172	jennifer@mrwpca.com
PG&E	Gas and Electric	Weidong Tan	Engineering and Planning Division	(831) 784-3510	wxtk@pge.com
TAMC, AG Leases	Railroad	Dave Delfino	Lease Manager	(831) 775-4408	dave@tamcmonterey.org

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REGISTERED PROFESSIONAL ENGINEER
No. C-59926
CIVIL
STATE OF CALIFORNIA
8/17/18

REVISIONS

TRANSMISSION MAINS FOR MPWSP
GENERAL
CASTROVILLE PIPELINE DETAILS
GENERAL NOTES – 1

CALIFORNIA
AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
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0000G03

10000000G03

GENERAL NOTES:

1. HEAVY LINES AND SYMBOLS INDICATE WORK TO BE DONE BY THE CONTRACTOR. LIGHT LINES AND SYMBOLS INDICATE EXISTING FEATURES OR WORK TO BE DONE BY ANOTHER ENTITY.
2. WHERE THERE IS A DISCREPANCY BETWEEN THE WRITTEN DIMENSION AND SCALED DIMENSION, WRITTEN DIMENSIONS SHALL GOVERN.
3. ALL DISCREPANCIES BETWEEN THE INFORMATION SHOWN IN THE DRAWINGS AND THE ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
4. LEGEND SHEETS ARE PROVIDED FOR EACH DISCIPLINE. SYMBOLS MAY NOT BE CONSISTENT BETWEEN DIFFERENT DISCIPLINE LEGENDS. USE THE APPROPRIATE LEGEND SHEET WITH THE CORRESPONDING DISCIPLINE DRAWINGS.
5. THE LOCATION AND GENERAL ARRANGEMENT OF UNDERGROUND UTILITIES, UNDERGROUND STRUCTURES, PIPES WITH FITTINGS, VALVES, AND APPURTENANCES WHERE SHOWN, ARE DIAGRAMMATIC AND SUBJECT TO VERIFICATION AND ADJUSTMENT IN THE FIELD.
6. CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT (U.S.A.) 811 AT LEAST ONE WEEK IN ADVANCE OF STARTING EXCAVATION TO PROVIDE FOR MARKING OF UTILITIES. ONLY TWO WEEKS OF WORK WILL BE LOCATED ON EACH REQUEST. THE CONTRACTOR SHALL MARK THE LIMITS OF EACH REQUEST.
7. THE CONTRACTOR WILL BE RESPONSIBLE FOR FIELD STAKING THE PROPOSED PIPELINES IN THE FIELD FOR OPEN TRENCH CONSTRUCTION.
8. CONTRACTOR SHALL AT ALL TIMES COMPLY WITH THE RULES AND REGULATIONS ESTABLISHED BY CALOOSHA AND OTHER AGENCIES HAVING JURISDICTION OVER THE WORK.
9. SHUT DOWN ANY WATER, LINE OWNED BY CAW SHALL ONLY BE PREFORMED BY CAW OPERATIONS SECTION. ADVANCE NOTICE OF 24 HOURS IS REQUIRED.
10. CONTRACTOR SHALL PROVIDE UNINTERRUPTED UTILITY SERVICE THROUGHOUT THE LENGTH OF THE PROJECT.
11. THE CONTRACTOR SHALL PROVIDE TRENCH DEWATERING AND THE BYPASSING OF WASTE WATER AS REQUIRED THROUGHOUT THE LIMITS OF THE PROJECT. PAYMENT FOR SUCH WORK SHALL BE INCLUDED IN THE PROJECT PAY ITEMS AND WILL NOT BE PAID SEPARATELY.
12. THE APPROXIMATE LOCATION OF UNDERGROUND UTILITIES AND STRUCTURES SHOWN ON THESE PLANS IS BASED UPON BEST AVAILABLE PUBLIC RECORDS. THE INFORMATION SHOWN ON THE PLANS MAY BE INCOMPLETE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE POSITION OF AND PROVIDE PROTECTION FOR SUCH UTILITIES AND STRUCTURES.
13. CONTRACTOR SHALL TAKE EXTREME CAUTION WHEN EXCAVATING ADJACENT TO ACP WATER MAINS, ELECTRIC LINES AND GAS LINES. ANY DAMAGE TO WATER, SEWER AND OTHER UTILITIES INCLUDING ELECTRIC, GAS, FIBER AND TRAFFIC LOOPS SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER. ANY DAMAGE TO THE ELECTRIC OR GAS LINES WILL BE REPAIRED BY THE CITY AND THE COST WILL BE PAID BY THE CONTRACTOR. CONTACT CHIEF ELECTRICAL INSPECTOR AT 650-496-6965 PRIOR TO ANY EXCAVATION NEAR ELECTRICAL UNDERGROUND HIGH VOLTAGE LINES.
14. ALL DISTANCES, DIMENSIONS AND QUANTITIES SHOWN ON THE DRAWINGS ARE ESTIMATED FROM PUBLIC RECORDS. CONTRACTOR SHALL VERIFY ALL INFORMATION.
15. PRIOR TO EXCAVATION, HORIZONTAL DIRECTION DRILLING, JACK AND BORE OR OTHER METHODS OF PIPELINE CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS SHOWN.
16. CONTRACTOR SHALL MAINTAIN A CURRENT, COMPLETE AND ACCURATE RECORD OF ANY CHANGES IN THE CONSTRUCTION OF IMPROVEMENTS AS PROPOSED IN THE DRAWINGS AND SPECIFICATIONS FOR THE PURPOSE OF PROVIDING THE ENGINEER WITH A BASIS FOR THE RECORD DRAWINGS. NO CHANGES SHALL BE MADE WITHOUT PRIOR WRITTEN APPROVAL OF THE OWNER.
17. CONTRACTOR SHALL NOTIFY CITY SURVEYOR PRIOR TO ANY EXCAVATION WORK WITHIN 5 FEET OF A SURVEY MONUMENT. CITY SURVEYOR MUST BE PRESENT DURING EXCAVATION WITHIN 5 FEET OF SURVEY MONUMENT.
18. EXISTING UTILITY LINES/PIPELINES SHALL BE SUPPORTED AND PROTECTED DURING CONSTRUCTION, EXISTING UTILITIES WHICH WERE PROPERLY SHOW ON THE PLANS OR FIELD LOCATED, BUT ARE DAMAGED DURING WORK BY THE CONTRACTOR, SHALL BE REPLACED TO CONFORM WITH CURRENT CITY STANDARDS AT THE CONTRACTOR'S EXPENSE.
19. UNDERGROUND ELECTRIC LIGHTING, TELEPHONE AND TELECOMMUNICATION LINES, UNDERGROUND FIBER OPTIC LINES, CABLE TELEVISION LINES, OVERHEAD ELECTRIC LINES, UNDERGROUND SECONDARY ELECTRIC LINES ARE GENERALLY NOT SHOWN ON ALL DRAWINGS FOR CLARITY.
20. THE CONTRACTOR IS CAUTIONED TO PROPERLY SUPPORT ALL EXCAVATIONS WHEN WORKING IN AND AROUND EXISTING PIPELINES AND CONDUITS. SOME OF THE TRENCHES FOR THESE FACILITIES HAVE GRANULAR SAND BACKFILL WHICH MAY COLLAPSE WHEN DISTURBED, CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING ANY DAMAGE TO EXISTING PIPELINES AND CONDUITS.
21. WHERE POSSIBLE, A MANHOLE IS TO BE CONSTRUCTED ON AN EXISTING STRAIGHT THROUGH STORM DRAIN. THE TOP PORTION OF THE STORM DRAIN PIPE SHALL NOT BE REMOVED UNTIL THE MANHOLE HAS BEEN COMPLETED AND TESTED.
22. AS THE FIRST ORDER OF WORK, THE CONTRACTOR SHALL POTHOLE ALL LOCATIONS WHERE THE DRAWINGS SHOW UTILITY CROSSINGS.
23. ALL TRAFFIC CONTROL SHALL BE CONDUCTED IN ACCORDANCE WITH THE CONTRACTOR'S SPECIFIC TRAFFIC CONTROL PLANS AS APPROVED BY THE CITIES AND COUNTY.
24. WHERE SHOWN, FINISHED MANHOLE RIM ELEVATIONS ARE APPROXIMATE ONLY. ALL NEW AND EXISTING MANHOLE RIMS, UTILITY VAULTS, VALVE LIDS, AND UTILITY BOXES SHALL BE ADJUSTED TO MATCH ADJACENT TO MATCH ADJACENT GRADE UNLESS OTHERWISE NOTED ON PLANS.
25. ALL EXISTING IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO IRRIGATION LINES, LANDSCAPING, DRIVEWAYS, CURB, GUTTER, SIDEWALK, CULVERTS, DRAINS, TRAFFIC CONDITION IN WHICH THEY WERE, OR BETTER, BEFORE THE IMPROVEMENTS SHALL BE CONSIDERED AS INCLUDED IN THE ITEMS OF THE WORK INVOLVED AND SEPARATE PAYMENT FOR RESTORATION WILL NOT BE MADE.
26. POST "TOW AWAY NO PARKING" SIGNS A MINIMUM OF 72 HOURS PRIOR TO CONSTRUCTION.
27. THE CONTRACTOR SHALL COORDINATE WITH THE CITY TRAFFIC SIGNAL AND COAX SHOP AT (650) 4966991, ANY WORK WITHIN 150 FEET OF ANY SIGNALIZED INTERSECTION. TRAFFIC SIGNAL FACILITIES (LLPS AND CONDUITS) DAMAGED SHALL BE REPLACED BY THE CONTRACTOR AT HIS/HER EXPENSE. REFER TO PROJECT SPECIFICATIONS, SECTION 02200.
28. THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS TO CAUSE THE LEAST POSSIBLE OBSTRUCTION AND INCONVENIENCE TO THE PUBLIC. THROUGHOUT THE PERFORMANCE OF THE WORK THE CONTRACTOR SHALL CONSTRUCT AND ADEQUATELY MAINTAIN SUITABLE AND SAFE CROSSINGS OVER TRENCHES. DRIVEWAY ACCESS AND SUCH DETOURS AS ARE NECESSARY FOR PUBLIC PEDESTRIAN AND VEHICULAR TRAFFIC.

DEMOLITION NOTES:

1. CLEAR AND REMOVE ALL ORGANIC MATTER, DEBRIS, AND RUBBISH FROM WITHIN THE LIMIT OF WORK. CONTRACTOR SHALL DISPOSE OF SAID MATERIAL IN A LEGAL MANNER AS HIS PROPERTY.
2. CONTRACTOR MAY RE-USE MATERIAL SUBJECT TO SUBMITTALS PER SPECIFICATION AND REVIEW BY THE ENGINEER.
3. ALL EXCAVATION WORK WITHIN DRIP LINE OF EXISTING TREES THAT ARE TO REMAIN SHALL BE DONE BY HAND PER SPECIFICATIONS AND PROJECT PERMITS. CLEANLY CUT ANY ROOT LARGER THAN ONE INCH DIAMETER. DO NOT TEAR ROOTS.

WATER GENERAL NOTES:

1. ALL MATERIALS, CONSTRUCTION PROCEDURES AND APPURTENANCES SHALL CONFORM TO THE LATEST REQUIREMENTS OF THE PROJECT SPECIFICATIONS, PROJECT DRAWINGS, UTILITIES STANDARDS AND STANDARD SPECIFICATIONS OF CAW.
2. ALL EXISTING WATER VALVES AND FIRE HYDRANTS REMOVED FROM THE ABANDONED SYSTEM BY THE CONTRACTOR SHALL BE SALVAGED AND DELIVERED TO THE CAW CORPORATION YARD.
3. CONTRACTOR SHALL CLOSE ALL VALVES OF ABANDONED PIPELINES, REMOVE VALVE BOX FOR EACH ABANDONED VALVE, FILL RISER WITH CDF, AND PLACE CONCRETE OR A.C. PATCH OVER EACH HOLE CREATED BY REMOVAL OF EXISTING VALVE BOX.
4. SHUTDOWN OF ALL UTILITIES WILL BE PREFORMED BY OR UNDER THE DIRECTION OF CAW OPERATIONS DIVISION. ADVANCE NOTICE OF 5 WORKING DAYS IS REQUIRED FOR SHUTDOWNS.
5. MINIMUM COVER OVER NEW WATER MAINS IS AS SHOWN ON THE PLANS. IF NOT SHOWN, IT IS:

MAIN SIZE	MINIMUM COVER
8"	36"
≥10"	48"
ANY SIZE UNDER FARM LAND	6-FT

6. CONTRACTOR SHALL INSTALL APPROPRIATE 2" CORPORATION STOPS AND SADDLES TO BLEED AIR, PERFORM BACTERIOLOGICAL AND CHLORINATION TESTS.
7. CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY.
8. TRENCH BACKFILL STANDARD DETAIL FOR SHALLOW WATER MAINS SHALL APPLY AND GOVERN FOR ALL LOCATIONS WHERE DEPTH OF COVER OF NEW WATER MAINS IS LESS THEN 3 FEET.
9. ALL FIRE SERVICES SHALL BE POTHOLED BY THE CONTRACTOR PRIOR TO RECONNECTION FOR POSSIBLE CONFLICTS, ALL FIRE SERVICE RECONNECTS SHALL HAVE RESTRAINED JOINTS FROM THE TEE TO THE FIRST FITTING AFTER THE VALVE. CONTRACTOR SHALL FURNISH SHOP DRAWINGS OF HOW RECONNECTION WILL BE CONSTRUCTED AND SHALL INFORM NEAREST CITY FIRE STATION AND CITY COMMUNICATIONS CENTER OF THE FIRE SERVICE WORK AND MAKE ANY NECESSARY SCHEDULE ARRANGEMENTS TO ACCOMMODATE CUSTOMER'S NEEDS.
10. UNDER NO CIRCUMSTANCE SHALL PIPE MATERIAL BE INSTALLED DEFLECTED OTHER THAN AT THE JOINTS, PER PROJECT SPECIFICATIONS.
11. UNLESS OTHERWISE NOTED, EACH ADDRESS SHALL HAVE A WATER SERVICE CONNECTION. EXISTING WATER SERVICES MAY NOT BE SHOWN ON THE DRAWINGS.
12. ALL WATER SERVICES 2-IN AND SMALLER TO BE REPLACED SHALL NOT BE EXTENDED WITH UNIONS; THE LATERAL SHALL BE CONTINUOUS BETWEEN THE MAIN AND THE METER.
13. CONTRACTOR SHALL ABANDON VALVES BY CLOSING VALVE, REMOVING VALVE BOX, RISER AND COVER TO 2-FT BELOW GRADE, AND FILLING VALVE STEM WITH COMPACTED MATERIAL TO JUST BELOW NEW PAVEMENT LEVEL.
14. CONTRACTOR SHALL USE SERVICE SADDLES WITH STAINLESS STEEL STRAPS WITH DI WATER MAINS. THIS SUPERCEDES CAW STANDARD SPECIFICATIONS AND DRAWINGS.
15. THE PLANS INDICATE HIGH POINTS WHERE CAVVS ARE TO BE INSTALLED AND LOW POINTS WHERE BLOWOFFS ARE TO BE INSTALLED. SHOULD THE CONTRACTOR CREATE ADDITIONAL HIGH OR LOW POINTS, HE SHALL, AFTER APPROVAL BY THE ENGINEER, INSTALL ADDITIONAL BLOWOFFS OR CAVVS AT THE APPROPRIATE LOCATION AT HIS OWN EXPENSE, UNLESS IT IS REQUIRED FOR A NEW PIPE ALIGNMENT DUE TO CHANGED CONDITIONS.
16. CONTRACTOR SHALL MAINTAIN FLAT OR SLOPING GRADES AS SHOWN ON THE PLANS. REVERSE CHANGES IN GRADES ARE NOT ACCEPTABLE EXCEPT AS SHOWN.

RIGHT OF WAY IMPROVEMENT AND RESTORATION:

1. ALL IMPROVEMENTS IN THE PUBLIC RIGHT OF WAY SHALL BE RESTORED IN KIND TO PRIOR CONDITION. UNLESS OTHERWISE NOTED ON THE DRAWINGS, ALL IMPROVEMENTS WITHIN THE PUBLIC EASEMENT SUCH AS STREETS SHALL MEET THE LOCAL CITY AND COUNTY STANDARDS.
2. REFERENCE DRAWINGS MAY BE OBSOLETE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN THE LATEST CAW STANDARDS.
3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING IMPROVEMENTS. ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR RECONSTRUCTED TO ORIGINAL DESIGN CONDITION AND/OR AS SPECIFIED AT THE CONTRACTOR'S EXPENSE.
4. THE CONTRACTOR SHALL LIMIT CONSTRUCTION OPERATIONS TO WITHIN THE RIGHT-OF-WAY AND EASEMENTS AND DESIGNATED WORK AREAS AS INDICATED. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ANY DAMAGES OUTSIDE THE RIGHT-OF-WAY, EASEMENTS, AND DESIGNATED WORK AREAS SHOWN ON THE DRAWINGS.

EXISTING UTILITIES:

1. CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT (U.S.A.) 811 AT LEAST ONE WEEK IN ADVANCE OF STARTING EXCAVATION TO PROVIDE FOR MARKING OF UTILITIES. ONLY TWO WEEKS OF WORK WILL BE LOCATED ON EACH REQUEST. THE CONTRACTOR SHALL MARK THE LIMITS OF EACH REQUEST.
2. LOCATIONS OF ALL UTILITY SERVICE LINES SHOWN ON THE DRAWINGS ARE APPROXIMATE ONLY AND SHALL BE FIELD VERIFIED BY POT HOLING PRIOR TO COMMENCING ANY GRADING, TRENCHING OR TUNNEL EXCAVATION.
3. UTILITIES, EXISTING AT THE TIME OF CONSTRUCTION, ARE SHOWN ON THESE PLANS FOR CONVENIENCE OF THE CONTRACTOR. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITY PIPES AND/OR STRUCTURES, AS SHOWN, ARE BASED ON INFORMATION OBTAINED FROM AVAILABLE RECORDS AND/OR IN ACCORDANCE WITH TYPICAL LOCATIONS NOTED IN AGENCY STANDARDS.
4. THE CONTRACTOR SHALL TAKE PRECAUTIONARY MEASURES TO PROTECT UTILITY LINES AND STRUCTURES SHOWN AS WELL AS ANY AND ALL OTHERS NOT OF RECORD OR NOT SHOWN ON THESE PLANS. EXISTING UTILITY SERVICE LATERALS ARE SPECIFICALLY NOT SHOWN ON THESE PLANS AND ARE TO BE PROTECTED BY THE CONTRACTOR DURING PIPELINE CONSTRUCTION.
5. ALL CONTRACTOR WORK AROUND EXISTING UTILITIES SHALL BE IN CONFORMANCE WITH CALIFORNIA GOVERNMENT CODE 4216.
6. THE CONTRACTOR SHALL PROTECT IN PLACE ALL OVERHEAD INTERFERENCE. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR OVERHEAD OR UNDERGROUND POWER, GAS, AND/OR OTHER UTILITIES SO AS TO SAFELY PROTECT ALL PERSONNEL AND EQUIPMENT, AND SHALL BE RESPONSIBLE FOR ALL COSTS AND LIABILITY IN CONNECTION THEREWITH.
7. CONTRACTOR SHALL CONTACT UTILITY POLE OWNER PRIOR TO WORKING IN AREA AND UTILITY POLE OWNER WILL DO ALL WORK ON UTILITY POLES. THE CONTRACTOR SHALL PAY ALL THE COSTS ASSOCIATED WITH UTILITY POLE MODIFICATIONS AND THE CONTRACTOR SHALL INCLUDE THE TIME NEEDED BY THE UTILITY POLE OWNER AS PART OF THE OVERALL WORK.

REGISTERED PROFESSIONAL ENGINEER JENNIFER A. HYMAN No. C-50926 CIVIL STATE OF CALIFORNIA
8/17/18

REVISIONS		

TRANSMISSION MAINS FOR MPWSP
GENERAL
CASTROVILLE PIPELINE DETAILS
GENERAL NOTES - 2

CALIFORNIA
AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

DRAWN BY K. LEE
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH
DATE MARCH 2018
PROJECT 60489016
USE DIMENSIONS ONLY
SCALE AS SHOWN

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PIPELINE GENERAL NOTES:

PIPELINE SUBMITTALS AND SURVEYS

1. CAW ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE FACILITIES SHOWN ON THE PLANS. DIMENSIONS, LOCATIONS, AND OTHER UTILITY DATA SHOWN ON THE PLANS ARE APPROXIMATE.
2. THE LOCATIONS AND ELEVATIONS OF THE POINTS OF CONNECTION TO EXISTING PIPELINES OWNED BY CAW ARE APPROXIMATE.
3. CONTRACTOR SHALL EMPLOY A LAND SURVEYOR TO CONDUCT ALL SITE SURVEYS INCLUDING, BUT NOT LIMITED TO, TOPOGRAPHICAL AND UTILITY SURVEYS. LAND SURVEYOR SHALL BE LICENSED IN THE STATE OF CALIFORNIA.
4. POTHOLE ALL EXISTING UTILITIES ADJACENT TO THE WORK AND PROVIDE UTILITY INFORMATION TO THE OWNER REPRESENTATIVE IN A TIMELY MANNER. PROVIDE COORDINATES, ELEVATIONS, AND DIMENSIONS OF EACH UTILITY. IMMEDIATELY NOTIFY THE OWNER REPRESENTATIVE IF ANY APPARENT UTILITY INTERFERENCES ARE DISCOVERED.
5. POTHOLE IN ADVANCE OF THE ALL OTHER RELATED WORK IN ACCORDANCE WITH APPROVED POTHOLING PLAN SUBMITTALS. SEQUENCE AND COORDINATE POTHOLING WORK WITH THE PREPARATION, REVISION, AND APPROVAL OF RELATED SUBMITTALS INCLUDING, BUT NOT LIMITED TO, PIPE FABRICATION DRAWINGS OR "LAY SHEETS," EXCAVATION SUBMITTALS, SHORING AND BRACING SUBMITTALS, DEWATERING PLANS, PERMITS, AND ALL OTHER SUBMITTALS REQUIRED TO PERFORM THE WORK.
6. POTHOLE ALL EXISTING WATER PIPELINES OWNED BY CAW ADJACENT TO THE WORK, AT CROSSINGS, AND AT POINTS OF CONNECTION AS SHOWN ON THE PLANS. PROVIDE WATER PIPELINE INFORMATION TO THEOWNER REPRESENTATIVE IN A TIMELY MANNER. CONTRACTOR SHALL PROVIDE COORDINATES, ELEVATIONS, CIRCUMFERENCES, AND JOINT TYPES OF EXISTING PIPELINES AT POINTS OF CONNECTION.
7. POTHOLE ALL POINTS OF CONNECTION WITH EXISTING WATER PIPELINES OWNED BY CAW. POTHOLING SHALL INCLUDE, BUT SHALL NOT BE LIMITED TO, SECURING PIPELINES IN–PLACE SO AS TO AVOID MOVEMENT OR DAMAGE, INITIAL EARTHWORK AT THE POINTS OF CONNECTION SHOWN ON THE DRAWINGS AND ALL SUBSEQUENT WORK REQUIRED TO DETERMINE LOCATIONS OF NEAREST EXISTING PIPE JOINT AS DIRECTED BY THE ENGINEER. ALL SUCH POTHOLING ACTIVITIES SHALL BE PERFORMED AT NO ADDITIONAL EXPENSE TO THE OWNER.
8. SUBMIT PLANS TO THE OWNER REPRESENTATIVE THAT DEMONSTRATE PHASED EXCAVATION, DEWATERING, SHORING, AND BRACING WORK PROTECTS EXISTING PIPELINE SYSTEMS.

COORDINATION OF WATER PIPELINE WORK

1. CONSTRUCT ALL PIPELINES WITH A MINIMUM COVER OF FOUR (4) FEET UNLESS SHOWN OTHERWISE ON TEH PLANS. THERE SHALL BE A MINIMUM OF ONE (1) FOOT CLEARANCE BETWEEN OUTSIDE DIAMETER OF NEW PIPELINES (OR PIPELINE CONNECTIONS) AND OUTSIDE DIAMETER OF EXISTING UTILITY, OUTSIDE BOTTOM DIMENSION OF MANMADE CHANNEL, OR CONCRETE STRUCTURES. OTHER MINIMUM CLEARANCES ARE SHOWN ON THE PLANS.
2. CONSTRUCT PIPELINES IN ACCORDANCE WITH ANY PLANNED OUTAGES OF CAW PIPELINES OWNED AND OPERATED BY CAW AND AFFECTED WATER USERS.
3. COORDINATE WORK WITH OTHER CONCURRENT PROJECTS INCLUDING, BUT NOT LIMITED TO, THE MRWPCA GROUNDWATER RECHARGE INJECTION PIPELINE, THE CAW DESAL PLANT AND WELLS CONSTRUCTION, AND ALL THE OTHER PIPELINES IN THIS PROJECT, IF CONTRACTED SEPARATELY.
4. PROTECT EXISTING PIPELINE SYSTEMS OWNED BY CAW. PIPELINE SYSTEMS TO BE PROTECTED INCLUDE, BUT ARE NOT LIMITED TO, PIPELINES, BYPASS CONNECTIONS, VALVES, VAULTS, CATHODIC PROTECTION SYSTEMS, UNRESTRAINED PIPE JOINTS, AND THRUST RESTRAINT SYSTEMS. EXERCISE EXTREME CAUTION WHEN EXCAVATING IN THE VICINITY OF EXISTING WATER PIPELINES.
5. REMOVE AND DISPOSE OF ALL EXISTING IMPROVEMENTS THAT MAY AFFECT PIPELINE CONSTRUCTION. REPLACE ALL EXISTING IMPROVEMENTS IN–KIND AS DIRECTED BY THE OWNER REPRESENTATIVE UNLESS SHOWN OTHERWISE ON THE PLANS. SUCH IMPROVEMENTS INCLUDE, BUT ARE NOT LIMITED TO, TREES, PLANTS, BOX PLANTERS, SPRINKLERS, PIPING, ELECTRICAL WIRING, BENCHES, SHED, CONCRETE/ASPHALT MARKERS, CURBS, GUTTERS, GATES, FENCES, POSTS, SURVEY MONUMENTS, TRAFFIC DETECTORS, ETC.
6. CONSTRUCT SUPPORT SYSTEMS THAT PROTECT PIPELINES ON STEEP HILLSIDES OR ADJACENT TO DEEP EXCAVATIONS, AS REQUIRED. PREVENT DAMAGE FROM CONSTRUCTION EQUIPMENT LOADS AND INSTALLATION AND REMOVAL OF SHORING AND BRACING SYSTEMS. RESTRAIN ALL EXISTING PIPELINE FROM ANY MOVEMENT ASSOCIATED WITH THE WORK INCLUDING, BUT NOT LIMITED TO, POTHOLING WORK AND MAKING CONNECTIONS.
7. SEE PLANS AND SPECIFICATIONS FOR PIPELINE CORROSION PROTECTION REQUIREMENTS.
8. ALL WATER SERVICE RECONNECTIONS SHALL BE CARRIED OUT IN ACCORDANCE WITH CAW STANDARD DRAWINGS AND SPECIFICATIONS. SERVICE LATERALS 2–IN AND SMALLER SHALL HAVE ONE CONTINUOUS PIPE. BURIED UNIONS ARE PROHIBITED EXCEPT ON RIGID PIPE (GREATER THAN 2–IN)

PREPARATION AND TESTING

1. VALVES WILL BE OPERATED BY THE OWNER. SCHEDULE THE WORK SUCH THAT ADEQUATE NOTICE IS GIVEN TO OPERATIONS STAFF (MINIMUM 1 WEEK NOTICE). CONTRACTOR SHALL NOTIFY ALL CUSTOMERS AFFECTED BY SHUTDOWN AT LEAST 48 HOURS IN ADVANCE BY HANGING DOOR HANGERS PROVIDED BY OWNER.
2. SUBMIT WORK PLANS FOR THE DISPOSAL OF WATER DRAINED FROM ALL PIPELINES AND THE PROCUREMENT AND HANDLING OF WATER FOR HYDROSTATIC PRESSURE TESTING.
3. SUBMIT WORK PLANS FOR HYDROSTATIC PRESSURE TESTS IN ACCORDANCE WITH THE SPECIFICATIONS. PERFORM HYDROSTATIC PRESSURE TESTS AND PROVIDE TEST BULKHEADS FOR EACH PHASE OF THE WORK. PERFORM HYDROSTATIC PRESSURE TEST FOR EACH PHASE OF THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR QUANTITY TAKEOFF'S ASSOCIATED WITH PHASED HYDROSTATIC TESTING. WORK PLANS SHALL SPECIFY THE NUMBER OF BULKHEADS REQUIRED FOR EACH PHASE OF TESTING.
4. PERFORM HYDROSTATIC PRESSURE TESTS AGAINST BULKHEADS IN ACCORDANCE WITH APPROVED HYDROSTATIC PRESSURE TEST WORK PLANS. HYDROSTATIC TESTING AGAINST VALVES OR EXISTING WATER SYSTEMS SHALL NOT BE ALLOWED.
5. SUBMIT FABRICATION DRAWINGS THAT SHOW ALL DETAILS ASSOCIATED WITH EACH PHASE OF CONSTRUCTION AND TESTING OF ALL PIPELINE SYSTEMS INCLUDING, BUT NOT LIMITED TO, PIPE, VALVES, FLANGES, OUTLETS, CLOSURE PIECES, JOINT DETAILS, LINING, AND COATING.

REGISTERED PROFESSIONAL ENGINEER A. MEEKS No. C-50926 CIVIL STATE OF CALIFORNIA
8/17/18

REVISIONS

TRANSMISSION MAINS FOR MPWSP
GENERAL
CASTROVILLE PIPELINE DETAILS
GENERAL NOTES – 3

CALIFORNIA
AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

DRAWN BY K. LEE
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH
DATE MARCH 2018
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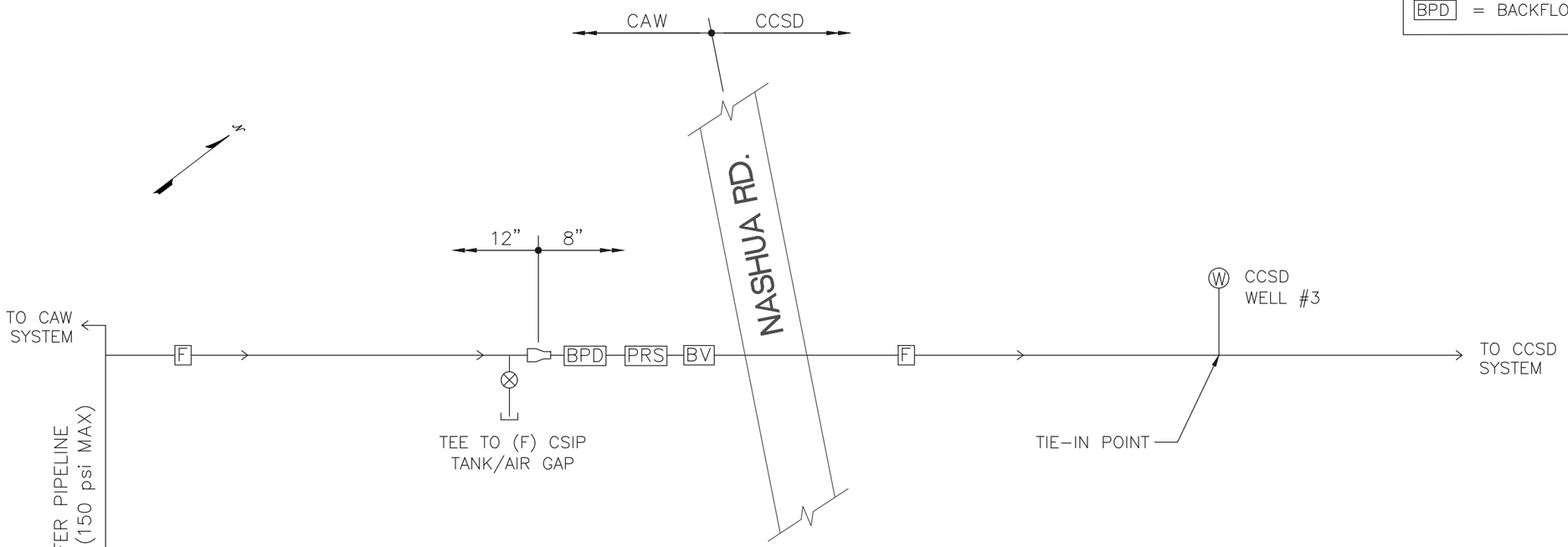
LEGEND

PRS = PRESSURE REGULATING STATION
F = FLOW METER
BV = ACTUATED BUTTERFLY VALVE
BPD = BACKFLOW PREVENTION DEVICE



FEATURES OF CAW SIDE

- JACK AND BORE UNDER RR/DOLE DRIVEWAY
- PIPE HUNG UNDER MONTE RD. BRIDGE
- ~10,200 LF

FEATURES OF CCSD SIDE

- CALTRANS CROSSING AT HWY 183
- HDD UNDER TEMBLADERO SLOUGH
- ~8,765 LF

CASTROVILLE PIPELINE SCHEMATIC

SCALE: NTS

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GENERAL
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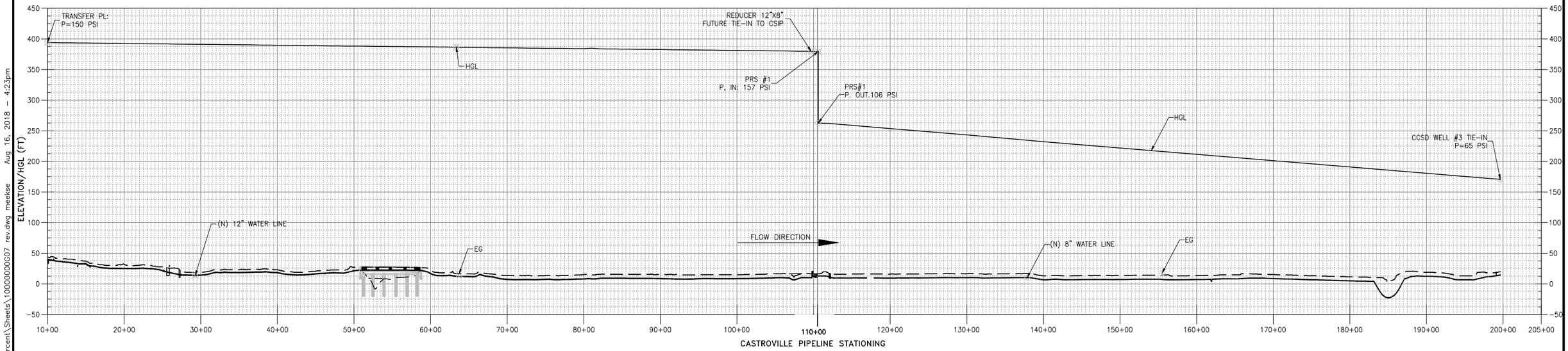

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NOTES:

1. ASSUME MINOR LOSS FROM FITTINGS EQUAL TO 10% OF FRICTION IN PIPE.
2. Q=750 GPM
3. HGL = HYDRAULIC GRADE LINE

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TRANSMISSION MAINS FOR MPWSP
GENERAL
HYDRAULIC GRADE LINE
CASTROVILLE PIPELINE

CALIFORNIA

AECOM
300 LAKESIDE DRIVE, SUITE 400
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TABLE 1. PIPING SCHEDULE

Pipe Name	Approx. Sta Start	Approx. Sta End	Approx. Length (ft)	Diameter (in)	Pipe Type	Min. Pressure Rating (psi)	Standard Dimension Ratio, PVC
12-in Pipeline (Start to S. end Monte Rd. Bridge)	10+15	50+50	4,035	12	DI	250	-
Jack and Bore at RR/Dole Entry							
Carrier Pipe	26+30	29+00	270	12	DI	250	-
Casing Pipe	26+40	28+80	240	24	Steel		-
Pipe Under Monte Rd Bridge	50+60	58+90	830	12	DI Epoxy Coated	250	-
12-in Pipeline (N. end Monte Rd. Bridge to Reducer)	59+00	109+63	5063	12	DI w/ NBR Gaskets	250	-
8-in Pipeline (Reducer to CAW/CCSD line)	109+63	111+50	180	8	DI w/ NBR Gaskets	250	
8-in Pipeline (CAW/CCSD line to End, less HDD)	111+50	199+65	8,400	8	DI w/ NBR Gaskets or Fused PVC	150	25
Pipe HDD Under Tembladero Slough	185+70	189+70	400	8	Fused PVC	235	18
Caltrans Hwy 183 Crossing							
Carrier Pipe	197+20	199+00	180	8	DI w/ NBR Gaskets or Fused PVC	150	25
Casing Pipe	197+30	198+90	160	20	Steel		-

TABLE 2. EQUIPMENT AND INSTRUMENTATION SCHEDULE

Item	Type	Diam (in)	Operating Range
Lapis Flow Meter			
Flow Meter	In Line Mag Meter	12	0-3000 gpm
CAW Nashua Meter Station			
Backflow Device	Reduced pressure principle	8	
Pressure Regulating Station			
PRV 1	Pressure regulating Valve w/rate of flow control	8	In: typically 150 psi Out: typically 100 psi flow setting: 750 gpm
PRV 2	Pressure regulating Valve w/rate of flow control	4	In: typically 150 psi Out: typically 100 psi flow setting: 750 gpm
Upstream pressure Transmitter	4-20 mA OUT	-	0-200 psi
Upstream pressure gage	Dial	-	0-200 psi
Downstream pressure Transmitter	4-20 mA OUT	-	0-150 psi
Downstream Pressure Gage	Dial	-	0-150 psi
Actuated Valve	Butterfly	8	
Valve Actuator	1 Ph, 120 V	8	
CCSD Nashua Meter Station			
Pressure Transmitter	4-20 mA OUT	-	0-150 psi
Pressure Gage	Dial	-	0-150 psi
Flow Meter	In Line Mag Meter	8	0-2000 gpm, average: 750 gpm

TABLE 3. PIPELINE RESTRAINT SCHEDULE

Station No.		
From	To	Approximate Restrained Length (ft)
12-inch		
Begin (Sta. 10+15)	11+02	87
14+18	15+63	145
25+12	27+52	240
36+76	38+99	223
46+11	109+68	6357
8-inch: Restrain All		
109+68	End (Sta. 199+65)	8997
	Total Restrained (12-inch)	7,052
	Total Unrestrained (12-inch)	2,901
	Total Restrained (8-inch)	8,997

NOTES:

1. FOR DESIGN CHANGES MADE IN THE FIELD, USE TABLE 4 BELOW.
2. FOR DI PIPE INSTALLED IN CASINGS, PULL OUT JOINTS DURING INSTALLATION TO PREVENT MOVEMENT AFTER PRESSURIZATION.
3. TABLE 2: OPERATING RANGE LISTED FOR PRV'S ARE APPROXIMATE. CONTRACTOR TO VERIFY FINAL CALIBRATION SETTINGS WITH OWNER.

TABLE 4. PVC AND DI PIPE JOINT RESTRAINT SIZING TABLE
REQUIRED RESTRAINT DISTANCE (FT.) EACH SIDE

PIPE DIAMETER	TEE BRANCH	PLUG, CAP OR VALVE	VERTICAL BEND			HORIZONTAL BEND			
			11 1/4°	22 1/2°	45°	11 1/4°	22 1/2°	45°	90°
4	20	35	5	10	15	5	5	10	15
6	20	20	5	10	20	5	5	10	20
8	20	20	10	15	25	5	10	15	30
10	20	20	10	15	30	5	10	15	35

REGISTERED PROFESSIONAL ENGINEER JENNIFER A. HYMAN No. C-50926 CIVIL STATE OF CALIFORNIA

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PIPING AND INSTRUMENT SCHEDULES

CALIFORNIA AMERICAN WATER

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300 LAKESIDE DRIVE, SUITE 400
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CALIFORNIA AMERICAN WATER

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USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES

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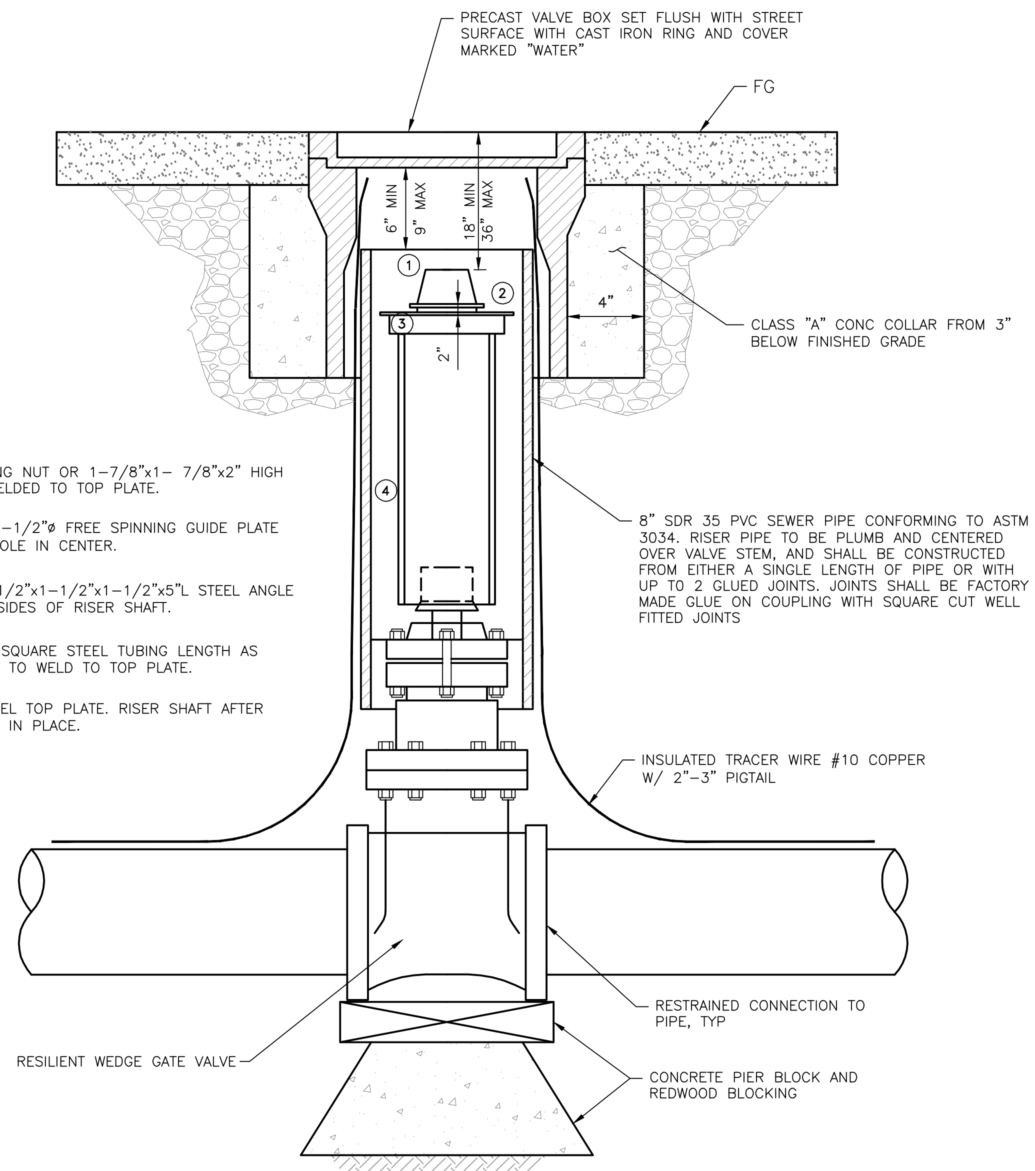
STEM EXTENSION FABRICATION NOTES:

1. ALL WELDS TO RISER SHAFT SHALL BE FILLET WELD ALL AROUND AS SPECIFIED BELOW.
2. ALL STEEL REQUIRED FOR RISER FABRICATION SHALL BE STRUCTURAL STEEL PER ASTM A36.



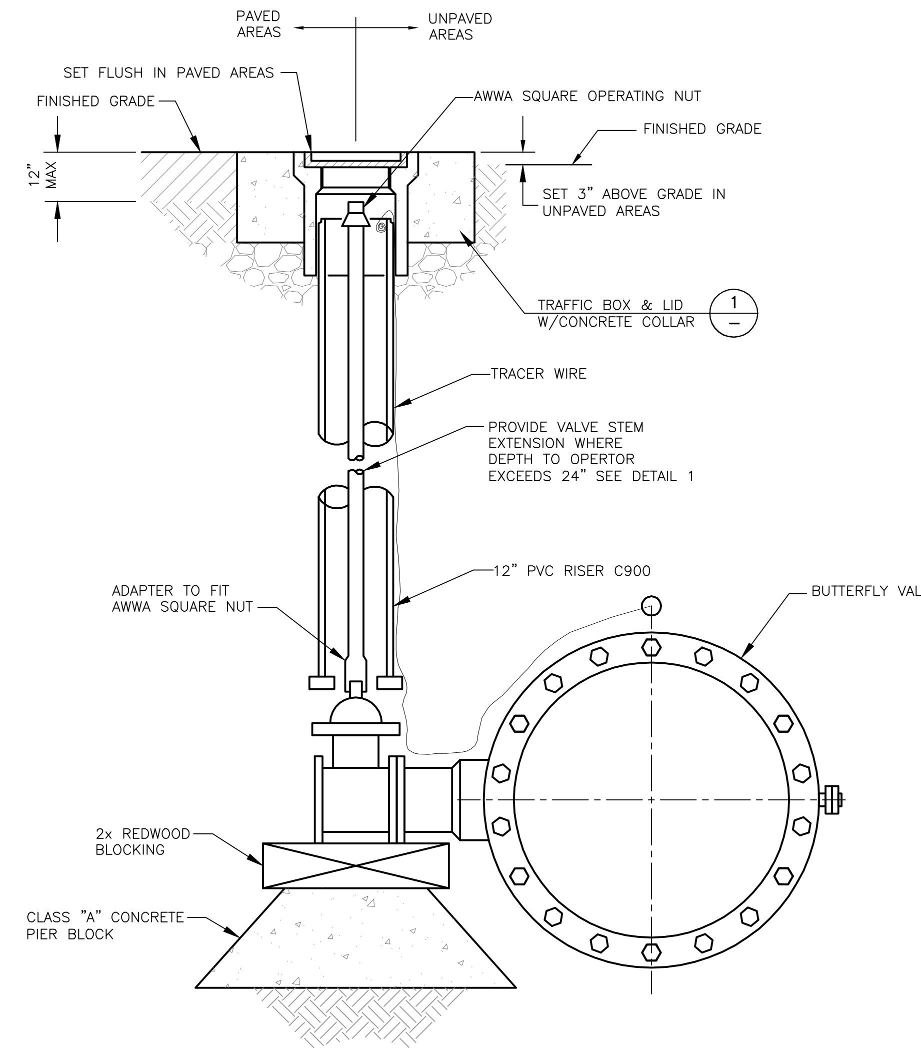
PARTS LIST:

1. VALVE OPERATING NUT OR 1-7/8"x1- 7/8"x2" HIGH SOLID STEEL WELDED TO TOP PLATE.
2. 3/16" THK x 7-1/2"ø FREE SPINNING GUIDE PLATE W/ 3-5/8"ø HOLE IN CENTER.
3. TWO 3/16"x1-1/2"x1-1/2"x1-1/2"x5"L STEEL ANGLE WELD TO TWO SIDES OF RISER SHAFT.
4. 2-1/2"x3/16" SQUARE STEEL TUBING LENGTH AS REQUIRED EDGE TO WELD TO TOP PLATE.
5. 3"x3"x1/4" STEEL TOP PLATE. RISER SHAFT AFTER GUIDE PLATE IS IN PLACE.

VALVE NOTES:

1. ALL EXTERNAL BOLTS AND NUTS ON VALVES SHALL BE 304 STAINLESS STEEL AND THE ENTIRE VALVE SHALL BE WRAPPED TIGHTLY WITH POLYETHYLENE FILM HELD SECURELY WITH ADHESIVE TAPE.
2. IF VALVE IS INSTALLED SO THAT THE TOP OF THE OPERATING NUT IS LESS THAN 30" BELOW FINISHED GRADE, THE VALVE STEM RISER IS NOT REQUIRED.

TYPICAL GATE VALVE INSTALLATION, 12 INCHES AND SMALLER (1/–)
SCALE: NTS



NOTES:

1. PROVIDE PROTECTIVE COATING TO EXTERIOR SURFACE OF VALVE BODY. WRAP WITH WAX TAPE WRAPPING SYSTEM.
2. INSTALL 2-IN BYPASS LINE AROUND EACH BFV.
   a. USE 2-IN AWWA RESILIENT WEDGE GATE VALVE INSTALLED PER DETAIL 1.
   b. USE STAINLESS STEEL THREADED OUTLET TAPPING SLEEVE ON DI PIPE. USE HDPE IPS MOLDED BRANCH SADDLE, PRESSURE CLASS 200 AWWA COMPLIANT ON HDPE PIPE (REQUIRES SPECIAL HEATERS AND EQUIPMENT TO INSTALL). LOCATE SADDLES MIN 1-FT FROM BFV. INSTALL 2-IN CORP STOP ON SERVICE SADDLES.
   c. INSTALL 2-IN PVC SCH. 80 PIPE BETWEEN 2-IN CORP AND 2-IN GATE VALVE ON EACH SIDE IN CONFORMANCE WITH CAW STANDARD DRAWING No. 8A FOR A 2-IN WATER SERVICE.

TYPICAL BUTTERFLY VALVE INSTALLATION, LARGER THAN 12 INCHES (2/–)
SCALE: NTS

REGISTERED PROFESSIONAL ENGINEER JENNIFER A. HYMAN No. C-50926 CIVIL STATE OF CALIFORNIA
8/17/18

REVISIONS

TRANSMISSION MAINS FOR MPWSP
MECHANICAL
CASTROVILLE PIPELINE DETAILS
VALVE DETAILS

CALIFORNIA AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

DRAWN BY K. LEE
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH
DATE MARCH 2018
PROJECT 60489016
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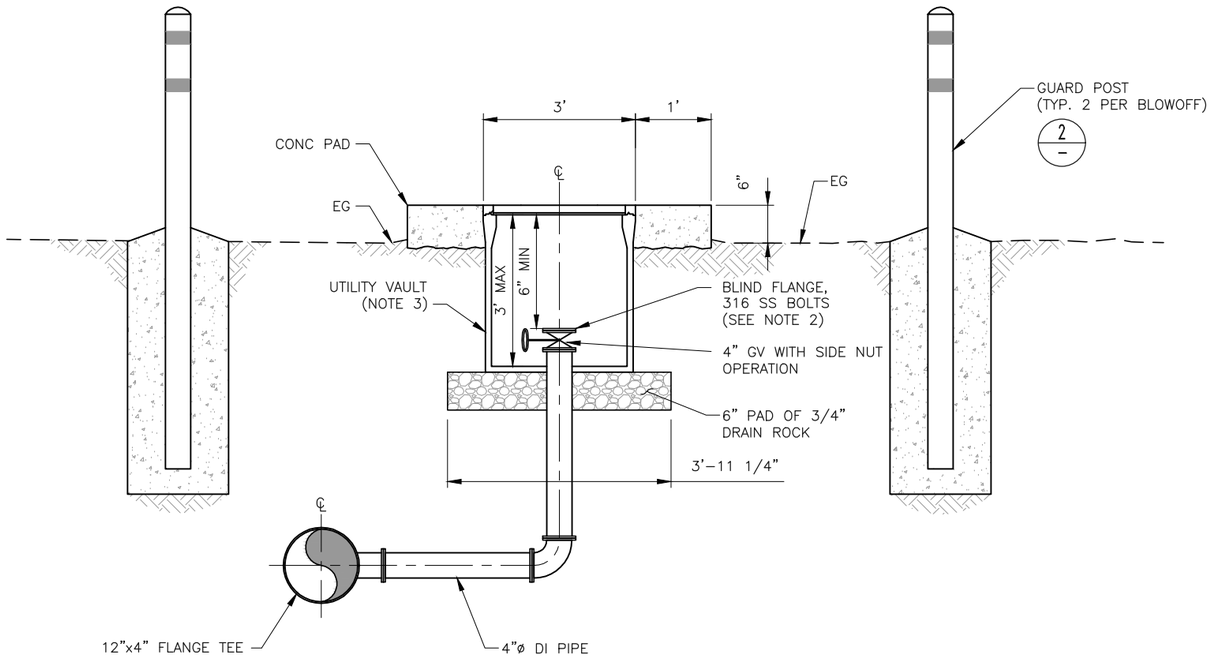
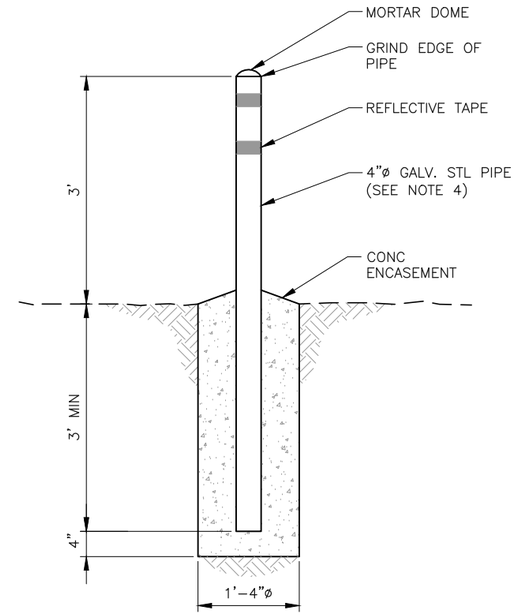


PUMP OUT BLOWOFF DETAIL 1
SCALE: NTS

NOTES:

1. INSTALL PUMP OUT BLOWOFF OUTSIDE OF CAW SERVICE AREA.
2. ALL HARDWARE TO BE 316 SS. RESTRAIN ALL JOINTS.
3. UTILITY VAULT TO BE APPROXIMATELY 28" x 40" WITH TRAFFIC RATED LID THAT IS BOLTED DOWN FOR ENHANCED SECURITY FROM VANDALISM.
4. FILL PIPE WITH CONCRETE. PAINT WHITE WITH 2 BANDS OF 2–IN WIDTH REFLECTIVE TAPE.



GUARD POST DETAIL 2
SCALE: NTS

REVISIONS

REGISTERED PROFESSIONAL ENGINEER
No. C-50926
CIVIL
STATE OF CALIFORNIA
8/17/18

TRANSMISSION MAINS FOR MPWSP
MECHANICAL
CASTROVILLE PIPELINE DETAILS
PUMP OUT BLOWOFF DETAILS

CALIFORNIA
AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

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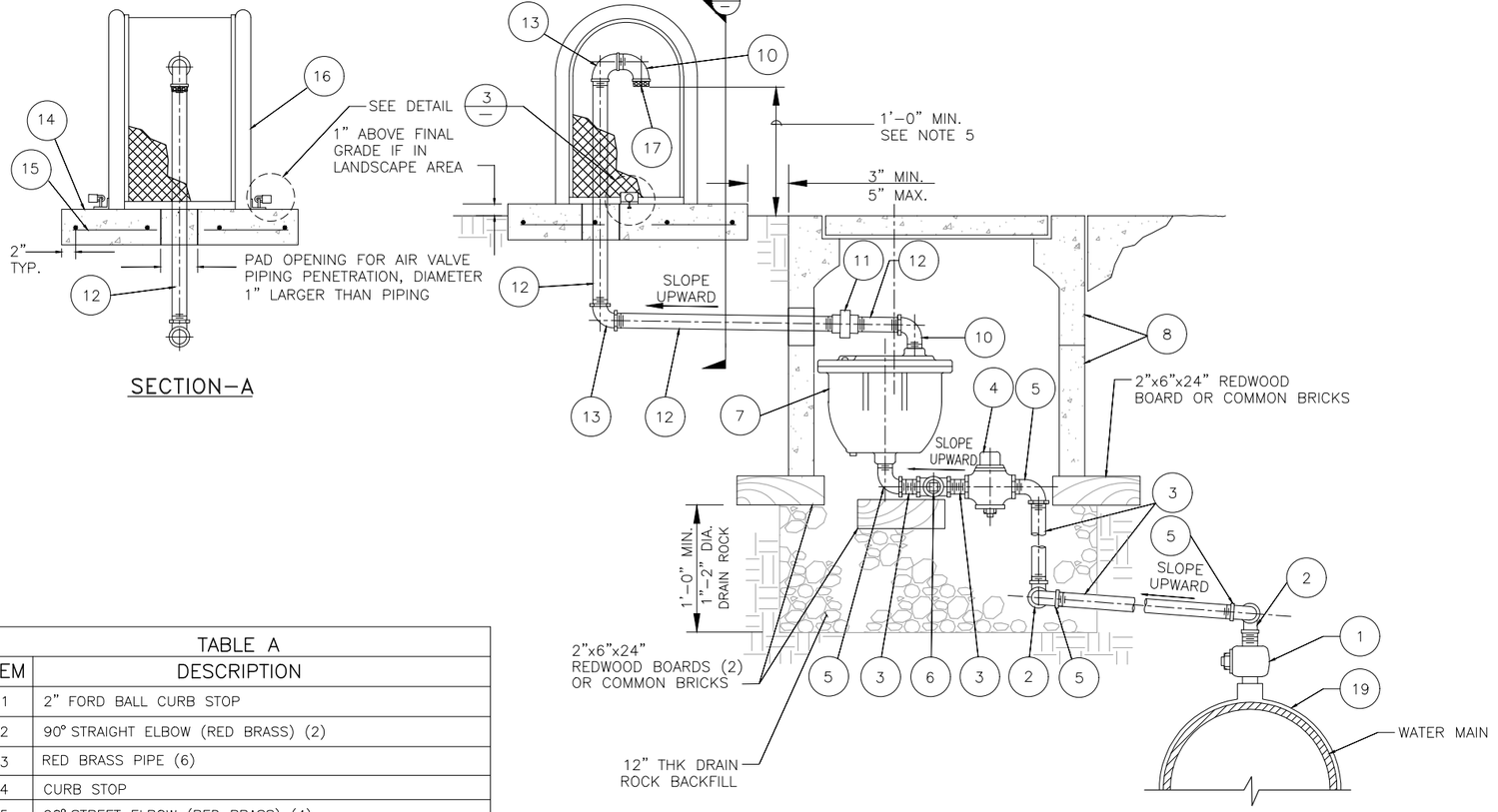
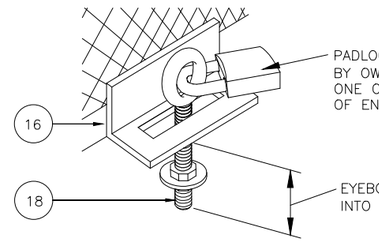


SECTION–A

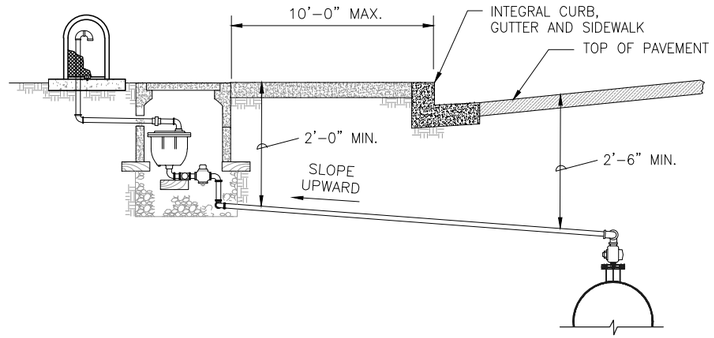
TABLE A	
ITEM	DESCRIPTION
1	2" FORD BALL CURB STOP
2	90° STRAIGHT ELBOW (RED BRASS) (2)
3	RED BRASS PIPE (6)
4	CURB STOP
5	90° STREET ELBOW (RED BRASS) (4)
6	FIPTxFIPTxFIPT BRASS TEE WITH BRASS PLUG**
7	COMBINATION AIR VACUUM RELIEF VALVE (CAVV)
8	UTILITY BOXES. SEE TABLE B
10	90° STREET ELBOW (GALVANIZED)** (2). SEE NOTE 5
11	UNION (GALVANIZED)**
12	GALVANIZED STEEL PIPE** (3). SEE NOTE 5
13	90° STRAIGHT ELBOW (GALVANIZED)** (2). SEE NOTE 5
14	CONCRETE BASE 20"Wx20"Lx4"D
15	6"/6"x#10/10 WELDED WIRE MESH
16	ENCLOSURE GUARDSHACK GS–5. COLOR SHALL BE GREEN
17	STAINLESS STEEL MESH INSECT SCREEN CAP**
18	THREADED EYEBOLT (GALV) WITH 7/16" MIN. I.D. (2)
19	12"x2" STAINLESS STEEL SADDLE

** SIZED THE SAME DIAMETER AS THE AIR VALVE

TABLE B		
UTILITY BOXES FOR AIR VALVES		
A.V. SIZE	CHRISTY OR APPROVED EQUAL METER BOX	LID
2" CAVV	B24BOX (BOX) W/ B24BOX (EXTENSION)	B24D



DETAIL 2
SCALE: NTS



AV LOCATION AT BACK OF SIDEWALK 2
SCALE: NTS

TYPICAL 2" COMBINATION AIR RELEASE VACUUM VALVE DETAIL (CAVV) 1
SCALE: NTS

NOTES:

1. MAINTAIN AN UPWARD SLOPE TO PIPE FROM AV AT MAIN TO AIR VALVE VENT.
2. CURB STOP TO BE EXPOSED IN METER BOX AND ACCESSIBLE TO OPERATE.
3. PROVIDE WEATHERPROOF LABEL ON ENCLOSURE WITH AV AND STATION NUMBER.
4. OUTLET SHALL BE A MINIMUM 1'–0" ABOVE FINISHED GRADE OR 1'–0" ABOVE THE CALCULATED 100–YEAR FLOOD WATER LEVEL OR HIGHEST RECORDED WATER LEVEL, WHICHEVER IS HIGHER.
5. GALVANIZED AIR VALVE PIPING ABOVE GRADE SHALL BE COATED WITH TWO COATS OF RUST–OLEUM PAINT COLORED TO MATCH ENCLOSURE COLOR.
6. CONTRACTOR TO FIELD WRAP RISER PIPE AND FITTINGS PER CAW STD. SPECIFICATIONS.
7. LOCATE AV BOX AS SHOWN ON PLAN AND PROFILE DRAWINGS.
8. INLET PIPING, FITTINGS AND VALVES SHALL BE THE SAME DIAMETER AS THE CAVV SIZE.
9. INSTALL 4 GUARD POSTS AROUND THE ABOVE GRADE INSTALLATION PER 0000M11 DETAIL 2.

REGISTERED PROFESSIONAL ENGINEER JENNIFER A. HYMAN No. C-50926 CIVIL STATE OF CALIFORNIA

8/17/18

REVISIONS		

TRANSMISSION MAINS FOR MPWSP MECHANICAL CASTROVILLE PIPELINE DETAILS BELOW GRADE CAVV

CALIFORNIA AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

DRAWN BY C. SOMERA/L. KWAN
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH
DATE MARCH 2018
PROJECT 60489016
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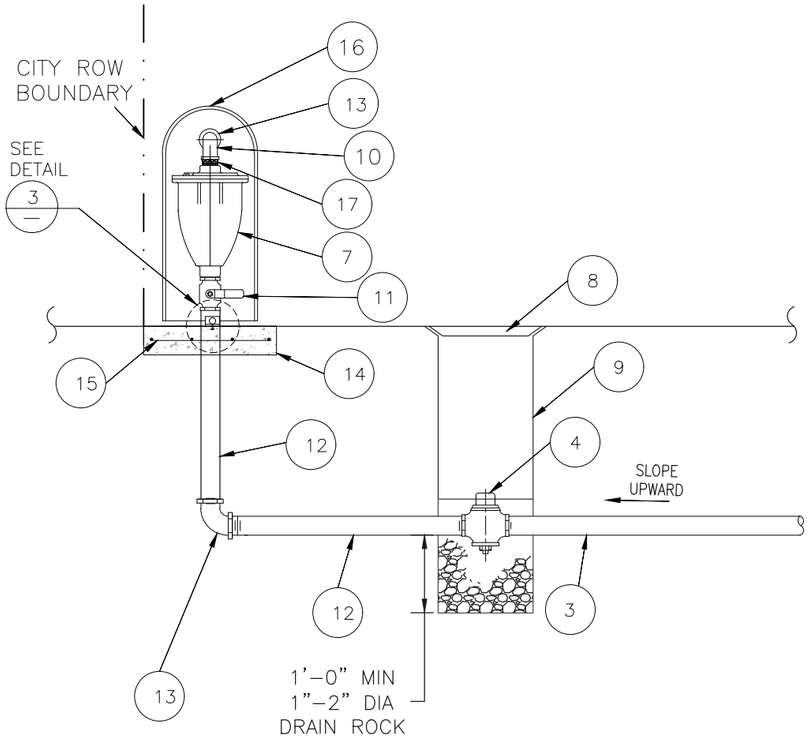
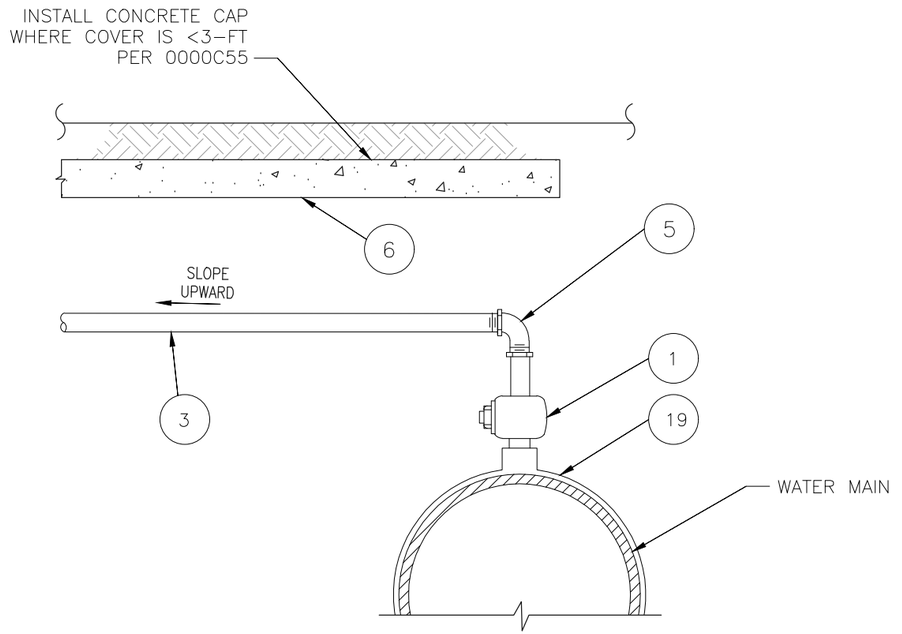
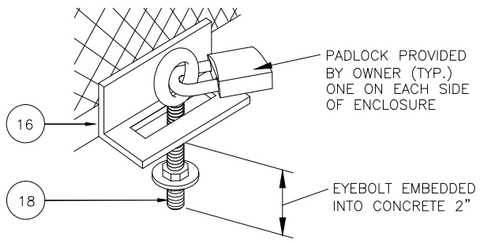




TYPICAL 2" COMBINATION AIR RELEASE VACUUM VALVE (CAVV) DETAIL 1
SCALE: NTS

TABLE A	
ITEM	DESCRIPTION
1	2" FORD BALL CORP STOP 8-11-777 OR EQUIVALENT
2	(NOT USED)
3	RED BRASS PIPE
4	2" RES. WEDGE EPOXY COATED GATE VALVE W/ 2" NUT
5	90° STREET ELBOW (RED BRASS) (1)
6	CONCRETE CAP, 6-SACK, 3,000 PSI
7	COMBINATION AIR VACUUM RELIEF VALVE (CAVV)
8	CHRISTY G05 BOX AND LID
9	8" DIAMETER SCH 80 PVC RISER
10	90° STREET ELBOW (GALVANIZED)** (1). SEE NOTE 5
11	2" FIPT BRASS BALL GATE VALVE
12	GALVANIZED STEEL PIPE**. SEE NOTE 5
13	90° STRAIGHT ELBOW (GALVANIZED)** (2). SEE NOTE 5
14	CONCRETE BASE, 36"x36"x4"
15	6"/6"x#10/10 WELDED WIRE MESH
16	ENCLOSURE GUARDSHACK GS-1. COLOR SHALL BE GREEN
17	STAINLESS STEEL MESH INSECT SCREEN CAP**
18	THREADED EYEBOLT (GALV) WITH 7/16" MIN. I.D. (2)
19	12"x2" STAINLESS STEEL SADDLE

** SIZED THE SAME DIAMETER AS THE AIR VALVE



DETAIL 2
SCALE: NTS

NOTES:

1. MAINTAIN AN UPWARD SLOPE FROM MAIN TO AIR VALVE VENT.
2. CURB STOP TO BE EXPOSED IN METER BOX AND ACCESSIBLE TO OPERATE.
3. PROVIDE WEATHERPROOF LABEL ON ENCLOSURE. LABEL SHALL INCLUDE AV AND STATION NUMBER.
4. OUTLET SHALL BE A MINIMUM 1'-0" ABOVE FINISHED GRADE OR 1'-0" ABOVE THE CALCULATED 100-YEAR FLOOD WATER LEVEL OR HIGHEST RECORDED WATER LEVEL, WHICHEVER IS HIGHER.
5. GALVANIZED AIR VALVE PIPING ABOVE GRADE SHALL BE COATED WITH TWO COATS OF RUST-OLEUM PAINT COLORED TO MATCH ENCLOSURE COLOR.
6. CONTRACTOR TO FIELD WRAP RISER PIPE AND FITTINGS PER CAW STD. SPECIFICATIONS.
7. LOCATE AV BOX AS SHOWN ON PLAN AND PROFILE DRAWINGS. INSTALL 4 GUARD POSTS ON EACH SIDE OF THE ABOVE GRADE INSTALLATION PER 0000M11 DETAIL 2.
8. INLET PIPING, FITTINGS AND VALVES SHALL BE THE SAME DIAMETER AS THE CAVV SIZE.
9. INSTALL 4 GUARD POSTS AROUND THE ABOVE GRADE INSTALLATION PER 0000M11 DETAIL 2.

REGISTERED PROFESSIONAL ENGINEER JENNIFER A. HYMAN No. C-50926 CIVIL STATE OF CALIFORNIA
8/17/18

REVISIONS

TRANSMISSION MAINS FOR MPWSP MECHANICAL CASTROVILLE PIPELINE DETAILS ABOVE GRADE CAVV

CALIFORNIA AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

DRAWN BY C. SOMERA/LTAM
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH
DATE MARCH 2018
PROJECT 60489016
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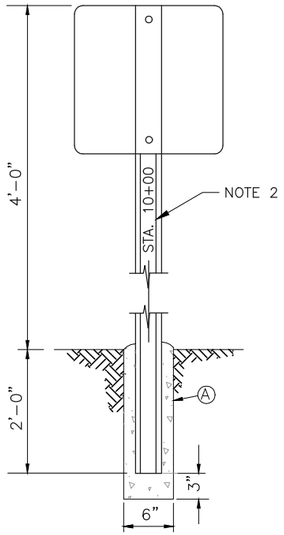
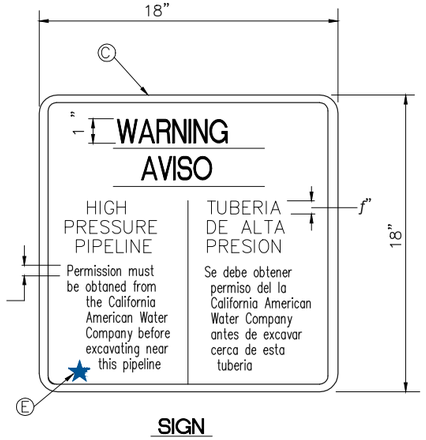
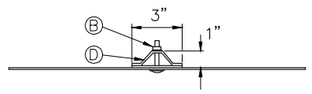


ELEVATION



SIGN



PLAN

WARNING SIGN DETAIL 1
SCALE: NTS

A	CONCRETE FOOTING
B	TWO BOLTS x 2", TWO NUTS, TWO FIBER WASHERS, TWO 1" x 3" x" PLATES
C	PERMA SIGN REFLECTIVE – 18" x 18", RED ON WHITE
D	6'–0" PAINTED PRESSURE TREATED 4" x 4" WOOD
E	CAW LOGO AND PHONE No.

NOTES:

1. CONTRACTOR TO INSTALL WARNING SIGN IN ALL UNPAVED AREAS AT STATION NUMBER MULTIPLES OF 20+00. FINAL LOCATIONS TO BE DETERMINED BY THE OWNER. DO NOT LOCATE SIGNS WHERE THEY WOULD INTERFERE WITH FARMING OR TRAFFIC.
2. ON THE POST WRITE STATION NUMBERS IN WEATHER AND WATER PROOF PAINT.
3. OBTAIN CAW LOGO AND PHONE NUMBER FROM OWNER TO PUT ON THE SIGN GRAPHIC.

REGISTERED PROFESSIONAL ENGINEER
JENNIFER A. HYMAN
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CIVIL
STATE OF CALIFORNIA
8/17/18

REVISIONS

TRANSMISSION MAINS FOR MPWSP
MECHANICAL
CASTROVILLE PIPELINE DETAILS
SIGN DETAILS

CALIFORNIA
AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

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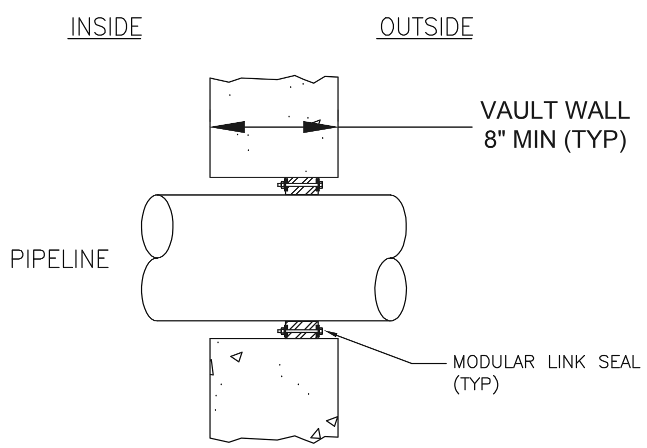
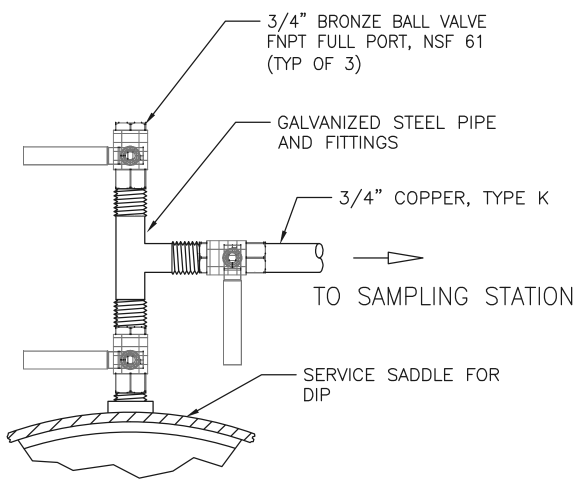


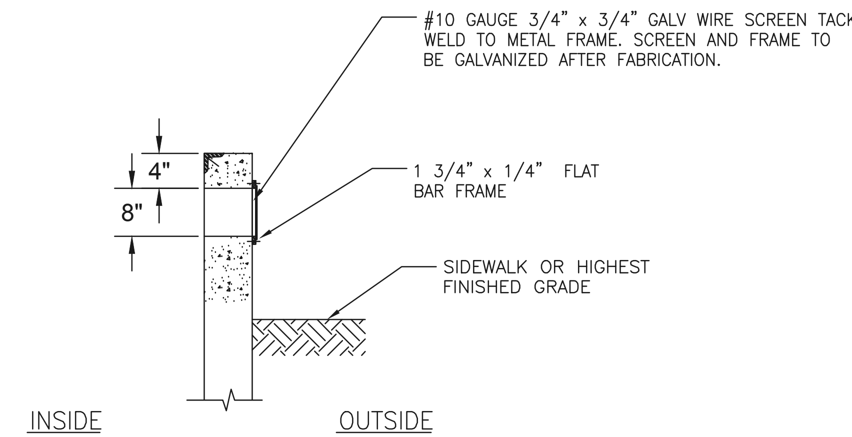
PIPELINE PENETRATION

DETAIL 1 / 0000M41
SCALE: NTS



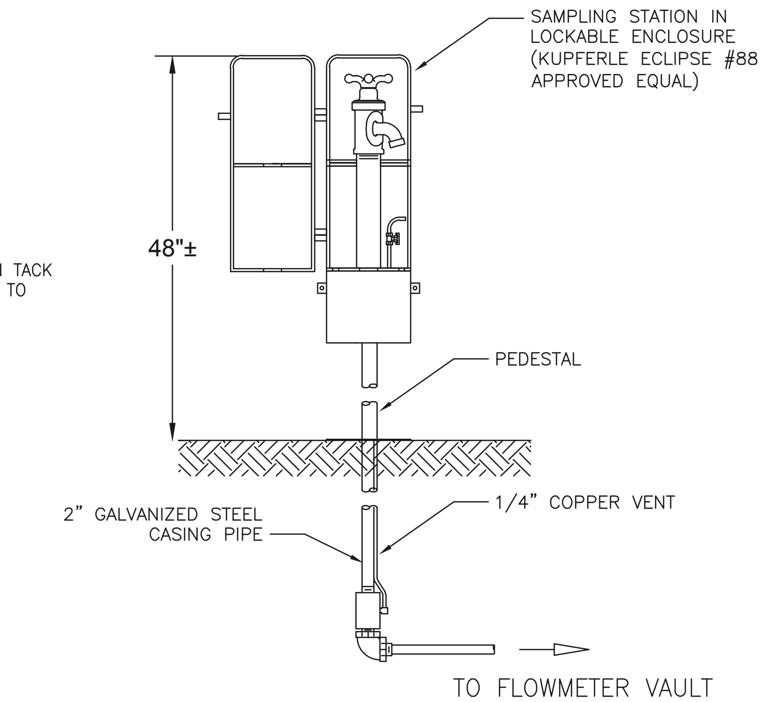
SAMPLING LINE

DETAIL 2 / –
SCALE: NTS



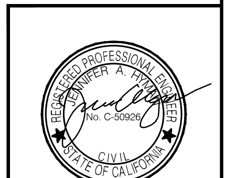
VAULT WALL AIR VENT

DETAIL 3 / –
SCALE: NTS



SAMPLING STATION

DETAIL 4 / –
SCALE: NTS



8/17/18

REVISIONS

TRANSMISSION MAINS FOR MPWSP
MECHANICAL
CASTROVILLE PIPELINE DETAILS
MISCELLANEOUS VAULT DETAILS – 1

CALIFORNIA
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300 LAKESIDE DRIVE, SUITE 400
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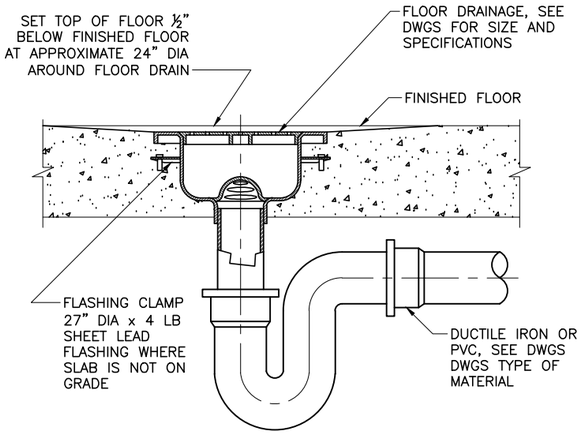
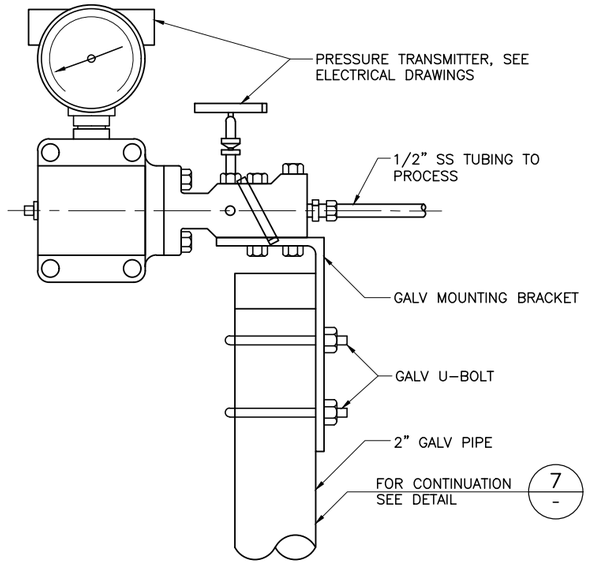


FLOOR DRAIN 1
SCALE: NTS



INSTRUMENTATION MOUNTING DETAIL 2
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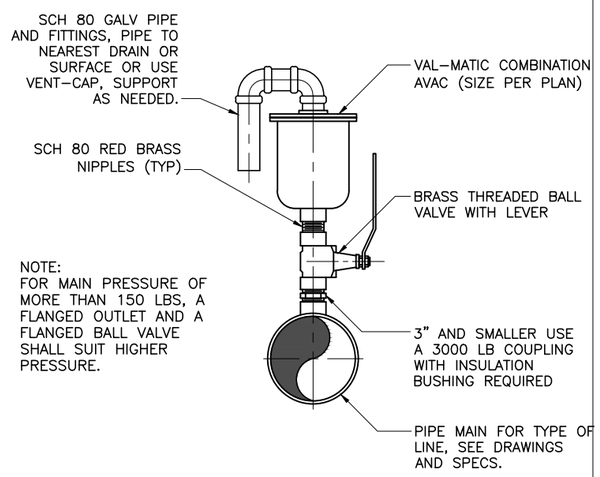
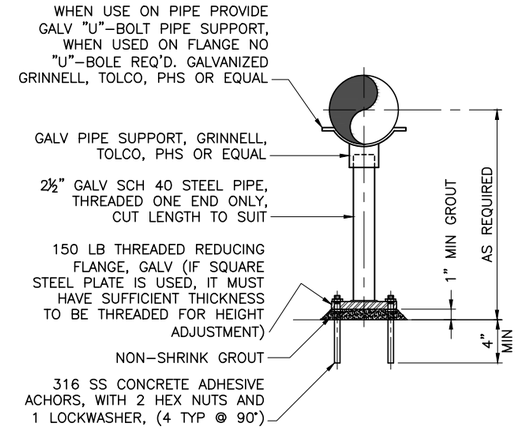


AIR VACUUM/ AIR RELEASE ASSEMBLY 3
9009C24A
SCALE: NTS



PIPE SUPPORT 4
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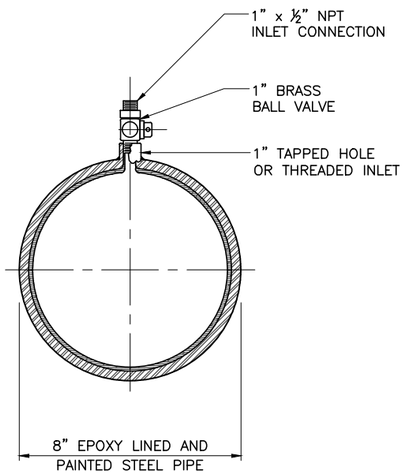
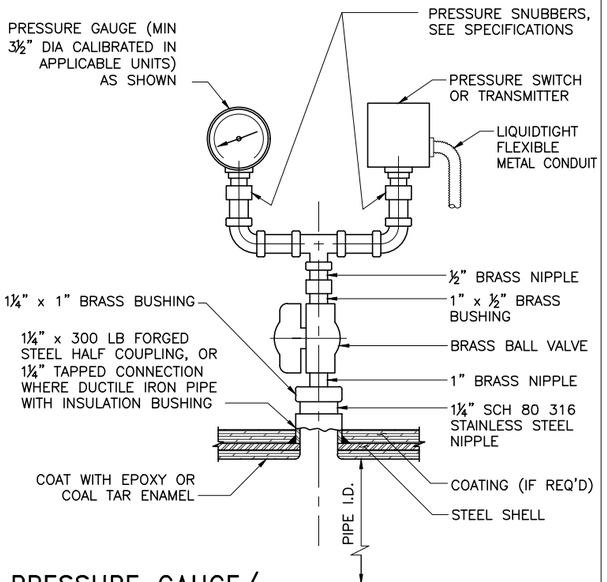
SCALE: NTS



SAMPLE PORT 5
SCALE: NTS



PRESSURE GAUGE/ TRANSMITTER ASSEMBLY WITH SEAL 6
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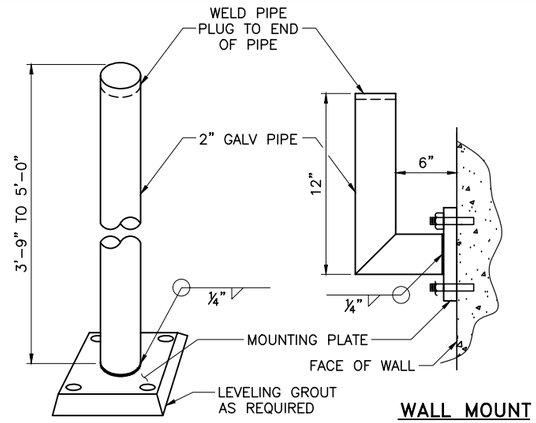
SCALE: NTS



FLOOR STAND

WALL MOUNT

NOTE:
1. TYPICAL MOUNTING PLATE: 6" x 6" x 3/16" WITH FOUR 5/8" BOLT HOLES.
2. PROVIDE FOUR 2" x 9/16" CAPSULE ANCHOR BOLTS.

FLOOR STAND / WALL MOUNT 7
SCALE: NTS

REVISIONS

REGISTERED PROFESSIONAL ENGINEER A. TYMAN No. C-50926 CIVIL STATE OF CALIFORNIA
8/17/18

TRANSMISSION MAINS FOR MPWSP
MECHANICAL
CASTROVILLE PIPELINE DETAILS
MISCELLANEOUS VAULT DETAILS – 2

CALIFORNIA AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

DRAWN BY K. LEE
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH
DATE MARCH 2018
PROJECT 60489016
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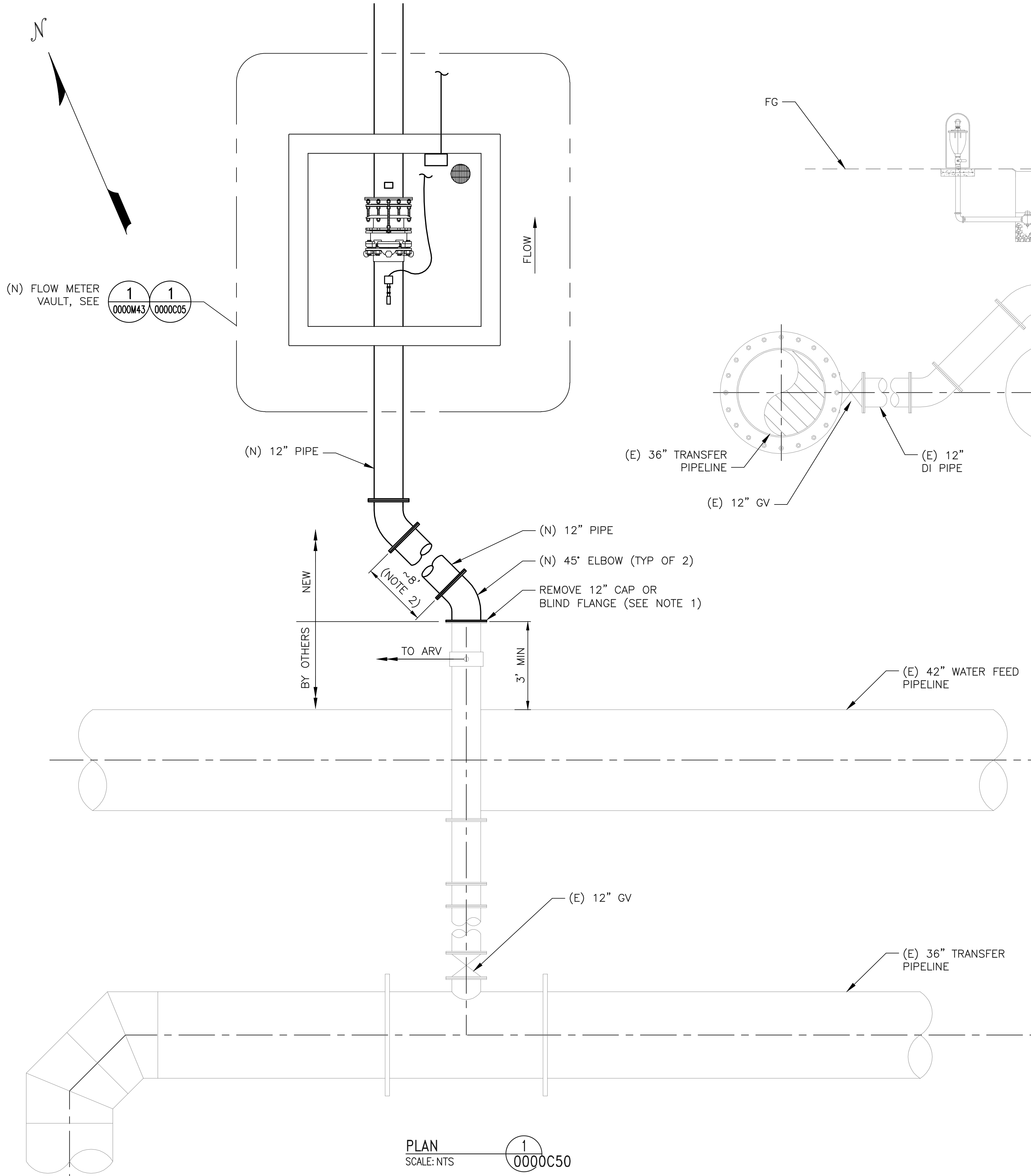

PLAN
SCALE: NTS
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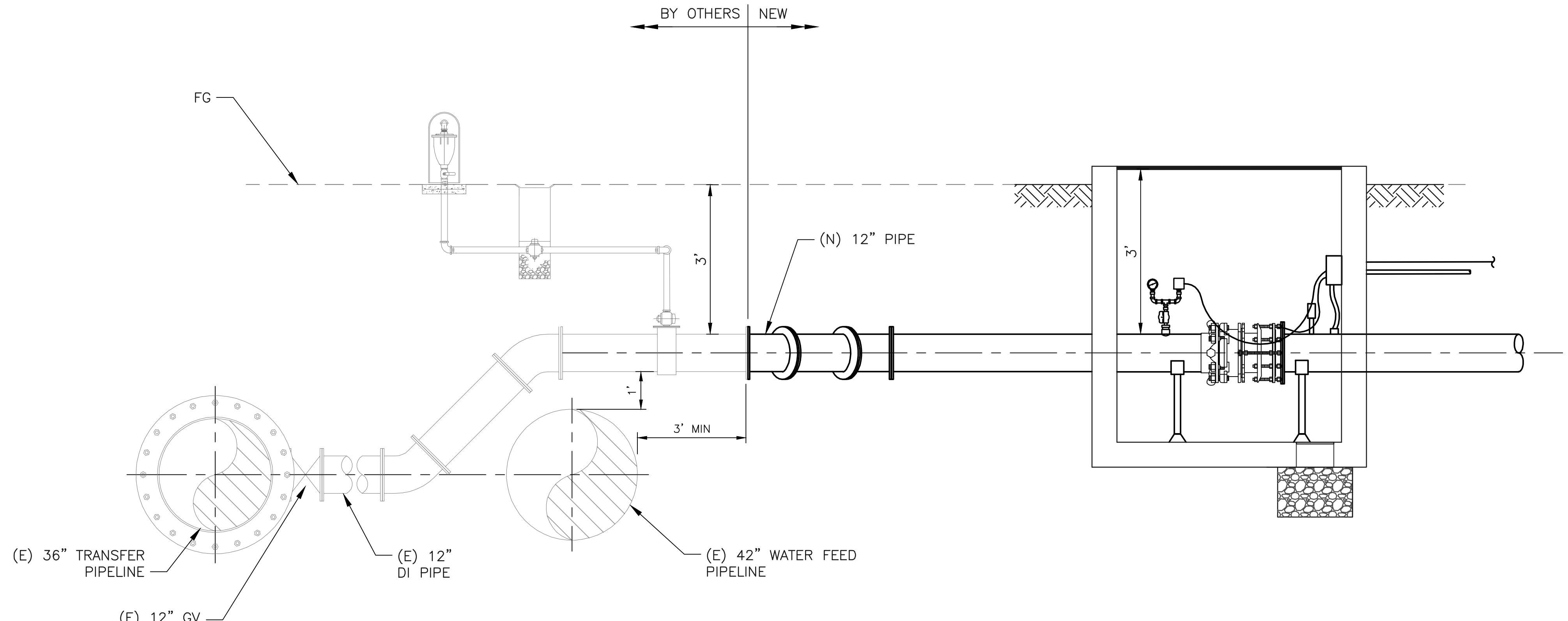

PROFILE
SCALE: NTS
A
–

NOTES:

1. COORDINATE WITH OWNER TO CLOSE EXISTING GATE VALVE, THEN REMOVE BLIND FLANGE AND INSTALL PIPELINE TO EXISTING 12–IN PIPE.
2. CONTRACTOR TO DETERMINE TIE–IN PIPE LENGTH AFTER LAYING OUT FLOW METER VAULT AND POTHOLING TIE–IN POINT ON EXISTING 12–IN PIPE.

REGISTERED PROFESSIONAL ENGINEER JENNIFER A. HYMAN No. C-50926 CIVIL STATE OF CALIFORNIA
8/17/18

REVISIONS

TRANSMISSION MAINS FOR MPWSP
MECHANICAL
CASTROVILLE PIPELINE DETAILS
TRANSFER PIPELINE TIE–IN

CALIFORNIA
AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

DRAWN BY K. LEE
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH
DATE MARCH 2018
PROJECT 60489016
USE DIMENSIONS ONLY
SCALE AS SHOWN

USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES

0000M41

10000000M41

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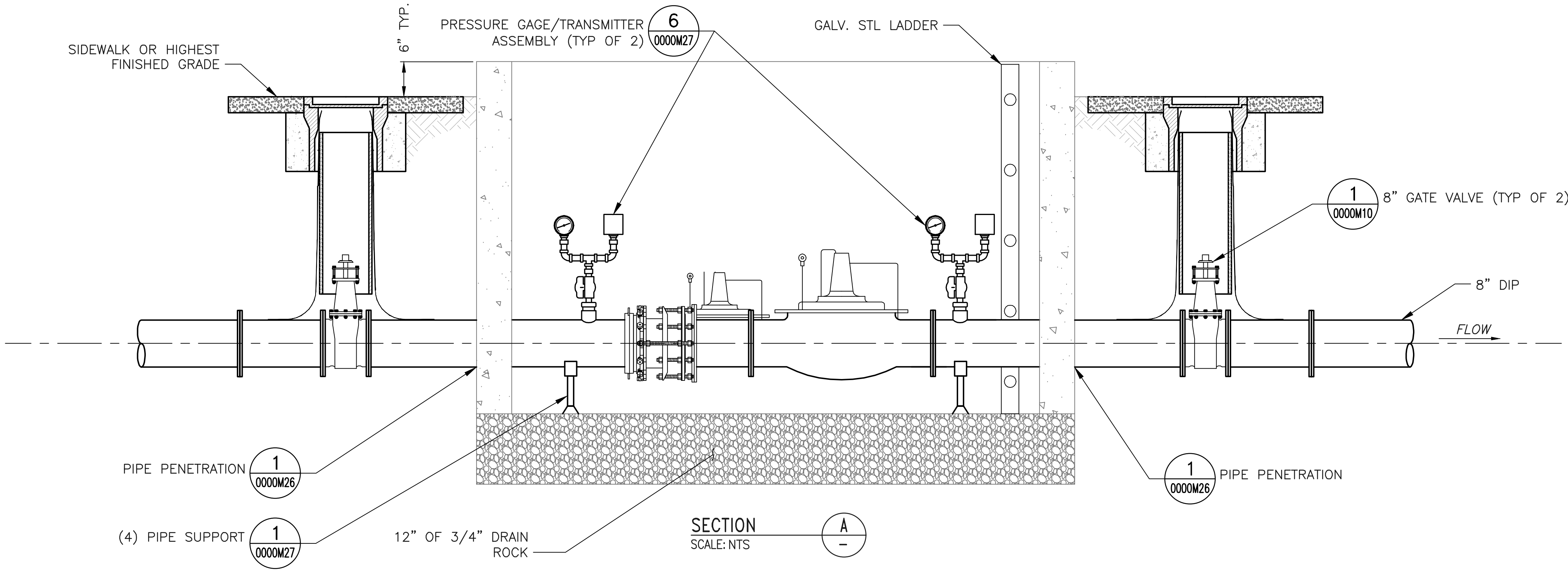
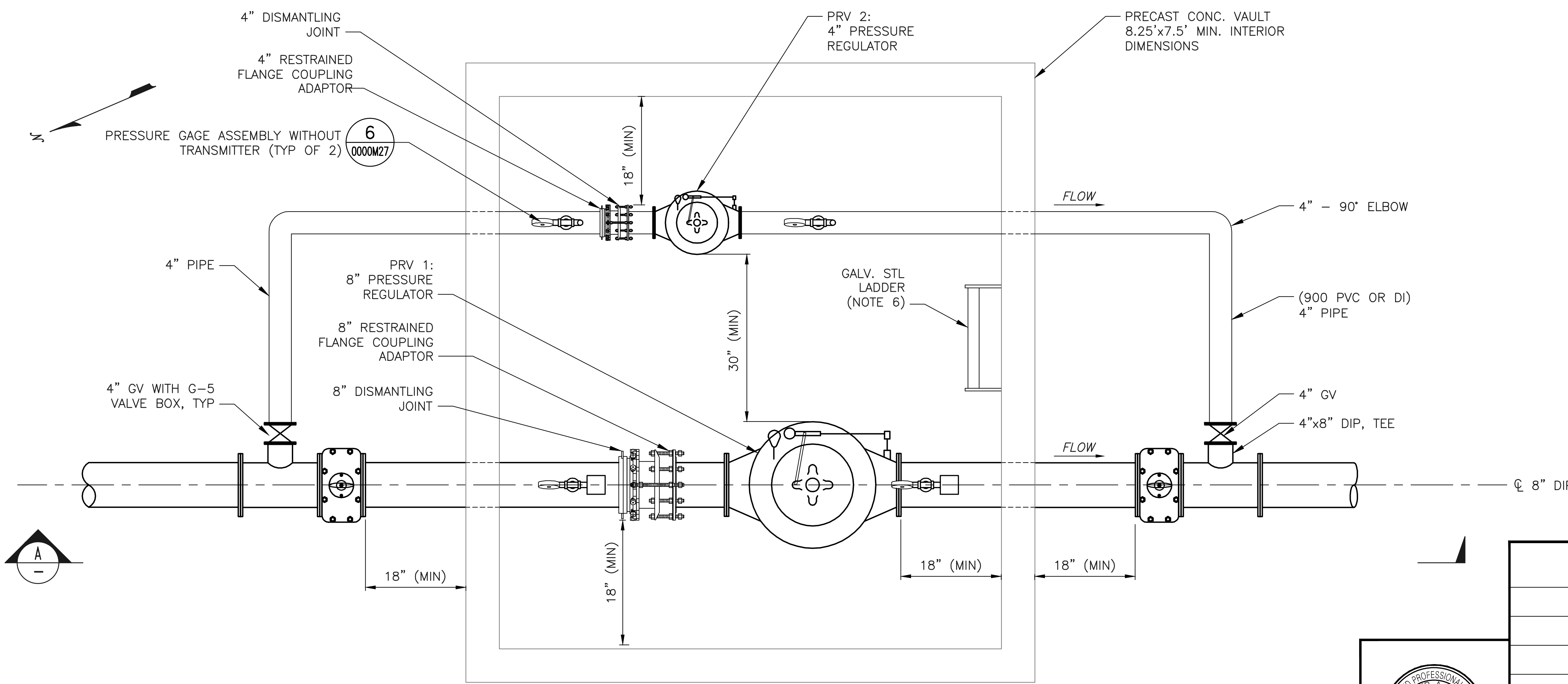


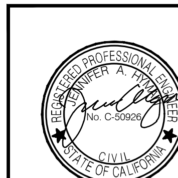
SECTION A –
SCALE: NTS

NOTES:

1. PROVIDE TRAFFIC–RATED VAULT COVER PER SPECIFICATIONS.
2. SEE ALSO ELECTRICAL PLANS.
3. SEE EQUIPMENT AND INSTRUMENTATION SCHEDULE ON 0000M01.
4. INSTALL PRS CONSISTENT WITH CAW STANDARD DRAWING No. 15.
5. INSTALL PRESSURE TRANSMITTERS/SWITCHES ON 8–IN PIPE WITH MINIMUM 6–FT EXCESS WIRE IN VAULT TO MOVE TO PRV2 IN CASE OF PRV1 FAILURE.
6. THE LADDER SHALL HAVE A PERMANENTLY MOUNTED VERTICALLY TELESCOPING SAFETY POST AT TOP.



PRS PLAN 1 0000C06
SCALE: NTS



8/17/18

REVISIONS		

TRANSMISSION MAINS FOR MPWSP
MECHANICAL
CASTROVILLE PIPELINE DETAILS
PRS DETAILS

CALIFORNIA AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

AECOM

CALIFORNIA AMERICAN WATER

DRAWN BY K. LEE
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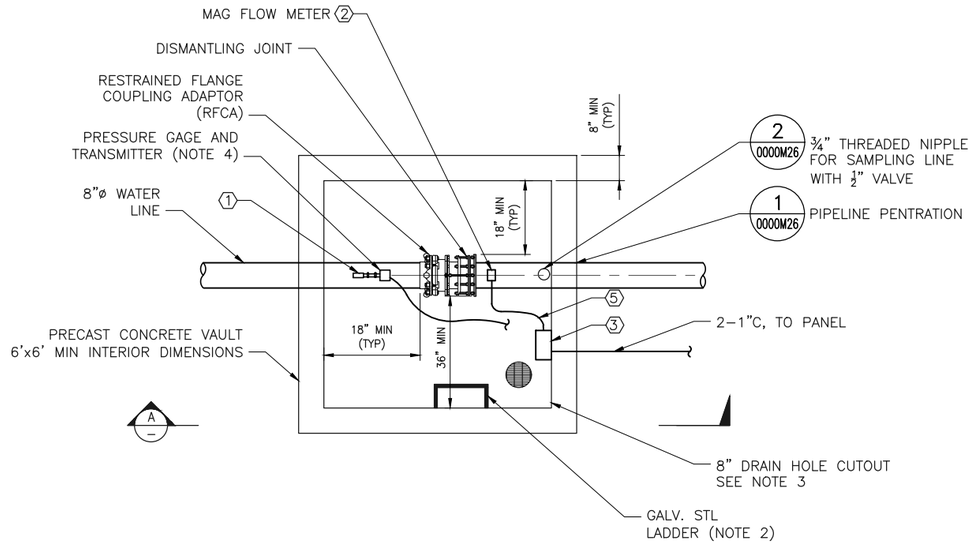
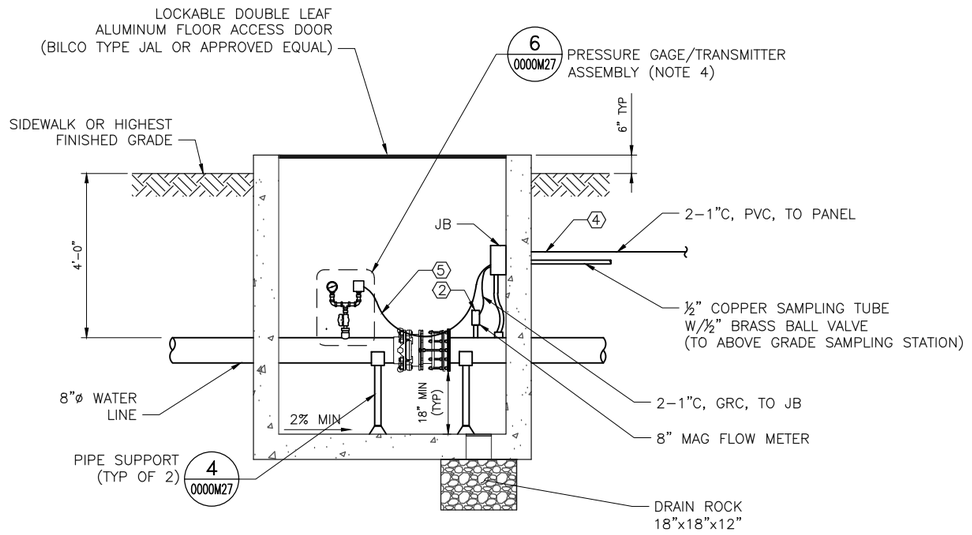


FLOW METER VAULT PLAN (1) 0000C05, 0000C07
SCALE: 1/2"=1'



SECTION (A)
1/2"=1'

NOTES:

1. CONTRACTOR SHALL CONFIRM LOCATIONS WITH OWNER PRIOR TO STAKING AND FIELD VERIFY EXISTING CONDITIONS AND PIPE DIAMETER AND MATERIALS PRIOR TO ORDERING EQUIPMENT AND PARTS.
2. THE LADDER SHALL HAVE A PERMANENTLY MOUNTED VERTICALLY TELESCOPING SAFETY POST AT TOP.
3. FINISH FLOOR WITH 2% SLOPE TO DRAIN.
4. INSTALL PRESSURE TRANSDUCER ASSEMBLY AT LAPIS FLOW METER ONLY. OMIT FROM NASHUA ROAD FLOW METER SINCE THESE ARE IN THE PRESSURE REGULATING STATION.
5. THE FLOW METER SHOWN HERE IS 8–IN FOR NASHUA ROAD AND CCSD. AT THE LAPIS ROAD FLOW METER, THE DESIGN IS SIMILAR EXCEPT PIPE AND FLOW METER ARE 12–IN AND VAULT IS 7'x7' MIN INTERIOR DIMENSIONS.
6. SEE EQUIPMENT PAD INSTRUMENTATION TABLE 2 ON 0000M01.

NUMBERED NOTES:

1. CONNECT TO 2–WIRE PRESSURE TRANSMITTER WITH FLEX CONDUIT.
2. MAGMETER SHALL BE DC POWERED. PROVIDE AND CONNECT MFR SENSOR CABLE TO PANEL MOUNTED TRANSMITTER. PROVIDE GROUNDING PER MFR REQUIREMENTS.
3. PROVIDE NEMA 4X JUNCTION BOX, MOUNT TO CONCRETE WALL WITH STANDOFFS. SEAL ALL CONDUITS AFTER TESTING.
4. SEE ELECTRICAL SHEETS FOR ELECTRICAL CONTROL PANEL DETAILS.
5. PROVIDE LIQUID TIGHT FLEXIBLE METAL CONDUIT FOR ALL FIELD CONNECTIONS.

0 2 4
1/2"=1'

REGISTERED PROFESSIONAL ENGINEER A. TYLER No. C-59926 CIVIL STATE OF CALIFORNIA
8/17/18

REVISIONS

CASTROVILLE PIPELINE
MECHANICAL
FLOW METER VAULT DETAILS

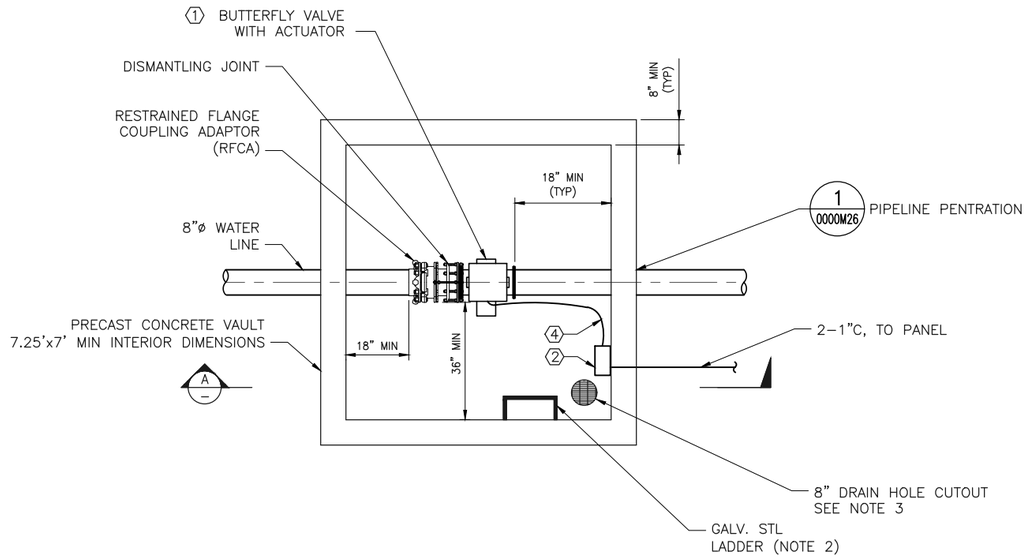
CALIFORNIA
AMERICAN WATER

AECOM
300 LAKESIDE DR., SUITE 400
OAKLAND, CALIFORNIA 94612

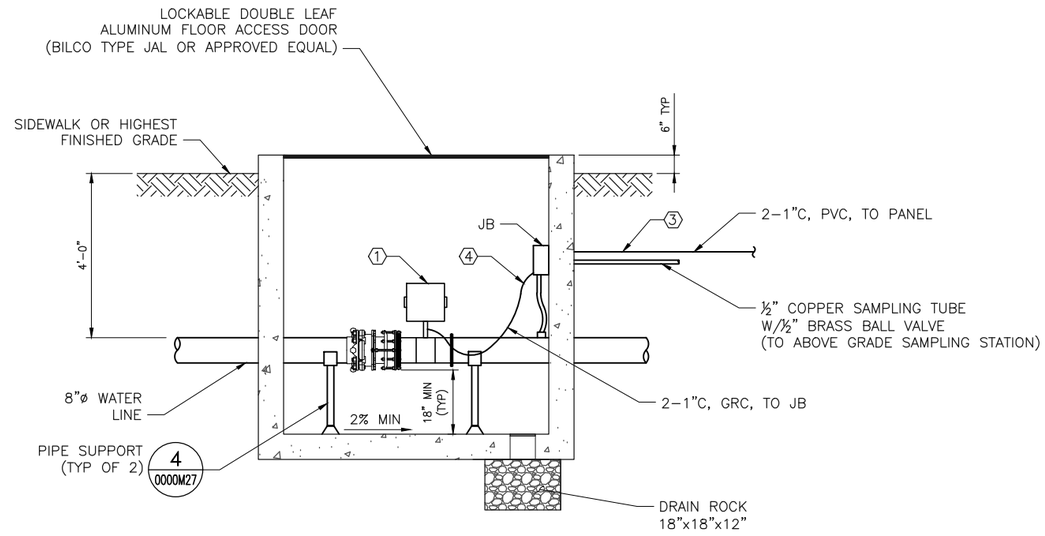
DRAWN BY E. MEEKS
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH
DATE MARCH 2018
PROJECT 60489016
USE DIMENSIONS ONLY
SCALE AS SHOWN

USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES

0000M43



VAULT PLAN 1 0000C06
1/2"=1'



SECTION A
1/2"=1'

NOTES:

1. CONTRACTOR SHALL CONFIRM LOCATIONS WITH OWNER PRIOR TO STAKING AND FIELD VERIFY EXISTING CONDITIONS AND PIPE DIAMETER AND MATERIALS PRIOR TO ORDERING EQUIPMENT AND PARTS.
2. THE LADDER SHALL HAVE A PERMANENTLY MOUNTED VERTICALLY TELESCOPING SAFETY POST AT TOP.
3. FINISH FLOOR WITH 2% SLOPE TO DRAIN.

NUMBERED NOTES:

1. ACTUATOR SHALL BE DC POWERED. PROVIDE AND CONNECT MFR SENSOR CABLE TO PANEL MOUNTED TRANSMITTER. PROVIDE GROUNDING PER MFR REQUIREMENTS.
2. PROVIDE NEMA 4X JUNCTION BOX, MOUNT TO CONCRETE WALL WITH STANDOFFS. SEAL ALL CONDUITS AFTER TESTING.
3. SEE ELECTRICAL SHEETS FOR ELECTRICAL CONTROL PANEL DETAILS.
4. PROVIDE LIQUID TIGHT FLEXIBLE METAL CONDUIT FOR ALL FIELD CONNECTIONS.

0 2 4
1/2"=1'

REGISTERED PROFESSIONAL ENGINEER A. TYLER No. C-59926 CIVIL STATE OF CALIFORNIA
8/17/18

REVISIONS

CASTROVILLE PIPELINE MECHANICAL ACTUATED VALVE VAULT DETAILS

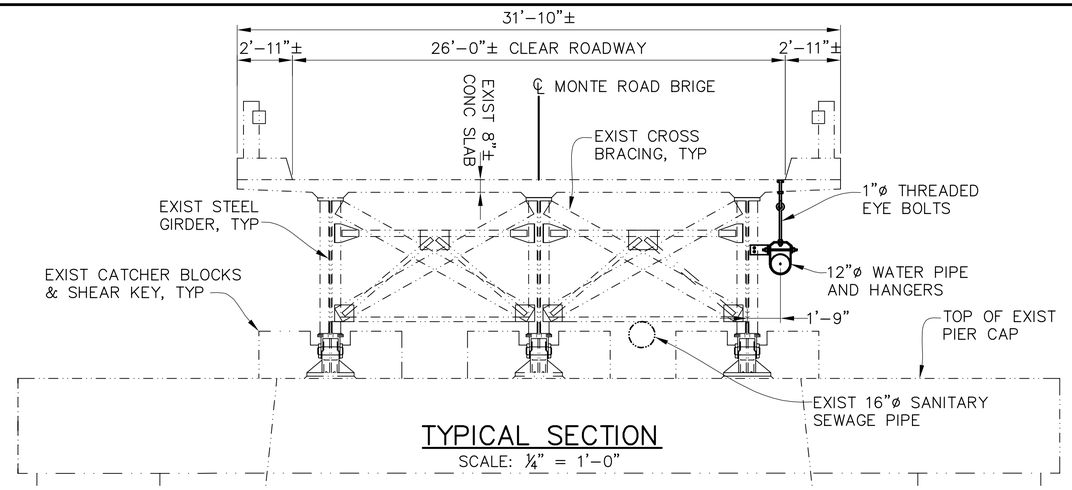
CALIFORNIA AMERICAN WATER

AECOM
300 LAKESIDE DR., SUITE 400
OAKLAND, CALIFORNIA 94612

DRAWN BY E. MEEKS
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH
DATE MARCH 2018
PROJECT 60489016
USE DIMENSIONS ONLY
SCALE AS SHOWN

USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES

0000M44



TYPICAL SECTION

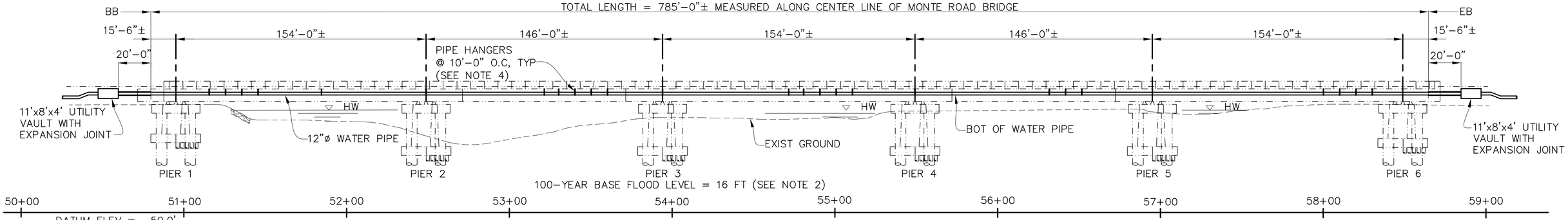
SCALE: ¼" = 1'-0"

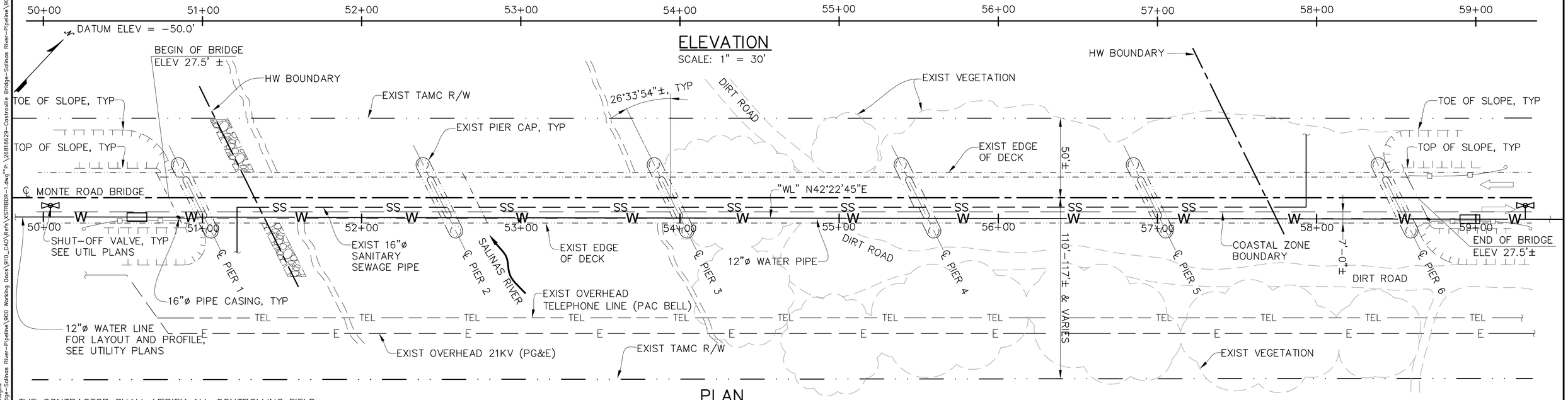
LEGEND:

- INDICATES TRAFFIC DIRECTION
- INDICATES WATER FLOW DIRECTION
- INDICATES EXISTING STRUCTURE
- INDICATES NEW CONSTRUCTION
- INDICATES COASTAL ZONE BOUNDARY

GENERAL NOTES:

1. PIPE HANGERS AND SUPPORTS SHALL COMPLY WITH MSS STANDARD PRACTICE SP-58 2009, SP-69 2003 AND CALTRANS TAEMW&W MEMO TO DESIGNERS_BRIDGE WATER AND SEWER LINES.
2. FROM FEMA FIRM MAP: HTTP://MSC.FEMA.GOV/PORTAL/
3. HW ELEV. = 16FT (NAVD88) WORK BELOW THIS ELEVATION TOWARDS THE RIVER, OUTSIDE OF THE TAMC R/W, AND THE WEST OF COASTAL ZONE BOUNDARY (ON THE GROUND WEST OF THE BRIDGE) IS PROHIBITED.
4. INSTALL PIPE HANGERS 1-2 FT BEHIND THE PIPE BELLS.
5. PRESSURE TEST PIPELINE PRIOR TO INSTALLATION OF EXPANSION JOINTS. FOR LAYOUT OF EXPANSION JOINTS, ALLOW FOR SOME MOVEMENT/EXPANSION TO PRESSURIZATION.





PLAN

SCALE: 1" = 30'

THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIALS.

100% DRAWING

COUNTY NO. 135
STATE NO. 44C-0093

REVISED BY_____ DATE_____

REVISIONS NO.	DESCRIPTION	BY	DATE

SCALE: VERTICAL: AS SHOWN
HORIZONTAL: AS SHOWN
ORIGINAL SCALE IN INCHES FOR REDUCED PLAN
0 1 2 3

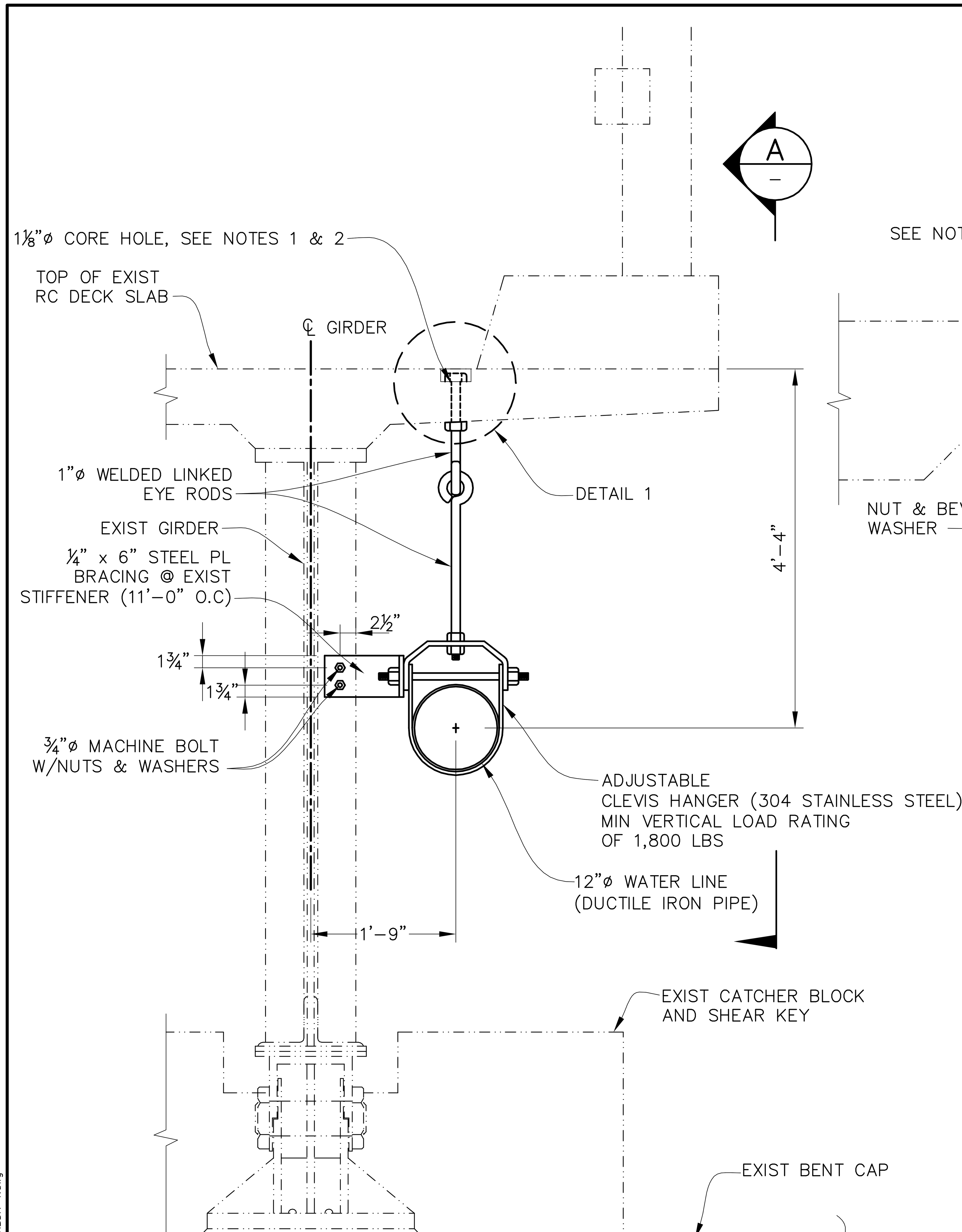
		REG. NO.	DATE
PROJECT ENGINEER:	D. NGUYEN		
DESIGNED BY:	D. NGUYEN		
DRAWN BY:	C. TU		
CHECKED BY:	K. LEE		

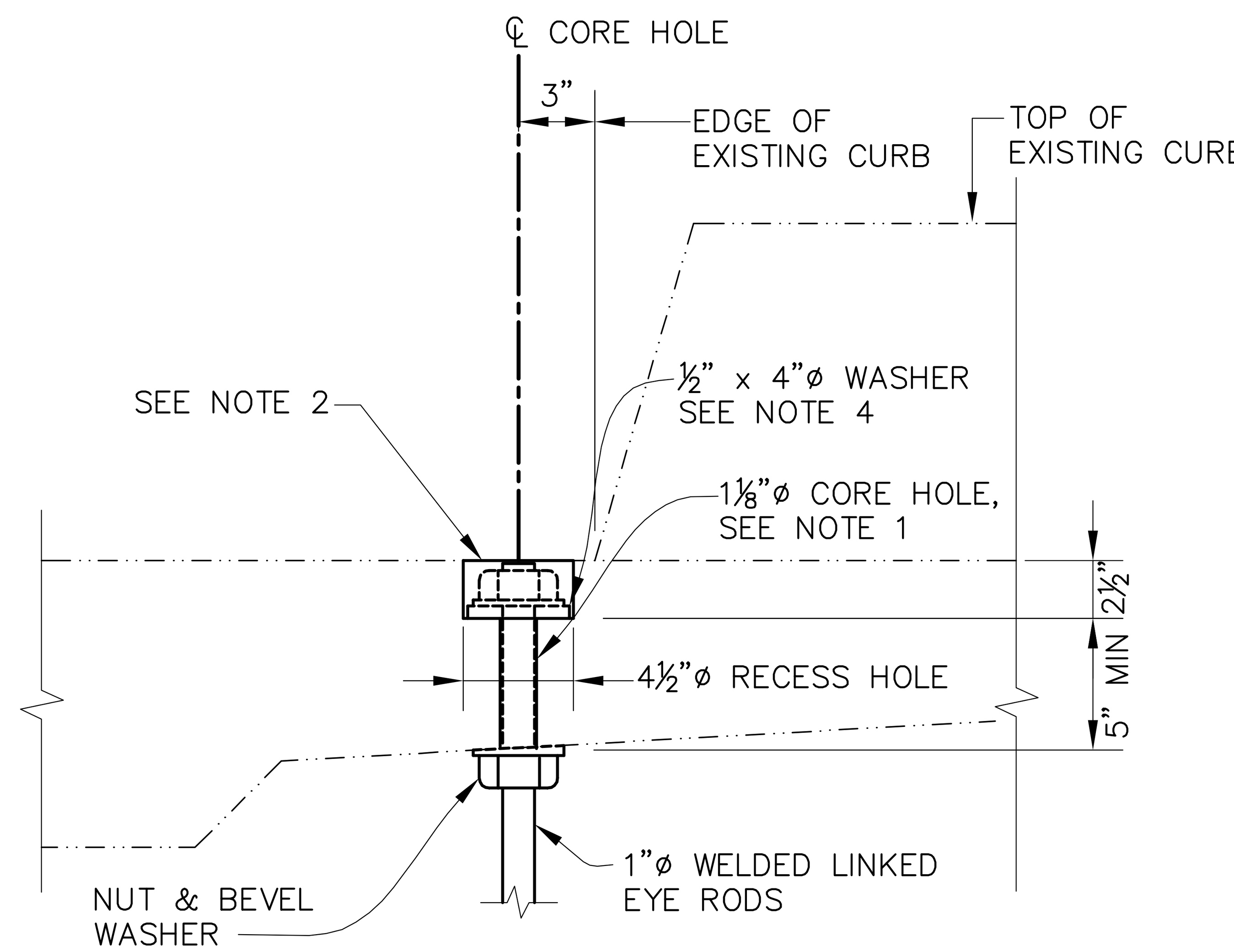
AECOM
100 W. San Fernando St
Suite 200
San Jose, CA 95113-2254
Prepared for
CALIFORNIA AMERICAN WATER

REGISTERED PROFESSIONAL ENGINEER
DUNG NGUYEN
No. C56803
Exp. 06/30/19
CIVIL
STATE OF CALIFORNIA
6/29/18

PROJECT NO:	60489016
FILE:	0000M51-GP.dwg
DWG NO:	0000M51

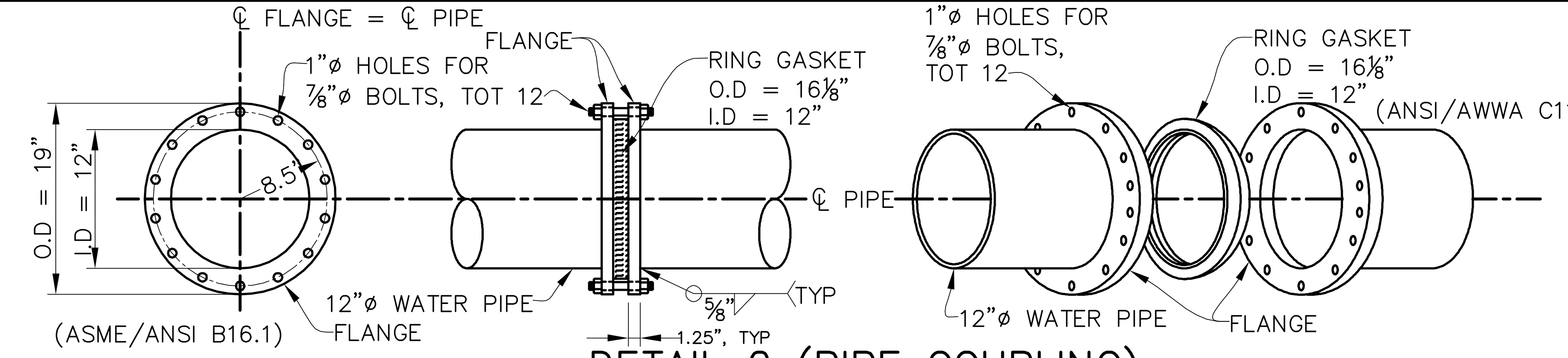
CASTROVILLE PIPELINE DETAILS
MONTE ROAD BRIDGE AT SALINAS RIVER WATER LINE SUPPORTS
GENERAL PLAN





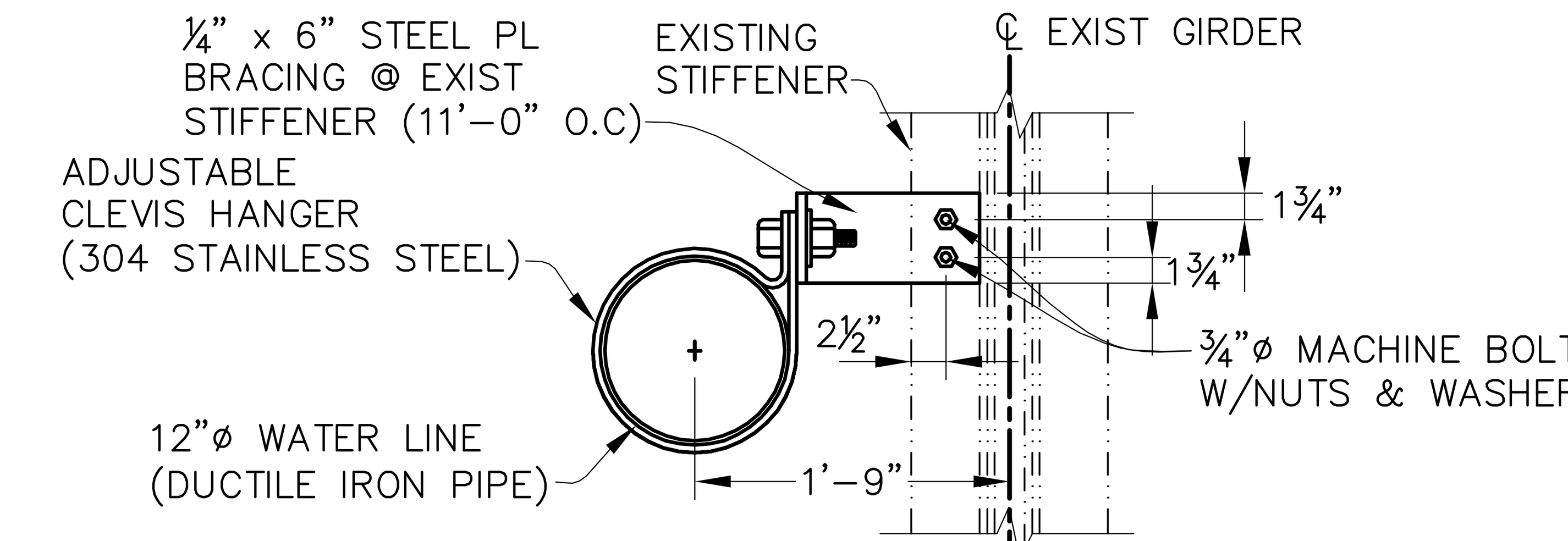
DETAIL 1

SCALE: NTS



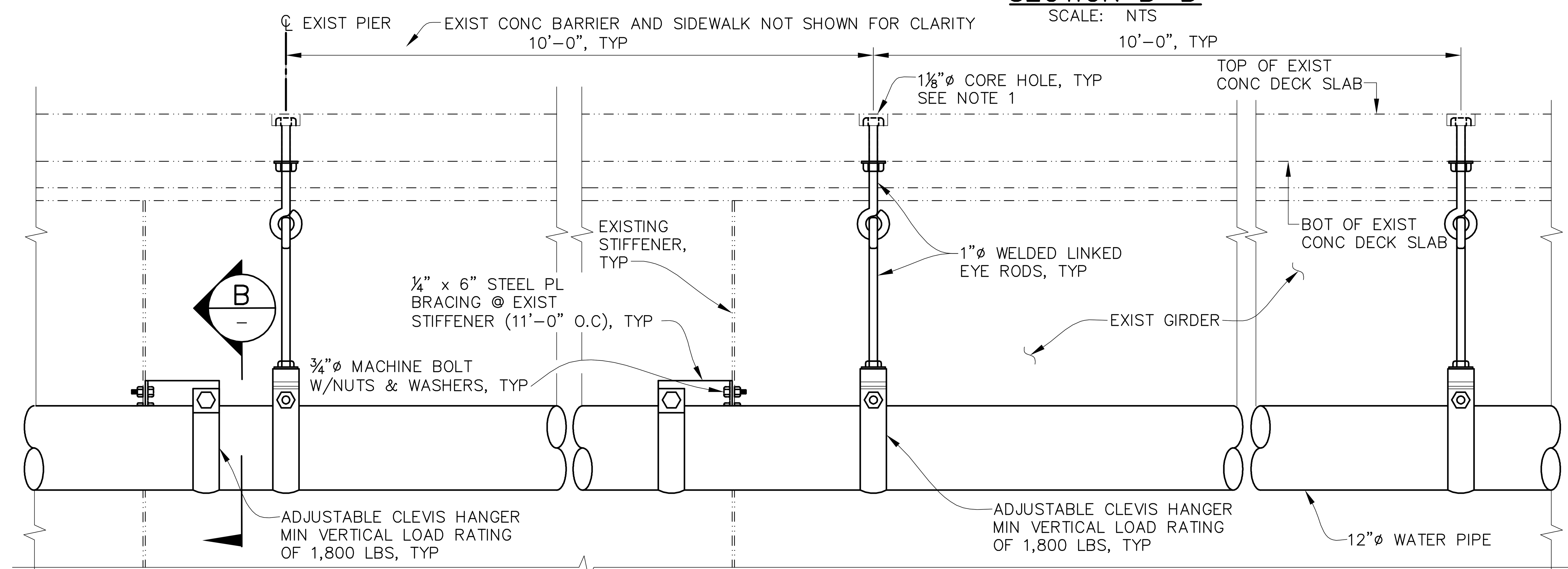
DETAIL 2 (PIPE COUPLING)

SCALE: NTS



SECTION B–B

SCALE: NTS



VIEW A–A

SCALE: NTS

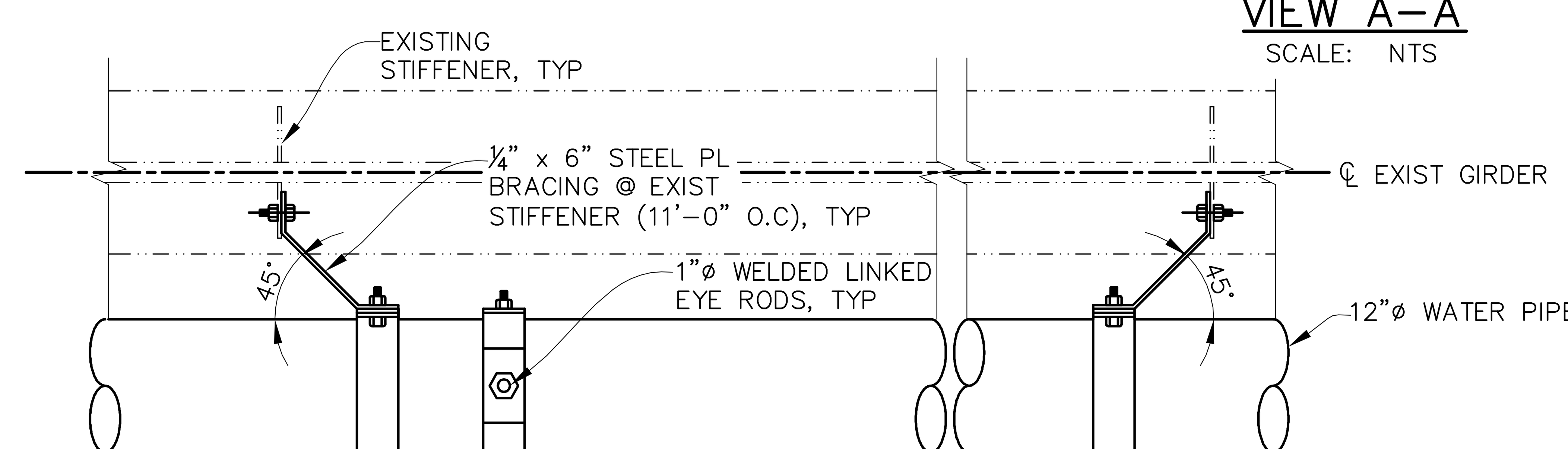
NOTES:

1. THE CONTRACTOR SHALL DETECT, VERIFY, AND ADJUST CORE HOLE LOCATIONS TO AVOID EXISTING DECK SLAB TRANSVERSE REINFORCEMENT. CORE HOLE LOCATIONS SHALL BE 2'–0" MINIMUM FROM THE BRIDGE DECK EXPANSION JOINT AND THE EXIST DECK DRAIN INLET.
2. FILLED HOLE WITH EPOXY AFTER INSTALLATION OF PIPE HANGER.
3. MISCELLANEOUS METAL: ALL METAL SUPPORT MATERIALS SHALL BE 316 STAINLESS STEEL AS OPTIONAL BID ITEM.
4. TACK WELD NUT TO WASHER PLATE AFTER INSTALLATION.
5. INSTALL PIPE HANGERS 1–2 FT BEHIND EACH PIPE BELL.
6. PRESSURE TEST PIPELINE PRIOR TO INSTALLATION OF EXPANSION JOINTS. FOR LAYOUT OF EXPANSION JOINT, ALLOW FOR SOME MOVEMENT/EXPANSION OF PIPELINE TO PRESSURIZATION.

PIPE HANGER–TYPICAL SECTION

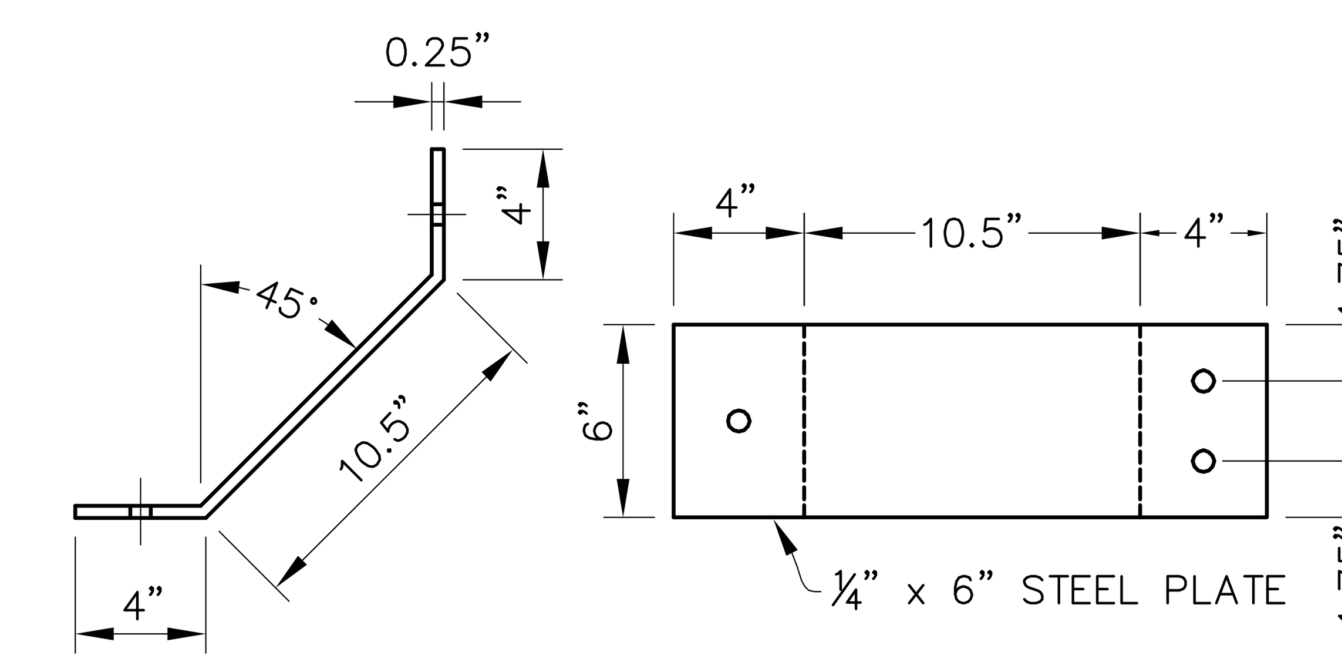
SCALE: NTS

THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIALS.



PARTIAL PLAN

SCALE: NTS



STEEL PLATE BRACING

SCALE: NTS

COUNTY NO. 135
STATE NO. 44C–0093

100% DRAWING

SCALE: VERTICAL:	AS SHOWN
HORIZONTAL:	AS SHOWN

ORIGINAL SCALE IN INCHES FOR REDUCED PLAN 0 1 2 3

REVISED BY______ DATE______

REVISIONS NO.	DESCRIPTION	BY	DATE

		REG. NO.	DATE
PROJECT ENGINEER:	D. NGUYEN		
DESIGNED BY:	D. NGUYEN		
DRAWN BY:	C. TU		
CHECKED BY:	K. LEE		

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100 W. San Fernando St
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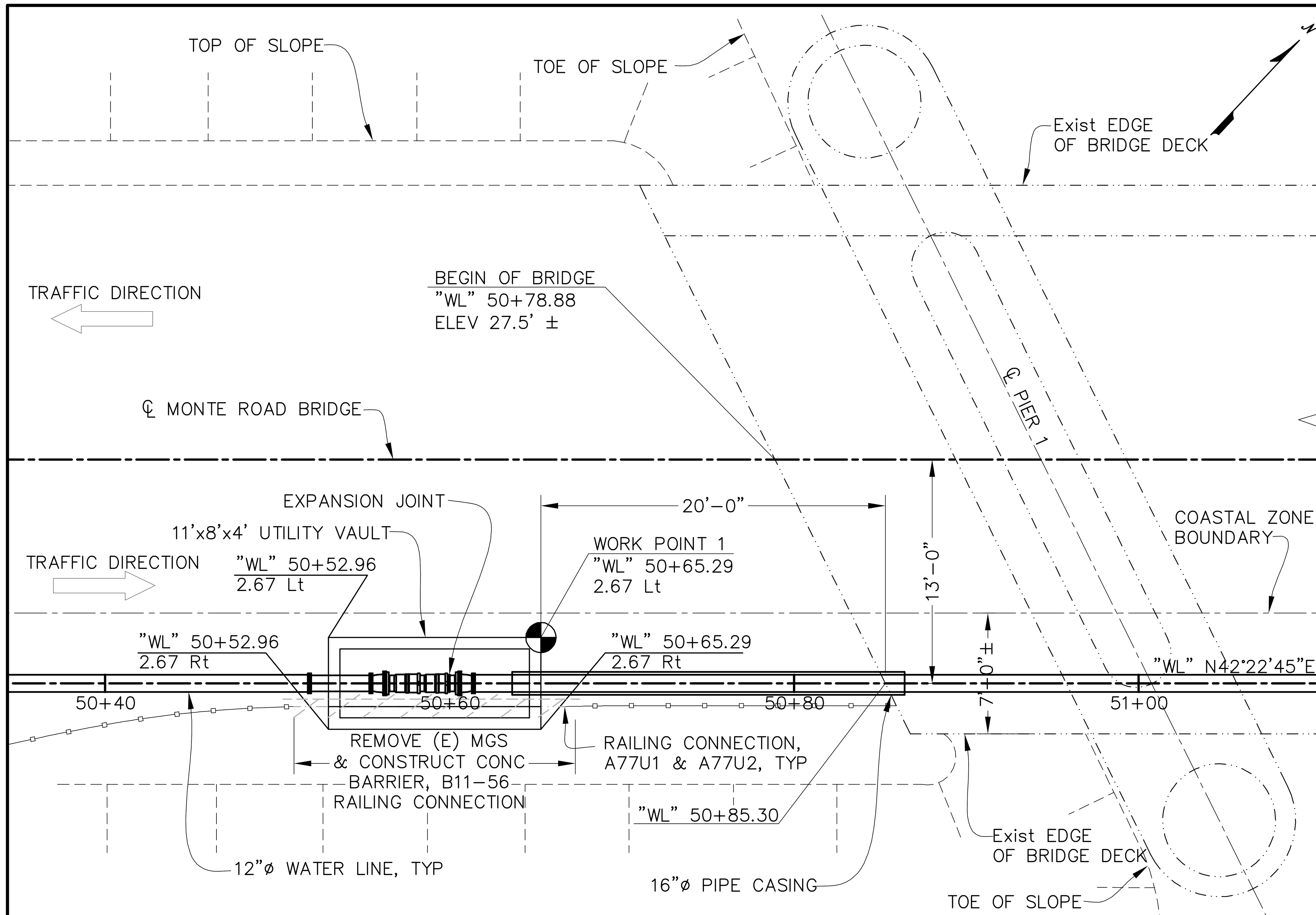
San Jose, CA 95113–2254
Prepared for CALIFORNIA AMERICAN WATER

REGISTERED PROFESSIONAL ENGINEER DUNG NGUYEN No. C56803 Exp. 06/30/19 CIVIL STATE OF CALIFORNIA
6/29/18

PROJECT NO: 60489016
FILE: 0000M52–DT1.dwg
DWG NO: 0000M52

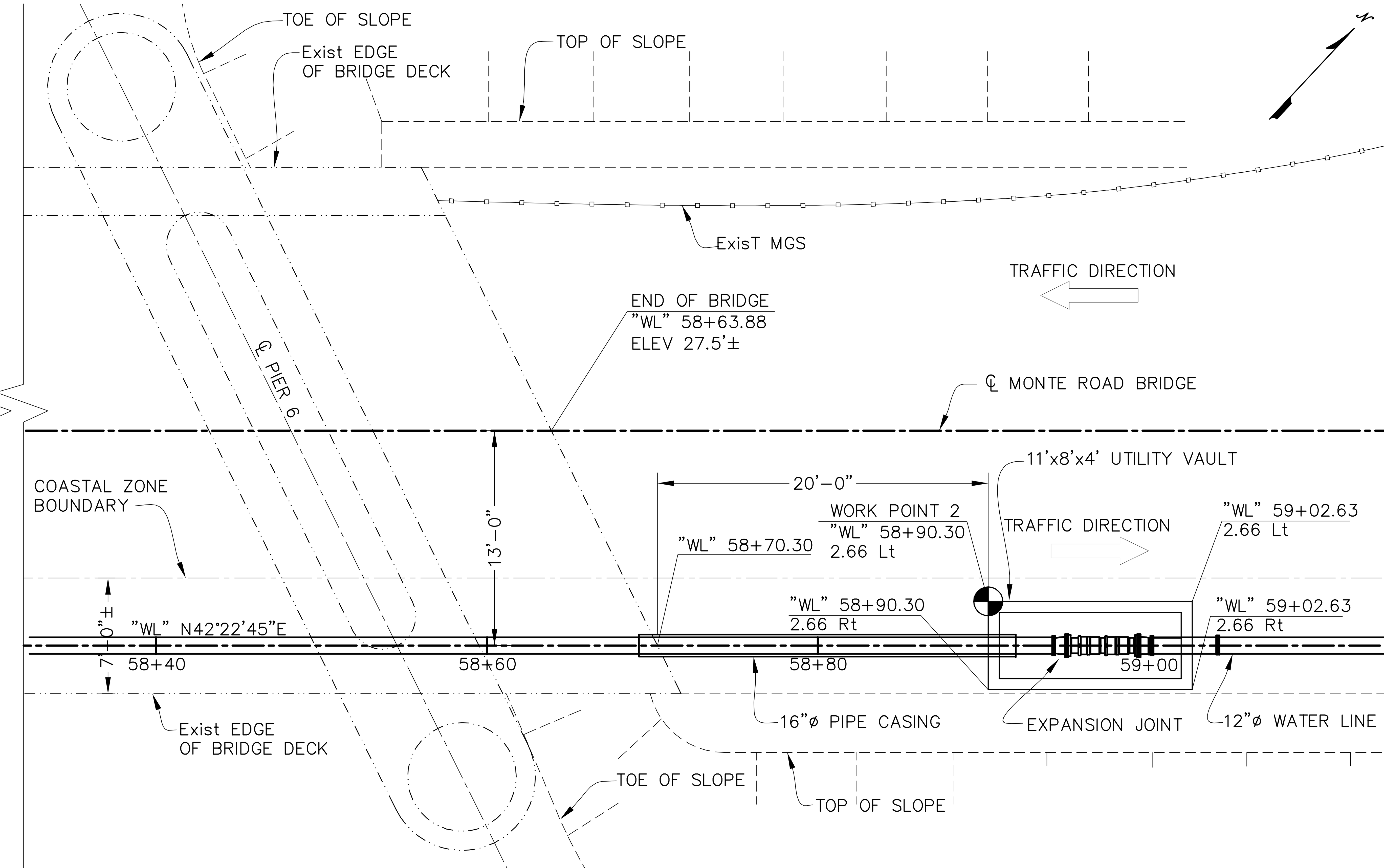
CASTROVILLE PIPELINE DETAILS
MONTE ROAD BRIDGE AT SALINAS RIVER
WATER LINE SUPPORTS
PIPE HANGING DETAILS

P:\26818629–Castroville Bridge–Salinas River–Pipeline\900 Working Docs\910_CAD\Sheets\STRUCTURE\0000M52–DT1–100%.dwg Time: Jun25,2018–10:57am
Login: tuc1 Dimscale:1 LTScale:0.5 Images:
Xrefs: "P:\26818629–Castroville Bridge–Salinas River–Pipeline\900 Working Docs\910_CAD\Refs\XSTRBDR–1.dwg



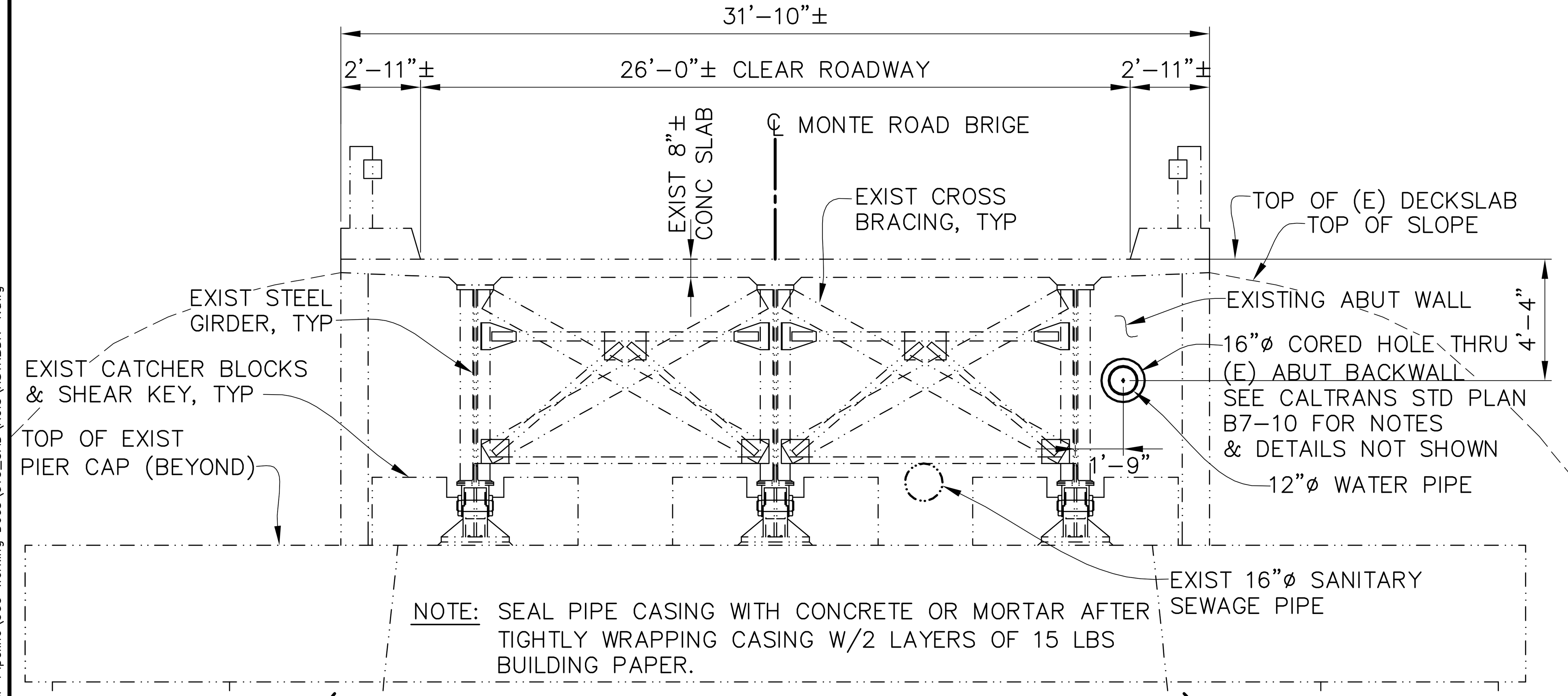
ABUTMENT 1–PARTIAL PLAN

SCALE: 1" = 5'-0"



ABUTMENT 6–PARTIAL PLAN

SCALE: 1" = 5'-0"



(ABUT 6 SHOWN, ABUT 1 OPPOSITE HAND)

CORED HOLE

SCALE: NTS

NOTE:

THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIALS.

MATERIAL PROPERTIES:

CONCRETE:

CONCRETE (UTILITY VAULT) fc' = 3600 PSI

REINFORCING STEEL:

ASTM A706 GRADE 60 OR ASTM A615 GRADE 60

STEEL:

1. STRUCTURAL PLATE	ASTM A36 OR ASTM A572
2. WIDE FLANGE AND STRUCTURAL	ASTM A992
3. CHANNEL AND ANGLES	ASTM A36
4. STRUCTURAL STEEL TUBES	ASTM A500, GRADE B Fy = 42 KSI
5. MACHINE BOLTS, THRU BOLTS & RODS	ASTM A307, GRADE A OR B OR A36
6. ANCHOR BOLTS	HILTI RE-500-HD EPOXY ANCHOR
7. HOT-DIPPED GALVANIZING	ASTM A123
8. HOT-DIPPED GALVANIZING HARDWARE	ASTM A153

REINFORCED CONCRETE:

1. ALL CONCRETE SHALL BE NORMAL WEIGHT HARD ROCK TYPE.
2. CONCRETE MIX SHALL BE DESIGNED BY A QUALIFIED TESTING LABORATORY, BEARING A REGISTERED CIVIL ENGINEER'S STAMP, AND APPROVED BY THE ENGINEER PRIOR TO USE.
3. RECYCLED OR RECLAIMED MATERIAL SHALL NOT BE USED AS CONCRETE AGGREGATE.
4. CONTRACTOR SHALL SUBMIT A MIX DESIGN AND ALL SUPPORTING TEST DATA FOR APPROVAL PRIOR TO PLACING CONCRETE AT THE SITE.
5. ALL EXPOSED FORMED CONCRETE EDGES AND CORNERS TO BE CHAMFERED ¾" x ¾" UNLESS OTHERWISE NOTED.
6. REINFORCING BARS FOR CAST-IN-PLACE CONCRETE SHALL COMPLY WITH THE REQUIREMENTS OF ASTM A615 OR ASTM A706.
7. MINIMUM CONCRETE COVER FOR REINFORCEMENT SHALL BE AS FOLLOWS (UNLESS OTHERWISE NOTED):

	MIN. COVER
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH:	3"
CONCRETE EXPOSED TO EARTH OR WATER:	3"
CONCRETE EXPOSED TO WEATHER:	2"

CONTROL POINTS

POINT ID	COORDINATES		ORTH. HEIGHT	CODE (*) (DESCRIPTION/LOCATION
	NORTH	EAST		
702	2164935.781	5750947.842	17.485	CP N&S
703	2164563.903	5752220.927	15.619	CP REBAR

(*) DENOTES SURVEY INFORMATION RECEIVED FROM POLARIS CONSULTING GPS DEPARTMENT.

WORK POINTS

DESCRIPTION	COORDINATES	
	NORTH	EAST
WORK POINT 1	2161109.224	5746305.403
WORK POINT 2	2161727.882	5746869.902

COUNTY NO. 135
STATE NO. 44C-0093

100% DRAWING

REVISED BY________ DATE_______

REVISIONS NO.	DESCRIPTION	BY	DATE

SCALE: VERTICAL: AS SHOWN
HORIZONTAL: AS SHOWN

ORIGINAL SCALE IN INCHES FOR REDUCED PLAN
0 1 2 3

		REG. NO.	DATE
PROJECT ENGINEER:	D. NGUYEN		
DESIGNED BY:	D. NGUYEN		
DRAWN BY:	C. TU		
CHECKED BY:	S. KIM		

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No. C56803
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CIVIL
STATE OF CALIFORNIA
6/29/18

PROJECT NO: 60489016
FILE: 0000M53-DT2.dwg
DWG NO: 0000M53

CASTROVILLE PIPELINE DETAILS
MONTE ROAD BRIDGE AT SALINAS RIVER
WATER LINE SUPPORTS
UTILITY VAULT LAYOUT

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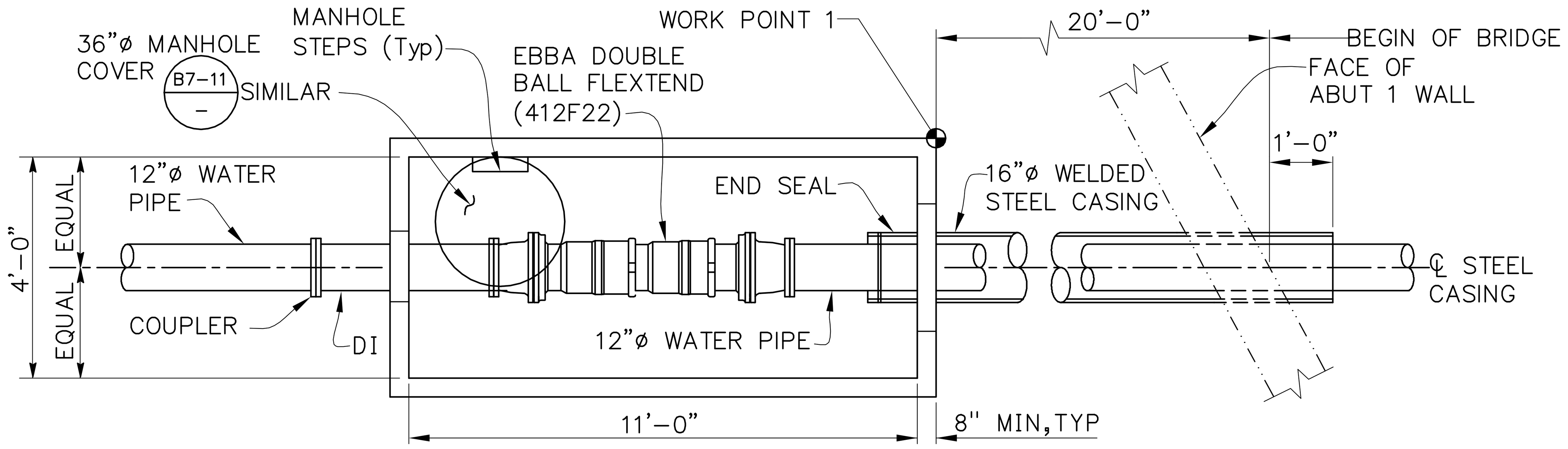
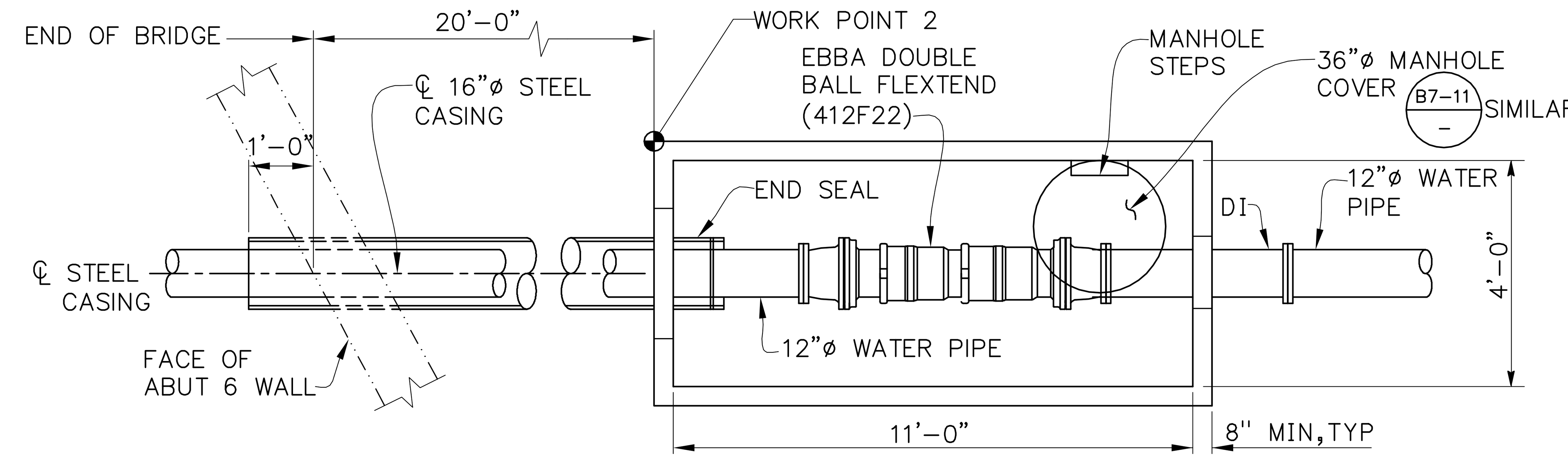


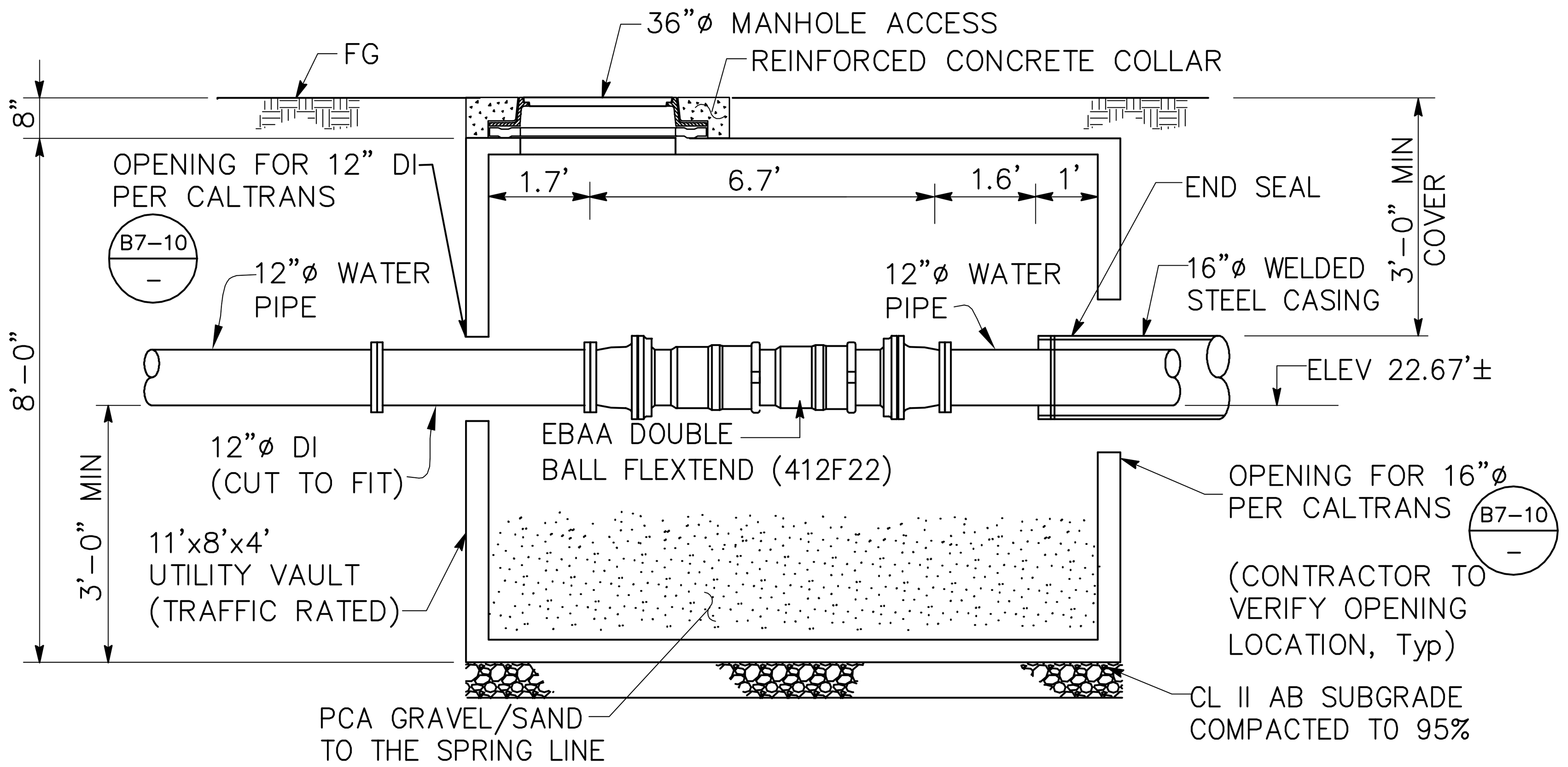
ABUT 1 PLAN–UTILITY VAULT (TRAFFIC RATED)

SCALE: NTS



ABUT 6 PLAN–UTILITY VAULT (TRAFFIC RATED)

SCALE: NTS



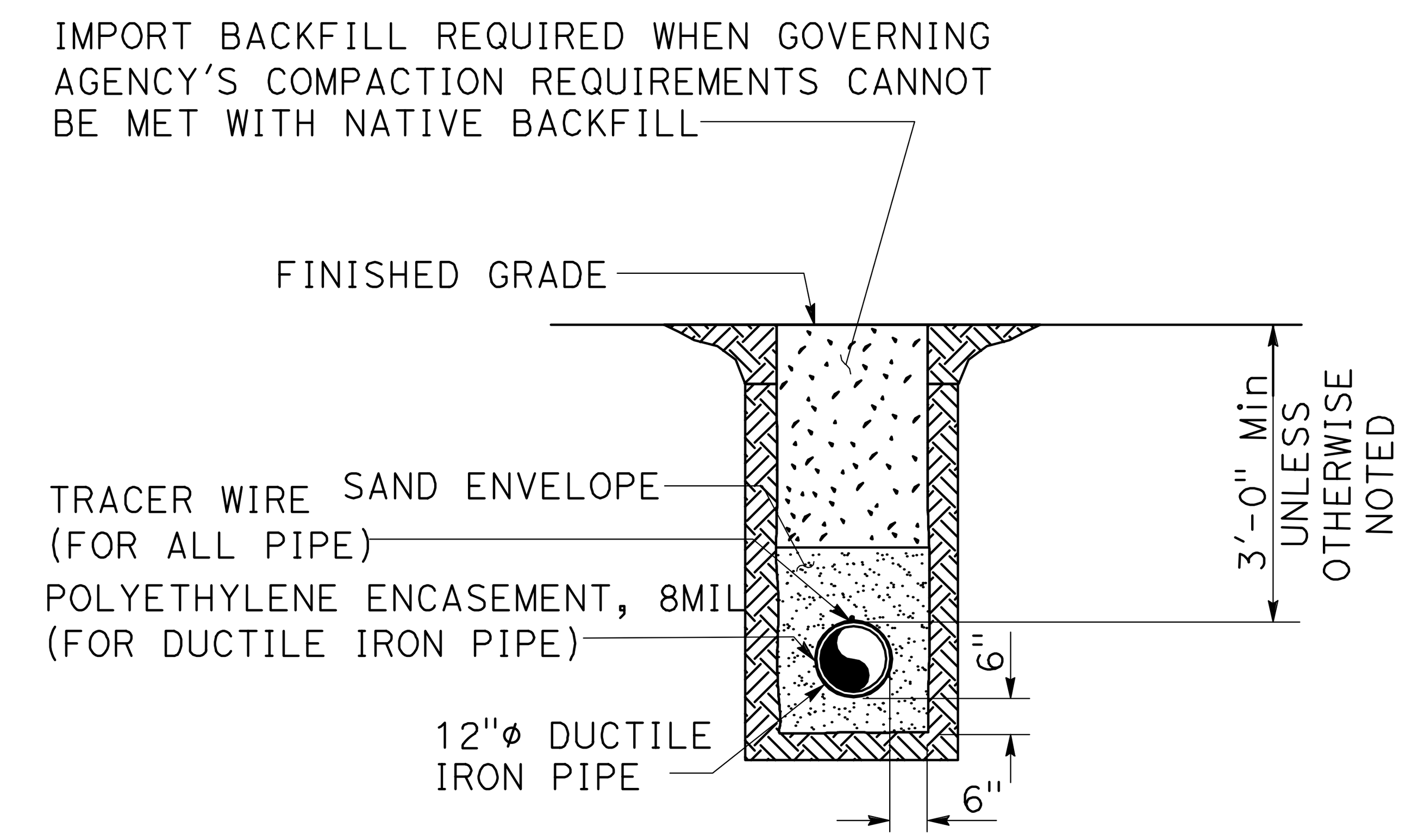
NOTES:

1. EXACT UTILITY VAULT LOCATION AND WATER PIPE LAYOUT SHOULD BE DETERMINED IN THE FIELD TO FIT STEEL PIPE AND ITS HANGER SYSTEM AT THE BRIDGE.
2. SECURE EXPANSION JOINT PRIOR TO PRESSURIZING SO THAT IT DOES NOT MOVE OR EXTEND FROM ADDING WATER PRESSURE OF ABOUT 155 PSI.

(ABUT 1 SHOWN, ABUT 6 OPPOSITE HAND)

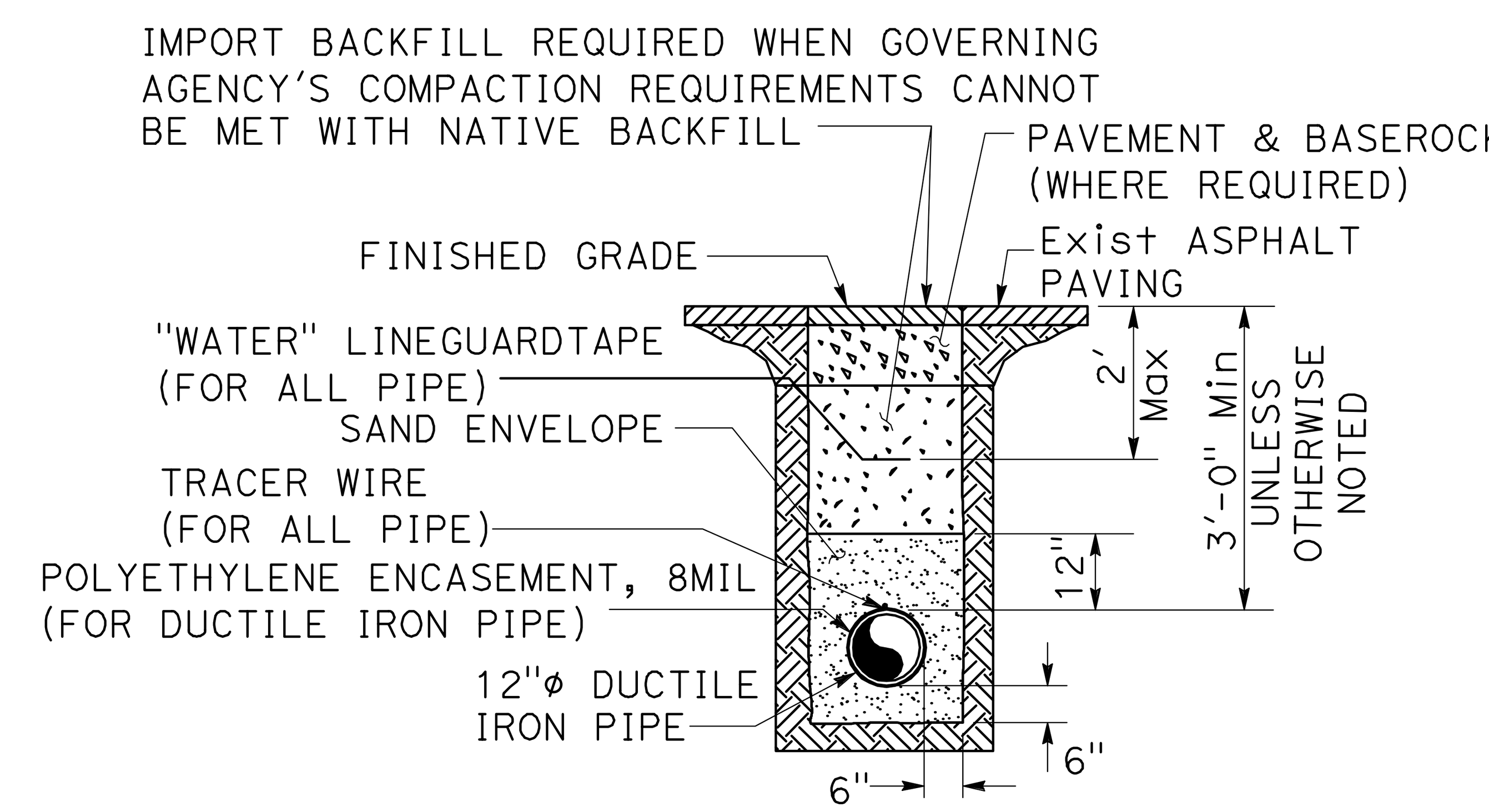
ELEVATION (UTILITY VAULT & EXPANSION JOINT)

SCALE: NTS



TRENCH CROSS SECTION (OUT OF PAVEMENT)

SCALE: NTS

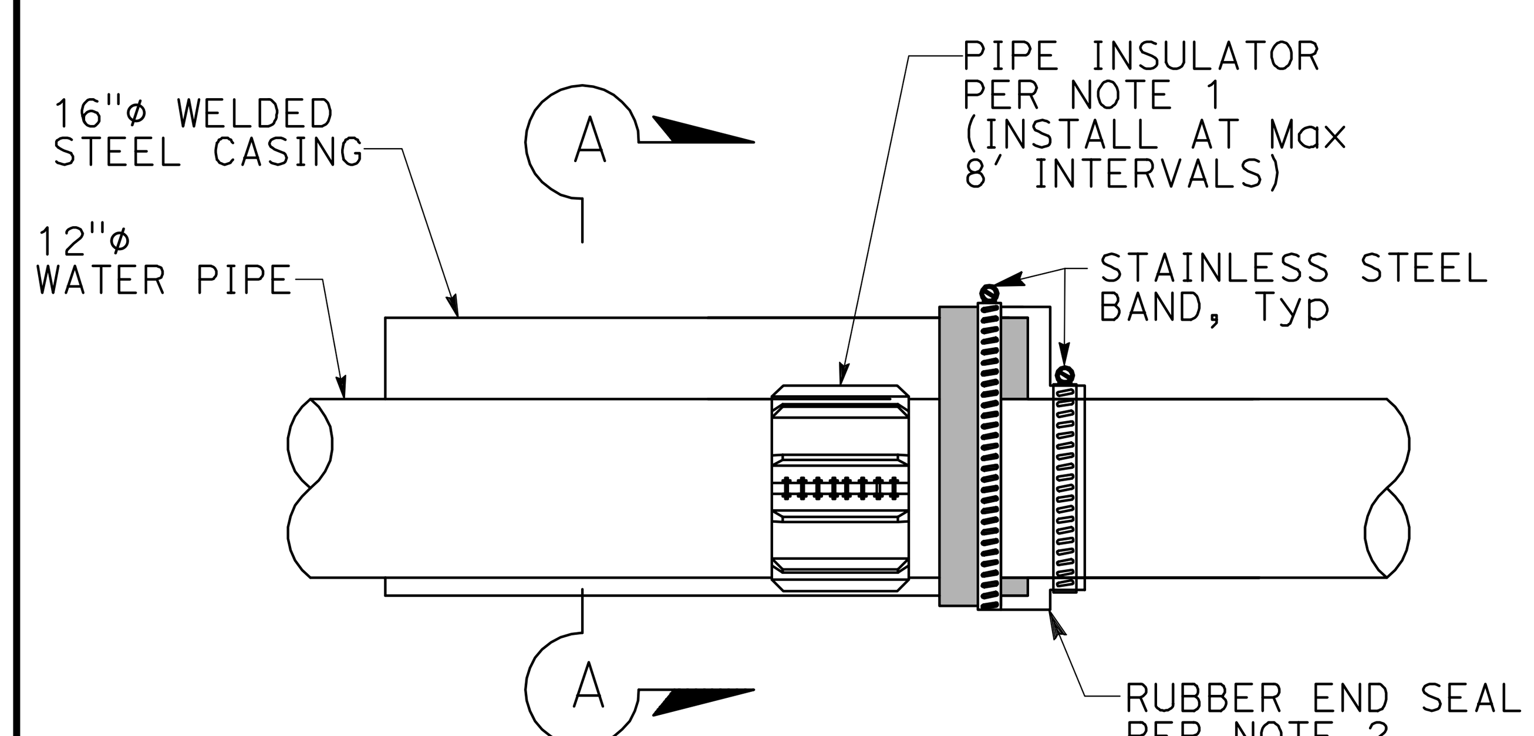


NOTES:

1. ALL EXCESS SPOIL IN TRACT IS TO REMAIN TRENCHSIDE AND ALL EXCESS SPOIL OFF TRACT IS TO BE REMOVED.
2. ALL VALVE CASINGS AND COVERS SHALL BE RAISED TO FINISHED GRADE AFTER PERMANENT PAVEMENT HAS BEEN PLACED.

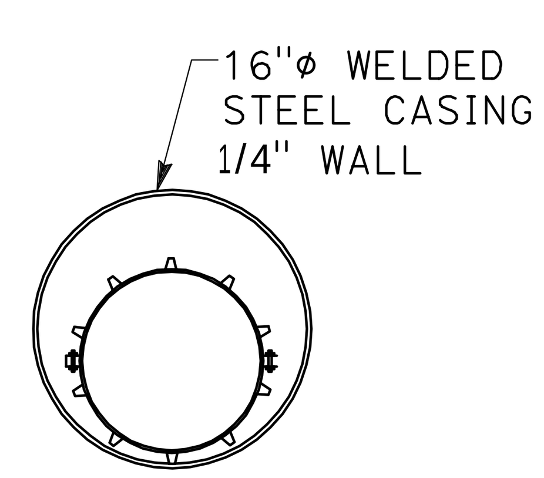
TRENCH CROSS SECTION (IN PAVEMENT)

SCALE: NTS



PIPE SUPPORTS IN CONDUIT

SCALE: NTS



SECTION A–A

SCALE: NTS

CALTRANS 2015 STANDARD PLANS

B7-10	UTILITY OPENING BOX GIRDER
B7-11	UTILITY DETAILS
B11-56	CONC BARRIER TYPE 732
A77U1	MIDWEST GUARDRAIL SYSTEM DETAIL NO. 1
A77U2	MIDWEST GUARDRAIL SYSTEM DETAIL NO. 2

NOTES:

1. PIPE INSULATORS TO BE FOR 12"ø WATER PIPE BY 16"ø CASING WITH 6" WIDE STAINLESS STEEL BANDS.

2. CASING END SEAL TO PIPE TO BE SYNTHETIC RUBBER (MIN.1/8" THICKNESS) WITH STAINLESS STEEL BANDS AND CLAMPS.

3. FULL WATER TIGHT WELD REQUIRED AT JOINTS OF CONDUIT.

4. PROTECT UNDERGROUND FLEXIBLE COUPLINGS, BARE STEEL, SLEEVES AND BOLTS AS FOLLOWS:

A. THE ENTIRE AREA OF FITTING SHOULD BE DRY AND FREE OF DUST, DIRT OR OTHER FOREIGN MATTER. RUST OF OTHER FOREIGN MATERIAL SHOULD BE REMOVED BY SCRAPING OR WIRE BRUSHING. WIPING WITH A DRY CLEAN CLOTH MAY BE NECESSARY TO REMOVE PARTICLES FROM BRUSH CLEANING. ANY OIL GREASE MUST BE REMOVED USING A LOW RESIDUE VOLATILE PETROLEUM SOLVENT BEFORE APPLICATION OF GREASE AND WRAPPING.

B. THE EXPOSED AREA SHOULD BE COATED WITH A HEAVY COATING OF METALGUARD #301 GREASE BY THE GLOVE METHOD TO A THICKNESS OF AT LEAST 1/4 INCH.

C. FIRMLY WRAP THE ENTIRE GREASE AREA WITH AT LEAST TWO LAYERS HALF LAPPED OF A WOVEN GLASS FILAMENT MESH (RES OR BIT WRAP, 4 INCH WIDE). APPLY GREASE BETWEEN EACH LAYER DURING WRAPPING, WORKING THE GREASE INTO THE MESH OPENINGS.

D. COVER THE ENTIRE MESH WRAPPED AREA OF FITTING WITH AT LEAST 1/4 INCH THICK OF METALGUARD #301 GREASE BY THE GLOVE METHOD.

E. FIRMLY APPLY TWO LAYERS OF THE POLYWRAP TUBE OVER PROTECTED AREA BY SPLITTING THE TUBE AND TAPING THE POLYWRAP IN PLACE WITH THE PVC TAPE.

THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIALS.

100% DRAWING

COUNTY NO. 135
STATE NO. 44C–0093

REVISIONS			
REVISED BY________DATE_______			
NO.	DESCRIPTION	BY	DATE

SCALE: VERTICAL: AS SHOWN
HORIZONTAL: AS SHOWN
ORIGINAL SCALE IN INCHES FOR REDUCED PLAN
0 1 2 3

		REG. NO.	DATE
PROJECT ENGINEER:	C. VANKEPPEL		
DESIGNED BY:	D. NGUYEN		
DRAWN BY:	C. TU		
CHECKED BY:	S. KIM		

AECOM
100 W. San Fernando St
Suite 200
San Jose, CA 95113–2254
Prepared for CALIFORNIA AMERICAN WATER

REGISTERED PROFESSIONAL ENGINEER DUNG NGUYEN No. C56803 Exp. 06/30/19 CIVIL STATE OF CALIFORNIA
6/29/18

PROJECT NO: 60489016
FILE: 0000M54–DT3.dwg
DWG NO: 0000M54

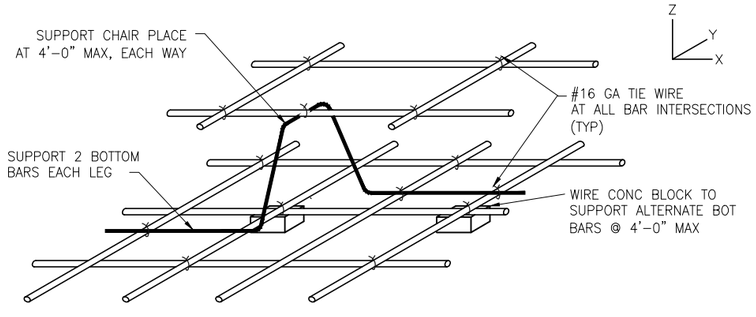
CASTROVILLE PIPELINE DETAILS
MONTE ROAD BRIDGE AT SALINAS RIVER
WATER LINE SUPPORTS
UTILITY VAULT DETAILS

REBAR LAP SPLICE LENGTH SCHEDULE (INCHES)						
CLASS B LAP SPLICE	f'c = 3000 psi		f'c = 4000 psi		f'c = 5000 psi	
	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
#3	29	21	25	18	22	17
#4	38	28	33	25	30	22
#5	48	36	42	31	37	28
#6	58	43	50	37	45	33
#7	81	62	70	54	63	48
#8	93	71	80	62	72	55
#9	104	80	90	70	81	62
#10	118	90	102	78	91	70
#11	131	100	113	87	101	78

NOTES:

1. DEVELOPMENT LENGTH AND LAP SPLICE LENGTH REQUIREMENTS ARE BASED ON ACI 318–11. SPLICE LENGTHS SHOWN IN TABLE ABOVE ARE IN INCHES.
2. TENSION BAR LAP SPLICES SHALL CONFORM TO ACI CLASS B SPLICE LAP LENGTHS TYPICAL, UNLESS NOTED OTHERWISE. WHEN CLASS A SPLICE IS SPECIFIED, SPLICE LENGTHS ARE 77% OF THE TABULATED CLASS B SPLICE LENGTHS.
3. TOP REINFORCEMENT IS DEFINED AS HORIZONTAL REINFORCEMENT PLACED SUCH THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE DEVELOPMENT LENGTH OR SPLICES.
4. LAP SPLICE LENGTHS ARE BASED ON GRADE 60 REINFORCING AND NORMAL WEIGHT AGGREGATE CONCRETE.
5. EMBEDMENT LENGTH "E" WHERE SHOWN ON DRAWINGS IS EQUAL TO CLASS A SPLICE LENGTH (77% OF TABULATED CLASS B LAP SPLICE LENGTH).
6. WHERE 2 DIFFERENT BAR SIZES ARE LAPPED, THE SPLICE LENGTH SHALL BE BASED ON THE LARGER BAR SIZE.

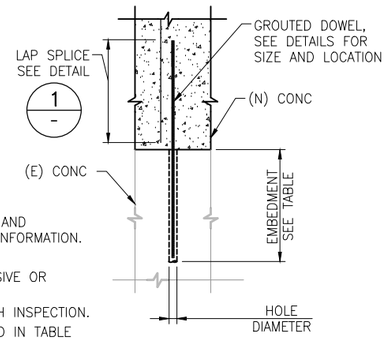
TENSION LAP SPLICE AND EMBEDMENT LENGTHS (1)
SCALE: NTS



REBAR PLACING DETAIL (4)
SCALE: NTS

GROUTED DOWELS			
DOWEL SIZE	HOLE ø	EMBEDMENT	TEST LOAD (lbs.)
#3	5/8"	6"	5,200
#4	3/4"	8"	9,600
#5	7/8"	10"	14,800
#6	1"	12"	21,000
#7	1 1/8"	14"	29,000
#8	1 1/4"	16"	38,000
#9	1 3/8"	18"	48,000

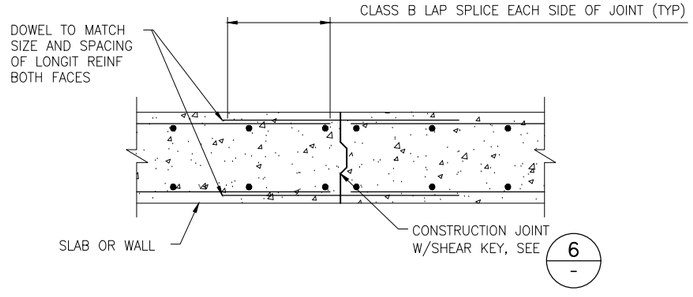
THREADED GROUTED DOWELS (A307) & (316 SS)			
DOWEL SIZE	HOLE ø	EMBEDMENT	TEST LOAD (lbs.)
1/2"ø	3/4"	8"	3,800
3/4"ø	1"	12"	8,800
1"ø	1 1/4"	16"	16,000



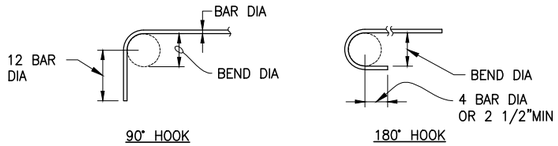
NOTES:

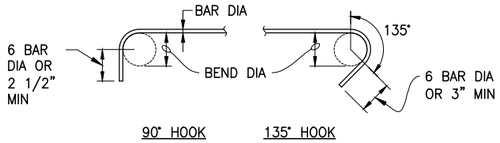
1. SEE DRILLED CONCRETE ANCHOR NOTES ON S2 AND SPECIFICATION SECTION 03250 FOR ADDITIONAL INFORMATION.
2. DOWELS SHALL BE CENTERED IN HOLES.
3. GROUT SHALL BE HIT–RE 500–SD EPOXY ADHESIVE OR APPROVED EQUAL
4. ALL GROUTED DOWELS SHALL BE INSTALLED WITH INSPECTION.
5. TEST 25% OF ALL DOWELS TO TEST LOAD LISTED IN TABLE ABOVE.

GROUTED DOWEL DETAIL (2)
SCALE: NTS



CONSTRUCTION JOINT (5)
SCALE: NTS





MAIN BAR SIZE	MIN BEND DIA
#3 THRU #7	6 BAR DIA
#8 THRU #11	8 BAR DIA

TIE BAR SIZE	MIN BEND DIA
#3 THRU #5	4 BAR DIA
OTHERS	SAME AS MAIN REINF

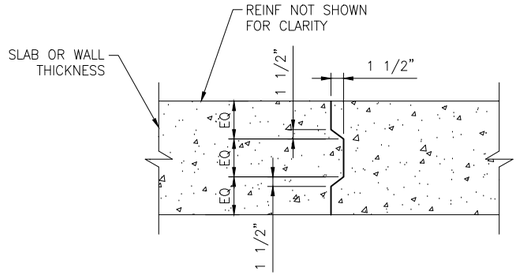
TYPICAL BAR BENDING DETAILS (7)
SCALE: NTS

GENERAL NOTES:

1. ALL MATERIALS USED IN REINFORCED CONCRETE CONSTRUCTION THAT COULD COME IN CONTACT WITH DRINKING WATER SHALL BE CERTIFIED AS ACCEPTABLE FOR POTABLE WATER USE ACCORDING TO NSF 61.

MINIMUM CONCRETE COVER	
MINIMUM CONCRETE COVER (UNLESS OTHERWISE NOTED)	CLEAR COVER
CONCRETE EXPOSED TO WATER	4"
CAST AGAINST AND PERMENENTLY EXPOSED TO EARTH (UNLESS OTHERWISE SHOWN ON DRAWINGS)	3"

CONCRETE PROTECTION FOR REINFORCEMENT (3)
SCALE: NTS



TYPICAL SHEAR KEY DETAIL (6)
SCALE: NTS

REGISTERED PROFESSIONAL ENGINEER — JAMES A. HYMAN — No. C-50926 — CIVIL — STATE OF CALIFORNIA

8/17/18

REVISIONS

TRANSMISSION MAINS FOR MPWSP
CIVIL
CASTROVILLE PIPELINE DETAILS
CONCRETE DETAILS – 1

CALIFORNIA AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

DRAWN BY K. LEE
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH
DATE MARCH 2018
PROJECT 60489016
USE DIMENSIONS ONLY
SCALE AS SHOWN

USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES

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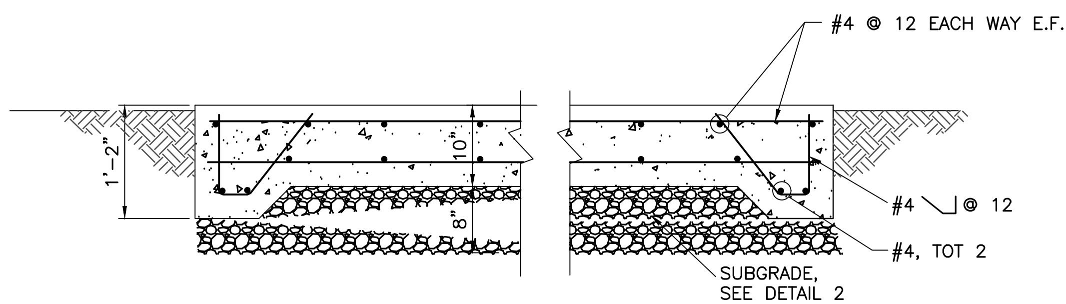
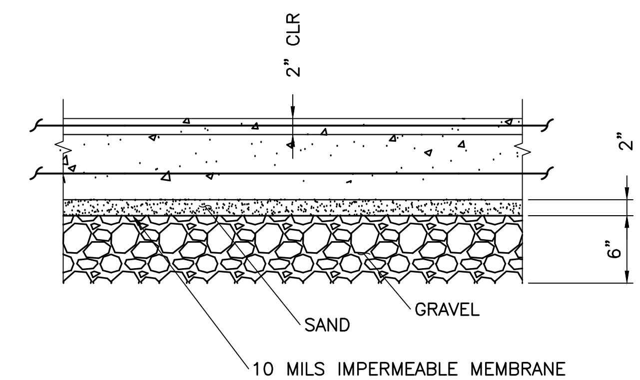


TYPICAL EQUIPMENT PAD

DETAIL 1/E11
SCALE: NTS



TYPICAL SUBGRADE FOR MAT FOUNDATION

DETAIL 2/–
SCALE: NTS

NOTES:

1. SLOPE PAD AWAY FROM CENTER ON ALL SIDES SO WATER DRAINS OFF EASILY.
2. PROVIDE 1–#4x4'–0" DIAGONAL TOP AND BOTTOM AT EACH PAD PENETRATION.

8/17/18

REVISIONS

TRANSMISSION MAINS FOR MPWSP
MECHANICAL
CASTROVILLE PIPELINE DETAILS
CONCRETE DETAILS – 2

CALIFORNIA
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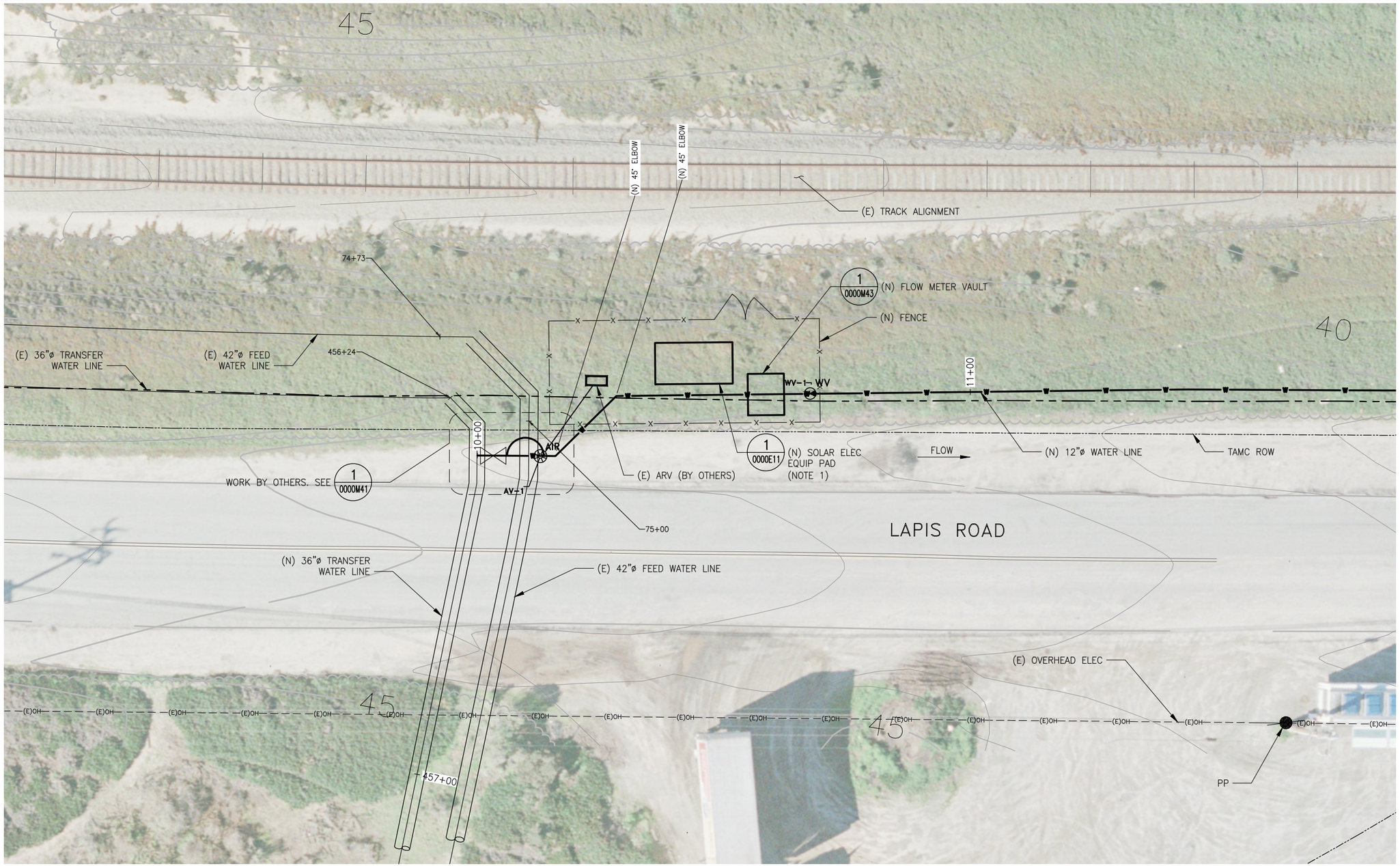

SITE PLAN
1"=10'

NOTES:

1. CONTRACTOR TO INSTALL NEW SOLAR ELECTRICAL SERVICE AND TELEMETRY PER ELECTRICAL DETAILS.
2. INSTALL NEW CHAIN LINK FENCE TOPPED WITH 4-STRAND BARBED WIRE AROUND LAPIS METER STATION WITH TWO GATES.

0 5 10 20 30
HORIZ 1" = 10'

REGISTERED PROFESSIONAL ENGINEER
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8/17/18

REVISIONS		

TRANSMISSION MAINS FOR MPWSP
CIVIL
CASTROVILLE PIPELINE DETAILS
LAPIS METER STATION SITE LAYOUT

CALIFORNIA
AMERICAN WATER

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300 LAKESIDE, SUITE 400
OAKLAND, CALIFORNIA 94612

AECOM
CALIFORNIA AMERICAN WATER

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APPROVED C. SMITH
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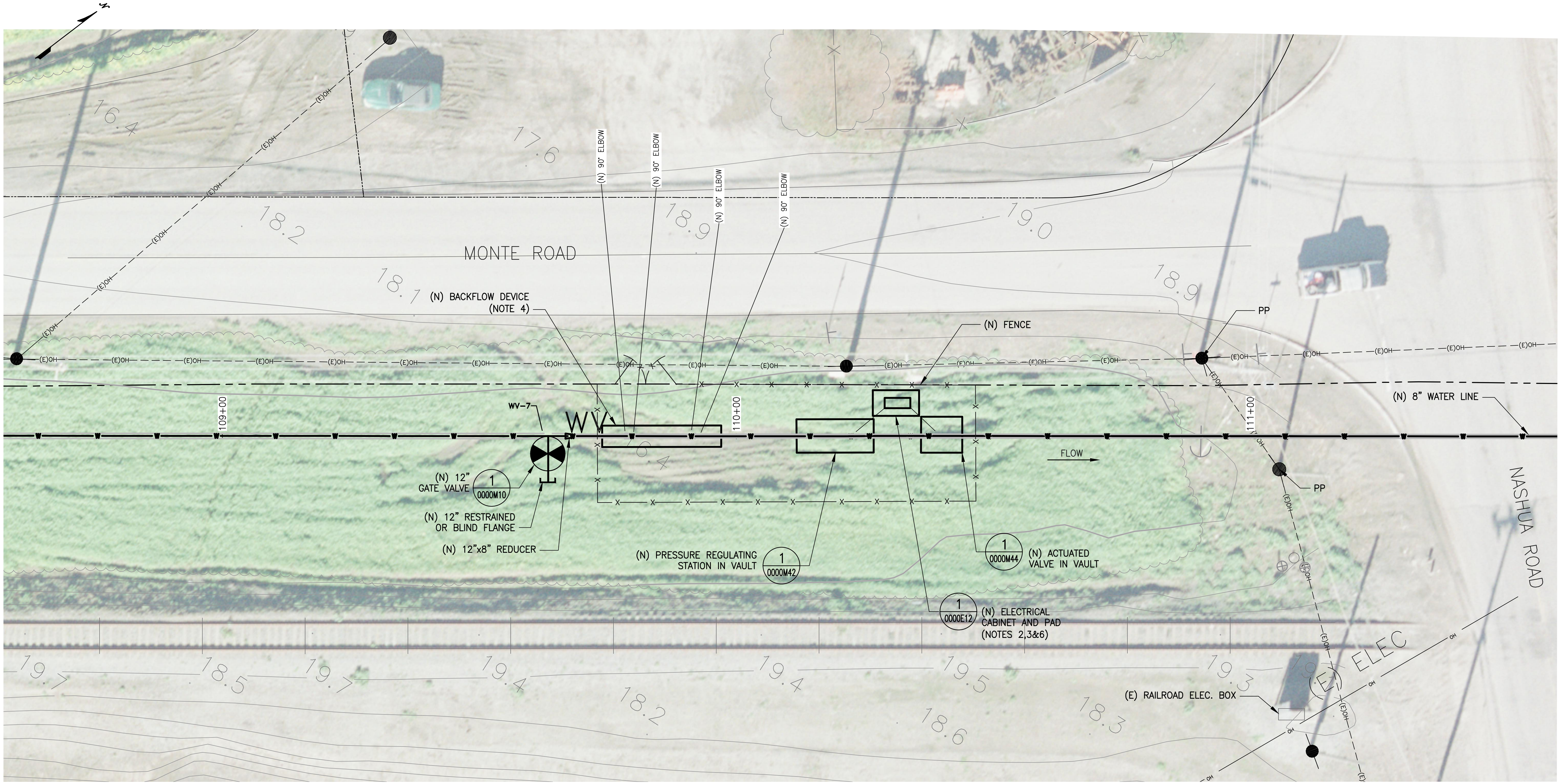

PLAN
1"=10'

NOTES:

1. CONTRACTOR TO STAKE AND LAY OUT ALL VAULTS AND PADS AND SUBMIT PLAN FOR OWNER APPROVAL PRIOR TO INSTALLATION.
2. OWNER TO SECURE NEW PG&E ELECTRICAL SERVICE FOR EQUIPMENT SOUTH OF NASHUA RD, POWER POLE AND METER LOCATION TBD. CONTRACTOR TO INSTALL CONDUIT, PULL BOXES AND OTHER EQUIPMENT AS DIRECTED BY PG&E.
3. CONTRACTOR TO COORDINATE W/ PG&E AS NEEDED.
4. INSTALL NEW 8-INCH REDUCED PRESSURE PRINCIPLE ASSEMBLY BACKFLOW DEVICE ABOVE GRADE IN ACCORDANCE WITH CAW STANDARD DRAWINGS AND SPECIFICATIONS.
5. INSTALL NEW CHAIN LINK FENCE TOPPED WITH 4-STRAND BARBED WIRE.
6. SEE ALSO ELECTRICAL DWGS. 0000E12 AND 0000E13.

0 5 10 20 30
HORIZ 1" = 10'

REGISTERED PROFESSIONAL ENGINEER JENNIFER A. HYMAN No. C-50926 CIVIL STATE OF CALIFORNIA
8/17/18

REVISIONS

TRANSMISSION MAINS FOR MPWSP
CIVIL
CASTROVILLE PIPELINE DETAILS
CAW NASHUA METER STATION SITE LAYOUT

CALIFORNIA AMERICAN WATER

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300 LAKESIDE, SUITE 400
OAKLAND, CALIFORNIA 94612

AECOM

CALIFORNIA AMERICAN WATER

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DATE MARCH 2018
PROJECT 60489016

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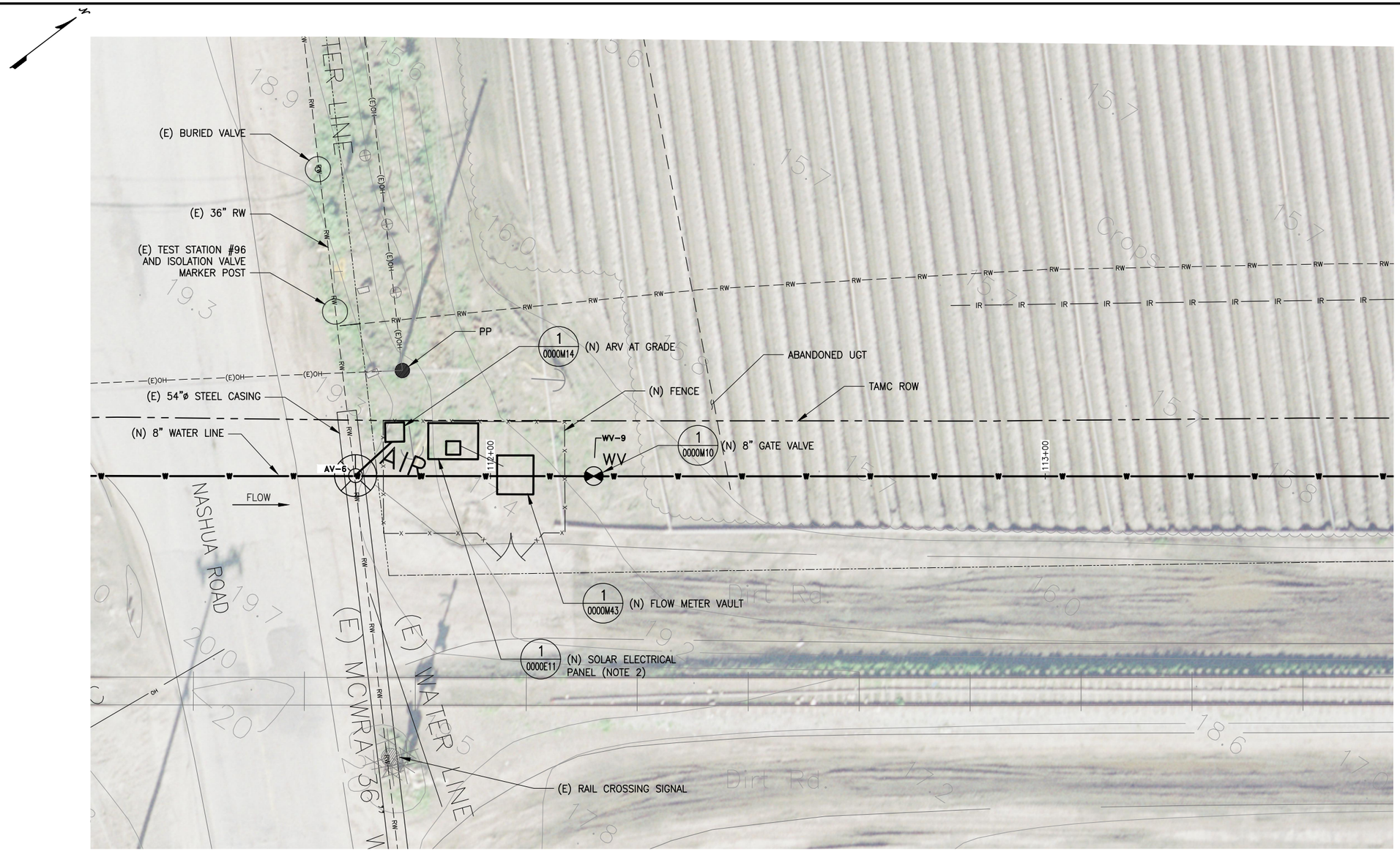

PLAN 1 (1"=10', 9009C13)

NOTES:

1. CONTRACTOR TO STAKE AND LAY OUT ALL VAULTS AND PADS AND SUBMIT PLAN FOR OWNER APPROVAL PRIOR TO INSTALLATION.
2. CONTRACTOR TO INSTALL NEW SOLAR ELECTRICAL SERVICE AND TELEMETRY PER ELECTRICAL DETAILS.
3. INSTALL NEW CHAIN LINK FENCE TOPPED WITH 4-STRAND BARBED WIRE.
4. SEE ALSO ELECTRICAL DWGS. 0000E12 AND 0000E13.

0 5 10 20 30
HORIZ 1" = 10'

REGISTERED PROFESSIONAL ENGINEER
JENNIFER A. HYMAN
No. C-50926
CIVIL
STATE OF CALIFORNIA
8/17/18

REVISIONS		

TRANSMISSION MAINS FOR MPWSP
CIVIL
CASTROVILLE PIPELINE DETAILS
CCSD NASHUA METER STATION SITE LAYOUT

CALIFORNIA
AMERICAN WATER

AECOM
300 LAKESIDE, SUITE 400
OAKLAND, CALIFORNIA 94612

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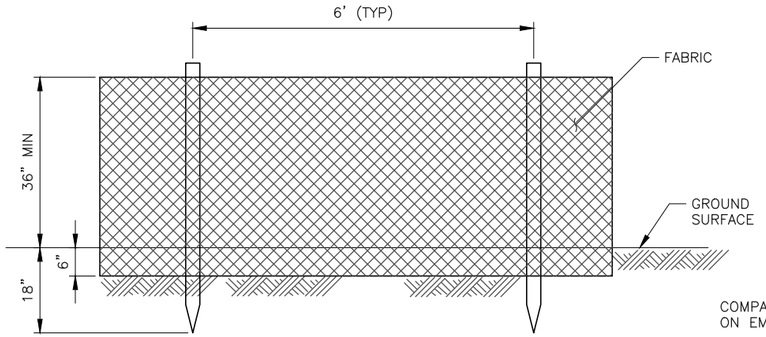
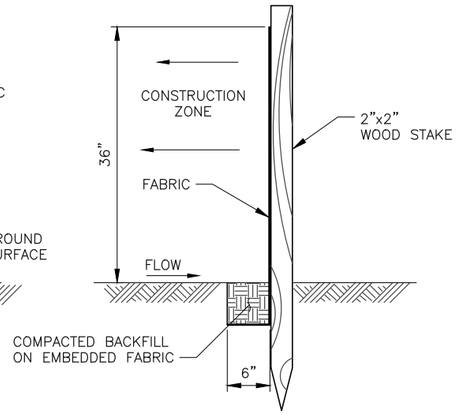
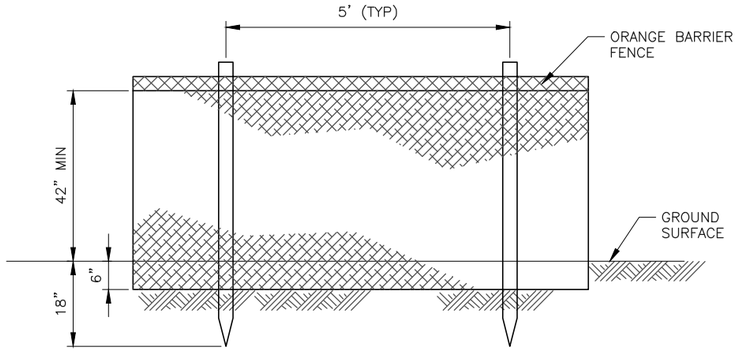


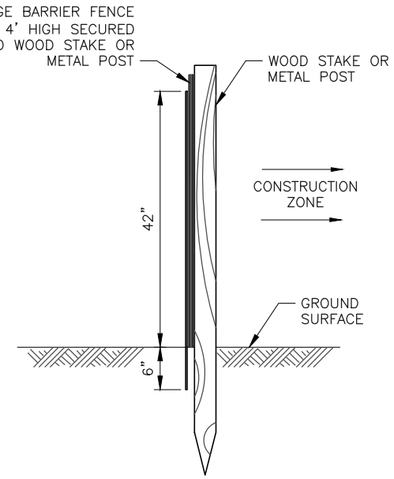
FENCE ELEVATION



FENCE SECTION

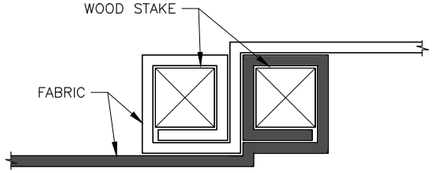


FENCE ELEVATION

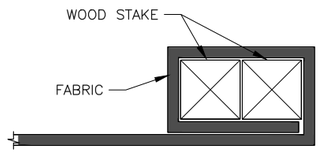


FENCE SECTION

ORANGE BARRIER FENCE DETAIL (2)
SCALE: NTS



JOINT SECTION (TOP VIEW)



END SECTION (TOP VIEW)

SILT FENCE DETAIL (1)
SCALE: NTS

NOTES

1. STAKES TO OVERLAP & FENCE FABRIC TO FOLD AROUND EACH STAKE ONE FULL TURN. SECURE FABRIC TO STAKE WITH 4 STAPLES.
2. STAKES SHALL BE DRIVEN TIGHTLY TOGETHER TO PREVENT POTENTIAL FLOW THROUGH OF SEDIMENT AT JOINT. THE TOPS OF THE STAKES SHALL BE SECURED WITH WIRE.
3. FOR END STAKE, FENCE SHALL BE FOLDED AROUND TWO STAKES ONE FULL TURN & SECURED WITH 4 STAPLES.
4. STAKE DIMENSIONS ARE NOMINAL.
5. CONTRACTOR SHALL PLACE SILT FENCE AND ORANGE BARRIER FENCE ALONG PERIMETER OF LIMITS OF WORK AS SHOWN IN THESE DRAWINGS AND IN ACCORDANCE WITH THE SPECIFICATIONS.
6. PLACE ORANGE BARRIER FENCE AT DRIP LINE OF ALL TREES WITHIN LIMITS OF WORK.
7. PLACE ORANGE BARRIER FENCE AROUND SPECIAL PLANT COMMUNITIES PER SPEC SECTION 01062.

REGISTERED PROFESSIONAL ENGINEER
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8/17/18

REVISIONS

TRANSMISSION MAINS FOR MPWSP
CIVIL
CASTROVILLE PIPELINE DETAILS
EXCLUSION FENCE DETAILS

CALIFORNIA
AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

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DATE MARCH 2018
PROJECT 60489016
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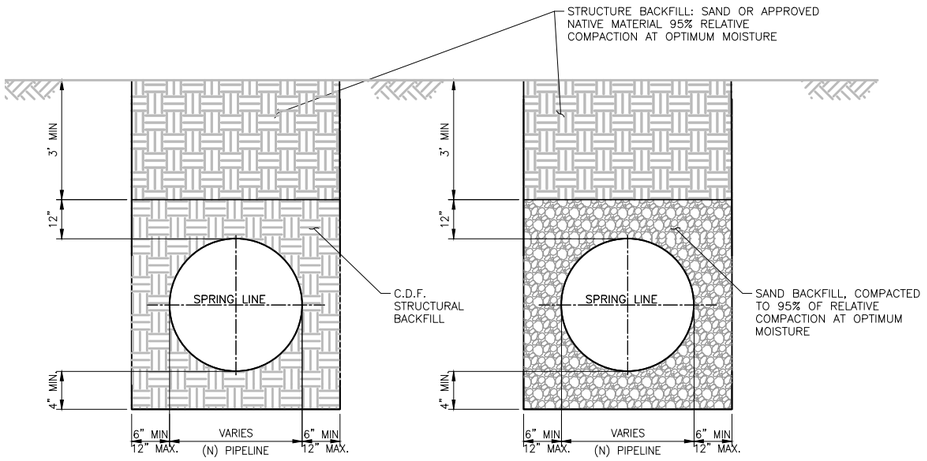
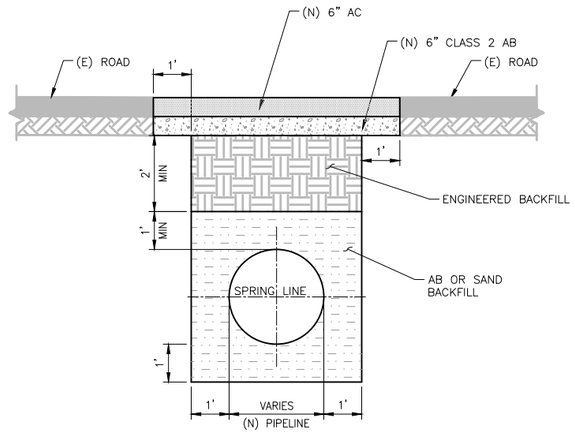


FOR HDPE PIPE FOR DI, STEEL, AND PVC PIPE

TRENCH EXCAVATION DETAILS FOR UNPAVED AREAS (A)
SCALE: NTS



TYPICAL TRENCH BACKFILL FOR PAVED ROAD (B)
SCALE: 1"=2'

NOTES:

1. IF ONE OF THE PIPE IS TREATED (DRINKING) WATER, IT SHALL BE PLACED IN A SEPARATE TRENCH FROM NON-POTABLE PIPES.
2. ALL (N) PIPES SHALL BE INSTALLED WITH 10 GA. STRANDED COATED TRACER WIRE DUCTAPED TO THE TOP-CENTER OF PIPE AT 10-FT INTERVALS.
3. ALL WATER PIPES SHALL HAVE PLASTIC METALLIC WARNING TAPE MARKED "WATER" INSTALLED AT TOP OF PIPE ZONE.
4. FOR TRENCH PAVING IN MONTEREY COUNTY, FOLLOW COUNTY TRENCH AND PAVING REQUIREMENTS, SEE SPEC APPENDIX F.
5. FOR TRENCH AND PAVING REQUIREMENTS IN CALTRANS RIGHT-OF-WAY, FOLLOW CALTRANS PAVING REQUIREMENTS. SEE ALSO ANY SPECIFIC PERMIT REQUIREMENTS FOR THE HWY 183 CROSSING.

0 2 4 6
SCALE: 1" = 2'-0"

REGISTERED PROFESSIONAL ENGINEER JENNIFER A. PRATT No. C-50926 CIVIL STATE OF CALIFORNIA
8/17/18

REVISIONS

TRANSMISSION MAINS FOR MPWSP
CIVIL
CASTROVILLE PIPELINE DETAILS
TYPICAL TRENCH DETAILS

CALIFORNIA
AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

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DATE MARCH 2018
PROJECT 60489016
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SCALE AS SHOWN

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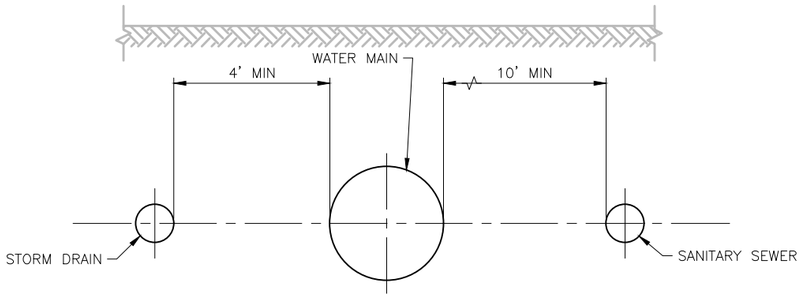
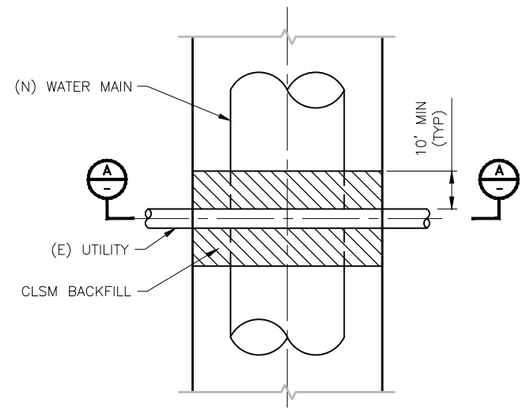
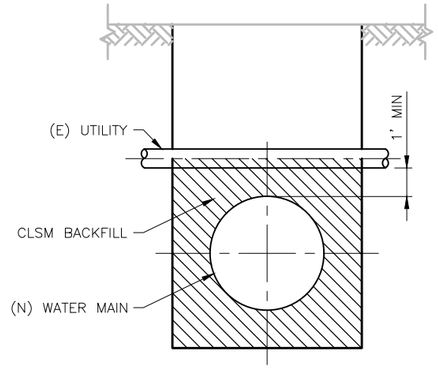


PARALLEL CONSTRUCTION

PARALLEL CONSTRUCTION DETAIL — 1/–
SCALE: 1"=2'

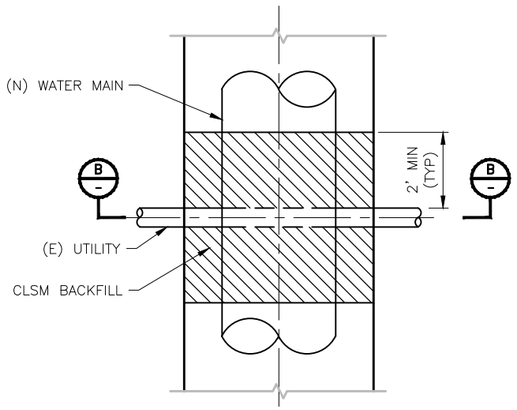


PLAN VIEW

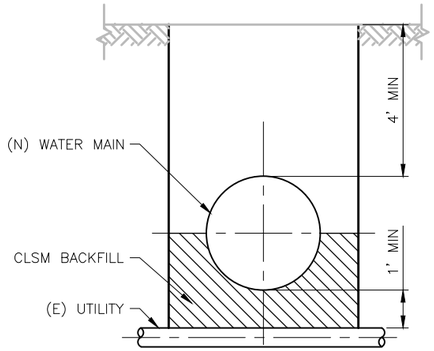


SECTION A

CLSM BACKFILL DETAIL AT CROSSING UNDER UTILITY, EXCEPT SEWERS (NOTE 7) — 2/–
SCALE: 1"=2'



PLAN VIEW



SECTION B

CLSM BACKFILL DETAIL AT CROSSING OVER UTILITY — 3/–
SCALE: 1"=2'

NOTES:

1. PIPELINE INSTALLATION SHALL COMPLY WITH 17 CCR AND 22 CCR UNLESS APPROVED BY CDPH.
2. WATER MAINS SHALL CROSS OVER SANITARY AND STORM DRAINS UNLESS APPROVED BY CDPH.
3. PARALLEL CONSTRUCTION: THE HORIZONTAL DISTANCE BETWEEN NEW WATER MAIN AND SANITARY SEWERS SHALL BE AT LEAST 10 FEET AND AT LEAST 4 FEET FROM STORM DRAINS UNLESS APPROVED BY CDPH.
4. PIPES FOR RAW WATER (SEA WATER INTAKE) AND TERTIARY TREATED RECYCLED WATER ARE CONSIDERED EQUIVALENT TO A STORM DRAIN. SECONDARY TREATED RECYCLED WATER PIPE IS EQUIVALENT TO A SANITARY SEWER.
5. RAW WATER (SEA WATER INTAKE) OR RECYCLED WATER PIPE MAY NOT BE INSTALLED IN THE SAME TRENCH AS DRINKING WATER PRESSURE PIPE.
6. WHERE THE WATER MAIN CROSSES UNDER AN EXISTING UTILITY, THE WATER MAIN SHALL HAVE CLSM BACKFILL WITHIN 10 FT OF THE EXISTING UTILITY. SEE DETAIL 2. IN ADDITION, THE WATER MAIN SHALL BE CONSTRUCTED AT NO LESS THAN 45–DEGREES TO AND AT LEAST 1–FT BELOW THAT PIPELINE. NO CONNECTION JOINTS SHALL BE MADE IN THE WATER MAIN WITHIN 8 HORIZONTAL FEET OF THE UTILITY.
7. SEE DWG 0000C56 FOR CLSM BACKFILL FOR CROSSING UNDER SEWERS.

0 2 4 6
VERT 1" = 2'

REGISTERED PROFESSIONAL ENGINEER — JENNIFER A. HYMAN — No. C-50926 — CIVIL — STATE OF CALIFORNIA
8/17/18

REVISIONS

TRANSMISSION MAINS FOR MPWSP
CIVIL
CASTROVILLE PIPELINE DETAILS
DETAILS FOR SEPARATION BETWEEN WATER MAINS AND SEWERS

CALIFORNIA
AMERICAN WATER

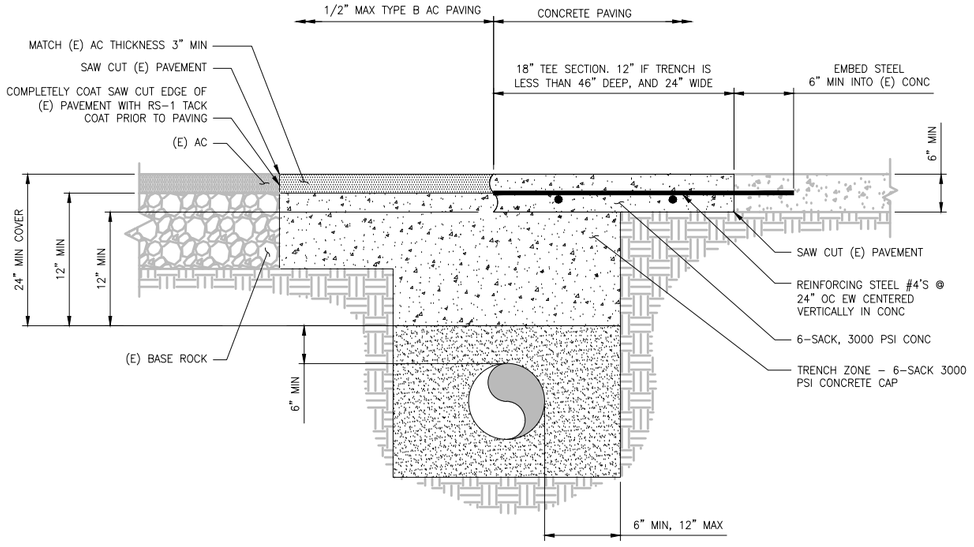
AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

DRAWN BY K. LEE
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH
DATE MARCH 2018
PROJECT 60489016
USE DIMENSIONS ONLY
SCALE AS SHOWN

USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES

0000C54

10000000C54



CONCRETE CAP FOR PIPE INSTALLED AT SUB-STANDARD DEPTH (1)
SCALE: NTS

NOTES:

1. IF ANY PORTION OF (E) PAVEMENT WITHIN SAWCUT LIMITS IS CONCRETE AT THE SURFACE, ENTIRE TRENCH SHALL BE RE-PAVED WITH CONCRETE AS SHOWN.
2. FOR UNPAVED AREAS, INSTALL 6-IN NATIVE TOP SOIL OVER CONCRETE CAP.
3. INSTALL CONCRETE CAP WHERE COVER OVER 36-IN AND 42-IN PIPE IS LESS THAN PIPE DIAMETER, AND FOR PIPE SMALLER THAN 36-IN WHERE COVER IS LESS THAN 36-IN.

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REVISIONS

TRANSMISSION MAINS FOR MPWSP
CIVIL
CASTROVILLE PIPELINE DETAILS
CONCRETE CAP DETAILS

CALIFORNIA
AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

AECOM
CALIFORNIA AMERICAN WATER

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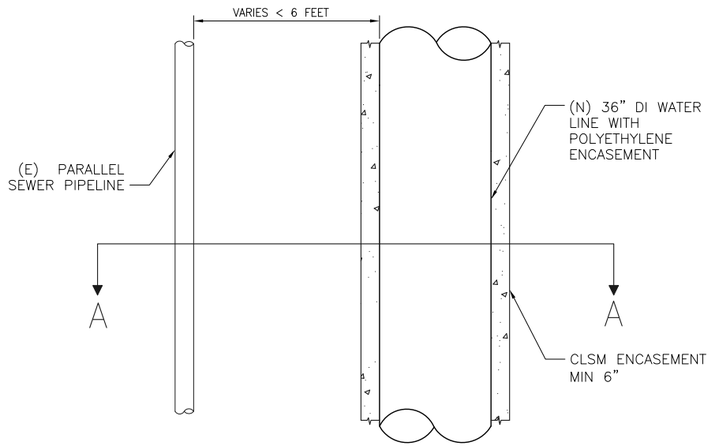
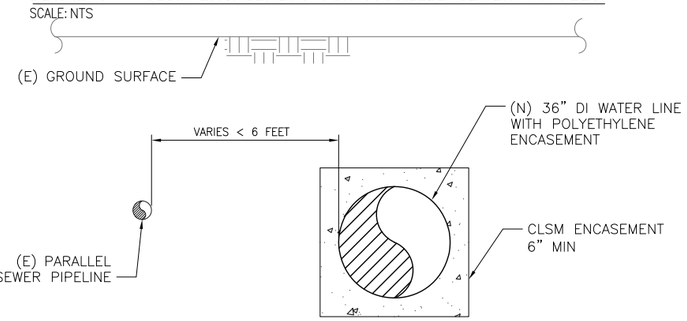


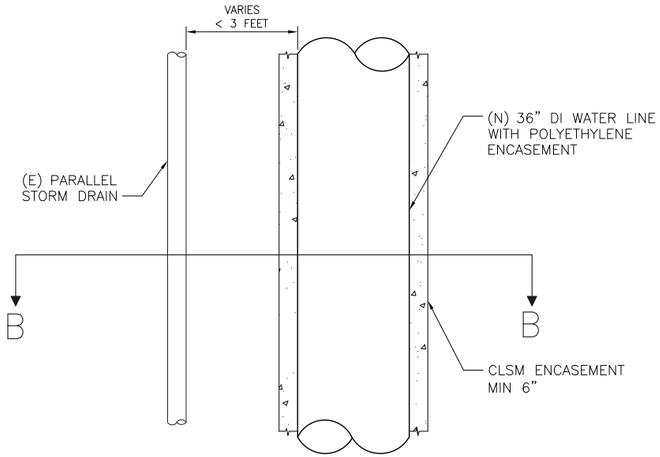
DETAIL 1 – CLSM ENCASEMENT FOR PARALLEL SEWER <6 FEET

SCALE: NTS



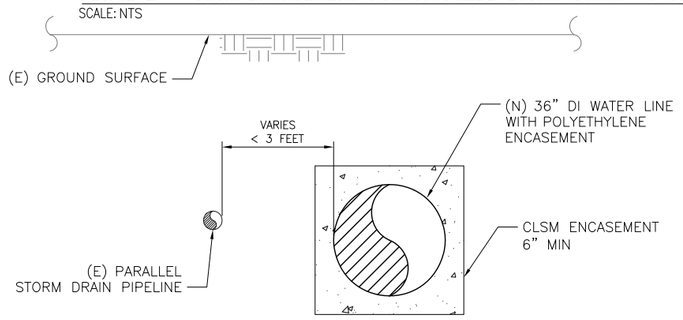
SECTION A – CLSM ENCASEMENT FOR PARALLEL SEWER <6 FEET

SCALE: NTS



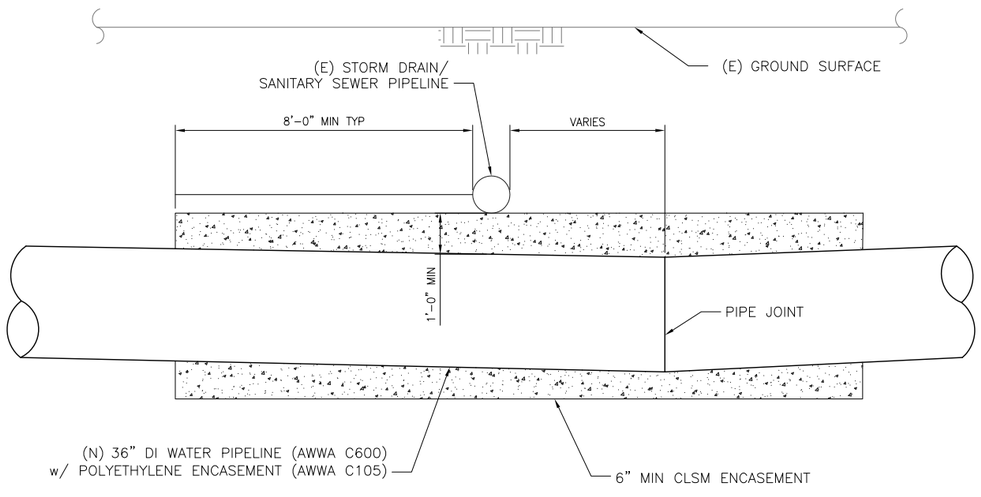
DETAIL 2 – CLSM ENCASEMENT FOR PARALLEL STORM DRAIN <3 FEET

SCALE: NTS



SECTION B – CLSM ENCASEMENT FOR PARALLEL STORM DRAIN <3 FEET

SCALE: NTS



DETAIL 3 – CLSM ENCASEMENT FOR PIPE JOINT <8 FEET OF PERPENDICULAR UTILITY CROSSING

SCALE: NTS

NOTES:

1. WHERE POSSIBLE, POTABLE WATER SHALL CROSS OVER OTHER UTILITIES.
2. FUSED PVC HAS NO JOINTS SO NO ENCASEMENT IS REQUIRED.
3. IF DUCTILE IRON PIPE JOINT IS >8 FEET FROM CROSSING, NO ENCASEMENT IS REQUIRED.
4. RECLAIMED WATER IS CONSIDERED THE SAME AS A STORM DRAIN.
5. NO CLSM ENCASEMENT IS REQUIRED FOR WATER PIPE CROSSING UNDER PIPELINES INSTALLED WITHIN A CASING PIPE.

REGISTERED PROFESSIONAL ENGINEER — JAMES A. HYMAN — No. C-50926 — CIVIL — STATE OF CALIFORNIA

8/17/18

REVISIONS

TRANSMISSION MAINS FOR MPWSP
CIVIL
CASTROVILLE PIPELINE DETAILS
CLSM ENCASEMENT DETAILS FOR DDW

CALIFORNIA
AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

AECOM

CALIFORNIA AMERICAN WATER

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PROJECT ENG'R J. HYMAN
APPROVED C. SMITH

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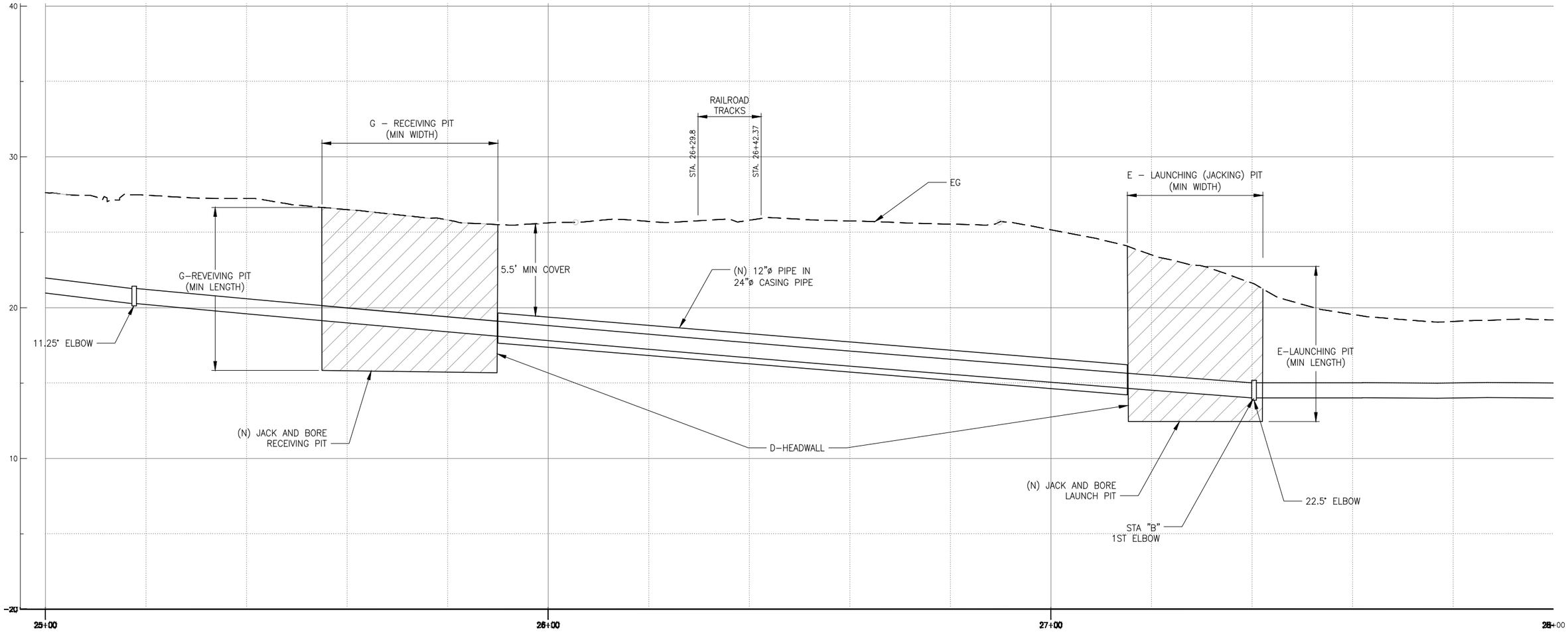

DETAIL: PROFILE OF JACK AND BORE (1 / 9009C03)
SCALE: NTS

SITE NO	LOCATION	STA A – AIR RELEASE VALVE	STA B – 1st ELBOW	STA C – BLOW–OFF	STA D – HEADWALLS	E – JACKING PIT MIN LENGTH – WIDTH (LxW)	F – HEADWALL TO HEADWALL DISTANCE	G – RECEIVING PIT MIN LENGTH – WIDTH (LxW)	PIPE SIZE (INCH)	CASING SIZE (INCH)
1	RR CROSSING AT DOLE ENTRY	SEE SHEET 9009C03	27+40.43	29+05 (SEE SHEET 9009C03)	25+90 & 27+15	18'x10'	125'	10'x10'	12	24

NOTES:
1. MAINTAIN MINIMUM 5.5 FEET COVER OVER CASING PIPE.
2. LOCATION OF PITS AND ELBOWS TO BE DETERMINED IN THE FIELD.
3. CONTRACTOR SHALL HAVE A COMPETENT PERSON DETERMINE THE NECESSARY PROTECTIVE SYSTEM (SHORING, SHIELDING, SLOPING, OR COMBINATION THEREOF) FOR EACH EXCAVATION,THAT WILL BE ACCEPTABLE TO CALIFORNIA OSHA.
4. SEE PIPE CASING DETAILS ON SHEET 0000C61.

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8/17/18

REVISIONS

TRANSMISSION MAINS FOR MPWSP
CIVIL
CASTROVILLE PIPELINE DETAILS
JACK AND BORE SITE 1 DETAILS

CALIFORNIA
AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

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PROJECT ENG'R J. HYMAN
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DATE MARCH 2018
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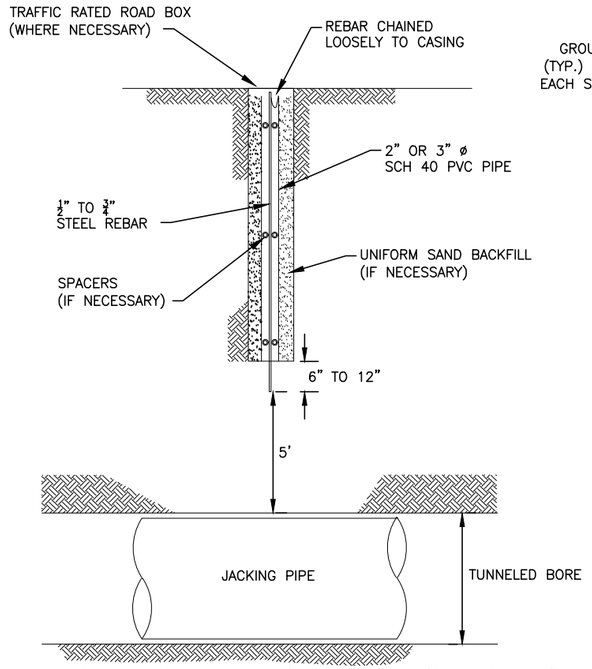
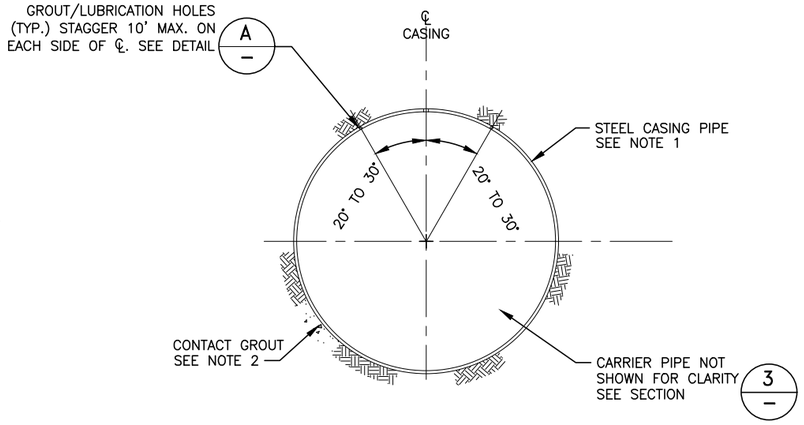


SUBSURFACE MONITORING POINT (SSMP) DETAIL (SEE NOTE 10)

SECTION 1

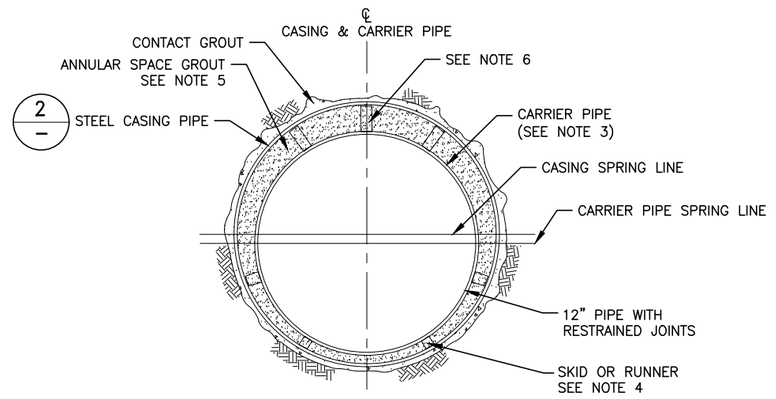
SCALE: NTS



STEEL CASING CROSS SECTION

SECTION 2

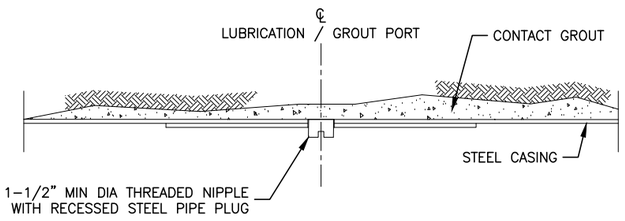
SCALE: NTS



CARRIER PIPE IN STEEL CASING CROSS SECTION

SECTION 3

SCALE: NTS



NOTE:

1. AFTER CONTACT GROUTING, SEAL GROUT HOLE WITH RECESSED PLUG. INSTALL PLUG FLUSH WITH INSIDE OF PIPE.

LUBRICATION / GROUT PORT FOR STEEL CASING PIPE

DETAIL A

SCALE: NTS

NOTES:

1. STEEL CASING JOINTS SHALL BE PERMALOK OR WELDED AND APPROVED IN ACCORDANCE WITH SECTION 02340 OF THE SPECIFICATIONS.
2. FILL VOID CREATED BY OVER CUT BETWEEN STEEL CASING AND GROUND WITH CONTACT GROUT AFTER JACKING IN ACCORDANCE WITH SPECIFICATION SECTION 0234 IF NECESSARY.
3. STEEL CASING SHALL BE ELECTRICALLY DISCONTINUOUS FROM CARRIER PIPE.
4. ANNULAR CLEARANCE BETWEEN STEEL CASING AND CARRIER PIPE SHALL BE 3-IN MINIMUM INCLUDING ANY ATTACHMENTS. PROVIDE 4 RUNNERS UNDER BOTTOM OF CARRIER PIPE. SPACING OF RUNNERS SHALL BE IN ACCORDANCE WITH CARRIER PIPE MANUFACTURER'S RECOMMENDATION AND SHALL BE NO GREATER THAN 8-FT.
5. ANNULAR SPACE GROUTING SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02340. FILL VOID CREATED BY OVER CUT BETWEEN PIPE AND GROUND WITH CONTACT GROUT AFTER JACKING IN ACCORDANCE WITH SPECIFICATION SECTION 02340.
6. CASING INSULATORS SHALL BE INSTALLED TO BLOCK THE PIPE AGAINST THE CASING AND PREVENT FLOTATION DURING ANNULAR SPACE GROUTING.
7. CASING END SEALS SHALL BE INSTALLED IN ACCORDANCE WITH SPECIFICATION SECTION 02340.
8. SEE THE PIPING SCHEDULE ON SHEET 0000M01.
9. MINIMUM WALL THICKNESS FOR VARIOUS STEEL CASING SIZES SHALL BE:
   a. 3/8" FOR 28" OR LESS
   b. 1/2" FOR 30" TO 38"
   c. 3/4" FOR 40" TO 60"
10. CONTRACTOR MAY CHOOSE TO USE COMMERCIALLY AVAILABLE BORROS ANCHOR (DURHAM GEO ENTERPRISE) OR EQUIVALENT IN LIEU OF SURFACE MONITORING POINT.

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8/17/18

REVISIONS

TRANSMISSION MAINS FOR MPWSP
CIVIL
CASTROVILLE PIPELINE DETAILS
PIPE CASING DETAIL

CALIFORNIA
AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

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PROJECT ENG'R J. HYMAN
APPROVED C. SMITH

DATE MARCH 2018
PROJECT 60489016

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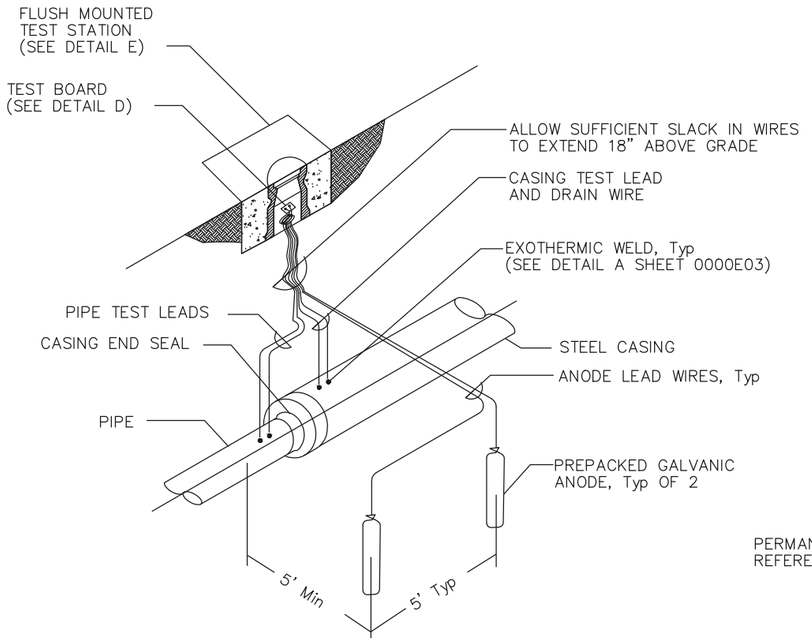
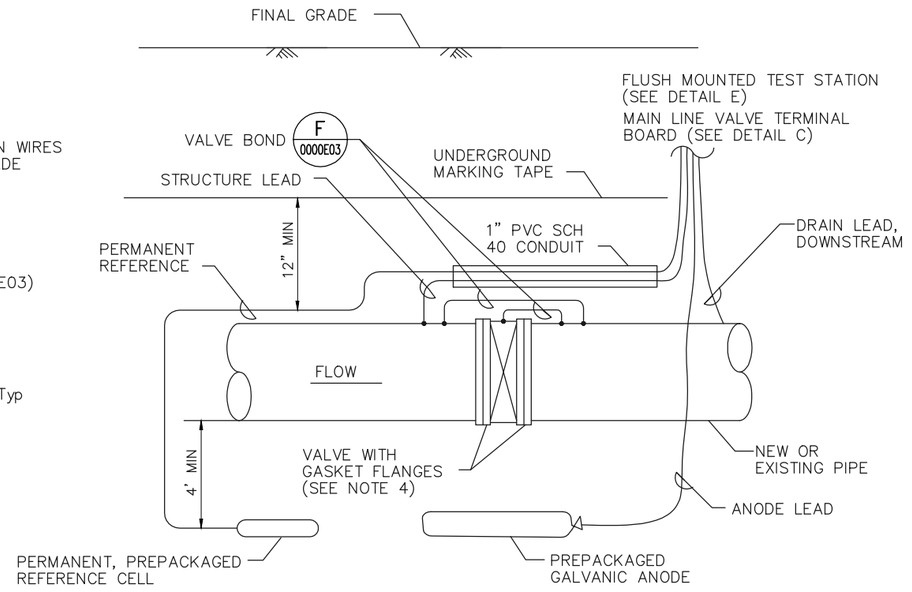
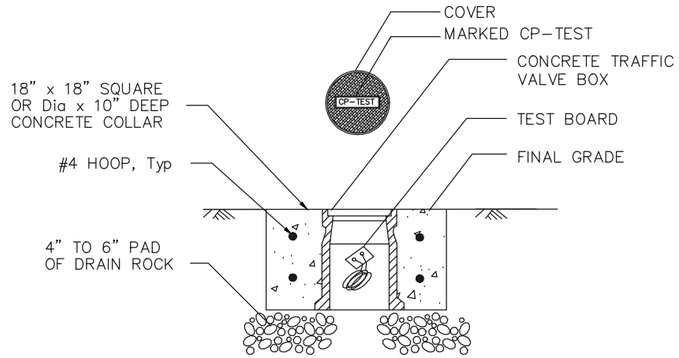


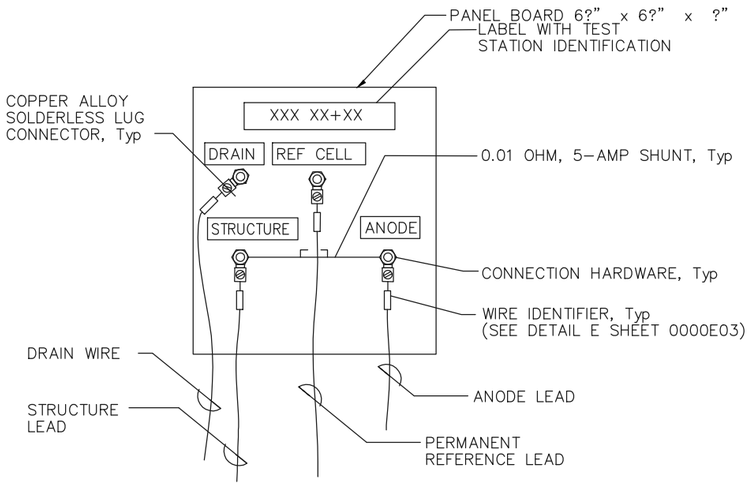
CASING ANODE TEST STATION — A
SCALE: NTS



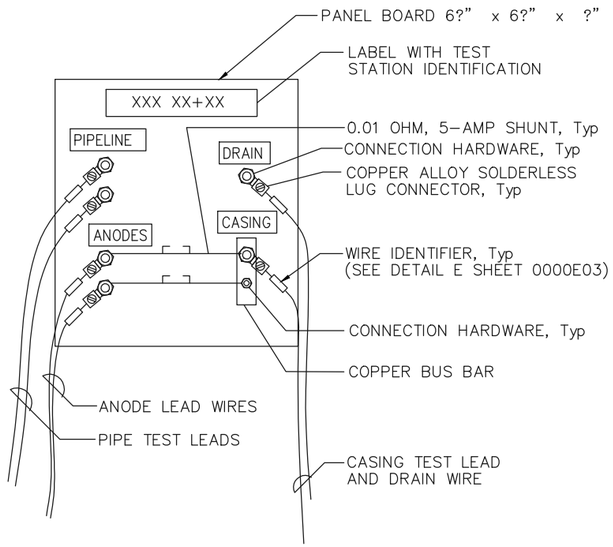
MAINLINE VALVE PIPELINE AND ANODE TEST STATION — B
SCALE: NTS



FLUSH MOUNTED TEST STATION — E
SCALE: NTS



MAINLINE VALVE TEST BOARD — C
SCALE: NTS



CASING ANODE TEST STATION TEST BOARD — D
SCALE: NTS

NOTES:

1. PLACE LEADS IN SCHEDULE 40 PVC CONDUIT IF RUN HORIZONTALLY AND/OR INSTALLED LESS THAN 48" BELOW FINISHED GRADE.
2. LOCATIONS OF ANODES AND TEST STATIONS MAY BE ALTERED TO AVOID BELOW-GRADE OBSTRUCTIONS. ANODES SHALL NOT BE PLACED WITHIN TEN FEET OF FOREIGN METALLIC STRUCTURES.
3. FLOOD ANODE WITH MINIMUM OF 10 GALLONS OF WATER BEFORE BACKFILLING WITH NATIVE SOIL ONLY.
4. PROVIDE POLYWRAP TO VALVE PER SPEC 02565.

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8/17/18

REVISIONS

TRANSMISSION MAINS FOR MPWSP
ELECTRICAL
CASTROVILLE PIPELINE DETAILS
CORROSION CONTROL DETAILS-1

CALIFORNIA
AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

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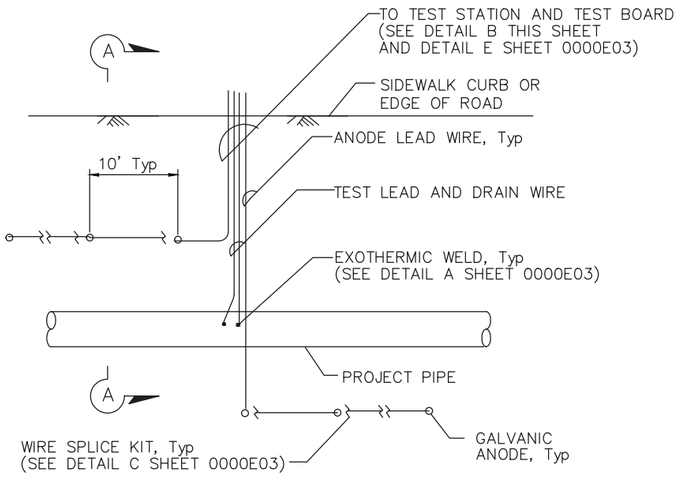
0000E01

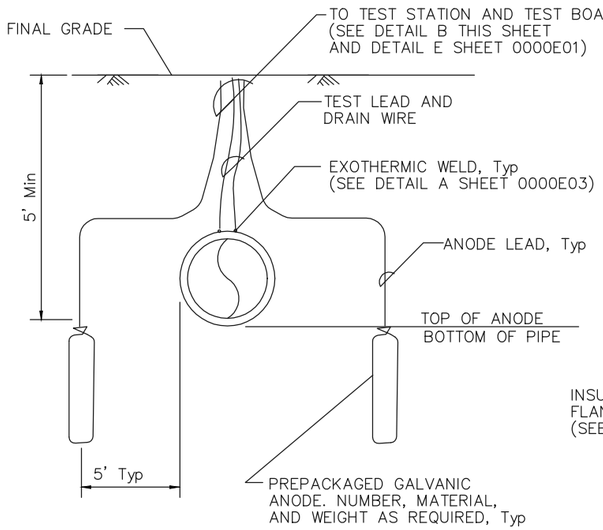
10000000E01

NOTES:

1. PLACE LEADS IN SCHEDULE 40 PVC CONDUIT IF RUN HORIZONTALLY AND/OR INSTALLED LESS THAN 48" BELOW FINISHED GRADE.
2. LOCATIONS OF ANODES AND TEST STATIONS MAY BE ALTERED TO AVOID BELOW-GRADE OBSTRUCTIONS. ANODES SHALL NOT BE PLACED WITHIN TEN FEET OF FOREIGN METALLIC STRUCTURES.
3. FLOOD ANODE WITH MINIMUM OF 10 GALLONS OF WATER BEFORE BACKFILLING WITH NATIVE SOIL ONLY.
4. PROVIDE POLYWRAP TO VALVE PER SPEC SECTION 02565.

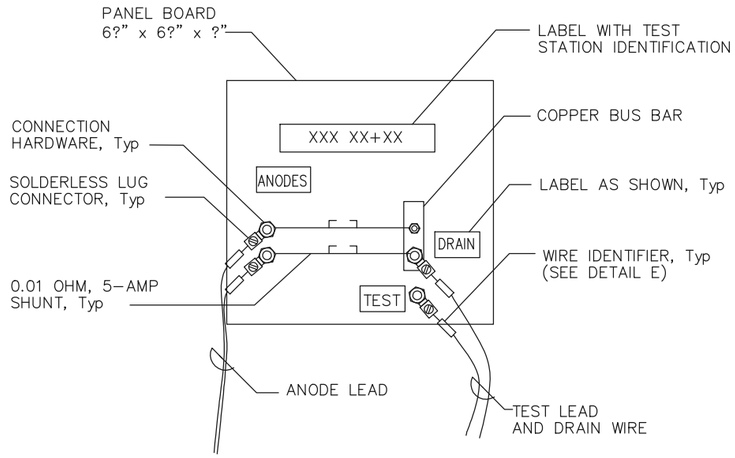


ELEVATION

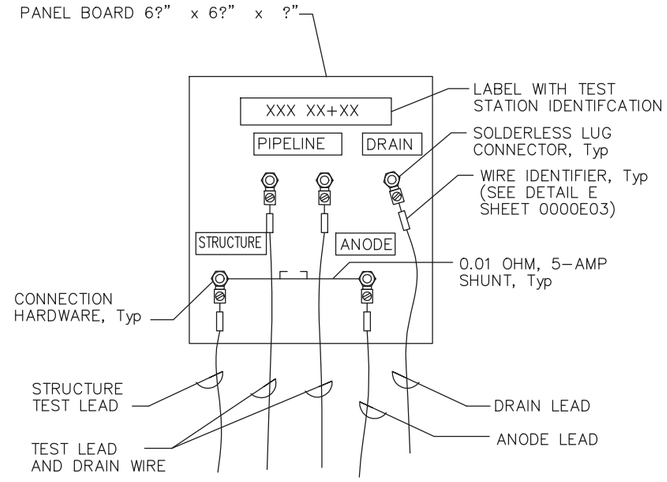


SECTION A-A

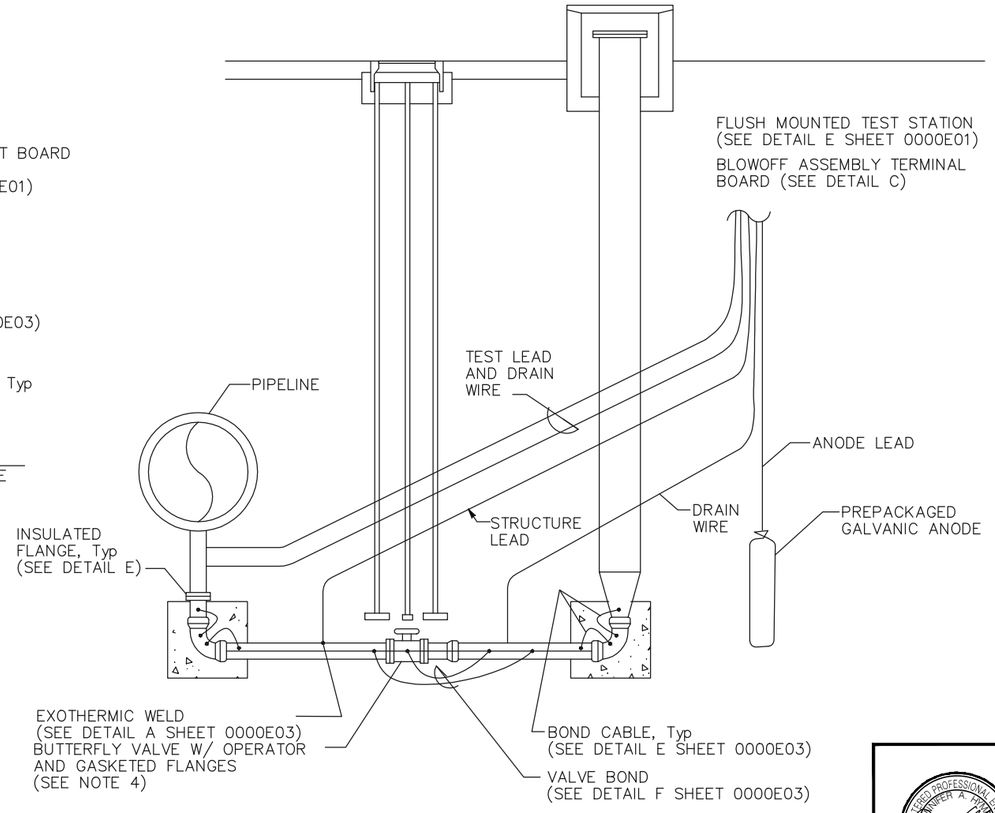
ANODE TEST STATION A
SCALE: NTS



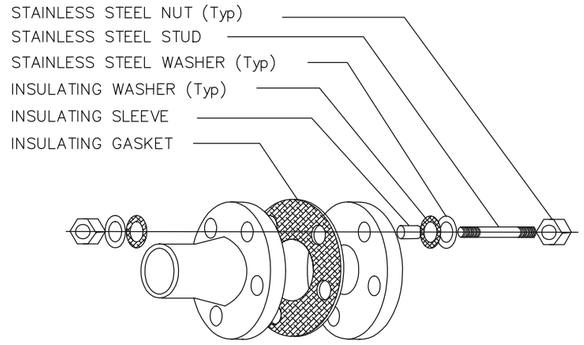
ANODE TEST STATION TEST BOARD B
SCALE: NTS



BLOWOFF ASSEMBLY TEST BOARD C
SCALE: NTS



BLOWOFF ASSEMBLY TEST STATION D
SCALE: NTS



DIELECTRIC INSULATING FLANGE KIT E
SCALE: NTS

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8/17/18

REVISIONS

TRANSMISSION MAINS FOR MPWSP
ELECTRICAL
CASTROVILLE PIPELINE DETAILS
CORROSION CONTROL DETAILS-2

CALIFORNIA
AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

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PROJECT ENG'R J. HYMAN
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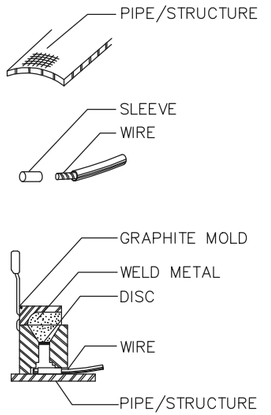
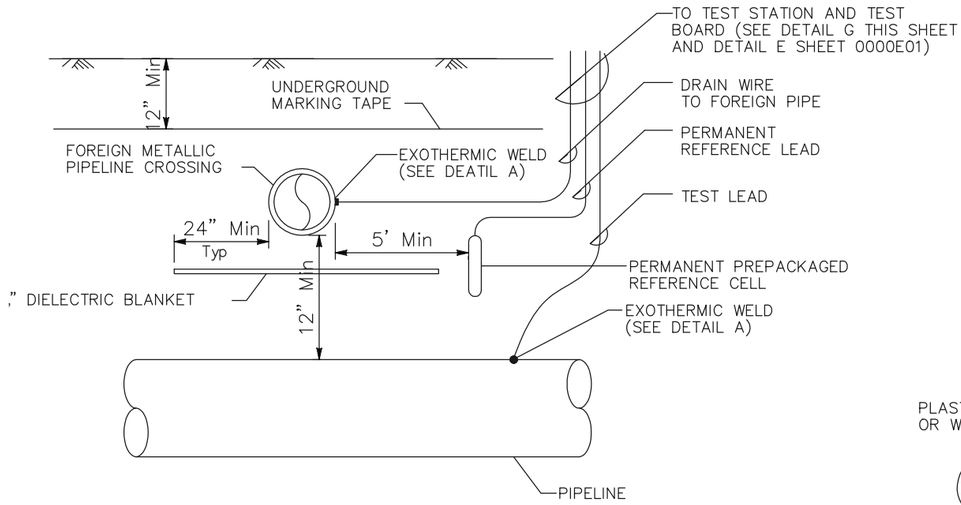
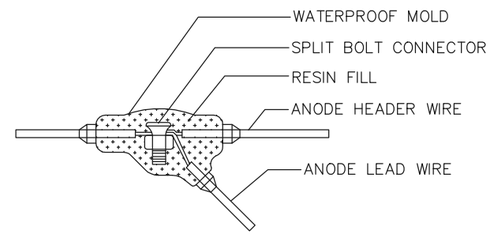


1. FILE PIPE/STRUCTURE TO BARE METAL AND CLEAN SURFACE.
2. STRIP INSULATION FROM WIRE AND ATTACH SLEEVE.
3. HOLD MOLD FIRMLY WITH OPENING AWAY FROM OPERATOR. IGNITE WITH FLINT GUN. REMOVE SLAG FROM CONNECTION WITH CHIPPING HAMMER.
4. COVER CONNECTION WITH BITUMASTIC COATING OVER ALL EXPOSED METAL, PLACE WELD CAP OVER CONNECTION. REPAIR ALL DAMAGE TO COATING AND LINING IN ACCORDANCE WITH MFG RECOMMENDATIONS.

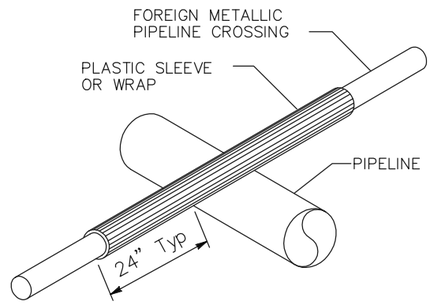
EXOTHERMIC WELD — A
SCALE: NTS



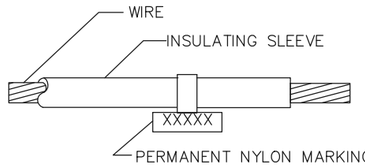
PIPE CROSSING TEST STATION — B
SCALE: NTS



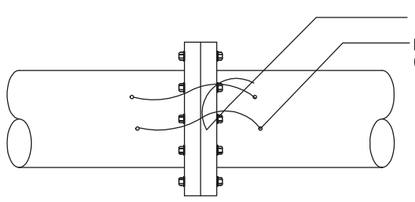
WIRE SPLICE KIT — C
SCALE: NTS



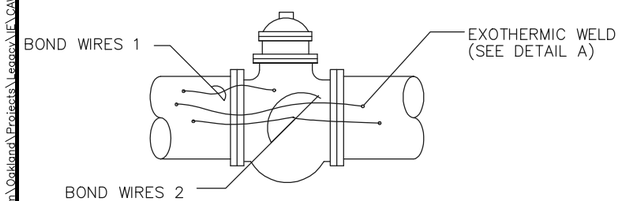
DIELECTRIC SLEEVE/WRAP — H
SCALE: NTS



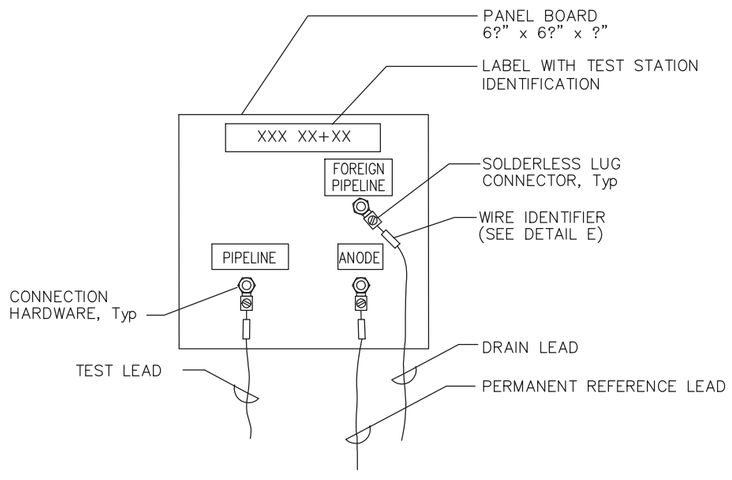
WIRE IDENTIFIER — E
SCALE: NTS



FLANGE JOINT BOND — D
SCALE: NTS



VALVE BOND — F
SCALE: NTS



PIPE CROSSING TEST BOARD — G
SCALE: NTS

NOTES:

1. PLACE LEADS IN SCHEDULE 40 PVC CONDUIT IF RUN HORIZONTALLY AND/OR INSTALLED LESS THAN 48" BELOW FINISHED GRADE.
2. LOCATIONS OF ANODES AND TEST STATIONS MAY BE ALTERED TO AVOID BELOW-GRADE OBSTRUCTIONS. ANODES SHALL NOT BE PLACED WITHIN TEN FEET OF FOREIGN METALLIC STRUCTURES.
3. FLOOD ANODE WITH MINIMUM OF 10 GALLONS OF WATER BEFORE BACKFILLING WITH NATIVE SOIL ONLY.
4. DIELECTRIC BLANKET SHALL BE INSTALLED AS CLOSE TO THE MID-POINT BETWEEN THE TWO LINES AS POSSIBLE.
5. EXTEND DIELECTRIC BLANKET 24" BEYOND THE DIAMETER OF THE LARGEST PIPELINE.
6. ANY FOREIGN METALLIC PIPE, COATED, UNCOATED, OR CONCRETE PIPE WITH STEEL REINFORCING CROSSING THE AQUEDUCT WITHIN A DISTANCE OF 5 FEET MUST PROVIDE THE PROTECTION AS SHOWN.
7. FOREIGN PIPELINES INCLUDE SEWER, NMWD PIPE, GAS, POWER, OR OTHER UTILITY LINES.

REGISTERED PROFESSIONAL ENGINEER — ANDREW A. RINKER — No. C-50926 — CIVIL — STATE OF CALIFORNIA

8/17/18

REVISIONS

TRANSMISSION MAINS FOR MPWSP ELECTRICAL CASTROVILLE PIPELINE DETAILS CORROSION CONTROL DETAILS-3

CALIFORNIA AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

AECOM

CALIFORNIA AMERICAN WATER

DRAWN BY N. HUTTON
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH

DATE MARCH 2018
PROJECT 60489016

USE DIMENSIONS ONLY
SCALE AS SHOWN

USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES

0000E03

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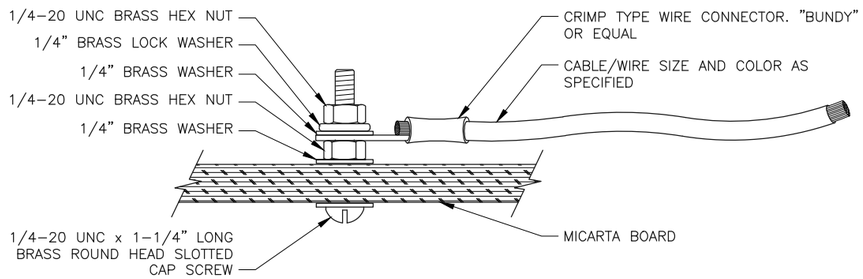
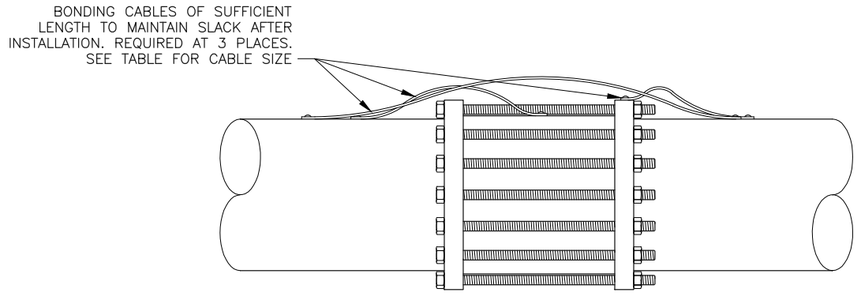


BONDING CABLE SIZES FOR DUCTILE IRON PIPE	
PIPE DIAMETER	CABLE SIZE
2" TO 6"	#8 AWG/HMWPE
8" TO 20"	#4 AWG/HMWPE
24" AND LARGER	#2 AWG/HMWPE

TEST BOARD LUG CONNECTOR (A/–)
SCALE: NTS



FLEXIBLE COUPLING OR EXPANSION JOINT BONDING (B/–)
SCALE: NTS

REGISTERED PROFESSIONAL ENGINEER — No. C-50926 — CIVIL — STATE OF CALIFORNIA
8/17/18

REVISIONS

TRANSMISSION MAINS FOR MPWSP
ELECTRICAL
CASTROVILLE PIPELINE DETAILS
CORROSION CONTROL DETAILS–4

CALIFORNIA
AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

DRAWN BY N. HUTTON
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DATE MARCH 2018
PROJECT 60489016
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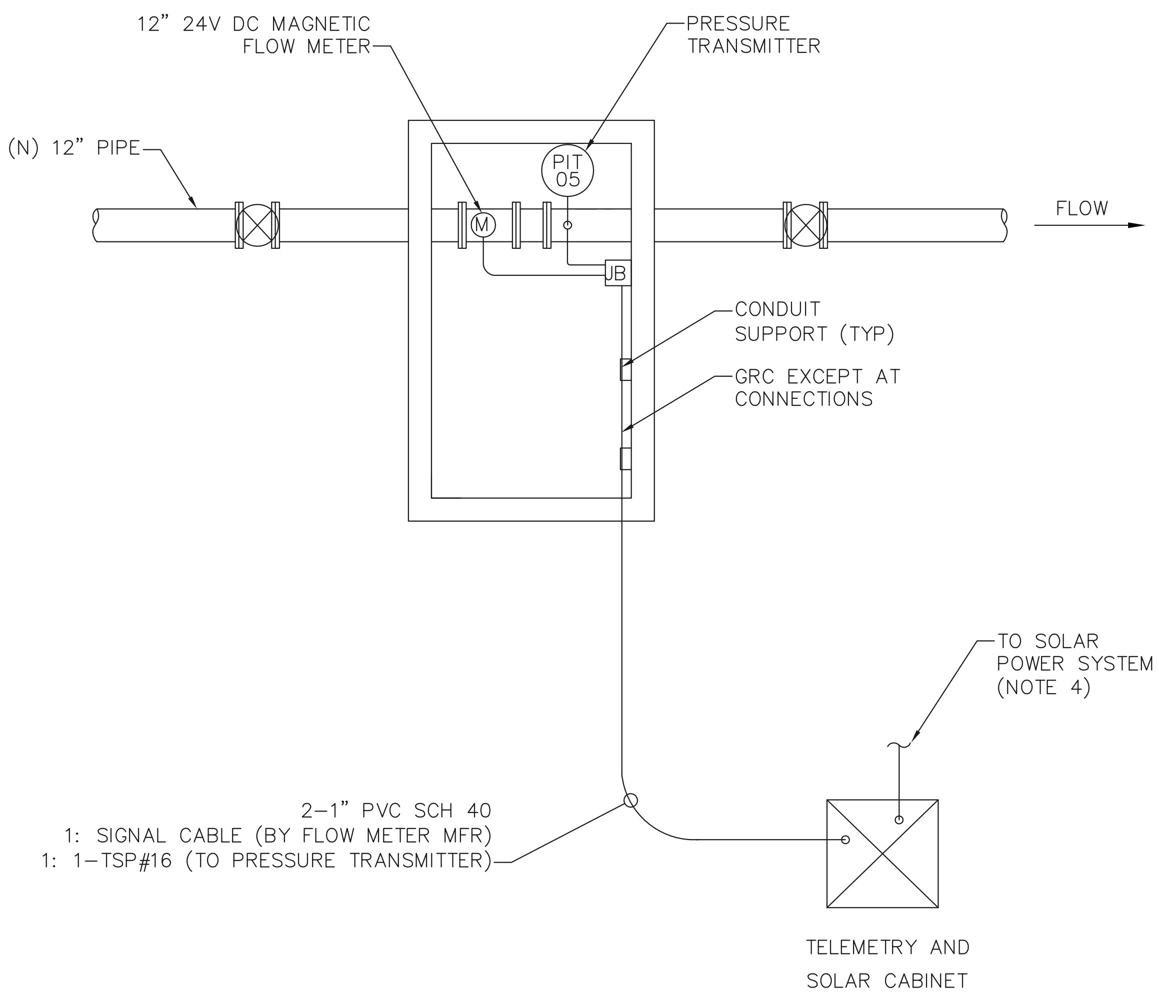
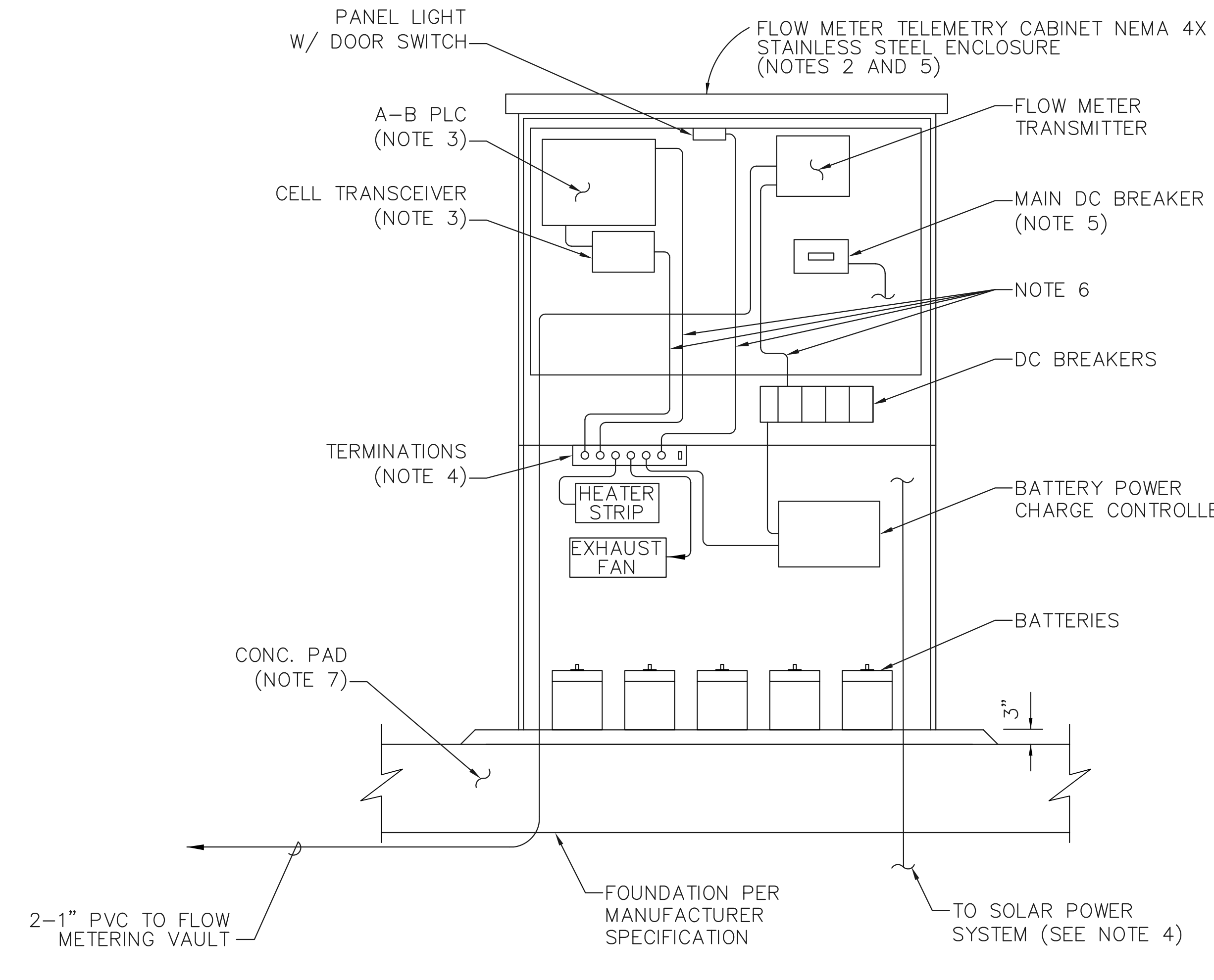


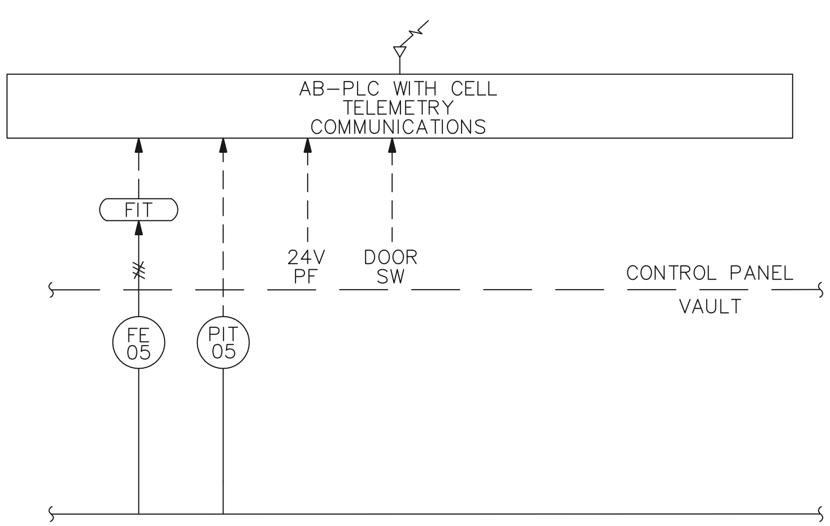
LAPIS METERING VAULT PLAN (1 / 0000C05, 0000M43)
SCALE: NTS



TELEMETRY/SOLAR CABINET ELEVATION (2 / 0000E11)
SCALE: NTS

NOTES:

1. THE SOLAR ELECTRIC GENERATOR SYSTEM SHALL INCLUDE SOLAR MODULES, BATTERY ENCLOSURE FOR CHARGE CONTROLLER AND BATTERIES, MOUNTING HARDWARE, ALL OTHER NECESSARY MATERIALS, AND BE PROVIDED BY A SINGLE SOURCE VENDOR. THE SYSTEM OUTPUT SHALL BE 120 WATTS MINIMUM. THE SOLAR POWER ENCLOSURE SHALL BE FULLY HINGED, NEMA 3R, PADLOCKABLE, CORROSION RESISTANT, AND VENTED.
2. THE TELEMETRY ENCLOSURE SHALL BE LOCKABLE, WEATHERPROOF, CORROSION RESISTANT, VENTED, MEASURE APPROXIMATELY 60"H x 30"W x 24"D, AND CONTAIN THE FLOW METER REMOTE TRANSMITTER AND DISPLAY, PANEL MOUNTED LED LIGHT FIXTURE WITH DOOR ACTIVATED SWITCH, AND TRANSFORMER, CONVERTER, AND ALL OTHER EQUIPMENT REQUIRED TO MONITOR FIELD PROCESS AND TRANSMIT SIGNAL OUT.
3. CONTRACTOR SHALL PROVIDE ALLEN–BRADLEY PLC FOR FIELD I/O AND COMMUNICATION OUTPUT. CELLULAR TRANSCEIVER SHALL BE SIERRA WIRELESS AIRLINK GX450. PROVIDE MOUNTING HARDWARE, POWER SUPPLIES, AND CELLULAR ANTENNA ON ENCLOSURE. SEE SPECIFICATIONS. ATTACH CELL ANTENNA TO THE EXTERIOR OF THE CABINET.
4. SOLAR POWER SITE SHALL USE 24V DC FOR PANEL DEVICE POWER.
5. TELEMETRY PANEL SHALL BE PROVIDED WITH BLANK FRONT OUTER PANEL, BLANK INNER PANEL WITH PADLOCKABLE MAIN DISCONNECT, AND INNER BACK PANEL. PROVIDE ALL NFPA WARNING SIGNS AND LABELS. PROVIDE SCREENED VENTS AND HIGH TEMP SWITCH CONTROLLED VENTILATION FAN.
6. CONTRACTOR SHALL PROVIDE INTERNAL WIRING AND DEVICES AS REQUIRED. TYPICAL WIRING SHOWN IS FOR DEVICE CALLOUTS AND NOT FOR FINAL WIRING SCHEME.
7. INSTALL CABINET ON CONCRETE PAD EXTENDING 6–IN BEYOND BASE OF CABINET, AND 3–IN ABOVE GRADE PER SHEET 0000E11.



LAPIS FLOW METERING VAULT P&ID (3 / –)
SCALE: NTS

REVISIONS

8/17/18

TRANSMISSION MAINS FOR MPWSP
ELECTRICAL
CASTROVILLE PIPELINE DETAILS
LAPIS SOLAR/TELEMETRY CONTROL PANEL

CALIFORNIA AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

DRAWN BY K. LEE
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH

DATE MARCH 2018
PROJECT 60489016

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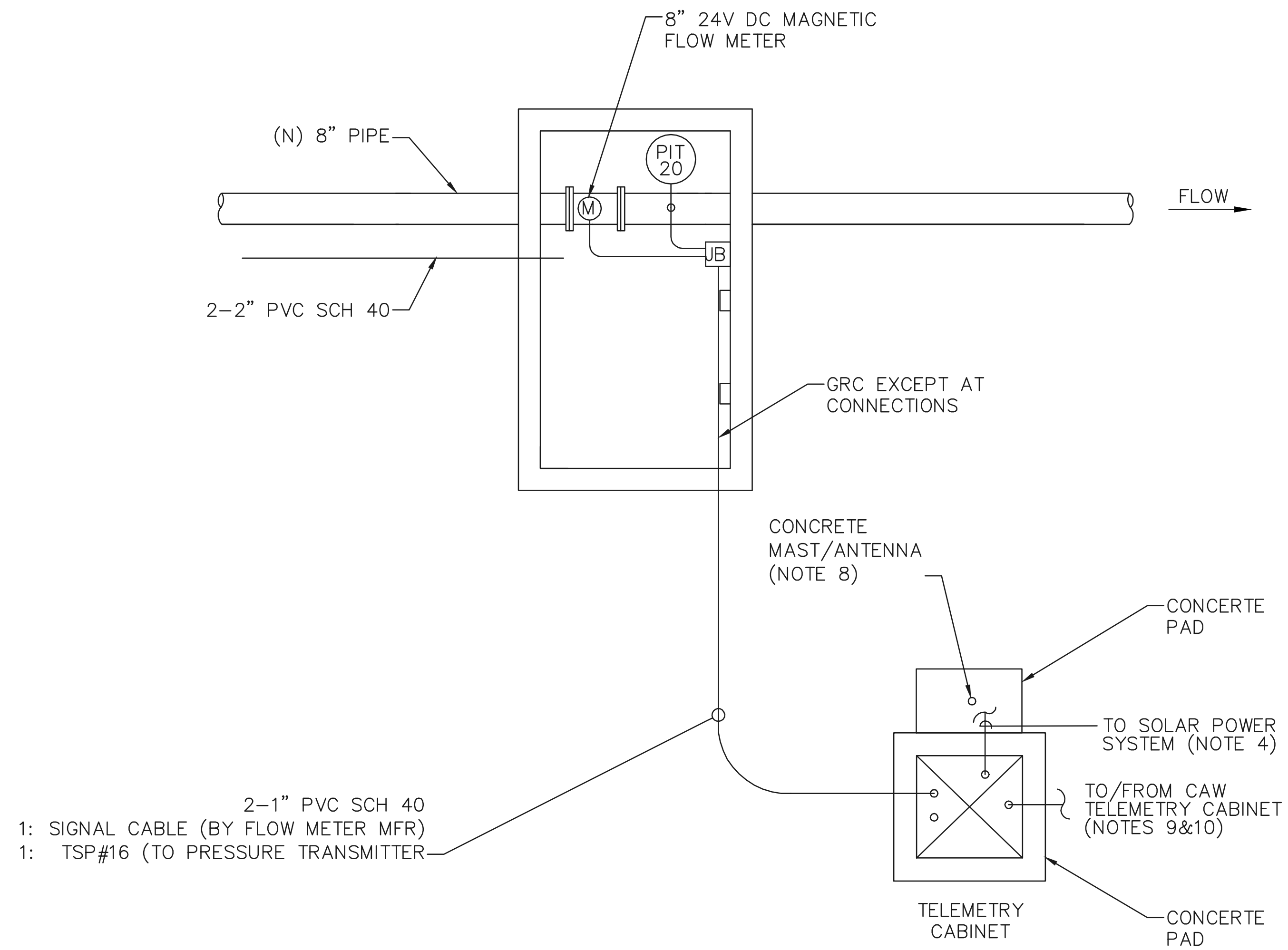
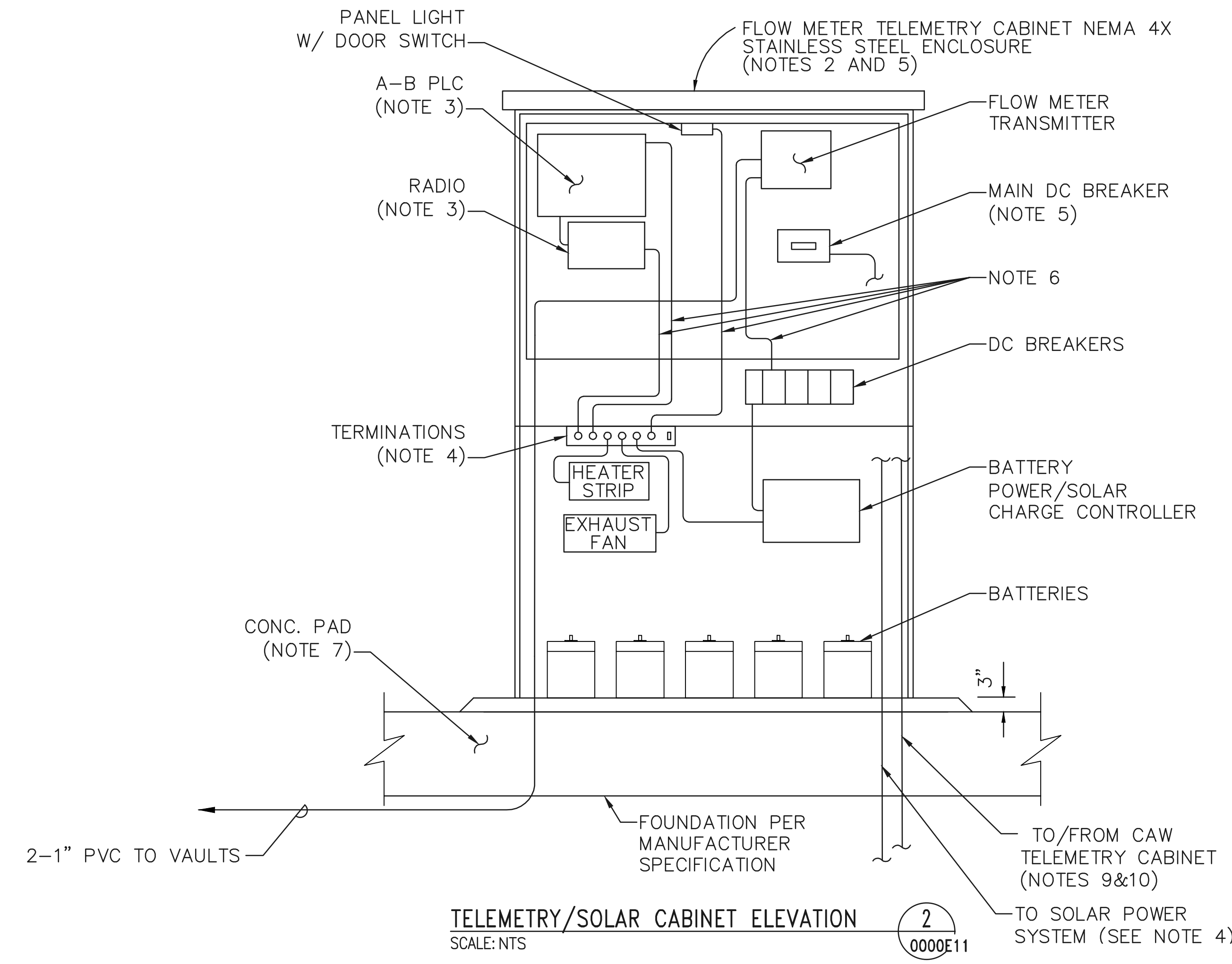
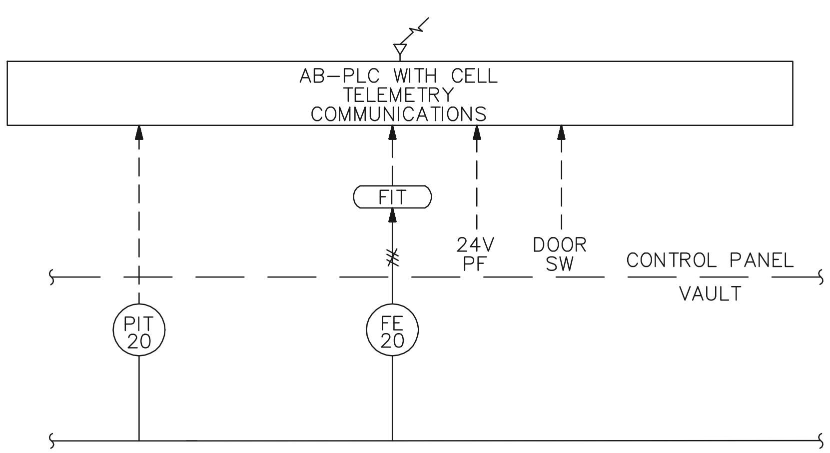


CCSD NASHUA RD METER STATION PLAN 1 / 0000C07
SCALE: NTS



TELEMETRY/SOLAR CABINET ELEVATION 2 / 0000E11
SCALE: NTS



CCSD NASHUA RD P&ID 3 / -
SCALE: NTS

NOTES:

1. THE SOLAR ELECTRIC GENERATOR SYSTEM SHALL INCLUDE SOLAR MODULES, BATTERY ENCLOSURE FOR CHARGE CONTROLLER AND BATTERIES, MOUNTING HARDWARE, ALL OTHER NECESSARY MATERIALS, AND BE PROVIDED BY A SINGLE SOURCE VENDOR. THE SYSTEM OUTPUT SHALL BE 80 WATTS MINIMUM. THE SOLAR POWER ENCLOSURE SHALL BE FULLY HINGED, NEMA 3R, PADLOCKABLE, CORROSION RESISTANT, AND VENTED.
2. THE TELEMETRY ENCLOSURE SHALL BE LOCKABLE, WEATHERPROOF, CORROSION RESISTANT, VENTED, MEASURE APPROXIMATELY 60"H x 30"W x 24"D, AND CONTAIN THE FLOW METER REMOTE TRANSMITTER AND DISPLAY, PANEL MOUNTED LED LIGHT FIXTURE WITH DOOR ACTIVATED SWITCH, AND TRANSFORMER, CONVERTER, AND ALL OTHER EQUIPMENT REQUIRED TO MONITOR FIELD PROCESS AND TRANSMIT SIGNAL OUT.
3. CONTRACTOR SHALL PROVIDE ALLEN-BRADLEY MICROLOGLX 1100 PLC FOR FIELD I/O AND COMMUNICATION OUTPUT. PROVIDE RADIO SYSTEM CALAMP VIPER SC+400, CAT#140-5048-302. PROVIDE MOUNTING HARDWARE, POWER SUPPLIES, AND CELLULAR ANTENNA ON ENCLOSURE. SEE SPECIFICATIONS.
4. SOLAR POWER SITE SHALL USE 24V DC FOR PANEL DEVICE POWER. SEE SHEET E11 FOR SOLAR POWER TYPICAL FEATURES.
5. TELEMETRY PANEL SHALL BE PROVIDED WITH BLANK FRONT OUTER PANEL, BLANK INNER PANEL WITH PADLOCKABLE MAIN DISCONNECT, AND INNER BACK PANEL. PROVIDE ALL NFPA WARNING SIGNS AND LABELS. PROVIDE SCREENED VENTS AND HIGH TEMP SWITCH CONTROLLED VENTILATION FAN.
6. CONTRACTOR SHALL PROVIDE INTERNAL WIRING AND DEVICES AS REQUIRED. TYPICAL WIRING SHOWN IS FOR DEVICE CALLOUTS AND NOT FOR FINAL WIRING SCHEME.
7. INSTALL CABINET ON CONCRETE PAD EXTENDING 6-IN BEYOND BASE OF CABINET, AND 3-IN ABOVE GRADE PER SHEET 0000E11.
8. PROVIDE 30' ANTENNA AND CONCRETE FOUNDATION. PROVIDE GUY SUPPORTS AND YAGI ANTENNA. POSITION ANTENNA AWAY FROM SOLAR PANELS.
9. PLC INPUT FOR BV POSITION (OPEN, CLOSED) AND PRESSURE (PIT 15) FROM CAW NASHUA STATION SHALL BE MONITORED AS DISCRETE AND ANALOG INPUTS.
10. PLC OUTPUT FOR FLOW (FE 20) SHALL BE PROVIDED TO CAW NASHUA STATION AS ANALOG OUTPUT.

REGISTERED PROFESSIONAL ENGINEER SHAHAD SINGH KHALSA No. 11185 ELECTRICAL STATE OF CALIFORNIA
8/17/18

REVISIONS

TRANSMISSION MAINS FOR MPWSP
ELECTRICAL
CASTROVILLE PIPELINE DETAILS
CCSD NASHUA SOLAR/TELEMETRY CONTROL PANEL

CALIFORNIA
AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

AECOM

CALIFORNIA AMERICAN WATER

DRAWN BY K. LEE
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH

DATE MARCH 2018
PROJECT 60489016

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SCALE AS SHOWN

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0000E10

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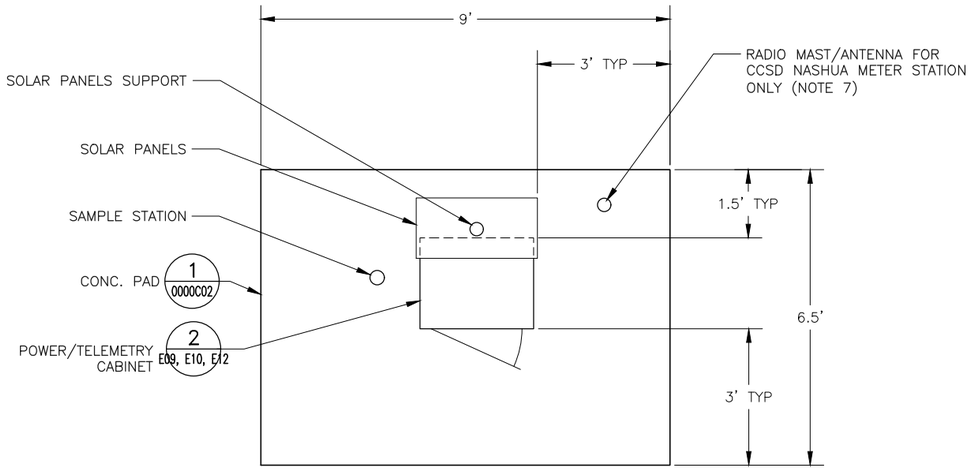
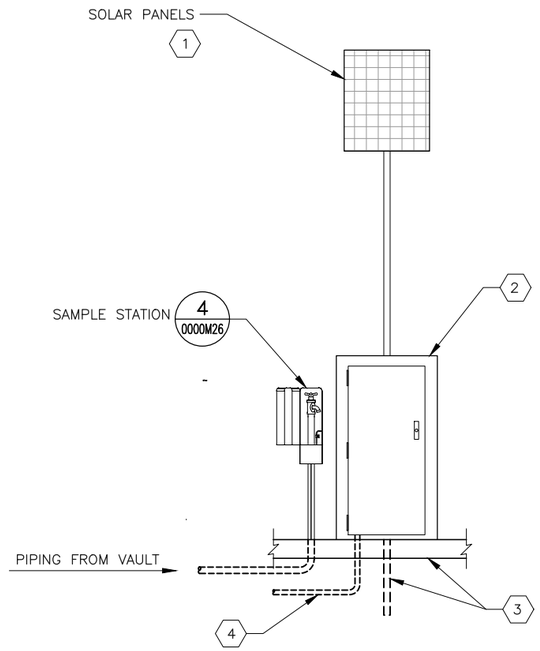
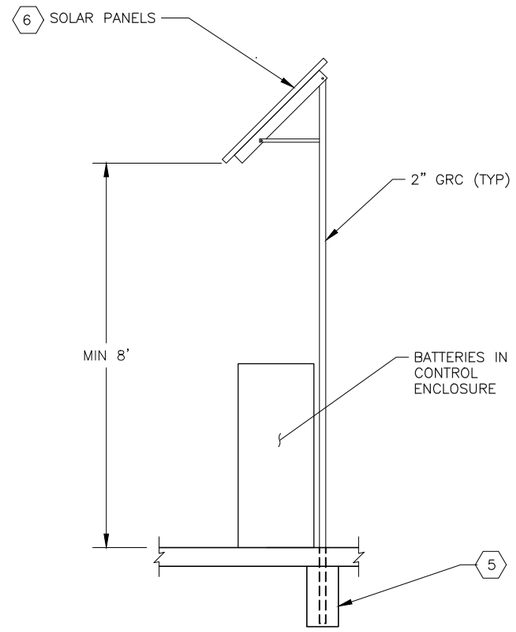


ELECTRICAL PAD WITH SOLAR SYSTEM LAYOUT
FOR LAPIS AND CCSD NASHUA METER STATIONS 1 0000C05, 0000C07
SCALE: NTS



FRONT VIEW



SIDE VIEW

SOLAR POWER SYSTEM DETAIL 2 –
SCALE: NTS

SHEET NOTES:

1. PV PANELS AND BATTERIES TO BE SIZED BY CONTROL PANEL VENDOR BASED ON LOCAL IRRADIANCE EXPECTATIONS, PANEL LOADS, 5 DAYS WITHOUT SUN, AND MAX 50% DEPTH OF DISCHARGE.
2. PROVIDE DC CHARGE CONTROLLER, BATTERIES, AND TELEMETRY IN NEMA 3R PANEL.
3. CONTRACTOR SHALL DESIGN SOLAR/TELEMETRY PANEL SUPPORT AND FOUNDATIONS.
4. PROVIDE DC CIRCUIT TO FLOW METER CIRCUIT.
5. PROVIDE CONCRETE SUPPORT AND GROUNDING AS REQUIRED.
6. TILT PANELS TO OPTIMAL ANGLE TOWARDS THE SUN.
7. FOR CCSD NASHUA METER STATION ONLY: PROVIDE 30 FOOT ANTENNA AND CONCRETE FOUNDATION. PROVIDE GUY SUPPORTS AND YAGI ANTENNA. POSITION ANTENNA AWAY FROM SOLAR PANELS SO AS NOT TO SHADE THEM.

REGISTERED PROFESSIONAL ENGINEER GURMEHAR SINGH KAPOOR No. 11185 ELECTRICAL STATE OF CALIFORNIA
8/17/18

REVISIONS		

TRANSMISSION MAINS FOR MPWSP
ELECTRICAL
CASTROVILLE PIPELINE DETAILS
SOLAR ELECTRICAL DETAILS

CALIFORNIA
AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

AECOM
CALIFORNIA AMERICAN WATER

DRAWN BY K. LEE
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH
DATE MARCH 2018
PROJECT 60489016
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0000E11

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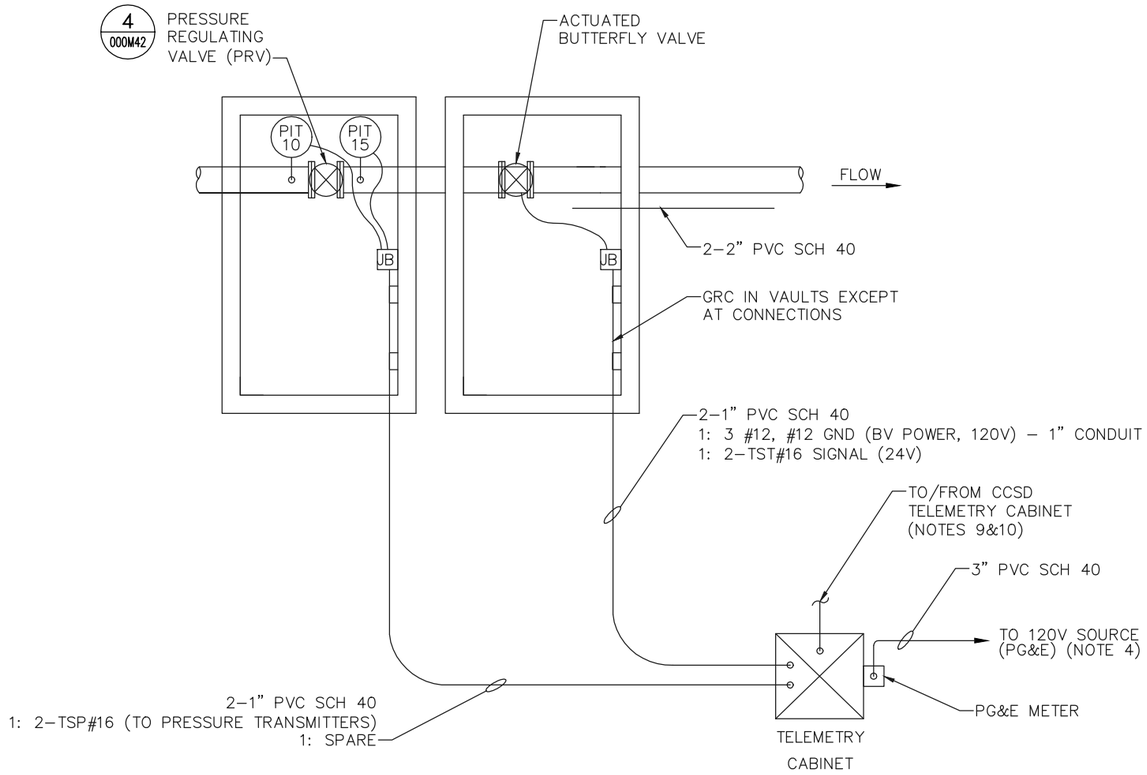
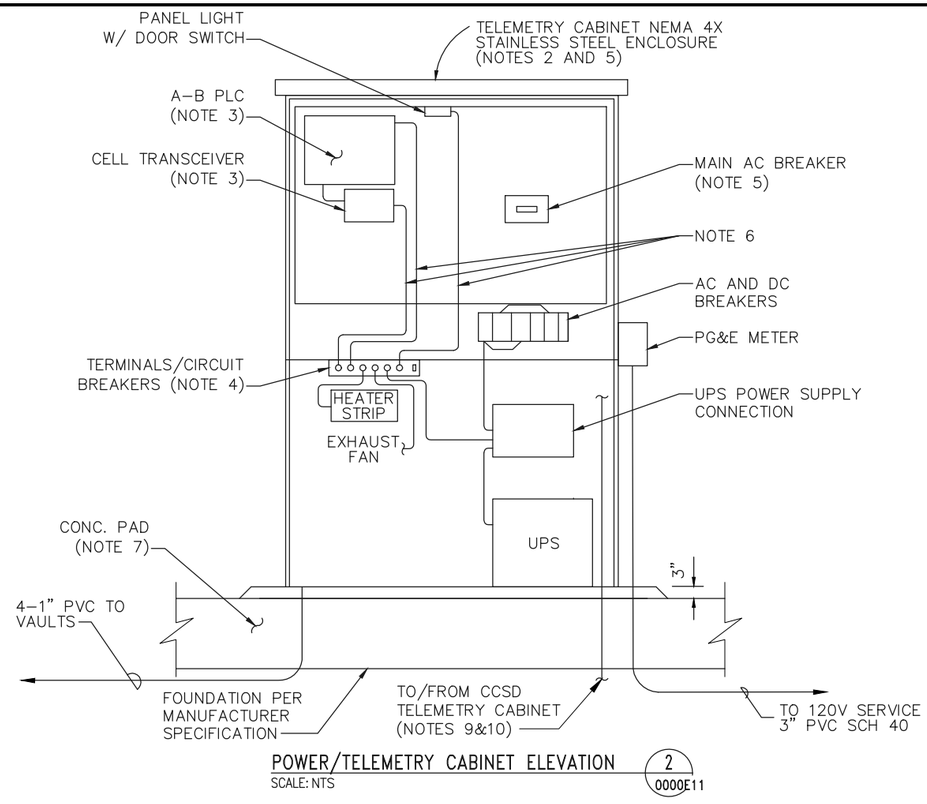
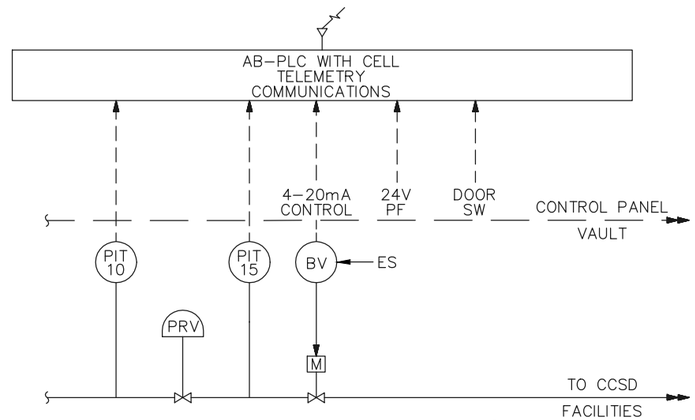


CAW NASHUA METER STATION PLAN (1) 0000C06
SCALE: NTS



POWER/TELEMETRY CABINET ELEVATION (2) 0000E11
SCALE: NTS



CAW NASHUA METER STATION P&ID (3) -
SCALE: NTS

NOTES

1. CABINETS SHALL BE FULLY HINGED, NEMA 3R, PADLOCKABLE, CORROSION RESISTANT, AND VENTED.
2. THE TELEMETRY ENCLOSURE SHALL BE LOCKABLE, WEATHERPROOF, CORROSION RESISTANT, VENTED, MEASURE APPROXIMATELY 60"H x 30"W x 24"D, AND CONTAIN THE FLOW METER REMOTE TRANSMITTER AND DISPLAY, PANEL MOUNTED LED LIGHT FIXTURE WITH DOOR ACTIVATED SWITCH, AND TRANSFORMER, CONVERTER, AND ALL OTHER EQUIPMENT REQUIRED TO MONITOR FIELD PROCESS AND TRANSMIT SIGNAL OUT.
3. CONTRACTOR SHALL PROVIDE ALLEN–BRADLEY PLC FOR FIELD I/O AND COMMUNICATION OUTPUT. CELLULAR TRANSCEIVER SHALL BE SIERRA WIRELESS AIRLINK GX450. PROVIDE MOUNTING HARDWARE, POWER SUPPLIES, AND CELLULAR ANTENNA ON ENCLOSURE. SEE SPECIFICATIONS. ATTACH CELL ANTENNA TO EXTERIOR OF THE CABINET.
4. CAW PRS AND ACTUATED VALVE SHALL USE 120V POWER FROM NEW PG&E SERVICE. 120V POWER SHALL HAVE UPS FOR 24–HOUR BACKUP POWER SUPPLY FOR DC LOADS, AND CONTROL DEVICES.
5. TELEMETRY PANEL SHALL BE PROVIDED WITH BLANK FRONT OUTER PANEL, BLANK INNER PANEL WITH PADLOCKABLE MAIN DISCONNECT, AND INNER BACK PANEL. PROVIDE ALL NFPA WARNING SIGNS AND LABELS. PROVIDE SCREENED VENTS AND HIGH TEMP SWITCH CONTROLLED VENTILATION FAN.
6. CONTRACTOR SHALL PROVIDE INTERNAL WIRING AND DEVICES AS REQUIRED. TYPICAL WIRING SHOWN IS FOR DEVICE CALLOUTS AND NOT FOR FINAL WIRING SCHEME.
7. INSTALL CABINET ON CONCRETE PAD EXTENDING 6–IN BEYOND BASE OF CABINET, AND 3–IN ABOVE GRADE.
8. INSTALL TELEMETRY CABINET ON CONCRETE PAD PER DETAIL1, SHEET 0000E11.
9. PLC OUTPUT FOR BV POSITION (OPEN, CLOSED) AND PRESSURE (PIT 15) SHALL BE PROVIDED TO CCSD NASHUA STATION AS DISCRETE AND ANALOG OUTPUTS.
10. PLC INPUT FROM CCSD NASHUA STATION FLOW (FE 20) SHALL BE MONITORED AS ANALOG INPUT.

REGISTERED PROFESSIONAL ENGINEER SUKHJIT SINGH KHAIRA No. 11185 ELECTRICAL STATE OF CALIFORNIA
8/17/18

REVISIONS		

TRANSMISSION MAINS FOR MPWSP ELECTRICAL
CASTROVILLE PIPELINE DETAILS
CAW NASHUA PG&E/TELEMETRY CONTROL PANEL

CALIFORNIA AMERICAN WATER

AECOM
300 LAKESIDE DRIVE, SUITE 400
OAKLAND, CALIFORNIA 94612

DRAWN BY K. LEE
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH
DATE MARCH 2018
PROJECT 60489016
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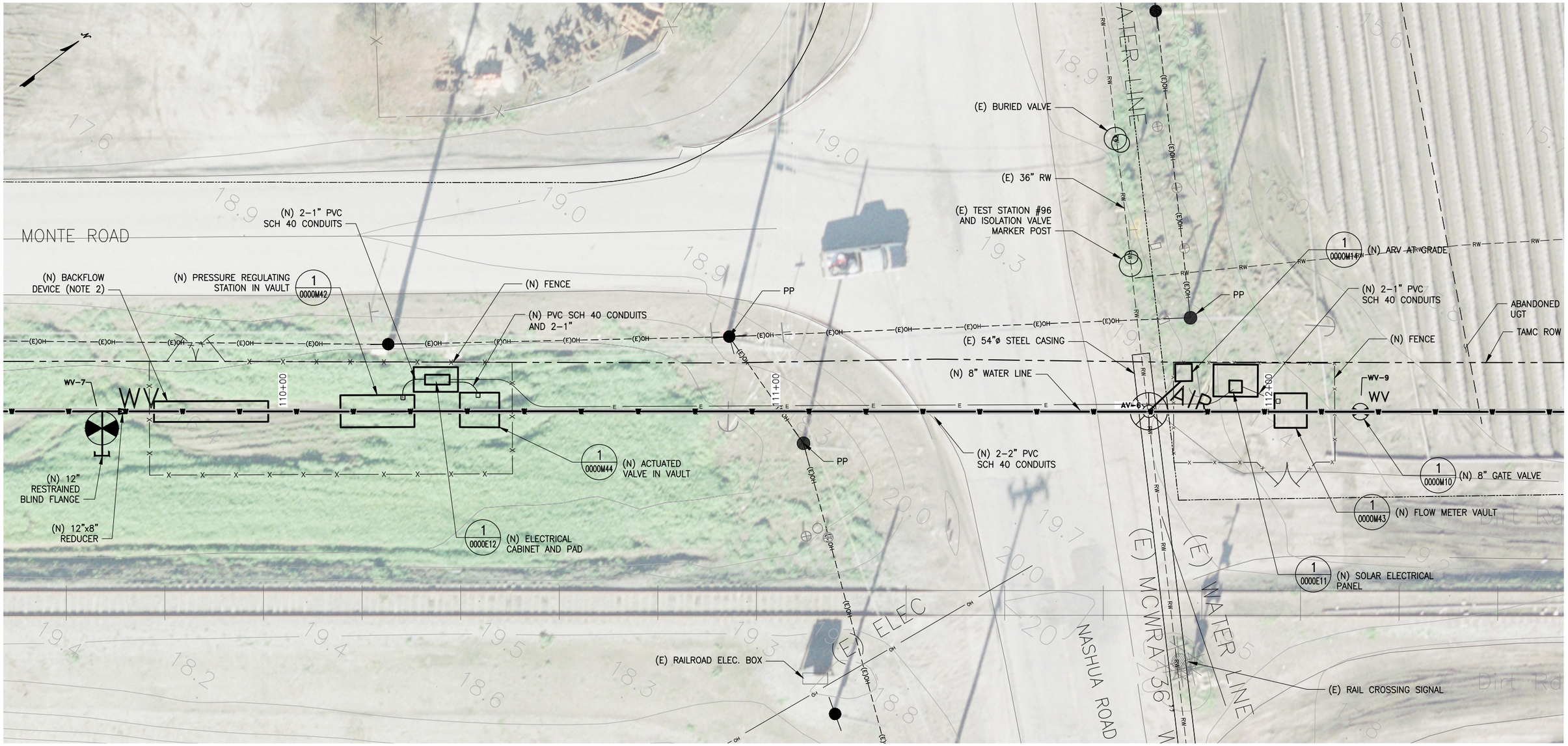

PLAN
1"=10'

NOTES:

1. SEE ALSO ELECTRICAL DWGS 0000E10, 0000E11, AND 0000E12.
2. INSTALL RPDA BACKFLOW DEVICE PER CAW STD. DWG SD17.
3. INSTALL ELECTRICAL CONDUITS PARALLEL TO WATER LINE IN SAME TRENCH WITH MIN 3 FEET COVER AND MINIMUM 1 FOOT ABOVE AND TO THE SIDE OF THE WATER LINE.
4. CONTRACTOR TO INSTALL 2–1 INCH PVC ELECTRICAL CONDUITS BETWEEN THE VAULTS AND ELECTRICAL CABINETS (FOR SIGNALS AND SPARE).

0 5 10 20 30
HORIZ 1" = 10'

REGISTERED PROFESSIONAL ENGINEER
JENNIFER A. TRIBBLE
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STATE OF CALIFORNIA
8/17/18

REVISIONS		

TRANSMISSION MAINS FOR MPWSP
CIVIL
CASTROVILLE PIPELINE DETAILS
NASHUA ROAD ELECTRICAL CONDUIT PLAN

CALIFORNIA
AMERICAN WATER

AECOM
300 LAKESIDE, SUITE 400
OAKLAND, CALIFORNIA 94612

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PROJECT ENG'R J. HYMAN
APPROVED C. SMITH
DATE MARCH 2018
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