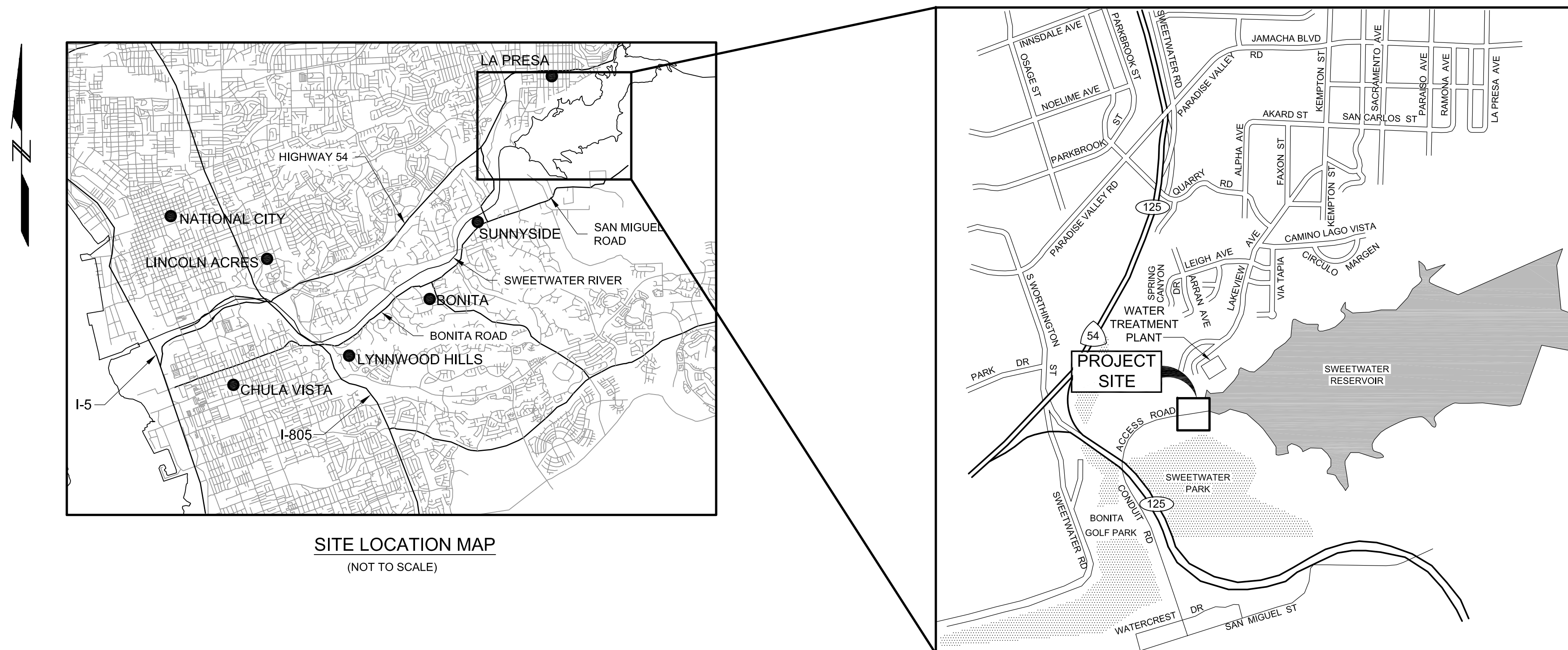


FINAL DESIGN DRAWINGS FOR THE SWEETWATER DAM 36-INCH RAW WATER PIPELINE REPLACEMENT

SWEETWATER AUTHORITY
PROJECT NO. B.P. 20104024
SAN DIEGO COUNTY, CALIFORNIA



SITE LOCATION MAP
(NOT TO SCALE)

SITE VICINITY MAP
(NOT TO SCALE)

SHEET NO.	DWG. NO.	TITLE
1	G-01	TITLE, DRAWING INDEX, AND PROJECT LOCATION MAPS
2	G-02	ABBREVIATIONS, SYMBOLS, AND GENERAL NOTES
3	G-03	EXISTING CONDITIONS, STAGING AREAS, AND SURVEY CONTROL PLAN - 1
4	G-04	EXISTING CONDITIONS, STAGING AREAS, AND SURVEY CONTROL PLAN - 2
5	C-01	PIPELINE DEMOLITION PLAN
6	C-02	PLAN AND PROFILE, STA 10+00 TO STA 15+00
7	C-03	PLAN AND PROFILE, STA 15+00 TO STA 16+49.71
8	C-04	ACCESS RAMP AND CONCRETE DITCH
9	C-05	36"Ø PIPELINE CONNECTION AT STA 10+00
10	C-06	EXISTING STILLING POOL DAM CROSSING
11	C-07	30"Ø PIPE LINING SECTION
12	C-08	EXISTING BLOWOFF/Vault ABANDONMENT AND NEW BLOWOFF INSTALLATION
13	C-09	PIPE ENCASEMENT AND LINING DETAILS
14	C-10	TYPICAL DETAILS- 1
15	C-11	TYPICAL DETAILS- 2
16	C-12	TYPICAL DETAILS- 3
17	CP-01	CORROSION MONITORING DETAILS - 1
18	CP-02	CORROSION MONITORING DETAILS - 2



G-01

THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF GEI CONSULTANTS, INC. AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF GEI CONSULTANTS, INC.



IMPORTANT NOTICE
Section 4216/4217 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert TOLL FREE 8-1-1 Two working days before you dig.

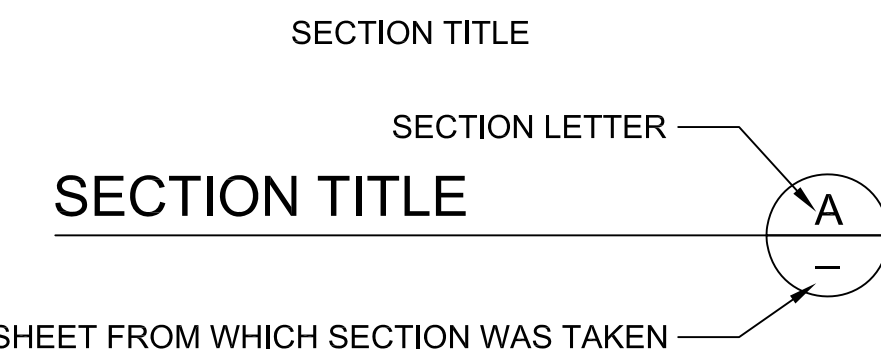
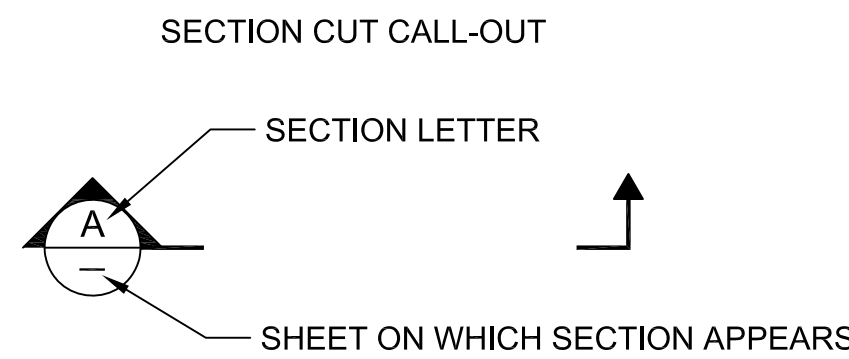
**FOR BIDDING PURPOSES ONLY
NOT FOR CONSTRUCTION**

REV.	DATE	DESCRIPTION	BY	APPVD.	DESIGN BY: M. HARGROVE	SCALE: AS NOTED
A					DRAWN BY: K. CHUNG	DATE: MAY 18, 2011
B					CHECKED BY: M. ROZMAN	DESIGN #: 20104024
C					AS CONSTRUCTED:	PAVEMENT#: N/A

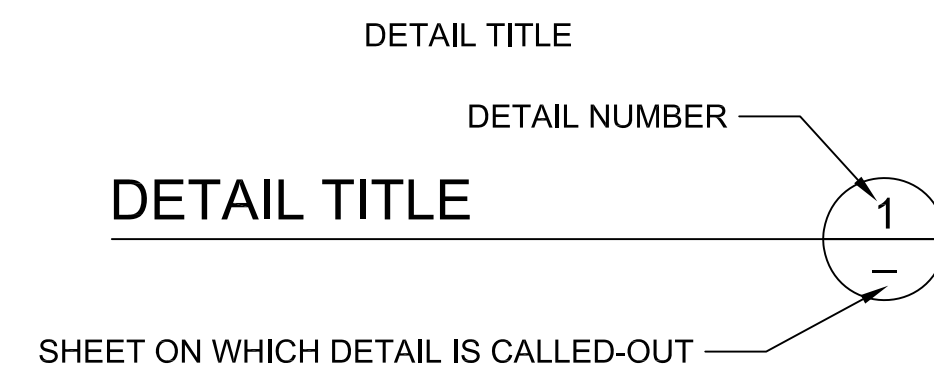
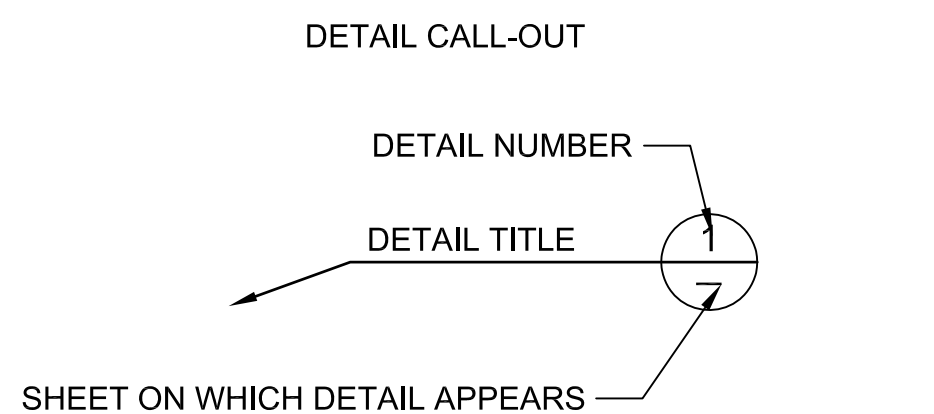
SWEETWATER AUTHORITY		
PLANS FOR THE INSTALLATION OF:		
SWEETWATER DAM		
36-INCH RAW WATER PIPELINE REPLACEMENT		
TITLE, DRAWING INDEX, AND PROJECT LOCATION MAPS		
1/4 SECTION	DATE	W.O. # N/A
GEI CONSULTANTS INC.	5-18-2011	B.P. # 20104024
ENGINEER PE	DATE	SHEET
SWEETWATER AUTHORITY	5-18-2011	1 OF 18
APPROVED	DATE	

DETAIL & SECTION IDENTIFICATION:

SECTION IDENTIFICATION



DETAIL IDENTIFICATION



NOTES:

- IF PLAN AND SECTION (OR DETAIL CALL-OUT AND DETAIL) ARE SHOWN ON THE SAME SHEET, THEN THE SHEET NUMBER IS REPLACED WITH "...".
- IF DETAIL IS SHOWN ON NUMEROUS SHEETS THEN THE SHEET NUMBER IN THE DETAIL TITLE IS REPLACED WITH "VAR" FOR "VARIES".

ABBREVIATIONS:

AASHTO = AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS	ABS = ACRYLONITRILE BUTADIENE STYRENE	ACI = AMERICAN CONCRETE INSTITUTE	APPROX = APPROXIMATE	ASTM = ASTM INTERNATIONAL	AVRV = COMBINATION AIR RELEASE AND VACUUM RELIEF VALVE	AWWA = AMERICAN WATER WORKS ASSOCIATION	AWG = AMERICAN WIRE GAUGE	BC = BEGINNING OF CURVE	BFV = BUTTERFLY VALVE	CL = CENTERLINE	CLR = CLEAR	CONC = CONCRETE	CP = CATHODIC PROTECTION	CTS = CORROSION TEST STATION	DET = DETAIL	DIA = DIAMETER	DN = DOWN	DWG = DRAWING	EC = END OF CURVE	EL = ELEVATION	ELEC = ELECTRICAL	EW = EACH WAY	EXIST = EXISTING	FL, FLG = FLANGE	FT = FT	GALV = GALVANIZED	GV = GATE VALVE	H, HORIZ = HORIZONTAL	HMWPE = HIGH MOLECULAR WEIGHT POLYETHYLENE	ID = INTERNAL DIAMETER	INV = INVERT	LBS = POUNDS	NAD = NORTH AMERICAN DATUM	NST = NATIONAL STANDARD THREAD	NTS = NOT TO SCALE	MAX = MAXIMUM	MIN = MINIMUM	MJ = MECHANICAL JOINT	NGVD = NATIONAL GEODETIC VERTICAL DATUM	NO = NUMBER	NOM = NOMINAL	NPT = NATIONAL PIPE THREAD	OD = OUTSIDE DIAMETER	P = PROPERTY LINE	PI = POINT OF INTERSECTION	PSI = POUNDS PER SQUARE INCH	PVC = POLYVINYL CHLORIDE	RECT = RECTANGULAR	REQ = REQUIRED, REQUIREMENT	S = SLOPE	SCH = SCHEDULE	SDCWA = SAN DIEGO COUNTY WATER AUTHORITY	SPEC = SPECIFICATION	SQ = SQUARE	STA = STATION	STD = STANDARD	SS = STAINLESS STEEL	TYP = TYPICAL	V, VERT = VERTICAL	VPI = VERTICAL POINT OF INTERSECTION	W = WITH	WT = WEIGHT	@ = AT	Ø = DIAMETER	% = PERCENT	# = NUMBER
---	---------------------------------------	-----------------------------------	----------------------	---------------------------	--	---	---------------------------	-------------------------	-----------------------	-----------------	-------------	-----------------	--------------------------	------------------------------	--------------	----------------	-----------	---------------	-------------------	----------------	-------------------	---------------	------------------	------------------	---------	-------------------	-----------------	-----------------------	--	------------------------	--------------	--------------	----------------------------	--------------------------------	--------------------	---------------	---------------	-----------------------	---	-------------	---------------	----------------------------	-----------------------	-------------------	----------------------------	------------------------------	--------------------------	--------------------	-----------------------------	-----------	----------------	--	----------------------	-------------	---------------	----------------	----------------------	---------------	--------------------	--------------------------------------	----------	-------------	--------	--------------	-------------	------------

SYMBOLS:

	NATIVE EARTH/ROCK		NEW BLOWOFF
	CONCRETE		EXISTING WATER PIPE
	EXISTING STRUCTURE OR EXISTING FACILITY		EXISTING FENCE
	NEW STRUCTURE OR NEW FACILITY		EXISTING/NEW MAJOR CONTOUR
	FACILITIES TO BE DEMOLISHED		EXISTING/NEW MINOR CONTOUR
	OPENING		EXISTING SPOT ELEVATION
	PIPE IN SECTION		FILL/CUT SLOPE TO BE CONSTRUCTED
	CENTERLINE		EXISTING WATER COURSE
	NEW PIPELINE		EXISTING TRAIL OR DIRT ROAD
	NEW COMBINATION AIR AND VACUUM VALVE		EXISTING LIMITS OF VEGETATION (TREES, SHRUBS ETC.)
			CONTROL POINT/BENCHMARK
			EXISTING POWER POLE
			LIMITS OF WORK (WITH AND WITHOUT HATCHING)

GENERAL NOTES:

- THE WATER FACILITIES SHOWN ON THESE PLANS SHALL BE CONSTRUCTED IN ACCORDANCE WITH PROJECT'S CONTRACT DOCUMENTS.
- ANY WATER FACILITIES BACK FILLED WITHOUT INSPECTION BY SWEETWATER AUTHORITY ARE SUBJECT TO EXCAVATION AND REMOVAL. THE EXPENSE FOR EXCAVATION, REMOVAL AND REPLACEMENT WILL BE BORNE BY THE CONTRACTOR.
- THE CONTRACTOR WILL SUPPLY ALL MATERIAL FOR WATER IMPROVEMENTS INCLUDING SHOP DRAWINGS WHERE APPROPRIATE.
- THE CONTRACTOR IS CAUTIONED TO DETERMINE LOCATION OF ALL UTILITIES WHICH MAY OR MAY NOT BE RECORDED ON THESE PLANS.
- NO WORK SHALL COMMENCE ON THE SITE PRIOR TO A PRE-CONSTRUCTION MEETING.
- ALL OPERATIONS CONDUCTED ON THE COUNTY OF SAN DIEGO RIGHT-OF-WAY, INCLUDING THE WARMING UP, REPAIR, ARRIVAL, DEPARTURE, OR RUNNING OF TRUCK EARTH MOVING EQUIPMENT, CONSTRUCTION EQUIPMENT AND ANY OTHER ASSOCIATED EQUIPMENT SHALL BE LIMITED TO THE PERIOD BETWEEN 7:00 A.M. AND 5:00 P.M. EACH DAY, MONDAY -FRIDAY, PRIOR APPROVAL OF THE COUNTY ENGINEER WILL BE REQUIRED FOR WORK BEFORE 7:00AM & AFTER 5:00PM
- THE CONTRACTOR SHALL MAKE EXPLORATORY EXCAVATIONS TO VERIFY EXISTING UTILITY LOCATIONS SUFFICIENTLY AHEAD OF CONSTRUCTION TO ALLOW TIME FOR REVISION REQUIRED BY EXISTING CONDITIONS.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL SUBSTRUCTURES WHETHER SHOWN OR NOT & PROTECT THEM FROM DAMAGE. THE EXPENSE OF REPAIR AND OR REPLACEMENT OF SAID SUBSTRUCTURES SHALL BE BORNE BY THE CONTRACTOR.
- NEITHER THE OWNER, NOR THE ENGINEER OF WORK WILL ENFORCE SAFETY MEASURES OR REGULATIONS. THE CONTRACTOR SHALL DESIGN, CONSTRUCT, & MAINTAIN ALL SAFETY DEVICES, INCLUDING SHORING, AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO LOCAL, STATE & FEDERAL SAFETY & HEALTH STANDARDS, LAWS & REGULATIONS.
- THE CONTRACTOR AGREES THAT THEY SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY: THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS: AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT.
- ADEQUATE COMPACTION TESTING SHALL BE PERFORMED AND RESULTS SUBMITTED TO THE SWEETWATER AUTHORITY ENGINEERING INSPECTOR.
- THE DISCHARGE OF NON STORMWATER POLLUTANTS TO THE STORMWATER CONVEYANCE SYSTEM OR SWEETWATER RIVER IS PROHIBITED. ALL STORMDRAIN INLETS AND RIVER SHALL BE PROTECTED USING THE STANDARDIZED BEST MANAGEMENT PRACTICES AND THE USE OF GRAVEL BAGS AND/OR OTHER PROTECTIVE BARRICADES. THE CONTRACTOR SHALL BE REQUIRED TO CONSTRUCT, MONITOR, AND MAINTAIN ALL STORM WATER STANDARDIZED BEST MANAGEMENT PRACTICES AT THE SITE.
- EXISTING STRUCTURES IN WHICH PORTIONS ARE TO BE REMOVED ONLY, SHALL BE SAWCUT TO A NEAT LINE FINISH. ALL SAWCUT SLURRY, DEVELOPED AS A RESULT OF SAWCUTTING, SHALL BE REMOVED BY USE OF VACUUM.

UTILITY NOTES:

CONTRACTOR SHALL VERIFY THE EXISTENCE AND LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK. NOTICE OF PROPOSED WORK SHALL BE GIVEN TO THE FOLLOWING AGENCIES:

UNDERGROUND SERVICE ALERT 811
SWEETWATER AUTHORITY 619-420-1413

J:\Sweetwater Authority\Projects\022587 Sweetwater Dam-RW Pipe Renovation\6.0 Design\6.4 Drawings\6.4.3 Working Drawings\SWAPR-G02.dwg, May 2011

G-02

SWEETWATER AUTHORITY			
PLANS FOR THE INSTALLATION OF:			
SWEETWATER DAM			
36-INCH RAW WATER PIPELINE REPLACEMENT			
ABBREVIATIONS, SYMBOLS, AND GENERAL NOTES			
1/4 SECTION		W.O. # N/A	
GEI CONSULTANTS INC.	5-18-2011	B.P. # 20104024	
ENGINEER PE	DATE	SHEET	
SWEETWATER AUTHORITY	5-18-2011	2 OF 18	
APPROVED	DATE		

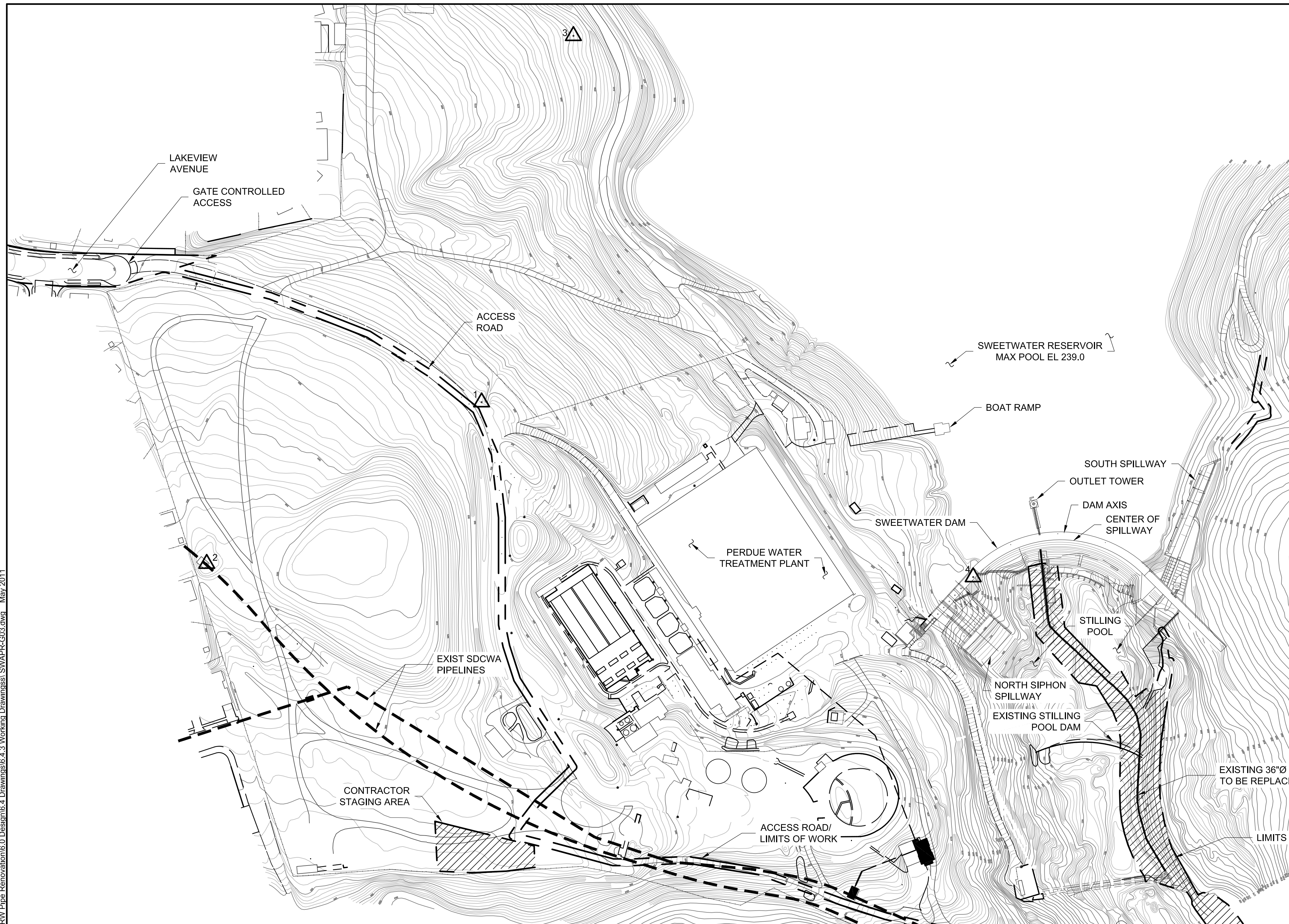


IMPORTANT NOTICE
Section 4216/4217 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert TOLL FREE 8-1-1 Two working days before you dig.

**FOR BIDDING PURPOSES ONLY
NOT FOR CONSTRUCTION**

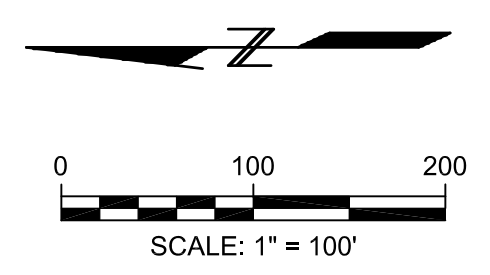
REV.	DATE	DESCRIPTION	BY	APPVD.	DESIGN BY: M. HARGROVE	SCALE: AS NOTED
A					DRAWN BY: K. CHUNG	DATE: MAY 18, 2011
B					CHECKED BY: M. ROZMAN	DESIGN #: 20104024
C					AS CONSTRUCTED:	PAVEMENT#: N/A

J:\Sweetwater Authority\Projects\022587 Sweetwater Dam-RW Pipe Renovation\6.0 Design\6.4 Drawings\6.4.3 Working Drawings\SWAPR-G03.dwg May 2011



Survey Control Table				
Point #	Northing	Easting	Elevation	Description
1	1833262.1780	6328700.2590	309.803	BRASS DISK #1 ON HEADWALL
2	1833754.6040	6328411.0980	336.092	BRASS DISK #2 ON SDCWA VAULT
3	1833097.7460	6329356.2870	254.593	BRASS DISK #4 IN 2" IRON PIPE
4	1832381.6480	6328387.0780	248.399	BRASS DISK #5 SET IN SPILLWAY DECK
5	1831062.3150	6328305.1410	417.300	OTTO (BRASS DISK)
6	1835100.4700	6327184.9840	331.011	CALTRANS 125-17.9 (BRASS DISK ON SDCWA VAULT) (NOT SHOWN)

- NOTES:**
1. BASIS OF PROJECT MAPPING: TOPOGRAPHIC MAPPING CONTROL FOR THIS PROJECT WAS CONDUCTED BY BERGREN & ASSOCIATES ON APRIL 9, 2004.
 2. HORIZONTAL DATUM: NAD83 (1991.35 EPOCH), ZONE 6 BASED ON CONTROL POINTS OTTO AND CALTRANS 125-17.9, BOTH ESTABLISHED BY CALTRANS.
 3. VERTICAL DATUM: NGVD 1929 BASED ON COUNTY OF SAN DIEGO ELEVATION FOR OTTO.



MATCH LINE SEE DWG G-04

G-03

SWEETWATER AUTHORITY

PLANS FOR THE INSTALLATION OF:
SWEETWATER DAM
36-INCH RAW WATER PIPELINE REPLACEMENT
 EXISTING CONDITIONS, STAGING AREAS,
 AND SURVEY CONTROL PLAN - 1

1/4 SECTION		W.O. # N/A
GEI CONSULTANTS INC.	5-18-2011	B.P. # 20104024
ENGINEER PE	DATE	SHEET
SWEETWATER AUTHORITY	5-18-2011	3 OF 18
APPROVED	DATE	

FOR BIDDING PURPOSES ONLY
NOT FOR CONSTRUCTION

REV.	DATE	DESCRIPTION	BY	APPVD.	DESIGN BY: M. HARGROVE	SCALE: AS NOTED
A					DRAWN BY: K. CHUNG	DATE: MAY 18, 2011
B					CHECKED BY: M. ROZMAN	DESIGN #: 20104024
C					AS CONSTRUCTED:	PAVEMENT#: N/A



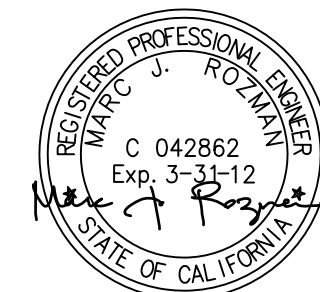
IMPORTANT NOTICE
 Section 4216/4217 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert TOLL FREE 8-1-1 Two working days before you dig.

MATCH LINE SEE DWG G-03



NOTES:

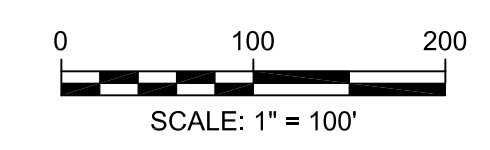
1. SWEETWATER AUTHORITY WILL COORDINATE AND FIELD LOCATE EXISTING SAN DIEGO COUNTY WATER AUTHORITY (SDCWA) PIPELINES ON ALL ROAD CROSSINGS THAT CONSTRUCTION VEHICLES AND EQUIPMENT WILL BE USING. SWEETWATER AUTHORITY WILL PROVIDE STEEL PLATING OVER PIPELINE CROSSING TO PROTECT PIPELINES. CONTRACTOR SHALL EXERCISE CAUTION WHEN CROSSING PIPELINES WITH VEHICLES AND EQUIPMENT. CONTRACTOR WILL BE REQUIRED TO ATTEND AT LEAST ONE CONSTRUCTION/COORDINATION MEETING WITH SWEETWATER AUTHORITY AND SDCWA RELATED TO THIS ROAD CROSSING ISSUE.



IMPORTANT NOTICE
 Section 4216/4217 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert TOLL FREE 8-1-1 Two working days before you dig.

**FOR BIDDING PURPOSES ONLY
 NOT FOR CONSTRUCTION**

REV.	DATE	DESCRIPTION	BY	APPVD.	DESIGN BY: M. HARGROVE	SCALE: AS NOTED
A					DRAWN BY: K. CHUNG	DATE: MAY 18, 2011
B					CHECKED BY: M. ROZMAN	DESIGN #: 20104024
C					AS CONSTRUCTED:	PAVEMENT#: N/A

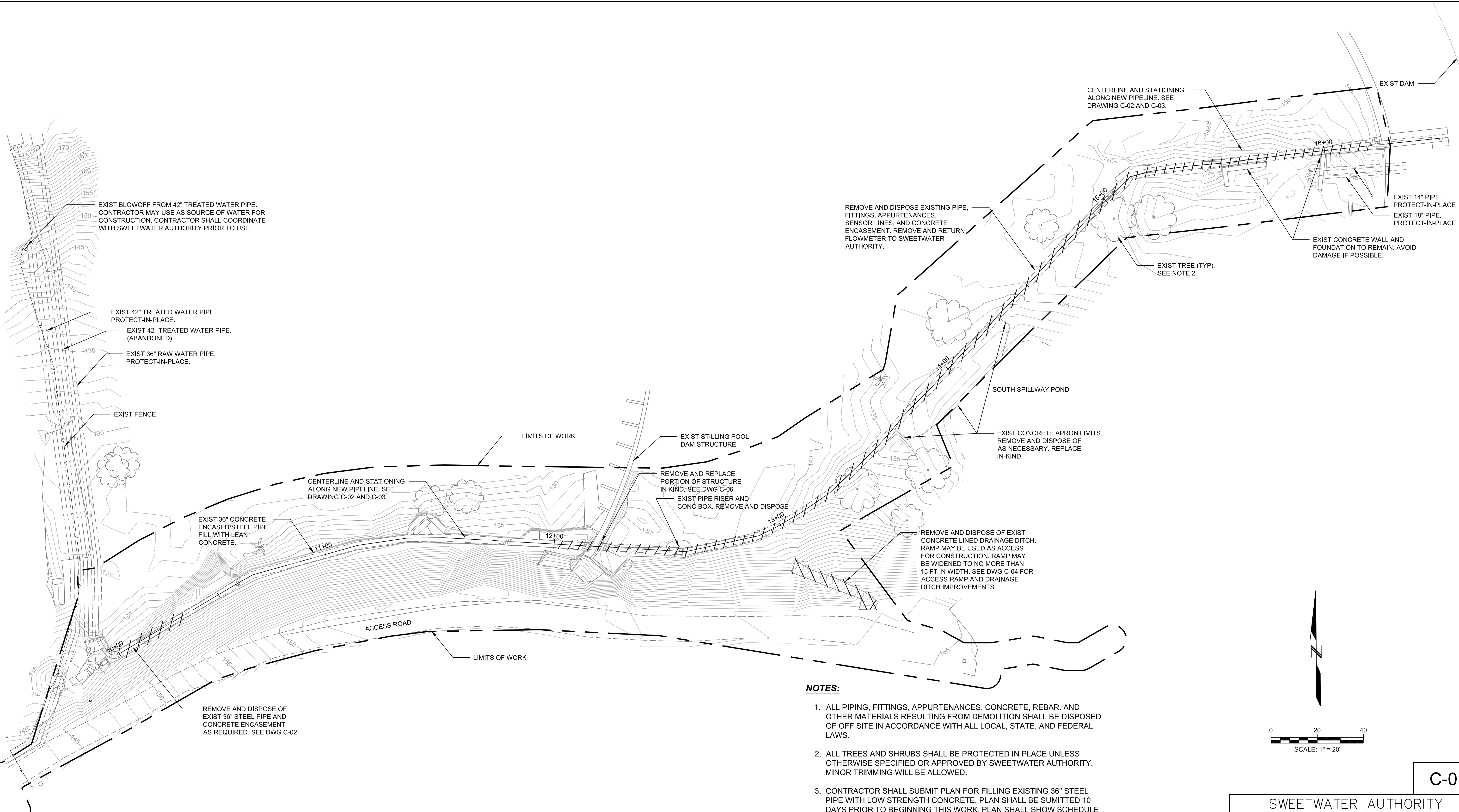


G-04

SWEETWATER AUTHORITY	
PLANS FOR THE INSTALLATION OF: SWEETWATER DAM 36-INCH RAW WATER PIPELINE REPLACEMENT EXISTING CONDITIONS, STAGING AREAS, AND SURVEY CONTROL PLAN - 2	
1/4 SECTION	W.O. # N/A
GEI CONSULTANTS INC.	5-18-2011
ENGINEER PE	DATE
SWEETWATER AUTHORITY	5-18-2011
APPROVED	DATE
B.P. # 20104024	
SHEET 4 OF 18	

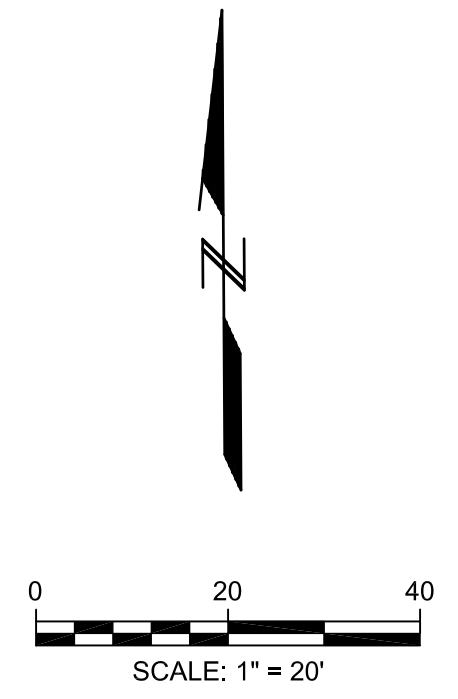
J:\Sweetwater Authority\Projects\022587 Sweetwater Dam-RW Pipe Renovation\6.0 Design\6.4 Drawings\6.4.3 Working Drawings\SWAPR-G04.dwg May 2011

J:\Sweetwater Authority\Projects\022587 Sweetwater Dam-RW Pipe Renovation\6.0 Design\6.4 Drawings\6.4.3 Working Drawings\SWAPR-C01.dwg May 2011



NOTES:

1. ALL PIPING, FITTINGS, APPURTENANCES, CONCRETE, REBAR, AND OTHER MATERIALS RESULTING FROM DEMOLITION SHALL BE DISPOSED OF OFF SITE IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL LAWS.
2. ALL TREES AND SHRUBS SHALL BE PROTECTED IN PLACE UNLESS OTHERWISE SPECIFIED OR APPROVED BY SWEETWATER AUTHORITY. MINOR TRIMMING WILL BE ALLOWED.
3. CONTRACTOR SHALL SUBMIT PLAN FOR FILLING EXISTING 36" STEEL PIPE WITH LOW STRENGTH CONCRETE. PLAN SHALL BE SUBMITTED 10 DAYS PRIOR TO BEGINNING THIS WORK. PLAN SHALL SHOW SCHEDULE, EQUIPMENT, CONCRETE MIX, WORK SEQUENCE, AND PLAN SHOWING INJECTION POINTS AND EQUIPMENT LOCATIONS.



**FOR BIDDING PURPOSES ONLY
NOT FOR CONSTRUCTION**

REV.	DATE	DESCRIPTION	BY	APPVD.	DESIGN BY: M. HARGROVE	SCALE: AS NOTED
A					DRAWN BY: K. CHUNG	DATE: MAY 18, 2011
B					CHECKED BY: M. ROZMAN	DESIGN #: 20104024
C					AS CONSTRUCTED:	PAVEMENT#: N/A



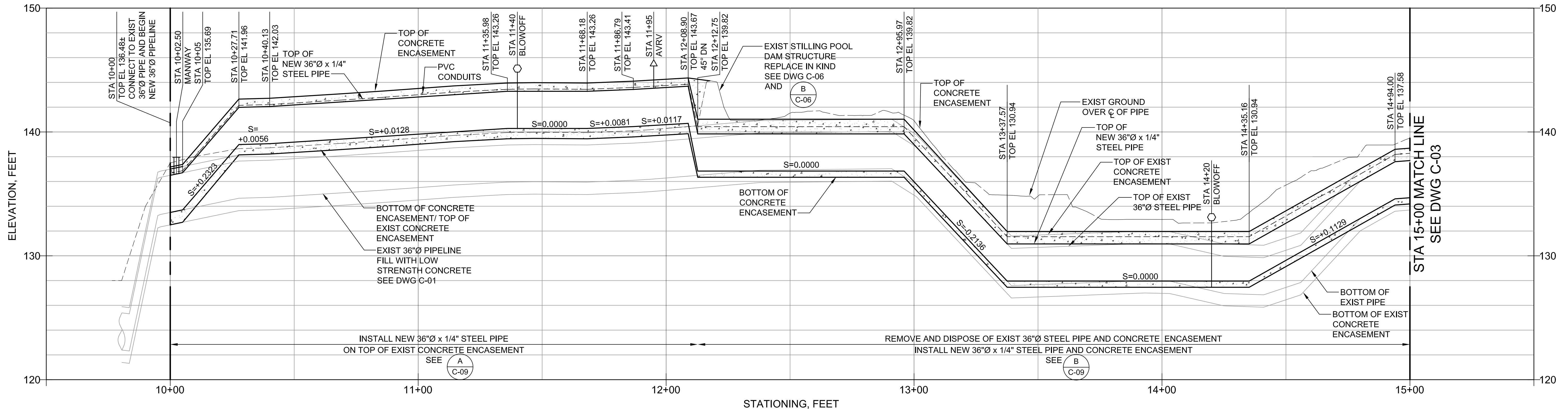
IMPORTANT NOTICE
Section 4216/4217 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert TOLL FREE 8-1-1 Two working days before you dig.

C-01

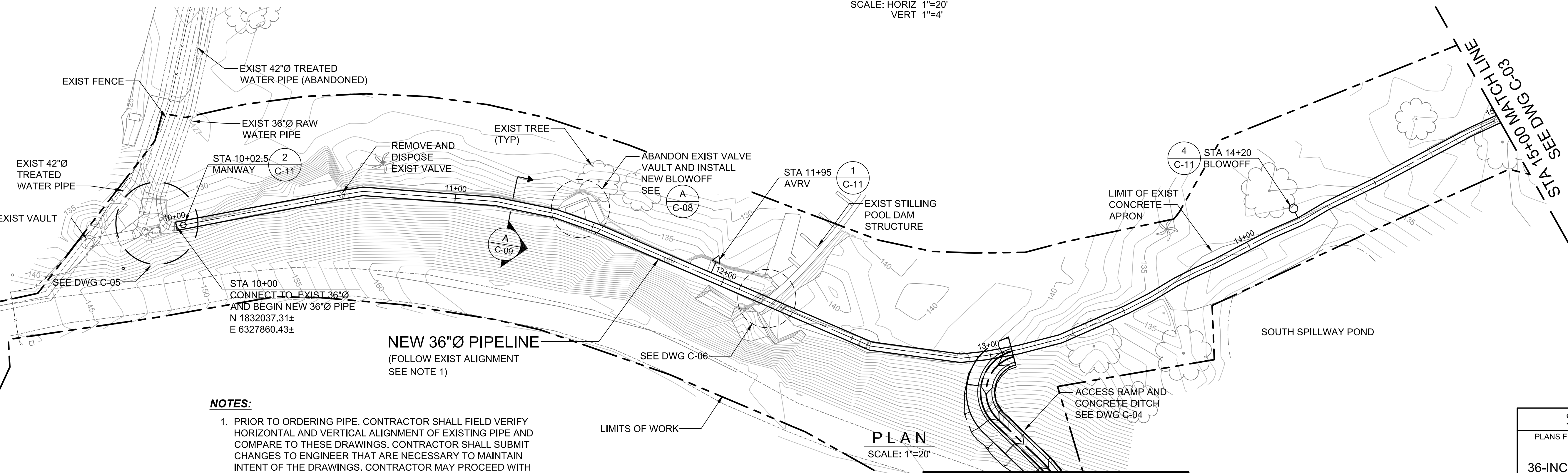
SWEETWATER AUTHORITY
PLANS FOR THE INSTALLATION OF:
SWEETWATER DAM
36-INCH RAW WATER PIPELINE REPLACEMENT
PIPELINE
DEMOLITION PLAN

1/4 SECTION		W.O. # N/A
GEI CONSULTANTS INC.	5-18-2011	B.P. # 20104024
ENGINEER PE	DATE	
SWEETWATER AUTHORITY	5-18-2011	SHEET
APPROVED	DATE	5 OF 18

J:\Sweetwater Authority\Projects\022587 Sweetwater Dam-RW Pipe Renovation\6.0 Design\6.4 Drawings\6.4.3 Working Drawings\SWAPR-C02.dwg May 2011



PROFILE
SCALE: HORIZ 1"=20'
VERT 1"=4'



PLAN
SCALE: 1"=20'

- NOTES:**
1. PRIOR TO ORDERING PIPE, CONTRACTOR SHALL FIELD VERIFY HORIZONTAL AND VERTICAL ALIGNMENT OF EXISTING PIPE AND COMPARE TO THESE DRAWINGS. CONTRACTOR SHALL SUBMIT CHANGES TO ENGINEER THAT ARE NECESSARY TO MAINTAIN INTENT OF THE DRAWINGS. CONTRACTOR MAY PROCEED WITH PIPE ORDERING ONCE CHANGES ARE APPROVED.
 2. SEE DRAWINGS CP-01 AND CP-02 FOR CORROSION MONITORING DETAILS.
 3. TOP OF PIPE ELEVATION (TOP EL) ASSUMES A STEEL PIPE CYLINDER OUTSIDE DIAMETER OF 36" BASED ON AWWA M11.



IMPORTANT NOTICE
Section 4216/4217 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert TOLL FREE 8-1-1 Two working days before you dig.

**FOR BIDDING PURPOSES ONLY
NOT FOR CONSTRUCTION**

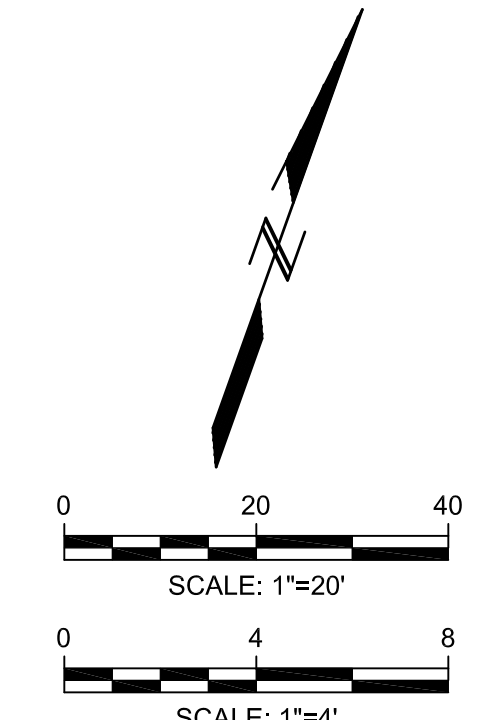
REV.	DATE	DESCRIPTION	BY	APPVD.	DESIGN BY: M. HARGROVE	SCALE: AS NOTED
A					DRAWN BY: K. CHUNG	DATE: MAY 18, 2011
B					CHECKED BY: M. ROZMAN	DESIGN #: 20104024
C					AS CONSTRUCTED:	PAVEMENT#: N/A

SWEETWATER AUTHORITY

PLANS FOR THE INSTALLATION OF:
SWEETWATER DAM
36-INCH RAW WATER PIPELINE REPLACEMENT

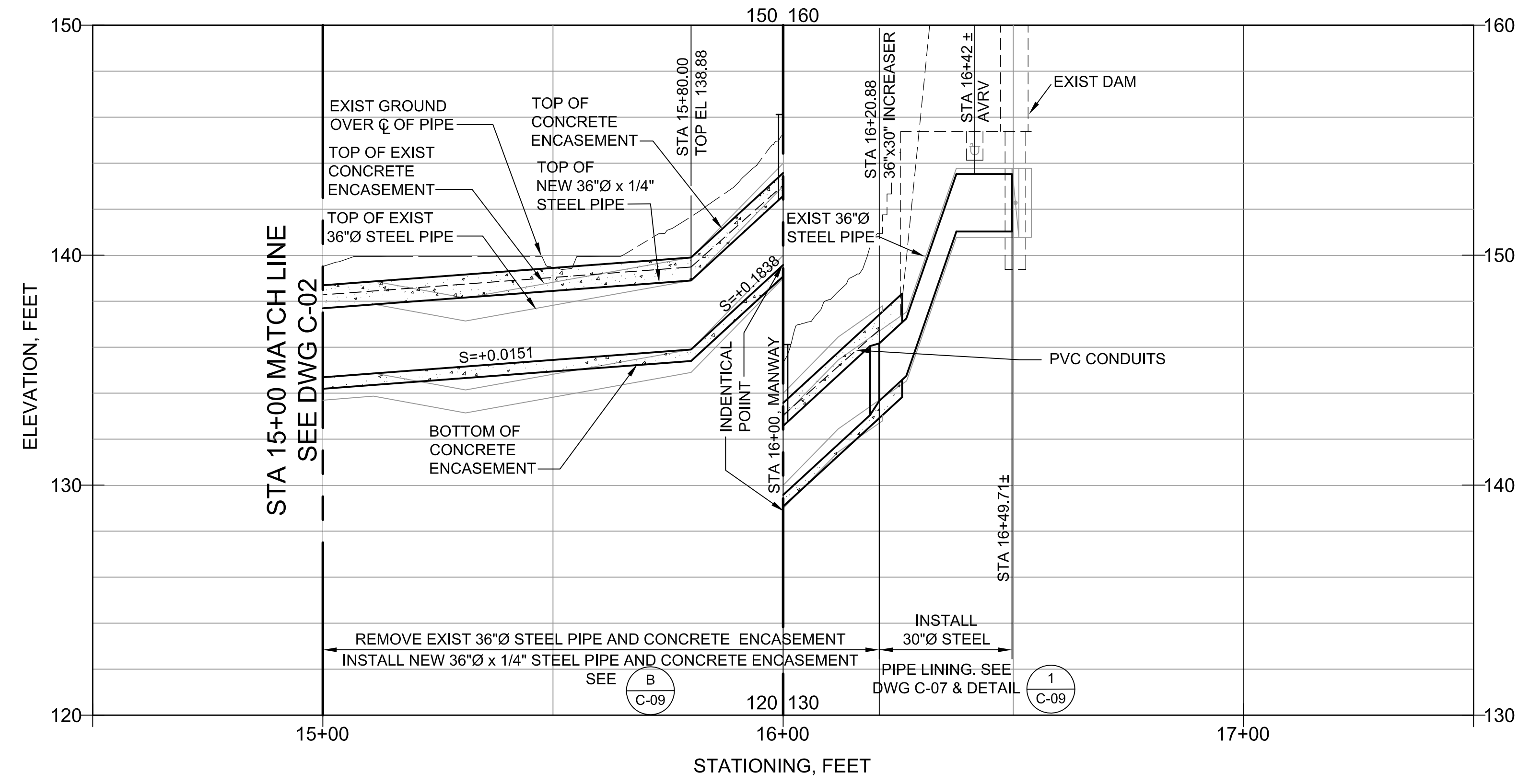
PLAN AND PROFILE
STA 10+00 TO STA 15+00

1/4 SECTION		W.O. # N/A
GEI CONSULTANTS INC.	5-18-2011	B.P. # 20104024
ENGINEER PE	DATE	SHEET
SWEETWATER AUTHORITY	5-18-2011	6 OF 18
APPROVED	DATE	

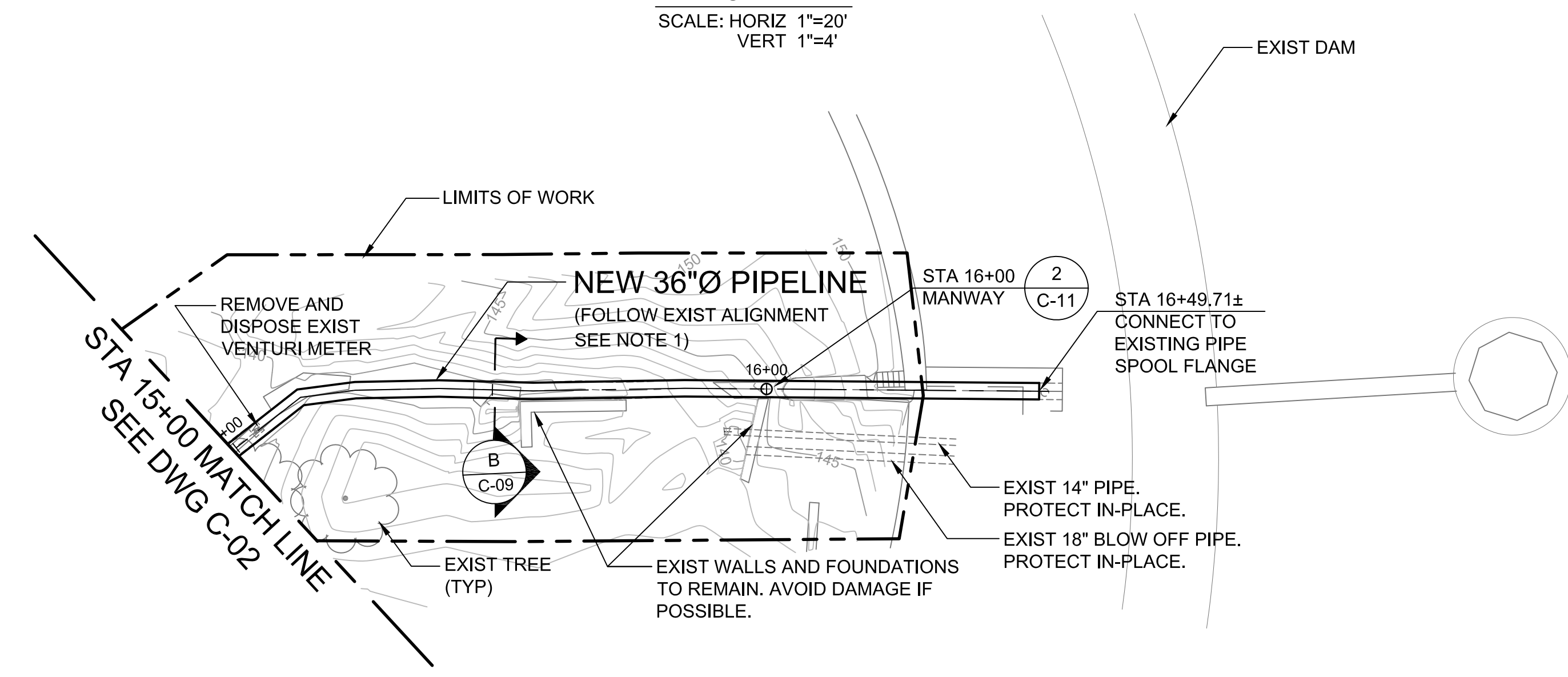


C-02

J:\Sweetwater Authority\Projects\022587 Sweetwater Dam-RW Pipe Renovation\16.0 Design\16.4 Drawings\16.4.3 Working Drawings\SWAPR-C03.dwg May 2011



PROFILE
SCALE: HORIZ 1"=20'
VERT 1"=4'



PLAN
SCALE: 1"=20'

NOTES:

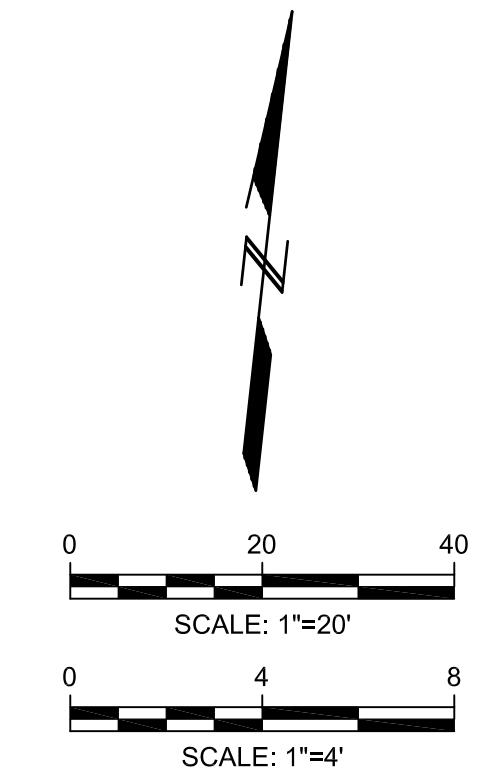
1. PRIOR TO ORDERING PIPE, CONTRACTOR SHALL FIELD VERIFY HORIZONTAL AND VERTICAL ALIGNMENT OF EXISTING PIPE AND COMPARE TO THESE DRAWINGS. CONTRACTOR SHALL SUBMIT CHANGES TO ENGINEER THAT ARE NECESSARY TO MAINTAIN INTENT OF THE DRAWINGS. CONTRACTOR MAY PROCEED WITH PIPE ORDERING ONCE CHANGES ARE APPROVED.
2. SEE DRAWINGS CP-01 AND CP-02 FOR CORROSION MONITORING DETAILS.
3. TOP OF PIPE (TOP) ELEVATION ASSUMES A STEEL PIPE CYLINDER OUTSIDE DIAMETER OF 36" BASED ON AWWA M11.



IMPORTANT NOTICE
Section 4216/4217 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert TOLL FREE 8-1-1 Two working days before you dig.

**FOR BIDDING PURPOSES ONLY
NOT FOR CONSTRUCTION**

REV.	DATE	DESCRIPTION	BY	APPVD.	DESIGN BY: M. HARGROVE	SCALE: AS NOTED
A					DRAWN BY: K. CHUNG	DATE: MAY 18, 2011
B					CHECKED BY: M. ROZMAN	DESIGN #: 20104024
C					AS CONSTRUCTED:	PAVEMENT#: N/A



C-03

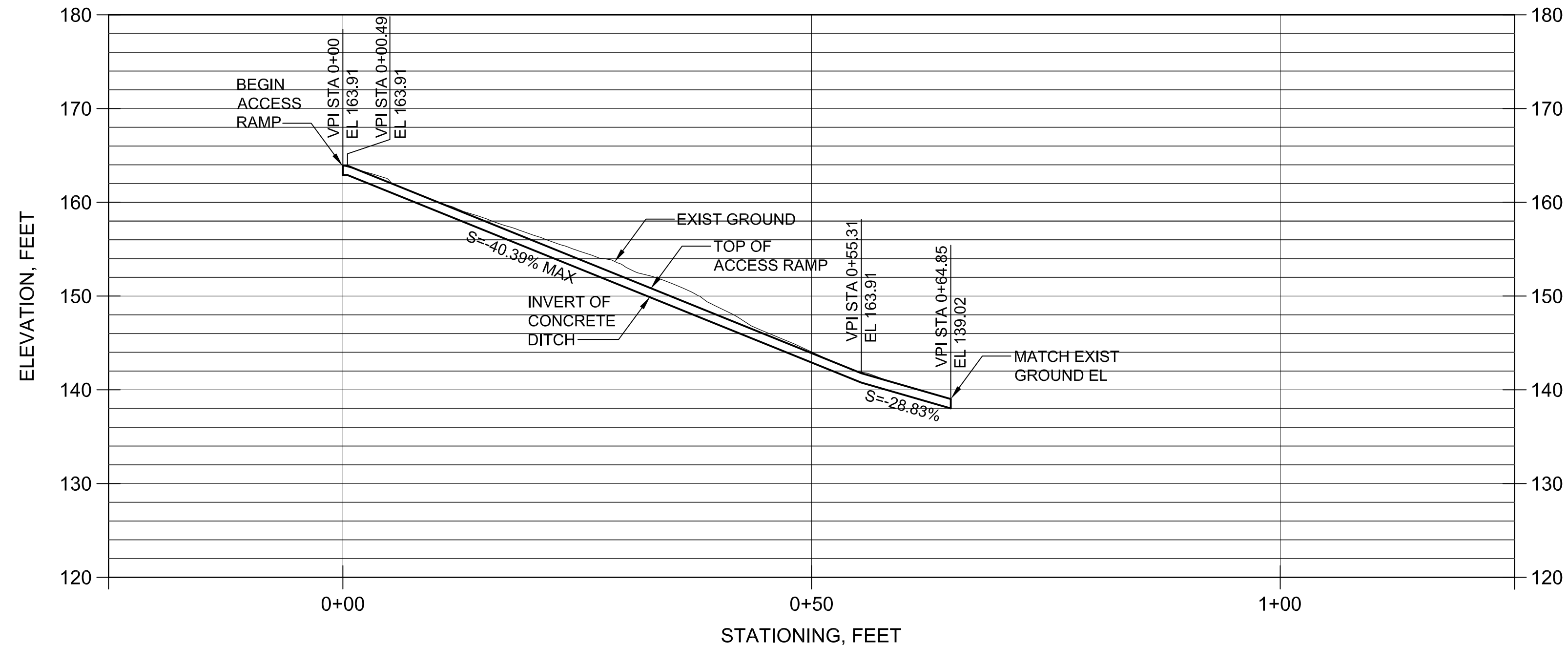
SWEETWATER AUTHORITY

PLANS FOR THE INSTALLATION OF:
SWEETWATER DAM
36-INCH RAW WATER PIPELINE REPLACEMENT

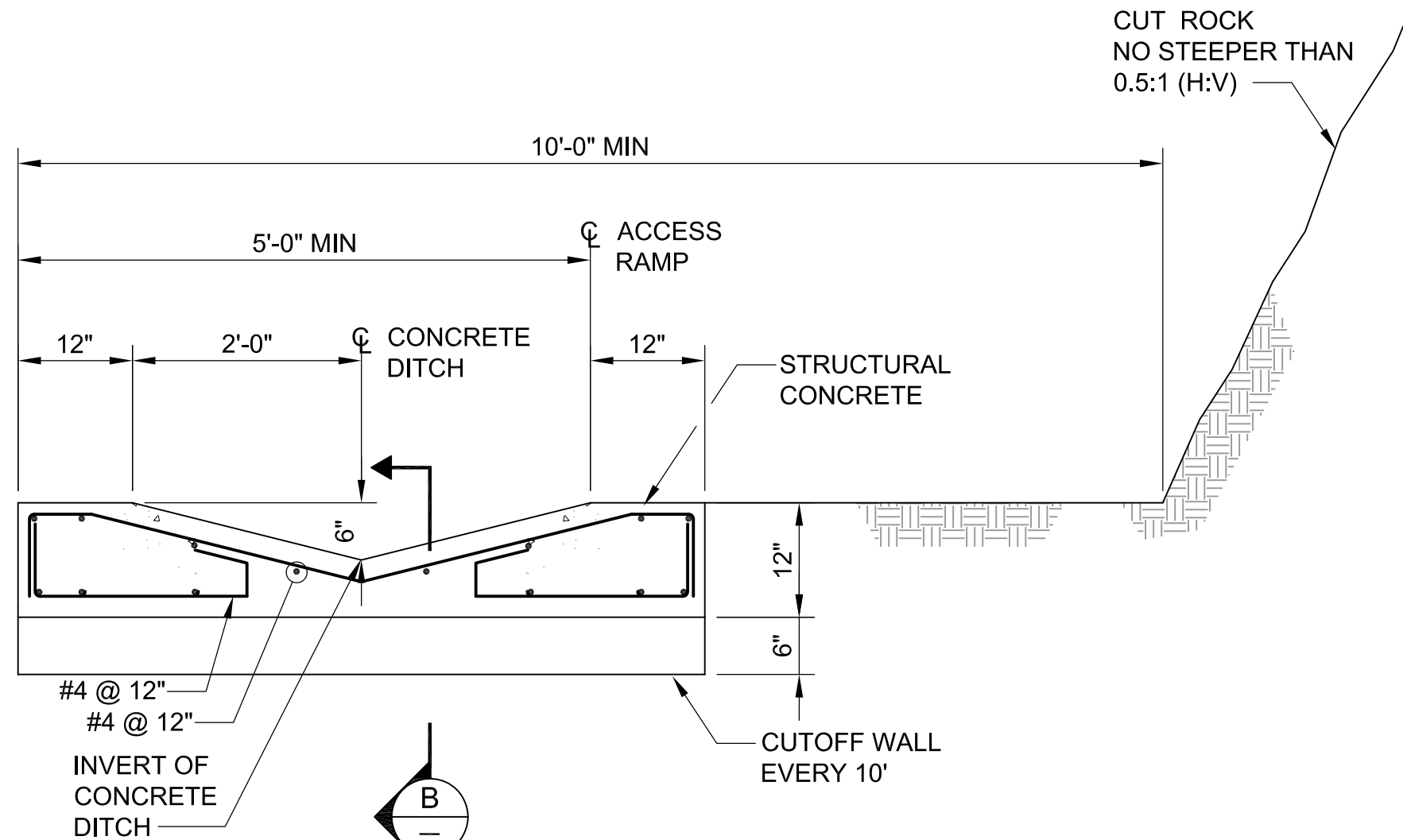
PLAN AND PROFILE
STA 15+00 TO STA 16+49.71

1/4 SECTION		W.O. # N/A
GEI CONSULTANTS INC.	5-18-2011	B.P. # 20104024
ENGINEER PE	DATE	SHEET
SWEETWATER AUTHORITY	5-18-2011	7 OF 18
APPROVED	DATE	

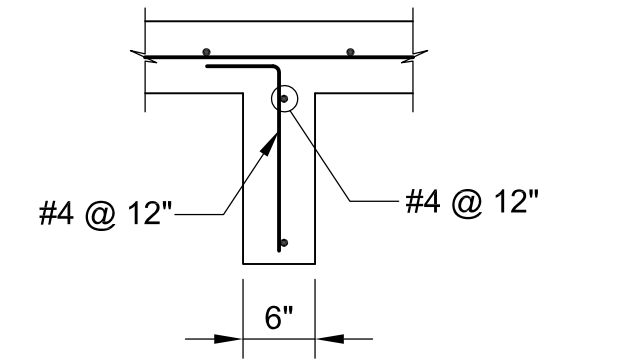
J:\Sweetwater Authority\Projects\022587 Sweetwater Dam-RW Pipe Renovation\6.0 Design\6.4 Drawings\6.4.3 Working Drawings\SWAPR-C04.dwg, May 2011



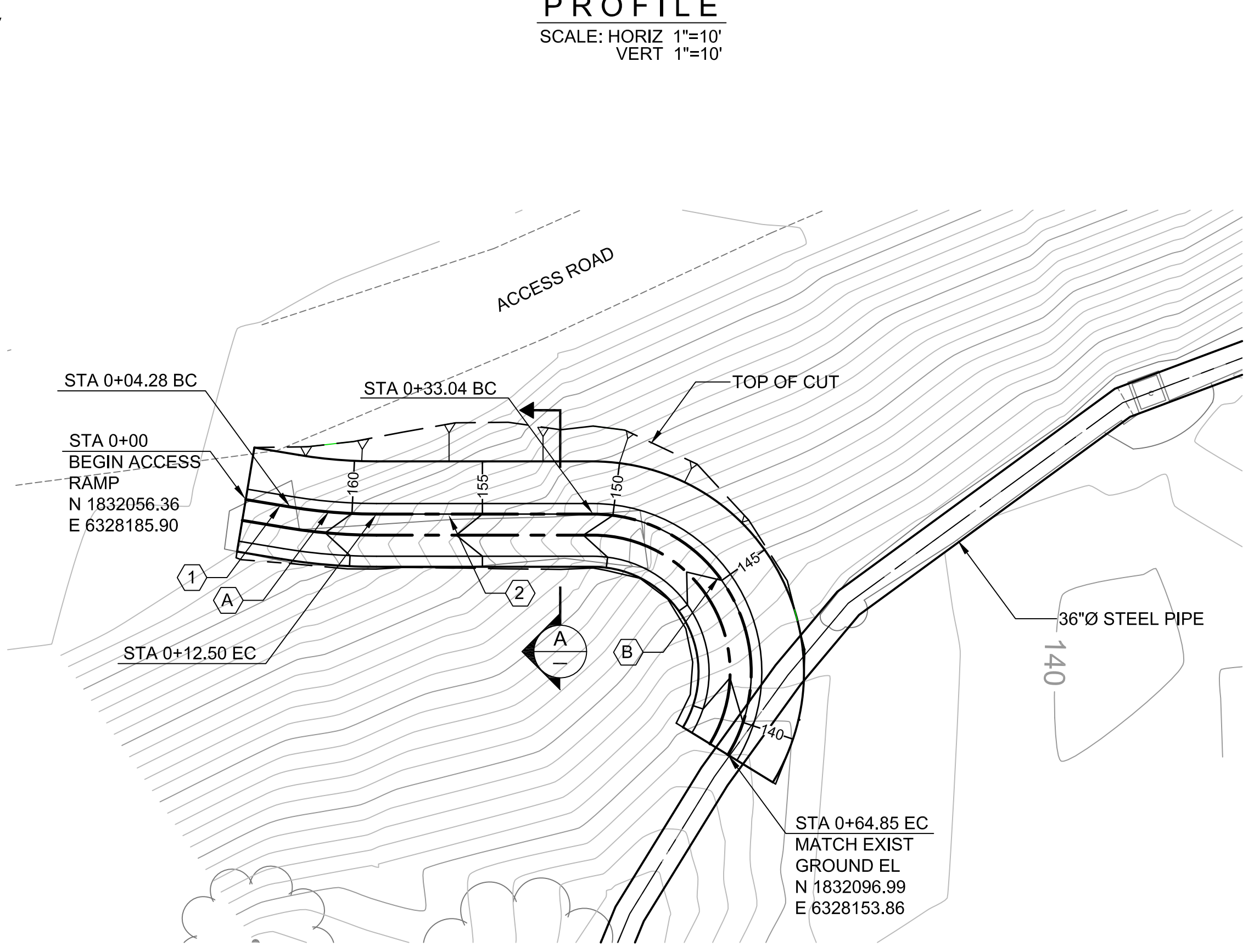
PROFILE
SCALE: HORIZ 1"=10'
VERT 1"=10'



SECTION A
SCALE: 3/4"=1'-0"



SECTION B
SCALE: 3/4"=1'-0"



PLAN
SCALE: 1"=20'

LINE DATA

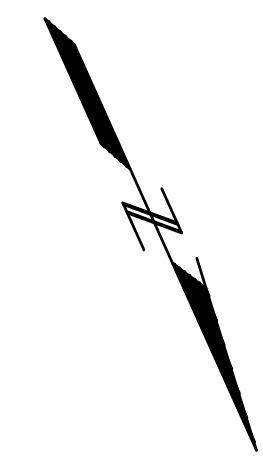
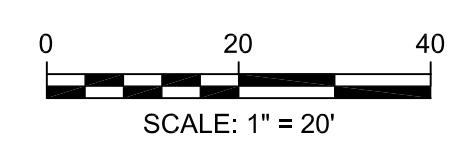
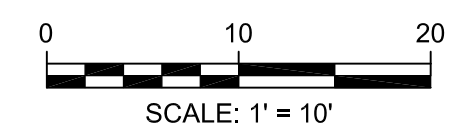
	BEARING	L
①	S 56°43'49" E	4.28
②	S 66°09'13" E	20.54

CURVE DATA

	DELTA	R	LC	T
(A)	9°25'24"	50.00	8.22	4.00
(B)	121°29'41"	15.00	31.81	26.78

LINE AND CURVE DATA ABBREVIATIONS

L = LENGTH OF LINE (FT)
R = RADIUS OF CURVE (FT)
LC = LENGTH OF CURVE (FT)
T = TANGENT DISTANCE (FT)



IMPORTANT NOTICE
Section 4216/4217 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert TOLL FREE 8-1-1 Two working days before you dig.

**FOR BIDDING PURPOSES ONLY
NOT FOR CONSTRUCTION**

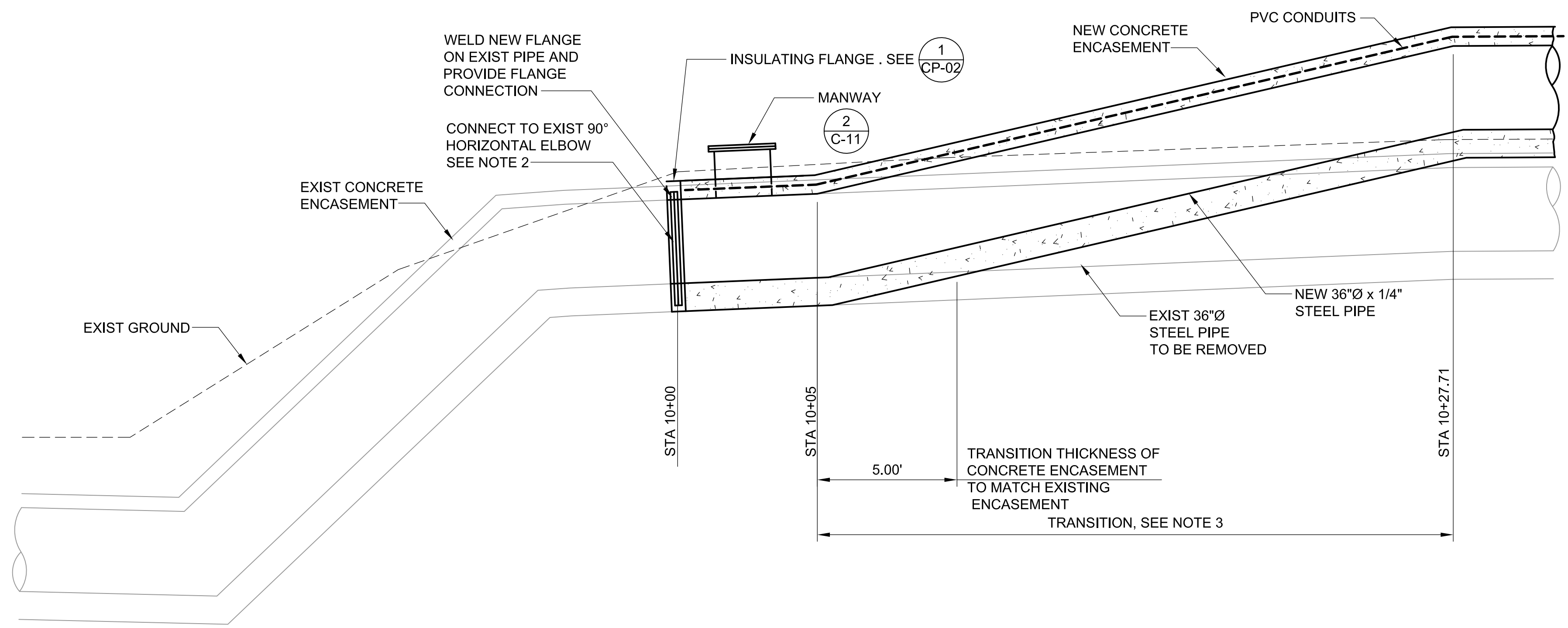
REV.	DATE	DESCRIPTION	BY	APPVD.	DESIGN BY: M. HARGROVE	SCALE: AS NOTED
A					DRAWN BY: K. CHUNG	DATE: MAY 18, 2011
B					CHECKED BY: M. ROZMAN	DESIGN #: 20104024
C					AS CONSTRUCTED:	PAVEMENT#: N/A

C-04

SWEETWATER AUTHORITY
PLANS FOR THE INSTALLATION OF:
SWEETWATER DAM
36-INCH RAW WATER PIPELINE REPLACEMENT
ACCESS RAMP AND
CONCRETE DITCH

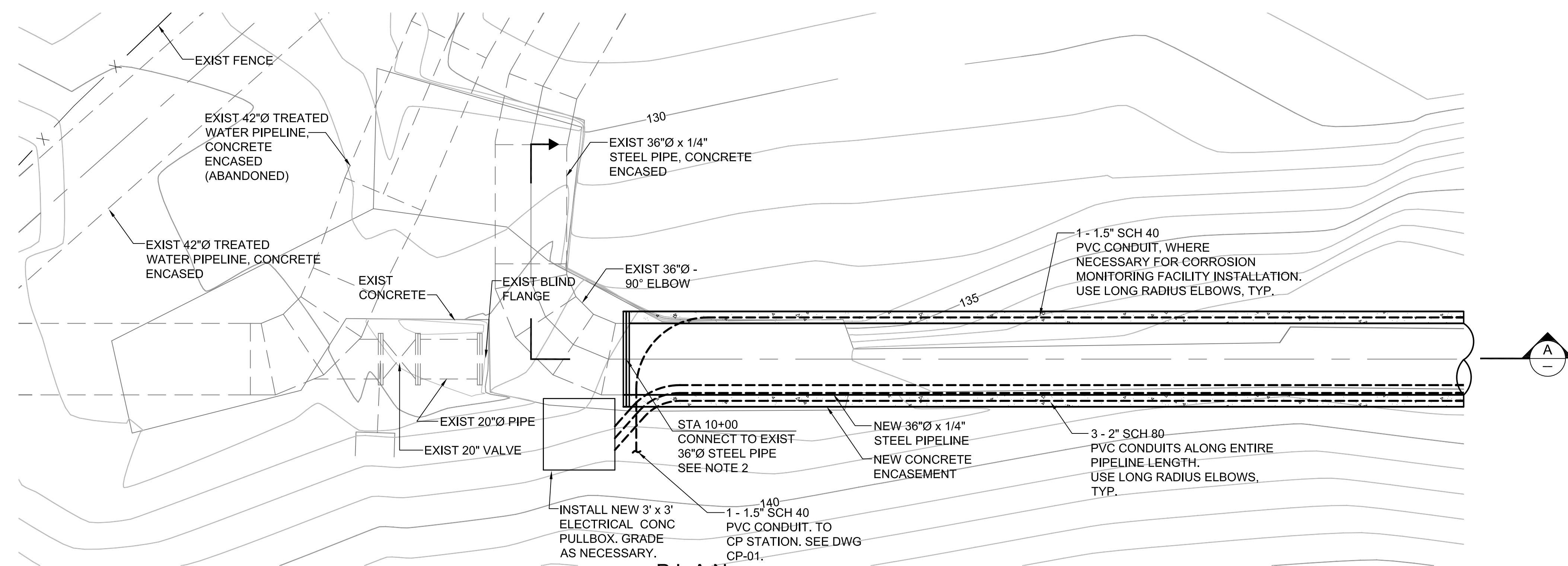
1/4 SECTION		W.O. # N/A
GEI CONSULTANTS INC.	5-18-2011	B.P. # 20104024
ENGINEER PE	DATE	SHEET
SWEETWATER AUTHORITY	5-18-2011	8 OF 18
APPROVED	DATE	

J:\Sweetwater Authority\Projects\022587 Sweetwater Dam-RW Pipe Renovation\6.0 Design\6.4 Drawings\6.4.3 Working Drawings\SWAPR-C05.dwg May 2011

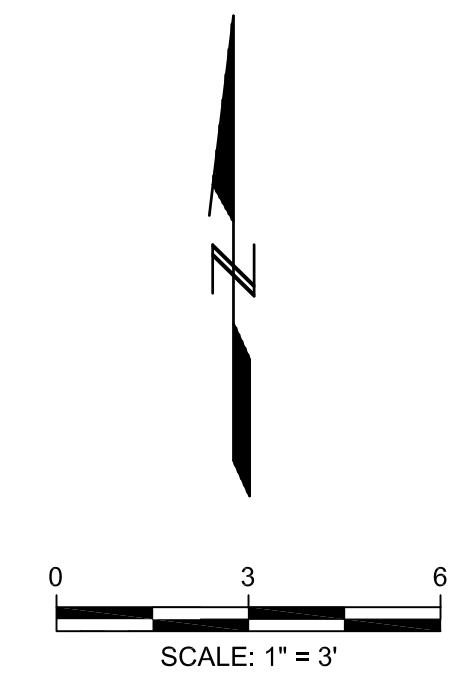


SECTION A
SCALE: 1"=3'

- NOTES:**
- EXISTING PIPELINES ARE ENCASED IN CONCRETE.
 - CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION OF EXISTING PIPE, SIZE, MATERIAL, AND CONDITION. BASED ON THIS INFORMATION CONTRACTOR SHALL DETERMINE EXACT LOCATION OF CONNECTION BETWEEN EXISTING AND NEW PIPELINE. CONTRACTOR SHALL DEVELOP AND SUBMIT CONNECTION PLAN FOR APPROVAL TO ENGINEER, INCLUDING SHOP DRAWING OF SPECIAL FITTING REQUIRED TO MAKE CONNECTION. PLAN SHALL BE SUBMITTED TO ENGINEER PRIOR TO FABRICATION OF SPECIAL FITTING.
 - CONTRACTOR MAY EITHER CUT AND REMOVE EXISTING PIPE AND ENCASEMENT AND POUR NEW TRANSITION OR CUT EXISTING PIPE AND ENCASEMENT AT THE REQUIRED SLOPE TO PROVIDE SUITABLE SUPPORT. CONTRACTOR SHALL SUBMIT PLAN 10 DAYS BEFORE BEGINNING THIS WORK FOR APPROVAL.



PLAN
SCALE: 1"=3'



C-05

SWEETWATER AUTHORITY	
PLANS FOR THE INSTALLATION OF: SWEETWATER DAM 36-INCH RAW WATER PIPELINE REPLACEMENT 36"Ø PIPELINE CONNECTION AT STA 10+00	
1/4 SECTION	W.O. # N/A
GEI CONSULTANTS INC.	5-18-2011
ENGINEER PE	DATE
SWEETWATER AUTHORITY	5-18-2011
APPROVED	DATE
B.P. # 20104024	SHEET 9 OF 18

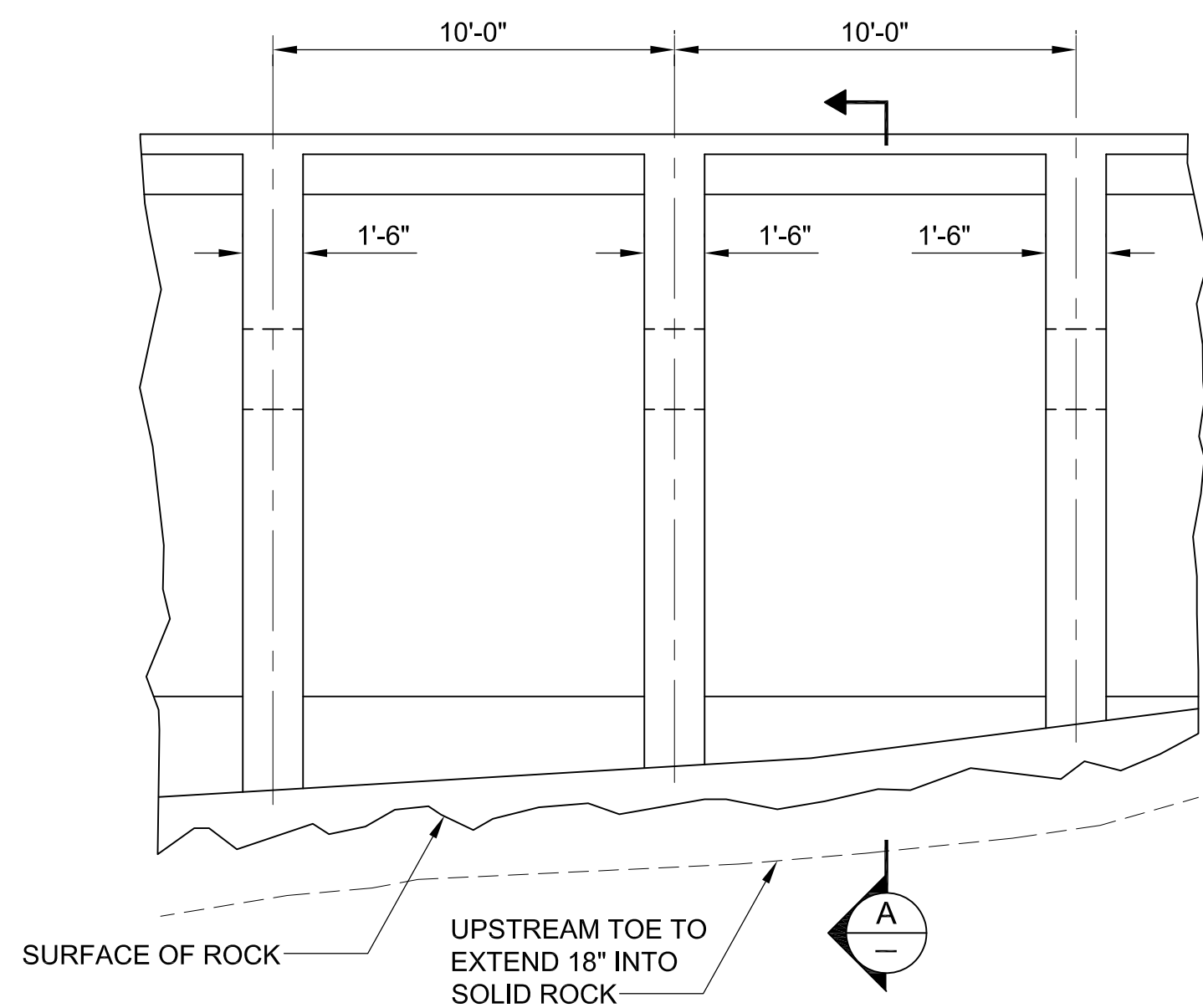
**FOR BIDDING PURPOSES ONLY
NOT FOR CONSTRUCTION**

REV.	DATE	DESCRIPTION	BY	APPVD.	DESIGN BY: M. HARGROVE	SCALE: AS NOTED
A					DRAWN BY: K. CHUNG	DATE: MAY 18, 2011
B					CHECKED BY: M. ROZMAN	DESIGN #: 20104024
C					AS CONSTRUCTED:	PAVEMENT#: N/A

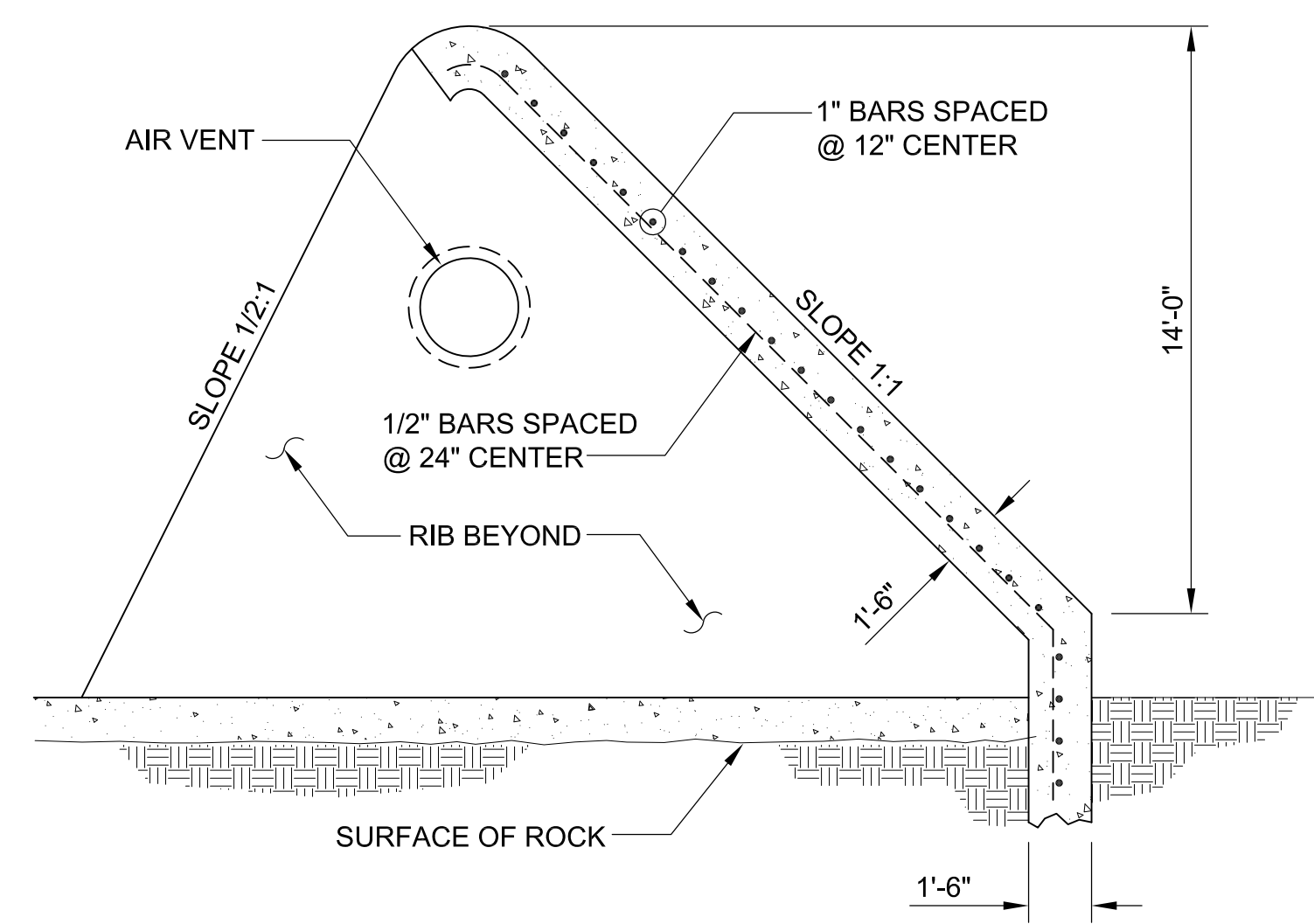


IMPORTANT NOTICE
Section 4216/4217 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert TOLL FREE 8-1-1 Two working days before you dig.

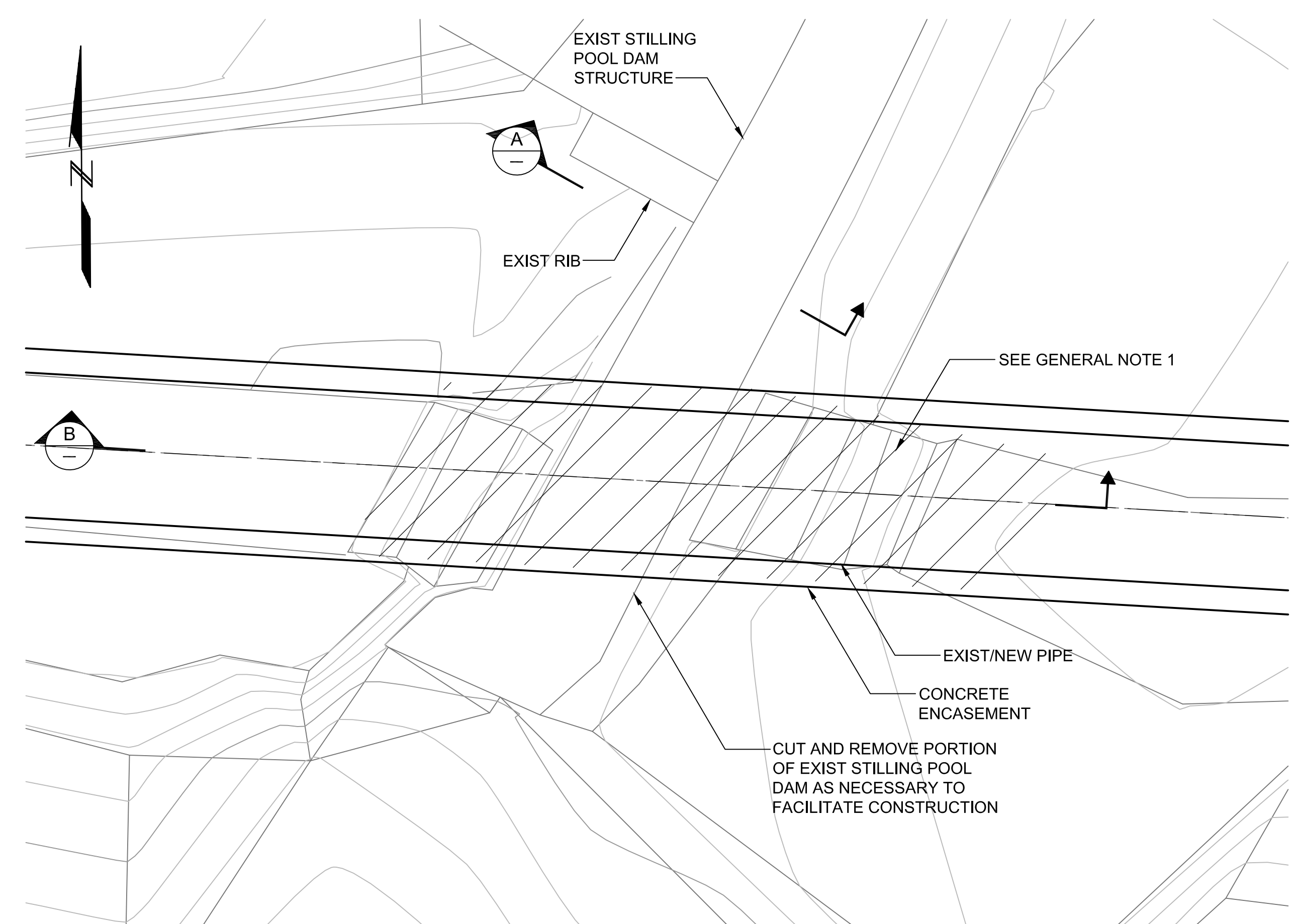
J:\Sweetwater Authority\Projects\022587 Sweetwater Dam-RW Pipe Renovation\6.0 Design\6.4 Drawings\6.4.3 Working Drawings\SWAPR-C06.dwg May 2011



(EXISTING STILLING POOL DAM)
ELEVATION LOOKING EAST
SCALE: 1/4"=1'-0"



(EXISTING STILLING POOL DAM)
SECTION
SCALE: 1/4"=1'-0"



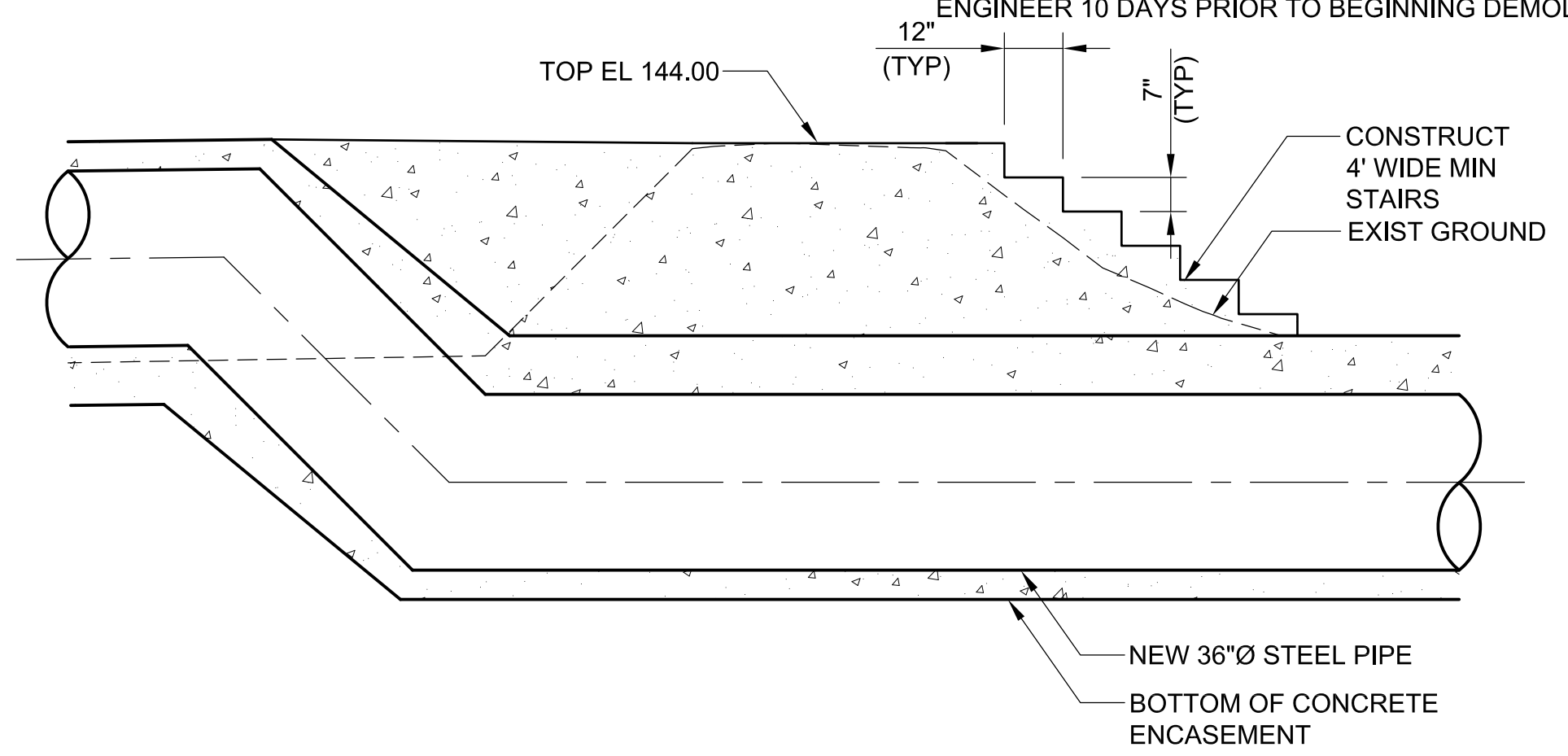
PLAN
SCALE: 1"=2'

GENERAL NOTES:

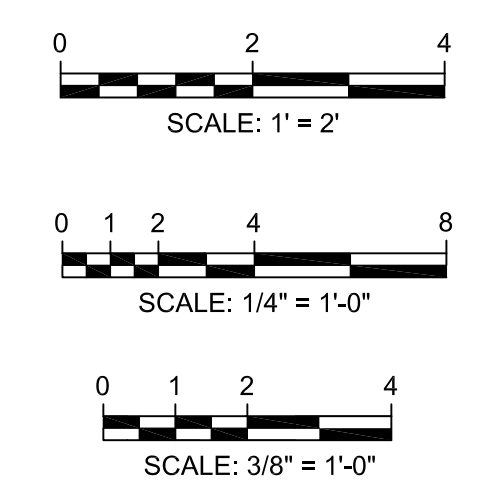
- CONTRACTOR SHALL SUBMIT PLAN SHOWING DEMOLITION OF PORTION OF EXISTING STILLING POOL DAM TO BE REMOVED TO ENGINEER FOR APPROVAL 10 DAYS BEFORE BEGINNING THIS WORK. PLANS SHALL INCLUDE DEMOLITION SEQUENCING, SAFETY PROCEDURES, AND EQUIPMENT TO BE USED. PLAN SHALL BE STAMPED AND SIGNED BY A REGISTERED CIVIL ENGINEER IN STATE OF CALIFORNIA TO VERIFY THAT STRUCTURAL STABILITY OF REMAINING STRUCTURE IS NOT NEGATIVELY IMPACTED BY REMOVED PORTION OF STRUCTURE.
- CONTRACTOR SHALL SUBMIT STRUCTURAL CALCULATIONS, INCLUDING SEISMIC, AND DRAWINGS FOR PORTION OF STILLING POOL DAM TO BE REPLACED IN-KIND AND IN ACCORDANCE WITH THIS DRAWING. CALCULATIONS AND DRAWINGS SHALL BE SUBMITTED TO ENGINEER 10 DAYS PRIOR TO BEGINNING DEMOLITION WORK.

REINFORCED CONCRETE NOTES:

- ALL CONCRETE SHOWN ON THIS DRAWING SHALL BE STRUCTURAL CONCRETE WHICH SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS, UNLESS OTHERWISE NOTED.
- ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO THE REQUIREMENTS OF ASTM A-615, GRADE 60, UNLESS OTHERWISE NOTED.
- ALL DETAILING, FABRICATION AND PLACING OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ACI-315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", LATEST EDITION.
- THE FIRST AND LAST BARS SHALL START AND END A MAXIMUM OF ONE HALF OF THE ADJACENT BAR SPACING OR 3-INCHES, WHICHEVER IS LESS, FROM THE START OR END OF THE MEMBER.
- ALL CONSTRUCTION JOINTS SHALL BE ROUGH AND THOROUGHLY CLEANED FOR BOND PRIOR TO PLACING CONCRETE.
- TOLERANCES FOR PLACING REINFORCING STEEL SHALL BE $\pm 3/8$ INCH.
- DOWELS, PIPING, WATERSTOPS AND OTHER EMBEDS SHALL BE HELD SECURELY IN PLACE WHILE THE CONCRETE IS BEING POURED.
- ALL GROUT SHALL BE NON-SHRINK, UNLESS OTHERWISE NOTED.
- BAR SUPPORTS, SPACERS, AND OTHER ACCESSORIES ARE NOT SHOWN ON THE DESIGN DRAWINGS.
- METAL CLIPS OR SUPPORTS SHALL NOT BE PLACED IN CONTACT WITH THE FORMS OR SUBGRADE. CONCRETE BLOCKS OR DOBIES SHALL BE IN SUFFICIENT NUMBERS TO SUPPORT THE BARS ON THE SUBGRADE WITHOUT SETTLEMENT. IN NO CASE SHALL SUCH SUPPORT BE CONTINUOUS.
- DOWELS SHALL BE SET AND WIRED OR OTHERWISE HELD IN PLACE PRIOR TO PLACING CONCRETE. DOWELS SHALL NOT BE INSERTED INTO FRESHLY PLACED CONCRETE.
- A MINIMUM CLEAR DISTANCE OF 2 INCHES SHALL BE MAINTAINED BETWEEN THE REINFORCING STEEL AND ALL PIPES, PIPE FLANGES OR OTHER METAL PARTS EMBEDDED IN THE CONCRETE.
- ALL ITEMS EMBEDDED IN THE CONCRETE SHALL BE SPACED AT NO LESS THAN 4 TIMES THE OUTSIDE DIMENSION OF THE LARGEST ITEM. THE OUTSIDE DIMENSION SHALL NOT EXCEED ONE THIRD THE CONCRETE MEMBER THICKNESS.
- UNLESS OTHERWISE SHOWN ON THE DRAWINGS, CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS:
 CONCRETE PLACED AGAINST EARTH.....3"
 FOR SURFACES IN CONTACT WITH WATER OR WEATHER AND FORMED SURFACES IN CONTACT WITH EARTH.....3"
 FOR CONCRETE NOT EXPOSED TO WEATHER OR CONTACT WITH WATER OR EARTH.....3"
- UNLESS OTHERWISE NOTED, WHERE A SINGLE LAYER OF REINFORCING STEEL IS SHOWN, THE REINFORCING SHALL BE CENTERED.



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



IMPORTANT NOTICE
Section 4216/4217 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert TOLL FREE 8-1-1 Two working days before you dig.

**FOR BIDDING PURPOSES ONLY
NOT FOR CONSTRUCTION**

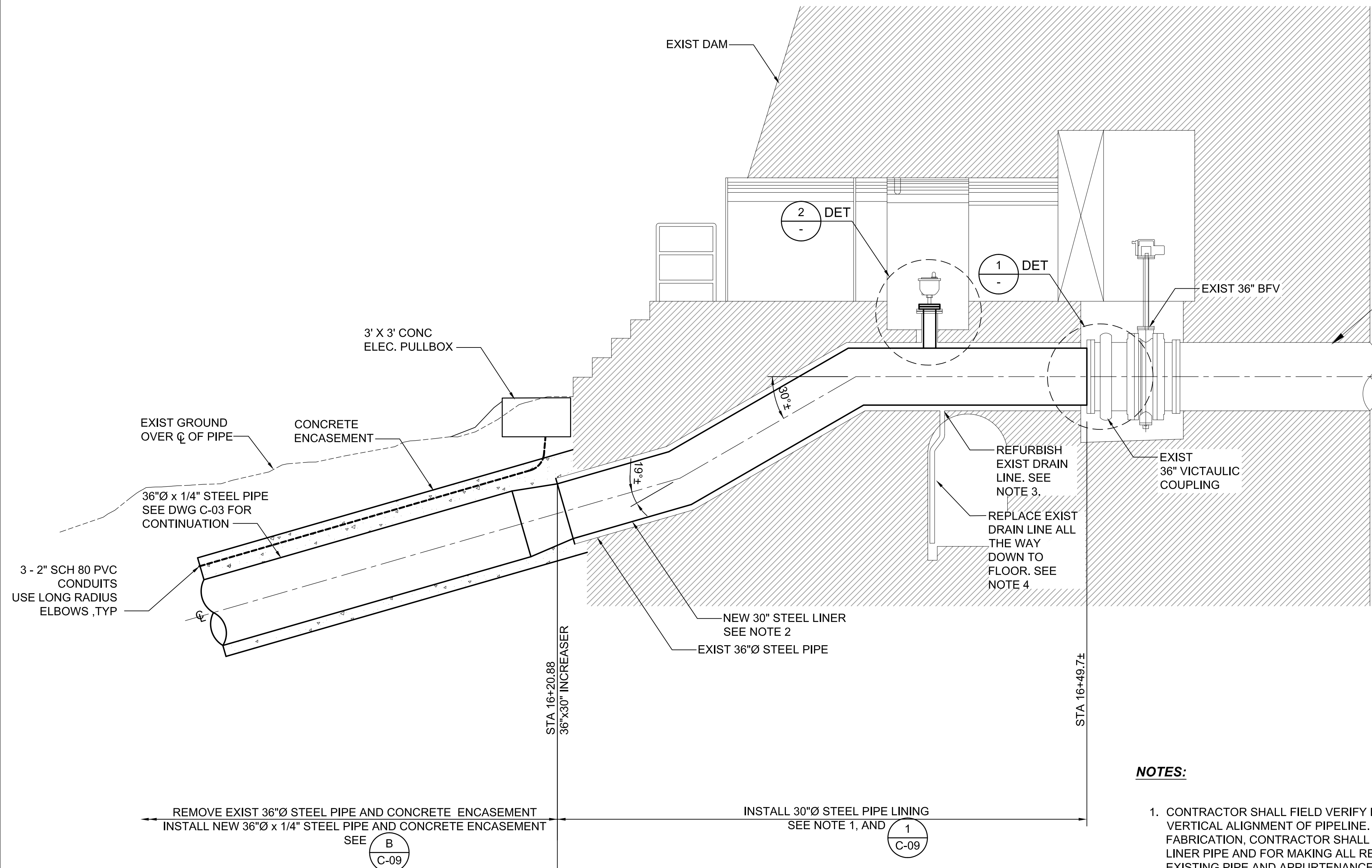
REV.	DATE	DESCRIPTION	BY	APPVD.	DESIGN BY: M. HARGROVE	SCALE: AS NOTED
A					DRAWN BY: K. CHUNG	DATE: MAY 18, 2011
B					CHECKED BY: M. ROZMAN	DESIGN #: 20104024
C					AS CONSTRUCTED:	PAVEMENT#: N/A

SWEETWATER AUTHORITY
PLANS FOR THE INSTALLATION OF:
SWEETWATER DAM
36-INCH RAW WATER PIPELINE REPLACEMENT
EXISTING STILLING POOL DAM CROSSING

1/4 SECTION		W.O. # N/A
GEI CONSULTANTS INC.	5-18-2011	B.P. # 20104024
ENGINEER PE	DATE	SHEET
SWEETWATER AUTHORITY	5-18-2011	10 OF 18
APPROVED	DATE	

C-06

J:\Sweetwater Authority\Projects\022587 Sweetwater Dam-RW Pipe Renovation\6.0 Design\6.4 Drawings\6.4.3 Working Drawings\SWAPR-C07.dwg, May 2011



NOTES:

- CONTRACTOR SHALL FIELD VERIFY EXISTING HORIZONTAL AND VERTICAL ALIGNMENT OF PIPELINE. PRIOR TO LINER PIPE FABRICATION, CONTRACTOR SHALL DEVELOP PLAN FOR INSTALLING LINER PIPE AND FOR MAKING ALL REQUIRED CONNECTIONS TO EXISTING PIPE AND APPURTENANCES. PLAN SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO BEGINNING LINER PIPE FABRICATION.
- STEEL LINER PIPE SHALL NOT BE IN CONTACT WITH EXISTING STEEL PIPE ONCE INSTALLED AND IN-PLACE. CONTRACTOR SHALL INCLUDE INSTALLATION MEASURES IN PLAN (NOTE 1 ABOVE) TO VERIFY THIS IS THE CASE.
- CONTRACTOR SHALL FIELD VERIFY SIZE OF EXISTING DRAIN LINE. CONTRACTOR SHALL GRIND OUT EXISTING STEEL LINER PIPE AND INSTALL NEW SCHEDULE 40 PVC LINER PIPE OF EQUAL SIZE.
- CONTRACTOR SHALL REPLACE EXISTING EXPOSED LINER PIPE SCHEDULE 40 PVC PIPE OF EQUAL SIZE ALL THE WAY DOWN TO FLOOR DRAIN. CONTRACTOR SHALL ATTACH PVC PIPE WITH "U" SUPPORTS ATTACHED TO WALL WITH EPOXY ANCHORS. SUPPORT SPACING SHALL NOT EXCEED 24-INCHES.

**FOR BIDDING PURPOSES ONLY
NOT FOR CONSTRUCTION**

REV.	DATE	DESCRIPTION	BY	APPVD.	DESIGN BY: M. HARGROVE	SCALE: AS NOTED
A					DRAWN BY: K. CHUNG	DATE: MAY 18, 2011
B					CHECKED BY: M. ROZMAN	DESIGN #: 20104024
C					AS CONSTRUCTED:	PAVEMENT#: N/A

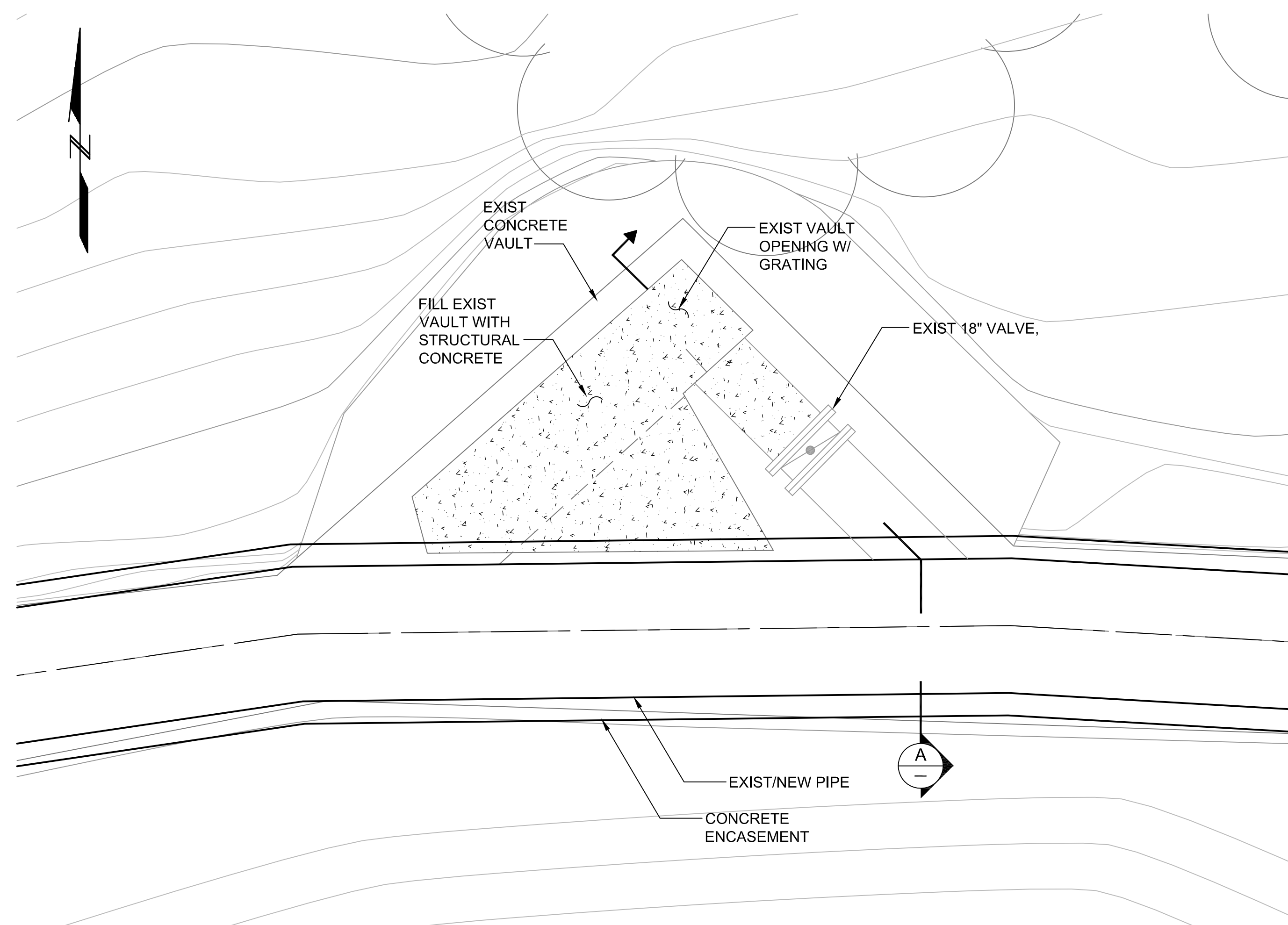


IMPORTANT NOTICE
Section 4216/4217 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert TOLL FREE 8-1-1 Two working days before you dig.

C-07

SWEETWATER AUTHORITY			
PLANS FOR THE INSTALLATION OF: SWEETWATER DAM 36-INCH RAW WATER PIPELINE REPLACEMENT			
30"Ø PIPE LINING SECTION			
1/4 SECTION		W.O. # N/A	
GEI CONSULTANTS INC.	5-18-2011	B.P. # 20104024	
ENGINEER PE	DATE		
SWEETWATER AUTHORITY	5-18-2011	SHEET	
APPROVED	DATE	11 OF 18	

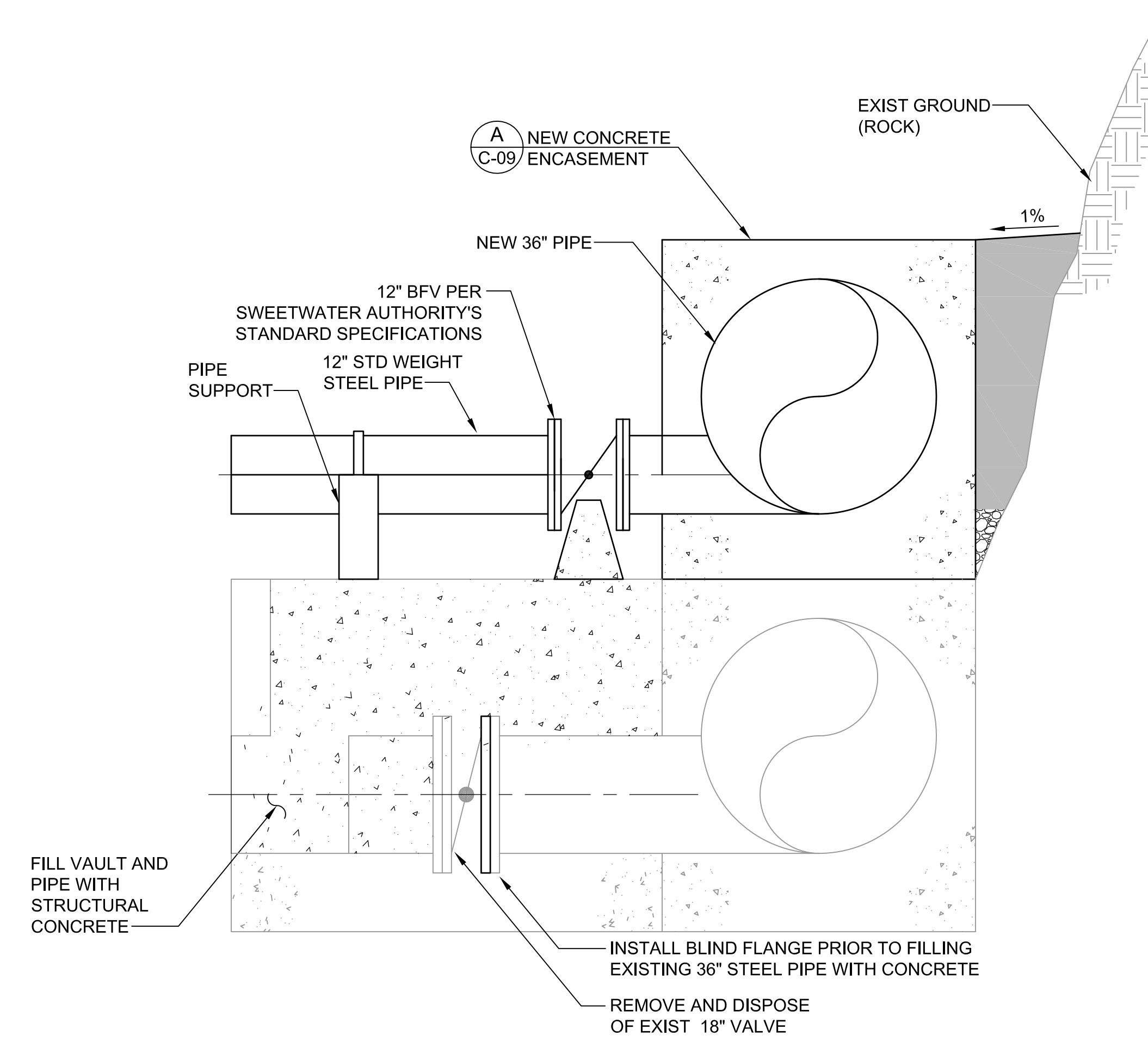
J:\Sweetwater Authority\Projects\022587 Sweetwater Dam-RW Pipe Renovation\6.0 Design\6.4 Drawings\6.4.3 Working Drawings\SWAPR-C08.dwg May 2011



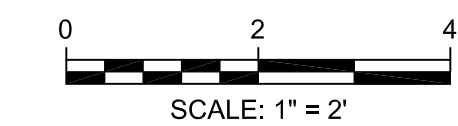
PLAN
 SCALE: 1"=2'-0"

NOTES:

1. FOR LOCATION OF BLOWOFF INSTALLATION, SEE DWG C-02.



SECTION
 AT STA 11+40
 SCALE: 3/4"=1'-0"



C-08

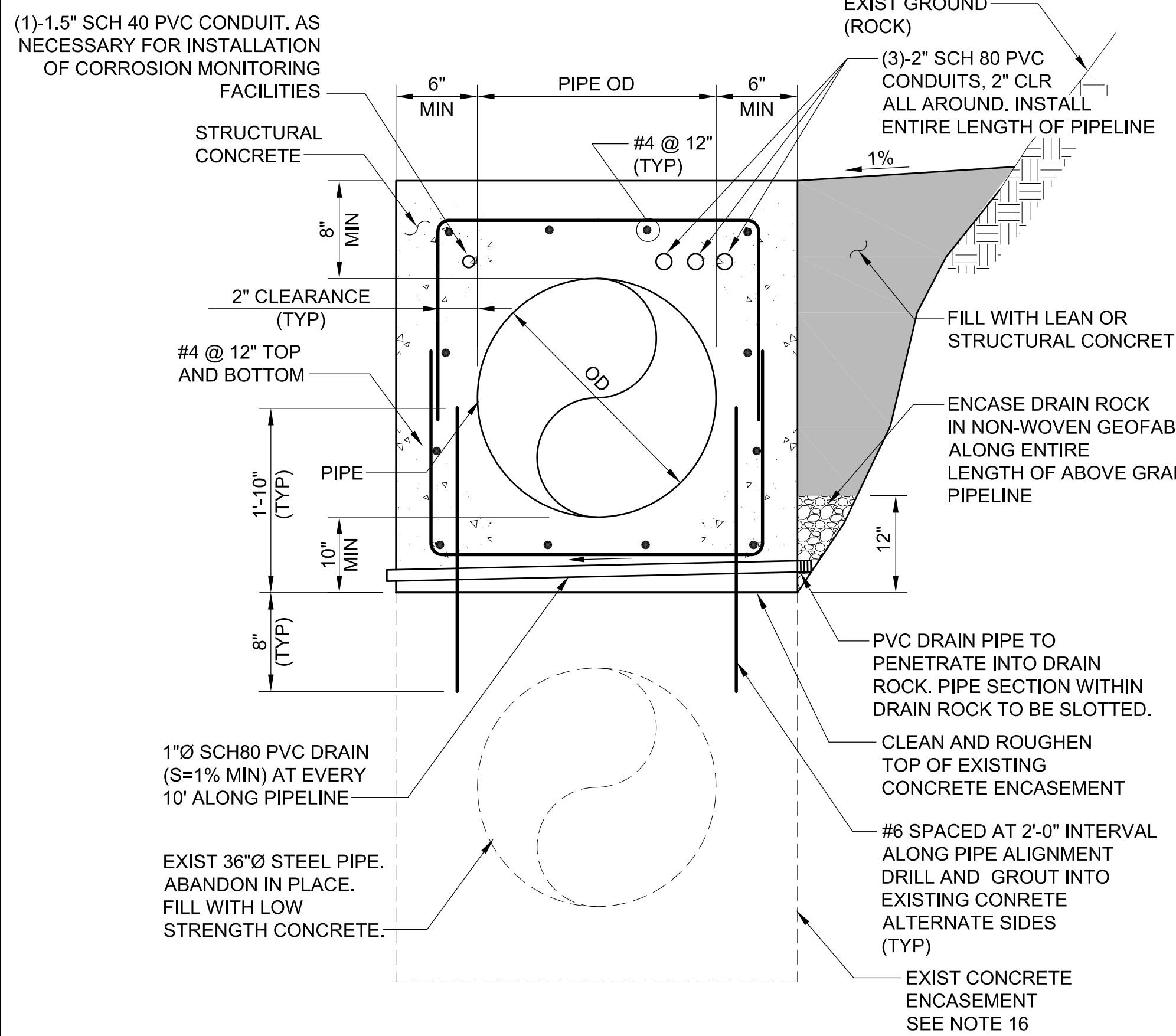
SWEETWATER AUTHORITY			
PLANS FOR THE INSTALLATION OF:			
SWEETWATER DAM			
36-INCH RAW WATER PIPELINE REPLACEMENT			
EXISTING BLOWOFF/VAULT ABANDONMENT AND NEW BLOWOFF INSTALLATION			
1/4 SECTION		W.O. # N/A	
GEI CONSULTANTS INC.	5-18-2011	B.P. # 20104024	
ENGINEER PE	DATE	SHEET	
SWEETWATER AUTHORITY	5-18-2011	12 OF 18	
APPROVED	DATE		

**FOR BIDDING PURPOSES ONLY
 NOT FOR CONSTRUCTION**

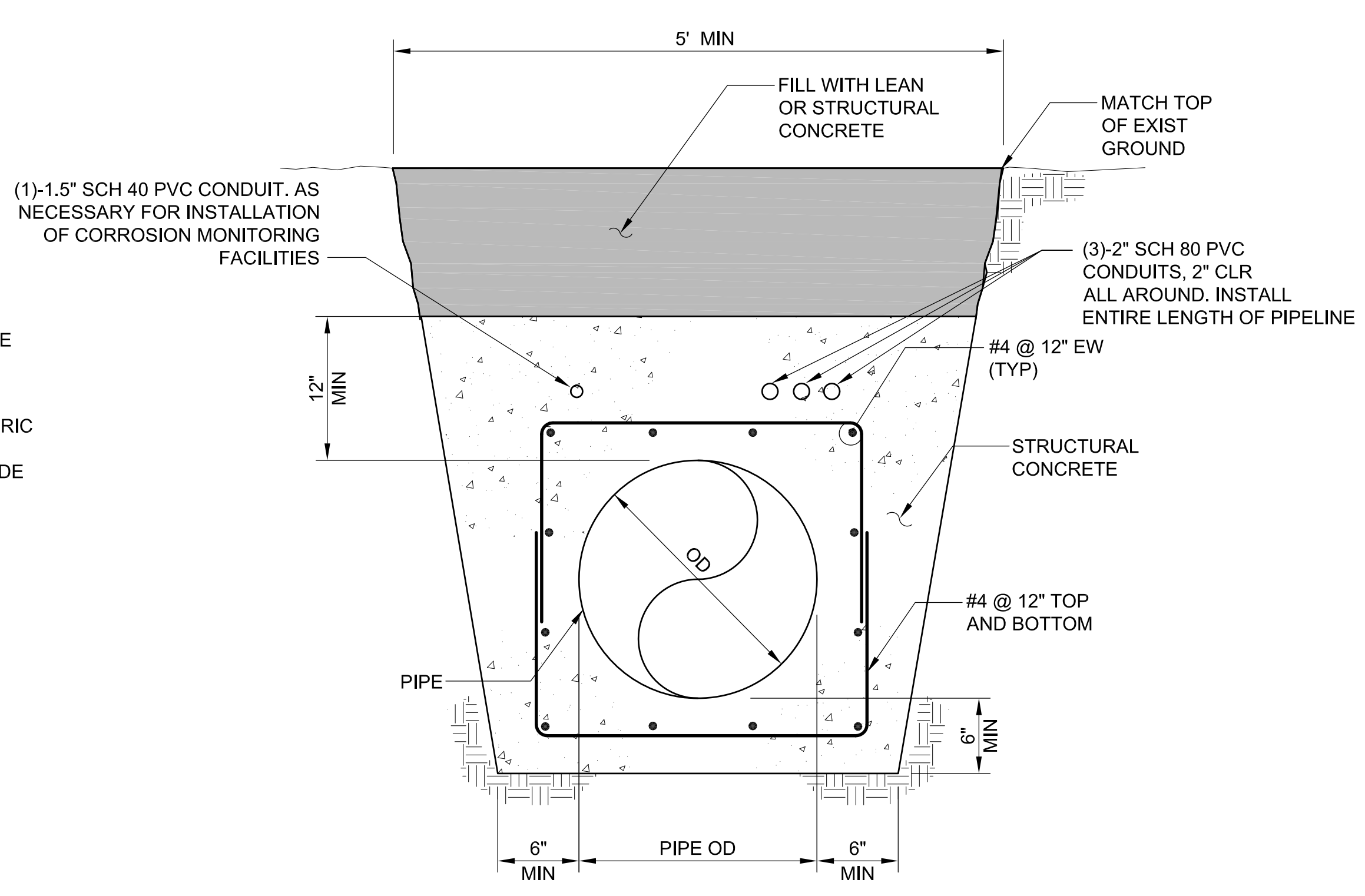
REV.	DATE	DESCRIPTION	BY	APPVD.	DESIGN BY: M. HARGROVE	SCALE: AS NOTED
A					DRAWN BY: K. CHUNG	DATE: MAY 18, 2011
B					CHECKED BY: M. ROZMAN	DESIGN #: 20104024
C					AS CONSTRUCTED:	PAVEMENT#: N/A



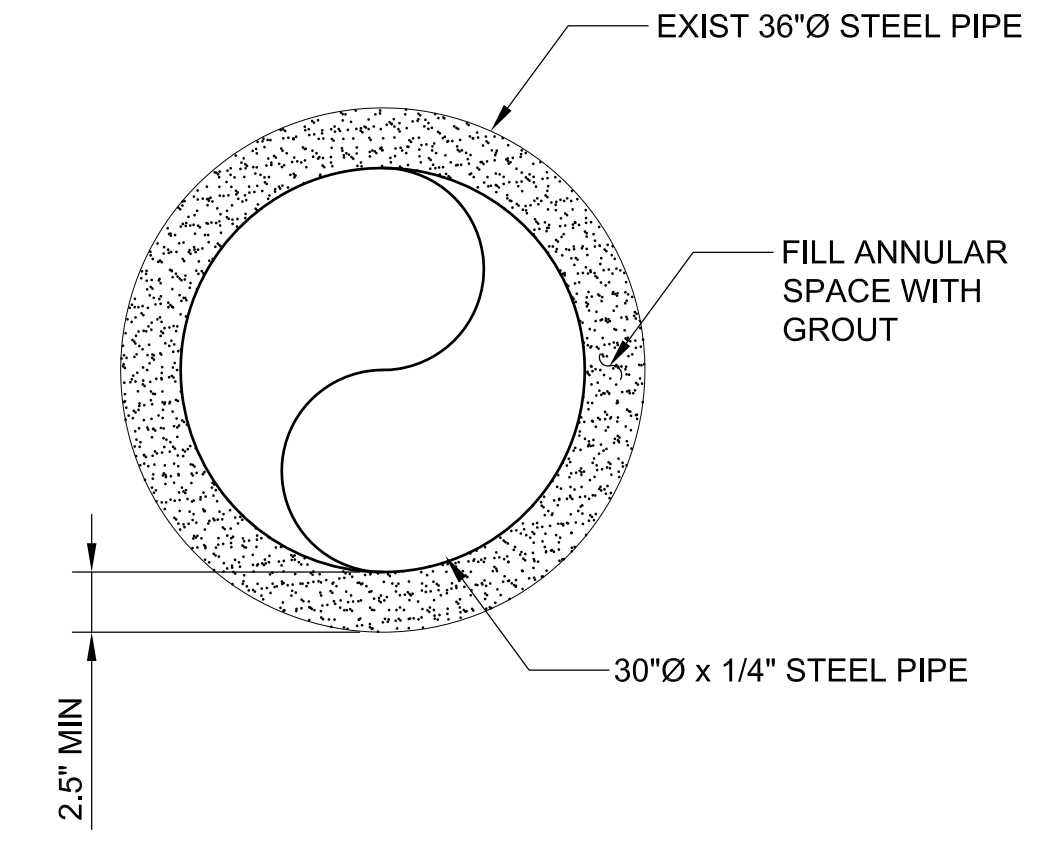
IMPORTANT NOTICE
 Section 4216/4217 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert TOLL FREE 8-1-1 Two working days before you dig.



SECTION A
CONCRETE ENCASEMENT
 (STA 10+00 TO STA 12+00)
 NO SCALE



SECTION B
CONCRETE ENCASEMENT
 (STA 12+00 TO STA 16+25.9±)
 NO SCALE



DETAIL 1
STEEL PIPE LINER
 (STA 16+25.85 TO STA 16+49.7±)
 NO SCALE

NOTE: SEE SECTION A ON THIS SHEET FOR ADDITIONAL REINFORCEMENT DETAILS.

REINFORCED CONCRETE NOTES:

- ALL CONCRETE SHOWN ON THIS DRAWING SHALL BE STRUCTURAL CONCRETE WHICH SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS, UNLESS OTHERWISE NOTED.
- ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO THE REQUIREMENTS OF ASTM A-615, GRADE 60, UNLESS OTHERWISE NOTED.
- ALL DETAILING, FABRICATION AND PLACING OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ACI-315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", LATEST EDITION.
- THE FIRST AND LAST BARS SHALL START AND END A MAXIMUM OF ONE HALF OF THE ADJACENT BAR SPACING OR 3-INCHES, WHICHEVER IS LESS, FROM THE START OR END OF THE MEMBER.
- ALL CONSTRUCTION JOINTS SHALL BE ROUGH AND THOROUGHLY CLEANED FOR BOND PRIOR TO PLACING CONCRETE.
- TOLERANCES FOR PLACING REINFORCING STEEL SHALL BE ± 3/8 INCH.
- DOWELS, PIPING, WATERSTOPS AND OTHER EMBEDS SHALL BE HELD SECURELY IN PLACE WHILE THE CONCRETE IS BEING POURED.
- ALL GROUT SHALL BE NON-SHRINK, UNLESS OTHERWISE NOTED.
- BAR SUPPORTS, SPACERS, AND OTHER ACCESSORIES ARE NOT SHOWN ON THE DESIGN DRAWINGS.
- METAL CLIPS OR SUPPORTS SHALL NOT BE PLACED IN CONTACT WITH THE FORMS OR SUBGRADE. CONCRETE BLOCKS OR DOBIES SHALL BE IN SUFFICIENT NUMBERS TO SUPPORT THE BARS ON THE SUBGRADE WITHOUT SETTLEMENT. IN NO CASE SHALL SUCH SUPPORT BE CONTINUOUS.
- DOWELS SHALL BE SET AND WIRED OR OTHERWISE HELD IN PLACE PRIOR TO PLACING CONCRETE. DOWELS SHALL NOT BE INSERTED INTO FRESHLY PLACED CONCRETE.
- A MINIMUM CLEAR DISTANCE OF 2 INCHES SHALL BE MAINTAINED BETWEEN THE REINFORCING STEEL AND ALL PIPES, PIPE FLANGES OR OTHER METAL PARTS EMBEDDED IN THE CONCRETE.
- ALL ITEMS EMBEDDED IN THE CONCRETE SHALL BE SPACED AT NO LESS THAN 4 TIMES THE OUTSIDE DIMENSION OF THE LARGEST ITEM. THE OUTSIDE DIMENSION SHALL NOT EXCEED ONE THIRD THE CONCRETE MEMBER THICKNESS.
- UNLESS OTHERWISE SHOWN ON THE DRAWINGS, CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS:
 CONCRETE PLACED AGAINST EARTH.....3"
 FOR SURFACES IN CONTACT WITH WATER OR WEATHER AND FORMED SURFACES IN CONTACT WITH EARTH.....3"
 FOR CONCRETE NOT EXPOSED TO WEATHER OR CONTACT WITH WATER OR EARTH.....3"
- UNLESS OTHERWISE NOTED, WHERE A SINGLE LAYER OF REINFORCING STEEL IS SHOWN, THE REINFORCING SHALL BE CENTERED.
- SWEETWATER AUTHORITY WILL PERFORM CONCRETE CORINGS AND TESTING ON EXISTING CONCRETE ENCASEMENT AT BEGINNING OF PIPELINE SHUTDOWN.



IMPORTANT NOTICE
 Section 4216/4217 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert TOLL FREE 8-1-1 Two working days before you dig.

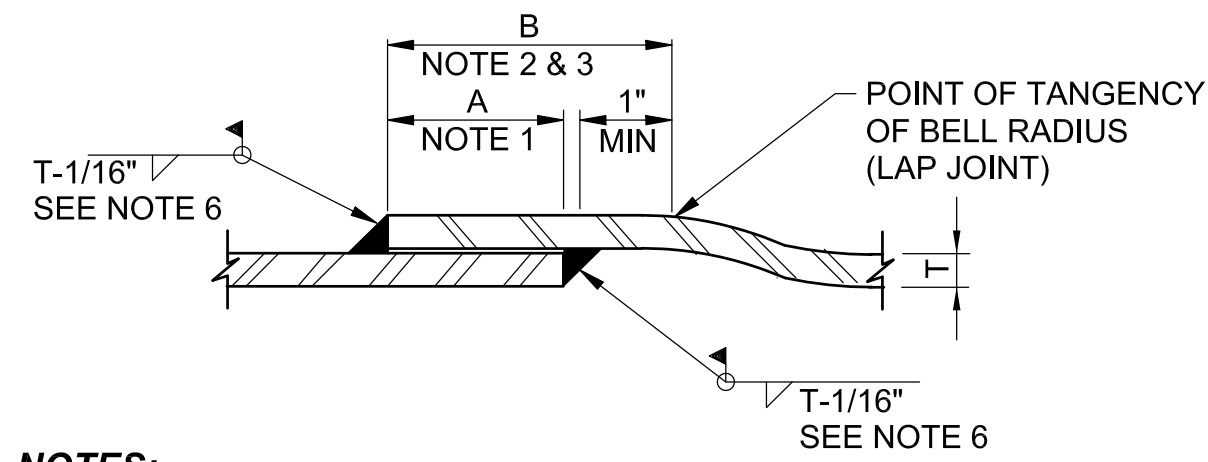
FOR BIDDING PURPOSES ONLY
NOT FOR CONSTRUCTION

REV.	DATE	DESCRIPTION	BY	APPVD.	DESIGN BY: M. HARGROVE	SCALE: AS NOTED
A					DRAWN BY: K. CHUNG	DATE: MAY 18, 2011
B					CHECKED BY: M. ROZMAN	DESIGN #: 20104024
C					AS CONSTRUCTED:	PAVEMENT#: N/A

C-09

SWEETWATER AUTHORITY	
PLANS FOR THE INSTALLATION OF: SWEETWATER DAM 36-INCH RAW WATER PIPELINE REPLACEMENT PIPE ENCASEMENT AND LINING DETAILS	
1/4 SECTION	W.O. # N/A
GEI CONSULTANTS INC.	5-18-2011
ENGINEER PE	DATE
SWEETWATER AUTHORITY	5-18-2011
APPROVED	DATE
SHEET 13 OF 18	

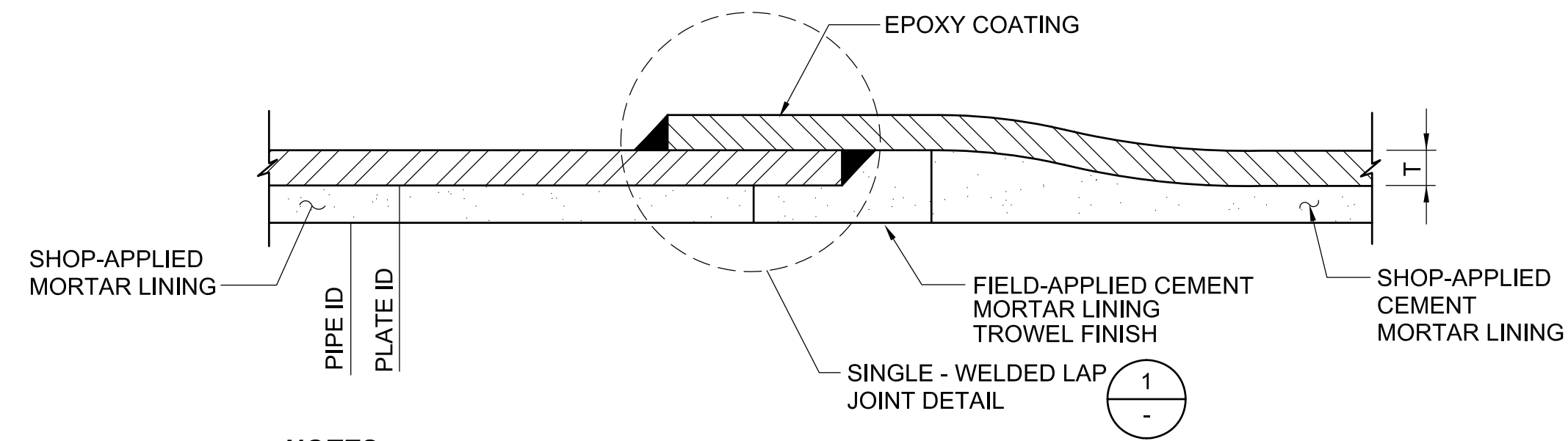
J:\Sweetwater Authority\Projects\022587 Sweetwater Dam-RW Pipe Renovation\6.0 Design\6.4 Drawings\6.4.3 Working Drawings\SWAPR-C10.dwg May 2011



NOTES:

1. DIMENSION "A" CORRESPONDS TO THE COMPLETED JOINT OVERLAP AFTER WELDING. DIMENSION "A" IS THE GREATER OF 3 INCHES OR 5T, MINIMUM FOR STANDARD JOINTS. INCREASE DIMENSION "A" FOR SPECIAL TEMPERATURE CONTROL JOINTS AS FURTHER DISCUSSED IN NOTE 3.
2. PROVIDE THE MINIMUM OVERLAP DIMENSION "A" AND MAINTAIN THE INDICATED HOLDBACK FOR THE WELD AS REQUIRED FOR THE MINIMUM DIMENSION "B" FOR STANDARD JOINTS.
3. INCREASE DIMENSION "B" BY 3 INCHES FOR SPECIAL TEMPERATURE CONTROL JOINTS AS FURTHER DISCUSSED. AT THE TIME OF INSTALLATION AND PRIOR TO WELDING, INSERT THE SPIGOT INTO THE LENGTHENED BELL TO PROVIDE "A"+3 INCHES MINIMUM OVERLAP. SEE SPECIFICATIONS FOR SPECIAL TEMPERATURE CONTROL JOINT WELDING REQUIREMENTS.
4. CONFIGURATION FOR BELL AND SPIGOT LAP JOINTS SHOWN. CONFIGURATION FOR BUTT STRAP JOINTS ARE SIMILAR.
5. FABRICATE AND INSTALL JOINTS WITHIN THE TOLERANCES INDICATED. TOLERANCE REQUIREMENT APPLY TO BOTH WELDS AND TO BOTH STRAIGHT AND DEFLECTED JOINTS.
6. CONTRACTOR MAY USE EITHER INTERIOR OR EXTERIOR WELD OPTIONS.

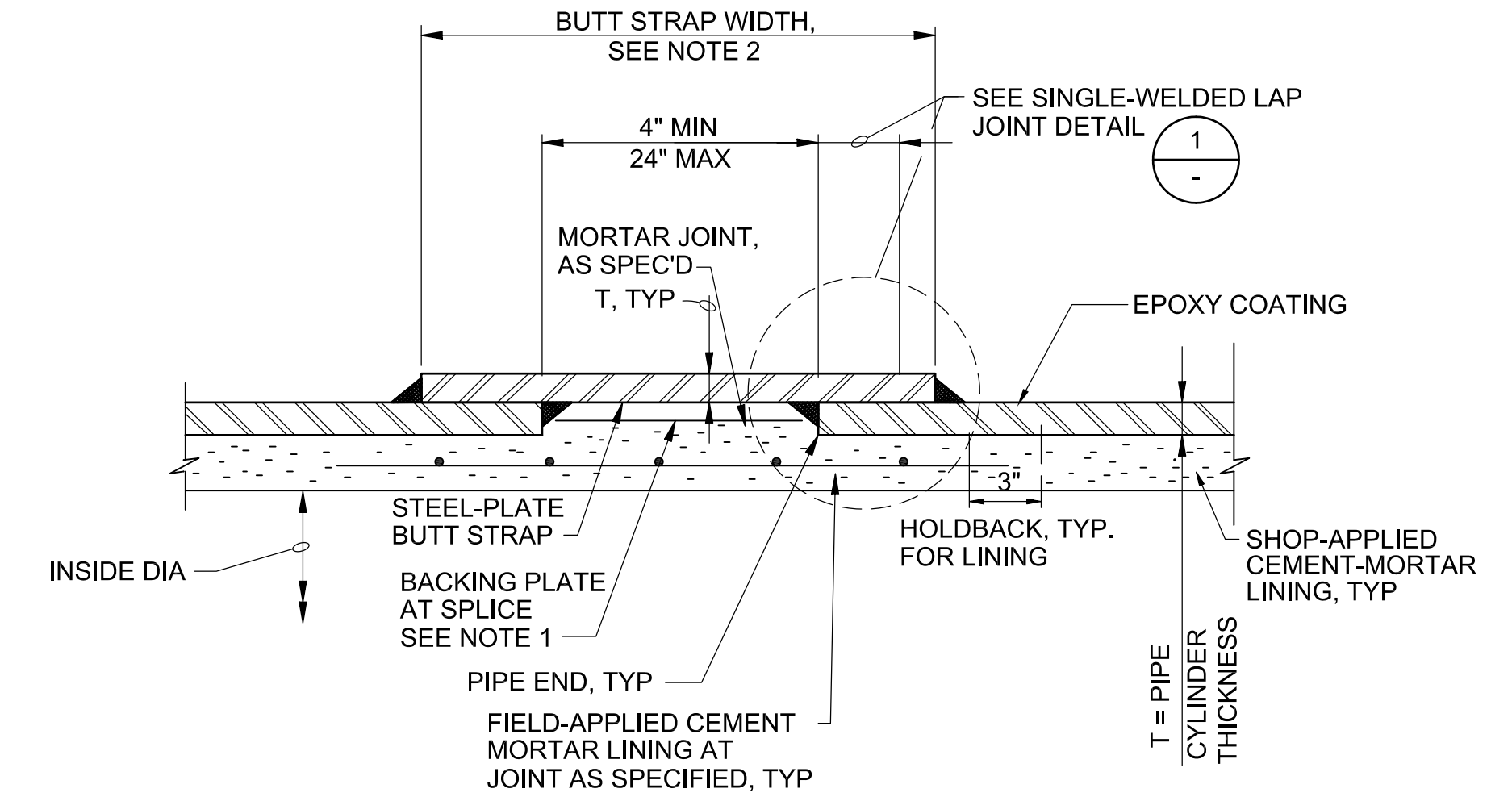
DETAIL 1
SINGLE - WELDED LAP JOINT



NOTES:

1. FOR INSIDE DIAMETER AND PLATE THICKNESS OF WELDED STEEL PIPE, SEE PLAN AND PROFILE DRAWINGS.
2. "T" INDICATES THE THICKNESS OF THE STEEL PLATE.

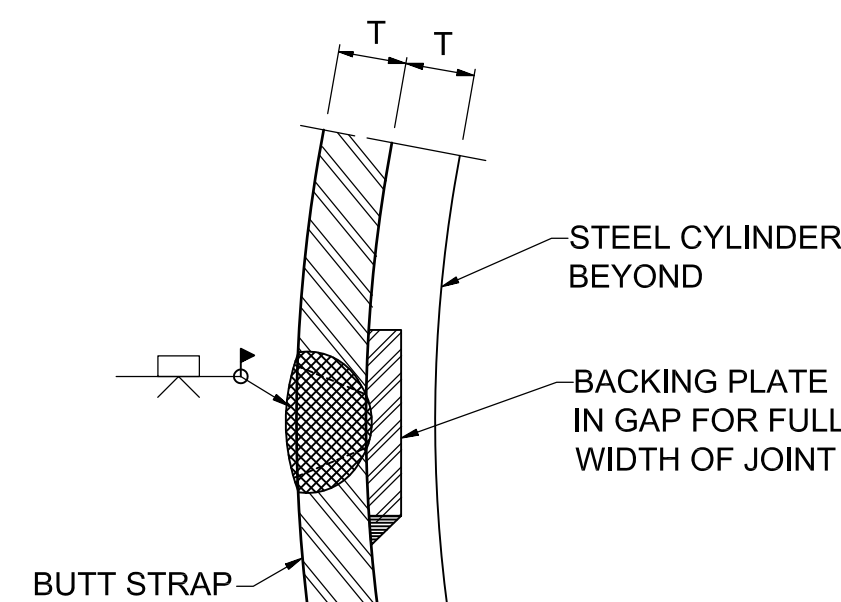
DETAIL 2
JOINT COATING AND LINING AT LAP JOINTS



NOTES:

1. FOR FIELD WELDING OF INDIVIDUAL BUTT STRAP PIECES TO EACH OTHER, SEE BUTT STRAP SPLICE DETAIL ON THIS DRAWING
2. UNLESS OTHERWISE NOTED, CONFORM BUTT STRAP WIDTH TO THE LIMITATIONS SHOWN FOR PIPE END SEPARATION AND OVERLAP REQUIREMENTS. THIS INCLUDES THE ADDITIONAL 3-INCH INCREASE IF A TEMPERATURE CONTROL JOINT IS REQUIRED AT A BUTT STRAP JOINT.

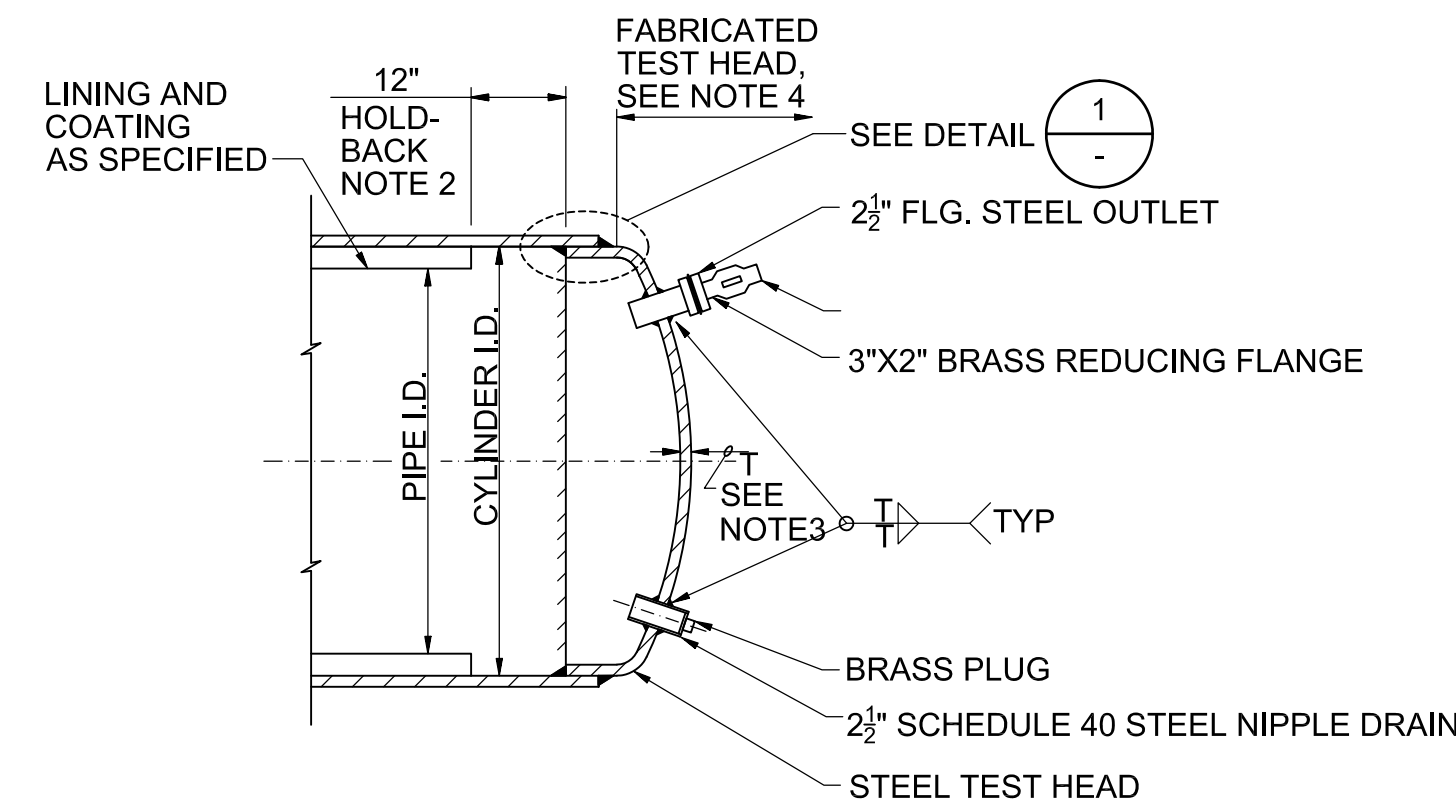
DETAIL 3
BUTT STRAP JOINT



NOTES:

1. LINING AND COATINGS ARE NOT SHOWN FOR CLARITY.
2. LEVEL ENDS OF BACKING PLATE AS BUTT STRAP PRIOR TO WELDING OR BACK GOUGE AT CONTACT WITH ADJACENT CYLINDER PRIOR TO COMPLETING INSIDE FILLET WELD.

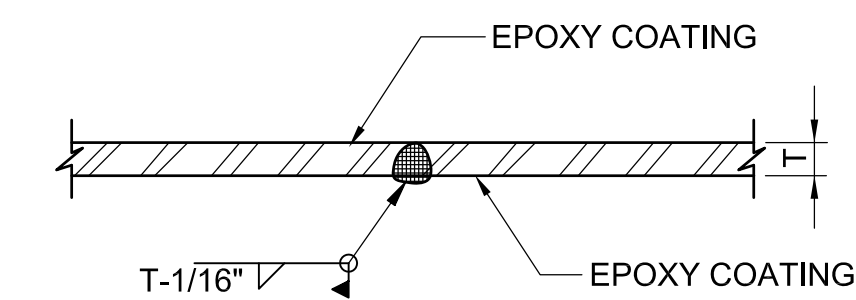
DETAIL 4
BUTT STRAP SPLICE



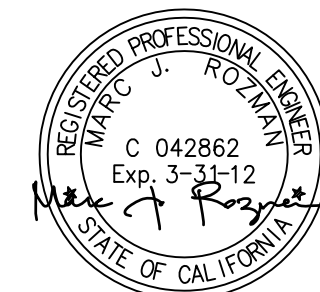
NOTES:

1. LINE AND COAT TEST HEAD AND PLAIN END WITH 3 MILS MINIMUM RUST INHIBITING PRIMER
2. MINIMUM 8" HOLDBACK REQUIRED AFTER TEST HEAD CUT OFF.
3. WALL THICKNESS "T" SHALL BE THE SAME AS THE ADJOINING PIPE OR 3/8-INCH, WHICHEVER IS GREATER.
4. EXCEPT FOR WELDING ON OUTLETS, ALL WELDS ON FABRICATED TEST HEADS SHALL BE FULL PENETRATION BUTT WELDS. ALL BUTT WELDS SHALL BE 100% RADIOGRAPHY TESTED.

DETAIL 5
TEST BULK HEAD



DETAIL 6
SINGLE BUTT WELD JOINT

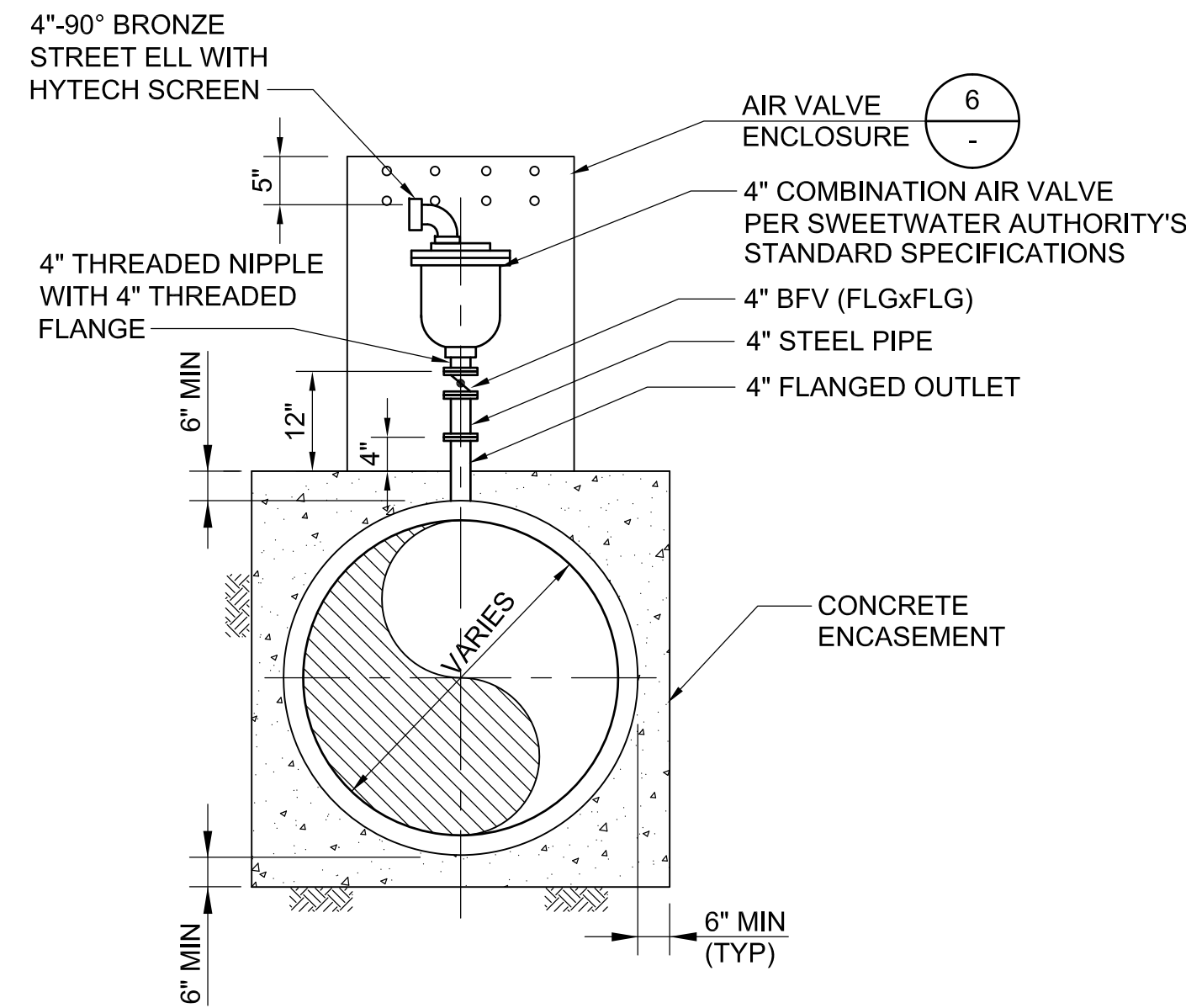


IMPORTANT NOTICE
Section 4216/4217 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert TOLL FREE 8-1-1 Two working days before you dig.

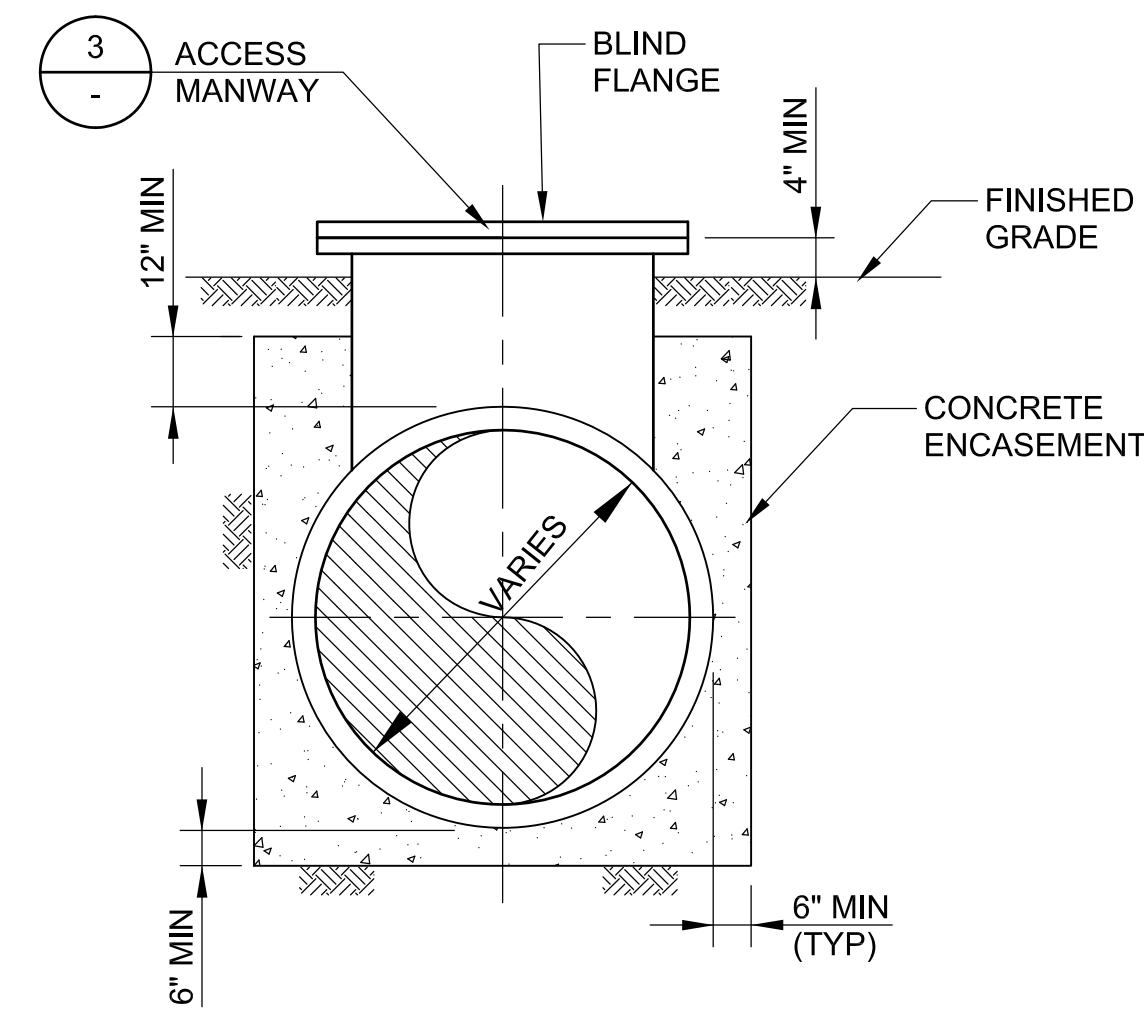
**FOR BIDDING PURPOSES ONLY
NOT FOR CONSTRUCTION**

REV.	DATE	DESCRIPTION	BY	APPVD.	DESIGN BY: M. HARGROVE	SCALE: AS NOTED
A					DRAWN BY: K. CHUNG	DATE: MAY 18, 2011
B					CHECKED BY: M. ROZMAN	DESIGN #: 20104024
C					AS CONSTRUCTED:	PAVEMENT#: N/A

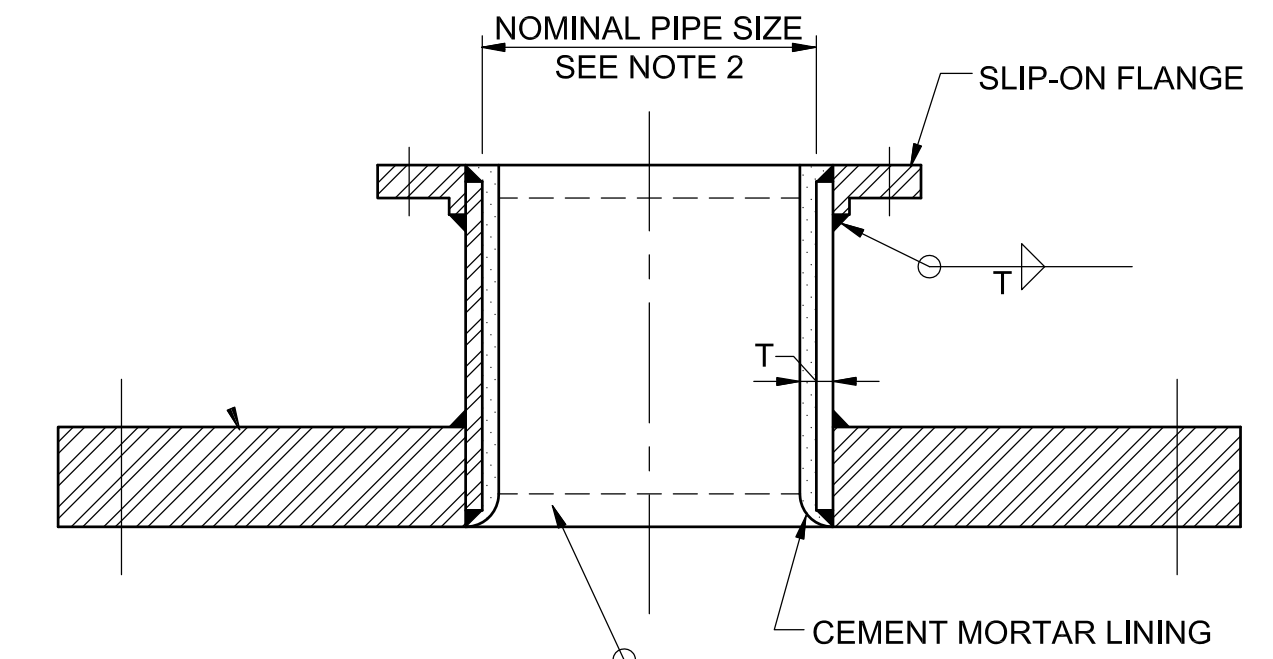
SWEETWATER AUTHORITY			
PLANS FOR THE INSTALLATION OF: SWEETWATER DAM 36-INCH RAW WATER PIPELINE REPLACEMENT			
TYPICAL DETAILS - 1			
1/4 SECTION		W.O. # N/A	
GEI CONSULTANTS INC.	5-18-2011	B.P. # 20104024	
ENGINEER PE	DATE	SHEET	
SWEETWATER AUTHORITY	5-18-2011	14 OF 18	
APPROVED	DATE		



DETAIL 1
COMBINATION VACUUM RELIEF/
AIR RELEASE VALVE (AVRV)

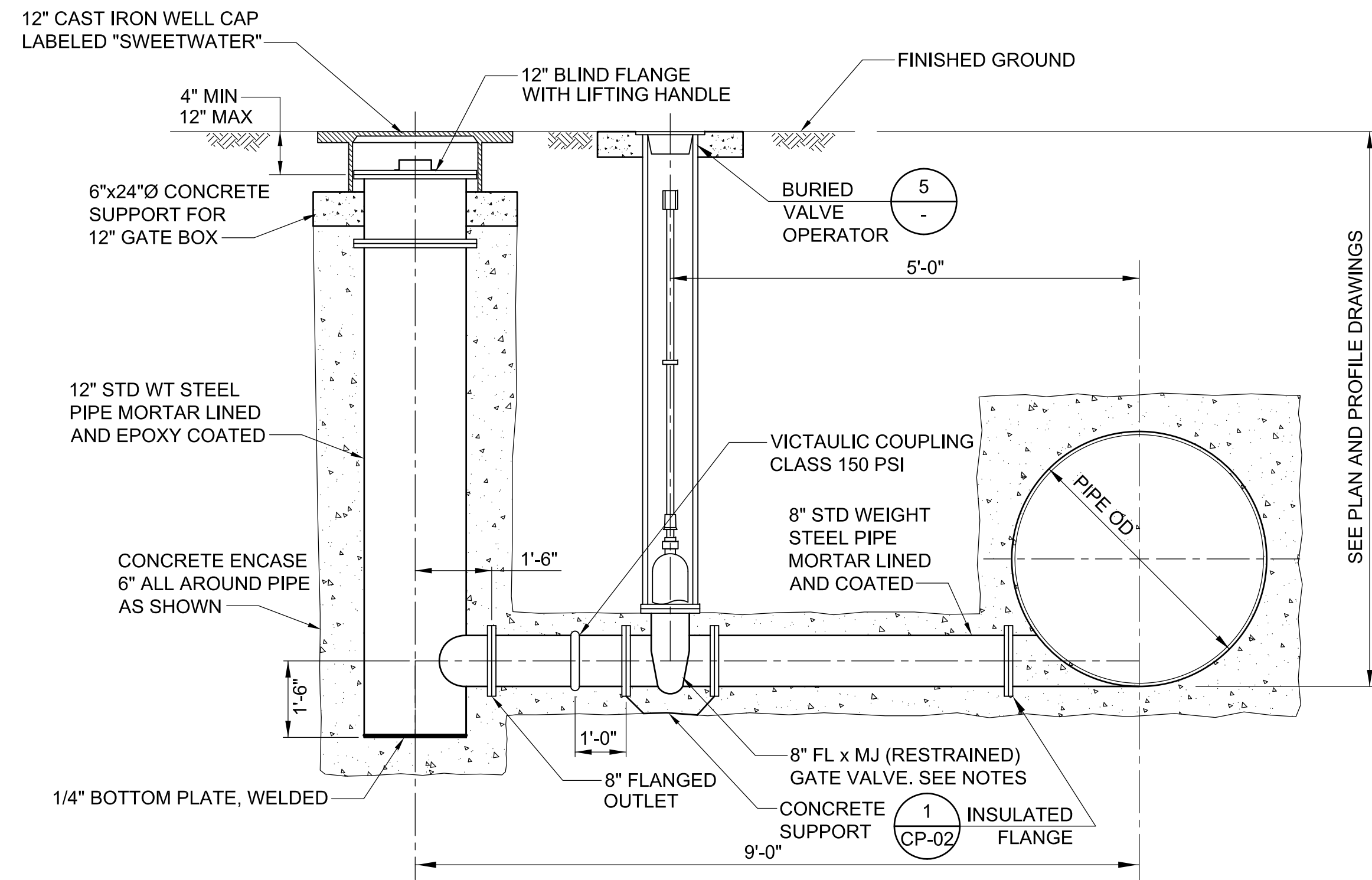


DETAIL 2
TYPICAL MANWAY INSTALLATION



- NOTES:**
1. BOLT HOLES TO STRADDLE PIPE CENTERLINE.
 2. NOMINAL PIPE SIZE SHALL BE 24-INCHES.
 3. "T" SHALL BE DETERMINED BY MANUFACTURER TO MEET DESIGN CONDITIONS.

DETAIL 3
ACCESS MANWAY

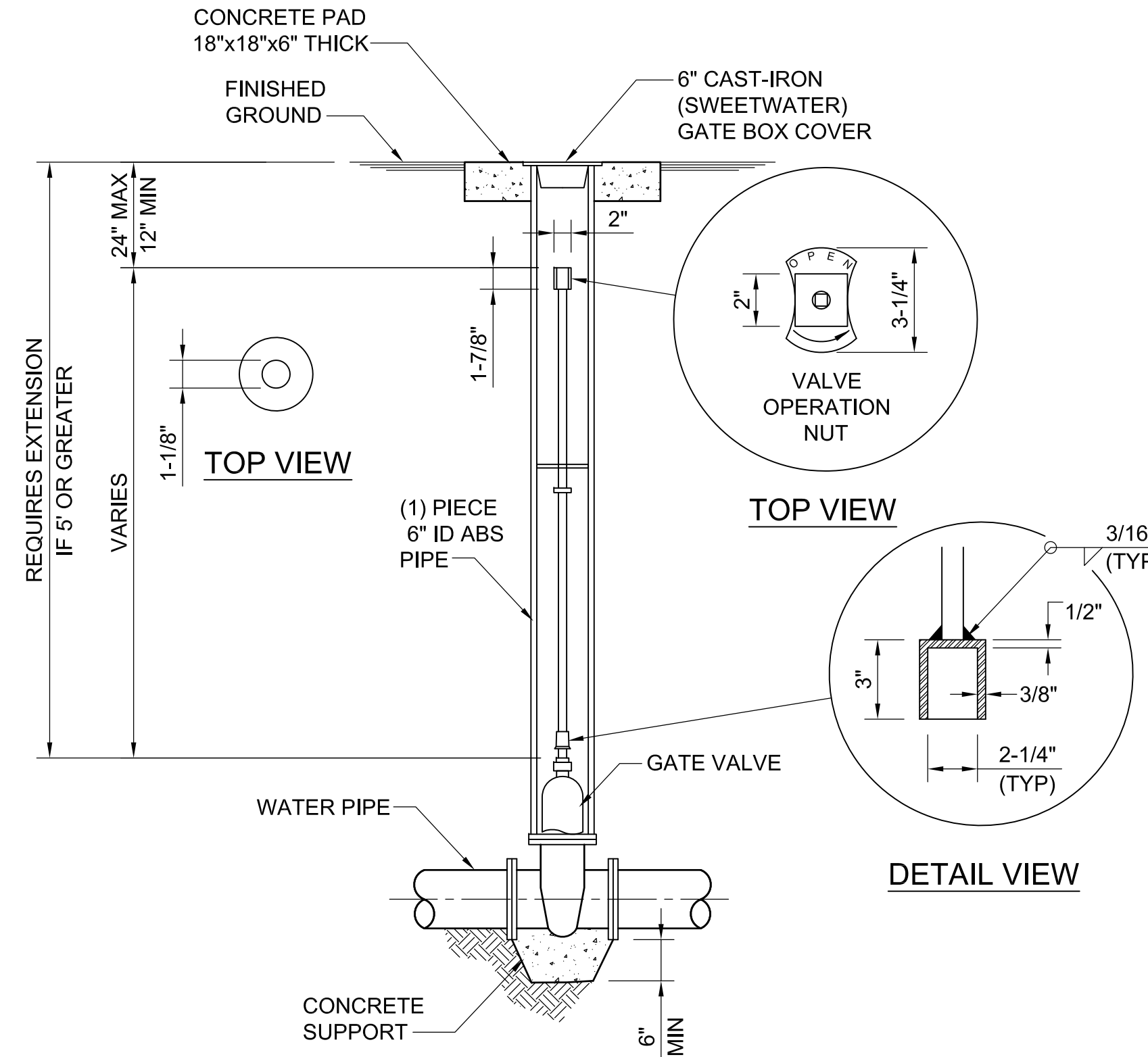


DETAIL 4
TANGENTIAL BLOWOFF

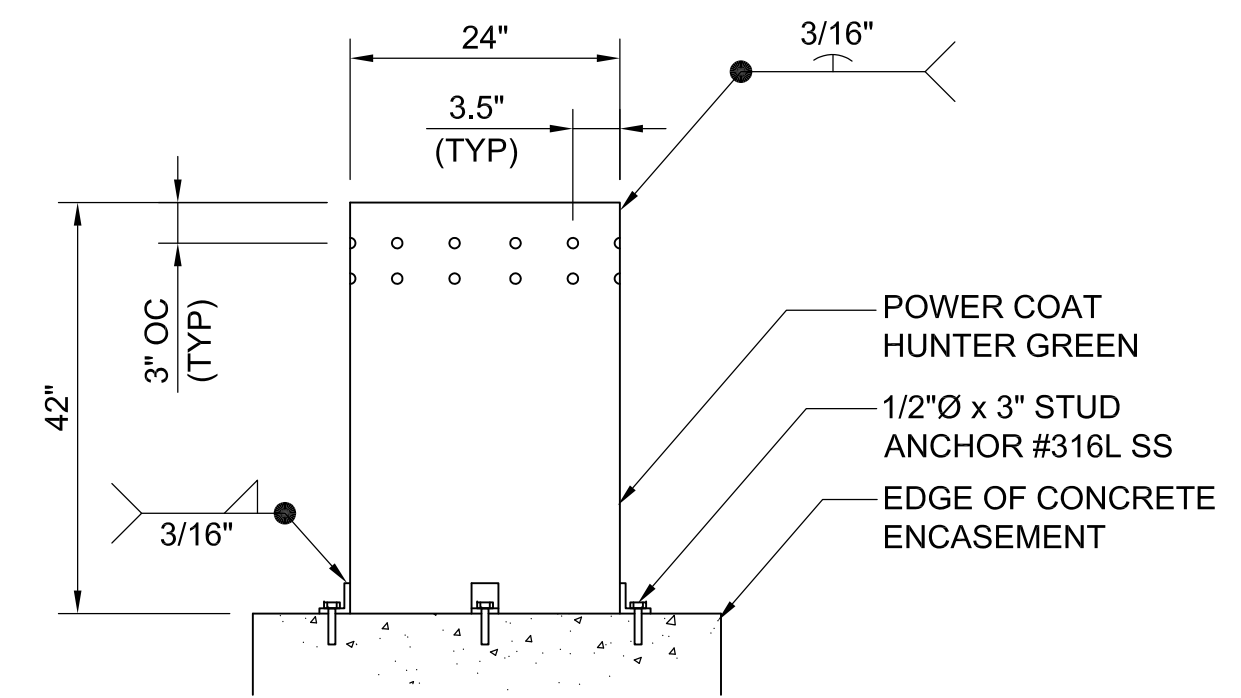
- NOTES:**
1. GATE VALVES SHALL BE PER SWEETWATER AUTHORITY'S STANDARD SPECIFICATIONS.
 2. MECHANICAL JOINTS SHALL BE RESTRAINED WITH EBAA IRON MEGAFLANGE RESTRAINED FLANGE ADAPTOR.



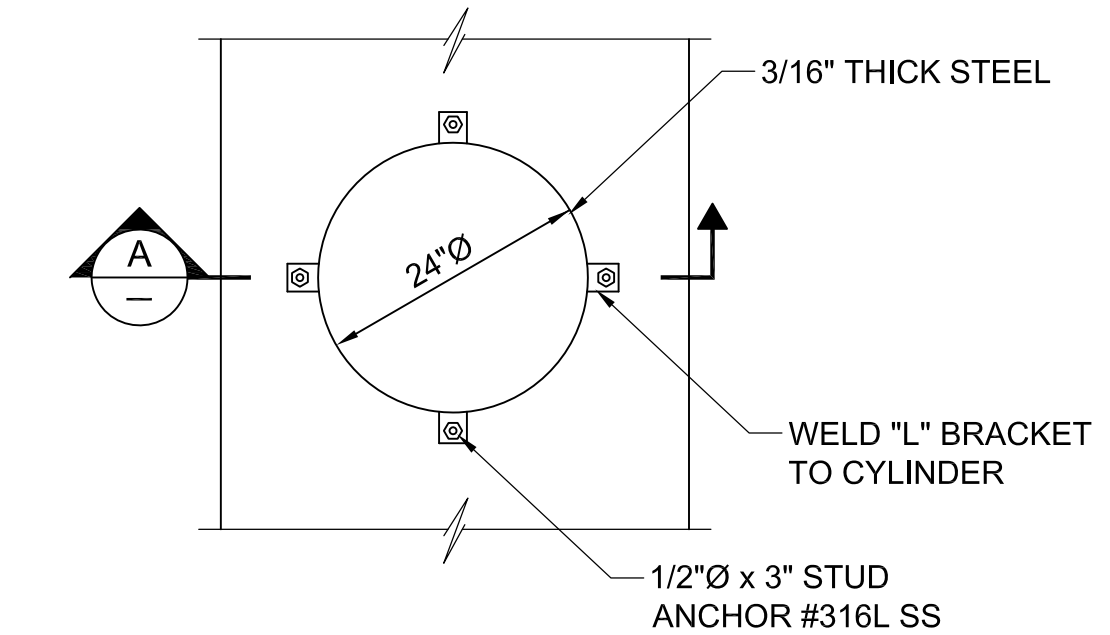
IMPORTANT NOTICE
Section 4216/4217 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert TOLL FREE 8-1-1 Two working days before you dig.



DETAIL 5
VALVE EXTENSION



SECTION A
NO SCALE



DETAIL 6
AIR VALVE ENCLOSURE

**FOR BIDDING PURPOSES ONLY
NOT FOR CONSTRUCTION**

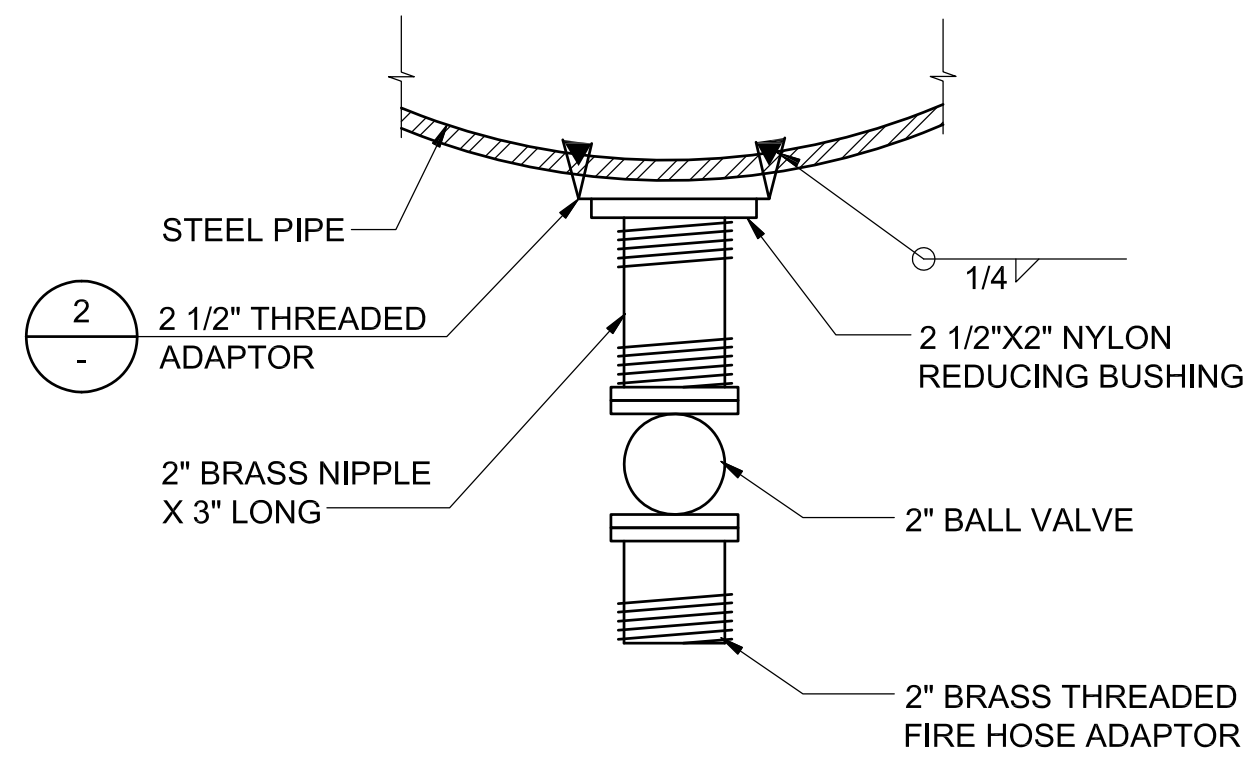
REV.	DATE	DESCRIPTION	BY	APPVD.	DESIGN BY: M. HARGROVE	SCALE: AS NOTED
A					DRAWN BY: K. CHUNG	DATE: MAY 18, 2011
B					CHECKED BY: M. ROZMAN	DESIGN #: 20104024
C					AS CONSTRUCTED:	PAVEMENT#: N/A

SWEETWATER AUTHORITY			
PLANS FOR THE INSTALLATION OF: SWEETWATER DAM 36-INCH RAW WATER PIPELINE REPLACEMENT			
TYPICAL DETAILS - 2			
1/4 SECTION		W.O. # N/A	
GEI CONSULTANTS INC.	5-18-2011	B.P. # 20104024	
ENGINEER PE	DATE	SHEET	
SWEETWATER AUTHORITY	5-18-2011	15 OF 18	
APPROVED	DATE		

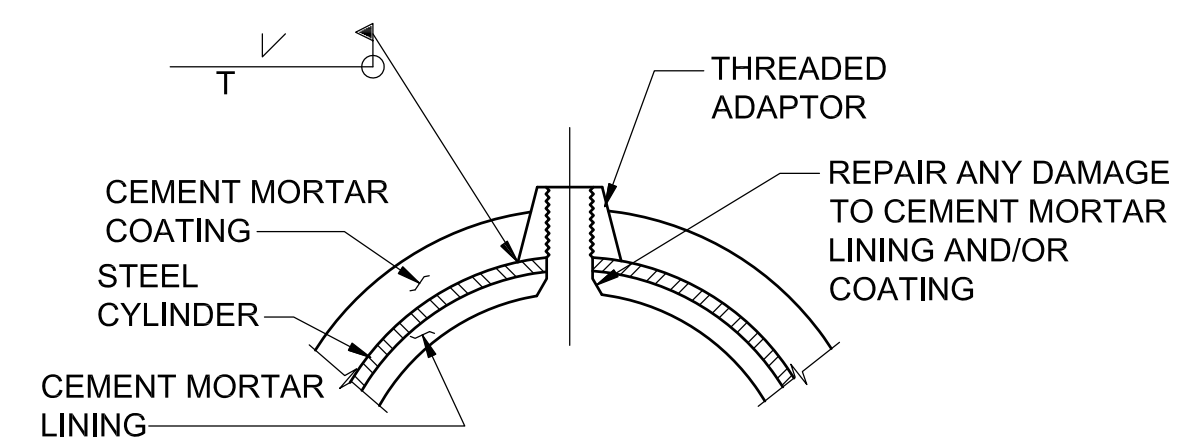
C-11

J:\Sweetwater Authority\Projects\022587 Sweetwater Dam-RW Pipe Renovation\6.0 Design\6.4 Drawings\6.4.3 Working Drawings\SWAPR-C11.dwg May 2011

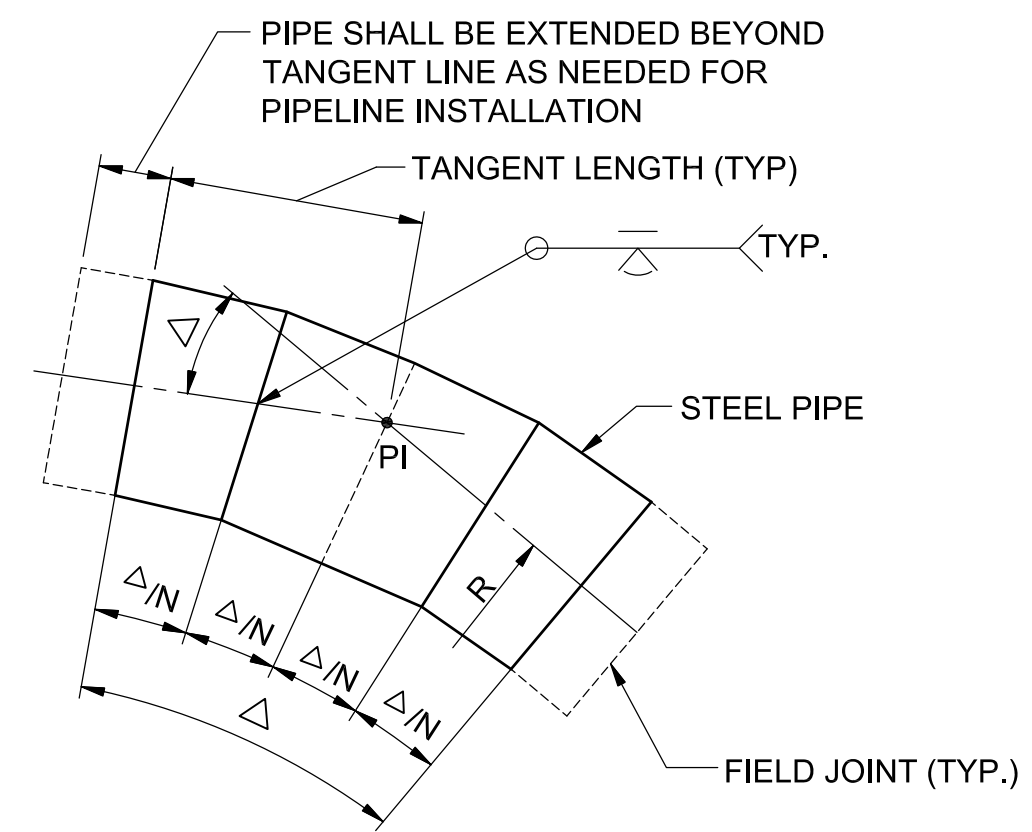
J:\Sweetwater Authority\Projects\022587 Sweetwater Dam-RW Pipe Renovation\6.0 Design\6.4 Drawings\6.4.3 Working Drawings\SWAPR-C12.dwg May 2011



DETAIL 1
DRAIN CONNECTION



DETAIL 2
THREADED ADAPTOR



DETAIL 3
FABRICATED ELBOW FOR STEEL PIPE

(THREE PIECE ELBOW SHOWN: N=4)

SCHEDULE FOR FABRICATED ELBOW		
BEND ANGLE	ELBOW USED	N
$0^\circ < \Delta \leq 15^\circ$	TWO-PIECE	2
$15^\circ < \Delta \leq 30^\circ$	THREE-PIECE	4
$30^\circ < \Delta \leq 45^\circ$	FOUR-PIECE	6
$45^\circ < \Delta \leq 90^\circ$	FIVE-PIECE	8

ELBOW RADIUS	
PIPE DIAMETER (NOM)	R (MIN)
24"	5'-0"
30"	6'-3"
36"	7'-6"
42"	8'-9"
48"	10'-0"
54"	11'-3"
78"	16'-3"

SWEETWATER AUTHORITY

PLANS FOR THE INSTALLATION OF:
SWEETWATER DAM
36-INCH RAW WATER PIPELINE REPLACEMENT

TYPICAL DETAILS - 3

1/4 SECTION	W.O. # N/A
GEI CONSULTANTS INC. 5-18-2011	B.P. # 20104024
ENGINEER PE DATE	SHEET
SWEETWATER AUTHORITY 5-18-2011	16 OF 18
APPROVED DATE	

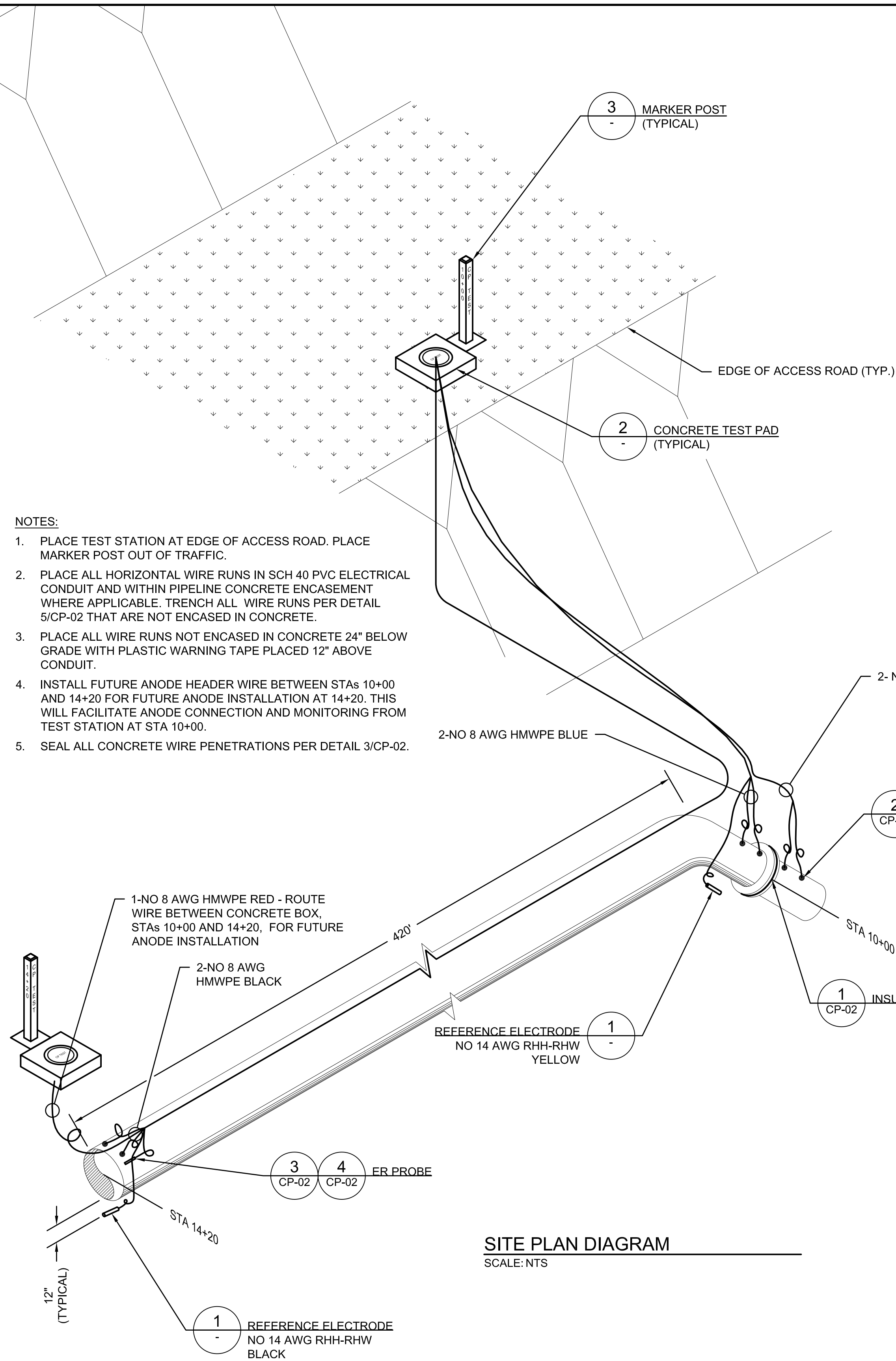
FOR BIDDING PURPOSES ONLY
NOT FOR CONSTRUCTION

REV.	DATE	DESCRIPTION	BY	APPVD.	DESIGN BY: M. HARGROVE	SCALE: AS NOTED
A					DRAWN BY: K. CHUNG	DATE: MAY 18, 2011
B					CHECKED BY: M. ROZMAN	DESIGN #: 20104024
C					AS CONSTRUCTED:	PAVEMENT#: N/A

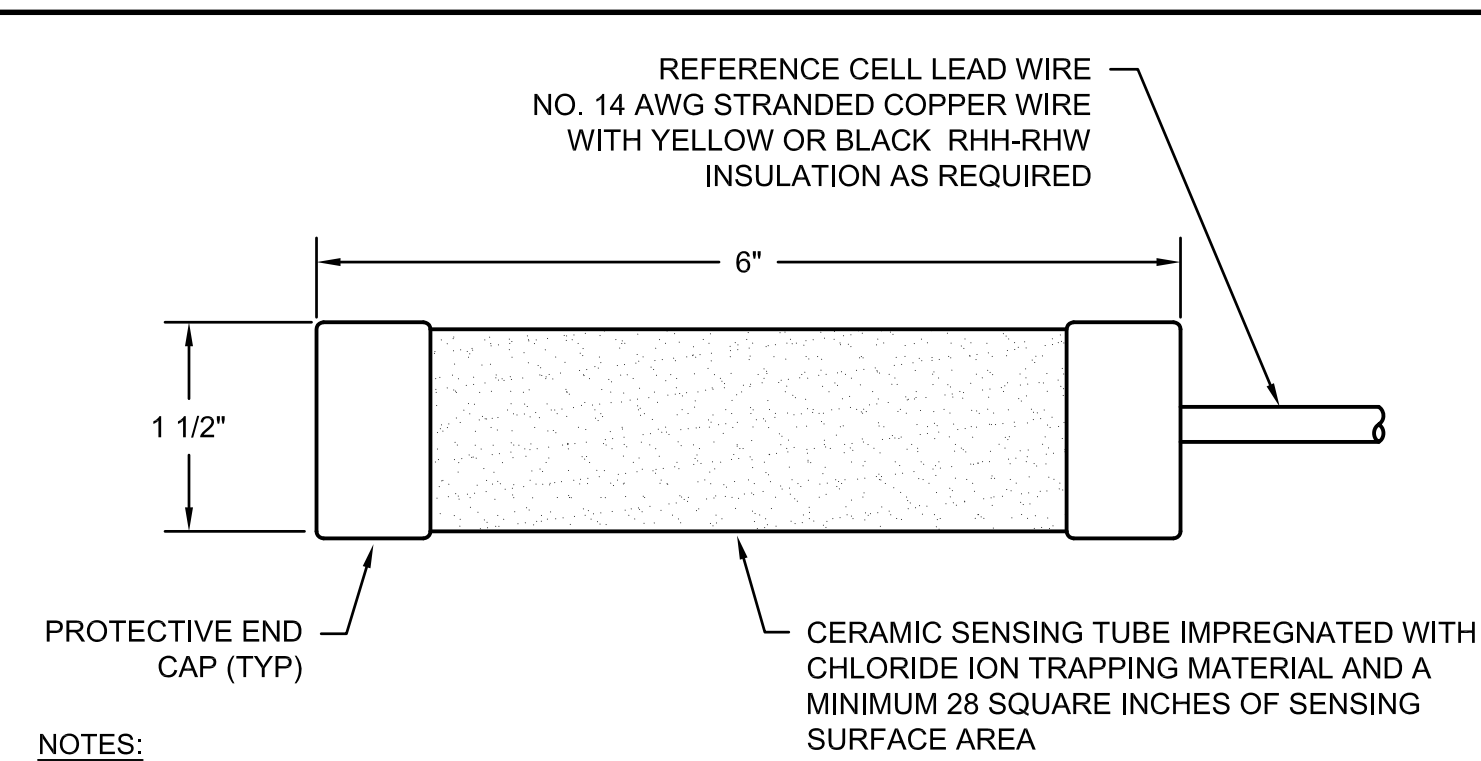


IMPORTANT NOTICE
Section 4216/4217 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert TOLL FREE 8-1-1 Two working days before you dig.

J:\Sweetwater Authority\Projects\022567 Sweetwater Dam-RW Pipe Renovation\6.0 Design\6.4 Drawings\6.4.3 Working Drawings\Schiff\10-1078ENGP-REV\05.dwg - May 2011



SITE PLAN DIAGRAM
SCALE: NTS



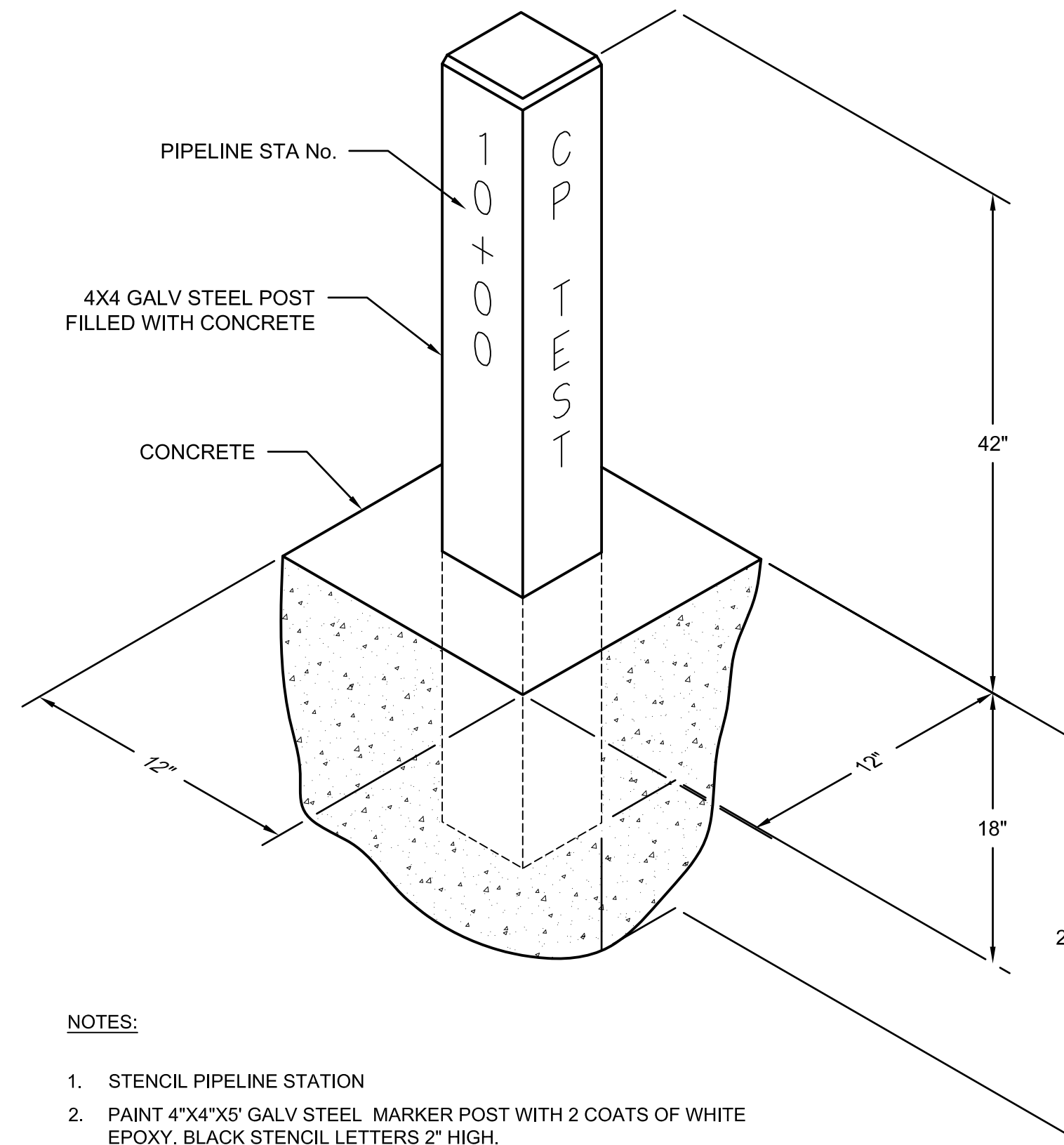
NOTES:

1. THE REFERENCE ELECTRODE SHALL HAVE A MINIMUM SENSING SURFACE AREA OF 28 SQUARE INCHES. IT SHALL BE CAPABLE OF MAINTAINING A STABLE POTENTIAL WITHIN PLUS OR MINUS 10 MILLIVOLTS TO THAT OF A FRESHLY MADE COPPER SULFATE REFERENCE ELECTRODE WHILE A 3 MICROAMPERE ELECTRICAL CURRENT IS APPLIED TO IT. PROVIDE STELTH 2 MODEL SRE-007-CUY BY BORIN MANUFACTURING OR STAPERM MODEL CU-1-UGPC BY GMC CORROSION, OR APPROVED EQUAL.
2. MEASURE THE ACCURACY OF EACH COPPER SULFATE REFERENCE ELECTRODE BEFORE INSTALLING IT BY MEASURING THE DC VOLTAGE DIFFERENCE BETWEEN IT AND ONE OR MORE REFERENCE ELECTRODES OF KNOWN ACCURACY. THE MEASUREMENTS SHALL BE LESS THAN PLUS OR MINUS 0.010 DC VOLTS FOR ALL REFERENCE ELECTRODES. PERFORM THESE MEASUREMENTS AFTER TOTALLY SUBMERGING THE REFERENCE ELECTRODES IN A FIVE-GALLON BUCKET OF WATER FOR A MINIMUM PERIOD OF 15 MINUTES. USE ONLY POTABLE DRINKING WATER FOR THIS TEST. BRACKISH WATER OR SALTWATER WILL AFFECT THE TEST RESULTS AND DAMAGE THE REFERENCE ELECTRODE. PROVIDE FIVE DAYS WRITTEN NOTICE TO THE ENGINEER TO ALLOW THESE TESTS TO BE WITNESSED.

REFERENCE ELECTRODE

SCALE: 3/4

1
CP-01



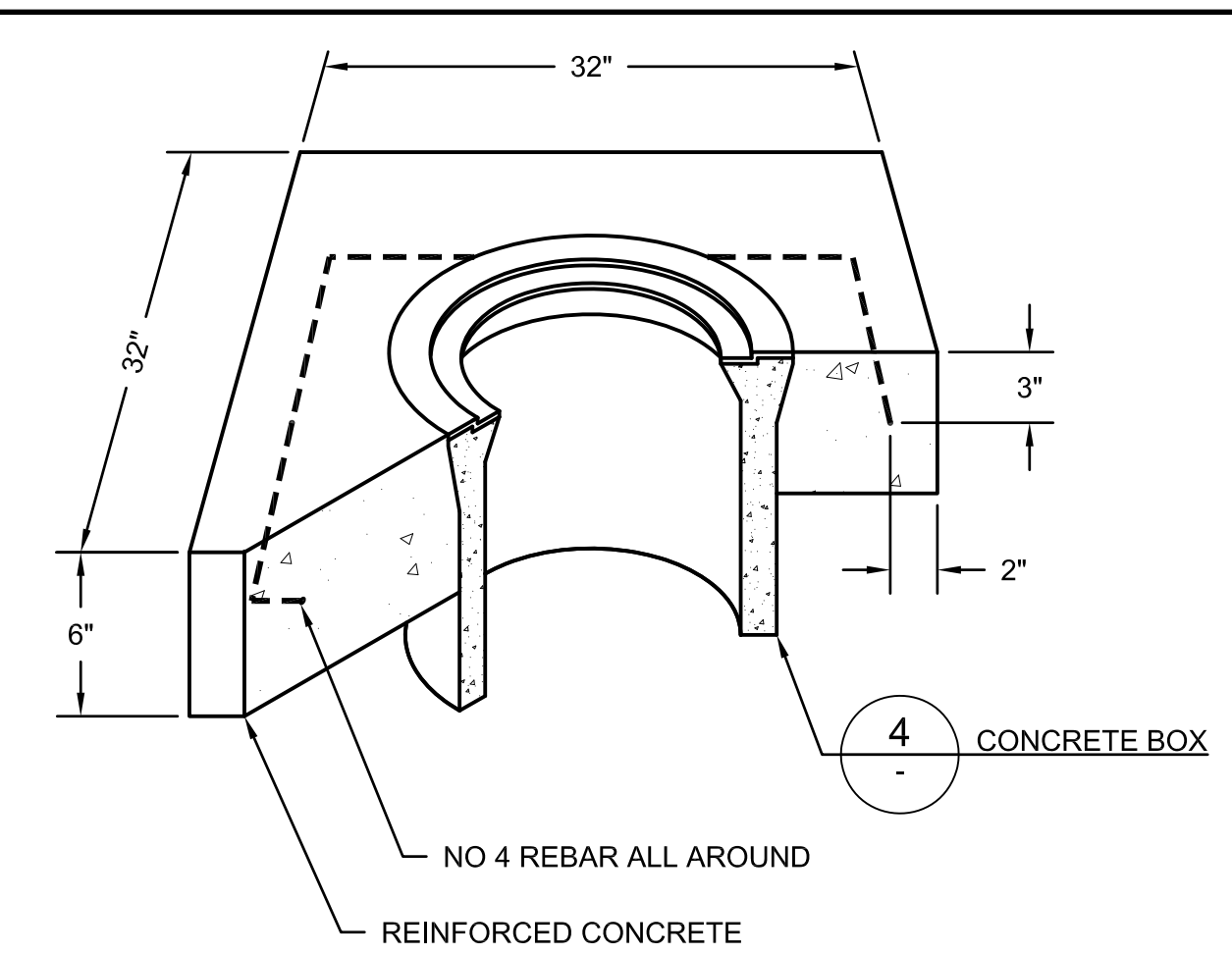
NOTES:

1. STENCIL PIPELINE STATION
2. PAINT 4"X4"X5' GALV STEEL MARKER POST WITH 2 COATS OF WHITE EPOXY. BLACK STENCIL LETTERS 2" HIGH.

MARKER POST

SCALE: NTS

3
CP-01



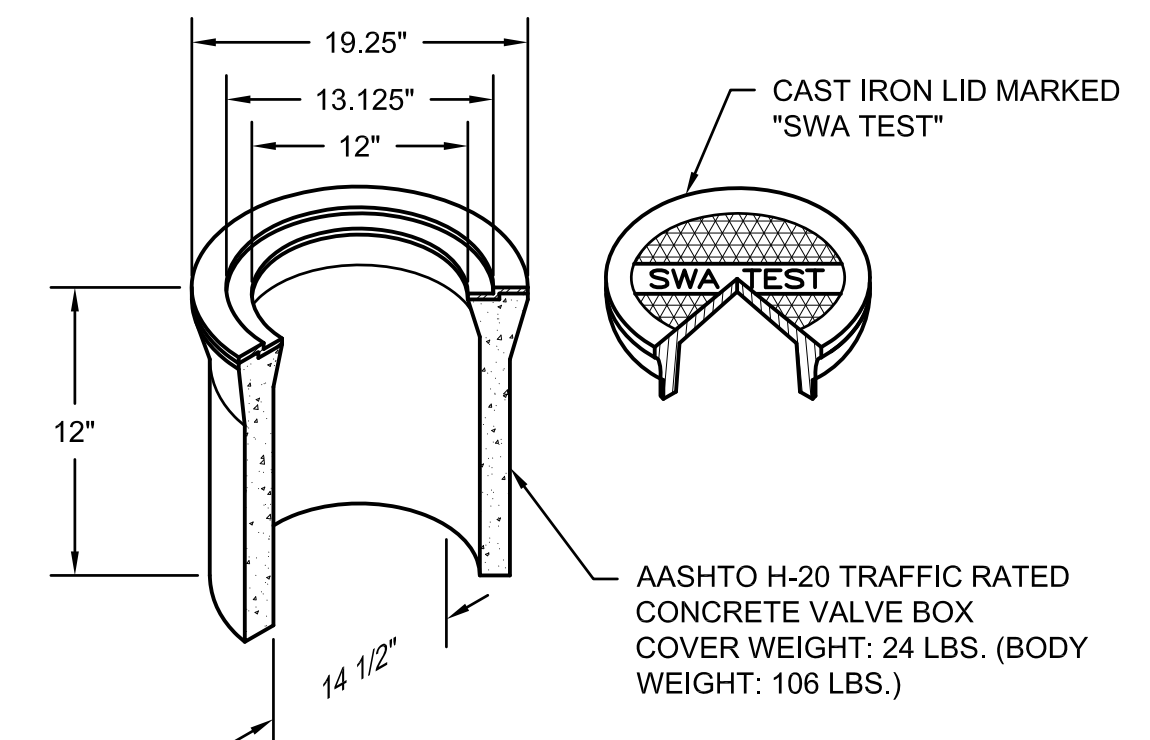
NOTES:

1. SLOPE CONCRETE PAD 2% ALL AROUND TO PREVENT WATER PONDING.
2. EDGE OF CONCRETE PAD SHALL BE 1/2" ABOVE FINISHED GRADE.

CONCRETE TEST PAD

SCALE: NTS

2
CP-01



NOTES:

1. CONCRETE BODY, TRAFFIC RATED CONCRETE VALVE BOX, CHRISTY G8 OR EQUAL.
2. ALL WIRES SHALL HAVE 24" MIN. SLACK IN BOX.
3. BOTTOM OF TEST BOX SHALL BE NATIVE SOIL. DO NOT PLACE ROCK, GRAVEL OR SAND IN TEST BOX.
4. PROVIDE 32" SQ. X 6" THICK REINFORCED CONCRETE PAD AROUND TEST BOXES AT UNPAVED SITES.
5. AFFIX WIRE MARKERS PER DETAIL 6/CP-02

CONCRETE BOX

SCALE: NTS

4
CP-01



IMPORTANT NOTICE
Section 4216/4217 of the Government Code requires a Dig Alert Identification Number be issued before a "permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert TOLL FREE 8-1-1 Two working days before you dig.

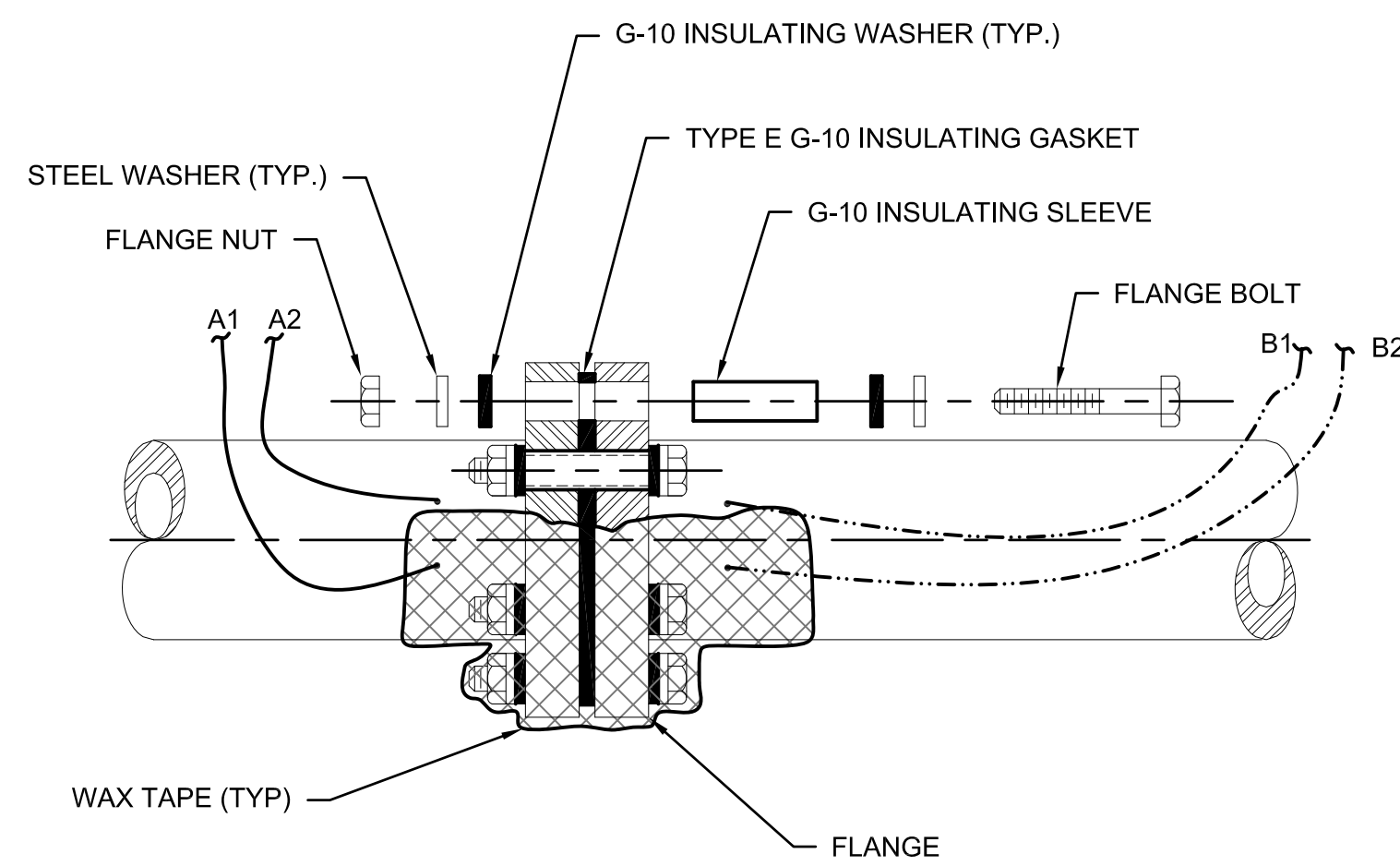
**FOR BIDDING PURPOSES ONLY
NOT FOR CONSTRUCTION**

REV.	DATE	DESCRIPTION	BY	APPVD.	DESIGN BY: S. FOX	SCALE: AS NOTED
A					DRAWN BY: A. OLMOS	DATE: MAY 18, 2011
B					CHECKED BY: B. CLARK	DESIGN# 20104024
C					AS CONSTRUCTED:	PAVEMENT#: N/A

1/4 SECTION		W.O.# N/A
GEI CONSULTANTS, INC.	5/18/2011	B.P.# N/A
ENGINEER PE	DATE	SHEET
SWEETWATER AUTHORITY	5/18/2011	17 OF 18
APPROVED	DATE	

CP-01

SWEETWATER AUTHORITY
PLANS FOR THE INSTALLATION OF:
SWEETWATER DAM
36-INCH RAW WATER PIPELINE REPLACEMENT
CORROSION MONITORING
DETAILS - 1



FLANGED JOINT

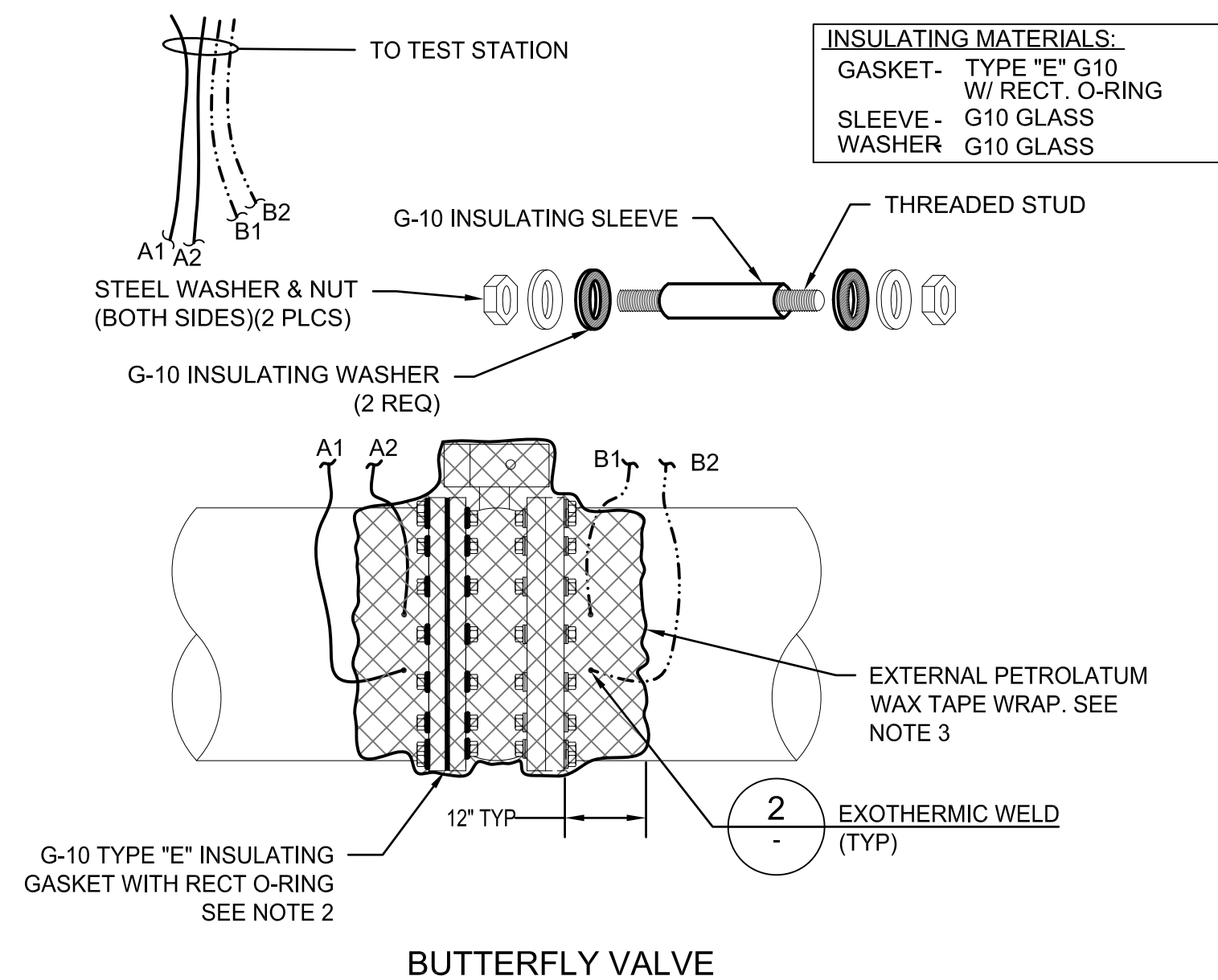
NOTES:

1. FULL LENGTH INSULATING SLEEVES REQUIRED AT ALL THRU-FLANGE BOLTS OR STUDS. HALF LENGTH SLEEVES REQUIRED AT THREADED BOLT HOLES AT VALVE BONNET AND BASE.
2. VALVE AND INSULATING FLANGE KIT TO BE ASSEMBLED BY THE CONTRACTOR AND TESTED BY ENGINEER PRIOR TO BURIAL. RE-TEST AFTER FINAL INSTALLATION. SEE SPECIFICATION SECTION 13 11 00.
3. BURIED INSULATING FLANGES ARE TO WRAPPED WITH WAX TAPE. DAMAGED COATINGS WHERE INSULATING FLANGES ARE INSTALLED IN VAULTS ARE TO BE REPAIRED PER PROJECT COATING SPECIFICATIONS.
4. COATING FOR THE INTERNAL LINING OF THE PIPELINE AT INSULATING FLANGES SHALL BE A TWO PART, SMOOTH, THIXOTROPIC LIQUID EPOXY CONSISTING OF 100 PERCENT SOLID. COATING SHALL BE RAVEN AQUATAPOXY A-6 EPOXY COATING AS MANUFACTURED BY RAVEN LININGS CORPORATION, OR APPROVED EQUAL.
5. SEE SITE PLAN ON CP-01 FOR TEST BOX PLACEMENT.

INSULATING FLANGE

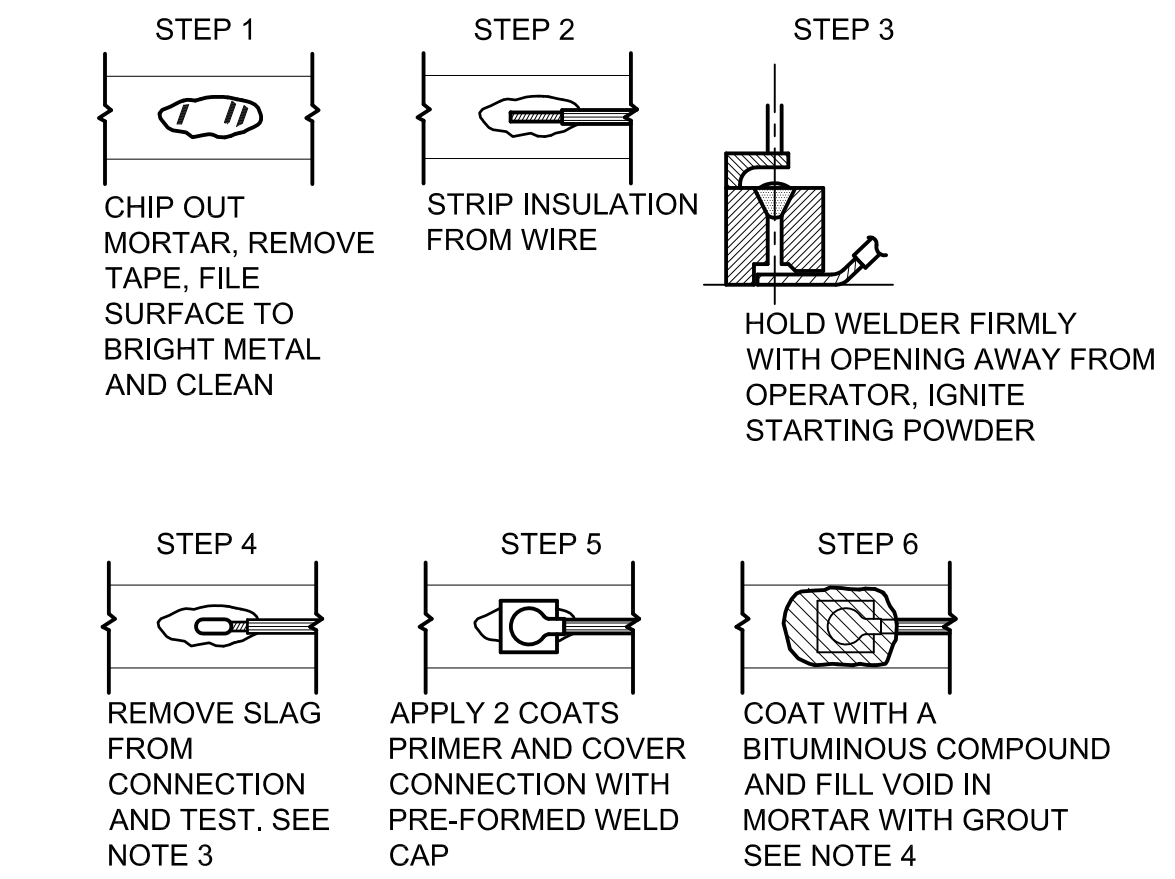
SCALE: NTS

1
CP-01



BUTTERFLY VALVE

INSULATING MATERIALS:
GASKET- TYPE "E" G10 W/ RECT. O-RING
SLEEVE- G10 GLASS
WASHER G10 GLASS



NOTES:

1. WELDER SHOWN IS FOR HORIZONTAL SURFACES; FOR VERTICAL SURFACES SIDE WELDER IS REQUIRED.
2. ATTACH 1 WIRE PER WELD. ALL WIRE WELDS SHALL BE 6 INCHES APART, MINIMUM.
3. ALL WELDS SHALL BE TESTED BY STRIKING THE WELD WITH A 2 LB HAMMER WHILE PULLING FIRMLY ON WIRE. ANY WELDS BROKEN OR LOOSENED SHALL BE RE-WELDED AND RE-TESTED. THE SURFACE MUST BE RE-GROUND AND CLEAN BEFORE RE-WELDING. ALL WELD SLAG SHALL BE REMOVED FROM THE WELD.
4. ALL EXPOSED METAL (STRUCTURE, WIRE, & WELD) WITHIN A 3-INCH RADIUS OF WELD SHALL BE COVERED WITH 2 COATS OF PRIMER AND AN ELASTOMERIC WELD CAP.
5. APPLY A GENEROUS COAT OF BITUMEN OVER WELD CAP AND EXPOSED METAL UP TO 3 INCHES BEYOND CAP.

EXOTHERMIC WELD

SCALE: NTS

2
CP-01

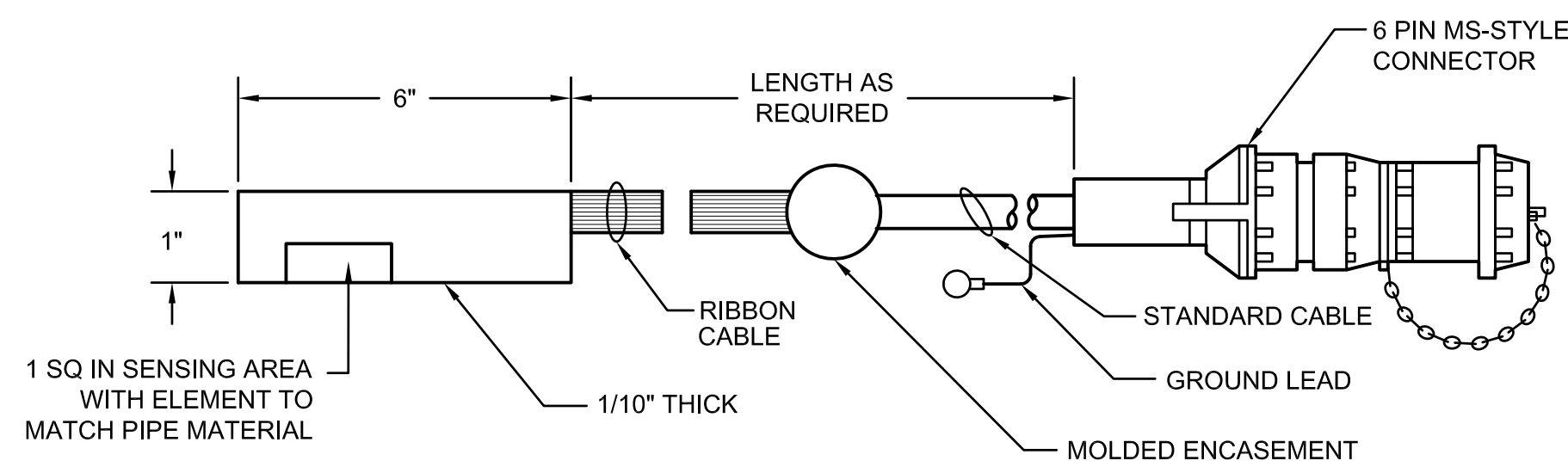
ER PROBE INSTALLATION

SCALE: NTS

NOTES:

1. PLACE THE ELECTRICAL RESISTANCE PROBE AT THE 10:00 POSITION.
2. SEAL AROUND THE WIRE PENETRATION FROM THE CEMENT-MORTAR WITH A COAL-TAR EPOXY. OVERLAP THE CEMENT-MORTAR COATING AND WIRE INSULATION A MINIMUM OF 1-INCH.
3. ROUTE CABLE TO CTS AT STATION 10+00

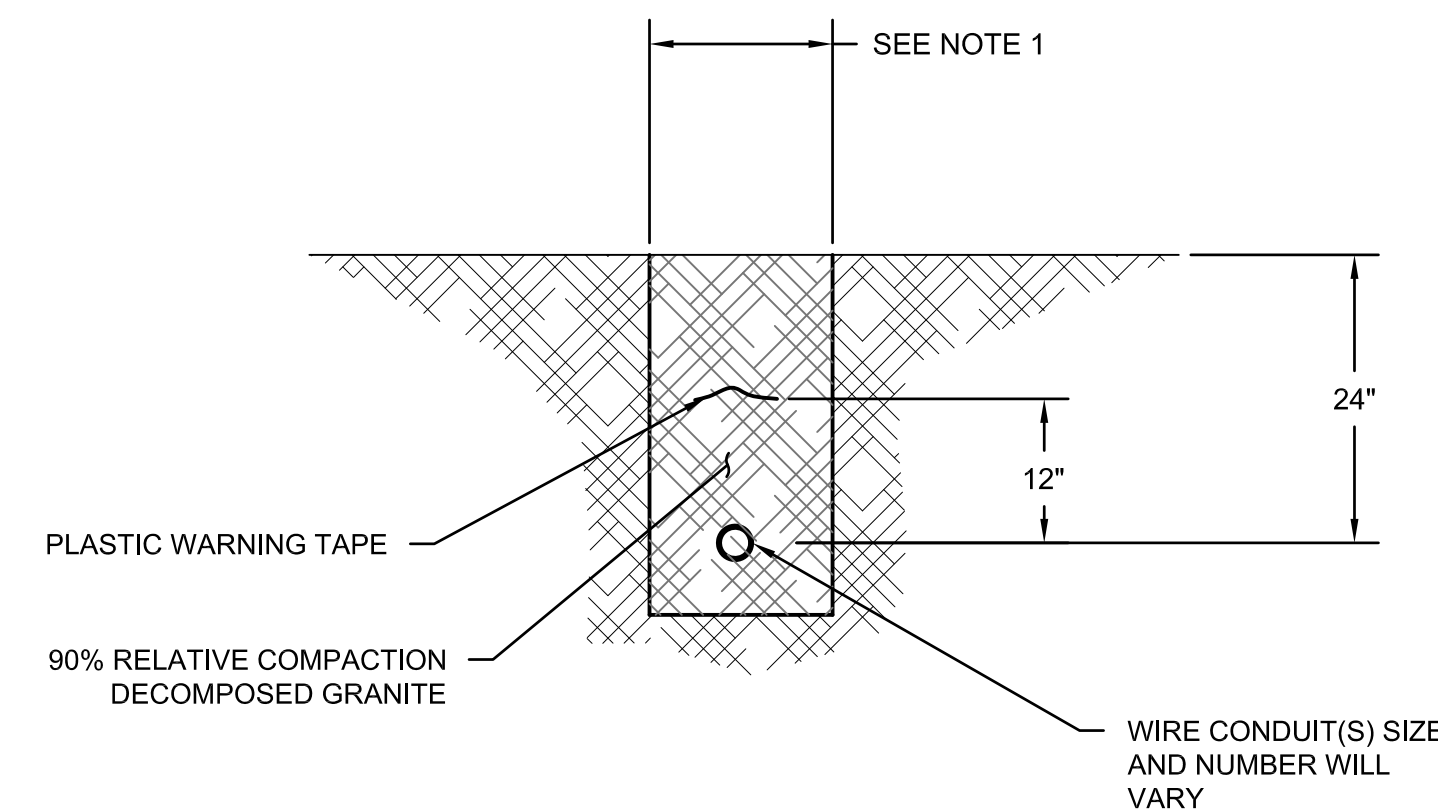
3
CP-01



LOW PROFILE ER PROBE

SCALE: NTS

4
CP-01



NOTES:

1. TRENCH WIDTH SHALL BE A MINIMUM OF 12" BUT NO GREATER THAN 24".

TRENCH

SCALE: 1:16

5
CP-01

MILITARY GRADE POLYOLEFIN HEAT SHRINKABLE LABEL

LEGEND:

- PL 14+20 - PIPELEAD AT STA 14+20
- PL 10+00 W - PIPELEAD AT STA 10+00 W
- PL 10+00 E - PIPELEAD AT STA 10+00 E
- ANODE HDR - ANODE HEADER CABLE
- ER 14+20 - ER PROBE AT STA 14+20
- CSE 14+20 - CSE AT STA 14+20
- CSE 10+00 - CSE AT STA 10+00

WIRE MARKER

SCALE: NTS

6
CP-01

REV.	DATE	DESCRIPTION	BY	APPVD.	DESIGN BY: S. FOX	SCALE: AS NOTED
A					DRAWN BY: A. OLMOS	DATE: MAY 18, 2011
B					CHECKED BY: B. CLARK	DESIGN# 20104024
C					AS CONSTRUCTED:	PAVEMENT#: N/A

J:\Sweetwater Authority\Projects\022607 Sweetwater Dam-RW Pipe Renovation\6.0 Design\6.4 Drawings\6.4.3 Working Drawings\Schiff\10-1078ENGP_REV05.dwg May 2011