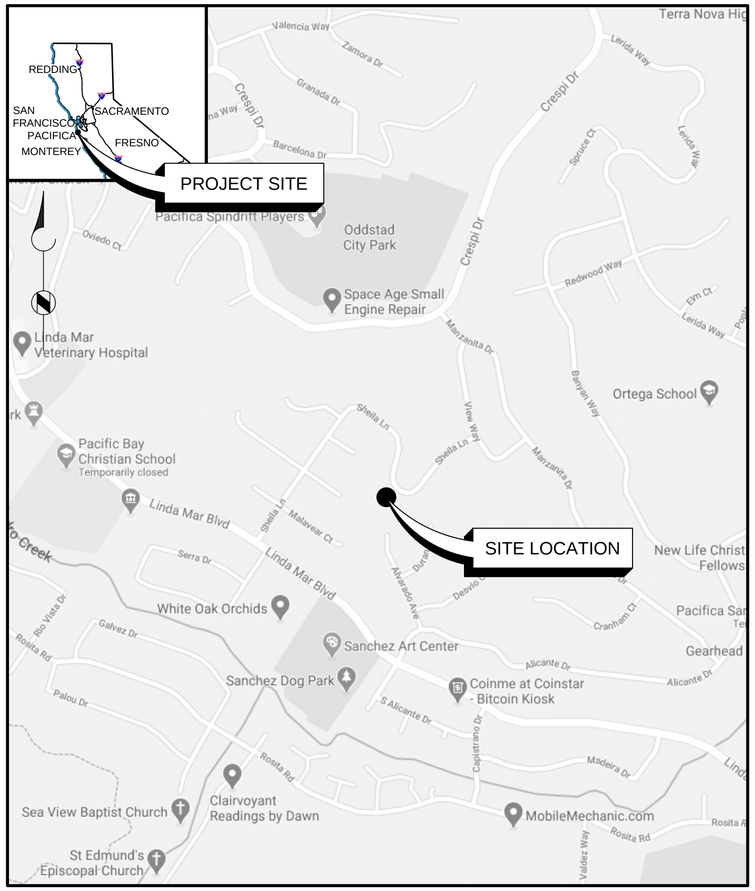
APPENDIX A

100% Design Plans Set

NORTH COAST COUNTY WATER DISTRICT

SHEILA TANK REPLACEMENT PROJECT

1139 SHEILA LANE, PACIFICA, CA



DIGALERT
DIAL TOLL FREE
1-800-227-2600
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF NORTHERN CALIFORNIA

100% SUBMITTAL PACKAGE

VOLUME 1 OF 2

AUGUST 6, 2021

155221

Brown AND Caldwell

WALNUT CREEK, CALIFORNIA

INDEX OF DRAWINGS

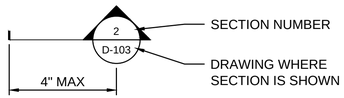
PRELIMINARY DESIGN

THIS DRAWING IS NOT VALID FOR CONSTRUCTION PURPOSES UNLESS IT BEARS THE SEAL AND SIGNATURE OF A DULY REGISTERED PROFESSIONAL

CROSS REFERENCING SYSTEM

1. PLAN TITLES:

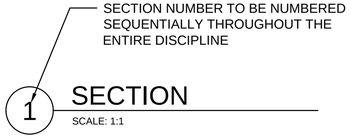
2. SECTION CUTS:



SHORT SECTION

FULL SECTION

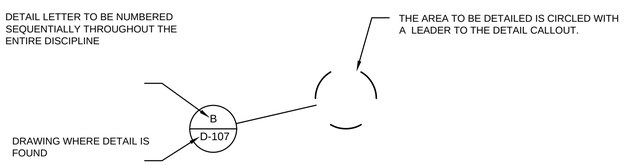
3. SECTIONS TITLES:



4. DETAIL TITLES:

5. DETAIL CALLOUT:

A. BY CALLOUT

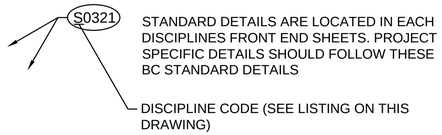


B. BY NOTE: "SEE DETAIL B/D-105"

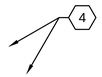
- B IS DETAIL REFERENCE LETTER
- D-105 IS DRAWING WHERE DETAIL IS SHOWN

CROSS REFERENCING SYSTEM (CONTINUED)

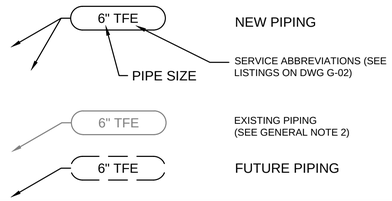
6. STANDARD DETAILS REFERENCE:



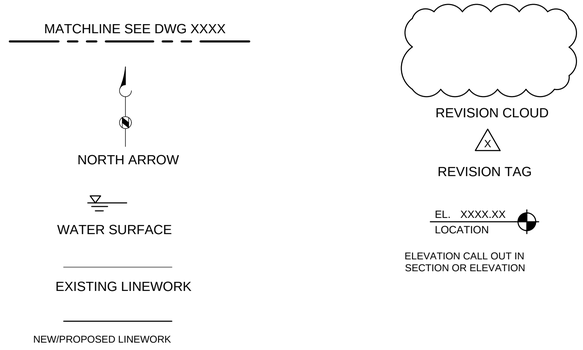
7. KEYNOTES:



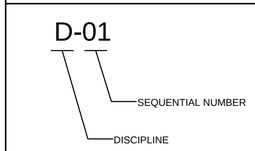
PIPING IDENTIFICATION SYSTEM



MISCELLANEOUS



DRAWING NUMBERING SYSTEM



DISCIPLINES

- G GENERAL
- XD DEMOLITION (X - DENOTES DISCIPLINE)
- C CIVIL
- I PROCESS AND INSTRUMENTATION DIAGRAM
- S STRUCTURAL
- A ARCHITECTURAL
- D PROCESS/MECHANICAL
- M HVAC / MECHANICAL
- P PLUMBING
- E ELECTRICAL

GENERAL NOTES

1. THE NOTE IN THE TITLEBLOCK OF THIS DRAWING WHICH READS "TWO INCHES AT FULL SCALE" APPEARS ON DRAWINGS FOR IDENTIFICATION OF SCALE DISTORTIONS ON HALF SIZE DRAWINGS AND DRAWING REPRODUCTIONS. IT SHALL MEAN THAT THE DRAWING IS FULL SIZE AND THE DRAWING SCALES ACCURATE WHEN THE LENGTH OF THIS LINE IS TWO INCHES. IF THE LENGTH IS OTHER THAN TWO INCHES, DRAWING SCALES MUST BE ADJUSTED ACCORDINGLY.
2. EXISTING PIPING IS DESIGNATED BY SERVICE RATHER THAN MATERIAL TYPE. MATERIAL TYPES, IF KNOWN, APPEAR OUTSIDE THE PIPING CALLOUT BUBBLE, AND MAY NOT BE THE SAME MATERIAL TYPES SPECIFIED FOR NEW PIPING.
3. ABBREVIATIONS USED IN THIS CONTRACT DOCUMENT CONFORM TO ANSI Y1.1, UNLESS NOTED OTHERWISE ON DRAWINGS. SEE SPEC. SECTION 01071 FOR ADDITIONAL ABBREVIATIONS.
4. ALL STANDARD DETAILS APPLY TO ALL THE CONTRACTORS WORK WHETHER SPECIFICALLY REFERENCED OR NOT.
5. SEE FRONT END SHEETS FOR EACH DISCIPLINES STANDARD SYMBOLS, ETC.
6. SEE ADDITIONAL GENERAL NOTES THROUGHOUT DRAWING SET.
7. ALL WORK ON THIS PROJECT SHALL COMPLY WITH NCCWD STD. SPECIFICATIONS AND DRAWINGS, LATEST VERSION.

Brown AND Caldwell

WALNUT CREEK, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — MICHAEL BETH PHILIPSON — CIVIL — STATE OF CALIFORNIA

PRELIMINARY DESIGN

THIS DRAWING IS NOT VALID FOR CONSTRUCTION PURPOSES UNLESS IT BEARS THE SEAL AND SIGNATURE OF A DULY REGISTERED PROFESSIONAL

REGISTERED PROFESSIONAL ENGINEER — ED CARBONI — CIVIL — STATE OF CALIFORNIA

North Coast County WATER DISTRICT — SINCE 1944

SHEILA TANK REPLACEMENT PROJECT

REVISIONS		
REV	DATE	DESCRIPTION
100% SUBMITTAL PACKAGE		

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	K. KONECNY
DRAWN:	T. LAMBERT
CHECKED:	J. JETTON
CHECKED:	R. PHILIPSON
APPROVED:	D. CARBONI

FILENAME
153918-G-01.DWG

BC PROJECT NUMBER
155221

CLIENT PROJECT NUMBER
- - - - -

GENERAL

SYMBOLS AND GENERAL NOTES

DRAWING NUMBER

G-01

SHEET NUMBER
G-01 OF 38

STANDARD SYMBOLS REFERENCING SYSTEM

- HANDHOLE
- UTILITY
- UTILITY BOX
- TELEPHONE MANHOLE
- TELEPHONE HANDHOLE
- TELEPHONE POLE
- SEWER MANHOLE
- SEWER CLEANOUT
- STORM MANHOLE
- CATCH BASIN
- ELECTRIC MANHOLE
- ELECTRIC HANDHOLE
- TRANSFORMER
- ELECTRIC SWITCH BOX
- POWER POLE
- POWER POLE WITH ANCHOR
- NATURAL GAS VALVE
- NATURAL GAS VALVE BOX
- WATER VALVE
- WATER VALVE BOX
- WATER METER
- HYDRANT
- TRAFFIC SIGNAL
- TRAFFIC SIGNAL HANDHOLE
- TRAFFIC SIGNAL W/ARM ONLY
- TRAFFIC SIGNAL W/ARM & POLE
- TRAFFIC CONTROL BOX
- TRAFFIC DETECTOR LOOP
- LIGHT POLE
- LIGHTING HANDHOLE
- STREET LIGHT
- TELEVISION MANHOLE
- T.V. HANDHOLE
- T.V. BOX
- ELECTRICAL TRANSMISSION TOWERS
- TREE SYMBOL
- PULL BOX (PB)
- SURVEY CONTROL POINT (28)
- MONUMENT
- PIPE SIZE AND DIRECTION OF FLOW (8" SS)

- EXISTING SEWER (SS)
- EXISTING SEWER LATERAL
- EXISTING OVERHEAD ELECTRICAL (E(OH))
- EXISTING STORM DRAIN (SD)
- EXISTING GAS (G)
- EXISTING WATER (W)
- EXISTING TELEPHONE (TU)
- EXISTING CABLE TV (TV)
- EXISTING ELECTRICAL (E)
- EXISTING OVERHEAD COMMUNICATION (C(OH))
- EXISTING UNDERGROUND COMMUNICATION (C(UG))
- ABANDONED/DEMOLISHED
- CITY LIMIT BOUNDARY
- EDGE OF PAVEMENT/PARCEL BOUNDARY
- EXISTING FENCE (X)
- NEW FENCE (X)
- (E) CONTOUR MAJOR (FT) (100)
- (E) CONTOUR MINOR (FT)
- (N) CONTOUR MAJOR (FT) (100)
- (N) CONTOUR MINOR (FT)
- BRUSH LINE
- PERMANANT EASEMENT LINE
- TEMPORARY CONSTRUCTION EASEMENT
- DRAWING MATCH LINE
- RIGHT OF WAY/PROPERTY LINE
- NEW PIPELINE (8" SS)
- BUTTERFLY VALVE
- CHECK VALVE
- PLAN VIEW
- PROFILE VIEW
- GATE VALVE
- CONNECTING LINES
- NON-CONNECTING LINES

- NEW AC PAVEMENT PLAN VIEW
- NEW GRAVEL PAVEMENT PLAN VIEW
- NEW CONCRETE PAVEMENT PLAN VIEW
- NATURAL GROUND OR FINISHED GRADE
- GRATING
- CONCRETE
- NEW AC PAVEMENT SECTION VIEW
- GRAVEL / AGGREGATE BASE
- EXISTING EQUIPMENT OR STRUCTURE TO BE REMOVED

NOTES:

1. THIS DRAWING IS GENERAL IN NATURE. SOME SYMBOLS SHOWN HEREON MAY NOT BE USED ON THE CONTRACT DRAWINGS.
2. SYMBOLS ARE ARRANGED ON SPECIFIC DRAWINGS AND IN CATEGORIES FOR CONVENIENCE ONLY; SYMBOLS MAY BE USED ON ANY OF THE CONTRACT DRAWINGS.

ABBREVIATIONS

AB	AGGREGATE BASE
AC	ASPHALTIC CONCRETE, OR ALTERNATING CURRENT
ACP	ASPHALTIC CONCRETE PAVEMENT OR ASBESTOS CEMENT PIPE
AD	AREA DRAIN
ADJ	ADJUSTABLE
ADWF	AVERAGE DRY WEATHER FLOW
ALUM	ALUMINUM
ALT	ALTERNATIVE
AP	ANGLE POINT
APPROX	APPROXIMATE
ARV	AIR RELEASE VALVE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ASSY	ASSEMBLY
AVE	AVENUE
AWWA	AMERICAN WATER WORKS ASSOCIATION

B

BC	BEGIN CURVE, BOLT CIRCLE OR BETWEEN CENTERS
BCR	BEGIN CURB RETURN
BF	BLIND FLANGE
BFP	BACK FLOW PREVENTER
BLDG	BUILDING
BLK	BLOCK
BLVD	BOULEVARD
BM	BENCHMARK
BOT	BOTTOM
BOV	BLOW-OFF VALVE
BVC	BEGIN VERTICAL CURVE

C

CAP	CAPACITY
CAV	COMBINATION AIR VALVE
CB	CATCH BASIN OR CAPPED PIPE END
CC	CENTER TO CENTER
CCP	CONCRETE CYLINDER PIPE
CEM	CEMENT
CLR	CLEAR
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CHG	CHANGE
CHKD PL	CHECKERED PLATE
CI	CAST IRON
CIPP	CURED IN PLACE PIPE
CJ	CONSTRUCTION JOINT
CL	CENTERLINE, CHAIN LINK
CLR	CLEAR, CLEARANCE
CM	CENTIMETER
CMLC	CEMENT MORTAR LINED AND COATED
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT OR COUNTY
COL	COLUMN
COMM	COMMUNICATIONS
CONC	CONCRETE OR CONCENTRIC
CONN	CONNECTION
CONSTR	CONSTRUCTION OR CONSTRUCT
CONT	CONTINUED OR CONTINUOUS
CONTR	CONTRACTOR
COTG	CLEAN-OUT TO GRADE
CP	CONTROL POINT, CATHODIC PROTECTION
CPLG	COUPLING
CTR	CENTER

D

DET	DETAIL
DI	DUCTILE IRON
DIA	DIAMETER
DIAG	DIAGONAL
DIP	DUCTILE IRON PIPE
DISCH	DISCHARGE
DN	DOWN
DR	DOOR OR DRAIN OR DRIVE
DWG	DRAWING

E

E	EAST
EA	EACH
EB	EXPANSION BOLT OR ANCHOR
EC	END CURVE
ECC	ECCENTRIC
ECR	END CURB RETURN
EF	EACH FACE
EG	EXISTING GRADE
EL	ELEVATION
ELEC	ELECTRICAL OR ELECTRONIC
ENCL	ENCLOSURE
ENT	ENTRANCE
E/O	EAST OF
EQ	EQUAL
EVC	END VERTICAL CURVE
EW	EACH WAY
EXH	EXHAUST
EX-HY	EXTRA HEAVY
(E), EX	EXISTING
EXP JT	EXPANSION JOINT
EXPY	EXPRESSWAY
EXT	EXTERIOR OR EXTENSION
EXTR	EXTRUDED

F

FABR	FABRICATION, FABRICATE OR FABRICATED
FB	FLAT BAR, FLOOR BEAM OR FIELD BOOK
FBR	FIBER OPTIC
FC	FACT OF CURB
FCA	FLANGED COUPLING ADAPTOR
FEM	FEMALE (PIPE THREAD)
F TO F	FACE TO FACE
FG	FINISHED GRADE
FH	FIRE HYDRANT
FIBR	FIBER OPTIC CABLE
FIG	FIGURE
FIN	FINISHED
FL	FLOWLINE OR FLOOR
FLEX	FLEXIBLE
FLG	FLANGE
FLR	FLOOR
FM	FORCEMAIN
FND	FOUNDATION
FO	FIBER OPTIC
FOS	FACE OF STUDS
FOW	FACE OF WALL
FPC	FLEXIBLE PIPE COUPLING
FPS	FEET PER SECOND
FR	FRAME
FT	FEET OR FOOT
FTG	FOOTING
FUT	FUTURE

G

G	GAS OR GATE
GA	GAGE OR GAUGE
GAL	GALLON
GALV	GALVANIZED
GEN	GENERAL OR GENERATOR
GFA	GROOVED FLANGE ADAPTER
GRD	GRADE OR GROUND
GR BRK	GRADE BREAK OR GRADE CHANGE
GRTG	GRATING

H

HB	HOSE BIBB
HDPE	HIGH DENSITY POLYETHYLENE
HDW	HARDWARE
HEX	HEXAGONAL
HGR	HANGER
HGT	HEIGHT
HORIZ	HORIZONTAL
HP	HIGH POINT
HV	HORIZONTAL AND VERTICAL CONTROL POINT
HWY	HIGHWAY
HYD	HYDRANT

I

ICC	INTERNATIONAL CODE COUNCIL
ID	INSIDE DIAMETER
IF	INSIDE FACE
IN	INCH
INSL	INSULATION OR INSULATED
INT	INTERIOR
INV	INVERT
IRRG	IRRIGATION

J

JT	JOINT

K

KGV	KNIFE GATE VALVE
KV	KILOVOLT

L

L	LENGTH
LBS	POUNDS
LF	LINEAR FEET
LEV	LEVEL
LG	LENGTH OR LONG
LP	LOW POINT, LIQUID PROPANE
LT	LEFT

M

M	MALE (PIPE THREAD)
MAN	MANUAL
MAX	MAXIMUM
MECH	MECHANICAL
MEMB	MEMBRANE
METH	METHANE
MFR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MTC	MECHANICAL-TYPE COUPLING
MTD	MOUNTED
MTG	MOUNTING
MTL	MATERIAL OR METAL
MTR	MOTOR

N

N	NORTH
NBS	NATIONAL BUREAU OF STANDARDS
NC	NORMALLY CLOSED
NF	NEAR FACE
NG	NATURAL GRADE OR NATURAL GAS
NIC	NOT IN CONTRACT
NL	NAIL
N/O	NORTH OF
NO	NUMBER OR NORMALLY OPEN
NPT	NATIONAL PIPE THREAD
NS	NEAR SIDE
NTS	NOT TO SCALE

O

OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
O.C.	OVER-CROSSING OR ON CENTER
OD	OUTSIDE DIAMETER OR OVERALL DIMENSION
OF	OVERFLOW OR OUTSIDE FACE
OHP	OVER HEAD POWER
OPNG	OPENING

P

P	POLE, PAGE OR PIPE
PART	PARTITION
PAVMT	PAVEMENT
PCC	PORTLAND CEMENT CONCRETE
PCOTG	PRESSURE CLEANOUT TO GRADE
PDWF	PEAK DRY WEATHER FLOW
PE	POLYETHYLENE
PI	PLANT INFLUENT OR POINT OF INTERSECTION
PL	PROPERTY LINE, PLATE
PLAS	PLASTER OR PLASTIC
PLT	PLANT
PRCT	PRECAST
PREFAB	PREFABRICATED
PRESS	PRESSURE
PT	PAINT, POINT
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
PDWF	PEAK DRY WEATHER FLOW

Q

QTY	QUANTITY

R

R	RADIUS, RISER, RETURN OR RATE OF SLOPE
RC	REINFORCED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RD	ROUND, OR ROAD
RED	REDUCER OR REDUCING
REF	REFERENCE OR REFER
REIN	REINFORCE OR REINFORCED
RE-STL	REINFORCING STEEL
REQD	REQUIRED
RESIL	RESILENT
REV	REVISION
REW	RECLAIMED WATER
RF	ROOF OR RAISED FACE
RI	RODDING INLET
RO	ROUGH OPENING
RPBD	REDUCED PRESSURE BACKFLOW DEVICE
RR	RAILROAD
RT	RIGHT
RTP	REINFORCED THERMOSETTING PLASTIC
RW	RECYCLED WATER, RAW WASTEWATER
ROW	RIGHT OF WAY

S

SCVWD	SANTA CLARA VALLEY WATER DISTRICT
SD	STORM DRAIN
S	SOUTH, SECOND OR SLOPE
SA	SAMPLE
SBR	STYRENE BUTADENE (RUBBER)
SCAV	SEWAGE COMBINATION AIR/VACUUM
SCH	SCHEDULE
SECT	SECTION
SEG	SEGMENT
SHT	SHEET
SHNR	SHINER
SIM	SIMILAR
SL	SLOPE OR SINGLE LINE
S/O	SOUTH OF
SPECS	SPECIFICATIONS
SPECF	SPECIFIED
SP	STEEL PIPE
SQ	SQUARE
SS	SANITARY SEWER
SSFM	SANITARY SEWER FORCEMAIN
SSMH	SANITARY SEWER MANHOLE
SSTL	STAINLESS STEEL
ST	STREET
STA	STATION
STC	SLEEVE-TYPE COUPLING
STD	STANDARD OR STORM DRAINS
STL	STEEL
STN	STAINLESS
STRUCT	STRUCTURAL OR STRUCTURE
SYM	SYMMETRICAL OR SYMBOL
SYS	SYSTEM

T

T	TELEPHONE
TAN	TANGENT
TBE	THREAD BOTH ENDS
TBM	TEMPORARY BENCH MARK
TC	TOP OF CURB
TCE	TEMPORARY CONSTRUCTION EASEMENT
TEL	TELEPHONE LINE
TEMP	TEMPERATURE OR TEMPORARY
THK	THICK OR THICKNESS
THRD	THREADED
TM	TRUNK MANHOLE
TOE	TOE OF SLOPE
TP	TELEPHONE POLE
TRANS	TRANSITION OR TRANSMITTER
TSB	TOP SET BASE
TSL	TRAFFIC SIGNAL LOOP
TW	TOP OF WALL
TYP	TYPICAL

U

UB	UNION BONNET
UC	UNDER-CROSSING
UD	UNDER DRAIN
UE	UNDERGROUND ELECTRIC
UG	UNDERGROUND
UGC	UNDERGROUND CONDUIT
UL	UNDERWRITERS LABORATORIES
UNO	UNLESS NOTED OTHERWISE
UPRR	UNION PACIFIC RAILROAD

V

V	VACUUM, VALVE, VERTICAL, VENT, VOLT OR VOLUME
VAR	VARIES OR VARIABLE
VCP	VITRIFIED CLAY PIPE
VERT, V	VERTICAL

W

W	WEST OR WATER
W/	WITH
W/O	WEST OF
WP	WATER PROOFING
WS	WATER SURFACE
WSTP	WATER STOP
WT	WEIGHT
WWM	WELDED WIRE MESH
WVSD	WEST VALLEY SANITATION DISTRICT

X

XS	EXTRA STRONG
XXS	DOUBLE EXTRA STRONG

Y

YD	YARD
YR	YEAR

Z

Z	ZERO OR ZONE
ZN	ZINC

Brown AND Caldwell

WALNUT CREEK, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — BETH PHILIPSON — CIVIL — STATE OF CALIFORNIA

PRELIMINARY DESIGN

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North Coast County WATER DISTRICT — SINCE 1944

SHEILA TANK REPLACEMENT PROJECT

REVISIONS		
REV	DATE	DESCRIPTION
		100% SUBMITTAL PACKAGE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	K. KONECNY
DRAWN:	T. LAMBERT
CHECKED:	J. JETTON
CHECKED:	R. PHILIPSON
APPROVED:	D. CARBONI

FILENAME: 153918-G-02.DWG

BC PROJECT NUMBER: 155221

CLIENT PROJECT NUMBER: - - - - -

GENERAL

STANDARD LINETYPES, SYMBOLS AND ABBREVIATIONS

DRAWING NUMBER

G-02

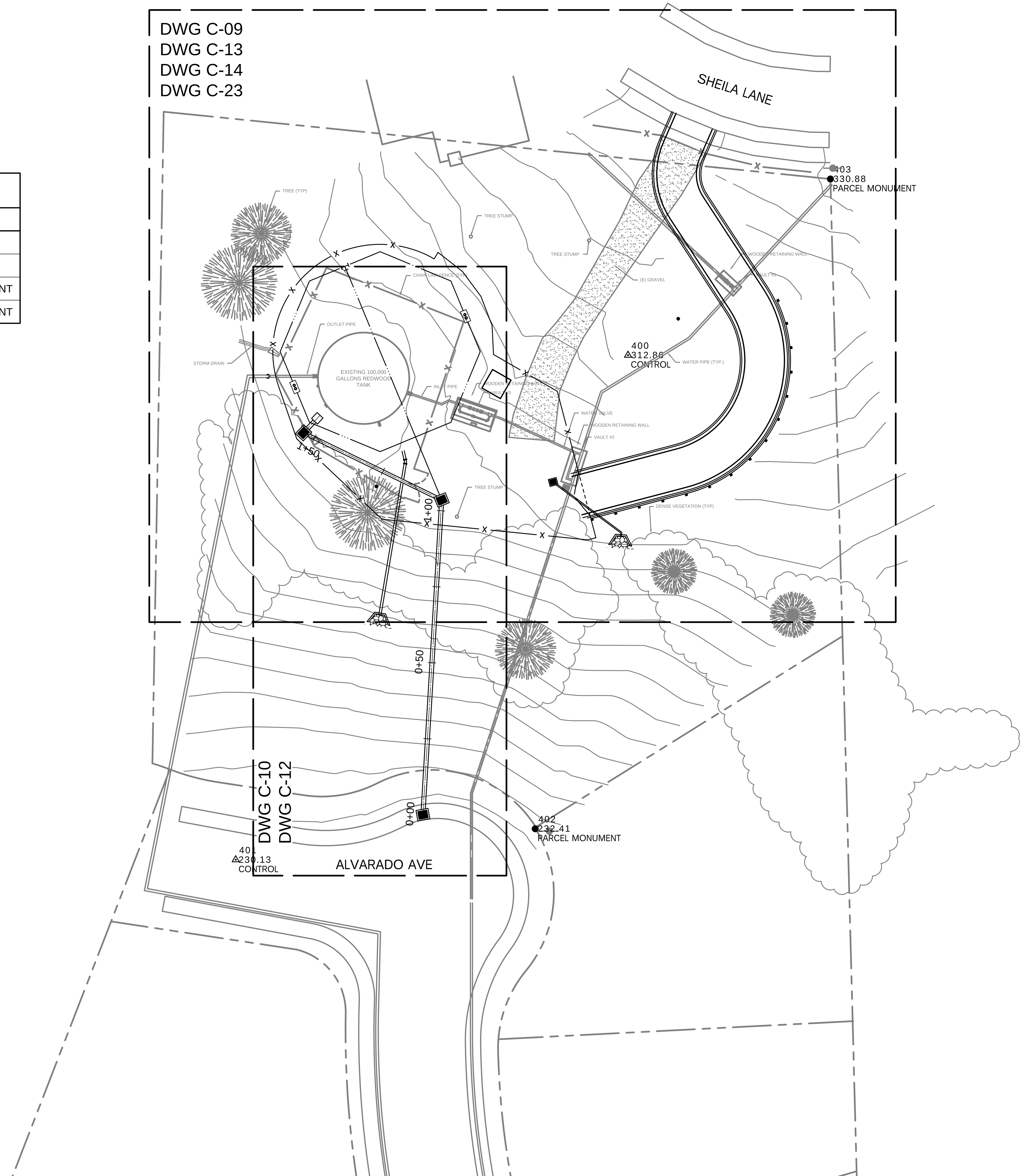
SHEET NUMBER: 3 OF 38

FILENAME: 153918-G-02.DWG PLOT DATE: 8/9/2021 3:19 PM CAD USER: TAIT LAMBERT

N

0 20 40
SCALE IN FEET

CONTROL POINT TABLE			
POINT	NORTHING	EASTING	DESCRIPTION
400	2041984.72	5986414.58	CONTROL
401	2041818.98	5986285.80	CONTROL
402	2041829.16	5986384.11	PARCEL MONUMENT
403	2042042.61	5986481.04	PARCEL MONUMENT



BASIS OF BEARINGS

THE BEARING OF N28 00'00"W AND A DISTANCE OF 248.15' BETWEEN TWO CITY MONUMENTS, 2" BRASS DISKS, PUNCHED, IN CONCRETE IN STANDARD MONUMENT WELLS AS SHOWN ON 44 MAPS 41 WAS USED AS THE BASIS OF BEARINGS FOR THIS SURVEY.

RECORD OF SURVEY

THE LANDS OF THE NORTH COAST COUNTY WATER DISTRICT, (NCCWD), AS DESCRIBED IN QUIT CLAIM DEED, 3687 O.R. 391, ALSO BEING DESCRIBED AS LOT 42, BLOCK 13 AS SHOWN ON THAT CERTAIN MAP ENTITLED, "TRACT NO.729, LINDA MAR NO. 14, SAN MATEO COUNTY, CALIFORNIA", RECORDED IN THE OFFICE OF THE RECORDER OF SAN MATEO COUNTY ON APRIL 23, 1956, IN VOLUME 44 OF MAPS AT PAGE 41.

Brown AND Caldwell
WALNUT CREEK, CALIFORNIA

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North Coast County WATER DISTRICT

SHEILA TANK REPLACEMENT PROJECT

REVISIONS		
REV	DATE	DESCRIPTION
		100% SUBMITTAL PACKAGE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: K. KONECNY
DRAWN: T. LAMBERT
CHECKED: J. JETTON
CHECKED: R. PHILIPSON
APPROVED: D. CARBONI

FILENAME 153918-G-03.DWG
BC PROJECT NUMBER 155221
CLIENT PROJECT NUMBER -----

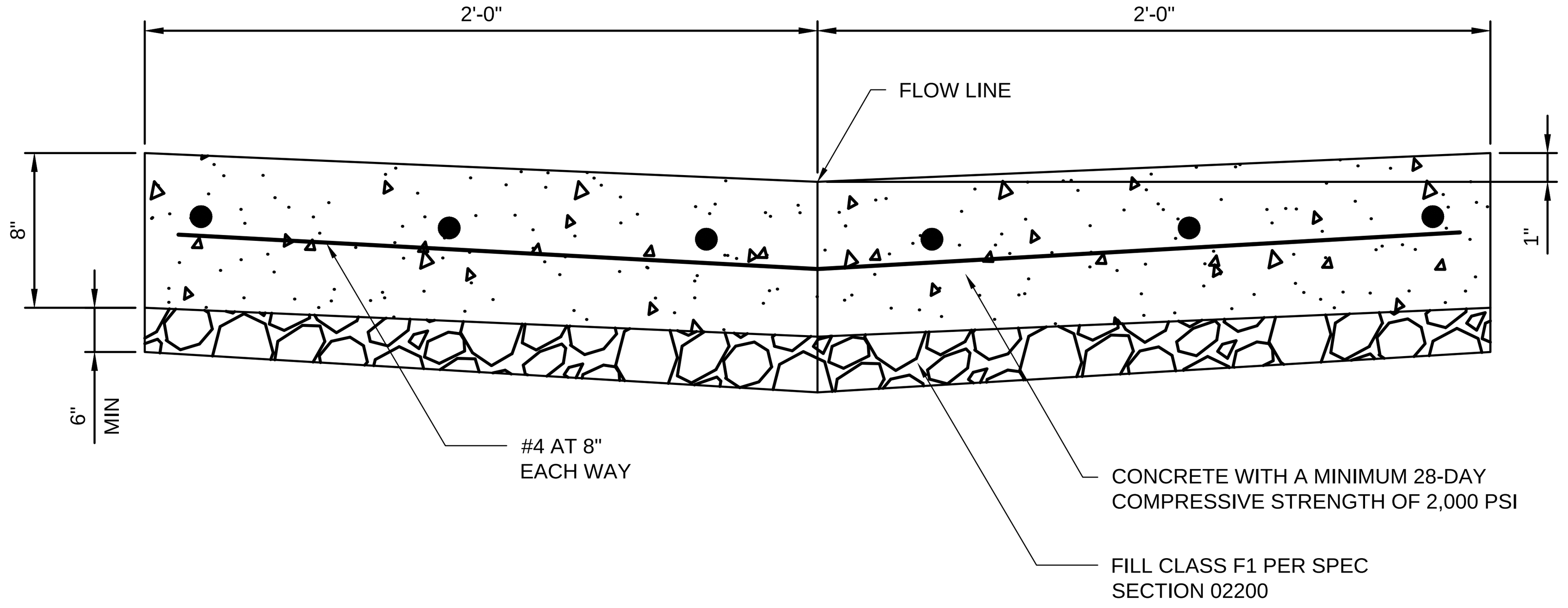
GENERAL

SURVEY CONTROL PLAN AND DRAWING KEY PLAN

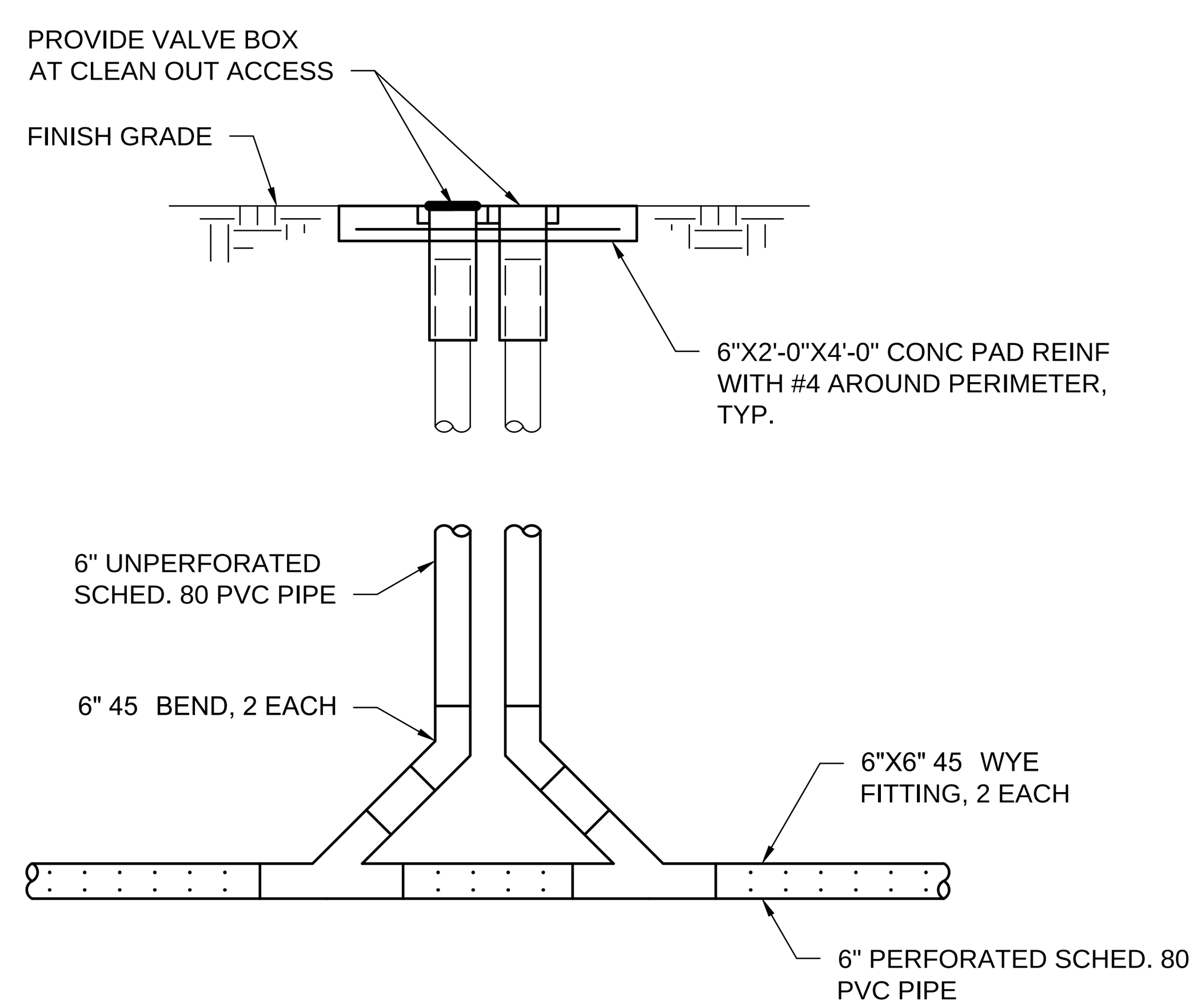
DRAWING NUMBER
G-03

SHEET NUMBER
4 OF 38

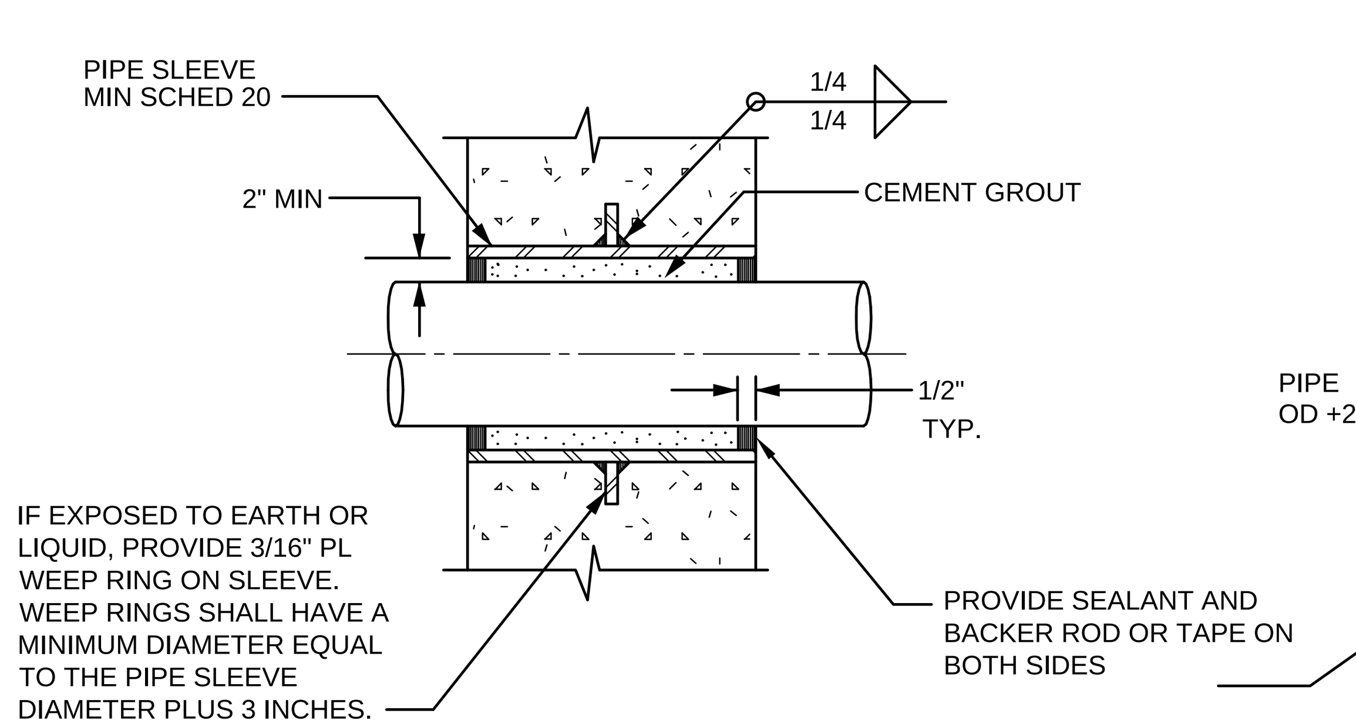
FILENAME: 153918-G-03.DWG PLOT DATE: 8/9/2021 3:19 PM CAD USER: TAIT LAMBERT



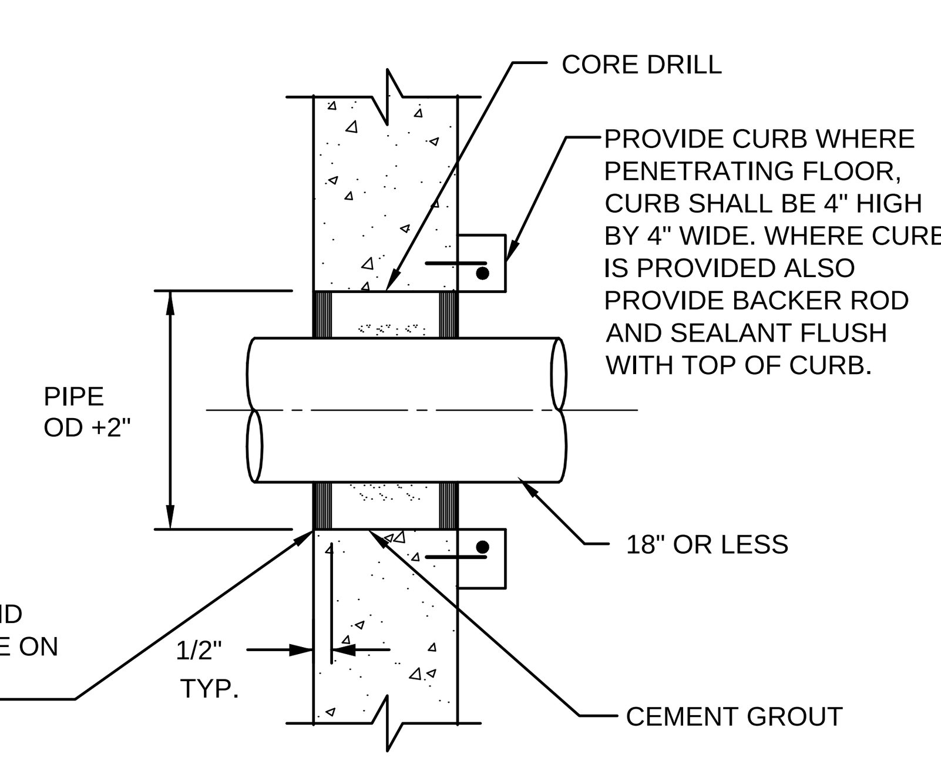
CONCRETE VALLEY GUTTER
STANDARD DETAIL C001
NO SCALE



DOUBLE CLEANOUT
STANDARD DETAIL C002
NO SCALE

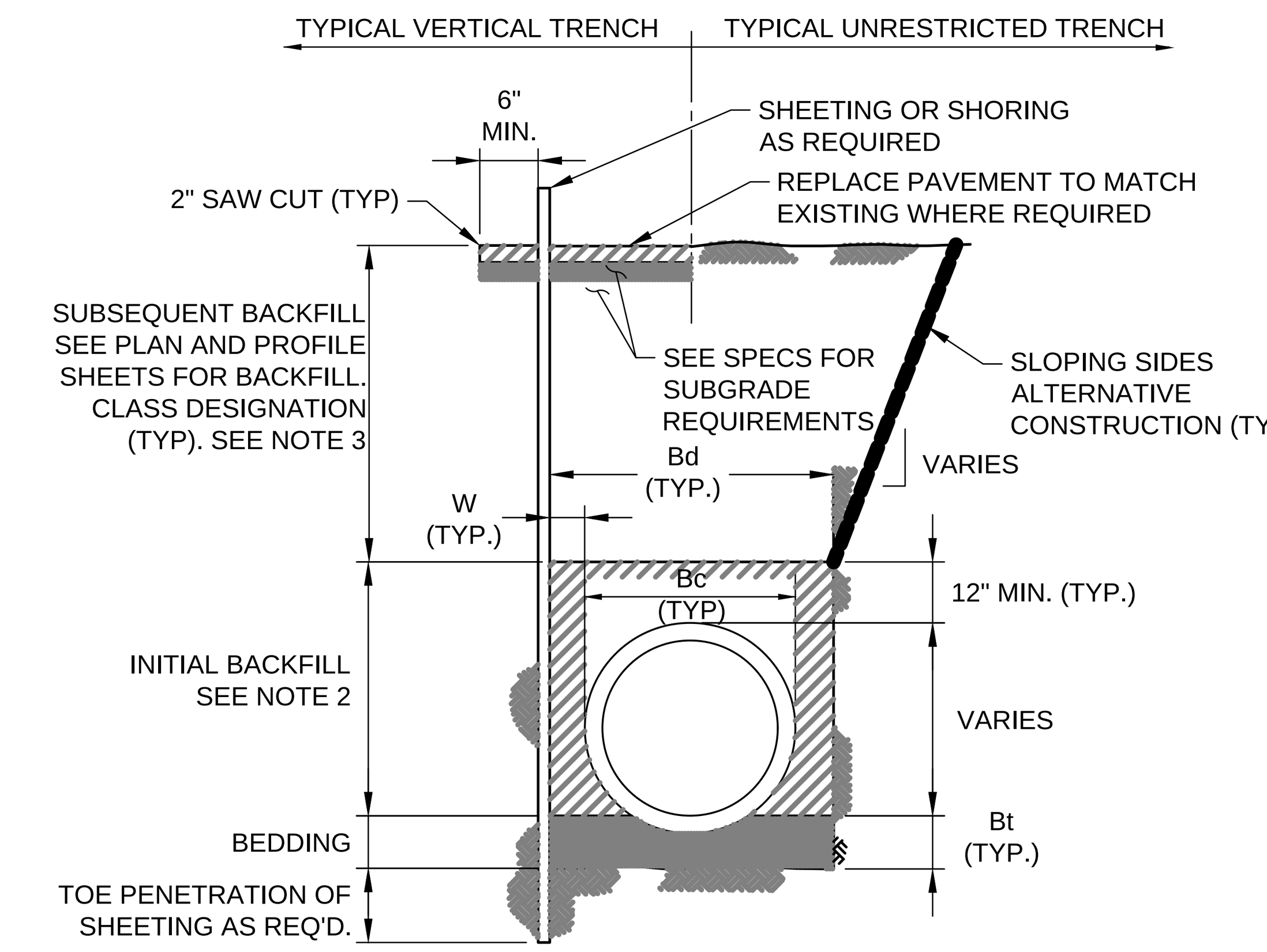


FOR NEW WALLS



FOR EXISTING WALLS, FLOORS, AND CEILINGS

TYPE E PENETRATION
STANDARD DETAIL C003
NO SCALE



NOTES:
1. FOR BEDDING TYPES SEE DETAIL ___.
2. INITIAL BACKFILL: SEE TABLE
3. SUBSEQUENT BACKFILL: SEE TABLE A.

D, IN.	W MIN, IN.	Bd MAX, IN.	Bt MIN, IN.
0-6	6	Bc +24	3
8-24	8	Bc +24	6
27-60	12	Bc +36	12
OVER 60	18	Bc +42	12

TYPICAL TRENCH LIMITATIONS:
Bd =WIDTH FROM BOTTOM TO 12" ABOVE PIPE
W =CLEARANCE TO WALL, EXCLUDING SHEETING, I.E. TO EARTH
D =PIPE INSIDE DIAMETER, I.E. NOMINAL PIPE SIZE
Bc =PIPE OUTSIDE DIAMETER
Bt =DEPTH OF BEDDING FROM INVERT OF PIPE TO BOTTOM OF TRENCH

STANDARD TRENCH DETAIL
STANDARD DETAIL C-004
NO SCALE

Brown AND Caldwell
WALNUT CREEK, CALIFORNIA

PRELIMINARY DESIGN

THIS DRAWING IS NOT VALID FOR CONSTRUCTION PURPOSES UNLESS IT BEARS THE SEAL AND SIGNATURE OF A DULY REGISTERED PROFESSIONAL

North Coast County WATER DISTRICT

SHEILA TANK REPLACEMENT PROJECT

REVISIONS		
REV	DATE	DESCRIPTION
100% SUBMITTAL PACKAGE		

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: K. KONECNY
DRAWN: L. BULLOCK
CHECKED: J. JETTON
CHECKED: R. PHILIPSON
APPROVED: D. CARBONI

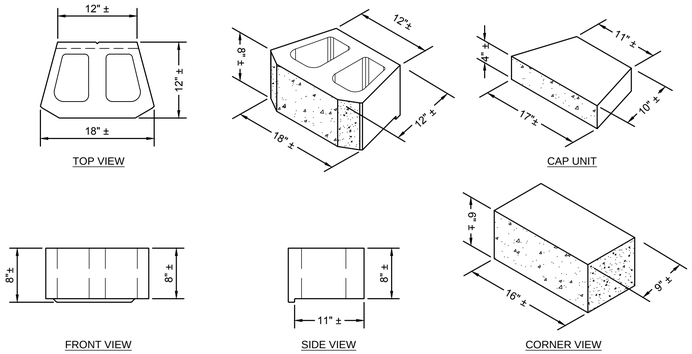
FILENAME
153918-C-DETAILS.DWG
BC PROJECT NUMBER
155221
CLIENT PROJECT NUMBER
- - - - -

CIVIL

STANDARD DETAILS 1

DRAWING NUMBER
C-01
SHEET NUMBER
5 OF 38

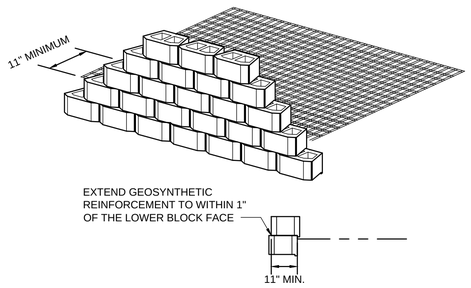
FILENAME: 153918-C-DETAILS.DWG PLOT DATE: 8/9/2021 3:19 PM CAD USER: TAIT LAMBERT



BLOCK

STANDARD DETAIL C005

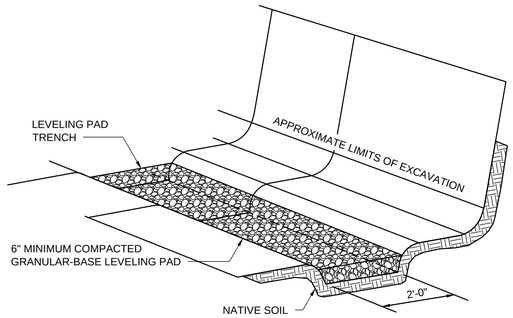
NO SCALE



REINFORCEMENT CONNECITON

STANDARD DETAIL C006

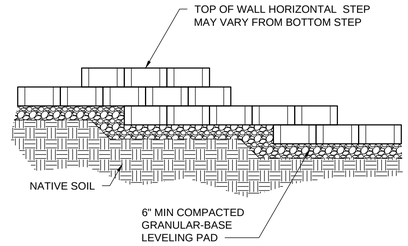
NO SCALE



BASE PREPARATION

STANDARD DETAIL C007

NO SCALE



BASE STEP UP

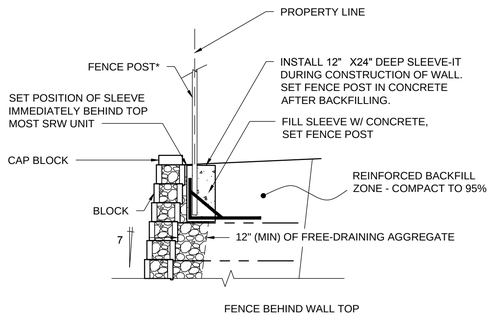
STANDARD DETAIL C008

NO SCALE

*FENCING SYSTEMS APPROVED FOR USE WITH SLEEVE-IT ARE LIMITED TO THE FOLLOWING HEIGHTS:

A. CHAIN LINK UP TO 8 FEET ABOVE FINISHED GRADE WITH POST SPACING OF 8 FEET (MIN)

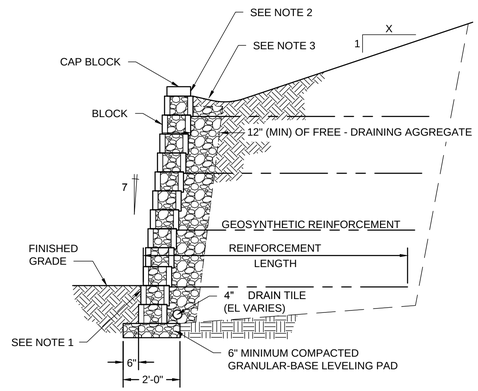
B. PROPERTY LINE AS THE CENTER OF THE FENCE POST



FENCE SECTION

STANDARD DETAIL C009

NO SCALE



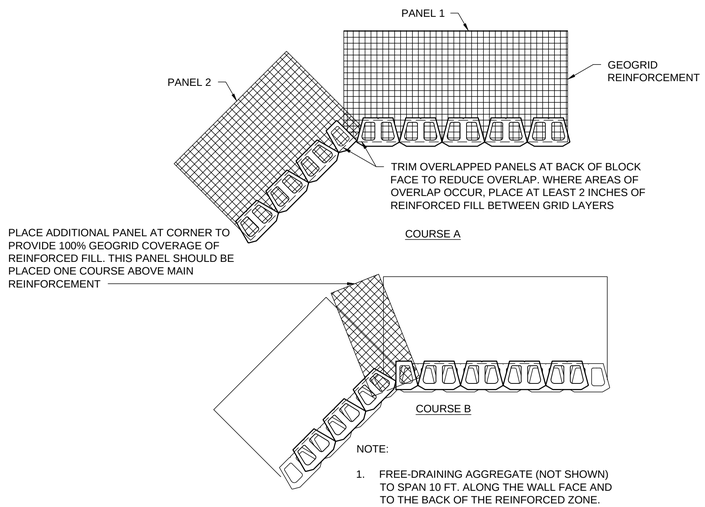
NOTES:

1. ONE BLOCK COURSE MINIMUM TWO COURSE MAXIMUM BELOW FINISH GRADE. TOP OF WALL STEP ELEVATION VARIES FROM BOTTOM COURSE STEP ELEVATIONS.
2. EXPOSED BACK OF WALL HEIGHT VARIES ONE COURSE MINIMUM TO 3 COURSES MAXIMUM FOR FENCE LINE ON TOP OF BLOCK ALTERNATIVE.
3. SEE FENCE SECTION PER DRAWING C-03.

REINFORCED CROSS SECTION WITH SLOPE

STANDARD DETAIL C010

NO SCALE



NOTE:

1. FREE-DRAINING AGGREGATE (NOT SHOWN) TO SPAN 10 FT. ALONG THE WALL FACE AND TO THE BACK OF THE REINFORCED ZONE.

INSIDE ANGLES

STANDARD DETAIL C011

NO SCALE

Brown AND Caldwell

WALNUT CREEK, CALIFORNIA

PRELIMINARY DESIGN

NOT FOR CONSTRUCTION

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SHEILA TANK REPLACEMENT PROJECT

REVISIONS		
REV	DATE	DESCRIPTION
100% SUBMITTAL PACKAGE		

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	K. KONECNY
DRAWN:	L. BULLOCK
CHECKED:	J. JETTON
CHECKED:	R. PHILIPSON
APPROVED:	D. CARBONI

FILENAME 153918-C-DETAILS.DWG

BC PROJECT NUMBER 155221

CLIENT PROJECT NUMBER - - - - -

CIVIL

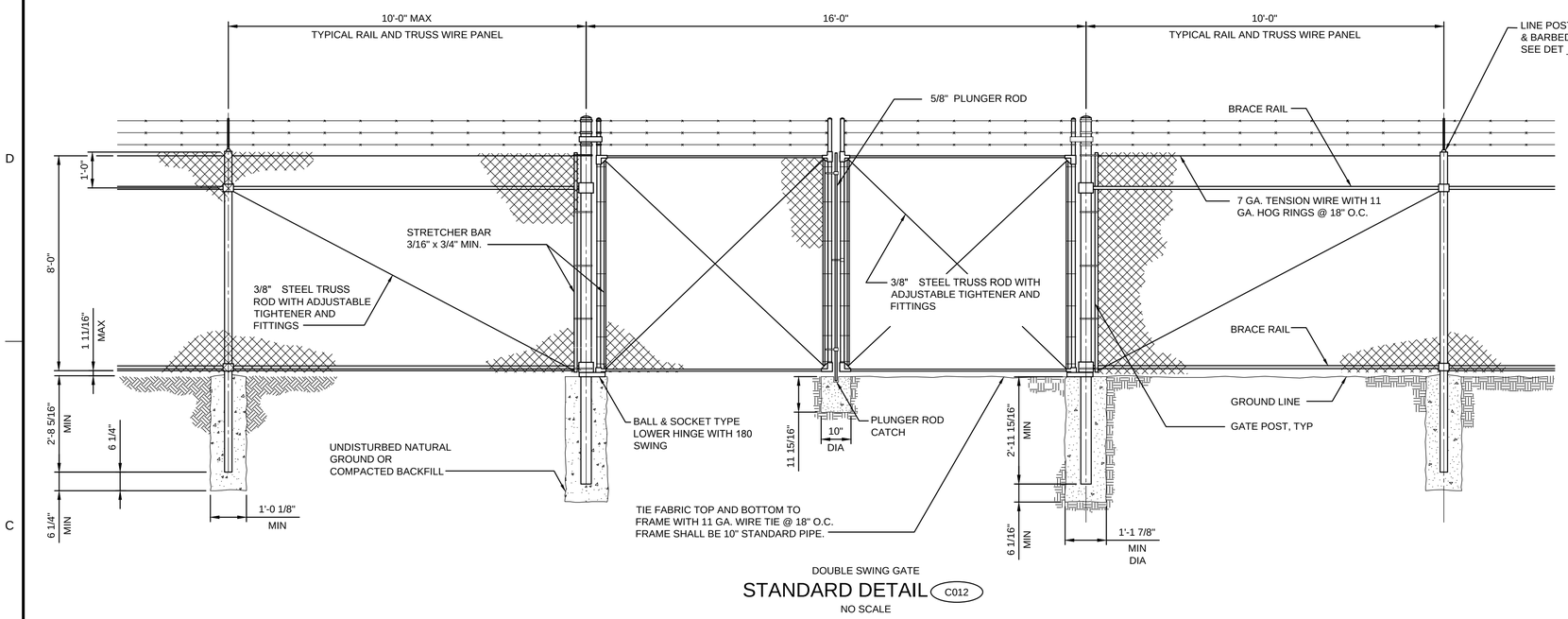
STANDARD DETAILS 2

DRAWING NUMBER

C-02

SHEET NUMBER 6 OF 38

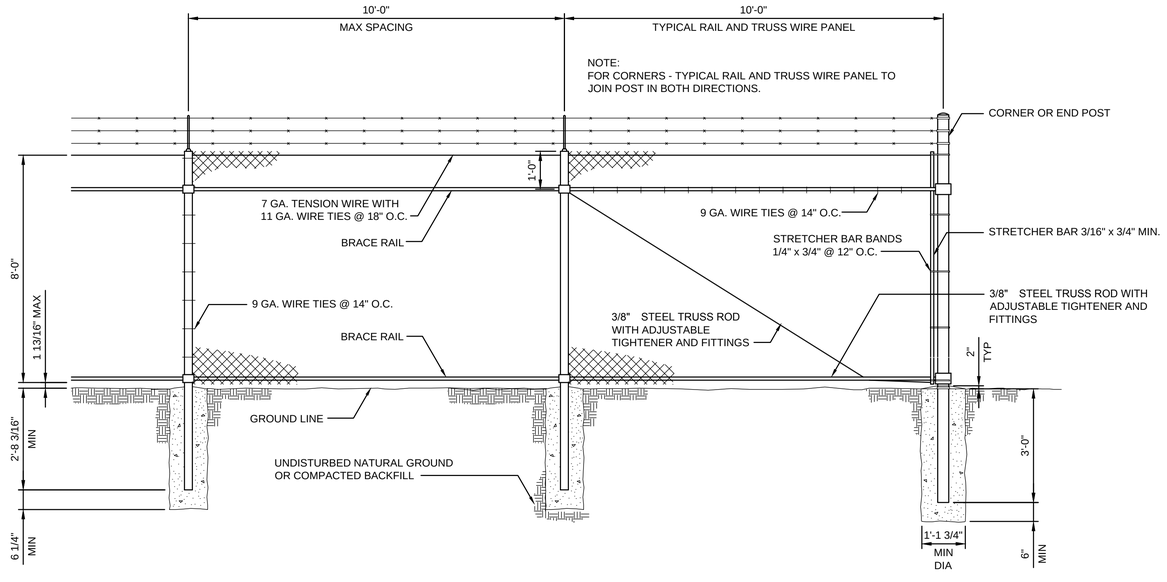
FILENAME: 153918-C-DETAILS.DWG PLOT DATE: 8/9/2021 3:19 PM CAD USER: TAIT LAMBERT



DOUBLE SWING GATE

STANDARD DETAIL C012

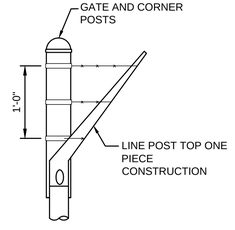
NO SCALE



TYPICAL PERMANENT FENCE

STANDARD DETAIL C013

NO SCALE



NOTE:
BARBED WIRE ARM SHALL WITHSTAND A WEIGHT OF 200 LBS. WITH NO PERMANENT DEFORMATION.

BARBED WIRE SUPPORTING ARM

STANDARD DETAIL C014

NO SCALE

GENERAL SHEET NOTES

1. ADJUSTABLE TIGHTENERS SHALL BE TURNBUCKLE OR EQUIVALENT, HAVING 6" MIN. TAKE-UP.
2. TYPICAL RAIL AND TRUSS WIRE PANELS SHALL BE USED AT ALL CORNERS, END POSTS AND ANGLE POINTS, OR CURVES WITH HORIZONTAL DEFLECTION ANGLES OF 15 OR GREATER.
3. OTHER POST ALTERNATIVES MAY BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL, PROVIDING THEY MEET THE EQUIVALENT SECTION MODULI OR BENDING STRENGTH OF THE TUBULAR SECTIONS. MINIMUM YIELD STRESS, FY = 25,800 PSI.
4. ALL MATERIALS SHALL BE GALVANIZED IN ACCORDANCE WITH PROJECT SPECIFICATIONS.

Brown AND Caldwell

WALNUT CREEK, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER BETH PRITCHARD CIVIL STATE OF CALIFORNIA

PRELIMINARY DESIGN

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REGISTERED PROFESSIONAL ENGINEER CIVIL STATE OF CALIFORNIA

North Coast County Water District SINCE 1944

SHEILA TANK REPLACEMENT PROJECT

REVISIONS

REV	DATE	DESCRIPTION
		100% SUBMITTAL PACKAGE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	K. KONECNY
DRAWN:	L. BULLOCK
CHECKED:	J. JETTON
CHECKED:	R. PHILIPSON
APPROVED:	D. CARBONI

FILENAME
153918-C-DETAILS.DWG

BC PROJECT NUMBER
155221

CLIENT PROJECT NUMBER
- - - - -

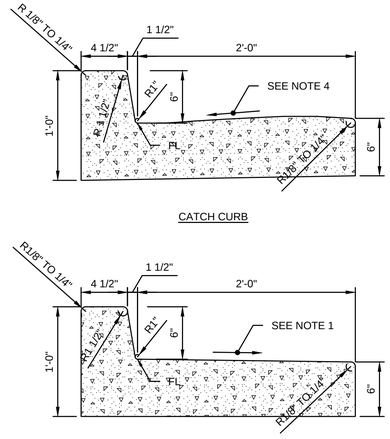
CIVIL

STANDARD DETAILS 3

DRAWING NUMBER
C-03

SHEET NUMBER
7 OF 38

FILENAME: 153918-C-DETAILS.DWG PLOT DATE: 8/9/2021 3:19 PM CAD USER: TAIT LAMBERT



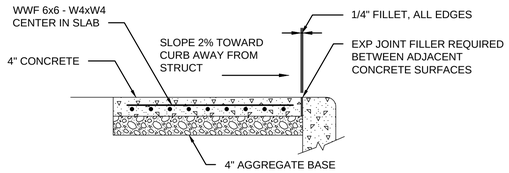
CATCH CURB

SPILL CURB

NOTES

1. PROFILE GRADE OF CURBS AND GUTTERS SHALL BE LOCATED AT THE FLOW LINE.
2. GUTTER CROSS SLOPES MAY BE ADJUSTED TO FACILITATE DRAINAGE FOR PROFILE GRADES AS SHOWN ON THE PLANS.
3. CONSTRUCT CURB AND GUTTER WITH REINFORCING STEEL ADEQUATE FOR TEMPERATURE AND SHRINKAGE.
4. GUTTER CROSS SLOPES SHALL BE 1/2" PER FOOT WHEN DRAINING AWAY FROM CURB AND 1" PER FOOT WHEN DRAINING TOWARD CURB.

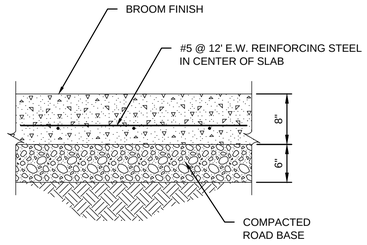
CURB AND GUTTER
STANDARD DETAIL C015
NO SCALE



NOTE

PROVIDE 1/8"X 1/2" DEEP JOINT EVERY 4 FT AND FULL JOINT WITH PREFORMED JOINT FILLER EVERY 50 FT. MAX.

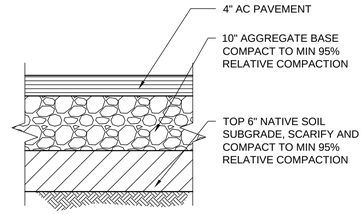
CONCRETE WALK
STANDARD DETAIL C016
NO SCALE



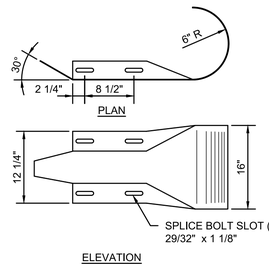
NOTES

1. NEW CONCRETE THICKNESS SHALL BE 8" MIN OR MATCH EXISTING, WHICH EVER IS GREATER.
2. INSTALL 1/2" EXPANSION JOINT MATERIAL AT EXISTING CONCRETE, TYP.

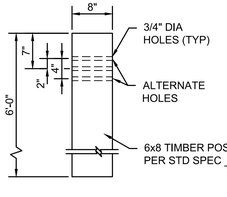
TYPICAL CONCRETE PAVEMENT
STANDARD DETAIL C017
NO SCALE



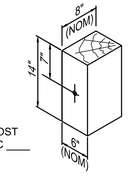
AC PAVEMENT SECTION
STANDARD DETAIL C018
NO SCALE



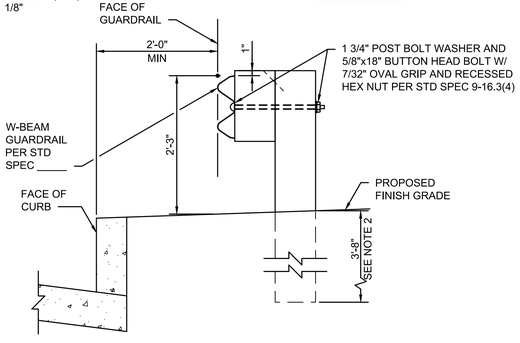
END SECTION



W-BEAM WOOD POST



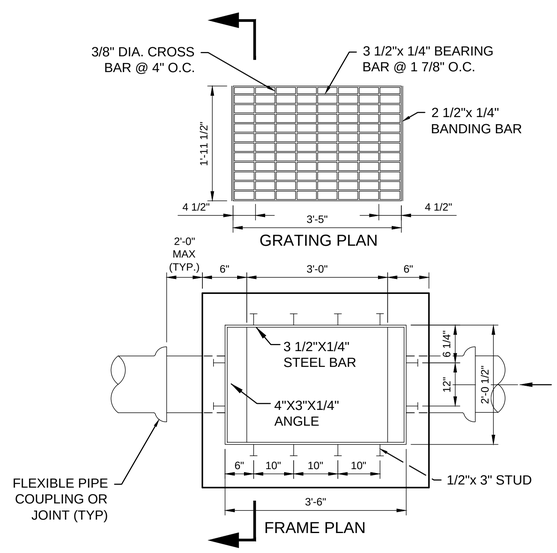
W-BEAM BLOCK FOR
WOOD POST

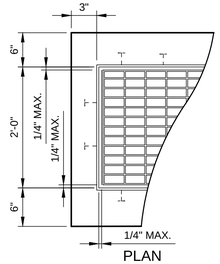


NOTES:

1. BEAM GUARDRAIL POST SPACING SHALL BE 6'-3" ON CENTERS.
2. BEAM GUARDRAIL POST SHALL BE EMBEDDED AT LEAST 3'-8" BELOW FINISH GRADE.

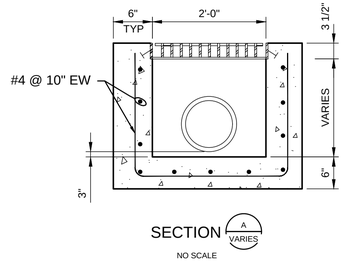
VEHICLE GUARDRAIL
STANDARD DETAIL C019
NO SCALE





NOTES:

1. FABRICATED STEEL FRAME AND GRATING SHALL BE HOT DIPPED GALV. AFTER FABRICATION.
2. HEAVY DUTY CAST IRON GRATING SUITABLE FOR EQUIVALENT LOADING MAY BE PROVIDED INSTEAD OF STEEL GRATING. ANGLE FRAME AND CLEAR OPENING SHALL BE SIZED TO FIT GRATE SIZE.
3. CONTRACTOR MAY USE PRECAST INLETS INSTEAD OF CAST IN PLACE INLETS.



NO SCALE

TYPICAL CATCH BASIN
STANDARD DETAIL C020
NO SCALE

Brown AND Caldwell
WALNUT CREEK, CALIFORNIA

PRELIMINARY DESIGN

NOT FOR CONSTRUCTION

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North Coast County WATER DISTRICT

SHEILA TANK REPLACEMENT PROJECT

REVISIONS		
REV	DATE	DESCRIPTION
		100% SUBMITTAL PACKAGE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	DESIGNED BY
DRAWN:	DRAWN BY
CHECKED:	CHECKED BY
CHECKED:	CROSS CHECKED BY
APPROVED:	APPROVED BY

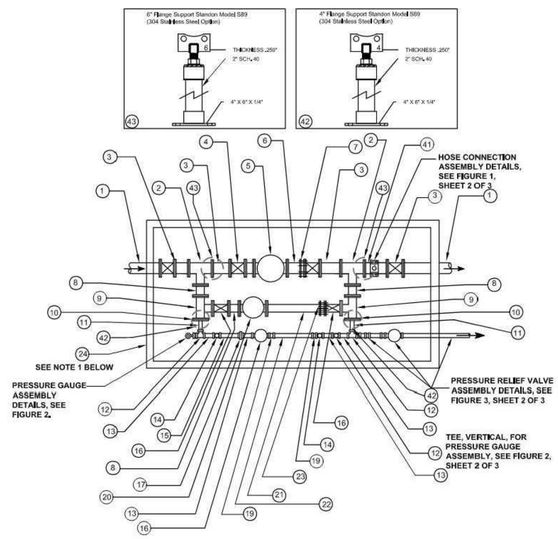
FILENAME
153918-C-DETAILS.DWG
BC PROJECT NUMBER
155221
CLIENT PROJECT NUMBER
- - - - -

CIVIL

STANDARD DETAILS 4

DRAWING NUMBER
C-04

SHEET NUMBER
8 OF 38

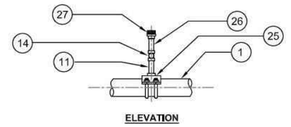


PLAN

6" PRESSURE REDUCING VALVE STATION
NO SCALE

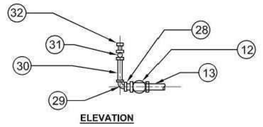
NOTES:
1. Vault to have concrete pad with provisions for a sump pump installation.
2. All piping to be epoxy coated.
3. Additional items may be required.
4. Minimum distance from bottom of pipe to vault floor is 8".

STANDARD DETAIL	NORTH COAST COUNTY WATER DISTRICT	
DATE: 1/4/2013	6"x4"x2" Pressure Reducing Station	NC-09 SHT 1 OF 3



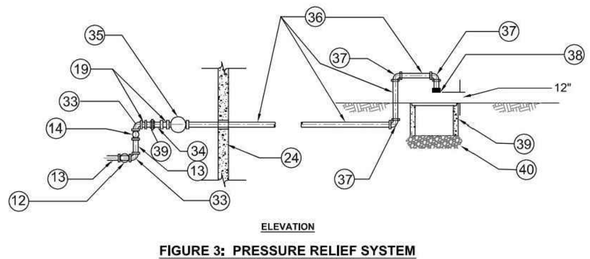
ELEVATION

FIGURE 1: HOSE CONNECTION ASSEMBLY DETAILS
NO SCALE



ELEVATION

FIGURE 2: PRESSURE GAUGE ASSEMBLY DETAILS
NO SCALE



ELEVATION

FIGURE 3: PRESSURE RELIEF SYSTEM ASSEMBLY DETAILS
NO SCALE

STANDARD DETAIL	NORTH COAST COUNTY WATER DISTRICT	
DATE: 1/4/2013	6"x4"x2" Pressure Reducing Station	NC-09 SHT 2 OF 3

MATERIALS LEGEND

NO.	DESCRIPTION
1.	6" D.I. FLANGE BY PLAIN END SPOOL, LENGTH AS REQUIRED.
2.	6" X 4" D.I. FLANGED TEE.
3.	6" FLANGED GATE VALVE (MUELLER MODEL 2360).
4.	6" D.I. FLANGE BY FLANGE SPOOL, 6" LONG
5.	6" FLANGED PRESSURE REDUCING VALVE (CLA-VAL MODEL 90-01ABKC WITH STAINLESS STEEL TRIM)
6.	6" D.I. FLANGE BY PLAIN END SPOOL, 13" LONG.
7.	4" D.I. EBBA FLANGE ADAPTER.
8.	4" D.I. FLANGE BY FLANGE SPOOL, 6" LONG.
9.	4" X 4" D.I. FLANGE BY FLANGE TEE
10.	4" D.I. BLIND FLANGE TAPPED FOR 2" I.P.T. (IRON PIPE THREAD).
11.	2" I.P.T. BRASS PIPE NIPPLE, 6" LONG.
12.	2" X 2" I.P.T. BRASS TEE.
13.	2" I.P.T. BRASS NIPPLE, 4" LONG.
14.	2" I.P.T. BRASS BALL VALVE.
15.	2" I.P.T. BRASS NIPPLE, APPROX. 12" LONG.
16.	4" FLANGED GATE VALVE (MUELLER MODEL 2360)
17.	2" I.P.T. BRASS UNION.
18.	2" I.P.T. PRESSURE REDUCING VALVE (CLA-VAL MODEL 90-G-01AS)
19.	2" BRASS ADAPTER, I.P.T. BY BRASS COMPRESSION CONNECTION.
20.	4" FLANGED PRESSURE REDUCING VALVE (CLA-VAL MODEL 90-01ABKC WITH STAINLESS STEEL TRIM).
21.	4" D.I. FLANGE BY PLAIN END SPOOL, APPROX 2'-8" LONG.
22.	2" BRASS ADAPTER, APPROX 2'-0" LONG.
23.	4" D.I. FLANGED COUPLING ADAPTER.
24.	PRECAST CONCRETE UTILITY VAULT, 14' LONG BY 7' WIDE, DEPTH AS REQUIRED.
25.	6" BRASS DOUBLE STRAP SADDLE WITH 2" I.P.T. OUTLET (MUELLER 2B 0899 IP 200).
26.	2" BRASS NIPPLE, 6" LONG
27.	2 " ADAPTER, I.P.T. (FEMALE) BY 2.5" FIRE HOSE THREAD (MALE).
28.	2" BY 3/4" I.P.T. BRASS BUSHING.
29.	3/4" I.P.T. BRASS STREET ELL.
30.	3/4" I.P.T. BRASS NIPPLE, 6" LONG.
31.	3/4" I.P.T. BRASS BALL VALVE.
32.	3/4" BRASS ADAPTER, I.P.T. BY HOSE THREAD.
33.	2" I.P.T. BRASS STREET ELL.
34.	2" BRASS ADAPTER, APPROX. 6" LONG.
35.	2" I.P.T. PRESSURE RELIEF VALVE (CLA-VAL MODEL 50-01KC WITH STAINLESS STEEL TRIM).
36.	2" I.P.T. BRASS PIPE, LENGTH AS REQUIRED.
37.	2" I.P.T. BRASS 90 DEGREE ELL.
38.	2" I.P.T. BRASS NIPPLE, 4" LONG, WITH STAINLESS STEEL INSECT SCREEN ATTACHED OVER THE PIPE OPEN END WITH A STAINLESS STEEL HOSE CLAMP.
39.	PRECAST CONCRETE CATCH BASIN WITH GRATE TYPE INLET.
40.	3/4" SIZE DRAIN ROCK, MIN. 12" DEPTH
41.	6" D.I. FLANGE BY FLANGE SPOOL, 16" LONG.
42.	4" STANDON MODEL S89 FLANGE SUPPORT (STAINLESS STEEL 304).
43.	6" STANDON MODEL S89 FLANGE SUPPORT (STAINLESS STEEL 304).
44.	8" STANDON MODEL S89 FLANGE SUPPORT (STAINLESS STEEL 304).

STANDARD DETAIL	NORTH COAST COUNTY WATER DISTRICT	
DATE: 1/4/2013	6"x4"x2" Pressure Reducing Station	NC-09 SHT 3 OF 3

GENERAL SHEET NOTES

1. LOCATE PRESSURE RELIEF CATCH BASIN INSIDE PROPERTY LINE AND AS DIRECTED BY OWNER.
2. PRS VAULT TOP TO BE PRECAST CONCRETE WITH 24" CAST IRON MANHOLE AND COVER.
3. TOP OF VAULT TO BE MINIMUM 4" ABOVE FINISHED GRADE .

Brown AND Caldwell
WALNUT CREEK, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — MICHAEL BETH PHILIPSON — CIVIL — STATE OF CALIFORNIA

PRELIMINARY DESIGN

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North Coast County WATER DISTRICT — SINCE 1944

SHEILA TANK REPLACEMENT PROJECT

REVISIONS		
REV	DATE	DESCRIPTION
		100% SUBMITTAL PACKAGE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	K. KONECNY
DRAWN:	L. BULLOCK
CHECKED:	J. JETTON
CHECKED:	R. PHILIPSON
APPROVED:	D. CARBONI

FILENAME
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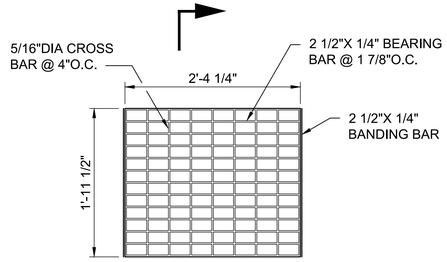
CIVIL

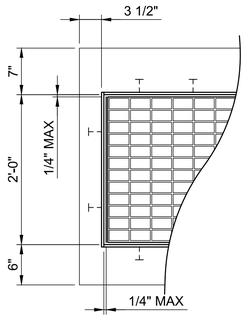
NCCWD DETAILS 1

DRAWING NUMBER
C-05

SHEET NUMBER
9 OF 38

FILENAME: 153918-C-DETAILS.DWG PLOT DATE: 8/9/2021 3:20 PM CAD USER: TAIT LAMBERT

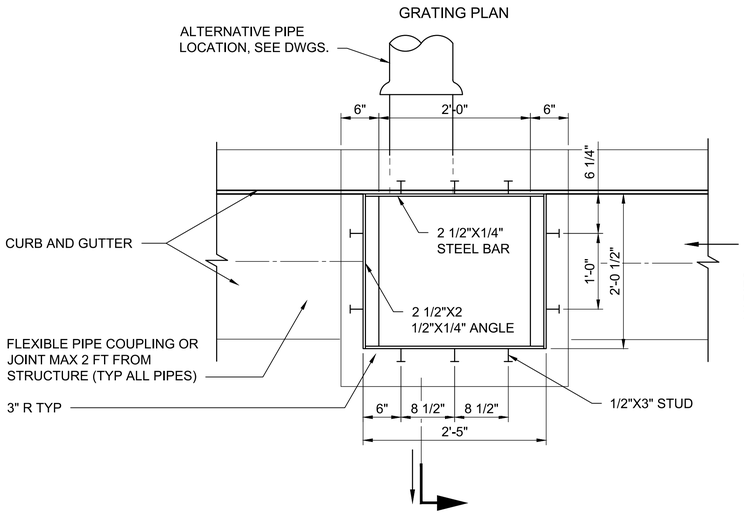


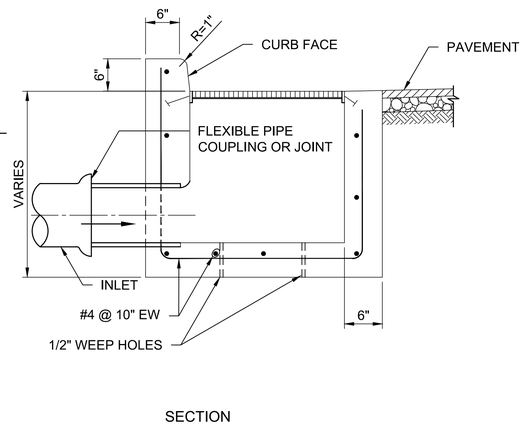


PLAN

NOTES:

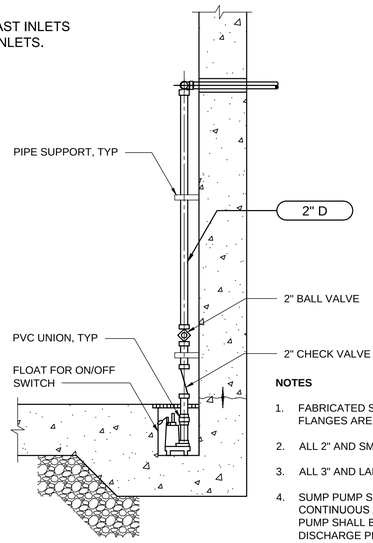
1. FOR CATCH BASINS WITHOUT CURB, TOP OF BASIN SHALL BE FLUSH WITH FINISH GRADE.
2. FABRICATED STEEL FRAME AND TRAFFIC - RATED BOLTED GRATE SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
3. HEAVY DUTY CAST IRON GRATING SUITABLE FOR EQUIVALENT LOADING MAY BE PROVIDED INSTEAD OF STEEL GRATING. ANGLE FRAME AND CLEAR OPENING SHALL BE SIZED TO FIT GRATE SIZE.
4. CONTRACTOR MAY USE PRECAST INLETS INSTEAD OF CAST IN PLACE INLETS.





A DISCHARGE BASIN DETAIL

SCALE: NONE



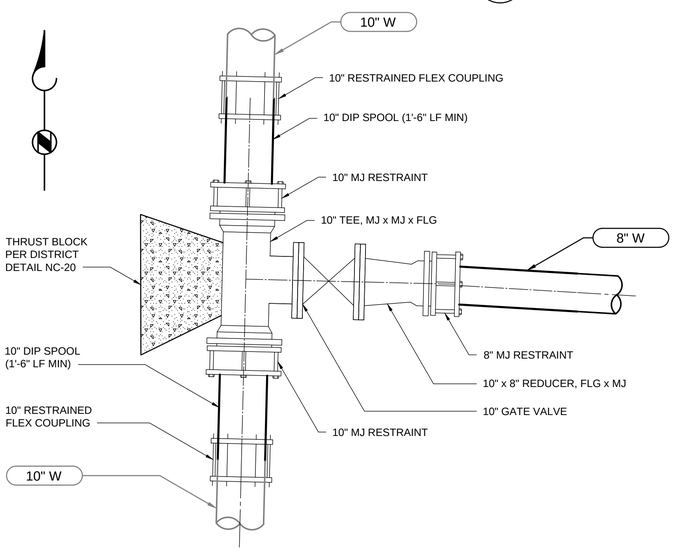
ITEM	QTY	DESCRIPTION
1	1	CONCRETE CIP CHAMBER
2	1	30"x30" D+L P-1885 SINGLE DOOR DUCTILE IRON ACCESS HATCH HEAVY DUTY LOADING H20.
3	1	10' LADDER C/W RETRACTABLE SAFETY POST
4	6	PIPE STAND
5	2	WEEP RING FOR 8" STEEL PIPE
6	2	8" SHURJOINT Z07 COUPLING
7	3	8" MUELLER A2360-6W41 NRS RW GATE VALVE, C/W HANDWHEEL - 150# FLG
8	1	8" FLOW METER
9	1	8" STATIC MIXER WITH 2 INJECTION PORTS
10	2	CEILING MOUNTED LED LIGHT WITH PROTECTIVE CASING
11	1	SUMP PUMP SP-211, SEE NOTE 4
12	2	2" CORED HOLE FOR ELECTRICAL CONDUIT & CARRIER PIPES
13	1	8" STATIC MIXER WITH 1 INJECTION PORT
14	2	EBAA SERIES 1000 E-Z FLANGE ADAPTER OR GROOVE COUPLING FLANGE ADAPTER
NOTE: STATIC MIXERS SHALL BE WESTFALL MODEL 2800 WITH MATERIALS SUITABLE FOR INJECTED CHEMICALS.		

NOTES

1. FABRICATED STEEL PIPE & FITTINGS TO BE SCHEDULE 40 FOR SIZES TO 1O", 3/8" WALL FOR 12" AND LARGER. FLANGES ARE ANSI 125/150.
2. ALL 2" AND SMALLER PIPE, EXCEPT CHEMICAL PIPING, TO BE TYPE 316 SST.
3. ALL 3" AND LARGER PIPE INSIDE WETTED SURFACES TO BE SANDBLASTED, FUSION EPOXY LINED AND COATED.
4. SUMP PUMP SHALL BE SUBMERSIBLE, 120V, 1/2 HP, CAST IRON BODY WITH INTEGRAL FLOAT SWITCH FOR CONTINUOUS AUTOMATIC OPERATION, GROUNDED PLUG, CORD, AND MAXIMUM HEAD OF AT LEAST 30 . SUMP PUMP SHALL BE DAYTON OR APPROVED EQUAL. PROVIDE PIPE AND FITTINGS TO TRANSITION THE SUMP PUMP DISCHARGE PIPING TO THE PERMANENT DISCHARGE PIPING EXITING THE VAULT.

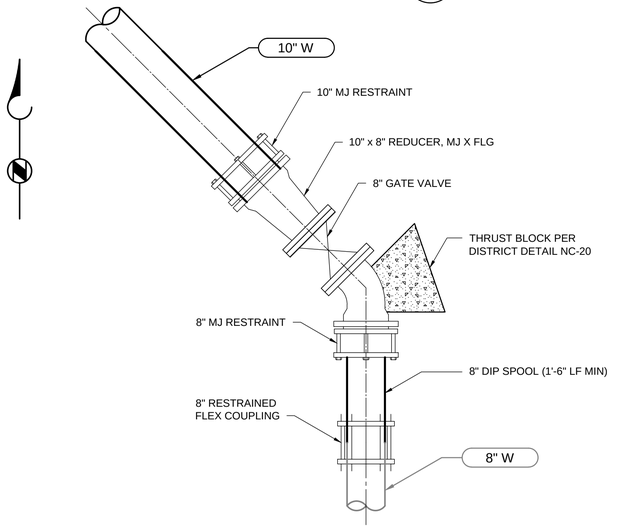
B SUMP DETAIL

SCALE: NONE



C CONNECTION DETAIL TO ZONE 31

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



D CONNECTION DETAIL TO ZONE 28

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

Brown AND Caldwell

WALNUT CREEK, CALIFORNIA

PRELIMINARY DESIGN

Not for Construction

THIS DRAWING IS NOT VALID FOR CONSTRUCTION PURPOSES UNLESS IT BEARS THE SEAL AND SIGNATURE OF A DULY REGISTERED PROFESSIONAL

North Coast County WATER DISTRICT SINCE 1944

SHEILA TANK REPLACEMENT PROJECT

REVISIONS		
REV	DATE	DESCRIPTION
		100% SUBMITTAL PACKAGE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: DESIGNED BY
DRAWN: DRAWN BY
CHECKED: CHECKED BY
CHECKED: CROSS CHECKED BY
APPROVED: APPROVED BY

FILENAME 153918-C-DETAILS.DWG
BC PROJECT NUMBER 155221
CLIENT PROJECT NUMBER - - - - -

CIVIL

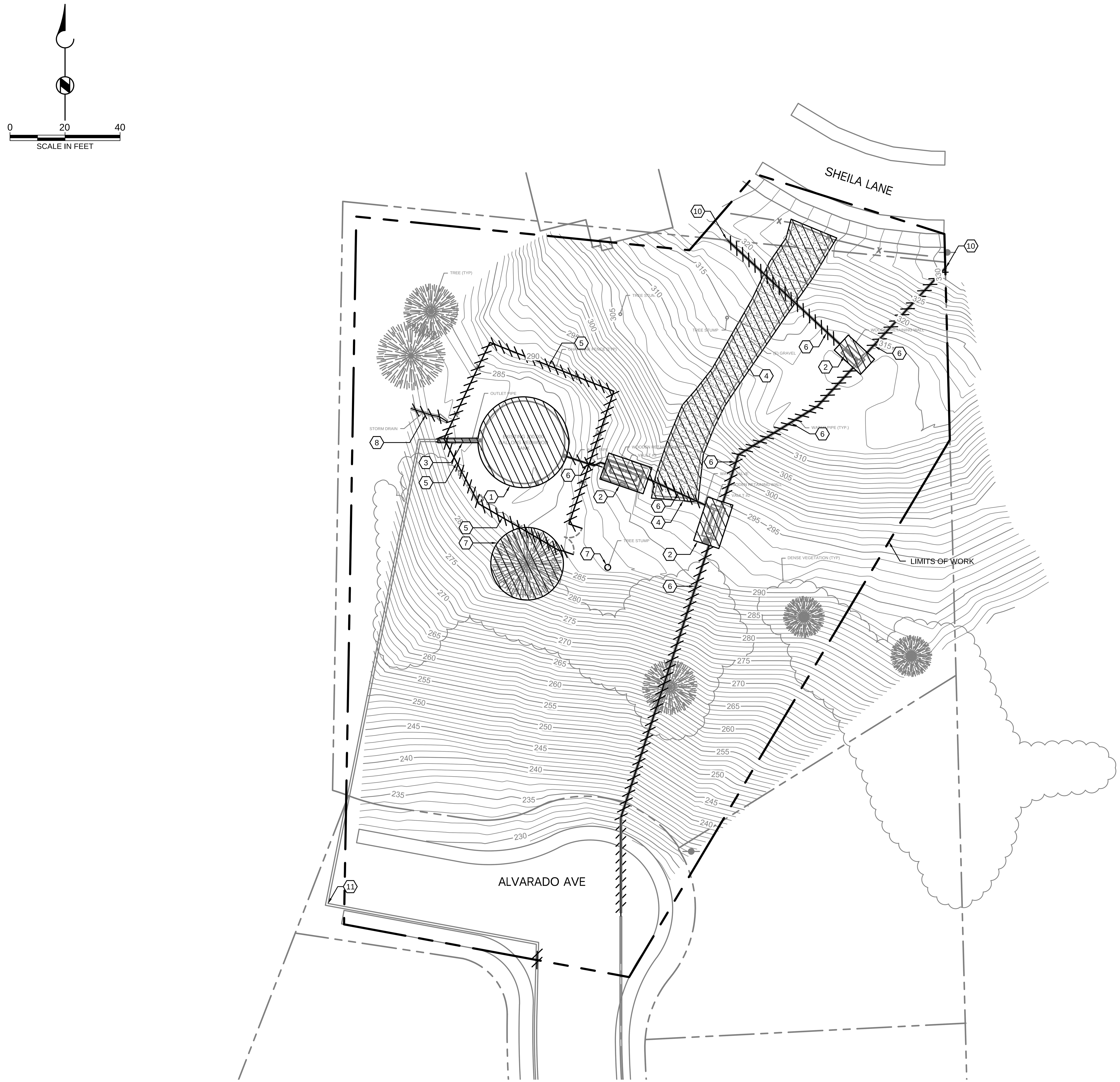
CIVIL DETAILS 1

DRAWING NUMBER

C-06

SHEET NUMBER 10 OF 38

FILENAME: 153918-C-DETAILS.DWG PLOT DATE: 8/9/2021 3:20 PM CAD USER: TAIT LAMBERT



GENERAL SHEET NOTES

1. EXISTING TREES AND SHRUBS SHALL BE PROTECTED IN PLACE OR REMOVED AND REPLACED PER SPECIFICATION.

KEY NOTES

1. REMOVE AND SALVAGE EXISTING REDWOOD RESERVOIR, REMOVE RINGWALL, AND ASSOCIATED APPURTENANCES PER SPEC SECTIONS 31 10 00.
2. REMOVE EXISTING VALVE VAULT AND PIPING.
3. REMOVE EXISTING OUTLET PIPING AS NECESSARY TO CONSTRUCT NEW IMPROVEMENTS.
4. REMOVE EXISTING GRAVEL ROADWAY.
5. REMOVE EXISTING FENCING AND GATE.
6. PLUG ENDS OF EXISTING AC PIPING, FILL WITH CSLM AND ABANDON IN PLACE.
7. REMOVE EXISTING TREE OR TREE STUMP.
8. REMOVE EXISTING STORM DRAIN TO 3' INSIDE PROPERTY LINE. PLUG AND FILL WITH CLSM TO THE PROPERTY LINE. PROTECT DOWNSTREAM MANHOLE.
9. PROVIDE TEMPORARY FENCING FOR SITE SECURITY AND SAFETY.
10. TEMPORARY CAP ON EXISTING PIPE DURING CONSTRUCTION.
11. FIELD VERIFY LOCATION OF EXISTING TIE-IN AT ALVARADO. CUT AT CONNECTION, PLUG ENDS, FILL WITH CLSM AND ABANDON IN PLACE.

Brown AND Caldwell
WALNUT CREEK, CALIFORNIA

PRELIMINARY DESIGN

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North Coast County WATER DISTRICT

SHEILA TANK REPLACEMENT PROJECT

REVISIONS		
REV	DATE	DESCRIPTION
100% SUBMITTAL PACKAGE		

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: K. KONECNY
DRAWN: T. LAMBERT
CHECKED: J. JETTON
CHECKED: R. PHILIPSON
APPROVED: D. CARBONI

FILENAME 153918-C-07.DWG
BC PROJECT NUMBER 155221
CLIENT PROJECT NUMBER -----

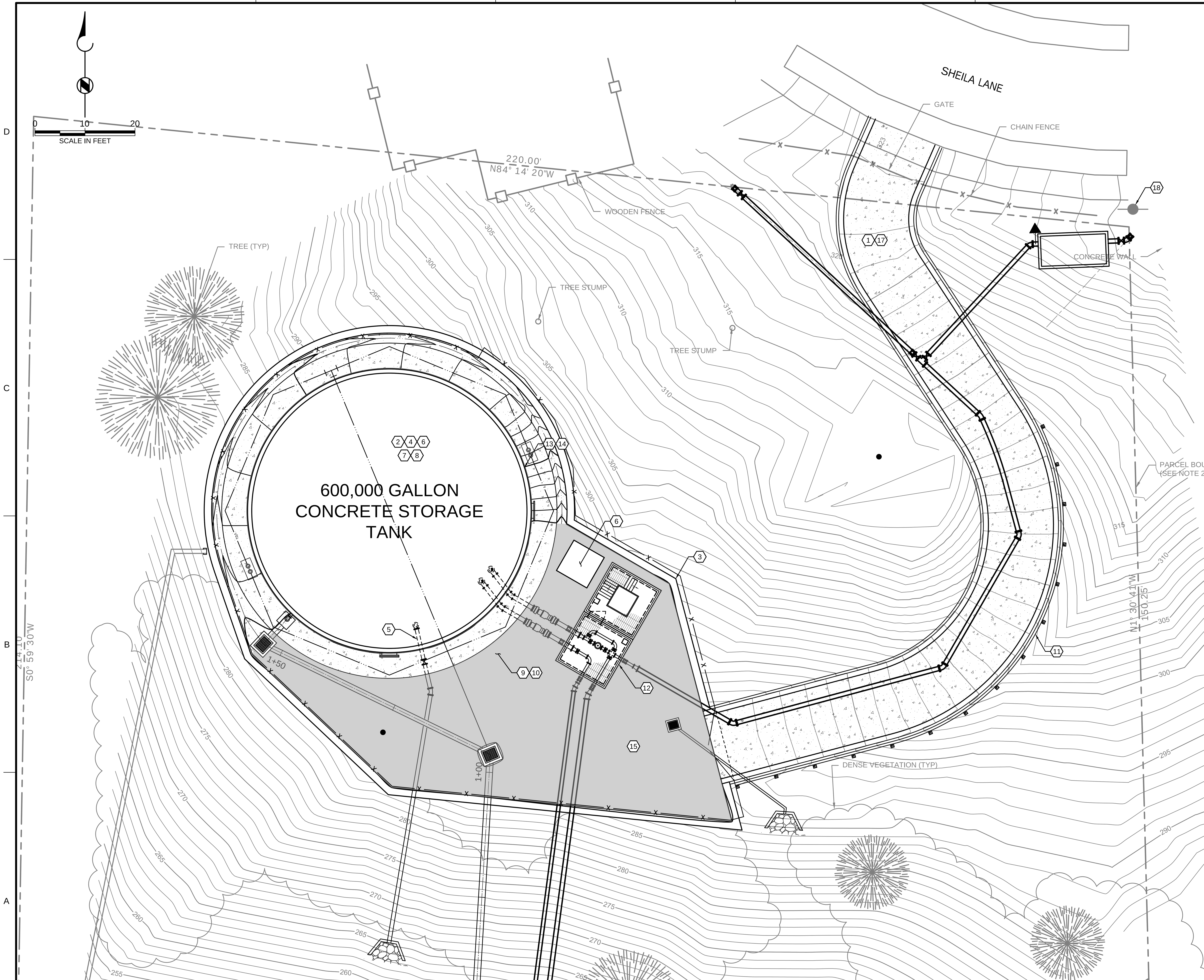
CIVIL

EXISTING SITE AND DEMOLITION PLAN

DRAWING NUMBER
C-07

SHEET NUMBER
11 OF 38

FILENAME: 153918-C-07.DWG PLOT DATE: 8/9/2021 3:20 PM CAD USER: TAIT LAMBERT



EXISTING SITE

PLAN

SCALE: 1" = 10'

GENERAL SHEET NOTES

KEY NOTES

1. CONSTRUCT GRAVEL TEMPORARY ACCESS ROAD.
2. DEMOLISH EXISTING TANK, YARD PIPING AND VALVE VAULTS. REMOVE DEBRIS AND SALVAGE OR LEGALLY DISPOSE OF IN ACCORDANCE WITH DISTRICT REQUIREMENTS. DURING SERVICE SHUTDOWNS FOR YARD PIPING DEMOLITION INSTALL TEMPORARY CAPS ON EXISTING PIPING AND PLACE NEW PIPING INTO SERVICE. SHUTDOWNS SHALL BE COORDINATED WITH DISTRICT AS REQUIRED.
3. CONSTRUCT TEMPORARY RETAINING WALL AND CARRY OUT EARTHWORK ASSOCIATED WITH CONSTRUCTION OF TEMPORARY RETAINING WALL.
4. EXCAVATE TANK FOOTPRINT.
5. EXCAVATE AND INSTALL BURIED PIPING AND UNDER DRAINS.
6. POUR REINFORCED MEMBRANE CONCRETE FLOOR AND CONCRETE PAD FOR ELECTRICAL BUILDING.
7. CONTRACTOR TO CARRY OUT SEQUENCING ASSOCIATED WITH AWWD D110 TYPE I TANK CONSTRUCTION.
8. TANK LEAK TESTING AND DISINFECTION PER AWWA REQUIREMENTS.
9. INSTALL NEW PG&E SERVICE.
10. TEST NEW ELECTRICAL AND CONTROLS SYSTEMS.
11. INSTALL GUARDRAILS ALONG PERMANENT ACCESS ROAD.
12. INSTALL VALVE VAULT AND PIPING CONNECTIONS.
13. BACKFILL EARTH AGAINST THE TANK, WITH THE TANK WALL ACTING AS A RETAINING WALL FOR THE SITE SLOPE.
14. CONSTRUCT A 5-FOOT-WIDE PERMANENT PATH AROUND THE UNBURIED PERIMETER OF THE TANK.
15. COMPLETE FINAL SITE GRADING UPON SHEILA TANK COMPLETION.
16. INSTALL SECURITY FENCING.
17. PAVE TEMPORARY ACCESS ROAD WITH ROUGHENED CONCRETE FOR FUTURE MAINTENANCE ACCESS.
18. APPROXIMATE LOCATION OF POWER POLE, CONTRACTOR SHALL VERIFY LOCATION.

Brown AND Caldwell

WALNUT CREEK, CALIFORNIA

PRELIMINARY DESIGN

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North Coast County WATER DISTRICT

SHEILA TANK REPLACEMENT PROJECT

REVISIONS

REV	DATE	DESCRIPTION
		100% SUBMITTAL PACKAGE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: K. KONECNY
DRAWN: T. LAMBERT
CHECKED: J. JETTON
CHECKED: R. PHILIPSON
APPROVED: D. CARBONI

FILENAME 153918-C-08.DWG
BC PROJECT NUMBER 155221
CLIENT PROJECT NUMBER -----

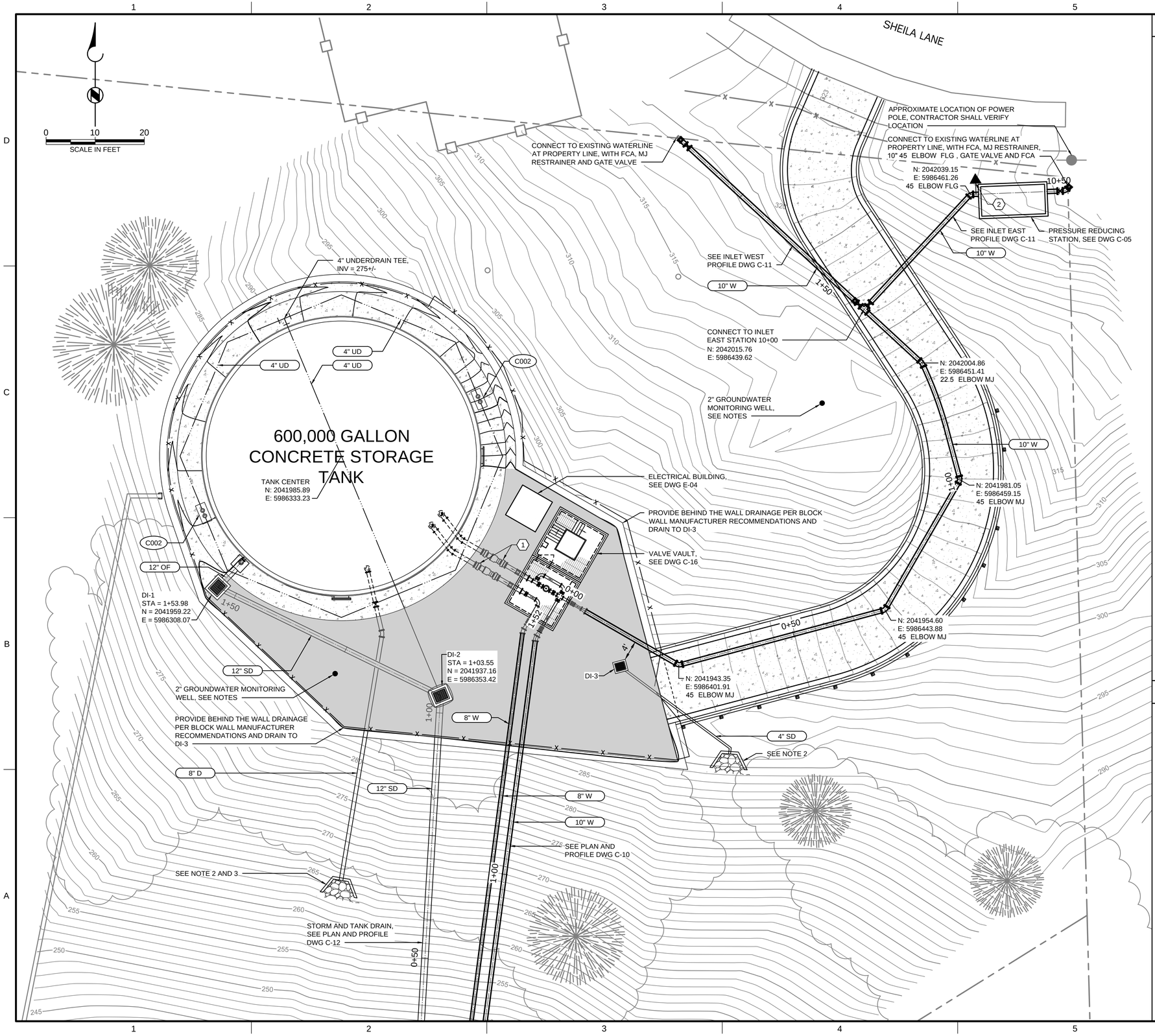
CIVIL

CONSTRUCTION SEQUENCING

DRAWING NUMBER
C-08

SHEET NUMBER
12 OF 38

FILENAME: 153918-C-08.DWG PLOT DATE: 8/9/2021 3:20 PM CAD USER: TAIT LAMBERT



GENERAL SHEET NOTES

1. MANAGE AC PIPING CUTTING TO MINIMIZE DUST GENERATION. DISPOSE OF REMOVED AC PIPE IN COMPLIANCE WITH STATE AND FEDERAL REQUIREMENTS FOR ASBESTOS.
2. INSTALL RIP RAP AT SD DISCHARGE, EXTENDING 5 FEET BEYOND END OF HEADWALL AND 5 FEET OFFSET OF SD CENTERLINE RIP RAP PER SPECIFICATION SECTION 31 23 00 50% EMBEDMENT.
3. FIT PIPE WITH TIDEFLEX CHECK VALVE.
4. CONTRACTOR SHALL CONSTRUCT TWO NEW MONITORING WELLS AT LOCATION SHOWN ON THE DRAWINGS. THE WELL DRILLER SHALL HAVE A VALID C-57 LICENSE IN THE STATE OF CALIFORNIA CONTRACTOR SHALL FIELD CONFIRM MONITORING WELL LOCATIONS WITH OWNER PRIOR TO WELL CONSTRUCTION.
5. THE CONSTRUCTION OF THE MONITORING WELLS SHALL CONFORM TO LOCAL, COUNTY, AND STATE REQUIREMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS ASSOCIATED WITH THE CONSTRUCTION OF THE MONITORING WELLS.
6. THE WELLS SHALL BE CONSTRUCTED USING HOLLOW STEM AUGER DRILLING TECHNOLOGY.
7. THE BORINGS SHALL BE CORED CONTINUOUSLY DURING DRILLING. THE CORE SHALL BE MADE AVAILABLE TO THE OWNER.
8. THE CONSTRUCTION OF THE WELLS SHALL BE AS DIRECTED BY THE OWNER BASED ON ACTUAL FIELD CONDITIONS. ANTICIPATED VALUES ARE PROVIDED BELOW BASED ON THE BORINGS INSTALLED AS PART OF THE GEOTECHNICAL STUDY.
9. THE WELLS SHALL BE CONSTRUCTED IN EIGHT-INCH BORING WITH TWO-INCH FLUSH THREADED SCHEDULE 40 PVC WELL CASING.
10. WELL SCREENS SHALL BE TWO-INCH FLUSH THREADED SCHEDULE 40 0.010-INCH SLOTTED PVC WELL SCREEN. A THREADED CAP SHALL BE INSTALLED AT THE BOTTOM OF THE WELL.
11. THE FILTER PACK SHALL BE #2/12 SAND AND SHALL BE PLACED FROM THE BOTTOM OF THE BOREHOLE TO ONE FOOT ABOVE THE WELL SCREEN UNLESS DIRECTED OTHERWISE BY THE OWNER. FILTER PACK SHALL BE INSTALLED USING A TREMIE PIPE.
12. THE BENTONITE SEAL SHALL BE INSTALLED PLACING BENTONITE PELLETS WITH A TREMIE PIPE AND HYDRATING THE PELLETS WITH CLEAN WATER.
13. THE SURFACE SEAL SHALL BE NEAT CEMENT AND SHALL BE PLACED FROM THE TOP OF THE BENTONITE SEAL TO THE SURFACE. THE SURFACE SEAL SHALL BE PLACED USING A TREMIE PIPE.
14. A LOCKING CAP SHALL BE PLACED AT THE TOP OF THE WELL.
15. THE WELL SHALL BE COMPLETED IN A FLUSH-MOUNTED MONITORING WELL BOX. MONITORING WELL BOXES SHALL BE H20 TRAFFIC RATED.
16. DRILL CUTTINGS AND PURGE WATER SHALL BE CONTAINERIZED AND HAULED OFF SITE FOR DISPOSAL.
17. DEVELOPMENT SHALL NOT OCCUR FOR A MINIMUM OF 48 HOURS AFTER THE COMPLETION OF THE MONITORING WELL CONSTRUCTION. DEVELOPMENT SHALL INCLUDE BAILING, SURGING, AND PUMPING UNTIL SPECIFIC CONDUCTIVITY, PH, AND TEMPERATURE HAVE STABILIZED TO WITHIN TEN PERCENT, AND MEASURED TURBIDITY IS LESS THAN 10 NTUS.
18. A MINIMUM OF THREE AND MAXIMUM OF TEN CASING VOLUMES SHALL BE PURGED FROM THE WELL DURING WELL DEVELOPMENT.
19. THE CONTRACTOR SHALL SURVEY THE TOP OF CASING ONCE THE WELL IS CONSTRUCTED. THE WELL SHALL BE SURVEYED BY A CALIFORNIA LICENSED SURVEYOR TO AN ACCURACY OF 0.01 FOOT VERTICALLY AND 0.1 FOOT HORIZONTALLY. CONTRACTOR SHALL PROVIDE SURVEY DATA IN A FORMAT COMPATIBLE WITH SURVEY PERFORMED FOR OTHER ASPECTS OF THE PROJECT.

KEY NOTES

1. INSTALL 10" FLEXIBLE EXPANSION JOINT BY EBAA IRON.
2. ARV PER DISTRICT DETAIL NC-13.

ANTICIPATED MONITORING WELL CONSTRUCTION

	MW-1	MW-2
BOREHOLE DIAMETER, IN	8	8
WELL CASING DIAMETER,IN	2	2
TOTAL DEPTH, FT BGS	40	17
SCREEN INTERVAL, FT BGS	34-39	11-16
FILTER PACK, FT BGS	33-40	10-17
BENTONITE SEAL, FT BGS	31-33	8-10
SURFACE SEAL, FT BGS	0-31	0-8

Brown AND Caldwell

WALNUT CREEK, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — MICHAEL BETH PHILIPSON — CIVIL — STATE OF CALIFORNIA

PRELIMINARY DESIGN

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North Coast County WATER DISTRICT SINCE 1944

SHEILA TANK REPLACEMENT PROJECT

REVISIONS		
REV	DATE	DESCRIPTION
		100% SUBMITTAL PACKAGE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	K. KONECNY
DRAWN:	T. LAMBERT
CHECKED:	J. JETTON
CHECKED:	R. PHILIPSON
APPROVED:	D. CARBONI

FILENAME 153918-C-09.DWG

BC PROJECT NUMBER 155221

CLIENT PROJECT NUMBER - - - - -

CIVIL

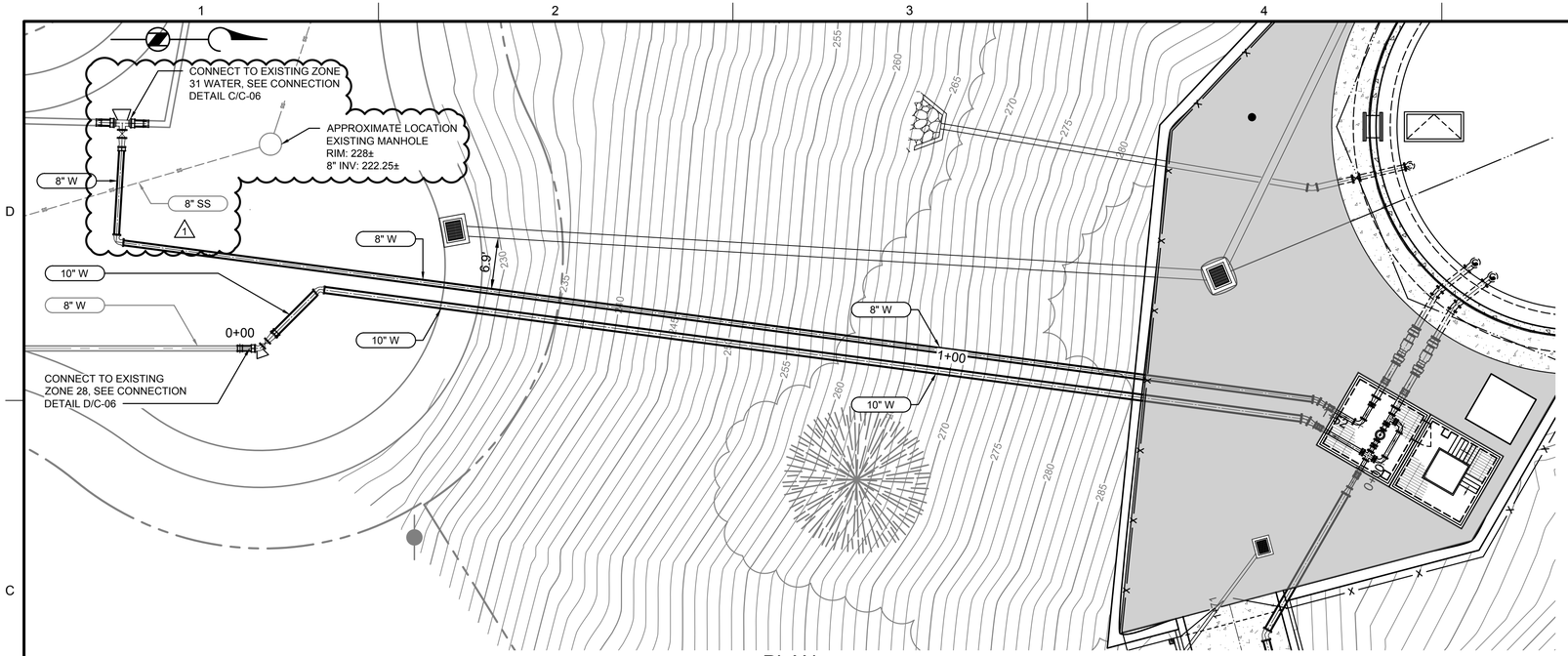
RESERVOIR SITE YARD PIPING PLAN

DRAWING NUMBER

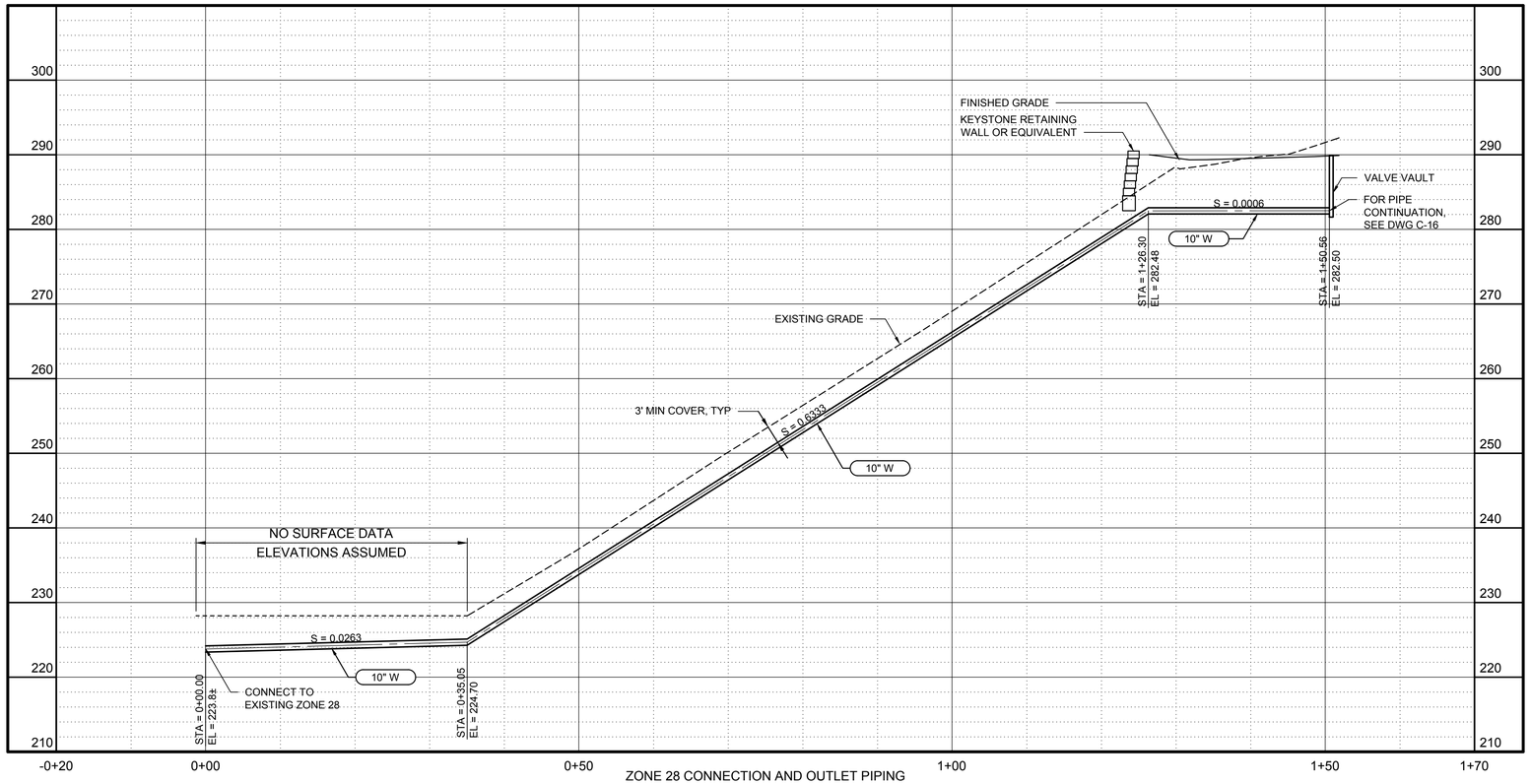
C-09

SHEET NUMBER 13 OF 38

FILENAME: 153918-C-09.DWG PLOT DATE: 8/9/2021 3:20 PM CAD USER: TAIT LAMBERT



PLAN
SCALE: 1" = 10'



ZONE 28 CONNECTION AND OUTLET PIPING
PROFILE
SCALE: HORIZONTAL: 1" = 10'
VERTICAL: 1" = 10'

GENERAL SHEET NOTES

1. DEPTHS ARE ASSUMED AND SHALL BE FIELD VERIFIED.
2. CONTRACTOR TO FIELD VERIFY LOCATION OF EXISTING ZONE 31 AND ZONE 28 WATER LINES AND CONFIRM CONNECTION LOCATIONS WITH ENGINEER PRIOR TO ORDERING OF MATERIALS.
3. EXISTING UTILITIES TO BE FIELD VERIFIED. ASSUME PRESENCE OF GAS DISTRIBUTION MAIN IN ALVARADO TO BE PROTECTED IN PLACE AT NO COST TO OWNER. 1

Brown AND Caldwell
WALNUT CREEK, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER BETH PHILIPSON CIVIL STATE OF CALIFORNIA

PRELIMINARY DESIGN

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North Coast County WATER DISTRICT SINCE 1944

SHEILA TANK REPLACEMENT PROJECT

REVISIONS		
REV	DATE	DESCRIPTION
100% SUBMITTAL PACKAGE		
1	8/21	ADD SS INFORMATION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	K. KONECNY
DRAWN:	T. LAMBERT
CHECKED:	J. JETTON
CHECKED:	R. PHILIPSON
APPROVED:	D. CARBONI

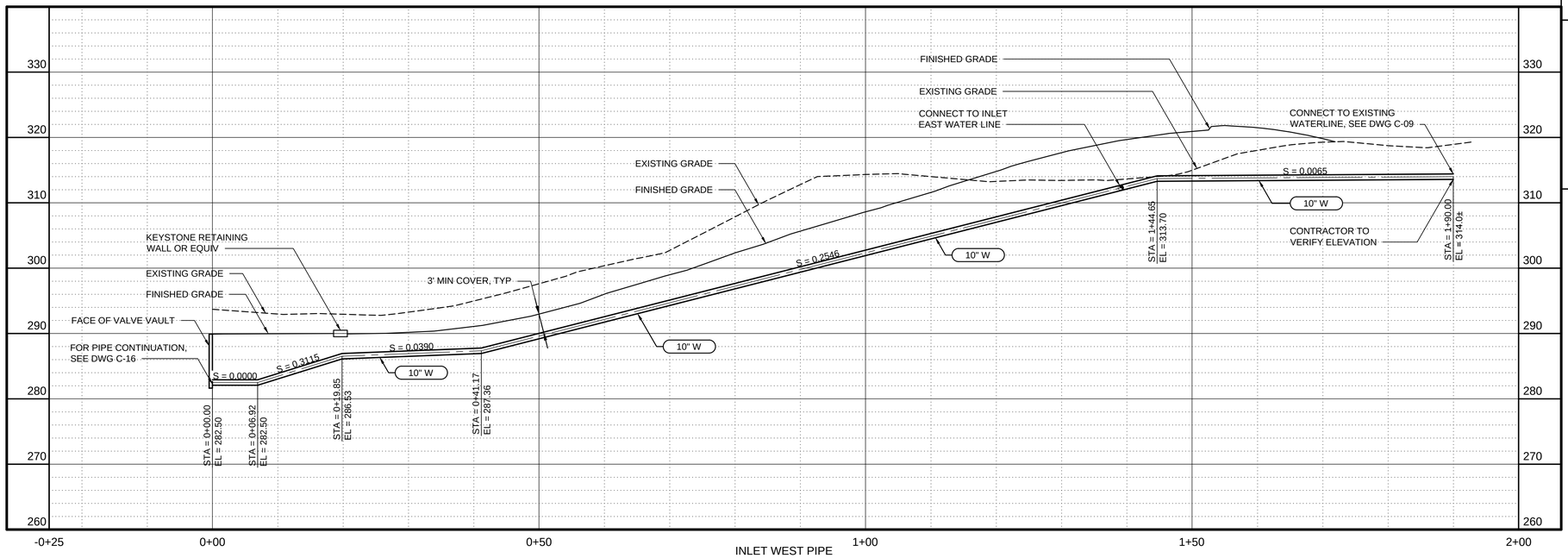
FILENAME
153918-C-PROFILES.DWG
BC PROJECT NUMBER
155221
CLIENT PROJECT NUMBER
- - - - -

CIVIL

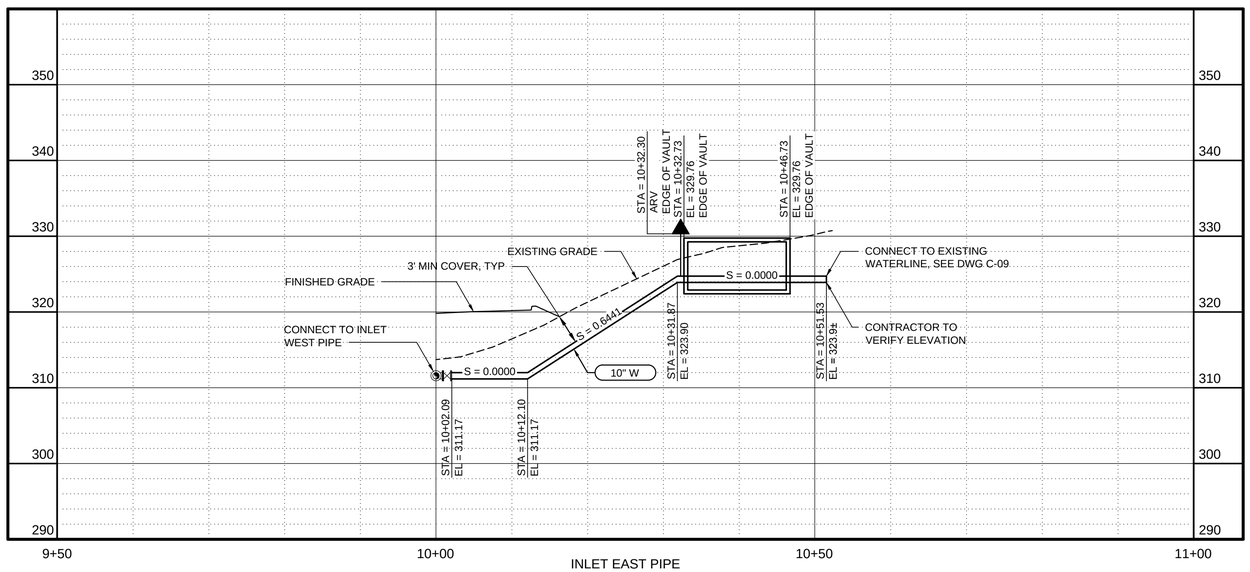
DISCHARGE PIPING PLAN AND PROFILE

DRAWING NUMBER
C-10
SHEET NUMBER
14 OF 38

FILENAME: 153918-C-PROFILES.DWG PLOT DATE: 8/18/2021 10:27 AM CAD USER: TAIT LAMBERT



INLET WEST PIPE
PROFILE
SCALE: HORIZONTAL: 1" = 10'
VERTICAL: 1" = 10'



INLET EAST PIPE
PROFILE
SCALE: HORIZONTAL: 1" = 10'
VERTICAL: 1" = 10'

GENERAL SHEET NOTES

1. DEPTHS ARE ASSUMED AND SHALL BE FIELD VERIFIED.
2. CONTRACTOR TO FIELD VERIFY LOCATION OF EXISTING ZONE 31 AND ZONE 28 WATER LINES AND CONFIRM CONNECTION LOCATIONS WITH ENGINEER PRIOR TO ORDERING OF MATERIALS.

Brown AND Caldwell
WALNUT CREEK, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER BETH PRITCHARD CIVIL STATE OF CALIFORNIA

PRELIMINARY DESIGN

NOT FOR CONSTRUCTION

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REGISTERED PROFESSIONAL ENGINEER RICHARD PHILIPSON CIVIL STATE OF CALIFORNIA

North Coast County WATER DISTRICT SINCE 1944

SHEILA TANK REPLACEMENT PROJECT

REVISIONS

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LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	K. KONECNY
DRAWN:	T. LAMBERT
CHECKED:	J. JETTON
CHECKED:	R. PHILIPSON
APPROVED:	D. CARBONI

FILENAME
153918-C-PROFILES.DWG

BC PROJECT NUMBER
155221

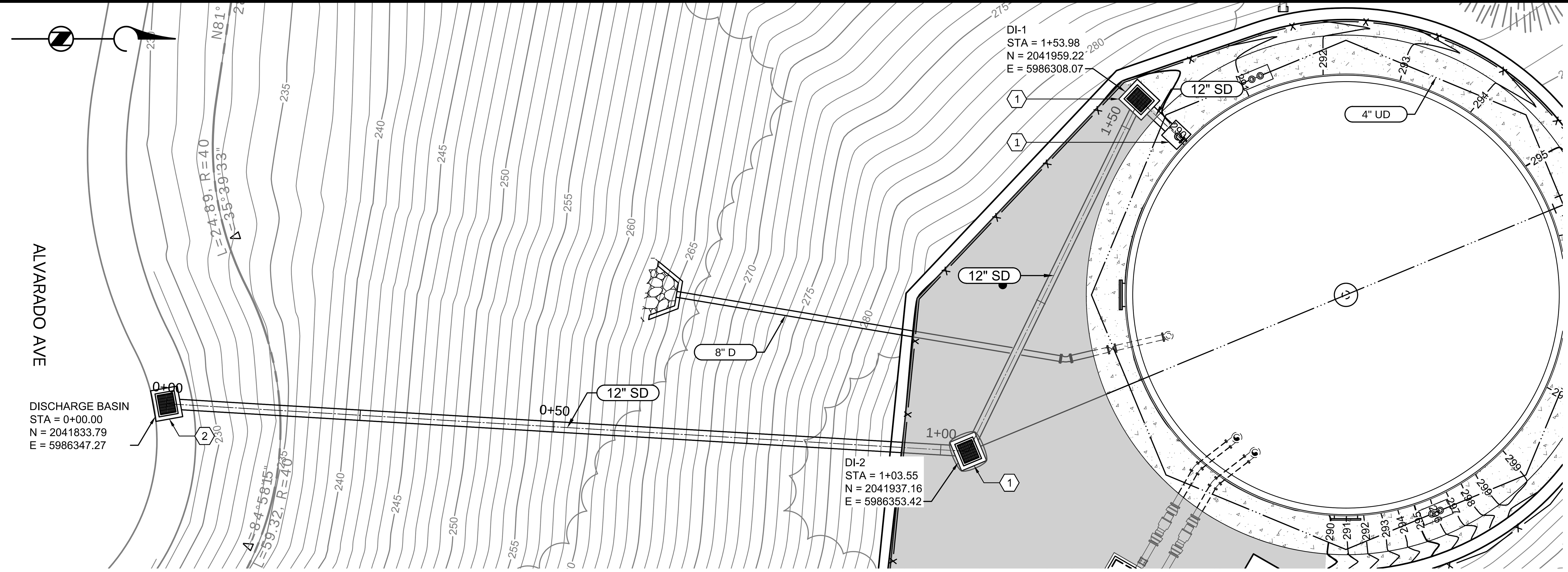
CLIENT PROJECT NUMBER
- - - - -

CIVIL

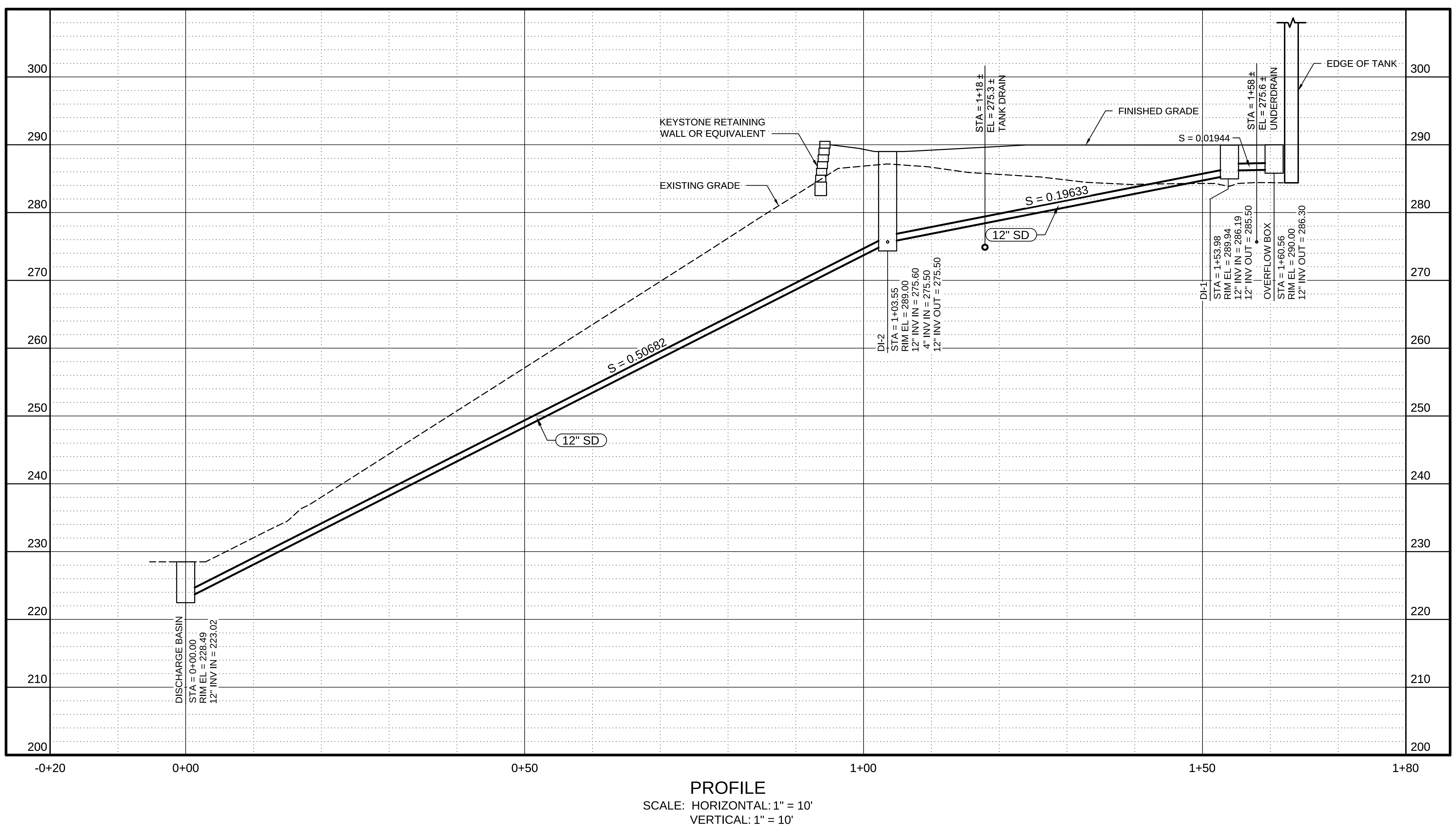
PIPING PROFILES

DRAWING NUMBER
C-11

SHEET NUMBER
15 OF 38



PLAN
SCALE: 1" = 10'



PROFILE
SCALE: HORIZONTAL: 1" = 10'
VERTICAL: 1" = 10'

GENERAL SHEET NOTES

KEY NOTES

1. TYPICAL CATCH BASIN SEE DETAIL C020/C-04.
2. DISCHARGE BASIN, SEE DETAIL A/C-06.

Brown AND Caldwell
WALNUT CREEK, CALIFORNIA

PRELIMINARY DESIGN

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North Coast County WATER DISTRICT

SHEILA TANK REPLACEMENT PROJECT

REVISIONS		
REV	DATE	DESCRIPTION
		100% SUBMITTAL PACKAGE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: K. KONECNY
DRAWN: T. LAMBERT
CHECKED: J. JETTON
CHECKED: R. PHILIPSON
APPROVED: D. CARBONI

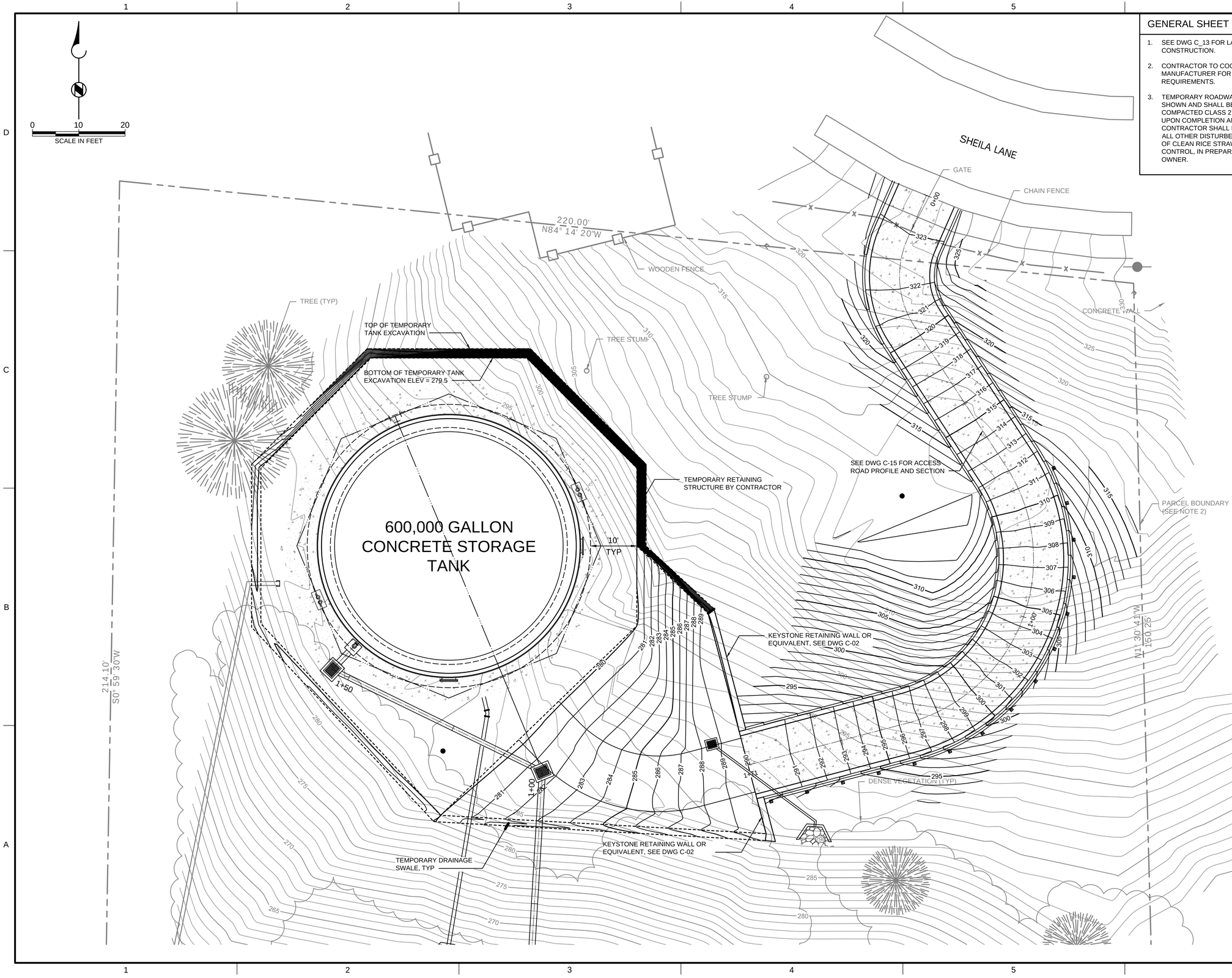
FILENAME
153918-C-12.DWG
BC PROJECT NUMBER
155221
CLIENT PROJECT NUMBER

CIVIL

STORM DRAIN PLAN AND PROFILE

DRAWING NUMBER
C-12
SHEET NUMBER
16 OF 38

FILENAME: 153918-C-12.DWG PLOT DATE: 8/9/2021 3:21 PM CAD USER: TAIT LAMBERT



GENERAL SHEET NOTES

1. SEE DWG C_13 FOR LAYOUT DETAILS OF PERMANENT CONSTRUCTION.
2. CONTRACTOR TO COORDINATE WITH TANK MANUFACTURER FOR THEIR CONSTRUCTION ACCESS REQUIREMENTS.
3. TEMPORARY ROADWAYS SHALL BE CONSTRUCTED AS SHOWN AND SHALL BE A MINIMUM OF 6-INCHES OF COMPACTED CLASS 2 AB OVER MIRAFI 600X FABRIC. UPON COMPLETION AND TESTING OF SHEILA TANK SITE, CONTRACTOR SHALL RESTORE SLOPES AND GRADES. ALL OTHER DISTURBED AREAS SHALL RECEIVE 4 INCHES OF CLEAN RICE STRAW APPLIED FOR EROSION CONTROL, IN PREPARATION FOR LATER PLANTING BY OWNER.

Brown AND Caldwell

WALNUT CREEK, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — BETH PHILIPSON — CIVIL — STATE OF CALIFORNIA

PRELIMINARY DESIGN

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North Coast County Water District — SINCE 1944

SHEILA TANK REPLACEMENT PROJECT

REVISIONS

REV	DATE	DESCRIPTION
		100% SUBMITTAL PACKAGE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	K. KONECNY
DRAWN:	T. LAMBERT
CHECKED:	J. JETTON
CHECKED:	R. PHILIPSON
APPROVED:	D. CARBONI

FILENAME
153918-C-13.DWG

BC PROJECT NUMBER
155221

CLIENT PROJECT NUMBER

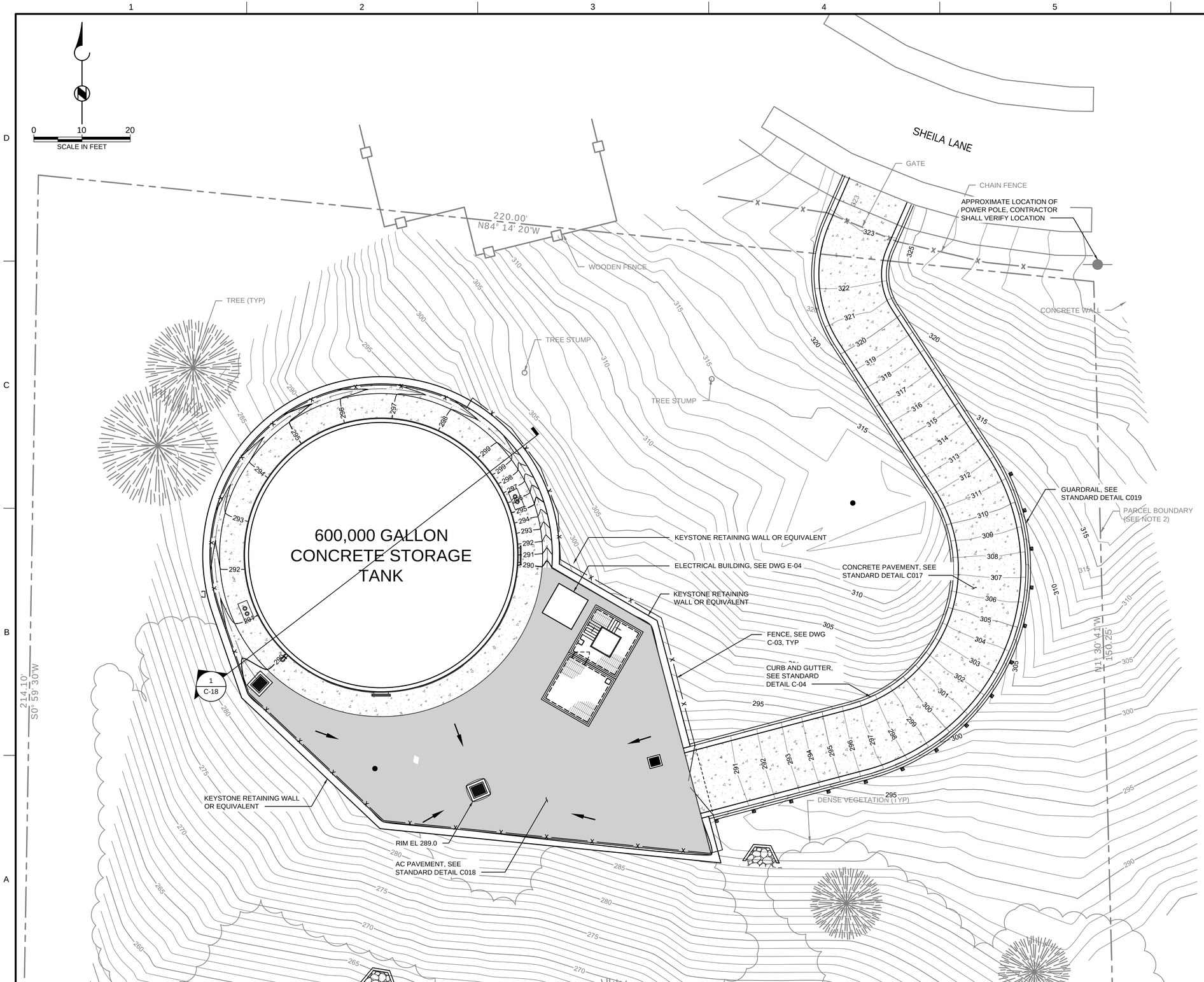
CIVIL

TEMPORARY GRADING PLAN

DRAWING NUMBER
C-13

SHEET NUMBER
17 OF 38

FILENAME: 153918-C-13.DWG PLOT DATE: 8/9/2021 3:21 PM CAD USER: TAIT LAMBERT



Brown AND Caldwell

WALNUT CREEK, CALIFORNIA

PRELIMINARY DESIGN

THIS DRAWING IS NOT VALID FOR CONSTRUCTION PURPOSES UNLESS IT BEARS THE SEAL AND SIGNATURE OF A DULY REGISTERED PROFESSIONAL

North Coast County Water District

SHEILA TANK REPLACEMENT PROJECT

REVISIONS		
REV	DATE	DESCRIPTION
		100% SUBMITTAL PACKAGE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	K. KONECNY
DRAWN:	T. LAMBERT
CHECKED:	J. JETTON
CHECKED:	R. PHILIPSON
APPROVED:	D. CARBONI

FILENAME
153918-C-14.DWG

BC PROJECT NUMBER
155221

CLIENT PROJECT NUMBER
- - - - -

CIVIL

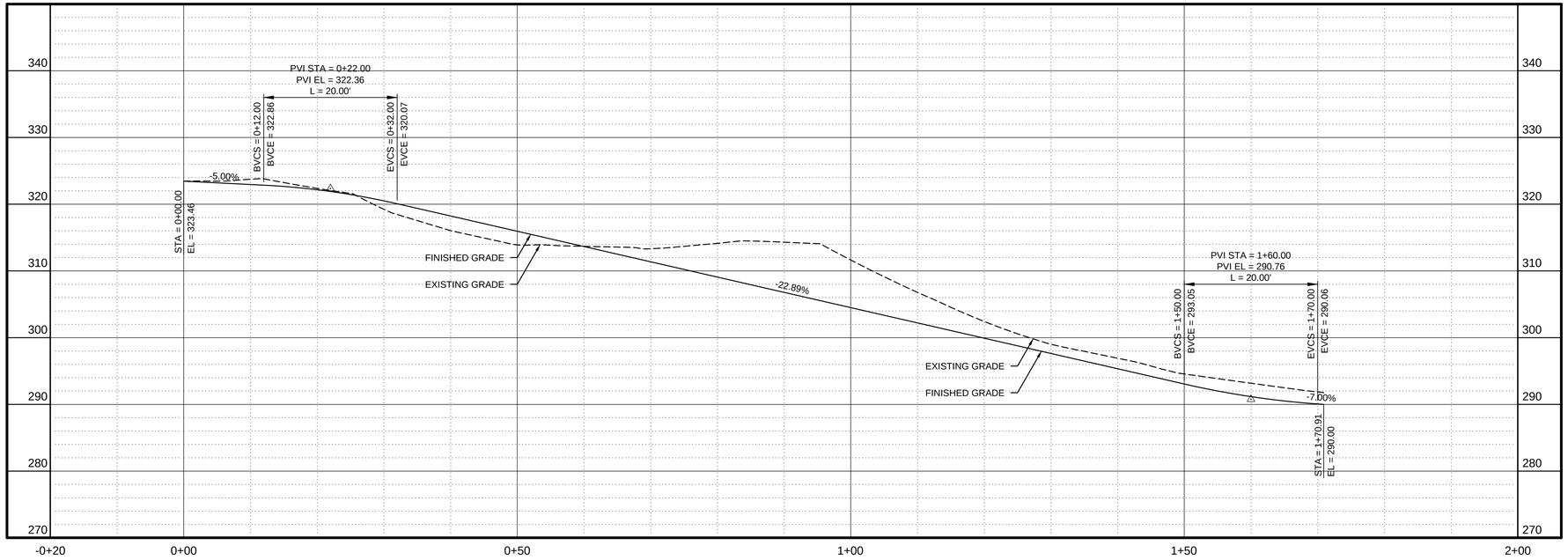
FINAL GRADING AND PAVING PLAN

DRAWING NUMBER

C-14

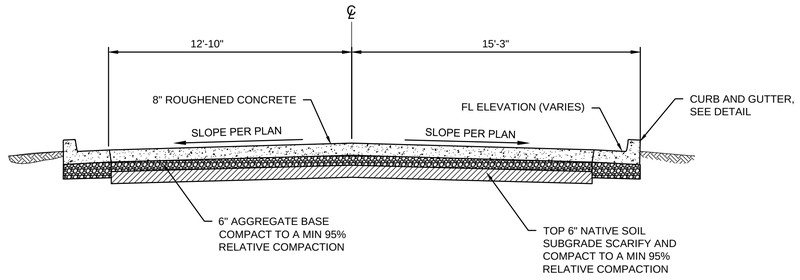
SHEET NUMBER
18 OF 38

FILENAME: 153918-C-14.DWG PLOT DATE: 8/9/2021 3:21 PM CAD USER: TAIT LAMBERT



PROFILE

SCALE: HORIZONTAL: 1" = 10'
VERTICAL: 1" = 10'



---- ROADWAY PAVING DETAIL

SCALE: NONE

Brown AND Caldwell

WALNUT CREEK, CALIFORNIA

PRELIMINARY DESIGN

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North Coast County WATER DISTRICT

SHEILA TANK REPLACEMENT PROJECT

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CHECKED:	J. JETTON
CHECKED:	R. PHILIPSON
APPROVED:	D. CARBONI

FILENAME
153918-C-15.DWG

BC PROJECT NUMBER
155221

CLIENT PROJECT NUMBER
- - - - -

CIVIL

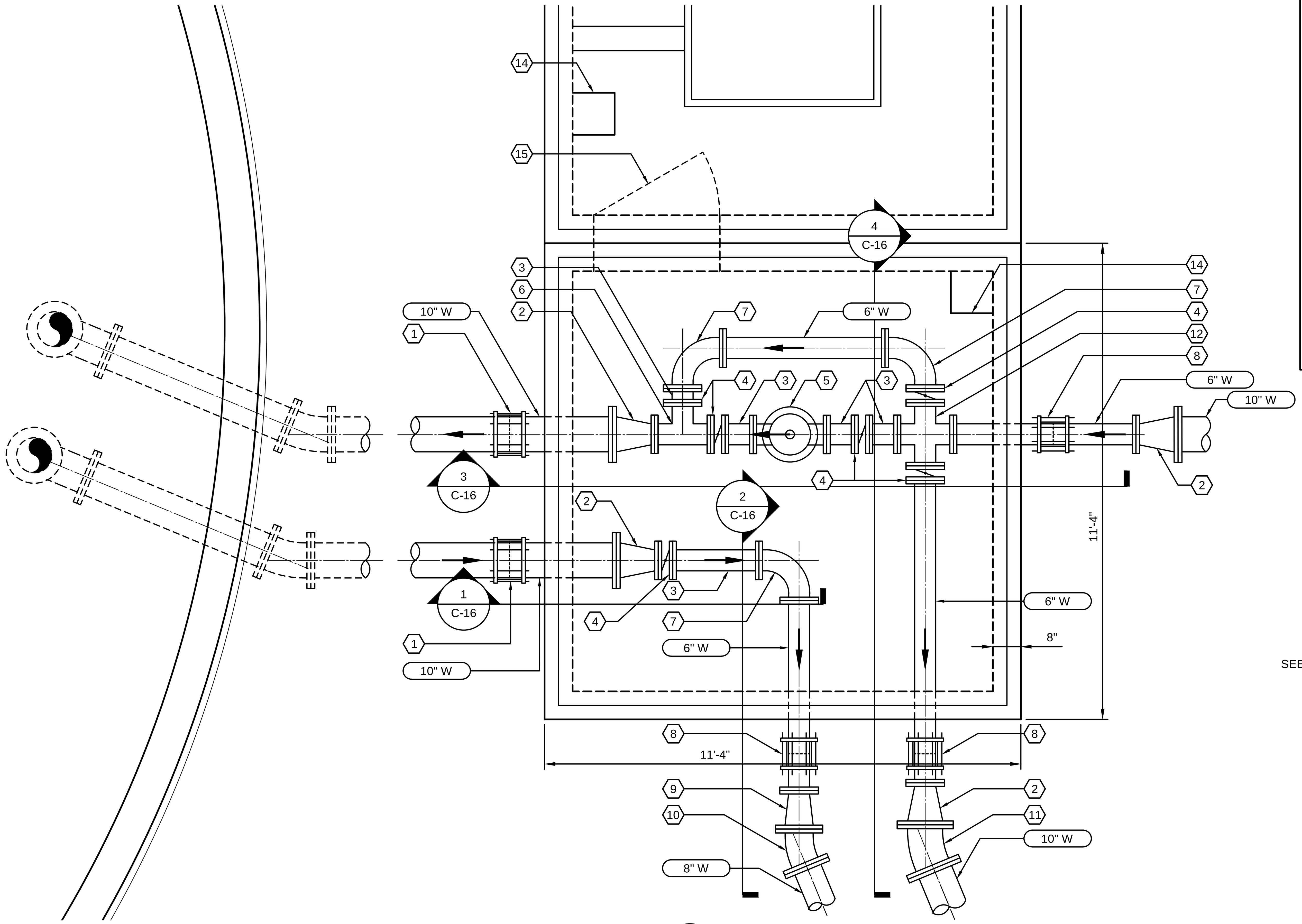
ACCESS ROAD PROFILE AND SECTION

DRAWING NUMBER

C-15

SHEET NUMBER
19 OF 38

FILENAME: 153918-C-15.DWG PLOT DATE: 8/9/2021 3:22 PM CAD USER: TAIT LAMBERT



C2 VALVE VAULT PLAN
SCALE: 1/2" = 1'-0"

GENERAL SHEET NOTES

MAN DOOR

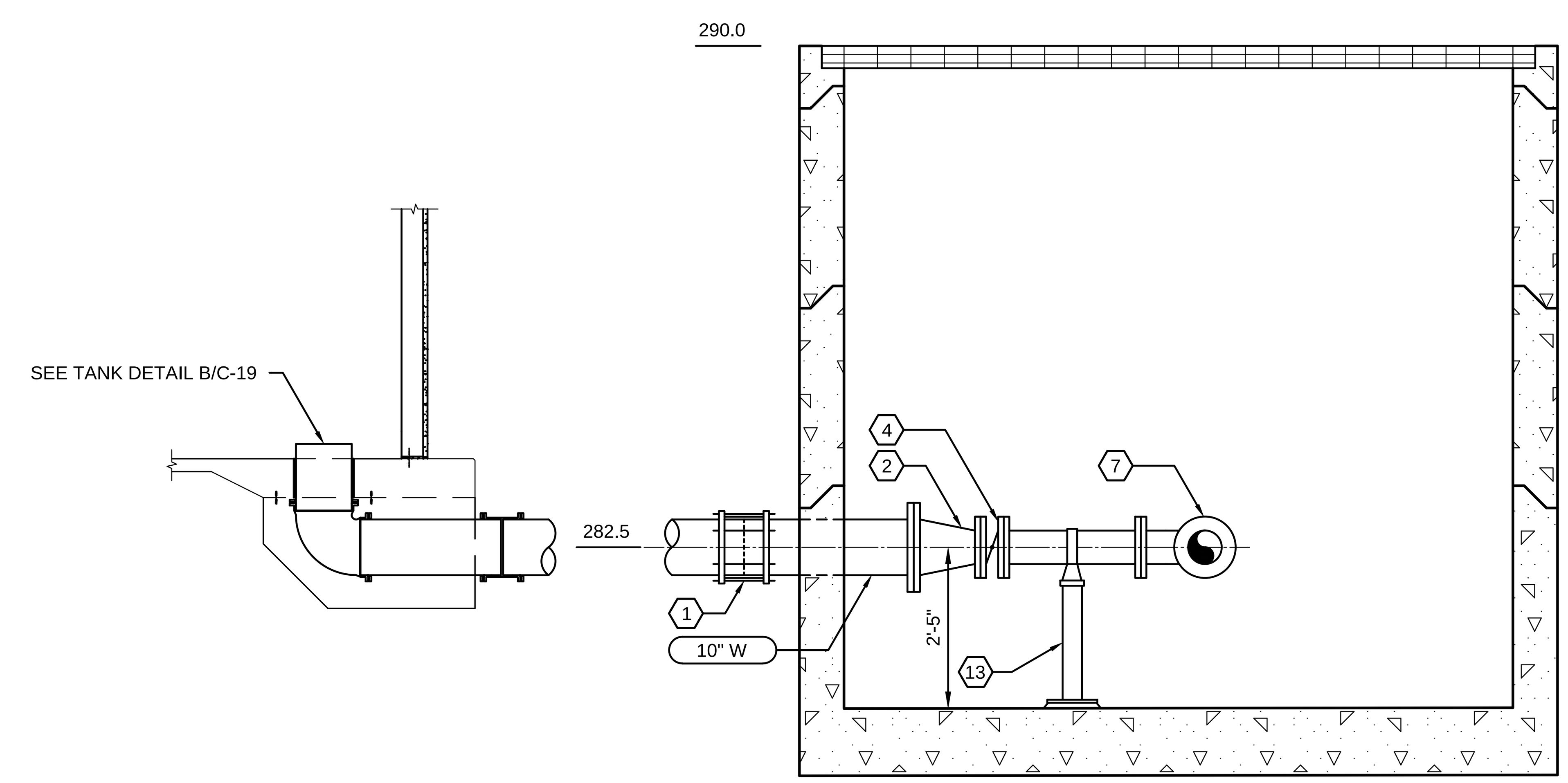
1. PROVIDE HEAVY DUTY FIBERGLASS DOOR AND FRAME AS MANUFACTURED BY TIGER DOOR OR EQUAL. DOOR SHALL BE OF SEAMLESS PRESS-MOLDED CONSTRUCTION. FRAMES SHALL BE 5 INCH WIDE DOUBLE RABBETED WITH A 2-INCH FACE WITH WELDED FRAME CORNERS. PROVIDE GROUT-IN TYPE ANCHORS (FILL THE FRAMES SOLID WITH GROUT). PROVIDE MANUFACTURER'S STANDARD WARRANTY. THE DOOR AND FRAME SHALL BE FACTORY FINISHED WITH A 2-PART SEMI-GLOSS POLYURETHANE COATING. PROVIDE THE DISTRICT WITH A COLOR SELECTION GUIDE TO SELECT THE FINISH COLOR.

DOOR HARDWARE

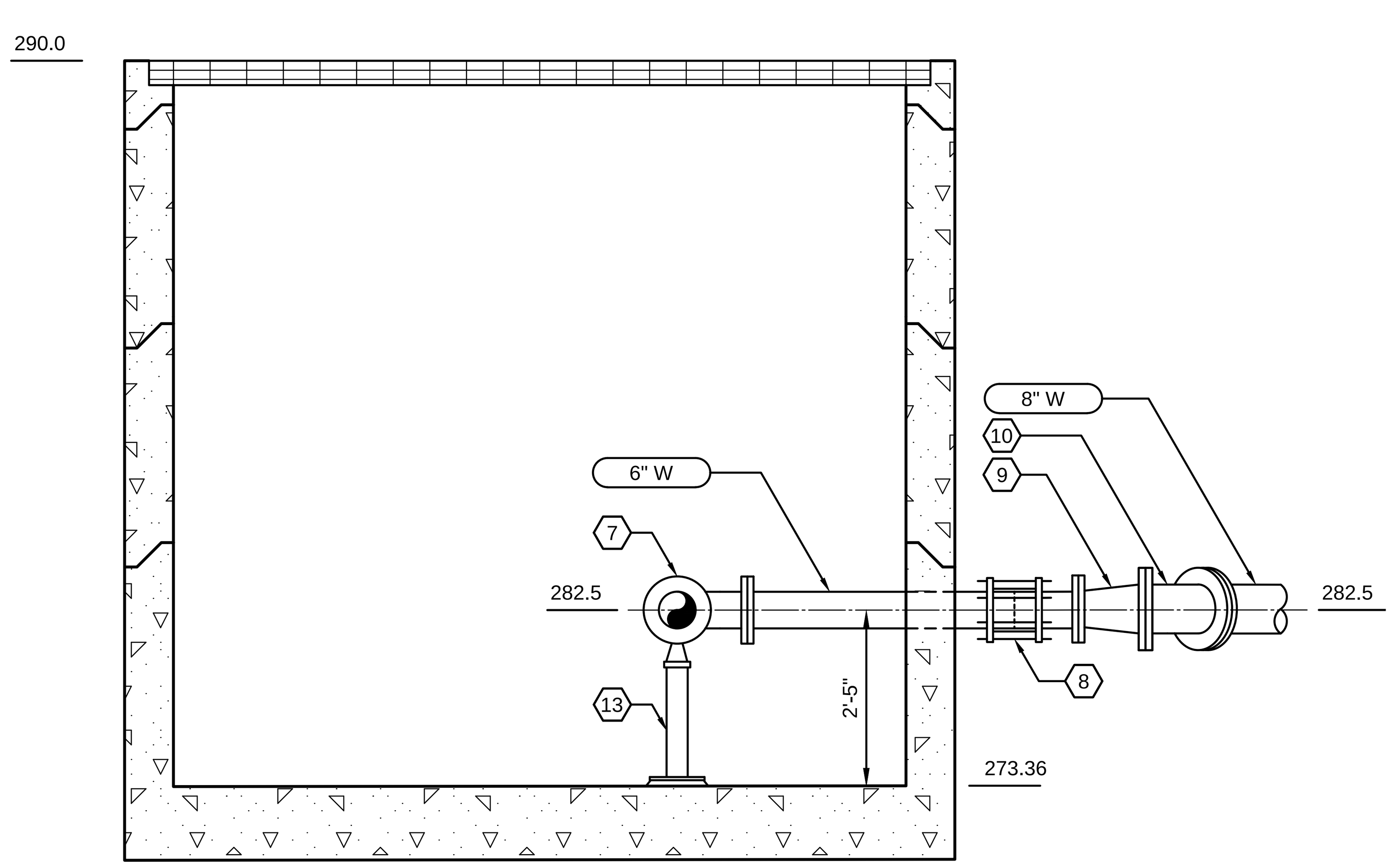
1. MORTISE HINGES 4 PER DOOR , PROVIDE 4 1/2 STANDARD WEIGHT HINGES, STAINLESS STEEL, FBB 199 WITH US32D FINISH BY STANLEY COMMERCIAL HARDWARE OF APPROVED EQUAL.
2. PANIC EXIT DEVICES. PROVIDE 1530-L8(F) SERIES MORTICE EXIT DEVICE WITH EXCUTCHEON TRIM AND AUGUST AU LEVER HANDLES AND CYLINDER AND US32D FINISH BY YALE SECURITY, INC. AN ASSA ABLOY GROUP COMPANY OR APPROVED EQUAL.
3. OVERHEAD SURFACE MOUNTED DOOR CLOSER. PROVIDE SERIES DC8000 CLOSER WITH HEAVY DUTY PARALLEL ARM WITH HOLD OPEN, FULL PLASTIC COVER WITH US26D FINISH.
4. STRIPPING AND SEALS. PROVIDE HEAD AND JAMB WEATHERSTRIPPING MODEL 2891AS BY PEMKO MANUFACTURING COMPANY OR APPROVED EQUAL. PROVIDE DOOR BOTTOM WEATHERSTRIPPING, MODEL 434APKL BY PEMKO MANUFACTURING COMPANY OR APPROVED EQUAL.
5. KICKPLATES. PROVIDE 8400 SERIES PROTECTION PLATES WITH US32D FINISH (12-INCHES S 34-INCHES) BY IVES ARCHITECTURAL HARDWARE PRODUCTS OR APPROVED EQUAL.
6. THRESHOLD. PROVIDE MODEL 171A BY PEMKO MANUFACTURING COMPANY OR APPROVED EQUAL.

KEY NOTES

1. 10" FCA (FLEXIBLE COUPLING ADAPTER)
2. 10" x 6" REDUCER
3. 6" SPOOL (LENGTH TO FIT)
4. 6" BUTTERFLY VALVE
5. 6" ALTITUDE VALVE WITH SOLENOID SHUTOFF
6. 6" TEE
7. 6" 90 ELBOW
8. 6" FCA (FLEXIBLE COUPLING ADAPTER)
9. 8" x 6" REDUCER
10. 8" 22.5 ELBOW
11. 10" 22.5 ELBOW
12. 6" CROSS
13. PIPE SUPPORT
14. INSTALL SUMP, SEE DETAIL B/C-06
15. 7'-0" x 3'-0" DOOR, PER GENERAL SHEET NOTES



1 SECTION
SCALE: 1/2" = 1'-0"



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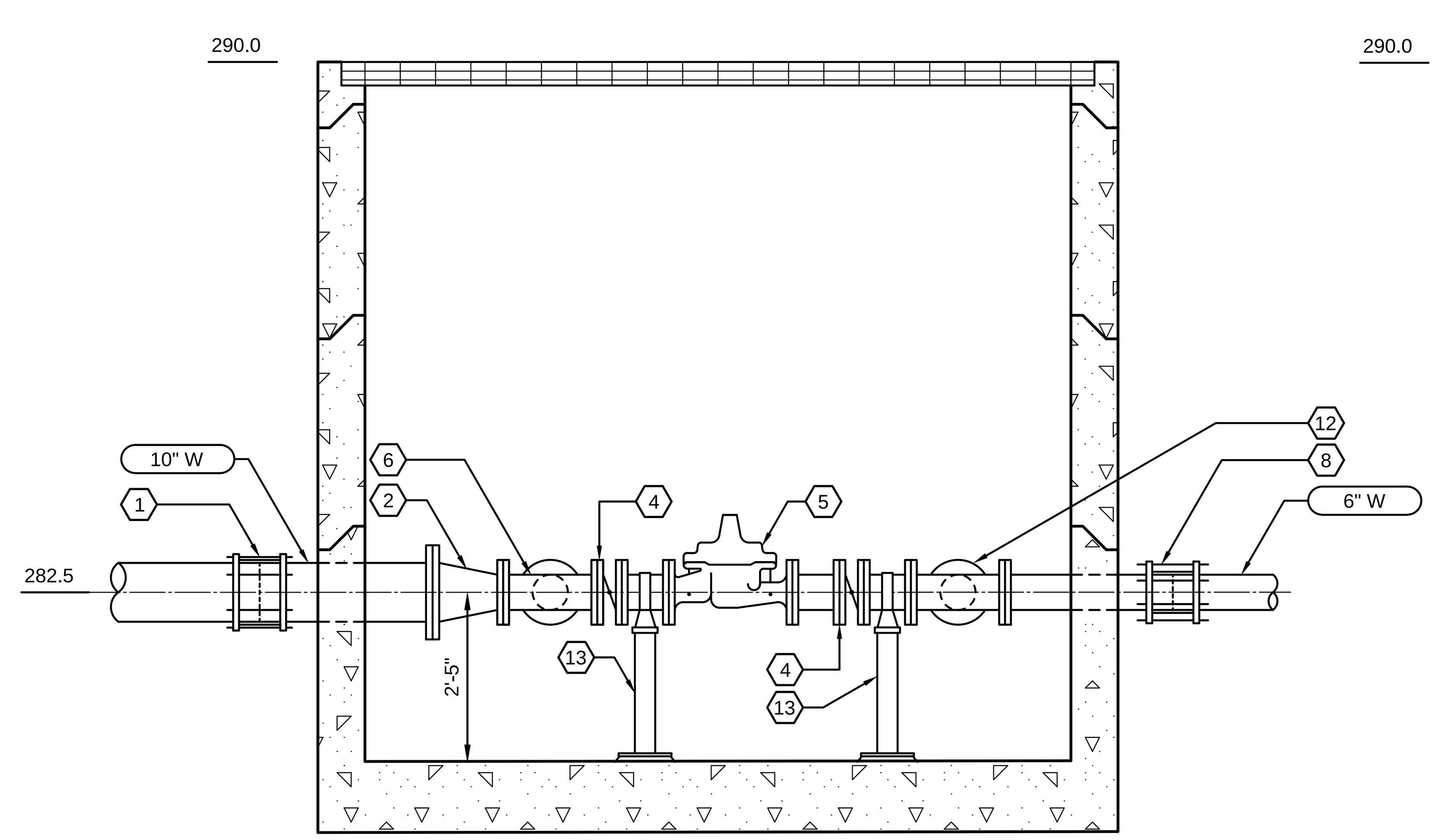

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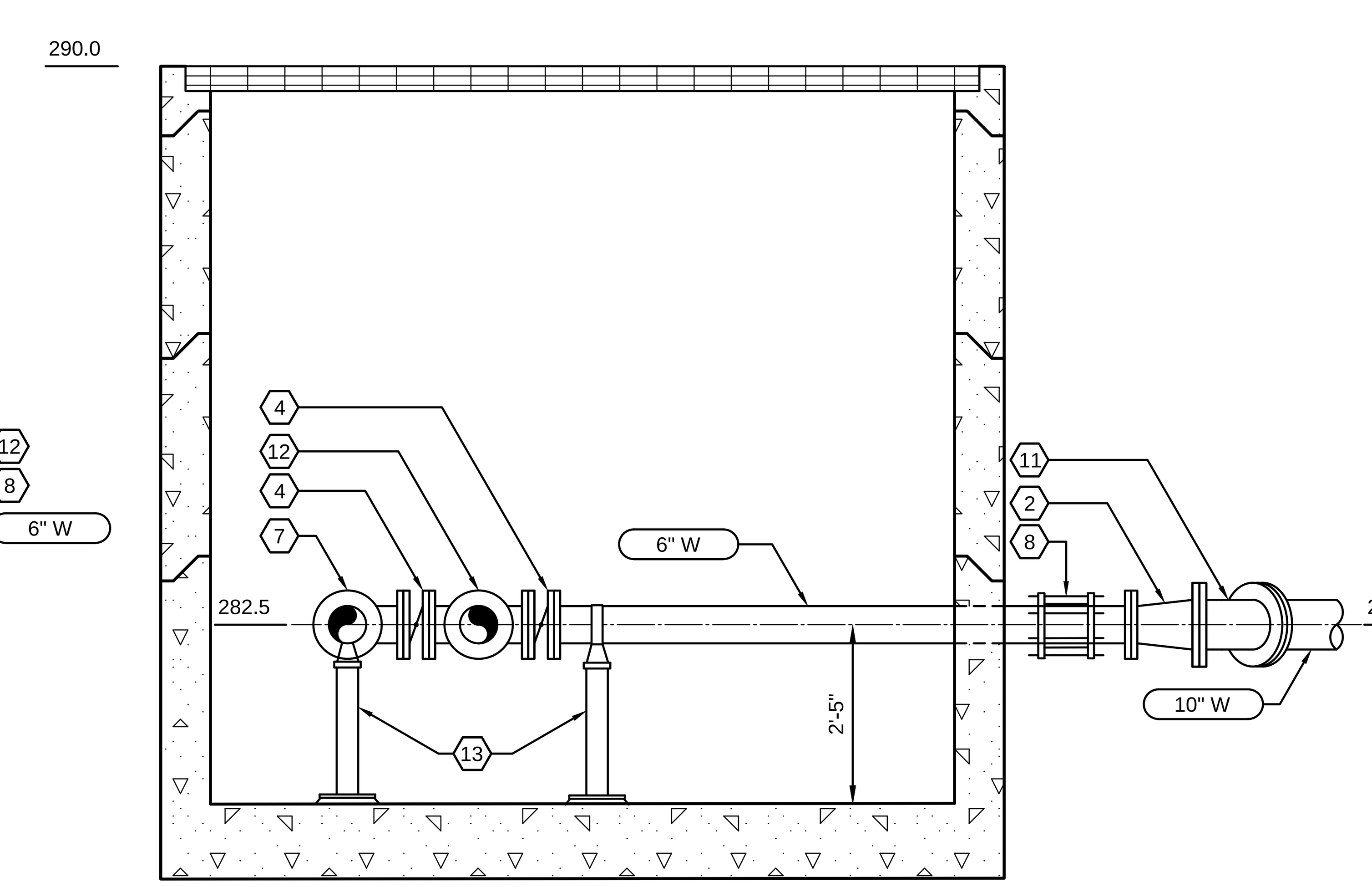

4 SECTION
SCALE: 1/2" = 1'-0"

Brown AND Caldwell
WALNUT CREEK, CALIFORNIA

PRELIMINARY DESIGN

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North Coast County WATER DISTRICT

SHEILA TANK REPLACEMENT PROJECT

REVISIONS		
REV	DATE	DESCRIPTION
		100% SUBMITTAL PACKAGE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	K. KONECNY
DRAWN:	T. LAMBERT
CHECKED:	J. JETTON
CHECKED:	R. PHILIPSON
APPROVED:	D. CARBONI

FILENAME 153918-C-16.DWG
BC PROJECT NUMBER 155221
CLIENT PROJECT NUMBER - - - - -

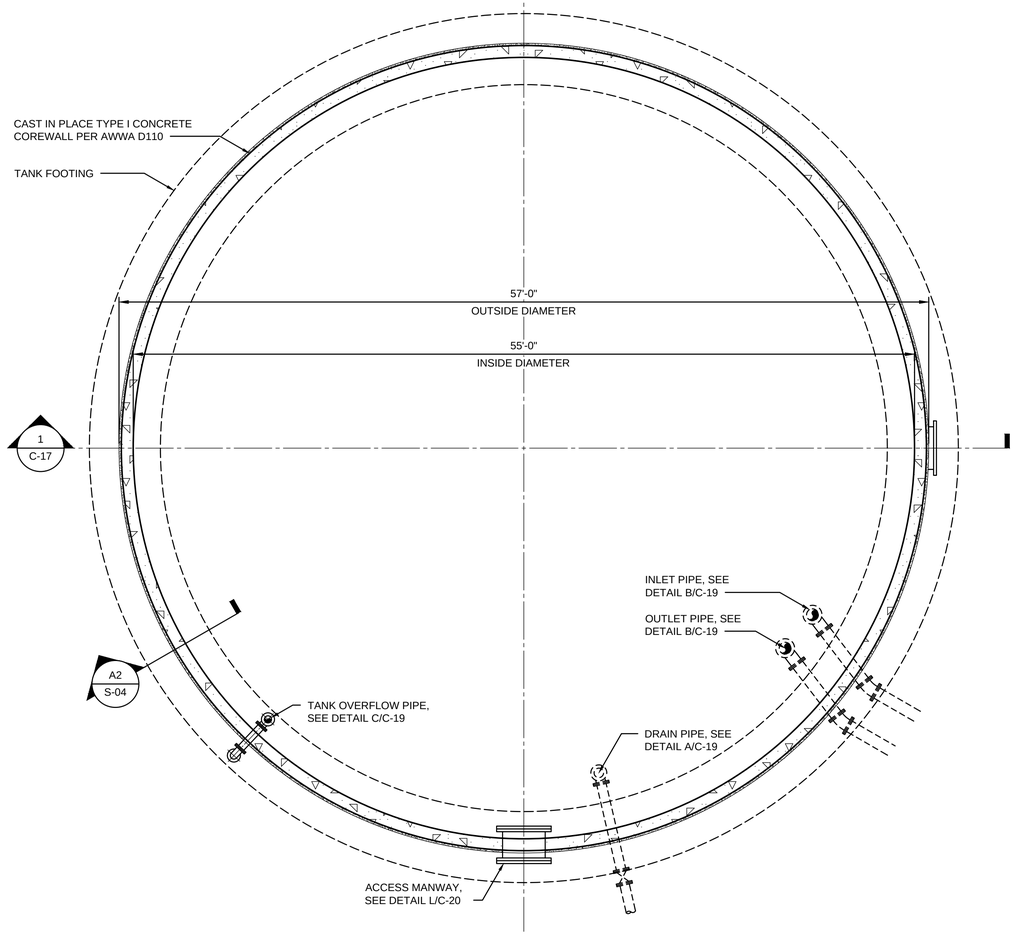
CIVIL

VALVE VAULT PLAN AND SECTIONS

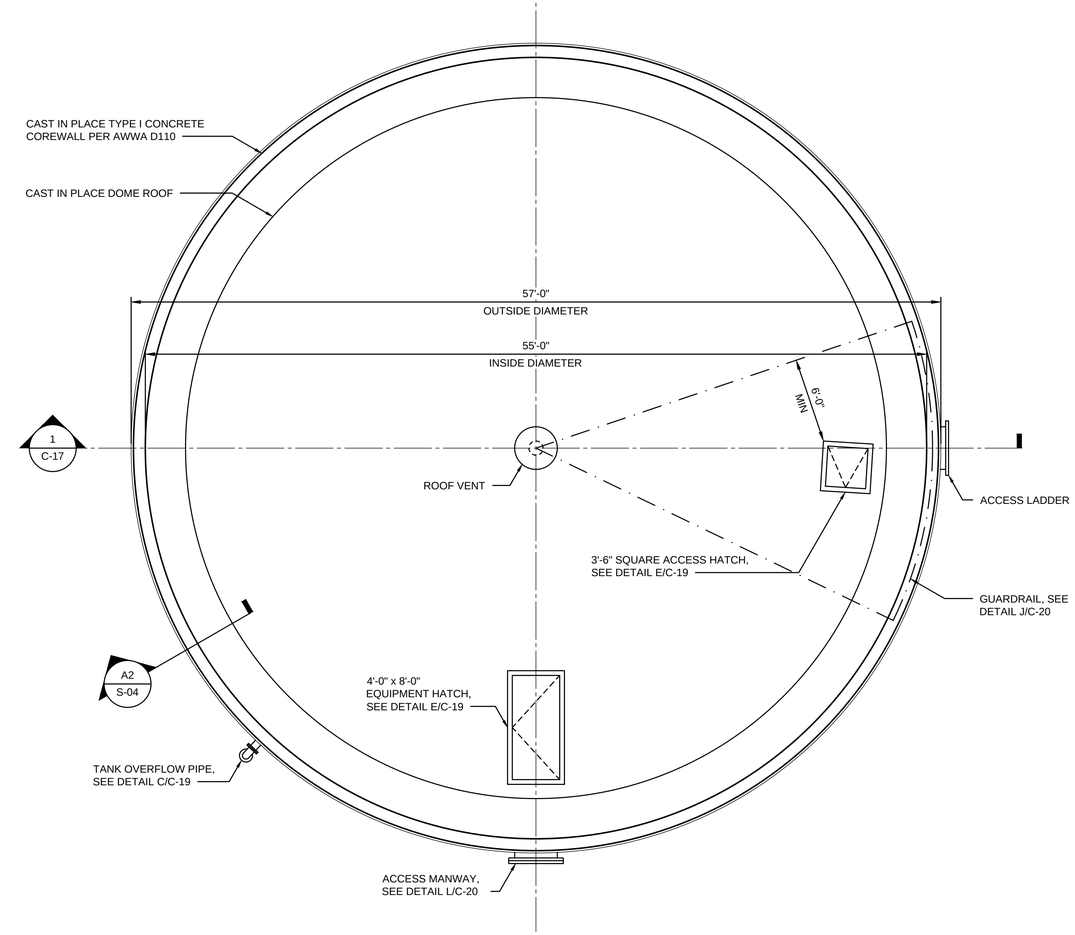
DRAWING NUMBER
C-16

SHEET NUMBER 20 OF 38

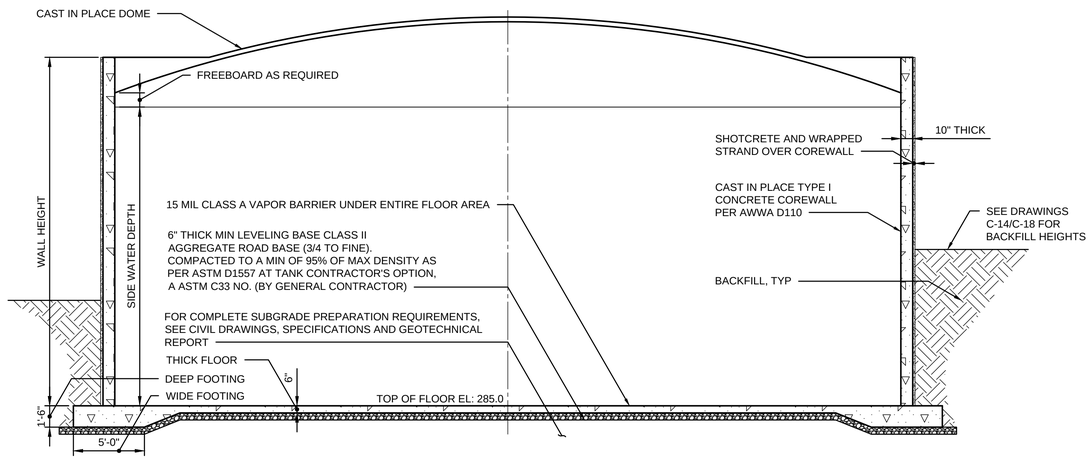
FILENAME: 153918-C-16.DWG PLOT DATE: 8/9/2021 3:22 PM CAD USER: TAIT LAMBERT



B2 FLOOR PLAN
SCALE: 3/16" = 1'-0"



B5 ROOF PLAN
SCALE: 3/16" = 1'-0"



1 TANK SECTION
SCALE: NONE

GENERAL NOTES:

*ALL DIMENSIONS SHOWN ARE MINIMUM REQUIREMENTS. TANK CONTRACTOR TO VERIFY DIMENSIONS WITH STRUCTURAL CALCULATIONS.

A. DESIGN LOADS

1.	ROOF LOAD	: 20.0 PSF LIVE; SNOW
2.	LIQUID (WATER)	: 62.4PCF
3.	Ri, IMPULSIVE STRUCTURAL RESPONSE COEFFICIENT	: 3.25 (ASCE 7 WITH CABLES) 1.50 (ASCE 7 W/O CABLES) 3.50 (AWWA WITH CABLES) 1.50 (AWWA W/O CABLES)
4.	Rc, CONVECTIVE STRUCTURAL RESPONSE COEFFICIENT	: 1.0
5.	ANALYSIS PROCEDURE USED	: EQUIVALENT LATERAL FORCE ANALYSIS BASED ON AWWA D110 AND ACI 350.3

B. CONCRETE AND SHOTCRETE

1.	FLOOR, AND FOOTINGS	: 4000 PSI
2.	DOME	: 4000 PSI
3.	COREWALL	: 4000 PSI
4.	SHOTCRETE FOR WIRE COVER (1C:3S) AND COVER COAT (1C:4S)	: 4500 PSI

5. SEE TECHNICAL SPECIFICATION FOR COMPLETE MIX DESIGN INFORMATION INCLUDING MINIMUM CEMENT CONTENT, MAXIMUM WATER-CEMENT RATIO, AGGREGATE SIZE AND ACCEPTABLE ADMIXTURES.

6. SEE TECHNICAL SPECIFICATION FOR CONCRETE PLACING AND FORMING PROCEDURES.

C. METALS

1. ALL STAINLESS STEEL (SST) TO BE 304L UNLESS OTHERWISE NOTED.

D. REINFORCING STEEL

1. ALL REINFORCING IN TANK SHALL CONFORM TO ASTM A615 GRADE 60 UNLESS OTHERWISE NOTED ON THESE DRAWINGS.
2. REINFORCING STEEL CALLED OUT AS GALVANIZED SHALL HAVE A CLASS 1 COATING IN ACCORDANCE WITH ASTM A767, WITHOUT CHROMATE.

E. EARTHWORK REQUIREMENTS

1. MINIMUM COMPACTION OF CRUSHED ROCK AND SUBGRADE UNDER AND AROUND PIPE BLOCKS AND UNDER FLOOR AND FOOTINGS SHALL EQUAL 95% RELATIVE COMPACTION AS DETERMINED IN ACCORDANCE WITH ASTM D1557.
2. COMPACTION OF BACKFILL AROUND TANK SHALL EQUAL 90% RELATIVE COMPACTION AS DETERMINED IN ACCORDANCE WITH ASTM D1557. USE ONLY HAND HELD COMPACTION EQUIPMENT WITHIN 5' OF TANK WALL AND LIGHTWEIGHT EQUIPMENT (15,600 LBS MAX) BEYOND THE 5' AND WITHIN 15' OF THE TANK SO AS NOT TO DAMAGE THE WALL. BRING UP THE BACKFILL AROUND THE TANK IN UNIFORM LIFTS WHEN POSSIBLE. DIFFERENCE IN BACKFILL HEIGHTS DURING INSTALLATION SHALL NEVER EXCEED THE FINAL DIFFERENCE IN BACKFILL HEIGHTS.

Brown AND Caldwell
WALNUT CREEK, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER BETH PHILIPSON CIVIL STATE OF CALIFORNIA

PRELIMINARY DESIGN

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North Coast County WATER DISTRICT SINCE 1944

SHEILA TANK REPLACEMENT PROJECT

REVISIONS

REV	DATE	DESCRIPTION
		100% SUBMITTAL PACKAGE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	K. KONECNY
DRAWN:	T. LAMBERT
CHECKED:	J. JETTON
CHECKED:	R. PHILIPSON
APPROVED:	D. CARBONI

FILENAME 153918-C-17.DWG
BC PROJECT NUMBER 155221
CLIENT PROJECT NUMBER -----

CIVIL

TANK PLANS AND SECTION

DRAWING NUMBER
C-17

SHEET NUMBER
21 OF 38

FILENAME: 153918-C-17.DWG PLOT DATE: 8/9/2021 3:22 PM CAD USER: TAIT LAMBERT

Brown AND Caldwell
WALNUT CREEK, CALIFORNIA

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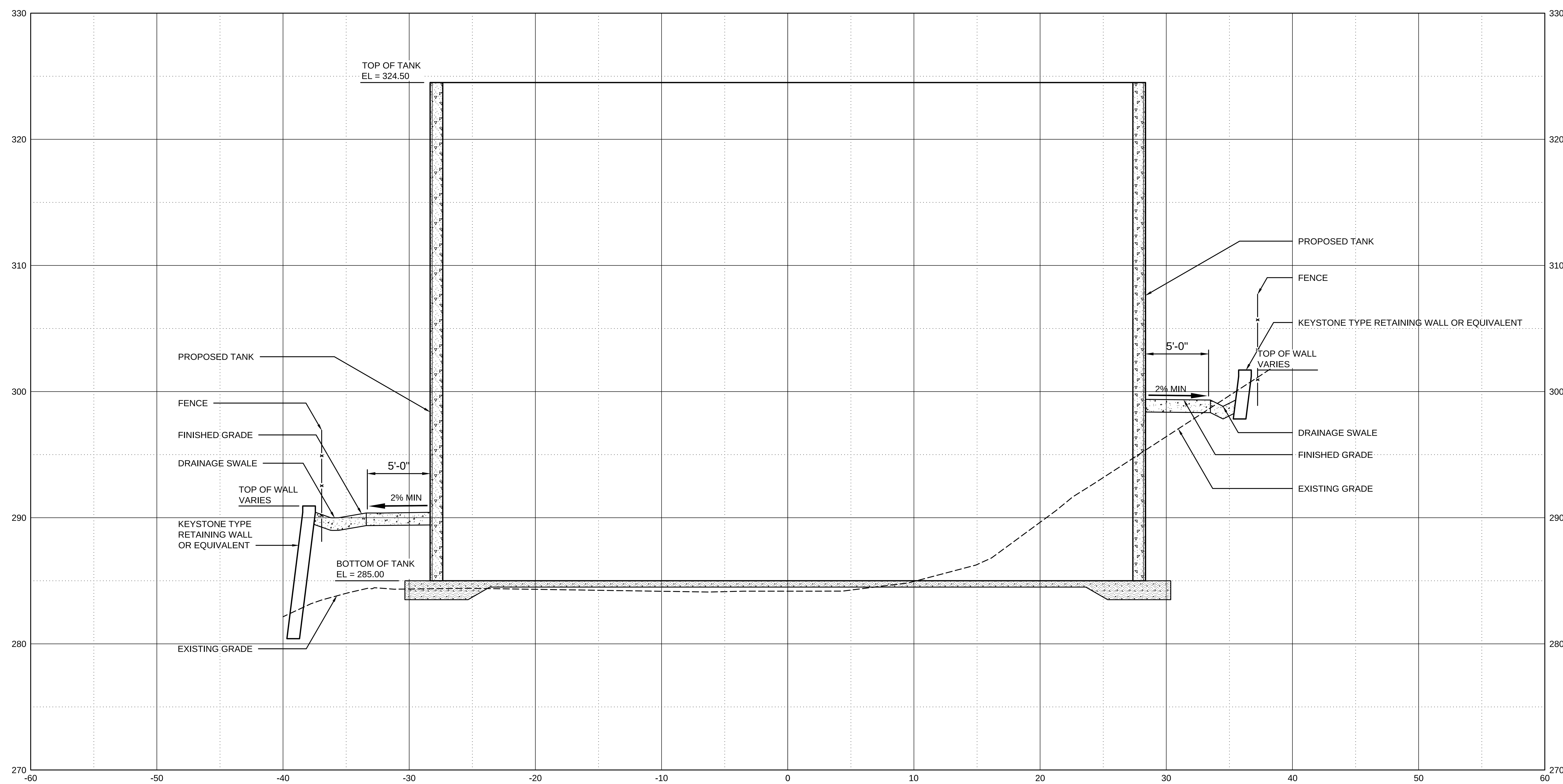
North Coast County WATER DISTRICT

SHEILA TANK REPLACEMENT PROJECT



1 SECTION
SCALE: 1" = 5'

REVISIONS		
REV	DATE	DESCRIPTION
		100% SUBMITTAL PACKAGE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: -----
DRAWN: T. LAMBERT
CHECKED: -----
CHECKED: -----
APPROVED: -----

FILENAME
153918-C-18.DWG

BC PROJECT NUMBER
155221

CLIENT PROJECT NUMBER

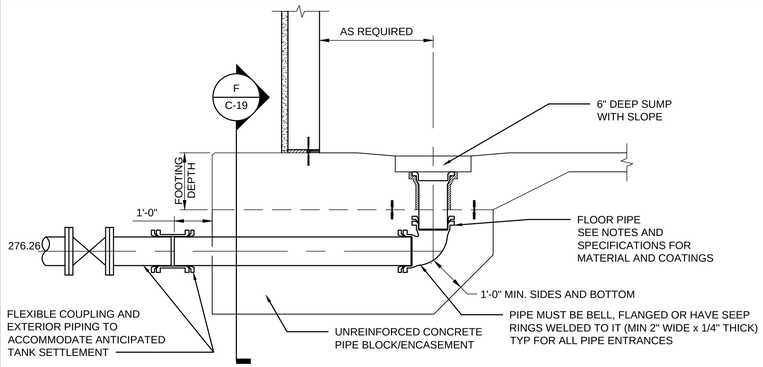
CIVIL

TANK GRADING CROSS SECTION

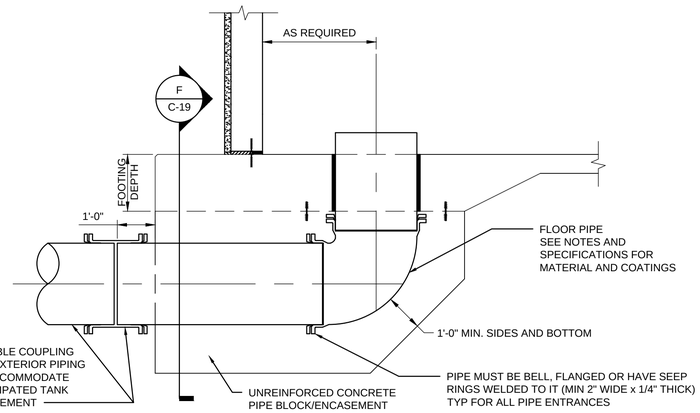
DRAWING NUMBER
C-18

SHEET NUMBER
22 OF 38

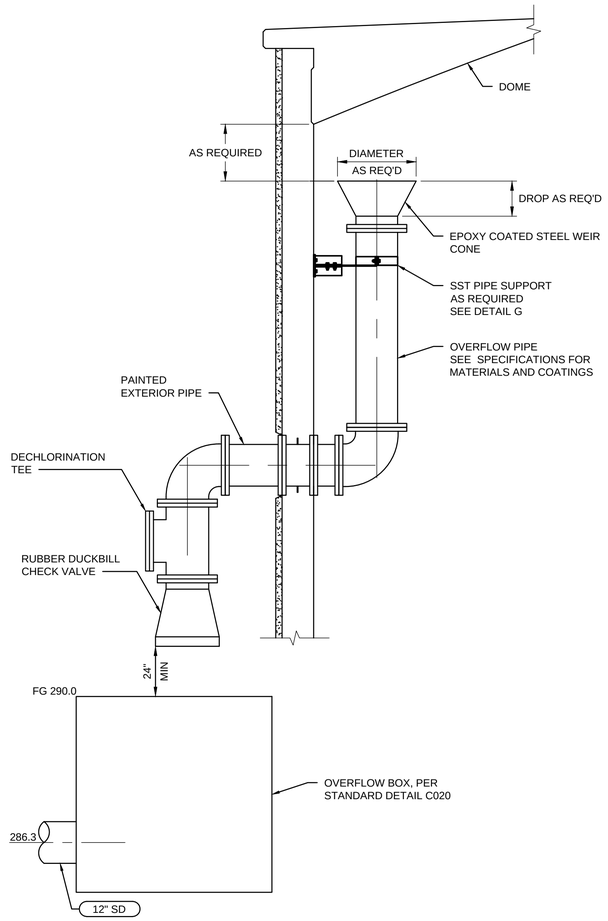
FILENAME: 153918-C-18.DWG PLOT DATE: 8/9/2021 3:22 PM CAD USER: TAIT LAMBERT



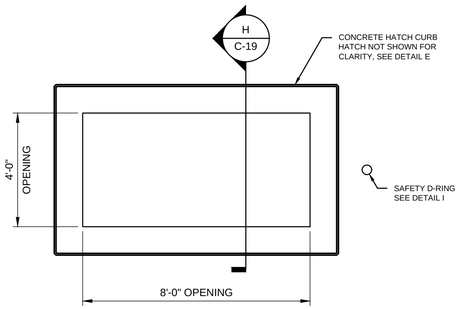
A DRAIN PIPE DETAIL
NOT SO SCALE



B TYPICAL FLOOR PIPE ENTRANCE DETAIL
NOT SO SCALE



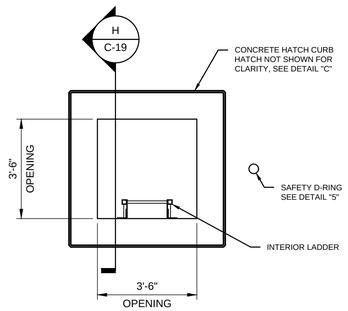
C OVERFLOW PIPE DETAIL
NOT SO SCALE



D EQUIPMENT HATCH DETAIL
NOT TO SCALE

ROOF HATCHES NOTES:

1) HATCHES TO BE SINGLE LEAF USF SRRI ALUMINUM HATCHES OR EQUAL.
2) ALL ALUMINUM IN CONTACT WITH CONCRETE MUST BE COATED WITH A HEAVY BITUMASTIC COATING, EPOXY PAINT OR SHIMMED USING PVC.
3) USE SST WEDGE ANCHORS FOR ALL CONNECTIONS TO CONCRETE UNLESS NOTED OTHERWISE.
4) WHERE SST BOLTS ARE IN CONTACT WITH DISSIMILAR METALS, USE INSULATING SLEEVES AND PHENOLIC WASHERS TO ELECTRICALLY ISOLATE THE BOLTS.



E ACCESS HATCH DETAIL
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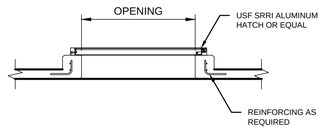

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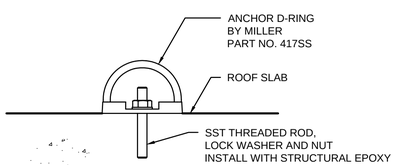

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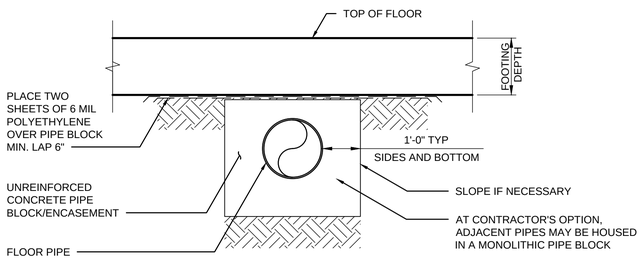
NOT TO SCALE



F SECTION
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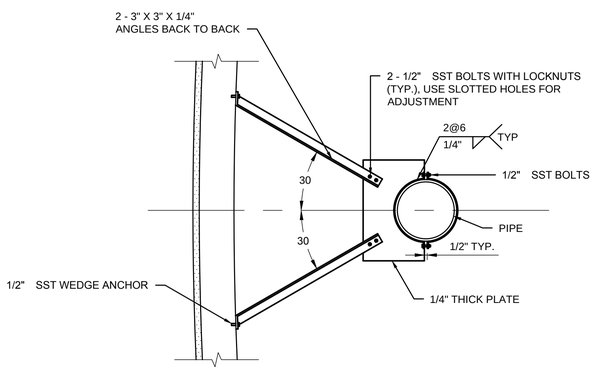

G PIPE BRACKET DETAIL
NOT SO SCALE

Brown AND Caldwell
WALNUT CREEK, CALIFORNIA

North Coast County WATER DISTRICT

SHEILA TANK REPLACEMENT PROJECT

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DESIGNED:	K. KONECNY
DRAWN:	L. BULLOCK
CHECKED:	J. JETTON
CHECKED:	R. PHILIPSON
APPROVED:	D. CARBONI

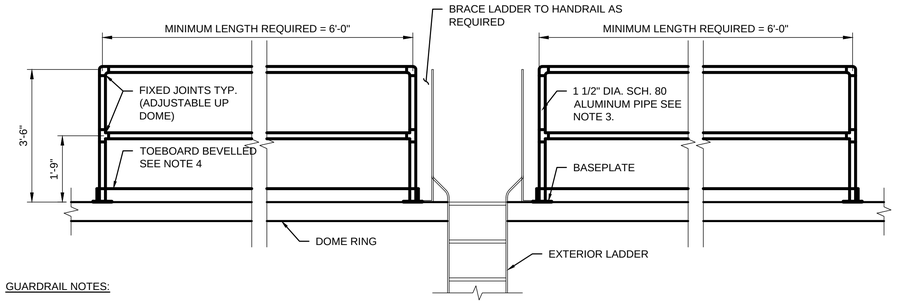
FILENAME 153918-C-TNKDTLS.DWG
BC PROJECT NUMBER 155221
CLIENT PROJECT NUMBER - - - - -

CIVIL

TANK DETAILS 1

DRAWING NUMBER
C-19

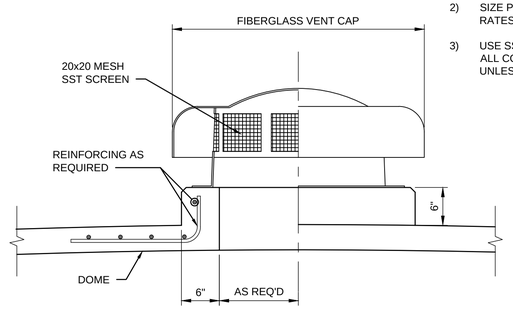
SHEET NUMBER
23 OF 38



GUARDRAIL NOTES:

1) ALL MATERIAL FOR RAILS AND POSTS TO BE 6061-T6 ALUMINUM.
2) HANDRAIL FITTINGS SHALL BE SPEEDRAIL BY HOLLAENDER, INC OR EQUAL.
3) HORIZONTAL RAILS AND POSTS TO BE 1 1/2" SCH 80 PIPE.
4) HOLLAENDER BEVELED TOE BOARD SHALL BE ATTACHED TO FRONT RAIL.
5) USE SST FOR ALL BOLTS UNLESS NOTED OTHERWISE.
6) USE SST WEDGE ANCHORS FOR ALL CONNECTIONS TO CONCRETE UNLESS NOTED OTHERWISE.

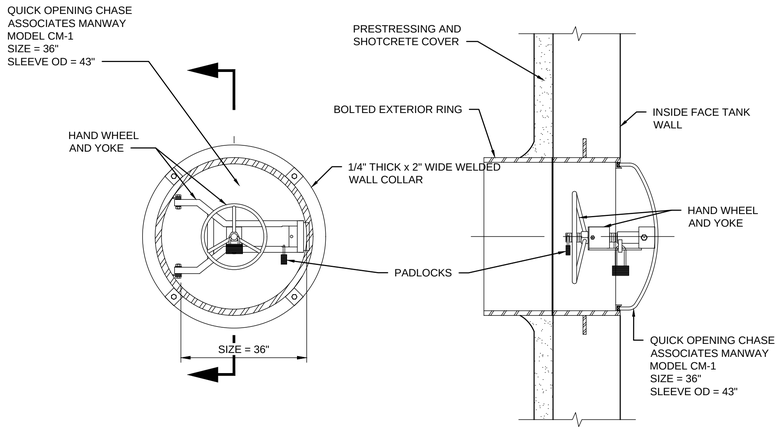
J GUARDRAIL ELEVATION DETAIL
NOT TO SCALE



ROOF VENT NOTES:

1) VENT TO BE FIBERGLASS REINFORCED POLYMER.
2) SIZE PER PROJECT VENTING RATES.
3) USE SST WEDGE ANCHORS FOR ALL CONNECTIONS TO CONCRETE UNLESS NOTED OTHERWISE.

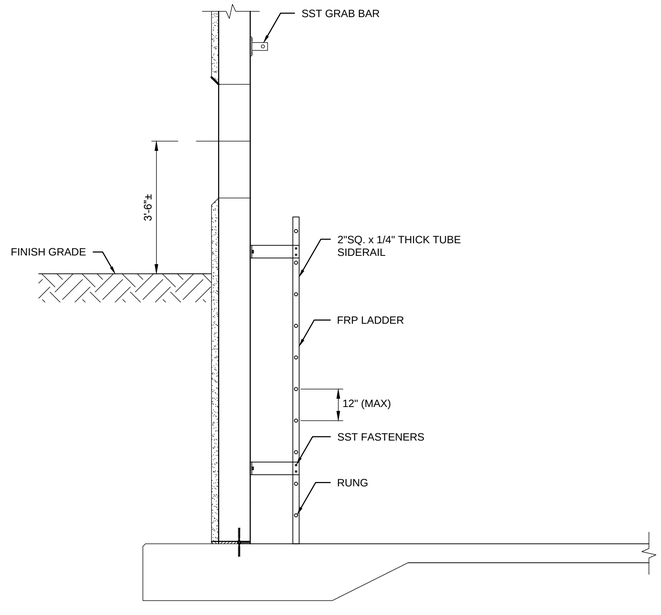
K ROOF VENT DETAIL
NOT TO SCALE



WALL MANWAY NOTES:

1) MANWAY MATERIAL TO BE SST.
2) THE MANWAY WILL BE CAST INTO THE WALL AND THE EXTERIOR MANWAY RING WILL BE BOLTED ON AFTER TANK PRESTRESSING IS COMPLETE, PRIOR TO FINAL COVER COAT PLACEMENT.

L WALL ACCESS MANWAY DETAIL
NOT TO SCALE



MANWAY LADDER NOTES:

1) ALL MATERIAL FOR LADDER AND RUNGS TO BE FIBER REINFORCED POLYMER.
2) MANWAY GRAB BAR TO BE SST.
3) LADDER RUNGS TO BE SOLID BARS AND FLUTED.
4) USE SST WEDGE ANCHORS FOR ALL CONNECTIONS TO CONCRETE UNLESS NOTED OTHERWISE.

M MANWAY LADDER DETAIL
NOT TO SCALE

Brown AND Caldwell
WALNUT CREEK, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER BETH PHILLIPSON CIVIL STATE OF CALIFORNIA

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North Coast County WATER DISTRICT SINCE 1944

SHEILA TANK REPLACEMENT PROJECT

REVISIONS		
REV	DATE	DESCRIPTION
100% SUBMITTAL PACKAGE		

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	K. KONECNY
DRAWN:	L. BULLOCK
CHECKED:	J. JETTON
CHECKED:	R. PHILIPSON
APPROVED:	D. CARBONI

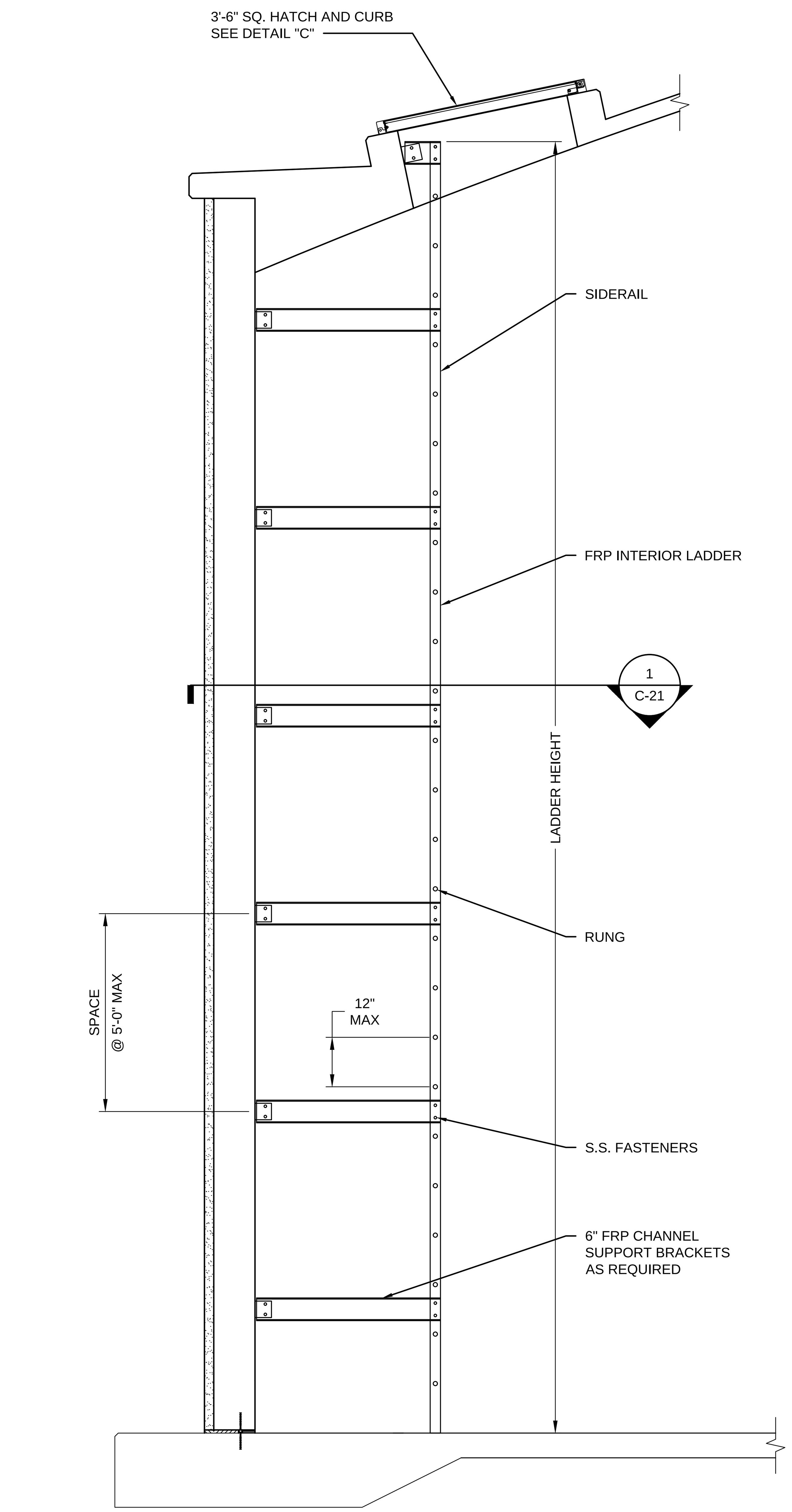
FILENAME 153918-C-TNKDTLS.DWG
BC PROJECT NUMBER 155221
CLIENT PROJECT NUMBER -----

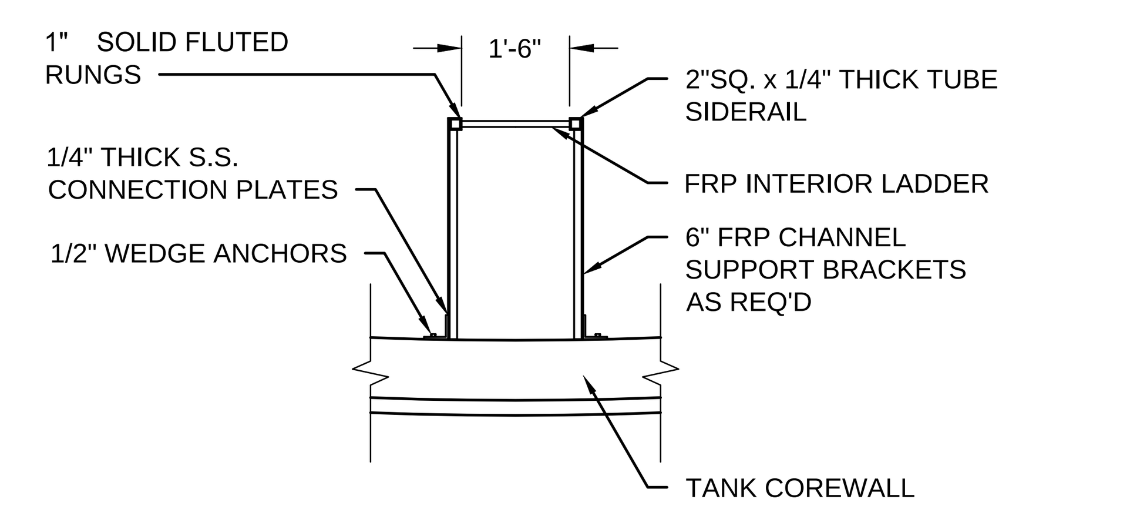
CIVIL

TANK DETAILS 2

DRAWING NUMBER
C-20

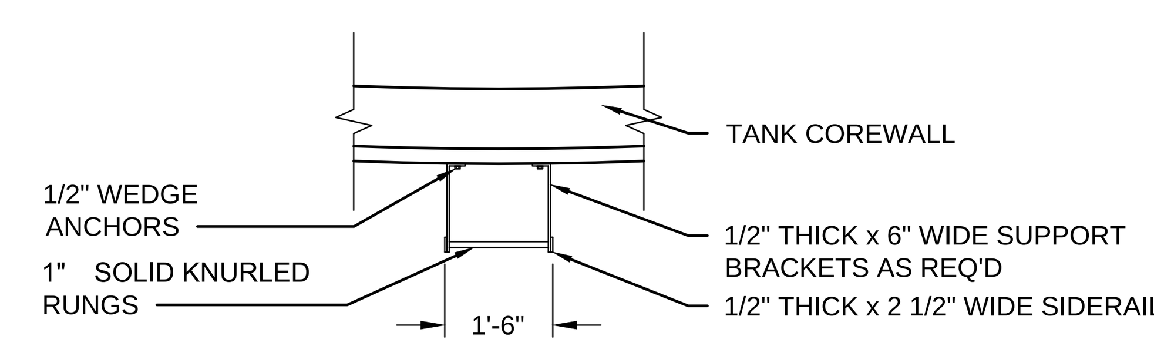
SHEET NUMBER
24 OF 38





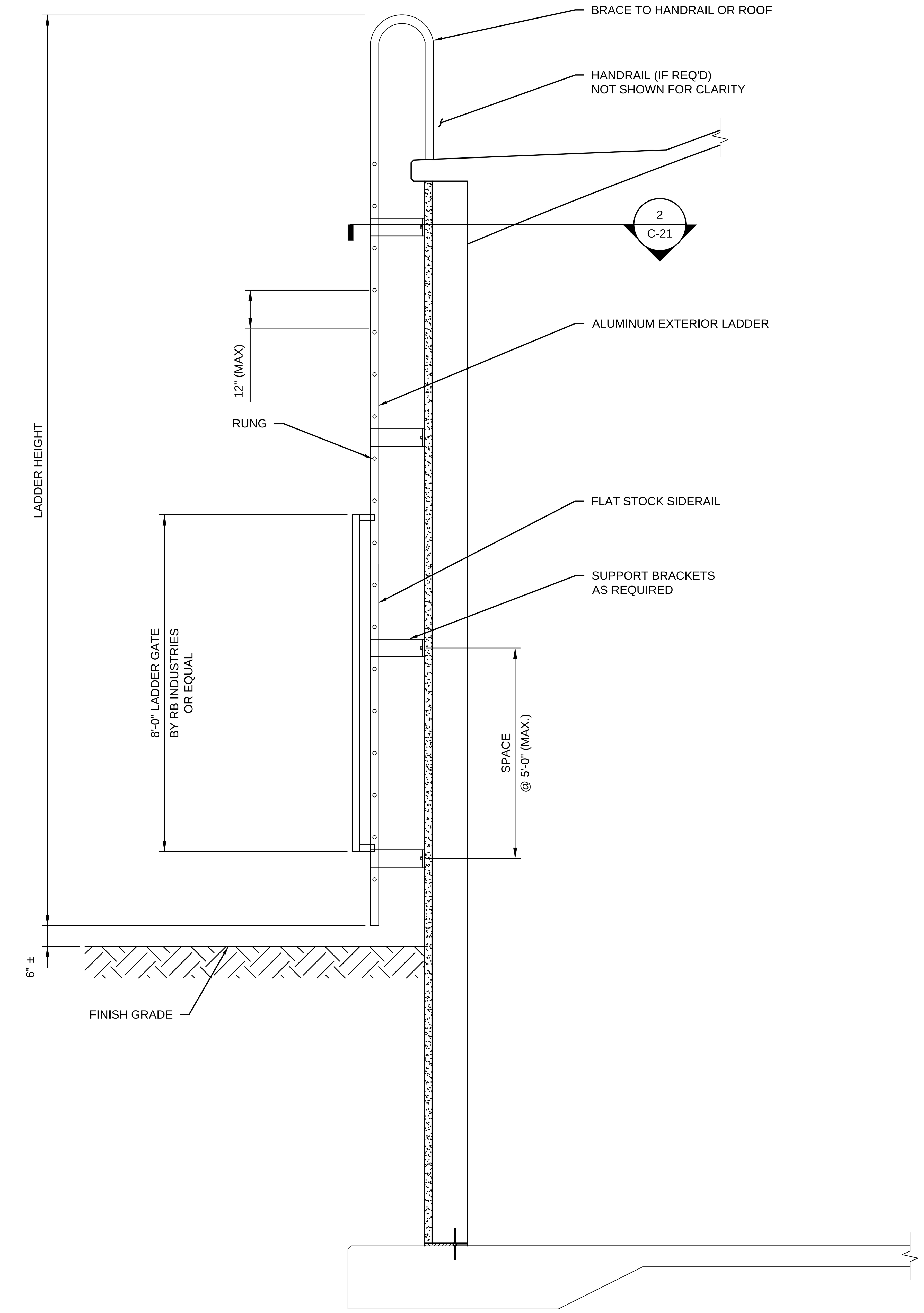
1 SECTION

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



2 SECTION

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



INTERIOR LADDER NOTES:

1. LADDER MATERIAL SHALL BE FRP.
2. OSHA COMPLIANT FALL PREVENTION DEVICE SHALL BE INSTALLED (SST).
3. LADDER RUNGS TO BE SOLID BARS AND FLUTED.
4. USE SST WEDGE ANCHORS FOR ALL CONNECTIONS TO CONCRETE UNLESS NOTED OTHERWISE.

EXTERIOR LADDER NOTES:

1. ALL MATERIAL FOR EXTERIOR LADDER, SIDERAILS, RUNGS AND BRACKETS TO BE 6061-T6 ALUMINUM.
2. OSHA COMPLIANT FALL PREVENTION DEVICE SHALL BE INSTALLED (SST).
3. LADDER RUNGS TO BE SOLID BARS AND KNURLED.
4. ALL WELDS TO BE 3/16" MINIMUM.
5. ALL ALUMINUM IN CONTACT WITH CONCRETE MUST BE COATED WITH A HEAVY BITUMASTIC COATING, EPOXY PAINT OR SHIMMED USING PVC.
6. USE SST WEDGE ANCHORS FOR ALL CONNECTIONS TO CONCRETE UNLESS NOTED OTHERWISE.
7. WHERE SST BOLTS ARE IN CONTACT WITH DISSIMILAR METALS, USE INSULATING SLEEVES AND PHENOLIC WASHERS TO ELECTRICALLY ISOLATE THE BOLTS.
8. WHERE SST BOLTS ARE PLACED IN THE WALL EXTERIOR, DRILL AND PLACE AFTER WRAPPING AND BEFORE FINAL SHOTCRETING.

N INTERIOR LADDER DETAIL

SCALE: 1/2" = 1'-0"

O EXTERIOR LADDER DETAIL

SCALE: 1/2" = 1'-0"

Brown AND Caldwell

WALNUT CREEK, CALIFORNIA

PRELIMINARY DESIGN

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North Coast County WATER DISTRICT

SHEILA TANK REPLACEMENT PROJECT

REVISIONS		
REV	DATE	DESCRIPTION
		100% SUBMITTAL PACKAGE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: DESIGNED BY
DRAWN: DRAWN BY
CHECKED: CHECKED BY
CHECKED: CROSS CHECKED BY
APPROVED: APPROVED BY

FILENAME 153918-C-TNKDTLS.DWG

BC PROJECT NUMBER 155221

CLIENT PROJECT NUMBER -----

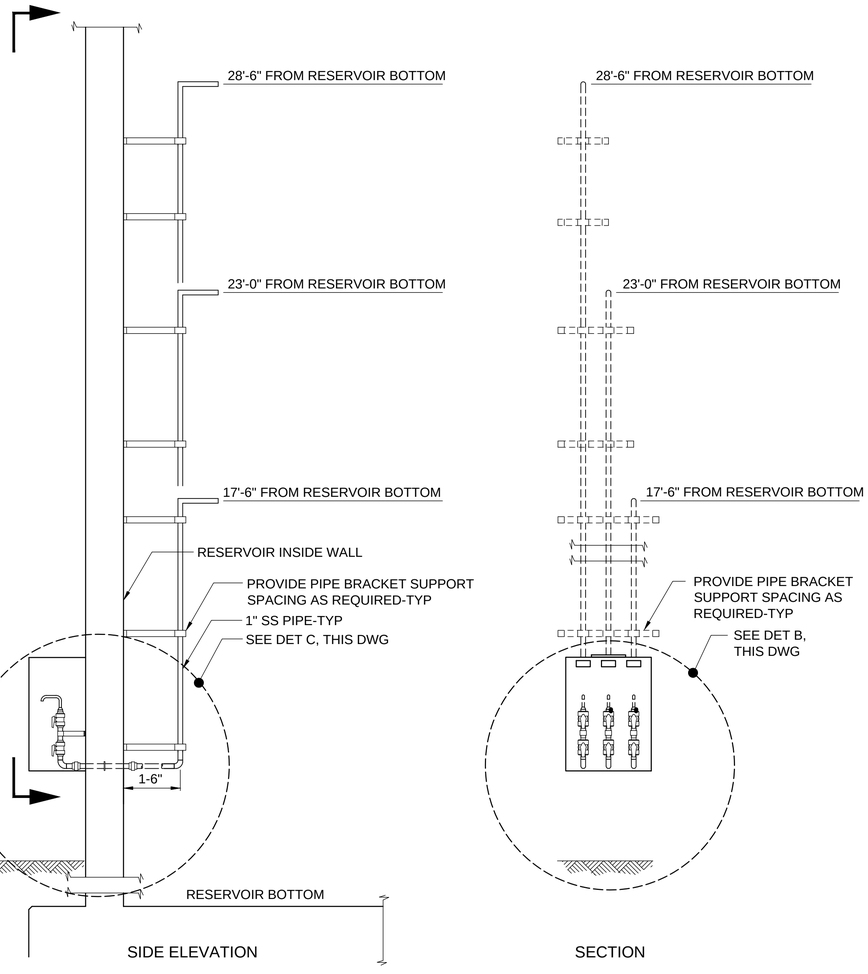
CIVIL

TANK DETAILS 3

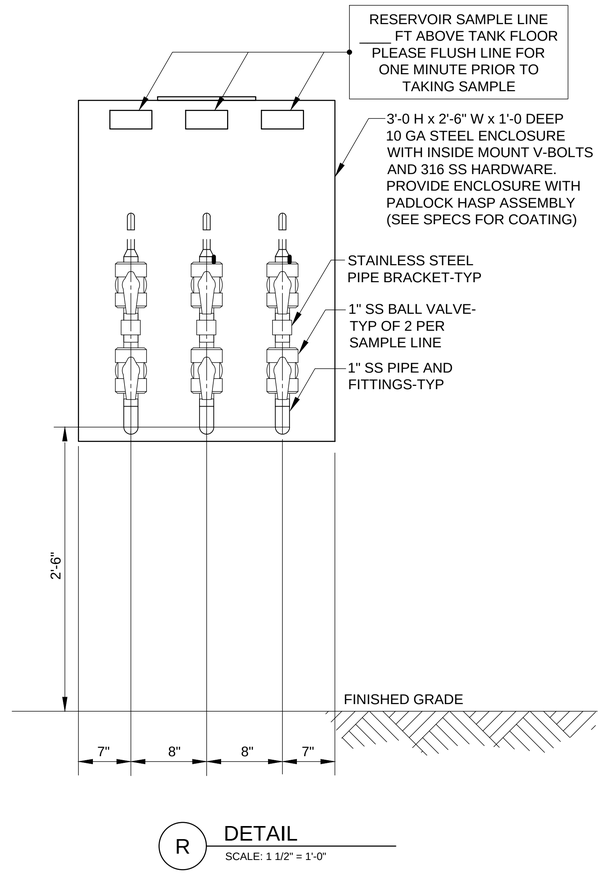
DRAWING NUMBER C-21

SHEET NUMBER 25 OF 38

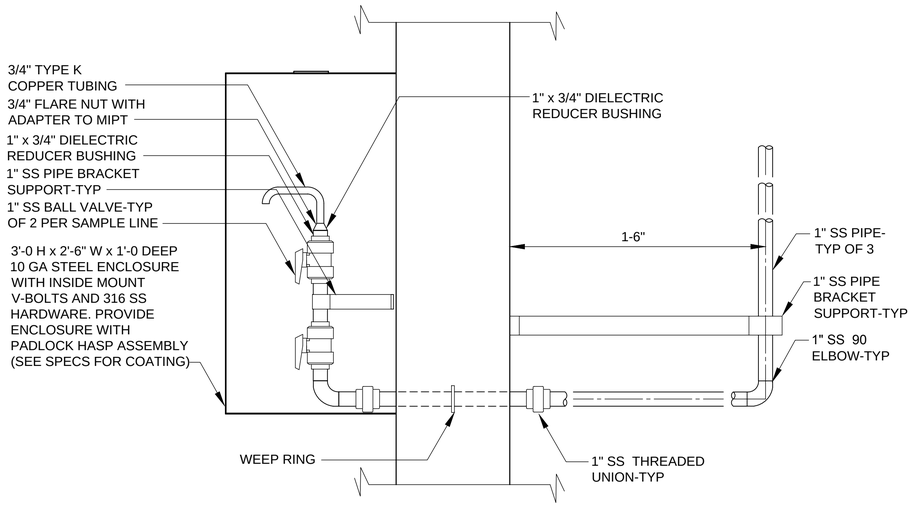
FILENAME: 153918-C-TNKDTLS.DWG PLOT DATE: 8/9/2021 3:23 PM CAD USER: TAIT LAMBERT



P DETAIL
SCALE: 1/2" = 1'-0"



R DETAIL
SCALE: 1 1/2" = 1'-0"



Q DETAIL
SCALE: 1 1/2" = 1'-0"

Brown AND Caldwell
WALNUT CREEK, CALIFORNIA

PRELIMINARY DESIGN

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North Coast County WATER DISTRICT

SHEILA TANK REPLACEMENT PROJECT

REVISIONS		
REV	DATE	DESCRIPTION
100% SUBMITTAL PACKAGE		

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	DESIGNED BY
DRAWN:	T. LAMBERT
CHECKED:	CHECKED BY
CHECKED:	CROSS CHECKED BY
APPROVED:	APPROVED BY

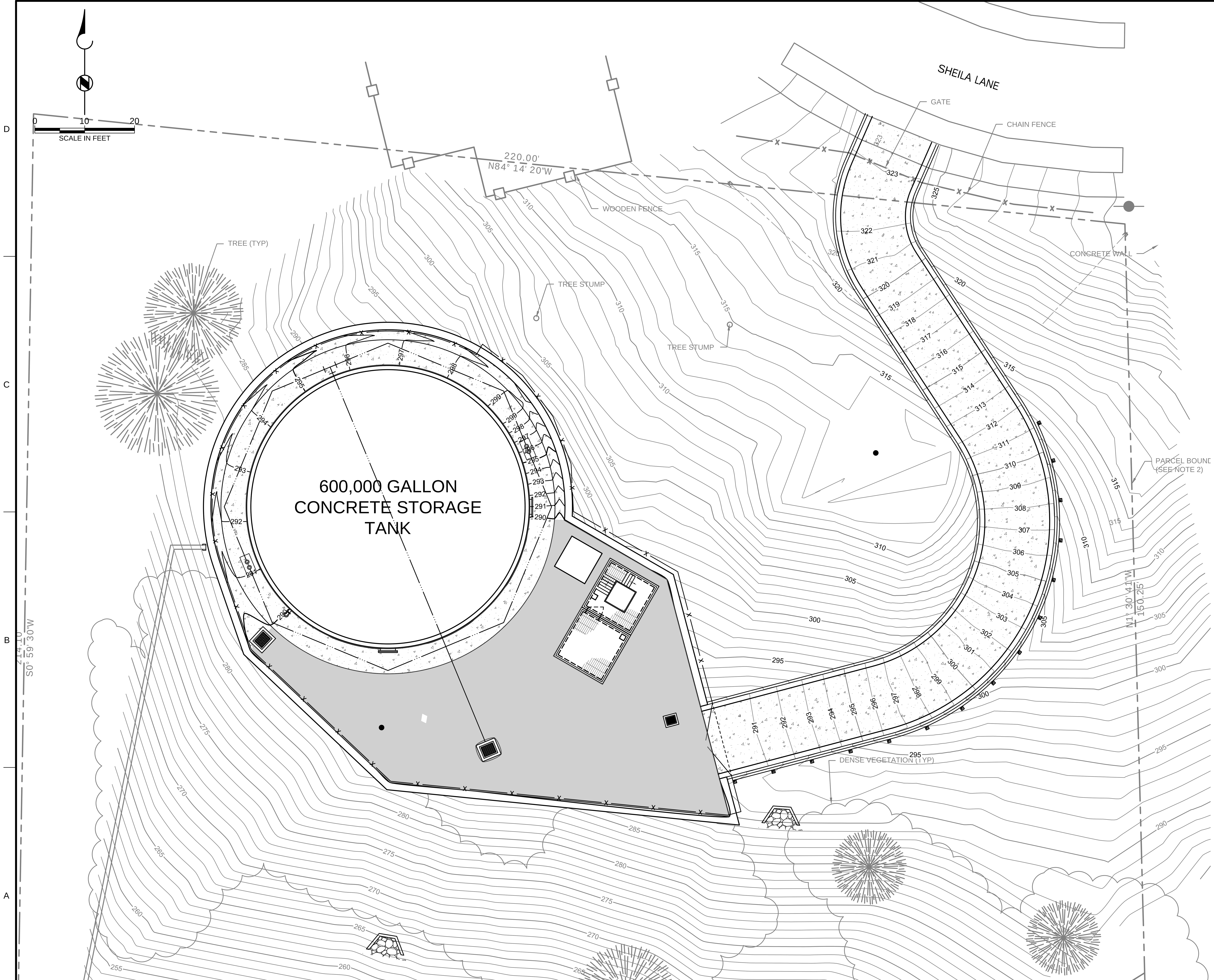
FILENAME
153918-C-TNKDTLS2.DWG
BC PROJECT NUMBER
155221
CLIENT PROJECT NUMBER
- - - - -

CIVIL

TANK DETAILS 4

DRAWING NUMBER
C-22
SHEET NUMBER
26 OF 38

FILENAME: 153918-C-TNKDTLS2.DWG PLOT DATE: 8/9/2021 3:23 PM CAD USER: TAIT LAMBERT



EXISTING SITE

PLAN

SCALE: 1" = 10'

GENERAL SHEET NOTES

1. PRIOR TO BEGINNING EXCAVATION AND GRADING, OWNER SHALL ARRANGE FOR ITS QUALIFIED BIOLOGIST TO BRIEF CONTRACTOR AND CONTRACTOR S EMPLOYEES ABOUT ACCESS RESTRICTIONS, EROSION CONTROLS, AND LIMITATIONS ON WORK REQUIRED TO PROTECT CRITICAL HABITAT AND NATIVE SPECIES. CONTRACTOR SHALL TRAIN ITS EMPLOYEES IN PROCEDURES FOR CLEANING UP SPILLS OF HAZARDOUS MATERIALS AND EROSION AND SEDIMENT CONTROL TECHNIQUES.
2. PRIOR TO BEGINNING GRADING AND EXCAVATION, CONTRACTOR SHALL ERECT ORANGE EXCLUSION FENCING AND SILT FENCING ((CALTRANS SC-1) AROUND THE LIMITS OF WORK. A QUALIFIED BIOLOGIST HIRED BY OWNER SHALL INSPECT FENCING TO ENSURE THAT NO ENCROACHMENT INTO POTENTIAL ESHAS HAS OCCURRED. CONTRACTOR SHALL CONFINE WORK WITHIN THE BOUNDARIES SHOWN ON THIS DRAWING AND WITHIN FENCED AREAS UNLESS OTHER WISE SHOWN ON THE DRAWINGS OR GIVEN PRIOR WRITTEN AUTHORIZATION BY OWNER S REPRESENTATIVE OR OWNER. PROVIDE ORANGE EXCLUSION FENCING AROUND TREES TO REMAIN.
3. CONTRACTOR SHALL CONFINE ITS EXCAVATION AND GRADING TO THE PERIOD FROM APRIL 15 TO OCTOBER 31, 2022, UNLESS THE OWNER GRANTS PRIOR WRITTEN APPROVAL. CONTRACTOR SHALL APPLY EROSION CONTROL MEASURES AND ENTRY POINT SOIL CONTROL MEASURES FOR TRANSPORT SITES (CALTRANS SC-7 AND TC-1) AS INCLUDED IN THE APPROVED SWPPP.
4. CONTRACTOR SHALL CONFINE ITS STORAGE OF MATERIALS AND EQUIPMENT WITHIN THE DISTRICT PARCEL. CONTRACTOR SHALL COLLECT AND DISPOSE OF ALL WASTE MATERIALS INCLUDING FUEL, HYDRAULICS FLUIDS, AND LUBRICANTS AND DISPOSE OF ANY SUCH MATERIAL IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS. ANY SPILLED MATERIALS SHALL BE CONTAINED AND REMOVED IMMEDIATELY.
5. FOR ALL AREAS TO BE GRADED, CONTRACTOR SHALL REMOVE TOP FOOT OF SOIL AND TRANSPORT IT TO A TOP SOIL STOCKPILE LOCATION ESTABLISHED BY NCCWD. CONTRACTOR SHALL INSTALL PERIMETER EROSION CONTROL AROUND STOCKPILE AND COVER SECURELY WITH 6-MIL PLASTIC SHEETING.
6. OWNER SHALL ARRANGE FOR BASELINE AND INTERIM SURVEY OF EXCAVATED AREAS TO ESTABLISH VOLUMES OF MATERIAL REMOVED, TO SERVE AS QUANTITIES FOR PAYMENT.
7. FOR PAD ELEVATIONS, SEE DWG C-14.

Brown AND Caldwell

WALNUT CREEK, CALIFORNIA

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North Coast County WATER DISTRICT

SHEILA TANK REPLACEMENT PROJECT

REVISIONS

REV	DATE	DESCRIPTION
		100% SUBMITTAL PACKAGE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: K. KONECNY
DRAWN: T. LAMBERT
CHECKED: J. JETTON
CHECKED: R. PHILIPSON
APPROVED: D. CARBONI

FILENAME 153918-C-23.DWG
BC PROJECT NUMBER 155221
CLIENT PROJECT NUMBER -----

CIVIL

EROSION CONTROL

DRAWING NUMBER C-23

SHEET NUMBER 27 OF 38

FILENAME: 153918-C-23.DWG PLOT DATE: 8/9/2021 3:23 PM CAD USER: TAIT LAMBERT

EQUIPMENT

PIPE LINE DEVICES

- QUICK CONNECTOR
- CAP OR PLUG
- BLIND FLANGE
- FLEX CONNECTOR
- REDUCER
- CONNECTION BETWEEN NEW AND EXISTING PIPING
- UNION
- PRESSURE REGULATING VALVE (SELF–CONTAINED)
- PRESSURE RELIEF VALVE (SELF–CONTAINED)
- CHECK VALVE
- BUTTERFLY VALVE

NORMALLY OPEN		NORMALLY CLOSED
	BALL VALVE	
	GLOBE VALVE	

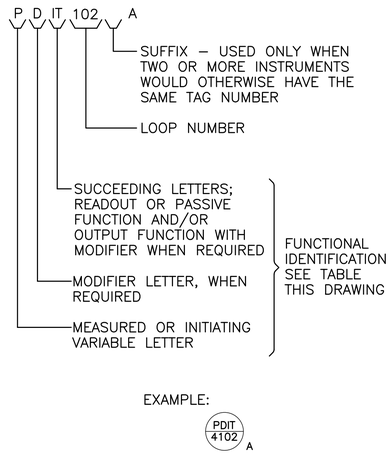
PRIMARY ELEMENT SYMBOLS

- ULTRASONIC LEVEL ELEMENT

FUNCTIONAL IDENTIFICATION

MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A ANALYSIS		ALARM		
B BURNER, COMBUSTION				
C CONDUCTIVITY			CONTROL	CLOSE
D DENSITY, SPECIFIC GRAVITY	DIFFERENTIAL			
E VOLTAGE		PRIMARY ELEMENT		
F FLOW RATE	RATIO			
G FIRE, SMOKE		GLASS		
H HAND				HIGH
I CURRENT (ELEC)		INDICATE		
J POWER	SCAN			
K TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L LEVEL		LIGHT		LOW
M MOISTURE, HUMIDITY	MOMENTARY			MIDDLE, INTERMEDIATE
N EQUIPMENT STATUS				
O DISSOLVED OXYGEN		ORIFICE		OPEN
P PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q QUANTITY	INTEGRATE, TOTALIZE			
R RADIATION		RECORD		
S SPEED, FREQUENCY	SAFETY		SWITCH	
T TEMPERATURE			TRANSMIT	
U MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W WEIGHT, FORCE, TORQUE		WELL		
X UNCLASSIFIED	X AXIS			
Y EVENT, STATE, OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, FINAL CONTROL ELEMENT	

INSTRUMENT TAG NUMBERS



INSTRUMENT AND FUNCTION SYMBOLS

- FIELD MOUNTED INSTRUMENT
- FACE MOUNTED INSTRUMENT ON MAIN PANEL, OPERATOR ACCESSIBLE
- INSTRUMENT MOUNTED ON/IN MAIN PANEL, OPERATOR INACCESSIBLE
- FACE MOUNTED INSTRUMENT ON FIELD PANEL, OPERATOR ACCESSIBLE
- INSTRUMENT MOUNTED ON/IN FIELD PANEL, OPERATOR INACCESSIBLE
- MULTIFUNCTION INSTRUMENT WITH SHARED HARDWARE (USED FOR "VIDEO DISPLAY SYSTEMS")
- COMPUTER FUNCTION
- INTERLOCKING OR SEQUENTIAL CONTROL FUNCTION
- PROGRAMMABLE LOGIC CONTROL FUNCTION

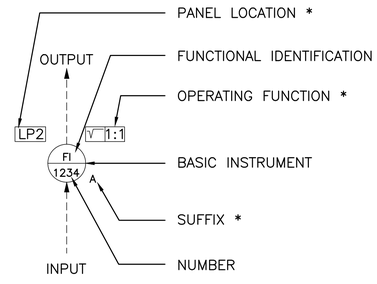
MISCELLANEOUS SYMBOLS

- C — SEAL WATER CONTROL UNIT, PER STANDARD DETAIL I2114
- I — INTERLOCKING OR CONTROL FUNCTION
- △ DISCRETE INPUT
- ▽ DISCRETE OUTPUT
- ▲ ANALOG INPUT
- ▼ ANALOG OUTPUT

INSTRUMENT SIGNAL SYMBOLS

- INSTRUMENT SUPPLY, PROCESS TAPS
- ELECTRIC SIGNAL

TYPICAL INSTRUMENT IDENTIFICATION



FUNCTION SYMBOLS

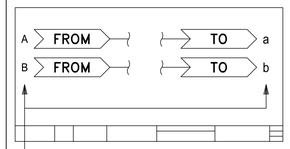
- SHARED DISPLAY, PROCESS CONTROL SYSTEM
- SOFTWARE FUNCTIONALITY
- FIELD OR PANEL DEVICE

LOCATION AND ACCESSIBILITY MODIFIERS FOR FUNCTION SYMBOLS

- STAND ALONE DEVICE, OPERATOR ACCESSIBLE
- LOCATED ON FRONT OF PANEL OR CONSOLE, OPERATOR ACCESSIBLE
- LOCATED IN REAR OF PANEL OR CONSOLE, OPERATOR INACCESSIBLE

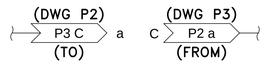
PROCESS AND SIGNAL CROSS REFERENCE SYSTEM

LINE CROSS REFERENCE SYMBOL LOCATION IDENTIFICATION LETTERS

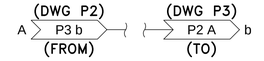


UPPER AND LOWER CASE LETTERS, RANDOMLY ASSIGNED TO LINE CROSS REFERENCE SYMBOLS APPEARING ON THE LEFT AND RIGHT SIDE RESPECTIVELY ON EACH DRAWING TO IDENTIFY AND LOCATE ON CROSS REFERENCE SYMBOL

TO/FROM SYMBOL EXAMPLES



DEFINES A LINE CONTINUING FROM DRAWING "P2", RIGHT SIDE SYMBOL "a" TO DRAWING "P3", LEFT SIDE SYMBOL "C".



DEFINES A LINE CONTINUING FROM DRAWING "P3", RIGHT SIDE SYMBOL "b" TO DRAWING "P2", LEFT SIDE SYMBOL "A".

PROCESS LINES

- PRIMARY PROCESS FLOW
- EXISTING EQUIPMENT, PIPING OR SIGNAL PATH

EQUIPMENT IDENTIFICATION SYSTEM

THICKENER 2 PRIMARY SLUDGE PUMP 2 } EQUIPMENT NAME

P63042 } EQUIPMENT DESIGNATIONS

Brown AND Caldwell

WALNUT CREEK, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER BETH PRITTS CIVIL STATE OF CALIFORNIA

PRELIMINARY DESIGN NOT FOR CONSTRUCTION

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REGISTERED PROFESSIONAL ENGINEER ELECTRICAL STATE OF CALIFORNIA

North Coast County WATER DISTRICT SINCE 1944

SHEILA TANK REPLACEMENT PROJECT

REVISIONS		
REV	DATE	DESCRIPTION
		100% SUBMITTAL PACKAGE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	D. FORSBERG
DRAWN:	D. FORSBERG
CHECKED:	J. JETTON
CHECKED:	R. PHILIPSON
APPROVED:	D. CARBONI

FILENAME 153918-N-01.DWG

BC PROJECT NUMBER 155221

CLIENT PROJECT NUMBER - - - - -

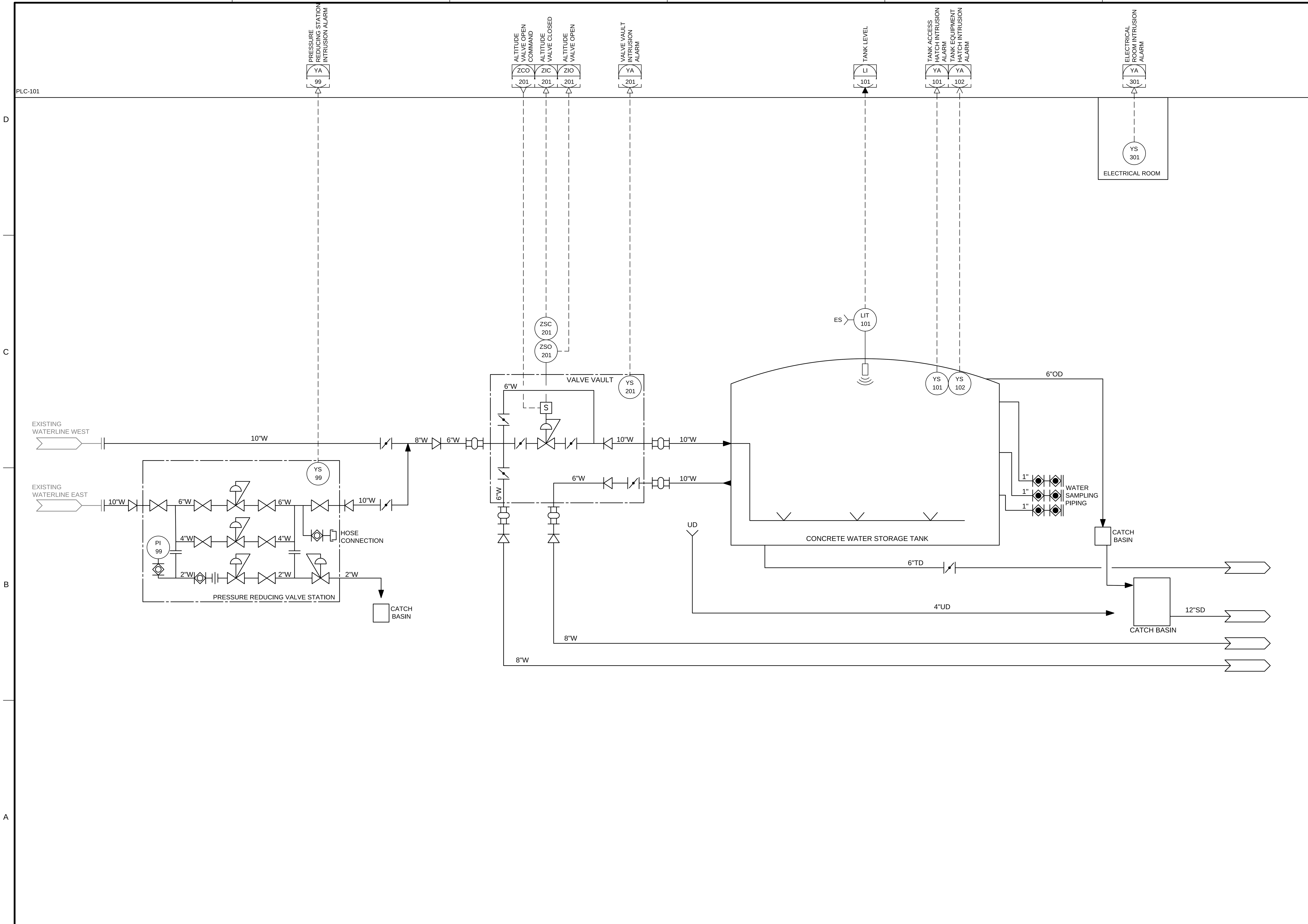
PROCESS DETAILS

DRAWING NUMBER

N-01

SHEET NUMBER 28 OF 38

FILENAME: 153918-N-01.DWG PLOT DATE: 8/9/2021 3:23 PM CAD USER: TAIT LAMBERT



FILENAME: 153918-N-02.DWG PLOT DATE: 8/9/2021 3:23 PM CAD USER: TAIT LAMBERT

Brown AND Caldwell

WALNUT CREEK, CALIFORNIA

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North Coast County WATER DISTRICT

SHEILA TANK REPLACEMENT PROJECT

REVISIONS		
REV	DATE	DESCRIPTION
100% SUBMITTAL PACKAGE		

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. FORSBERG
DRAWN: D. FORSBERG
CHECKED: J. JETTON
CHECKED: R. PHILIPSON
APPROVED: D. CARBONI

FILENAME 153918-N-02.DWG

BC PROJECT NUMBER 155221

CLIENT PROJECT NUMBER -----

PROCESS DETAILS

DRAWING NUMBER

N-02

SHEET NUMBER 29 OF 38

GENERAL

G 1 SCOPE
THE GENERAL NOTES AND TYPICAL DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY. ALL DETAILS SHOWN ON DRAWINGS S01 THROUGH S05 MAY NOT BE REQUIRED TO COMPLETE THE WORK.

G 2 PRECEDENCE WHERE CONFLICTS MAY ARISE,
PROJECT SPECIFICATIONS SUPERSEDE THESE GENERAL NOTES, SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. SPECIFIC NOTES AND DETAILS ON DRAWINGS TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.

G 3 DIMENSIONS
STRUCTURAL DIMENSIONS CONTROLLED BY OR RELATED TO THE MECHANICAL OR ELECTRICAL EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL CONSTRUCTION DIMENSIONS AND NOTIFYING CONSTRUCTION MANAGER OF DISCREPANCIES IN A TIMELY FASHION.

G 4 PROVISIONS FOR EQUIPMENT
MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS BUT REQUIRED BY OTHER CONTRACT DRAWINGS SHALL BE PROVIDED PRIOR TO CASTING CONCRETE.

G 5 MEANS, METHODS AND CONSTRUCTION LOADS
CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. CONTRACTOR IS RESPONSIBLE FOR MEANS, METHODS AND SEQUENCE OF CONSTRUCTION, AND SHALL MAKE ADEQUATE PROVISION TO MAINTAIN THE INTEGRITY OF ALL STRUCTURES AT ALL STAGES OF CONSTRUCTION. DETERMINATION OF AND PROVISIONS FOR CONSTRUCTION LOADING SHALL BE PROVIDED BY THE CONTRACTOR.

G 6 SAFETY
CONTRACTOR SHALL TAKE ADEQUATE PRECAUTIONS TO ENSURE THE SAFETY OF WORKERS AND VISITORS TO THE SITE, INCLUDING BUT NOT LIMITED TO SHORING, BRACING AND ACCESS RESTRICTION. COMPLY WITH ALL FEDERAL, STATE AND LOCAL SAFETY CODES AND STANDARDS.

G 7 LIVE LOAD SIGNS
LIVE LOAD SIGNS SHALL BE PROVIDED IN AREAS DESIGNATED BY THE ENGINEER OR REQUIRED BY THE BUILDING OFFICIAL. SIGNS SHALL BE AS REQUIRED IN THE SPECIFICATIONS.

G 8 DRAINAGE SURFACES
SLOPE DRAINAGE SURFACES UNIFORMLY TO DRAIN. SLOPE SHALL BE 1/8" TO 1/4" PER FOOT EXCEPT WHERE NOTED OTHERWISE ON THE PLANS.

G 9 FLOOR DRAINS
SEE ARCHITECTURAL AND MECHANICAL DRAWINGS FOR LOCATIONS AND SIZES.

G 11 OPENINGS
OPENINGS THROUGH NEW AND EXISTING WALLS AND SLABS FOR PIPES, DUCTS, CONDUITS, ETC., ARE NOT ALL SHOWN ON THE STRUCTURAL DRAWINGS. THE CONTRACTOR SHALL PROVIDE THESE OPENINGS IN ACCORDANCE WITH THE OTHER CONTRACT DRAWINGS. REINFORCEMENT AROUND OPENINGS FOR NEW WALLS AND SLABS SHALL BE PER DETAIL

DESIGN CRITERIA

D 1 GOVERNING BUILDING CODE
2018 INTERNATIONAL BUILDING CODE, AMERICAN SOCIETY OF CIVIL ENGINEERS 7-16, AND 2019 CALIFORNIA BUILDING CODE LOCALLY AMENDED. THE ABOVE SHALL GOVERN EXCEPT WHERE OTHER APPLICABLE CODES OR CONTRACT PROVISIONS ARE MORE RESTRICTIVE. LOADS NOT SPECIFICALLY NOTED BELOW SHALL BE PER ASCE 7-16.

D 2 GRAVITY LIVE LOADS

1.	MCC EQUIPMENT AREA	250 PSF
2.	GRATING, CHECKERED PLATES AND HATCHES	SAME LOADINGS AS ADJACENT FLOOR AREAS
3.	TRUCK TRAFFIC AREAS	250 PSF OR H-20 LOADING
4.	STAIRS	100 PSF (300 LB CONCENTRATED)
5.	TANK ROOF	25 PSF
6.	LADDER	PER ASCE 7-16

D 3 WIND

BASIC WIND SPEED	102 MPH
EXPOSURE	C

D 4 SEISMIC

SPECTRAL ACC. (SHORT)	S_s = 1.93g
SPECTRAL ACC. (1-SEC)	S_1 = 0.79g
SITE CLASSIFICATION	B
IMPORTANCE FACTOR	I = 1.5 I_p = 1.5
SEISMIC DESIGN CATEGORY	F

D 5 RISK CATEGORY IV

FOUNDATION

F 1 DESIGN BASIS
FOUNDATION DESIGN IS BASED ON RECOMMENDATIONS CONTAINED IN GEOTECHNICAL REPORT DATED JULY 13, 2020 BY MILLER PACIFIC ENGINEERING GROUP PROJECT NUMBER 2281.001. CONTRACTOR SHALL FOLLOW THE PROJECT SPECIFICATIONS AND TAKE INTO CONSIDERATION RECOMMENDATIONS CONTAINED IN THE REPORT. NOTIFY THE ENGINEER OF CONFLICTS BETWEEN SPECIFICATIONS AND THE REPORT RECOMMENDATIONS FOR RESOLUTION. GEOTECHNICAL ENGINEER SHALL BE RETAINED TO PROVIDE FIELD OBSERVATIONS AND TESTING SERVICES DURING CONSTRUCTION PER SOIL REPORT RECOMMENDATIONS.

F 2 MINIMUM FOUNDATION PREPARATION
SPECIFICATIONS AND DRAWINGS DESCRIBE A SITE SOIL STABILIZATION PROGRAM AS WELL AS SPECIFIC FOUNDATION PREPARATION AND REQUIREMENTS. FOR SITUATIONS NOT SPECIFICALLY NOTED, SUBMIT REQUEST FOR CLARIFICATION TO CONSTRUCTION MANAGER PRIOR TO PROCEEDING.

F 3 DIFFERING CONDITIONS
FOUNDATION CONDITIONS NOTED DURING CONSTRUCTION WHICH DIFFER FROM THOSE INDICATED IN THE REPORT SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER. CONTRACTOR IS RESPONSIBLE FOR REPLACING WORK CONDUCTED AFTER SUCH NOTIFICATION BUT BEFORE CONSTRUCTION MANAGER PROVIDES ADDITIONAL DIRECTIONS.

F 4 EXCAVATION, DEWATERING AND SAFETY
CONTRACTOR SHALL PROVIDE FOR ALL DE-WATERING OF EXCAVATIONS, AND DESIGN/PROVIDE ALL CRIBBING, SHORING AND BRACING REQUIRED FOR SAFETY AND TO ALLOW CONSTRUCTION OF THE WORK PRESENTED HEREIN.

CONCRETE

C 1 APPLICABLE CODE AND MIX DESIGN
CONCRETE CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE ACI BUILDING CODE (ACI 318-14 BUILDINGS AND ACI 350.3-06 LIQUID RETAINING).

C 2 REINFORCING STEEL DETAILS
ALL DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED SHALL BE IN ACCORDANCE WITH MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (ACI-315), LATEST EDITION.

CONCRETE CONTINUED

C 3 DESIGN STRENGTH

1.	GENERAL CONCRETE	f'c = 4,000 PSI
	CONCRETE TANK WALL	f'c = 4,000 PSI
	PRECAST CONCRETE	f'c = 5,000 PSI
	SHOTCRETE	f'c = 4,500 PSI
	ULTIMATE COMPRESSIVE STRESS AT 28 DAYS	
2.	REINFORCING STEEL	ASTM A-615, GRADE 60
	DEFORMED BARS UNLESS OTHERWISE NOTED	

C 4 CONCRETE COVER
CONCRETE COVER FOR REINFORCING BARS SHALL CONFORM TO ACI 350 AND AS FOLLOWS WITH MINIMUM COVER OF ONE BAR DIAMETER.
1. FOOTING AND FOUNDATION MATS CAST ON GROUND....3"
2. CONCRETE IN CONTACT WITH SEWAGE OR WATER
   PRINCIPAL REINFORCEMENT....2-1/2"
   STIRRUPS AND TIES....2"
3. CONCRETE IN CONTACT WITH GROUND OR WEATHER
   a. SLAB AND JOISTS
      BARS GREATER THAN #5....2"
      BARS #5 OR LESS....1-1/2"
   b. BEAMS AND COLUMNS
      STIRRUPS AND TIES....2"
      PRINCIPAL REINFORCEMENT....2-1/2"
4. CONCRETE NOT TO BE EXPOSED TO GROUND, WEATHER OR LIQUID
   BEAMS AND COLUMNS....1-1/2"
   SLABS, WALLS AND JOISTS....1"

C 5 MINIMUM REINFORCING
CONCRETE CONSTRUCTION SHALL BE REINFORCED CONCRETE EXCEPT WHERE PLAIN CONCRETE IS INDICATED ON THE DRAWINGS.

MINIMUM TEMPERATURE AND SHRINKAGE STEEL SHALL BE PROVIDED IN ACCORDANCE WITH ACI-350.

C 6 WELDING REINFORCING BARS
IF APPROVED BY THE CONSTRUCTION MANAGER AND ENGINEER, REINFORCING MAY BE WELDED IN ACCORDANCE WITH WITH AWS SPECIFICATION D1.4 ALL REINFORCING TO BE WELDED SHALL CONFORM TO ASTM A706.

C 7 STANDARD HOOKS
BARS ENDING IN RIGHT ANGLE BENDS OR HOOKS SHALL CONFORM TO THE REQUIREMENTS OF PARAGRAPH 25.3, ACI-318. PROVIDE STANDARD HOOK IN BARS WHICH TERMINATE AT WALL OR SLAB INTERSECTIONS THAT PROVIDE LESS THAN THE SPECIFIED DEVELOPMENT LENGTH.

C 8 CHAMFERS
EXCEPT AS OTHERWISE REQUIRED, EXPOSED CONCRETE CORNERS AND EDGES SHALL HAVE 3/4" CHAMFERS. RE-ENTRANT CORNERS SHALL NOT HAVE FILLETS.

C 9 JOINTS IN SIDEWALKS
SIDEWALK CONTROL JOINTS SHALL BE 1/2" RADIUS TOOLED JOINTS AT 4'-0" SPACING OR WIDTH OF SIDEWALK, WHICHEVER IS GREATER. SIDEWALK EXPANSION JOINTS SHALL BE LOCATED AT 16'-0" MAXIMUM SPACING AND ALL LOCATIONS WHERE SIDEWALK ABUTS OTHER CONCRETE WORK SUCH AS BASINS, CURBS, PAVING, OR STRUCTURAL. EXPANSION JOINTS SHALL UTILIZE PREFORMED JOINT FILLER CONFORMING TO SPECIFICATION SECTION 07 91 26.

C 10 ANCHOR BOLTS
ANCHOR BOLTS SHALL BE ASTM A320 TYPE 316 MATERIAL UNLESS OTHERWISE NOTED. CONFORM TO ADDITIONAL REQUIREMENTS IN SPECIFICATION SECTION 055010 AS APPLICABLE.

C 11 COMPATIBLE FINISHES
CURING COMPOUNDS AND OTHER SURFACE TREATMENTS, CONCRETE ADMIXTURES AND SUB-SLAB DRAINAGE SHALL BE REVIEWED BY CONTRACTOR AND CERTIFIED COMPATIBLE WITH FINISHES TO BE APPLIED LATER IN THE CONSTRUCTION SEQUENCE.

C 12 CALCIUM CHLORIDE OR ADMIXTURE CONTAINING CHLORIDE SHALL NOT BE USED IN POST-TENSIONED CONCRETE.

PRECAST CONCRETE

PC 1 DESIGN
ALL PRECAST CONCRETE MEMBERS, PANELS AND CONNECTION HARDWARE SHALL BE DESIGNED BY THE PRECAST SUPPLIER TO THE REQUIREMENTS LISTED ON DRAWING S01 AND SHOWN ON THE DRAWINGS INCLUDING DEAD LOADS, SUPERIMPOSED DEAD LOADS, LIVE LOADS, EQUIPMENT LOADS AND TRANSPORTATION AND PLACEMENT LOADS. LIVE LOAD REDUCTION MAY BE TAKEN WHERE PERMITTED BY THE CODE. COORDINATE WITH THE EQUIPMENT SUPPLIER.

PC 2 CONCRETE STRENGTH
ALL MEMBERS SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 5000 PSI.

TENSION DEVELOPMENT AND LAP SPLICE LENGTHS (IN INCHES) FOR UNCOATED BARS IN NORMAL-WEIGHT CONCRETE WITH f_c' = 4,000 PSI OR HIGHER

THIS TABLE IS GOOD ONLY FOR CENTER/CENTER SPACING OF REINFORCING BARS EQUAL TO THE MINIMUM SHOWN OR GREATER. NO TRANSVERSE REINFORCING ASSUMED.

BAR SIZE	APPLICATION	CONCRETE COVER = 0.75 IN.			CONCRETE COVER = 1.00 IN.			CONCRETE COVER = 1.50 IN.			CONCRETE COVER = 2.00 IN.			CONCRETE COVER = 3.00 IN.		
		TOP	OTHER	MIN C/C SPACING	TOP	OTHER	MIN C/C SPACING	TOP	OTHER	MIN C/C SPACING	TOP	OTHER	MIN C/C SPACING	TOP	OTHER	MIN C/C SPACING
#3	DEVELOPMENT	12	12	2.00	12	12	2.50	12	12	3.50	12	12	4.50	12	12	6.50
	LAP SPLICE	16	16	2.25	16	16	2.75	16	16	3.75	16	16	4.75	16	16	6.75
#4	DEVELOPMENT	19	15	2.00	15	12	2.50	15	12	3.50	15	12	4.50	15	12	6.50
	LAP SPLICE	24	19	2.50	20	16	3.00	20	16	4.00	20	16	5.00	20	16	7.00
#5	DEVELOPMENT	28	21	2.25	22	17	2.75	19	15	3.75	19	15	4.75	19	15	6.75
	LAP SPLICE	37	28	2.75	29	22	3.25	24	19	4.25	24	19	5.25	24	19	7.25
#6	DEVELOPMENT	37	29	2.25	31	24	2.75	22	17	3.75	22	17	4.75	22	17	6.75
	LAP SPLICE	48	37	3.00	40	31	3.50	29	22	4.50	29	22	5.50	29	22	7.50
#7	DEVELOPMENT	60	46	2.50	50	38	3.00	37	28	4.00	33	25	5.00	33	25	7.00
	LAP SPLICE	78	60	3.25	64	50	3.75	48	37	4.75	42	33	5.75	42	33	7.75
#8	DEVELOPMENT	74	57	2.50	62	48	3.00	47	36	4.00	37	29	5.00	37	29	7.00
	LAP SPLICE	96	74	3.50	80	62	4.00	60	47	5.00	48	37	6.00	48	37	8.00
#9	DEVELOPMENT	90	69	2.75	76	58	3.25	57	44	4.25	46	36	5.25	42	32	7.25
	LAP SPLICE	117	90	3.75	98	76	4.25	74	57	5.25	60	46	6.25	55	42	8.25
#10	DEVELOPMENT	108	83	2.75	92	70	3.25	70	54	4.25	57	44	5.25	47	36	7.25
	LAP SPLICE	142	109	4.00	120	92	4.50	91	70	5.50	74	57	6.50	61	47	8.50
#11	DEVELOPMENT	127	98	3.00	108	83	3.50	84	64	4.50	68	53	5.50	52	40	7.50
	LAP SPLICE	168	130	4.25	144	111	4.75	110	85	5.75	90	69	6.75	68	52	8.75

NOTES:
1. TABULATED VALUES ARE BASED ON GRADE 60 REINFORCING BARS AND NORMAL-WEIGHT CONCRETE.
2. TENSION DEVELOPMENT LENGTHS AND TENSION LAP SPLICE LENGTHS ARE CALCULATED PER ACI 318-14, SECTIONS 25.4.2.3 AND 25.5, RESPECTIVELY.
3. LAP SPLICE LENGTHS ARE LAP CLASS B = 1.3 l_d (ACI 318-14, SECTION 25.5.2).
4. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 IN. OF FRESH CONCRETE CAST BELOW THE BARS. NOTE THAT IN ADDITION TO TOP BARS IN BEAMS AND SLABS, ALL HORIZONTAL BARS IN WALLS ARE CONSIDERED TO BE TOP BARS.

DEFERRED SUBMITTALS

DS1 DEFERRED SUBMITTALS ARE THOSE PORTIONS OF THE WORK AND DESIGN WHICH ARE NOT SUBMITTED AT THE TIME OF PERMIT APPLICATION. THESE ARE TO BE SUBMITTED TO THE PERMITTING AGENCY FOR ACCEPTANCE PRIOR TO THE INSTALLATION OF THAT PORTION OF THE WORK OR ARE REQUIRED TO BE SUBMITTED FOR REVIEW.

DS2 WHERE DEFERRED SUBMITTALS INCLUDE ADDITIONAL MATERIALS, INSTALLATION, ANCHORAGE, OR CERTIFICATION OF COMPONENTS THAT REQUIRE SPECIAL INSPECTIONS AND / OR STRUCTURAL OBSERVATIONS TO MEET THE CODE REQUIREMENTS, THE DEFERRED SUBMITTAL SHALL INCLUDE SPECIFIC LINE ITEMS TO BE ADDED TO THE APPROPRIATE TABLES IN THE PROJECT'S STATEMENT OF SPECIAL INSPECTIONS PLAN IF THEY ARE NOT ALREADY IDENTIFIED.

DS3 PRIOR TO ORDERING OR FABRICATION OF ANY MATERIALS, AND PRIOR TO THE INSTALLATION OF THE INDICATED STRUCTURAL ELEMENTS, EQUIPMENT DISTRIBUTIONS SYSTEM, OR COMPONENT AND IT'S ANCHORAGE. THE CONTRACTOR SHALL SUBMIT THE REQUIRED CALCULATIONS, SUPPORTING INFORMATION, AND DRAWINGS FOR REVIEW AND ACCEPTANCE BY THE ENGINEER. ALL DEFERRED SUBMITTALS AND CALCULATIONS SHALL BE IN ACCORDANCE WITH THE 2019 CALIFORNIA BUILDING CODE, INCLUDING THE DESIGN CRITERIA AND SPECIFICATIONS WITHIN THESE CONSTRUCTION DOCUMENTS. ALL DEFERRED SUBMITTAL CALCULATIONS AND DRAWINGS SHALL BE SEALED AND SIGNED BY A REGISTERED PROFESSIONAL CIVIL ENGINEER OR STRUCTURAL ENGINEER LICENSED IN THE STATE OF CALIFORNIA.

DS4 THE FOLLOWING IS A LIST OF DEFERRED SUBMITTALS THAT ARE EXPECTED TO CONTAIN STRUCTURAL CALCULATIONS OR SAFETY RELATED SYSTEM INFORMATION FOR REVIEW TO MEET THE BUILDING PERMITTING AND PROJECT REQUIREMENTS:

SPECIFICATION SECTION	DEFERRED SUBMITTAL ITEM
03 48 11	PRECAST VAULTS
05 05 20	EQUIPMENT ANCHORAGE
05 05 20	PIPE SUPPORTS AND ANCHORAGE
05 51 00	LADDERS STAIRS
13 34 19	PREFABRICATED FIBERGLASS BUILDING
33 16 31	AWWA D110 TYPE 1 TANK
TBD	KEYSTONE EQUIVALENT RW

Brown AND Caldwell
WALNUT CREEK, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER BETH PHILIPSON CIVIL STATE OF CALIFORNIA

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

THIS DRAWING IS NOT VALID FOR CONSTRUCTION PURPOSES UNLESS IT BEARS THE SEAL AND SIGNATURE OF A DULY REGISTERED PROFESSIONAL

REGISTERED PROFESSIONAL ENGINEER DAVID CARBONI No. C63005 CIVIL STATE OF CALIFORNIA

North Coast County WATER DISTRICT SINCE 1944

SHEILA TANK REPLACEMENT PROJECT

REVISIONS

REV	DATE	DESCRIPTION
		100% SUBMITTAL PACKAGE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. GAGNE
DRAWN: L. BULLOCK
CHECKED: J. JETTON
CHECKED: R. PHILIPSON
APPROVED: D. CARBONI

FILENAME 153918-S-01.DWG
BC PROJECT NUMBER 155221
CLIENT PROJECT NUMBER - - - - -

STRUCTURAL

STRUCTURAL NOTES

DRAWING NUMBER
S-01

SHEET NUMBER 30 OF 38

FILENAME: 153918-S-01.DWG PLOT DATE: 8/9/2021 3:23 PM CAD USER: TAIT LAMBERT

STATEMENT OF SPECIAL INSPECTIONS

1. SPECIAL INSPECTIONS AND TESTS OF ELEMENTS AND NONSTRUCTURAL COMPONENTS OF BUILDINGS AND STRUCTURES SHALL MEET THE REQUIREMENTS OF THE CALIFORNIA BUILDING CODE (CBC) AND THE CONSTRUCTION DOCUMENTS.
2. THE OWNER SHALL RETAIN A QUALIFIED SPECIAL INSPECTOR (OTHER THAN THE CONTRACTOR), WHO SHALL PROVIDE ALL SPECIAL INSPECTIONS AND TESTING NECESSARY TO MEET THE CBC REQUIREMENTS OF SPECIAL INSPECTIONS DURING CONSTRUCTION. SPECIAL INSPECTIONS ARE IN ADDITION TO INSPECTIONS PERFORMED BY THE BUILDING OFFICIALS. CONSTRUCTION IS SUBJECT TO INSPECTION BY THE BUILDING OFFICIAL.
3. SEISMIC REQUIREMENTS IN THE STATEMENT OF SPECIAL INSPECTIONS (2019 CBC, PART 1704.3.2.) - PORTIONS OF THE WORK QUALIFIED TO BE CATEGORIZED AS PART OF THE SEISMIC-FORCE RESISTING SYSTEM AND SEISMIC RESISTING COMPONENTS REQUIRE SPECIAL INSPECTION OR TESTING INCLUDE THE FOLLOWING: DIAPHRAGMS (METAL DECKING), FRAMING SUBJECT TO AXIAL LOADS, FRAMING CONNECTIONS, WALLS ELEMENTS, WALL CONNECTIONS, LINTELS, CHORD ELEMENTS, AND FOUNDATION SYSTEMS. REFERENCE TABLES 1, 2, AND 3 FOR SPECIFIC SPECIAL INSPECTIONS AND TESTING.
4. WIND REQUIREMENTS IN THE STATEMENT OF SPECIAL INSPECTIONS (2019 CBC, 1704.3.3) - PORTIONS OF THE WORK QUALIFIED TO BE CATEGORIZED AS PART OF THE WIND-FORCE RESISTING SYSTEM AND WIND RESISTING COMPONENTS REQUIRE SPECIAL INSPECTION OR TESTING INCLUDE THE FOLLOWING: DIAPHRAGMS (METAL DECKING), FRAMING SUBJECT TO AXIAL LOADS, FRAMING CONNECTIONS, WALLS ELEMENTS, WALL CONNECTIONS, LINTELS, CHORD ELEMENTS, AND FOUNDATION SYSTEMS. REFERENCE TABLES 1, 2, AND 3 FOR SPECIFIC SPECIAL INSPECTIONS AND TESTING.
5. THE FOLLOWING TABLES OUTLINE THE REQUIRED SPECIAL INSPECTIONS AND TESTING: A. TABLE 1 - REQUIRED TESTING FOR SPECIAL INSPECTIONS. B. TABLE 2 - REQUIRED SPECIAL INSPECTIONS FOR STRUCTURAL SYSTEMS. C. TABLE 3 - REQUIRED SPECIAL INSPECTIONS FOR NONSTRUCTURAL COMPONENTS.
6. CONTINUOUS SPECIAL INSPECTION - WHERE THE FREQUENCY OF SPECIAL INSPECTIONS IS SPECIFIED TO BE CONTINUOUS, THE SPECIAL INSPECTOR IS EXPECTED TO BE PRESENT IN THE AREA WHERE THE WORK IS BEING PERFORMED AND PROVIDE FULL-TIME INSPECTIONS OF THE WORK REQUIRING SPECIAL INSPECTION.
7. PERIODIC SPECIAL INSPECTION - WHERE THE FREQUENCY OF SPECIAL INSPECTION IS SPECIFIED TO BE PERIODIC, THE SPECIAL INSPECTOR IS EXPECTED TO BE PRESENT IN THE AREA WHERE THE WORK HAS BEEN OR IS BEING PERFORMED AND AT THE COMPLETION OF THE WORK (PRIOR TO THE NEXT CONSTRUCTION TASK).

STRUCTURAL OBSERVATIONS

SO1 STRUCTURAL OBSERVATION IS THE VISUAL OBSERVATION OF THE STRUCTURAL SYSTEM, STRUCTURAL ELEMENTS, AND THEIR CONNECTIONS FOR GENERAL CONFORMANCE TO THE CONTRACT DOCUMENTS AT SIGNIFICANT CONSTRUCTION STAGES AND AT THE COMPLETION OF THE STRUCTURAL SYSTEMS. STRUCTURAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR INSPECTIONS REQUIRED BY CHAPTER 17 OF THE 2019 CALIFORNIA BUILDING CODE OR THE CONTRACT DOCUMENTS.

SO2 ALL STRUCTURAL OBSERVATIONS SHALL BE IN ACCORDANCE WITH CHAPTER 1704.6 OF THE 2019 CALIFORNIA BUILDING CODE. THE OWNER SHALL RETAIN A REGISTERED DESIGN PROFESSIONAL (LICENSED IN CALIFORNIA) OR THE ENGINEER OF RECORD TO PERFORM ALL THE STRUCTURAL OBSERVATIONS REQUIRED.

SO3 THE CONTRACTOR OR CONSTRUCTION MANGER SHALL NOTIFY THE ENGINEER OF RECORD AND PERSONS PERFORMING THE STRUCTURAL OBSERVATION AT LEAST (3) THREE WORKING DAYS (FOR EACH OBSERVATION) PRIOR TO THE WORK THAT IS REQUIRED TO BE OBSERVED IS COVERED. DEFICIENCIES FOUND DURING THE STRUCTURAL OBSERVATIONS SHALL BE CORRECTED BY THE CONTRACTOR.

SO4 AT A MINIMUM, IT IS RECOMMENDED THAT THE PERSONS PERFORMING THE STRUCTURAL OBSERVATIONS VISIT THE SITE IN ACCORDANCE WITH THE FOLLOWING TABLE:

STRUCTURAL OBSERVATION TABLE

SEQUENCE	WHAT TO OBSERVE
SUBGRADE AND SOIL PREPERATION	STRUCTURAL FILL
	THE SOILS ENGINEER SHALL PROVIDE OBSERVATION AND SHALL PROVIDE AN AFFIDAVIT TO VERIFY THE FOUNDATIONS HAVE BEEN INSTALLED IN CONFORMANCE WITH THE GEOTECHNICAL REPORT
FOOTINGS AND FOUNDATIONS	REINFORCEMENT FOR BAR SIZES, SPACING, CLEARANCE, DEPTH OF REINFORCEMENT TO TOP OF FORMS, FORMWORK - OBSERVE PRIOR TO CONCRETE PLACEMENT.
	PLACEMENT OF WALL DOWELS AND LAP SPLICES.
	PLACEMENT OF ANCHOR BOLTS, HOLD DOWNS, OR STEEL EMBEDS.
CONCRETE CONSTRUCTION	REINFORCEMENT FOR BAR SIZES, SPACING, CLEARANCE. OBSERVE PRIOR TO CONCRETE PLACEMENT.
	PLACEMENT OF WALL DOWELS AND LAP SPLICES.
	PLACEMENT OF ANCHOR BOLTS, HOLD DOWNS, OR STEEL EMBEDS.

TABLE 1
REQUIRED TESTING FOR SPECIAL INSPECTIONS

SYSTEM OR MATERIAL	TESTING		REMARKS
	CODE OR STANDARD REFERENCE	FREQUENCY	
GEOTECHNICAL / SOILS / SUBGRADE			
PREPARED SUBGRADE DENSITY	ASTM D6938	EACH 300 SF OF PREPARED SUBGRADE	PER GEOTECHNICAL REPORT
FILL IN-PLACE DENSITY	ASTM D6938	EACH 300 SF OF EACH LIFT PLACED EACH DAY	PER GEOTECHNICAL REPORT
CAST-IN-PLACE CONCRETE			
CONCRETE COMPRESSIVE STRENGTH	ASTM C31, ASTM C39, ASTM C172	SPECIFICATION SECTION 03 30 00 - CAST-IN-PLACE CONCRETE	
CONCRETE SLUMP	ASTM C143	WHENEVER CYLINDERS ARE CASTED.	
CONCRETE AIR CONTENT	ASTM C231	WHENEVER CYLINDERS ARE CAST	
CONCRETE TEMPERATURE	ASTM C1064	WHENEVER CYLINDERS ARE CAST	
CEMENTITIOUS AND EPOXY GROUT COMPRESSIVE STRENGTH	ASTM C942 (CEMENTITIOUS) ASTM C579 (EPOXY)		TEST 2" CUBES FOR EACH GROUT SHIPMENT TOTHE FIELD

TABLE 2
REQUIRED SPECIAL INSPECTIONS - STRUCTURAL SYSTEMS

SYSTEM OR MATERIAL	REQUIRED INSPECTION	FREQUENCY OF INSPECTION		REMARKS
		CONTINUOUS	PERIODIC	
SOILS	VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL		X	
	VERIFY SOIL MATERIALS BELOW FOOTINGS ARE ADEQUATE TO ACHIEVE DESIGN BEARING CAPACITY		X	
	PRIOR TO PLACEMENT OF CONTROLLED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY		X	
	PERFORM CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIALS		X	
	VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF CONTROLLED FILL	X		
	VERIFY USE OF DRAIN ROCK BEHIND RETAINING WALLS		X	
	PROOF ROLLING OF SOILS DISTURBED BY GROUND IMPROVEMENTS		X	
CONCRETE	INSPECT FORMWORK FOR LOCATION AND DIMENSIONS OF MEMBER BEING FORMED		X	
	VERIFY MATERIAL FOR REINFORCEMENT		X	CONTRACTOR TO SUBMIT CERTIFIED MILL TEST REPORTS
	REINFORCING STEEL PLACEMENT		X	
	INSPECT ANCHORS TO BE CAST IN CONCRETE		X	PRIOR TO AND DURING CONCRETE PLACEMENT
	INSPECT POST-INSTALLED CONCRETE ANCHORS: - HORIZONTAL AND UPWARDLY INCLINED ADHESIVE ANCHORS - OTHER ANCHORS UNLESS ICC REPORT REQUIRED CONTINUOUS INSPECTION		X	INSPECTION TO CONFORM TO CBC AND TO ANCHOR MANUFACTURER'S RECOMMENDATIONS AND ICC REPORTS
	VERIFY USE OF REQUIRED CONCRETE MIX DESIGN(S)		X	
	AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND TEMPERATURE OF CONCRETE	X		CONTINUOUS DURING PREPARATION OF SAMPLES
	CONCRETE PLACEMENT	X		
	INSPECTION FOR MAINTENANCE OF CURING PROCEDURES AND TEMPERATURE		X	VERIFY APPROPRIATE CURING METHOD HAS BEEN IMPLEMENTED AFTER EACH POUR
	VERIFY IN-SITU CONCRETE STRENGTH PRIOR TO REMOVAL OF SHORES AND FORMS FROM STRUCTURAL SLABS AND BEAMS		X	
	CEMENTITIOUS GROUTING OF BASE PLATES AND EPOXY GROUTING FOR EQUIPMENT MOUNTING	X		

TABLE 3
REQUIRED SPECIAL INSPECTIONS - NONSTRUCTURAL SYSTEMS

SYSTEM OR MATERIAL	REQUIRED INSPECTION	FREQUENCY OF INSPECTION		REMARKS
		CONTINUOUS	PERIODIC	
ARCHITECTURAL	INSPECT WELDING OF GUARD AND HANDRAIL SYSTEMS		X	
MECHANICAL	INSPECT ANCHORAGE OF ALL MECHANICAL SYSTEMS (INCLUDING EQUIPMENT PIPING, DUCT WORK, ETC.) REQUIRING STANDBY POWER		X	
	CERTIFICATE OF COMPLIANCE FOR ALL MECHANICAL EQUIPMENT REQUIRING STANDBY POWER			EQUIPMENT MANUFACTURER SHALL PROVIDE CERTIFICATE OF COMPLIANCE
ELECTRICAL	INSPECT ANCHORAGE OF ELECTRICAL EQUIPMENT FOR STANDBY POWER		X	
	INSPECT ANCHORAGE OF ALL OTHER ELECTRICAL EQUIPMENT REQUIRING STANDBY POWER		X	
	CERTIFICATE OF COMPLIANCE FOR ALL ELECTRICAL EQUIPMENT FOR STANDBY POWER AND ALL ELECTRICAL EQUIPMENT REQUIRING STANDBY POWER			EQUIPMENT MANUFACTURER SHALL PROVIDE CERTIFICATE OF COMPLIANCE

Brown AND Caldwell

WALNUT CREEK, CALIFORNIA

PRELIMINARY DESIGN

THIS DRAWING IS NOT VALID FOR CONSTRUCTION PURPOSES UNLESS IT BEARS THE SEAL AND SIGNATURE OF A DULY REGISTERED PROFESSIONAL

North Coast County WATER DISTRICT

SHEILA TANK REPLACEMENT PROJECT

REVISIONS		
REV	DATE	DESCRIPTION
100% SUBMITTAL PACKAGE		

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. GAGNE
DRAWN: M. GLUSHKO
CHECKED: J. JETTON
CHECKED: R. PHILIPSON
APPROVED: D. CARBONI

FILENAME 153918-S-02.DWG
BC PROJECT NUMBER 155221
CLIENT PROJECT NUMBER -----

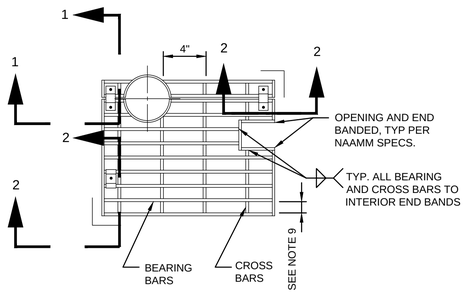
STRUCTURAL

SPECIAL INSPECTIONS

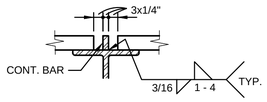
DRAWING NUMBER S-02

SHEET NUMBER 31 OF 38

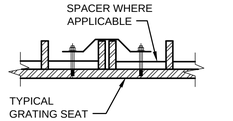
FILENAME: 153918-S-02.DWG PLOT DATE: 8/9/2021 3:24 PM CAD USER: TAIT LAMBERT



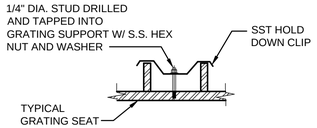
GRATING SCHEDULE (6)		
BEARING BAR SIZE		CLEAR SPAN
FIBERGLASS	ALUMINUM	
1"(IMIN.=.0.40)	1 x 3/16	2'-6"
1 1/4"(IMIN.=0.78)	1 1/4 x 3/16	3'-6"
1 1/2"(IMIN.=1.35)	1 1/2 x 3/16	4'-0"
2"(IMIN.=3.2)	1 3/4 x 3/16	5'-0"
	2 x 3/16	5'-6"
	2 1/4 x 3/16	6'-6"
	2 1/2 x 3/16	7'-0"



DETAIL AT BEAM SUPPORT



1 SECTION
NO SCALE



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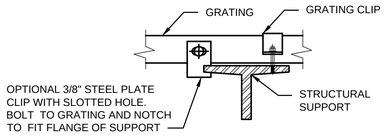
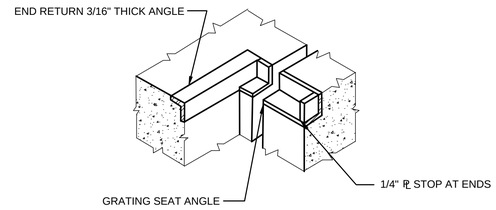


3 SECTION
NO SCALE

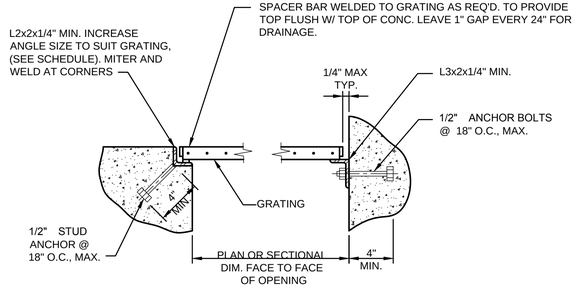
GRATING SCHEDULE AND CONNECTION DETAILS
STANDARD DETAIL S5025
NO SCALE

NOTES:

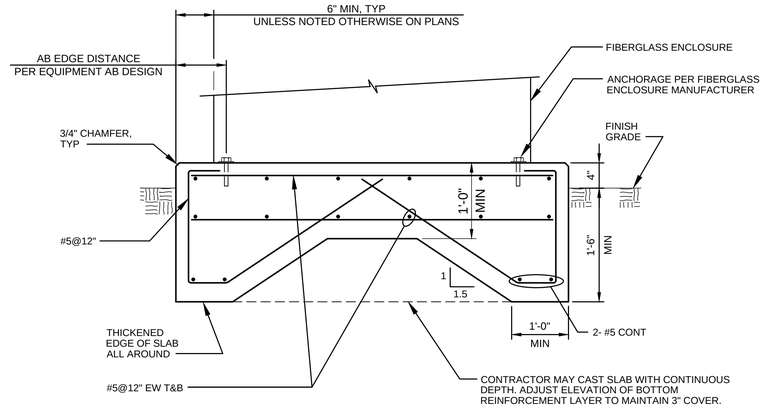
1. GRATING SHALL CONFORM TO THE METAL BAR GRATING MANUAL OF NAAMM, UNLESS OTHERWISE SPECIFIED. GRATING SHALL BE ALUMINUM UNLESS NOTED OTHERWISE.
2. GRATING SHALL BE SWAGED AND FORGED.
3. WHERE BOLTED GRATING IS SPECIFIED. PROVIDE 4 GRATING CLIPS APPROX. 4" FROM THE CORNERS OF EACH PIECE. ADJACENT PIECES MAY BE ANCHORED WITH ONE CLIP AND 2 STUDS, (SEE SECTION 1).
4. GRATING SHALL BE REMOVABLE.
5. CLEAR SPAN SHALL BE PLAN DIMENSION. FACE TO FACE OF OPENING.
6. GRATING SCHEDULE IS SUITABLE FOR DESIGN LIVE LOADS OF 250 PSF OR LESS.
7. I IS MINIMUM MOMENT OF INERTIA REQUIRED, (INCHES^4) FOR FIBERGLASS.
8. END BAND TO BE 1/4" LESS THAN GRATING DEPTH.
9. 1 3/16" AT ALUMINUM.1 1/2" AT FIBERGLASS.



GRATING SUPPORT AND RETURN
STANDARD DETAIL S5030
NO SCALE



GRATING SUPPORT AT CONCRETE
STANDARD DETAIL C0000
NO SCALE



CONCRETE PAD
STANDARD DETAIL S5035
NO SCALE

Brown AND Caldwell
WALNUT CREEK, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER BETH PHILIPSON No. C63005 CIVIL STATE OF CALIFORNIA

PRELIMINARY DESIGN

THIS DRAWING IS NOT VALID FOR CONSTRUCTION PURPOSES UNLESS IT BEARS THE SEAL AND SIGNATURE OF A DULY REGISTERED PROFESSIONAL

North Coast County WATER DISTRICT SINCE 1944

SHEILA TANK REPLACEMENT PROJECT

REVISIONS		
REV	DATE	DESCRIPTION
		100% SUBMITTAL PACKAGE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	D. GAGNE
DRAWN:	M. GLUSHKO
CHECKED:	J. JETTON
CHECKED:	R. PHILIPSON
APPROVED:	D. CARBONI

FILENAME 153918-S-03.DWG
BC PROJECT NUMBER 155221
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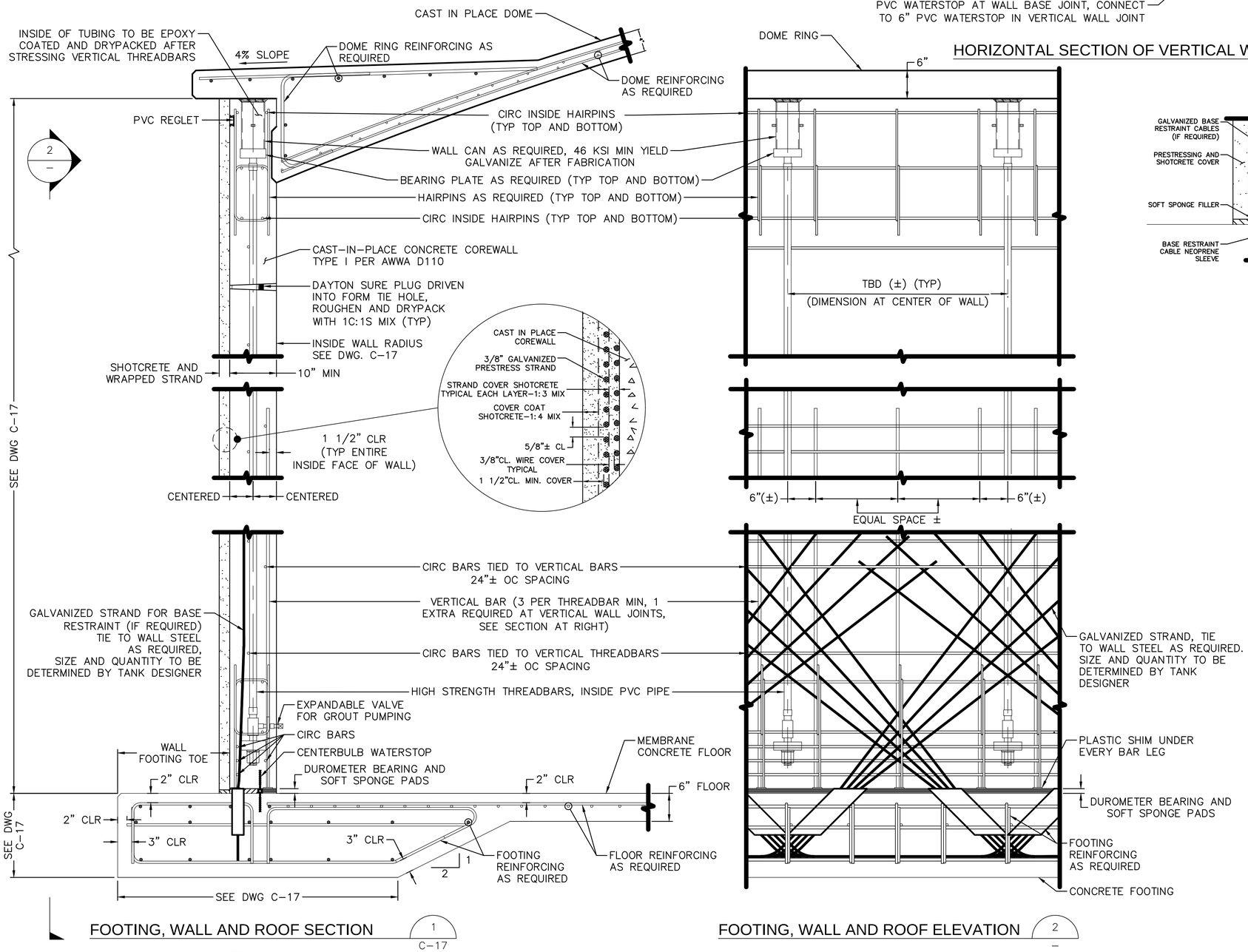
STRUCTURAL

STRUCTURAL DETAILS

DRAWING NUMBER
S-03
SHEET NUMBER
32 OF 38

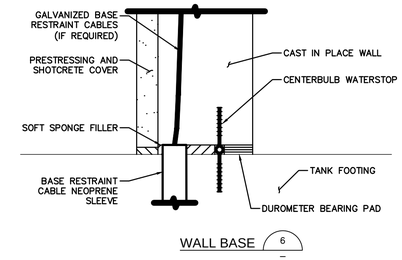
FILENAME: 153918-S-03.DWG PLOT DATE: 8/9/2021 3:24 PM CAD USER: TAIT LAMBERT

NOTES:
1) FOOTING AND FLOOR TO BE FINISHED PER SPECIFICATIONS.
2) MAINTAIN CLEARANCE BETWEEN THE INDIVIDUAL STRANDS IN THE BASE RESTRAINT CABLE SETS (DO NOT BUNDLE). CABLES MAY TOUCH WITHIN 2' OF THE BOOT.
3) THE ROOF AND THE COMBINED FLOOR AND WALL FOOTING SHALL BE POURED MONOLITHICALLY UNLESS APPROVED BY THE ENGINEER.
4) BASE RESTRAINT CABLES MAY BE BENT PRIOR TO INSTALLATION.
5) BASE RESTRAINT CABLE DESIGN REQUIREMENTS TO BE DETERMINED BY TANK CONTRACTOR.
6) DRAWINGS INDICATE GENERAL TANK CONSTRUCTION REQUIREMENTS. TANK DESIGNER IS RESPONSIBLE FOR ENSURING THE FINAL TANK DESIGN MEETS AWWA D110, CBC, ACI 350, AND OTHER APPLICABLE DESIGN CODES.

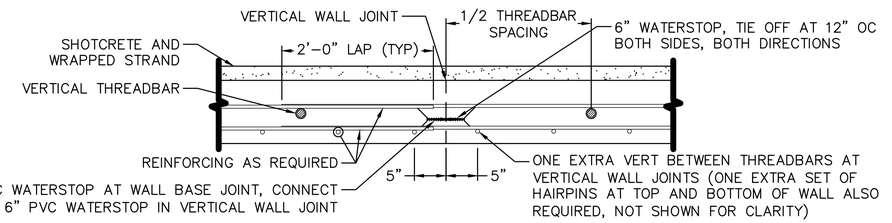


FOOTING, WALL AND ROOF SECTION 1 / C-17

FOOTING, WALL AND ROOF ELEVATION 2 / —



WALL BASE 6 / —



HORIZONTAL SECTION OF VERTICAL WALL JOINT 3 / —

A2 FOOTING SECTION
SCALE: 1" = 1'-0"

Brown AND Caldwell
WALNUT CREEK, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER BETH PRITCHARD CIVIL STATE OF CALIFORNIA

PRELIMINARY DESIGN

THIS DRAWING IS NOT VALID FOR CONSTRUCTION PURPOSES UNLESS IT BEARS THE SEAL AND SIGNATURE OF A DULY REGISTERED PROFESSIONAL

North Coast County WATER DISTRICT SINCE 1944

SHEILA TANK REPLACEMENT PROJECT

REVISIONS		
REV	DATE	DESCRIPTION
		100% SUBMITTAL PACKAGE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	D. GAGNE
DRAWN:	T. LAMBERT
CHECKED:	J. JETTON
CHECKED:	R. PHILIPSON
APPROVED:	D. CARBONI

FILENAME 153918-S-04.DWG
BC PROJECT NUMBER 155221
CLIENT PROJECT NUMBER -----

STRUCTURAL

WALL AND FOOTING SECTION AND ELEVATION

DRAWING NUMBER
S-04
SHEET NUMBER
33 OF 38

FILENAME: 153918-S-04.DWG PLOT DATE: 8/9/2021 3:24 PM CAD USER: TAIT LAMBERT

RACEWAYS

HH23 — MANHOLE (MH) OR HANDHOLE (HH),

15-JB-XXXX (J) — JUNCTION BOX. OPTIONAL IDENTIFIER.

15-TB-1301 (T) — TERMINAL BOX. OPTIONAL IDENTIFIER.

PBD-1900-1,3,5 — HOME RUN EXPOSED - SEE PANELBOARD, SWITCHBOARD, OR MCC SCHEDULE FOR CIRCUIT INFORMATION.

EXAMPLE: HOME TO PANELBOARD PBD-1900, CIRCUITS 1, 3, AND 5.

PBD-1900-1,3,5 — HOME RUN CONCEALED - SEE PANELBOARD, SWITCHBOARD, OR MCC SCHEDULE FOR CIRCUIT INFORMATION.

EXAMPLE: HOME TO PANELBOARD PBD-1900, CIRCUITS 1, 3, AND 5.

CABLE TRAY MODIFIERS:
CTS - 24VDC OR LESS
CTC - 120V CONTROL CONDUCTORS
CTP - 600V POWER CONDUCTORS

CABLE 4/0 AND LARGER SHALL NOT BE STACKED VERTICALLY.

WHEN TWO TRAY MODIFIERS IDENTIFY A SINGLE TRAY, THE CONTRACTOR MAY USE DIVIDER OR INSTALL SEPARATE TRAYS (CTC/CTS).

CABLE TRAY WITH COVER MODIFIER, AS ABOVE

P 05P1100 — RACEWAY IDENTIFIER

RACEWAY EXPOSED
MODIFIERS FOR RACEWAY TYPE:
H - POWER (ABOVE 600V)
P - POWER
C - CONTROL
S - SIGNAL
D - DATA
F - OPTICAL FIBER
PC - POWER AND CONTROL

RACEWAY CONCEALED

RACEWAY TURNED TOWARD THE THE VIEWER.

RACEWAY TURNED DOWN

CONDUIT CAPPED

DB 05P1100 — DUCT BANK IDENTIFIER (OPTIONAL)

DB — DIRECT BURIED DUCT BANK

CDB — CONCRETE ENCASED DUCT BANK

RC — REINFORCED CONCRETE DUCTBANK

OHE — OVERHEAD POWER LINE

SINGLE LINE DIAGRAMS

BUS CONNECTION OR CONNECTED WIRES

480V / 15VA / 120V — TRANSFORMER

AMPS — DISCONNECT

AMPS — CIRCUIT BREAKER

COMBINATION MOTOR STARTER
MCP AND THERMAL OVERLOAD SIZED BY MANUFACTURER BASED ON SUBMITTED AND APPROVED MOTOR

MCP / n XX

n NEMA SIZE

XX TYPE:
BLANK FULL VOLTAGE, NON-REVERSING
FVR FULL VOLTAGE, REVERSING
2S2W FULL VOLTAGE, 2 SPEED, 2 WINDING

INSTRUMENT OR DEVICE

SPD — SURGE PROTECTIVE DEVICE

XX — MOTOR CONTROLLER
XX TYPE:
VFD VARIABLE FREQUENCY DRIVE
RVSS REDUCED VOLTAGE SOLID STATE

5 — MOTOR, HORSEPOWER SHOWN

n KW, KVA — KW OR KVA RATED EQUIPMENT
n=LOAD VALUE IN KW OR KVA

EXAMPLES:

P101A: 3#12, #12G, 1"C — A. SINGLE CONDUCTOR

C101A: 1-7#14, 3/4"C — B. MULTI-CONDUCTOR

S101A: 1PR#16, 3/4"C — C. PAIRS (OR TR FOR TRIADS)

CABLE AND RACEWAY IDENTIFICATION

P101A UNIQUE CIRCUIT IDENTIFIER (CABLE AND RACEWAY), LETTER PREFIX INDICATES TYPE:
P POWER, 120V OR HIGHER
C CONTROL, 120V
S SIGNAL, LESS THAN 120V
X SPARE
H HIGH VOLTAGE, OVER 600V
N AIR OR MISC

#12 SIZE OF CONDUCTOR OR GROUND IN AWG OR KCMIL

1"C SIZE OF RACEWAY IN INCHES

2x = 2 SETS

PLAN DRAWINGS

CV151 — EQUIPMENT TAG

M — MOTOR

CV — CONTROL VALVE

DISCONNECT SWITCH

COMBINATION MOTOR STARTER. NOT LOCATED IN AN MCC

LOCAL CONTROL STATION

FIELD MOUNTED INSTRUMENT OR DEVICE

J — JUNCTION (PULL) BOX

T — THERMOSTAT

HORN

GROUNDING

GROUND ROD

GROUND ROD WITH GROUND WELL

GROUND CONNECTION, BOLTED TYPE

GROUND CONNECTION, EXOTHERMIC TYPE

G — GROUNDING CONDUCTOR

AREA CLASSIFICATIONS

CI-D1 — HAZARDOUS AREA CLASSIFICATION CLASS 1, DIVISION 1

CI-D2 — HAZARDOUS AREA CLASSIFICATION CLASS 1, DIVISION 2

UNCLASSIFIED — UNCLASSIFIED AREA

LIGHTING

LIGHT FIXTURE IDENTIFICATION
FW TYPE PER FIXTURE SCHEDULE
3/35 QTY OF LAMPS PER FIXTURE / LAMP WATTAGE
6 QTY OF THE INDICATED TYPE OF LAMP ON THE DRAWING
P MOUNTING STYLE:
P PENDANT
R RECESSED
W WALL
L POLE
S SURFACE
8' MOUNTING HEIGHT (BOTTOM OF FIXTURE)

6 / FW / 3/35 / P / 8'

FIXTURE CIRCUITING AND SWITCHING
3 PANELBOARD CIRCUIT FEEDING THE FIXTURE, TYPICAL OF ALL FIXTURES
a IDENTIFIER FOR THE SWITCH CONTROLLING THE FIXTURE (FIXTURE IS UNSWITCHED OR SELF-SWITCHED IF OMITTED), TYPICAL OF ALL FIXTURES

3a

LED LIGHTING FIXTURE

EMERGENCY EGRESS LED LIGHTING FIXTURE WITH BATTERY BACKUP

POLE-MOUNTED FIXTURE

EMERGENCY LIGHTING UNIT, SELF CONTAINED

ILLUMINATED EXIT SIGN, DARKENED QUADRANTS INDICATE ILLUMINATED FACES, DIRECTIONAL ARROWS INDICATE DIRECTIONAL ARROWS BE PROVIDED ON THE ILLUMINATED FACE

TOGGLE SWITCH
a UNIQUE SWITCH IDENTIFICATION
3 TYPE:
2 DOUBLE POLE
3 3-WAY
4 4-WAY
K KEY OPERATED
MC MOMENTARY CONTACT, 3 POSITION
MS MANUAL (MOTOR) STARTER

$^{a}_{3}$

DUPLEX RECEPTACLE
3 PANELBOARD CIRCUIT FEEDING THE RECEPTACLE
GF TYPE:
GFI GROUND FAULT
WP WEATHERPROOF

GF 3

GENERAL NOTES

1. THIS DRAWING IS GENERAL IN NATURE. SOME SYMBOLS SHOWN HEREON MAY NOT BE USED ON THE CONTRACT DRAWINGS.
2. IDENTIFICATIONS (ID), SIZES, RATINGS, LOCATIONS AND SIMILAR INFORMATION SHOWN ASSOCIATED WITH SYMBOLS ARE OPTIONAL; EXAMPLES OF SUCH INFORMATION ARE SHOWN WITH SOME SYMBOLS FOR CLARITY.
3. THE ELECTRICAL DRAWINGS USE THE SINGLE LINE IN CONJUNCTION WITH SHOWING THE LOCATION OF THE ELECTRICAL/ INSTRUMENTATION SOURCES AND LOADS/DEVICES SHOWN ON THE PLAN DRAWINGS TO DEPICT THE WORK. THE CONTRACTOR SHALL USE THESE DOCUMENTS TO DETERMINE AND PROVIDE THE NECESSARY RACEWAY AND WIRING SYSTEM FOR EACH CIRCUIT. ALL INDOOR RACEWAY SHALL BE RUN EXPOSED, AND ROUTED BY THE CONTRACTOR, UNLESS OTHERWISE NOTED. THE TYPE OF RACEWAY AND WIRE USED SHALL BE AS SPECIFIED.
4. IF EQUIPMENT SUPPLIED BY MANUFACTURER HAS A LARGER LOAD THAN INDICATED ON THE SINGLE LINE DIAGRAM, THE ELECTRICAL ENGINEER SHALL BE NOTIFIED. THE CABLE, CONDUIT AND ELECTRICAL EQUIPMENT SHALL BE SIZED AS REQUIRED, TO ACCOMMODATE THE HIGHER VALUE.
5. ALL EQUIPMENT SHALL BE LABELED WITH NAMEPLATES. PROVIDE A DESCRIPTION OF THE EQUIPMENT AND THE EQUIPMENT NUMBER ON NAMEPLATES.
6. THE CONTRACTOR SHALL COORDINATE WITH THE CIVIL, STRUCTURAL AND MECHANICAL DRAWINGS FOR CONCRETE PAD, CONDUIT STUB UP AND TERMINATION LOCATIONS.
7. CONTRACTOR SHALL UTILIZE CONSTRUCTION DRAWINGS IN-CONJUNCTION WITH U/G UTILITY SURVEY PRIOR TO STARTING U/G WORK TO EXISTING U/G UTILITIES.

ABBREVIATIONS

ABBREVIATIONS:
THIS LIST APPLIES TO THE ELECTRICAL DRAWINGS AND MAY NOT INCLUDE ALL OF THE ABBREVIATIONS USED. OTHER ABBREVIATIONS ARE PER ANSI OR IEEE STANDARDS, OR COMMON USAGE.

AFF	ABOVE FINISHED FLOOR	(E), EXIST	EXISTING	MCC	MOTOR CONTROL CENTER	RECEPT	RECEPTACLE
				MCP	MOTOR CIRCUIT PROTECTOR	REQ'D	REQUIRED
(K)AIC	(1000) AMPERE INTERRUPTING RATING	GRS	GALVANIZED RIGID STEEL CONDUIT			RVSS	REDUCED VOLTAGE SOLID STATE STARTER
				NEC	NATIONAL ELECTRICAL CODE		
BC	BARE COPPER	HH,MH	HANDHOLE, MANHOLE	NP	NAME PLATE	SWBD	SWITCHBOARD
		HID	HIGH INTENSITY DISCHARGE				
CB	CIRCUIT BREAKER	HBV	HOWELL-BUNGER VALVE	OCPD	OVERCURRENT PROTECTION DEVICE	TB	TERMINAL BOX
CONT	CONTINUED					TYP	TYPICAL
CMD	COMMAND	LCS	LOCAL CONTROL STATION	PB	PULLBOX		
CPT	CONTROL POWER TRANSFORMER	LFS	LIQUIDTIGHT FLEXIBLE STEEL CONDUIT	PBD	PANELBOARD	VC	VENDOR CABLE
				PLC	PROGRAMMABLE LOGIC CONTROLLER	VFD	VARIABLE (ADJUSTABLE) FREQUENCY DRIVE
DWG	DRAWING						
		KWH	KILOWATT-HOUR	PNL	PANEL		

Brown AND Caldwell
WALNUT CREEK, CALIFORNIA

PRELIMINARY DESIGN

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North Coast County Water District SINCE 1944

SHEILA TANK REPLACEMENT PROJECT

REVISIONS

REV	DATE	DESCRIPTION
		100% SUBMITTAL PACKAGE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: M. KAMEL
DRAWN: D. PATEL
CHECKED: J. JETTON
CHECKED: R. PHILIPSON
APPROVED: D. CARBONI

FILENAME 153918-E-01.DWG
BC PROJECT NUMBER 155221
CLIENT PROJECT NUMBER -----

ELECTRICAL

ELECTRICAL SYMBOLS & LEGEND 1

DRAWING NUMBER E-01

SHEET NUMBER 34 OF 38

FILENAME: 153918-E-01.DWG PLOT DATE: 8/9/2021 3:24 PM CAD USER: TAIT LAMBERT

LIGHT FIXTURE SCHEDULE

TYPE	DESCRIPTION	MODEL #
A 23	LITHONIA LIGHTING, TWX2 SERVICE, LED WALL MOUNTED.	LITHONIA LIGHTING TWX2 LED P1 40K 120V DBLXD DBLBXD OR APPROVED EQUAL
B 40	LITHONIA LIGHTING, MIDBAY-LOWBAYLIGHT, BRACKETS FOR STANCHION MOUNT. 8' LIGHTING POST REQUIRED WITH BRACKETS TO FASTEN ON GUARDRAIL TO MOUNT LIGHTING FIXTURES.	LITHONIA LIGHTING ROB-IL-GB-RV-4K,40W,S OR APPROVED EQUAL
C 11	LITHONIA LIGHTING, TWX1 SERVICE, LED WALL MOUNTED.	LITHONIA LIGHTING TWX1 LED P1 40K 120V DBLXD DBLBXD OR APPROVED EQUAL

Brown AND Caldwell
WALNUT CREEK, CALIFORNIA

PRELIMINARY DESIGN

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North Coast County WATER DISTRICT

SHEILA TANK REPLACEMENT PROJECT

REVISIONS		
REV	DATE	DESCRIPTION
100% SUBMITTAL PACKAGE		

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: M. KAMEL
DRAWN: D. PATEL
CHECKED: J. JETTON
CHECKED: R. PHILIPSON
APPROVED: D. CARBONI

FILENAME 153918-E-02.DWG
BC PROJECT NUMBER 155221
CLIENT PROJECT NUMBER - - - - -

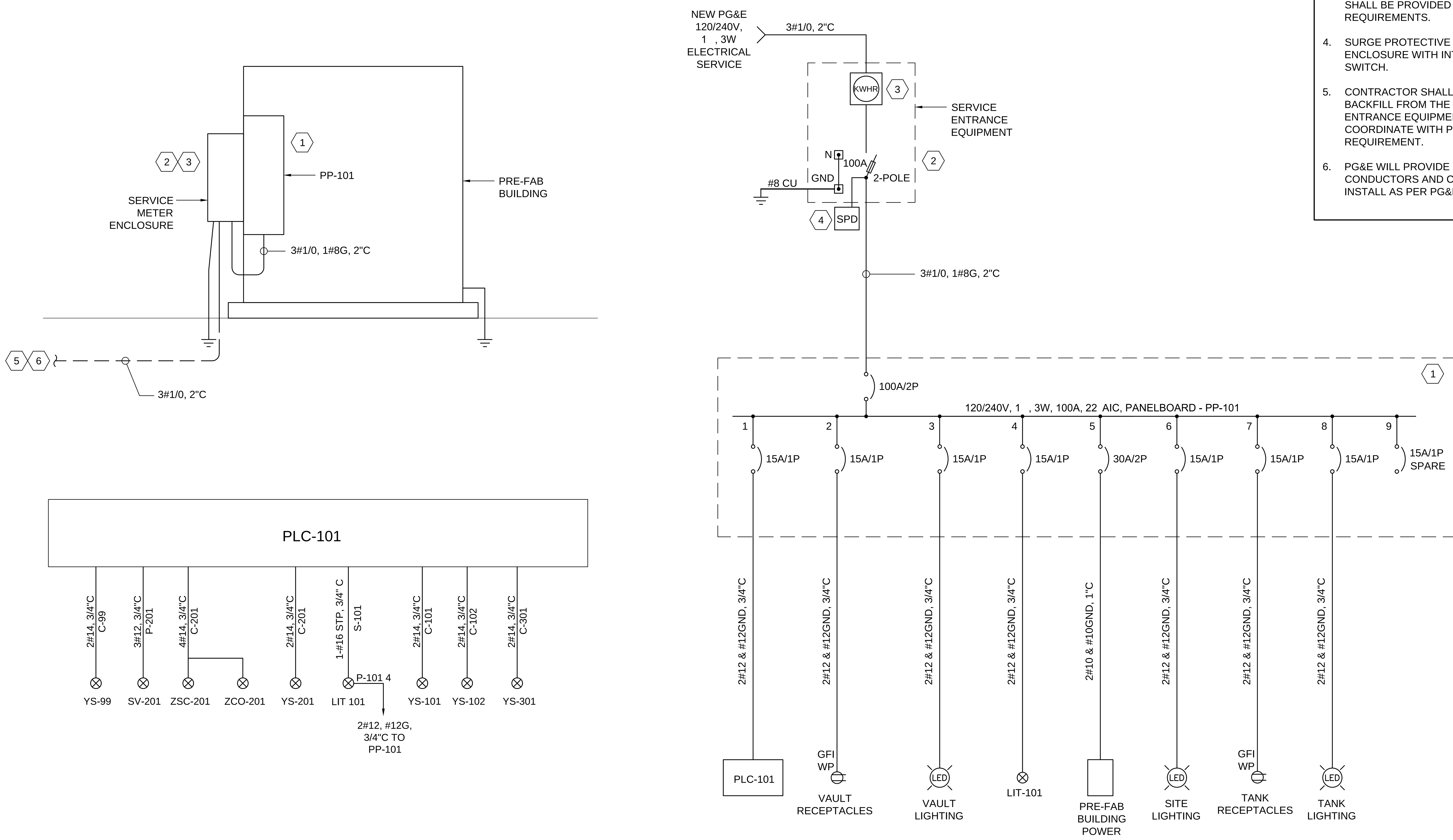
ELECTRICAL

LIGHTING FIXTURE SCHEDULE

DRAWING NUMBER
E-02

SHEET NUMBER
35 OF 38

FILENAME: 153918-E-02.DWG PLOT DATE: 8/9/2021 3:24 PM CAD USER: TAIT LAMBERT



GENERAL NOTES:

1. CONTRACTOR SHALL COORDINATE WITH PG&E FOR NEW SERVICE, SEE CONTACT DETAIL BELOW;

   PG&E CONTACT DETAILS:
   LIZ FRIEDMAN
   CELL: 408-482-0607
   ELIZABETH.FRIEDMAN@PGE.COM

KEY NOTES:

1. 24 POLE PANELBOARD.
2. NEW FUSED SERVICE DISCONNECT SWITCH (SERVICE ENTRANCE RATED). UL LISTED NEMA 4X SS ENCLOSURE.
3. NEW PG&E KWHR METER AND METER BOX SHALL BE PROVIDED AS PER PG&E REQUIREMENTS.
4. SURGE PROTECTIVE DEVICE IN NEMA 3R ENCLOSURE WITH INTEGRAL DISCONNECT SWITCH.
5. CONTRACTOR SHALL PROVIDE TRENCH AND BACKFILL FROM THE PG&E POLE TO SERVICE ENTRANCE EQUIPMENT. CONTRACTOR SHALL COORDINATE WITH PG&E FOR TRENCH REQUIREMENT.
6. PG&E WILL PROVIDE SECONDARY SERVICE CONDUCTORS AND CONTRACTOR SHALL INSTALL AS PER PG&E REQUIREMENTS.

Brown AND Caldwell
WALNUT CREEK, CALIFORNIA

PRELIMINARY DESIGN

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North Coast County Water District
SINCE 1944

SHEILA TANK REPLACEMENT PROJECT

REVISIONS

REV	DATE	DESCRIPTION
		100% SUBMITTAL PACKAGE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: M. KAMEL
DRAWN: D. PATEL
CHECKED: J. JETTON
CHECKED: R. PHILIPSON
APPROVED: D. CARBONI

FILENAME
153918-E-03.DWG

BC PROJECT NUMBER
155221

CLIENT PROJECT NUMBER
- - - - -

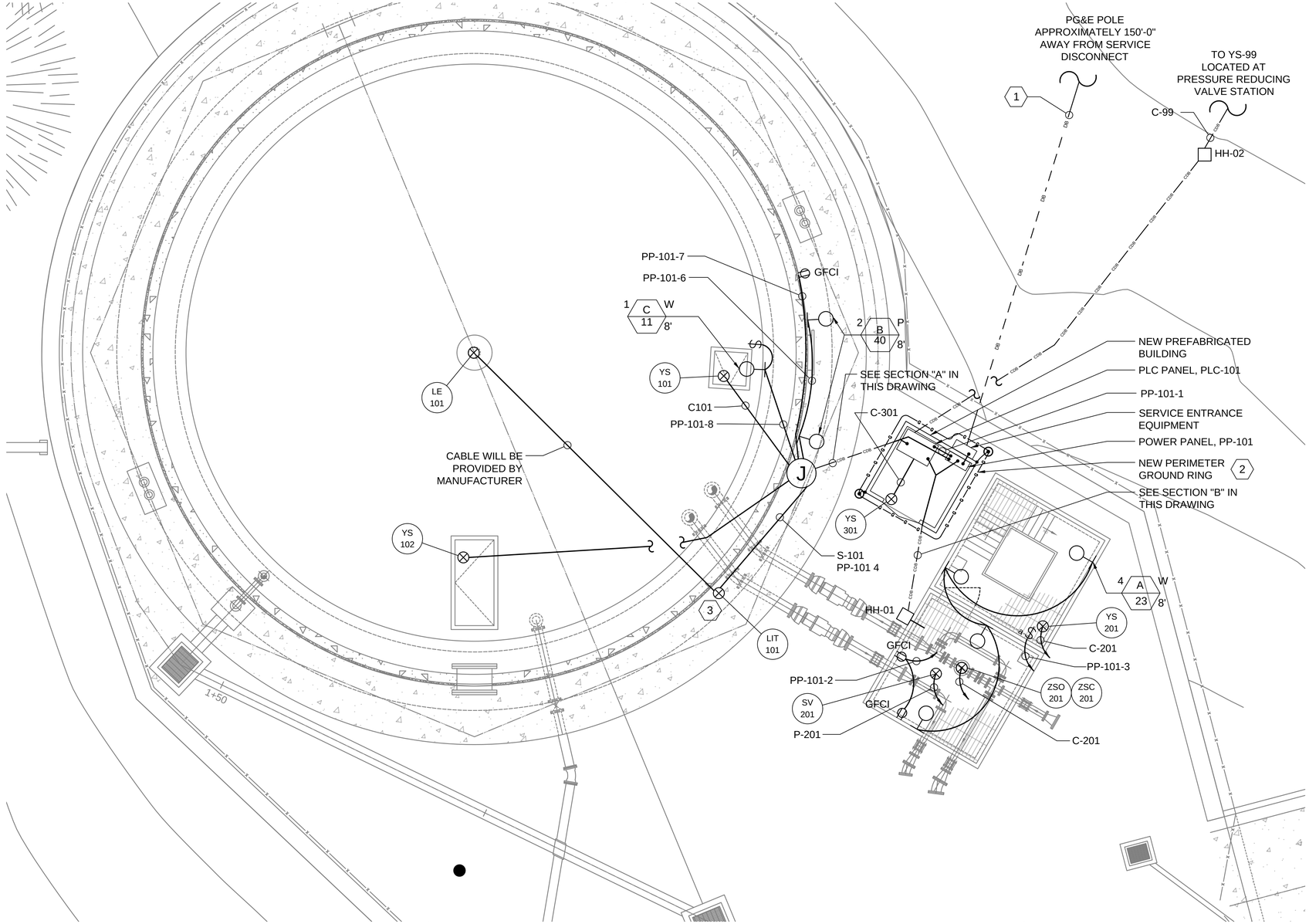
ELECTRICAL

POWER DISTRIBUTION SINGLE LINE DIAGRAM

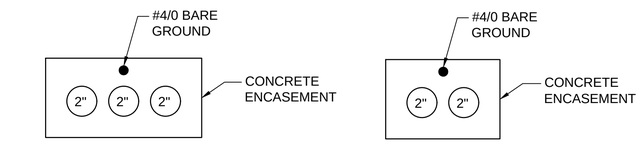
DRAWING NUMBER
E-03

SHEET NUMBER
36 OF 38

FILENAME: 153918-E-03.DWG PLOT DATE: 8/9/2021 3:24 PM CAD USER: TAIT LAMBERT



1 PARTIAL SITE PLAN
SCALE: 1"=5'-0"



P, C, S:
PRE-FAB BUILDING TO TANK JB

A SECTION
SCALE: N.T.S.

P, C:
PRE-FAB BUILDING TO HH-1

B SECTION
SCALE: N.T.S.

GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY LOCATION OF UNDERGROUND UTILITIES, PIPES, CONDUITS, ETC. PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL RUN POWER AND CONTROL CABLES ON THEIR RESPECTIVE JB, AS PER THEIR VOLTAGE LEVEL, ANALOG AND 120V RESPECTIVELY.

KEY NOTES:

1. CONTRACTOR SHALL SUPPLY AND INSTALL NEW UNDERGROUND CONDUIT FROM PG&E POLE TO SERVICE DISCONNECT. SECONDARY SERVICE CABLES WILL BE SUPPLIED BY PG&E AND SHALL BE INSTALLED BY CONTRACTOR. CONTRACTOR SHALL PROVIDE TRENCH AND BACKFILL. CONTRACTOR SHALL COORDINATE WITH PG&E FOR POLE LOCATION AND TAPPING POINT.
2. CONTRACTOR SHALL SUPPLY AND INSTALL #4/0 CU PERIMETER GROUNDING RING AROUND THE PRE-FEB BUILDING AND BOND TWO OPPOSITE CORNER FROM THE BUILDING SKID WITH #2/0 CU.
3. CONTRACTOR SHALL PROVIDE SUN SHIELD OVER LIT-101. COORDINATE WITH OWNER EXACT LOCATION. REFER TO DRAWING E-05 FOR DETAILS.

Brown AND Caldwell
WALNUT CREEK, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — MICHAEL BETH PHILIPSON — CIVIL — STATE OF CALIFORNIA

PRELIMINARY DESIGN

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REGISTERED PROFESSIONAL ENGINEER — ELECTRICAL — STATE OF CALIFORNIA

North Coast County Water District — SINCE 1944

SHEILA TANK REPLACEMENT PROJECT

REVISIONS

REV	DATE	DESCRIPTION
		100% SUBMITTAL PACKAGE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	M. KAMEL
DRAWN:	D. PATEL
CHECKED:	J. JETTON
CHECKED:	R. PHILIPSON
APPROVED:	D. CARBONI

FILENAME
153918-E-04.DWG

BC PROJECT NUMBER
155221

CLIENT PROJECT NUMBER
- - - - -

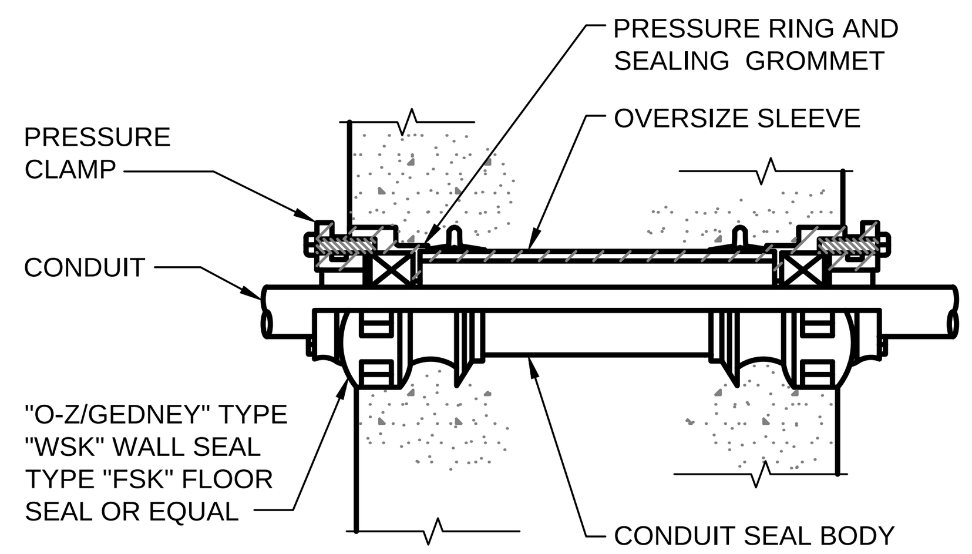
ELECTRICAL

SITE PLAN AND DUCT BANK DETAILS

DRAWING NUMBER
E-04

SHEET NUMBER
37 OF 38

FILENAME: 153918-E-04.DWG PLOT DATE: 8/9/2021 3:24 PM CAD USER: TAIT LAMBERT



SINGLE-ENDED SEALS FOR INSTALLATIONS THROUGH WALLS AS FOLLOWS.

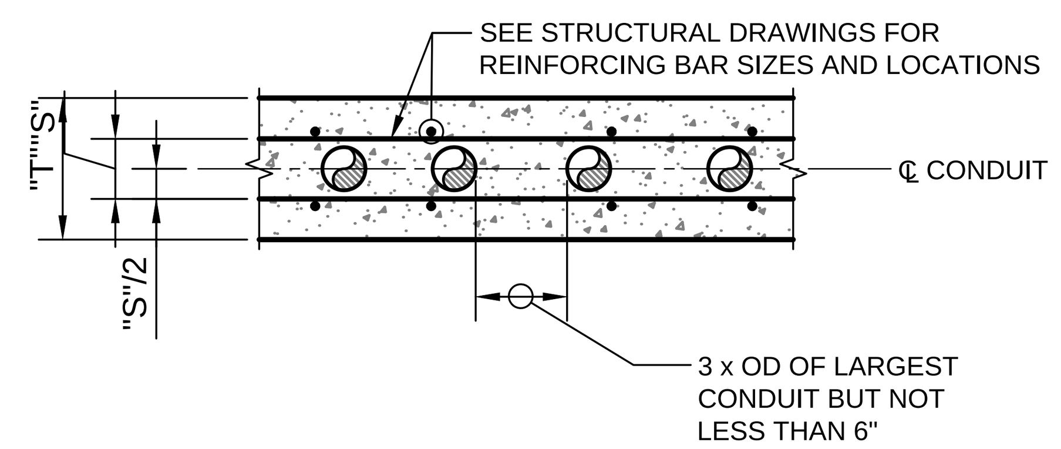
WALL THICKNESS	CONDUIT SIZE
LESS THAN 7-1/2"	ALL SIZES
7-1/2" TO 8-3/8"	1-1/2" OR LARGER
8-3/8" TO 8-3/4"	2-1/2" OR LARGER
8-3/4" TO 9-1/4"	3-1/2" OR LARGER
9-1/2" TO 10"	4-1/2" OR LARGER

DOUBLE-ENDED SEALS FOR PENETRATIONS THROUGH WALLS GREATER THAN 10" THICK OR PROVIDE OVERSIZED SLEEVE AND GROUT CONDUIT

CONDUIT SEAL THROUGH CONCRETE FLOOR AND WALL

DETAIL A / TYP

SCALE: NONE

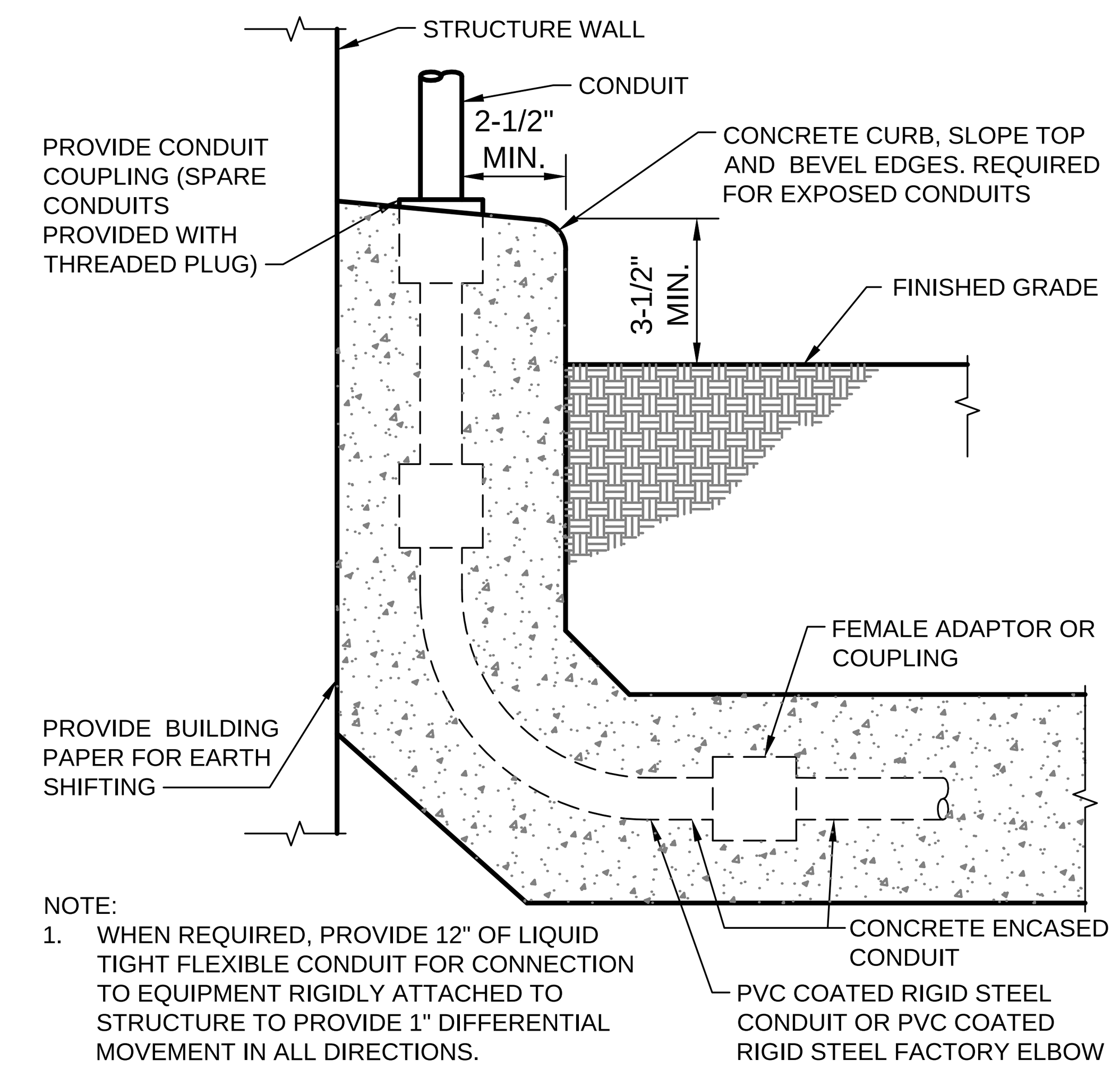


NOTES:
1. OD = OUTSIDE DIAMETER OF CONDUIT.
2. S = CLEAR SPACE BETWEEN REINFORCING.
3. MAXIMUM OD = T/4 OR S - 1/2".
4. PROVIDE CONDUITS PARALLEL TO BEAMS AND WALLS SUPPORTING THE SLAB AT 4 x T FROM THE FACE OF THE BEAMS OR WALLS
5. PROVIDE PVC OR PVC COATED GRS CONDUIT WHERE IN CONTACT WITH REINFORCING.

RACEWAYS IN ELEVATED CONCRETE SLAB OR WALL

DETAIL B / TYP

SCALE: NONE

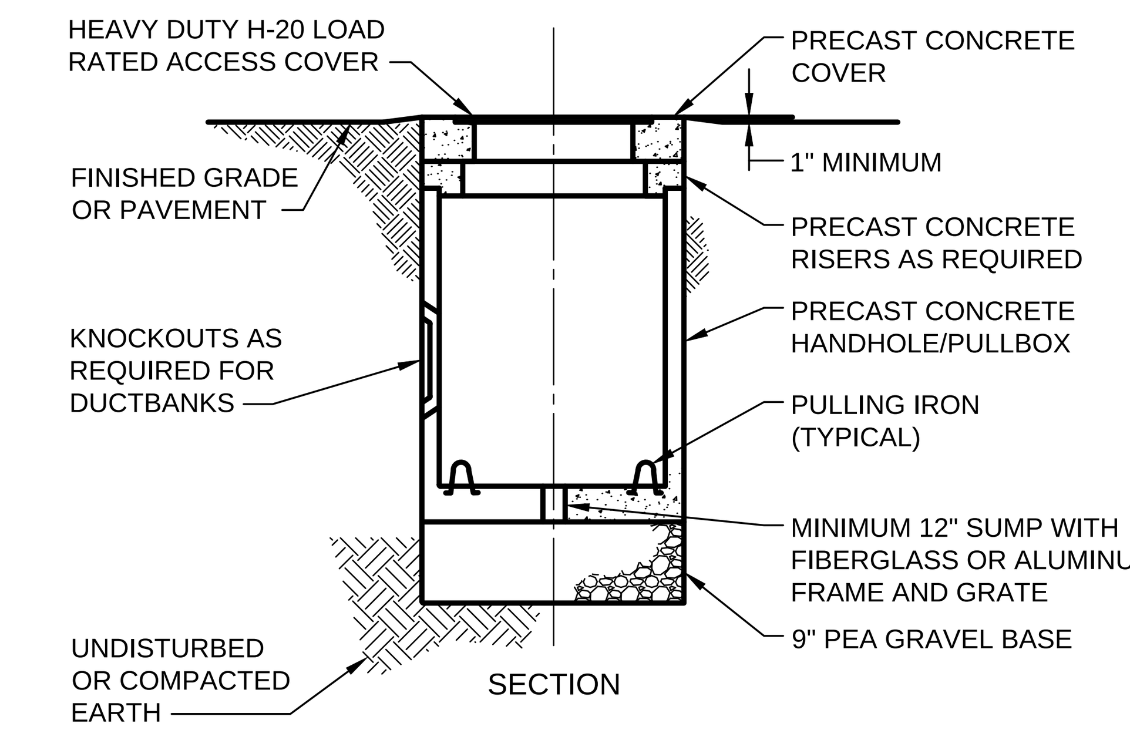


NOTE:
1. WHEN REQUIRED, PROVIDE 12" OF LIQUID TIGHT FLEXIBLE CONDUIT FOR CONNECTION TO EQUIPMENT RIGIDLY ATTACHED TO STRUCTURE TO PROVIDE 1" DIFFERENTIAL MOVEMENT IN ALL DIRECTIONS.

CONDUIT CURB AT FINISHED GRADE

DETAIL C / TYP

SCALE: NONE

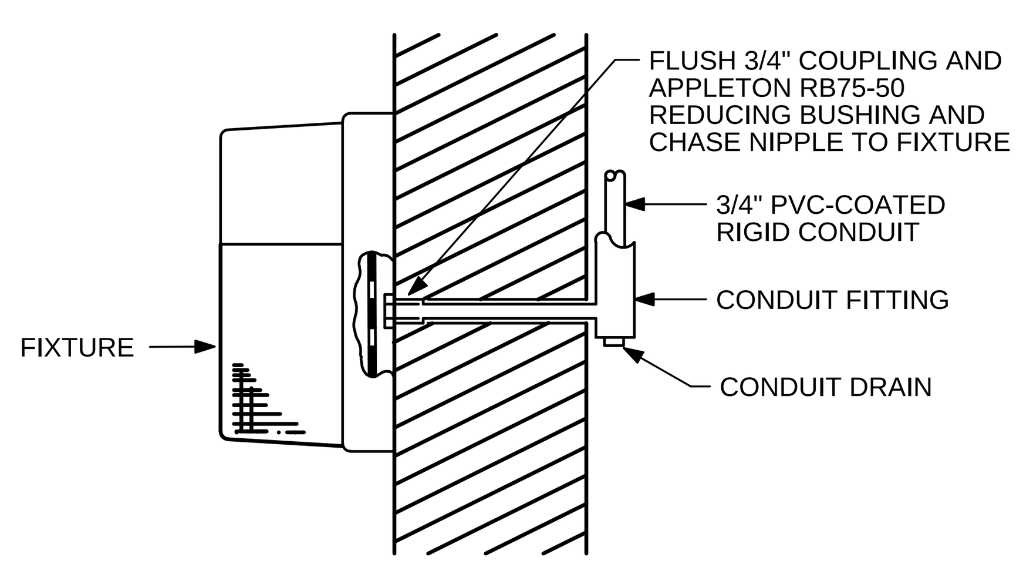


NOTES:
1. HANDHOLE/PULLBOX LOCATION PER DRAWINGS, SIZED BY CONTRACTOR.
2. MINIMUM INTERIOR DIMENSIONS: 3' x 3'.
3. MAXIMUM DEPTH: 3'.
4. BOND DUCTBANK GROUND CONDUCTORS TOGETHER.
5. INTERIOR SPACE: CLASSIFIED AS CORROSIVE AREA PER SPECIFICATION DIVISION 26.
6. HANDHOLES IN PAVED OR CONCRETED AREAS SHALL BE SET SO THAT THE FINISHED SURFACE DRAINS WATER AWAY FROM FRAME AND COVER. HANDHOLES IN GRASSED OR GRAVEL AREAS SHALL BE SET SO THAT THE FRAME AND COVER IS APPROXIMATELY 1" AFG. GRADING SHALL SLOPE AWAY FROM MANHOLE TOPS.

ELECTRICAL HANDHOLE/PULLBOX

DETAIL D / TYP

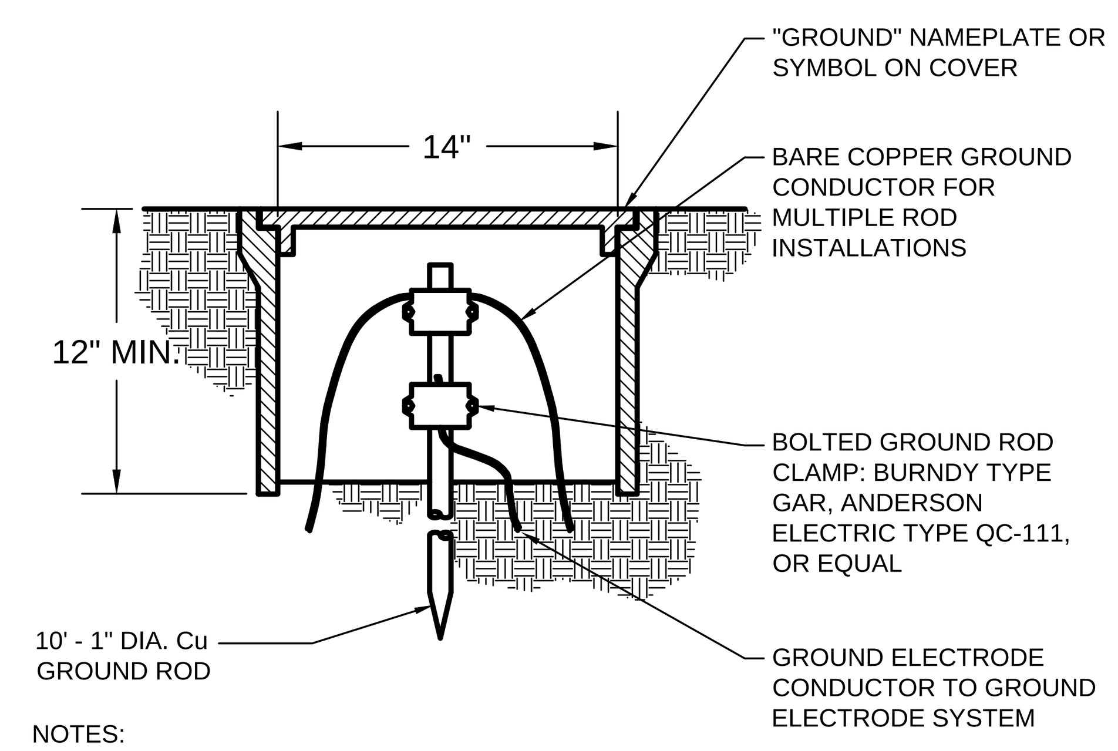
SCALE: NONE



EXTERIOR FIXTURE WALL MOUNTING

DETAIL E / TYP

SCALE: NONE

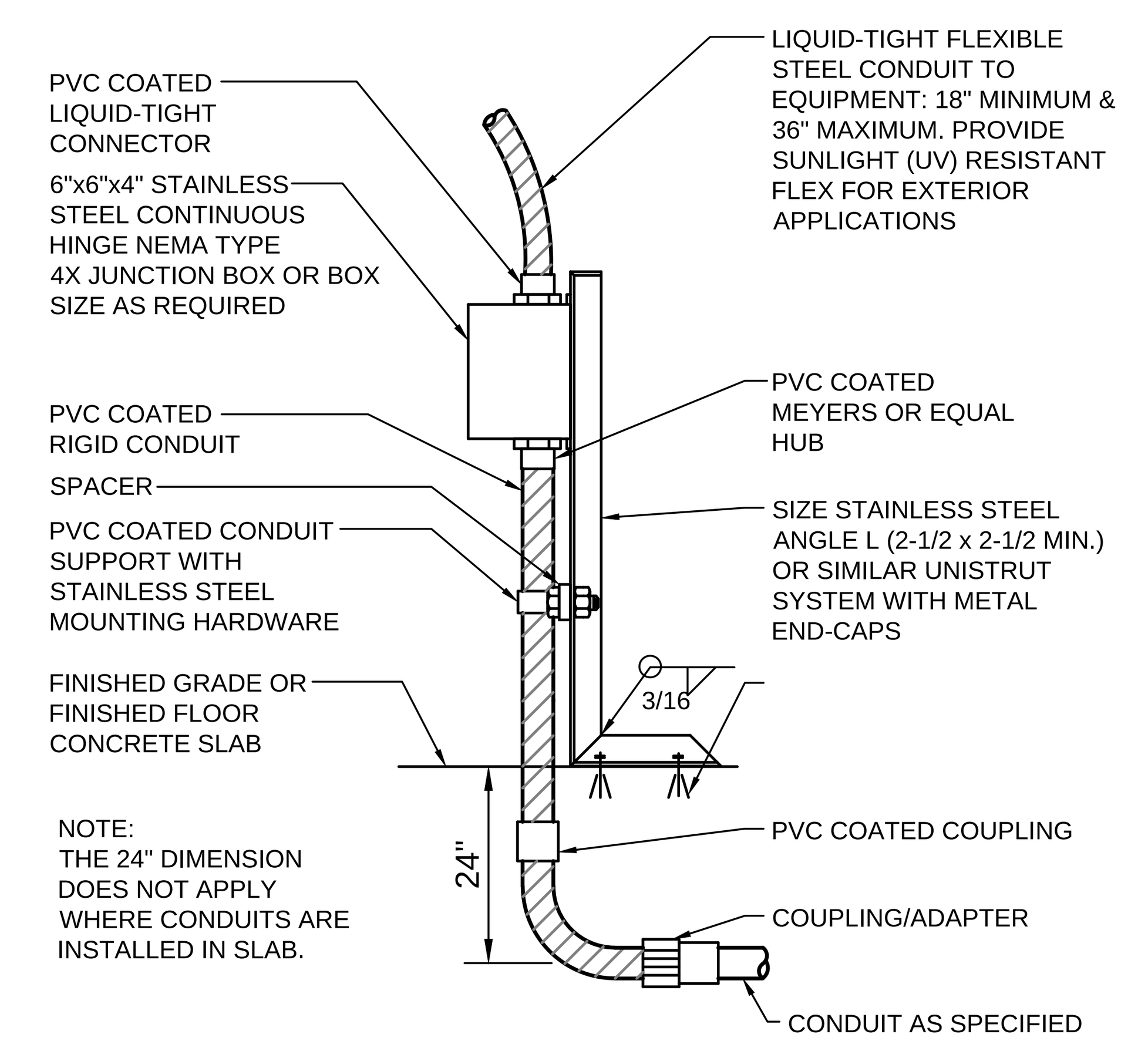


NOTES:
1. TEST WELL OF CONCRETE, PVC, OR FRP MATERIAL.
2. H-20 LOAD RATED COVER FOR TEST WELL IN TRAFFIC AREA.

GROUND ROD/TEST WELL

DETAIL F / TYP

SCALE: NONE

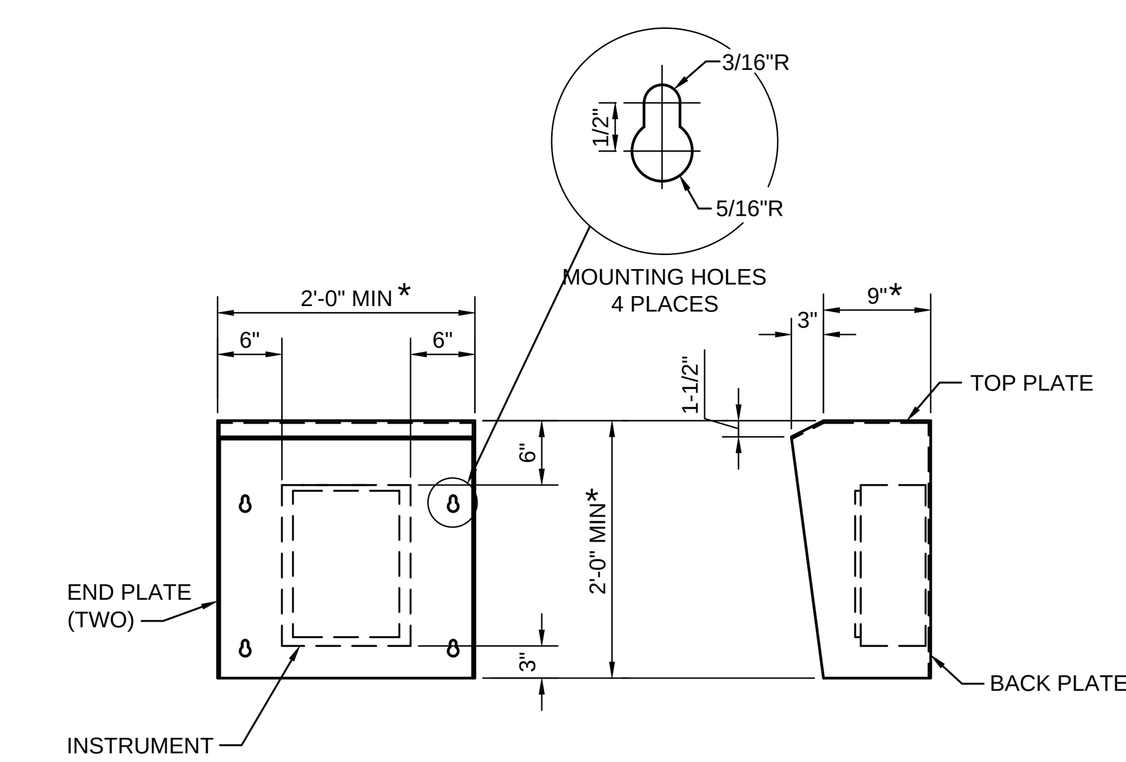


NOTE:
THE 24" DIMENSION DOES NOT APPLY WHERE CONDUITS ARE INSTALLED IN SLAB.

CONDUIT STUB-UP AND TRANSITION J-BOX SUPPORT

DETAIL G / TYP

SCALE: NONE

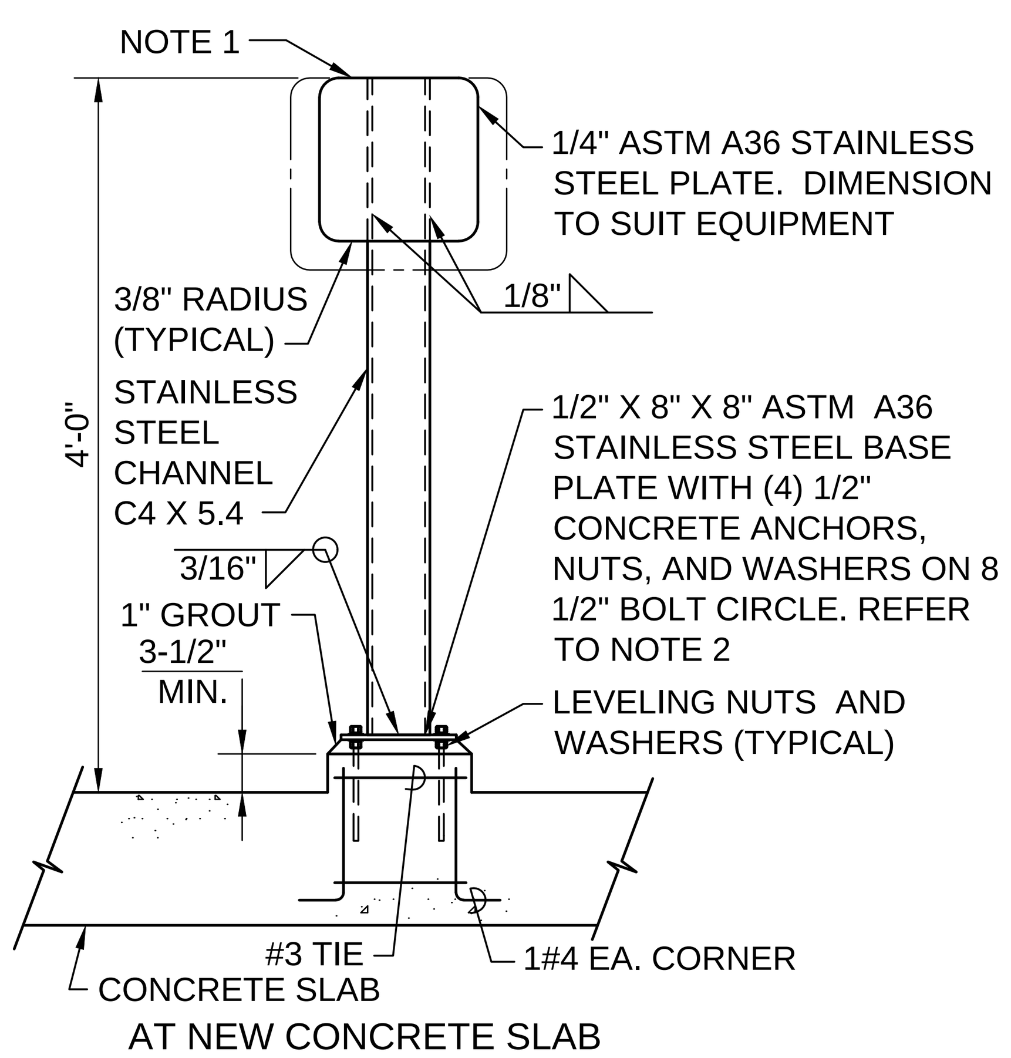


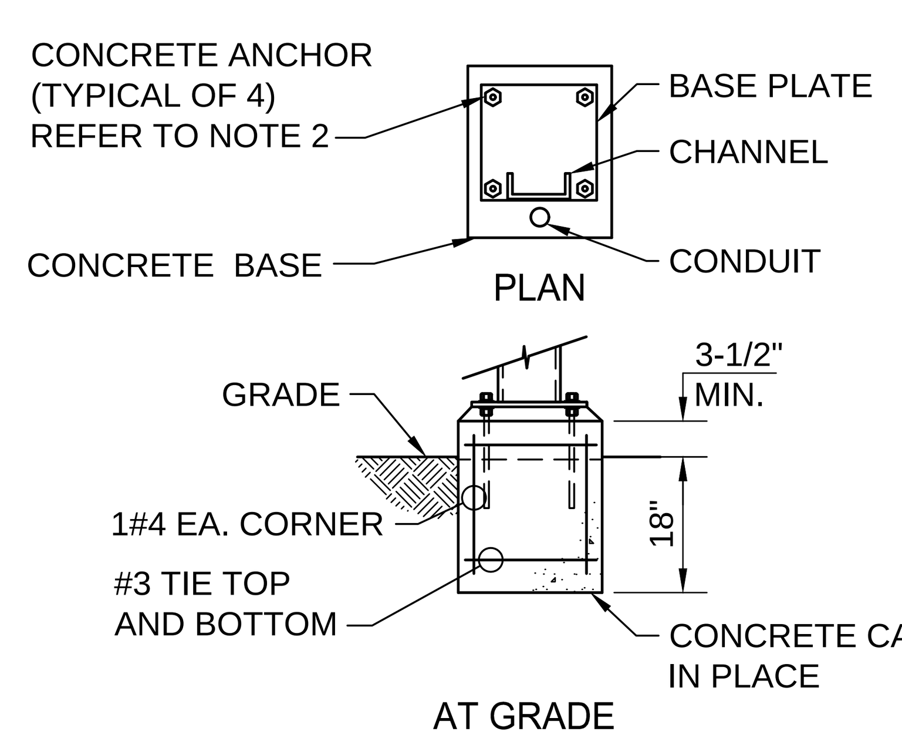
NOTES:
1. DIMENSIONS SHOWN ARE MINIMUM. ACCOMMODATE INSTRUMENT OR DEVICE SIZE.
2. PROVIDE 10 GAUGE ALUMINUM PLATE.
3. PROVIDE ALL WELDED CONSTRUCTION.
4. SEAL WELD ALL SEAMS.
5. GRIND EXPOSED EDGES SMOOTH.
6. MOUNT HOOD BETWEEN INSTRUMENT AND STAND.
7. PROVIDE STAINLESS STEEL BOLTS, INSULATING WASHERS, AND SLEEVES.

REMOTE INSTRUMENT MOUNT SUN/RAIN HOOD

DETAIL H / TYP

SCALE: NONE





NOTES:
1. MOUNTING STAND PLATE: 2'X2' MAXIMUM
   A. DRILL PLATE FOR NUMBER OF HOLES REQUIRED.
   B. REMOVE ALL SHARP EDGES.
   C. CLEAN AND HOT DIP GALVANIZE AFTER FABRICATION.
2. SEE TYPICAL CONCRETE ANCHOR OR THREADED ROD DETAIL FOR CONCRETE ANCHOR REQUIREMENTS.
3. PROVIDE 316 STAINLESS STEEL ANCHOR BOLTS AND HARDWARE

EQUIPMENT SUPPORTS INSTRUMENT/CONTROL STAND - SS

DETAIL J / TYP

SCALE: NONE

Brown AND Caldwell

WALNUT CREEK, CALIFORNIA

PRELIMINARY DESIGN

THIS DRAWING IS NOT VALID FOR CONSTRUCTION PURPOSES UNLESS IT BEARS THE SEAL AND SIGNATURE OF A DULY REGISTERED PROFESSIONAL

North Coast County WATER DISTRICT SINCE 1944

SHEILA TANK REPLACEMENT PROJECT

REVISIONS

REV	DATE	DESCRIPTION
		100% SUBMITTAL PACKAGE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: M. KAMEL
DRAWN: D. PATEL
CHECKED: J. JETTON
CHECKED: R. PHILIPSON
APPROVED: D. CARBONI

FILENAME 153918-E-05.DWG
BC PROJECT NUMBER 155221
CLIENT PROJECT NUMBER - - - - -

ELECTRICAL DETAILS

DRAWING NUMBER E-05

SHEET NUMBER 38 OF 38