

# HUMBOLDT BAY MUNICIPAL WATER DISTRICT

## KORBLEX RESERVOIRS SEISMIC RETROFIT PROJECT

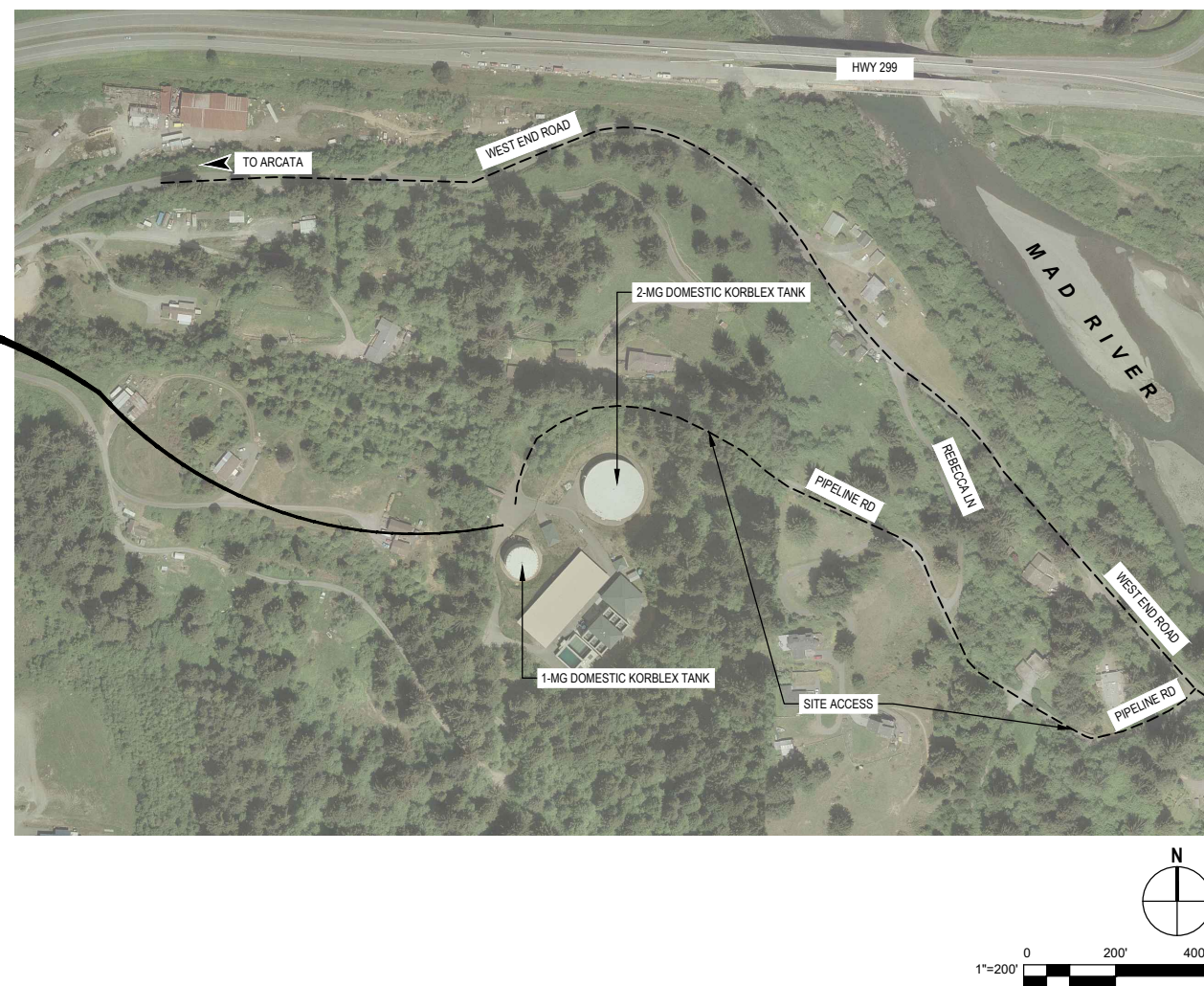
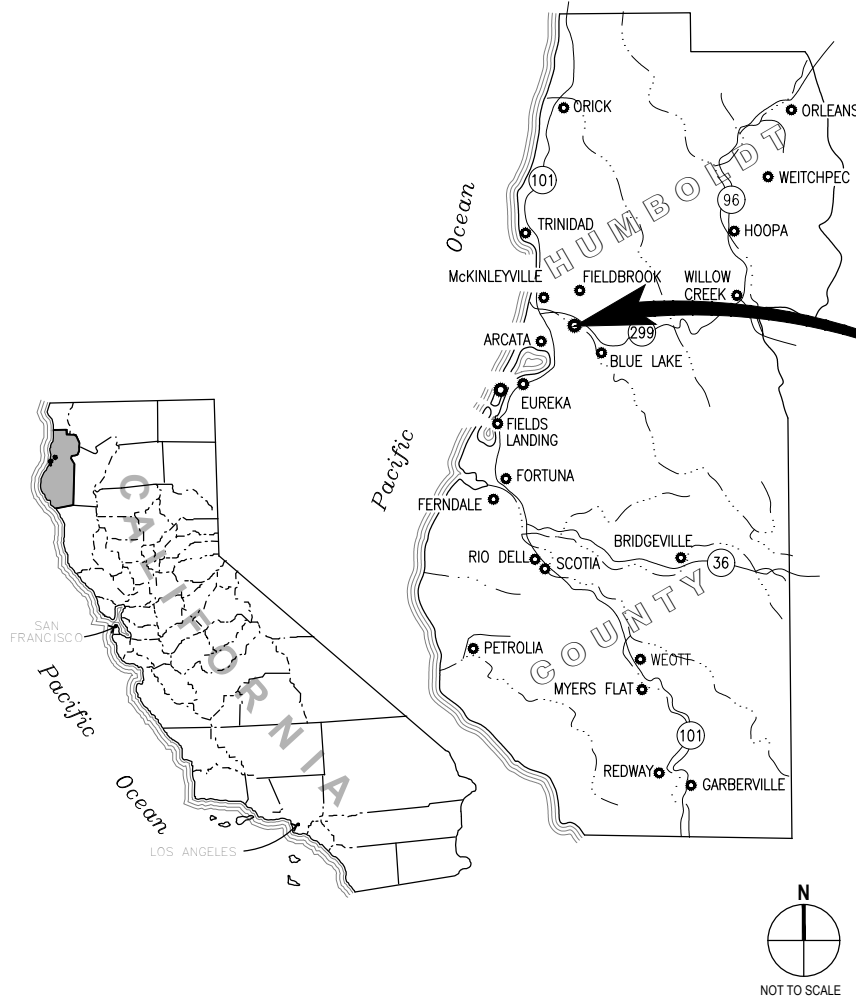
MAY 2024  
PREPARED BY:



### AREA MAP

### LOCATION MAP

### APPROVALS



#### HUMBOLDT BAY MUNICIPAL WATER DISTRICT:

JOHN FRIEDENBACH, GENERAL MANAGER

*John Friedenbach* 5-1-24  
SIGNED DATE

#### BOARD OF DIRECTORS:

NEAL LATT  
MICHELLE FULLER  
J. BRUCE RUPP  
DAVID LINDBERG  
SHERI WOO

PRESIDENT  
VICE PRESIDENT  
SECRETARY-TREASURER  
ASSISTANT SECRETARY-TREASURER  
DIRECTOR

**ENGINEER: GHD INC.**  
NATHAN STEVENS, PE

*Nathan Stevens* 5/1/2024  
SIGNED DATE

### SHEET INDEX

SHEET	SHEET NO.	TITLE
GENERAL		
1	G-001	COVER SHEET AND SHEET INDEX
2	G-002	GENERAL NOTES, SYMBOLS AND ABBREVIATIONS
CIVIL		
3	C-101	1-MG DOMESTIC TANK EXISTING CONDITIONS, DEMOLITION, & IMPROVEMENTS
4	C-102	2-MG DOMESTIC TANK EXISTING CONDITIONS, DEMOLITION, & IMPROVEMENTS
5	C-103	2-MG DOMESTIC ROOF REPLACEMENT & PAINTING PLAN
6	C-501	1-MG DOMESTIC TANK SHELL ELEVATION
7	C-502	2-MG DOMESTIC TANK SHELL ELEVATION
8	C-503	SEISMIC CIVIL DETAILS
9	C-504	TYPICAL CIVIL DETAILS
STRUCTURAL		
10	S-001	STRUCTURAL GENERAL NOTES
11	S-002	SPECIAL INSPECTIONS
12	S-101	1-MG DOMESTIC TANK FOUNDATION PLAN
13	S-102	2-MG DOMESTIC TANK SHELL REINFORCEMENT PLAN
14	S-103	2-MG DOMESTIC TANK ROOF PLAN
15	S-201	TANK SECTION
16	S-501	TYPICAL DETAILS - 1
17	S-502	TYPICAL DETAILS - 2
18	S-503	TYPICAL DETAILS - 3

0	ISSUE FOR BID	NS	NS	2024-05-01	
No.	Issue	Checked	Approved	Date	
Author	S. MCHANEY	Drafting Check	S. MCHANEY	Project Manager	N. STEVENS
Designer	M. DUIN	Design Check	S. MCHANEY	Project Director	K. TOBIN



Bar is one inch on original size sheet  
0 1"



**GHD** GHD Inc.  
718 Third Street  
Eureka California 95501 USA  
T 1 707 443 8326 F 1 707 444 8330



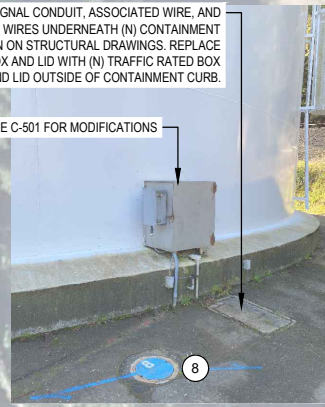
Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**  
Project **KORBLEX RESERVOIRS SEISMIC RETROFIT**  
Project No. **12627733** Date **2024-05-01** Scale **AS SHOWN**

Title **COVER SHEET AND SHEET INDEX**  
Size **ANSI D**  
Sheet No. **G-001** Sheet **1 of 18**



REROUTE (E) METER SIGNAL CONDUIT, ASSOCIATED WIRE, AND OTHER TELEMETRY WIRES UNDERNEATH (N) CONTAINMENT CURB SHOWN ON STRUCTURAL DRAWINGS. REPLACE CONCRETE PULL BOX AND LID WITH (N) TRAFFIC RATED BOX AND LID OUTSIDE OF CONTAINMENT CURB.

SEE C-501 FOR MODIFICATIONS



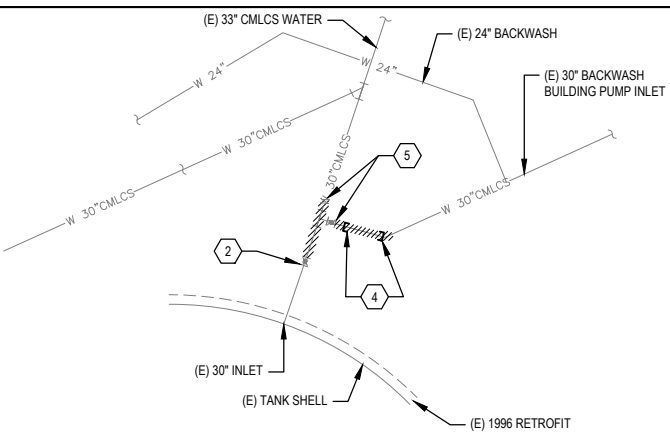
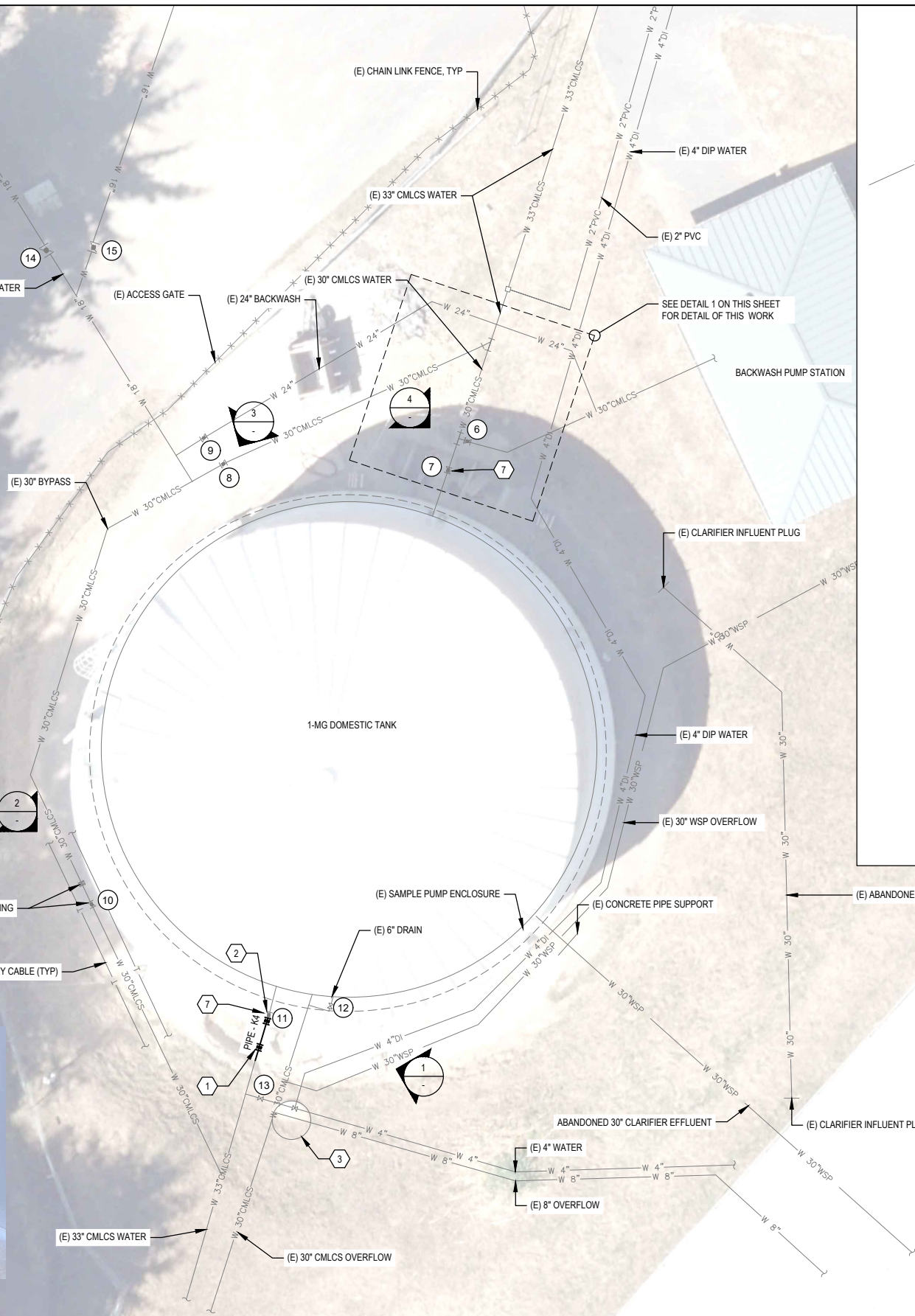
**3 EXISTING VALVE #8 AND ELECTRICAL BOX**



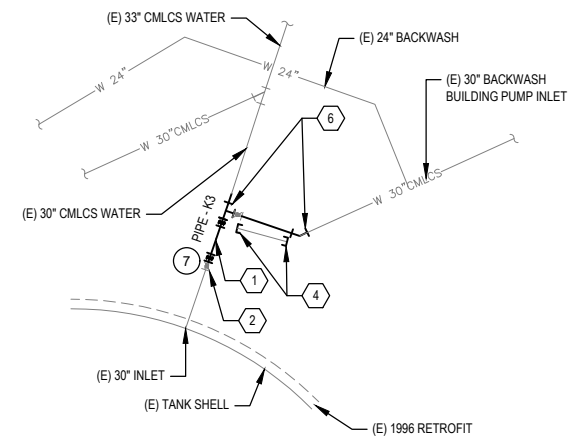
**2 EXISTING VALVE #10**



**1 EXISTING VAULT, VALVE 11, AND VALVE 12**



**EXISTING CONDITIONS AND DEMOLITION**



**PIPING MODIFICATIONS**

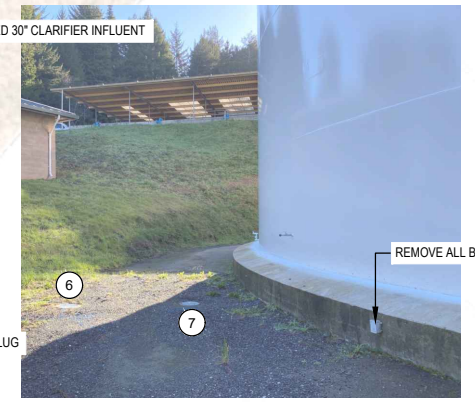
**1-MG DOMESTIC 30\"/>**

**SHEET GENERAL NOTES**

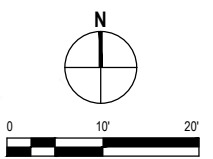
- CONTRACTOR TO VERIFY PIPE AND VALVE SIZES, TYPE, AND CONFIGURATION PRIOR TO ORDERING NEW MATERIALS AND PROVIDE ALL TRANSITION FITTINGS AS REQUIRED.
- REPAIR ALL PAVING DAMAGED DURING CONSTRUCTION SIMILAR TO DETAIL 1 ON SHEET C-504.
- CONTRACTOR SHALL PROVIDE SUBMITTALS/SHOP DRAWINGS PRIOR TO FABRICATION AND/OR ORDERING OF ENCLOSURES, EQUIPMENT, PARTS, ETC.

**SHEET KEYNOTES**

- DEMOLISH AND DISPOSE OF A PORTION OF (E) WATER LINE AND REPLACE WITH (N) BURIED RUBBER EXPANSION JOINT ASSEMBLY PER DETAIL 1 ON SHEET C-503.
- (E) BFV TO REMAIN.
- (E) VALVE VAULT.
- DEMOLISH AND DISPOSE OF (E) PIPE AND PLUG EACH END OF ABANDONED SECTION OF PIPE PER DETAIL 4 ON SHEET C-504.
- DEMOLISH AND DISPOSE OF (E) 30\"/>



**4 EXISTING VALVE #6 AND #7**



0 ISSUE FOR BID				NS	NS	2024-05-01
No.	Issue	Checked	Approved	Date		
Author	M. DUIN	Drafting Check	N. STEVENS	Project Manager	N. STEVENS	
Designer	M. DUIN	Design Check	S. MCHANEY	Project Director	K. TOBIN	



Bar is one inch on original size sheet  
0 1"



Conditions of Use  
This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of GHD. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.

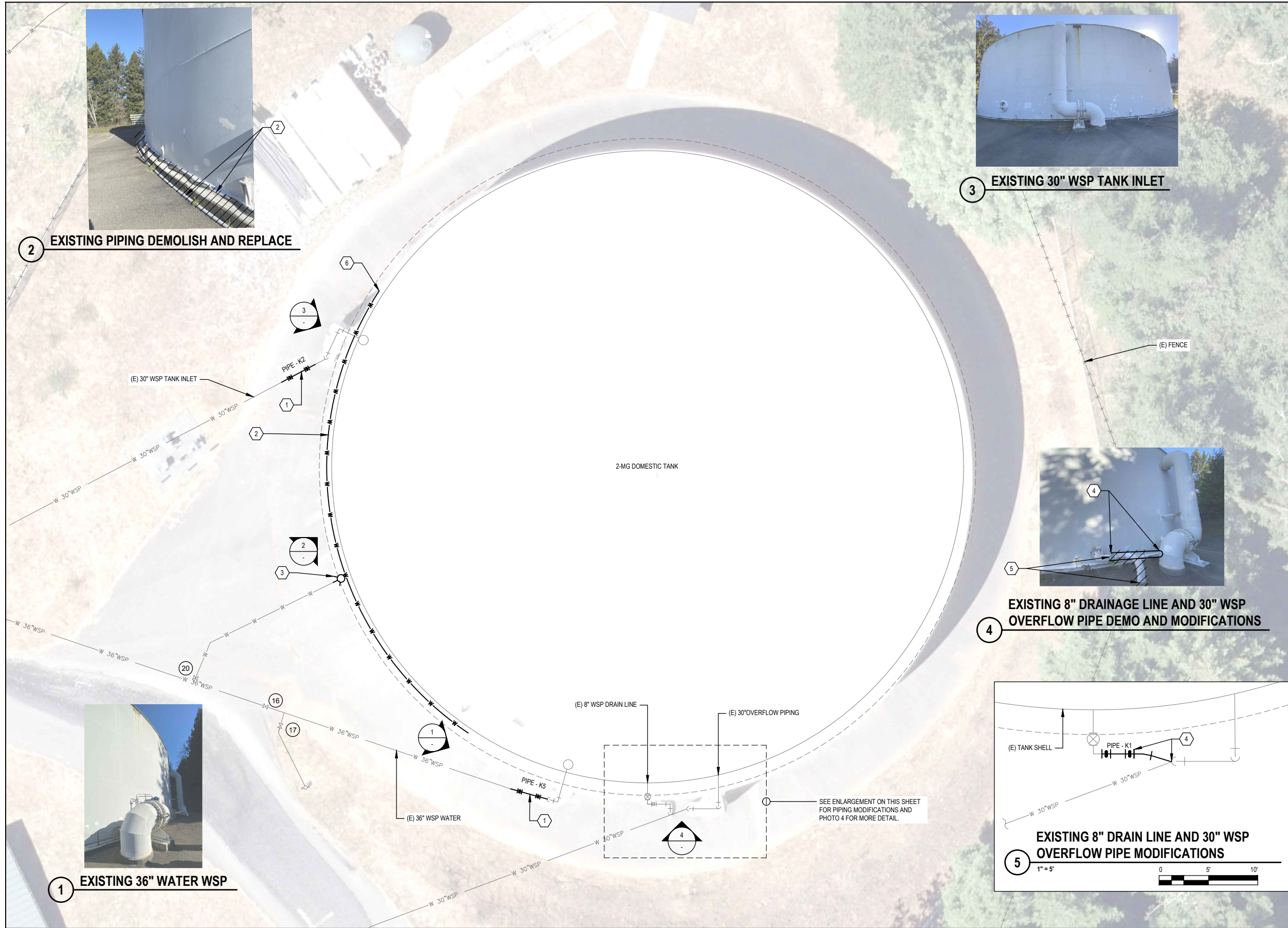


Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**  
Project **KORBLEX RESERVOIRS SEISMIC RETROFIT**

Title **1-MG DOMESTIC TANK EXISTING CONDITIONS, DEMOLITION, & IMPROVEMENTS**

Project No. **12627733** Date **2024-05-01** Scale **AS SHOWN**

Sheet No. **C-101** Sheet **3 of 18**

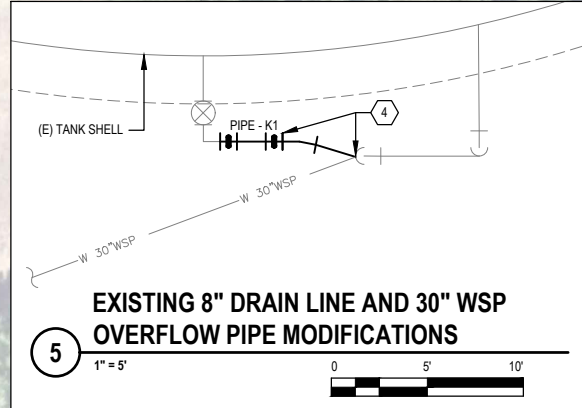
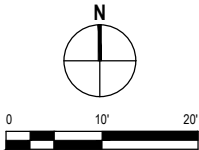


**SHEET GENERAL NOTES**

1. CONTRACTOR TO VERIFY PIPE AND VALVE SIZES, TYPE, AND CONFIGURATION PRIOR TO ORDERING NEW MATERIALS AND PROVIDE ALL TRANSITION FITTINGS AS REQUIRED.
2. REPAIR ALL PAVING DAMAGED DURING CONSTRUCTION SIMILAR TO DETAIL 1 ON SHEET C-504.
3. CONTRACTOR SHALL PROVIDE SUBMITTALS/SHOP DRAWINGS PRIOR TO FABRICATION AND/OR ORDERING OF ENCLOSURES, EQUIPMENT, PARTS, ETC.

**SHEET KEYNOTES**

1. DEMOLISH AND DISPOSE OF A PORTION OF (E) WATER LINE AND REPLACE WITH (N) BURIED RUBBER EXPANSION JOINT ASSEMBLY PER DETAIL 1 ON SHEET C-503.
2. DEMOLISH AND DISPOSE OF (E) SAMPLE LINE AND (E) POWER CONDUIT TO VALVES, AND REPLACE UNDERGROUND. CONTRACTOR TO PROVIDE AND INSTALL ALL (N) PIPING, CONDUIT, FITTINGS, WIRE, SPLICES, AND ALL OTHER MATERIALS REQUIRED TO REPLACE IN KIND.
3. RELOCATE 1 1/2" WHARF HYDRANT OUTSIDE OF (N) STRUCTURAL MODIFICATIONS. COORDINATE (N) LOCATION WITH OWNER.
4. TAP INTO (E) 30" OVERFLOW PIPE AND WELD (N) 8" STEEL PIPE SECTION AND INSTALL ABOVE GROUND RUBBER EXPANSION JOINT ASSEMBLY PER DETAIL 1 ON SHEET C-503. CONTRACTOR TO PROVIDE CONNECTION FITTINGS AS REQUIRED, ALL JOINTS TO BE RESTRAINED.
5. DEMOLISH AND DISPOSE OF (E) PIPING AND EXPANSION JOINT FROM FLANGE TO BURIED 30" PIPE. VERIFY (E) FITTING AT 30" PIPE. VERIFY BLIND FLANGE/CAP/PLUG REQUIRED. PREP INSTALLATION SURFACE AS REQUIRED, AND INSTALL (N) BLIND FLANGE/CAP/PLUG WITH GASKETS AND OTHER MATERIALS AS REQUIRED FOR A COMPLETE SEAL.
6. EXTEND (E) FEATURE WITH COATED STEEL PIPE OUTSIDE OF STRUCTURAL MODIFICATIONS.



**2 EXISTING PIPING DEMOLISH AND REPLACE**

**3 EXISTING 30" WSP TANK INLET**

**4 EXISTING 8" DRAINAGE LINE AND 30" WSP OVERFLOW PIPE DEMO AND MODIFICATIONS**

**5 EXISTING 8" DRAIN LINE AND 30" WSP OVERFLOW PIPE MODIFICATIONS**

**1 EXISTING 36" WATER WSP**

0 ISSUE FOR BID				NS	NS	2024-05-01
No.	Issue	Checked	Approved	Date		
Author	M. DUIN	Drafting Check	N. STEVENS	Project Manager	N. STEVENS	
Designer	M. DUIN	Design Check	S. MCHANEY	Project Director	K. TOBIN	



Bar is one inch on original size sheet  
0 1"

**GHD**  
GHD Inc.  
718 Third Street  
Eureka California 95501 USA  
T 1 707 443 8326 F 1 707 444 8330  
www.ghd.com

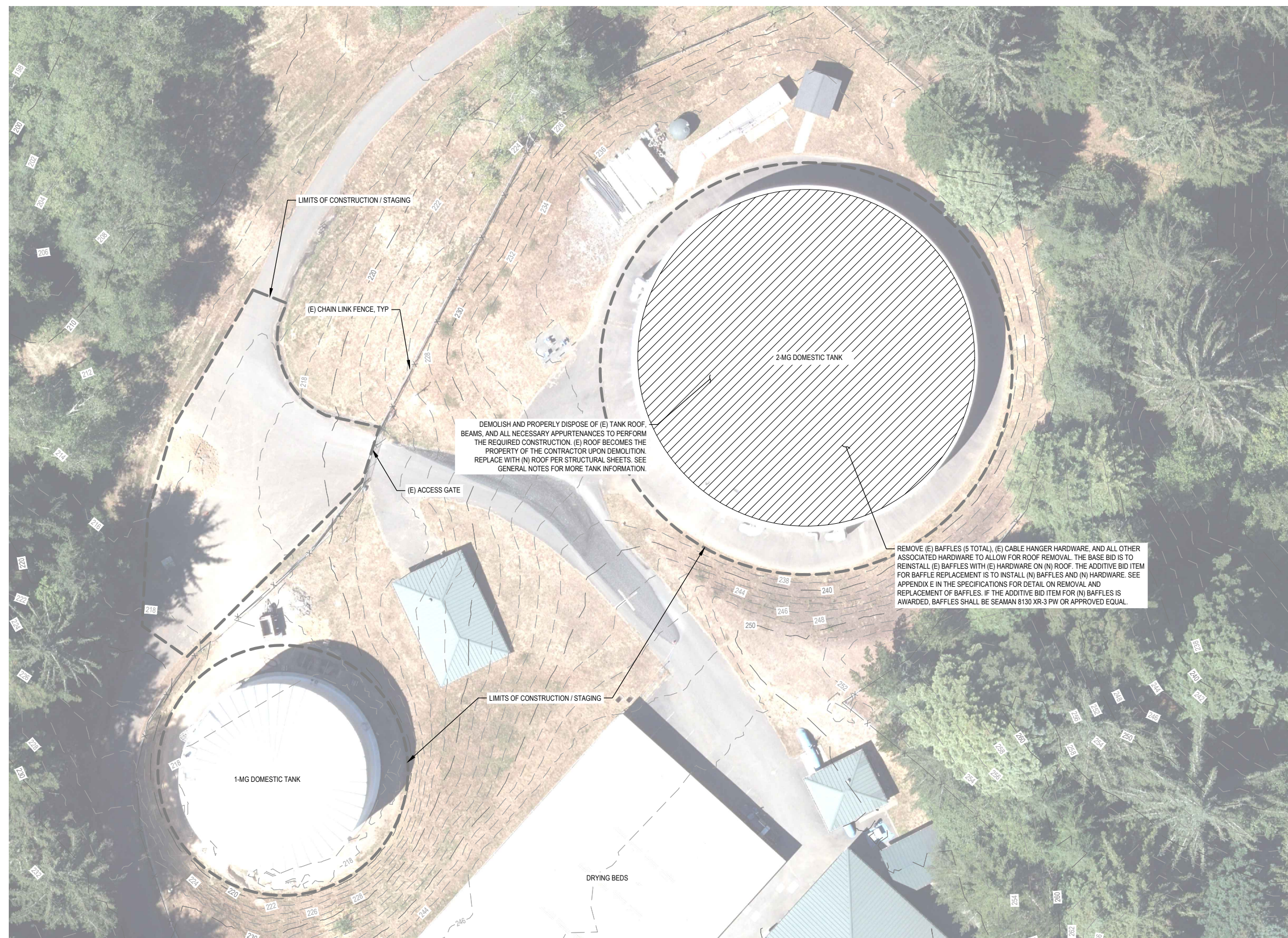


Client	<b>HUMBOLDT BAY MUNICIPAL WATER DISTRICT</b>		
Project	<b>KORBLEX RESERVOIRS SEISMIC RETROFIT</b>		
Project No.	Date	Scale	
12627733	2024-05-01	AS SHOWN	

Title	<b>2-MG DOMESTIC TANK EXISTING CONDITIONS, DEMOLITION, &amp; IMPROVEMENTS</b>		
Sheet No.	Size		
C-102	ANSI D	4 of 18	

**SHEET GENERAL NOTES**

1. CONTOURS SHOWN ON THIS DRAWING ARE NOT THE PRODUCT OF SURVEY AND ARE APPROXIMATE.
2. THE INTERIOR AND EXTERIOR OF THE (E) 2-MG TANK AND NEW ROOF SHALL BE PREPPED AND PAINTED PER SPECIFICATION SECTION 09 91 00 - TANK PREPARATION AND COATING.
3. WHERE ITEMS ARE TO BE REMOVED FROM THE OUTSIDE OF THE TANK, THE CONTRACTOR SHALL GRIND DOWN AND PAINT OVER ALL (E) BOLT PENETRATIONS, BRACKETS, ETC. IT SHALL BE ASSUMED THAT THESE AND ANY OTHER LOCATIONS REQUIRING PAINTING SHALL BE PREPPED AND PAINTED PER SPECIFICATION SECTION 09 91 00.
4. ALL NEW METAL COMPONENTS SHALL BE PREPPED AND COATED IN ACCORDANCE WITH SPECIFICATION SECTION 09 91 00.
5. CONTRACTOR SHALL COORDINATE WITH OWNER FOR TRANSFER OF UTILITY CONNECTIONS INSIDE ENCLOSURES THAT ARE TO BE REPLACED.
6. CONTRACTOR MAY REMOVE FENCING AS NEEDED FOR THE PERFORMANCE OF THE WORK, BUT IS RESPONSIBLE FOR THE REPLACEMENT OF THE FENCE TO RETURN IT TO EXISTING CONDITION, AND FOR THE PLACEMENT OF TEMPORARY FENCING DURING THE PERFORMANCE OF THE WORK TO PREVENT PUBLIC ACCESS TO THE SITE.
7. THE CONTRACTOR SHALL REMOVE THE CATHODIC PROTECTION ANODES PRIOR TO THE PERFORMANCE OF THE WORK AND SHALL REPLACE THEM UPON COMPLETION.
8. THE OWNER SHALL DRAIN THE TANK PRIOR TO THE PERFORMANCE OF THE WORK.
9. CONTRACTOR WILL PERFORM ALL ELECTRICAL WORK REQUIRED FOR REPLACEMENT OF ELECTRICAL COMPONENTS.
10. CONTRACTOR SHALL PROVIDE SUBMITTAL/SHOP DRAWINGS PRIOR TO FABRICATION AND/OR ORDERING OF ENCLOSURES, EQUIPMENT, PARTS, ETC.



0 ISSUE FOR BID				NS	NS	2024-05-01
No.	Issue	Checked	Approved	Date		
Author	M. DUIN	Drafting Check	N. STEVENS	Project Manager	N. STEVENS	
Designer	M. DUIN	Design Check	S. MCHANEY	Project Director	K. TOBIN	



Bar is one inch on original size sheet  
0 1"



**GHD**  
GHD Inc.  
718 Third Street  
Eureka California 95501 USA  
T 1 707 443 8326 F 1 707 444 8330

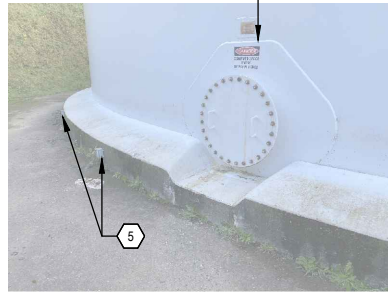
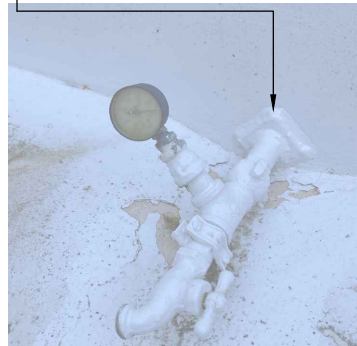
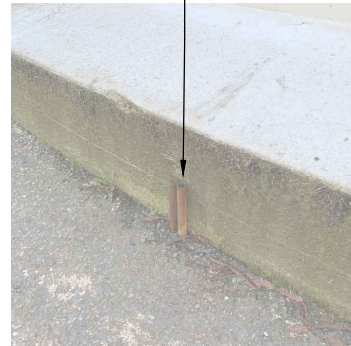
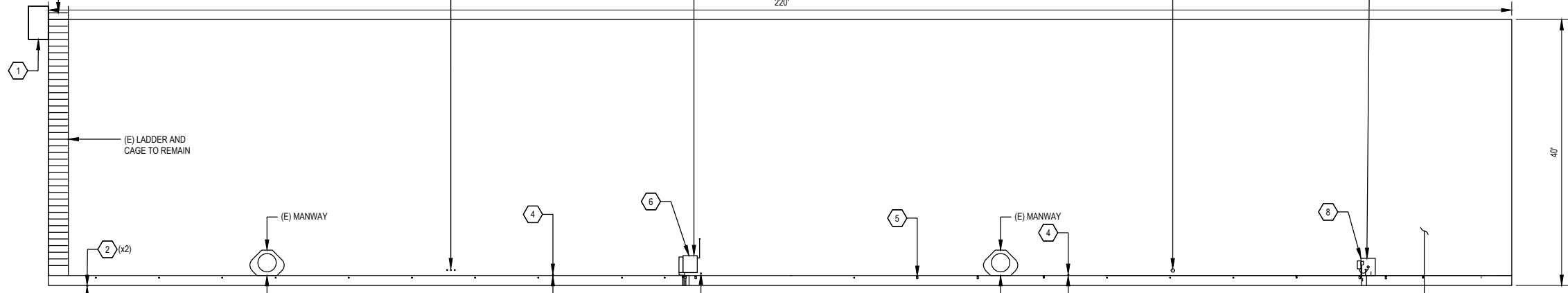
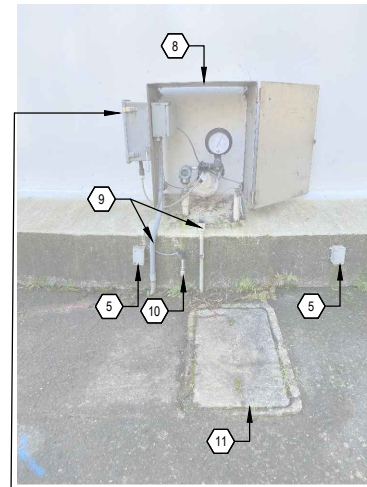
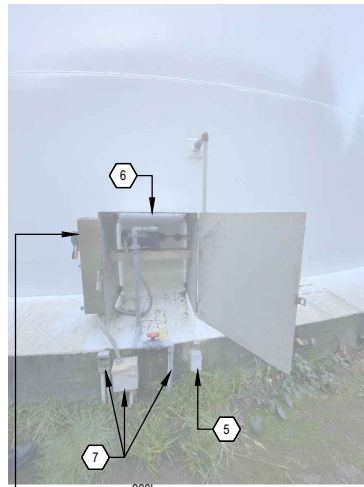
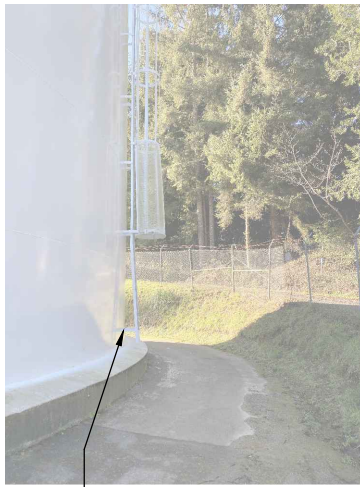


Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**  
Project **KORBLEX RESERVOIRS SEISMIC RETROFIT**

Title **2-MG DOMESTIC ROOF REPLACEMENT & PAINTING PLAN**

Project No. **12627733** Date **2024-05-01** Scale **AS SHOWN**

Sheet No. **C-103** Sheet **5 of 18**



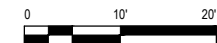
SEE STRUCTURAL SHEETS FOR STRUCTURAL MODIFICATIONS

**SHEET GENERAL NOTES**

1. WHERE ITEMS ARE TO BE REMOVED FROM THE OUTSIDE OF THE TANK, THE CONTRACTOR SHALL GRIND DOWN AND PAINT OVER ALL (E) BOLT PENETRATIONS, BRACKETS, ETC. AND WELD 1/4" STEEL PLATES OVER OPENINGS. IT SHALL BE ASSUMED THAT THESE AND ANY OTHER LOCATIONS REQUIRING PAINTING SHALL BE PREPPED AND PAINTED PER SPECIFICATION SECTION 09 91 00.
2. ALL NEW METAL COMPONENTS SHALL BE PREPPED AND COATED IN ACCORDANCE WITH SPECIFICATION SECTION 09 91 00.
3. CONTRACTOR SHALL PROVIDE SUBMITTAL/SHOP DRAWINGS PRIOR TO FABRICATION AND/OR ORDERING OF ENCLOSURES, EQUIPMENT, PARTS, ETC.
4. FOR ALL HATCHES, COVERS AND FITTINGS REMOVED DURING PROJECT, REPLACE GASKETS AND BOLTS, NUTS, AND WASHERS.
5. ALL HARDWARE TO BE HOT DIPPED GALVANIZED UNLESS NOTED OTHERWISE.
6. WELD STEEL PLATES TO THE INTERIOR AND EXTERIOR OF THE TANK WHERE STEEL PLATES ARE REQUIRED USING 3/8" FILLET WELD ALL AROUND.

**SHEET KEYNOTES**

1. (N) MANWAY PLATFORM ASSEMBLY TO ATTACH TO (E) LADDER AND TANK, CST STORAGE OR EQUAL. SEE STRUCTURAL DRAWINGS FOR MORE INFORMATION.
2. DEMOLISH (E) CONDUIT
3. NOT USED
4. CUT (E) FEATURE FLUSH AT TANK FACE AND WELD PLATE. SEE SHEET GENERAL NOTES 1 AND 6.
5. REMOVE (E) BOX WHERE PRESENT, TYP.
6. DEMOLISH (E) ENCLOSURE AND MOUNTING EQUIPMENT AS REQUIRED FOR STRUCTURAL MODIFICATIONS. REMOVE (E) BOX AND PROVIDE TO DISTRICT. REPLACE ENCLOSURE AND MODIFY PIPING, CONDUIT, AND CONDUCTORS AS REQUIRED. SEE DETAIL 2 ON SHEET C-503.
7. REROUTE PIPING AND WIRING AS NEEDED TO ACCOMMODATE FOR STRUCTURAL MODIFICATIONS.
8. RELOCATE (E) ENCLOSURE TO ACCOMMODATE STRUCTURAL MODIFICATIONS AND MODIFY PIPING, CONDUITS, AND CONDUCTORS AS REQUIRED.
9. REROUTE CONDUIT IF NECESSARY TO ACCOMMODATE STRUCTURAL MODIFICATIONS.
10. EXTEND (E) PRESSURE TRANSDUCER WITH COATED STEEL PIPING AND RELOCATE IF NECESSARY TO ACCOMMODATE STRUCTURAL MODIFICATIONS.
11. REROUTE (E) METER SIGNAL CONDUIT, ASSOCIATED WIRE, AND OTHER TELEMETRY WIRES UNDERNEATH (N) CONTAINMENT CURB SHOWN ON STRUCTURAL DRAWINGS. REPLACE CONCRETE PULL BOX AND LID WITH (N) TRAFFIC RATED BOX AND LID OUTSIDE OF CONTAINMENT CURB.



0 ISSUE FOR BID				NS	NS	2024-05-01
No.	Issue	Checked	Approved	Date		
Author	M. DUIN	Drafting Check	N. STEVENS	Project Manager	N. STEVENS	
Designer	M. DUIN	Design Check	S. MCHANEY	Project Director	K. TOBIN	



Bar is one inch on original size sheet  
0 1"



**GHD**  
GHD Inc.  
718 Third Street  
Eureka California 95501 USA  
T 1 707 443 8326 F 1 707 444 8330

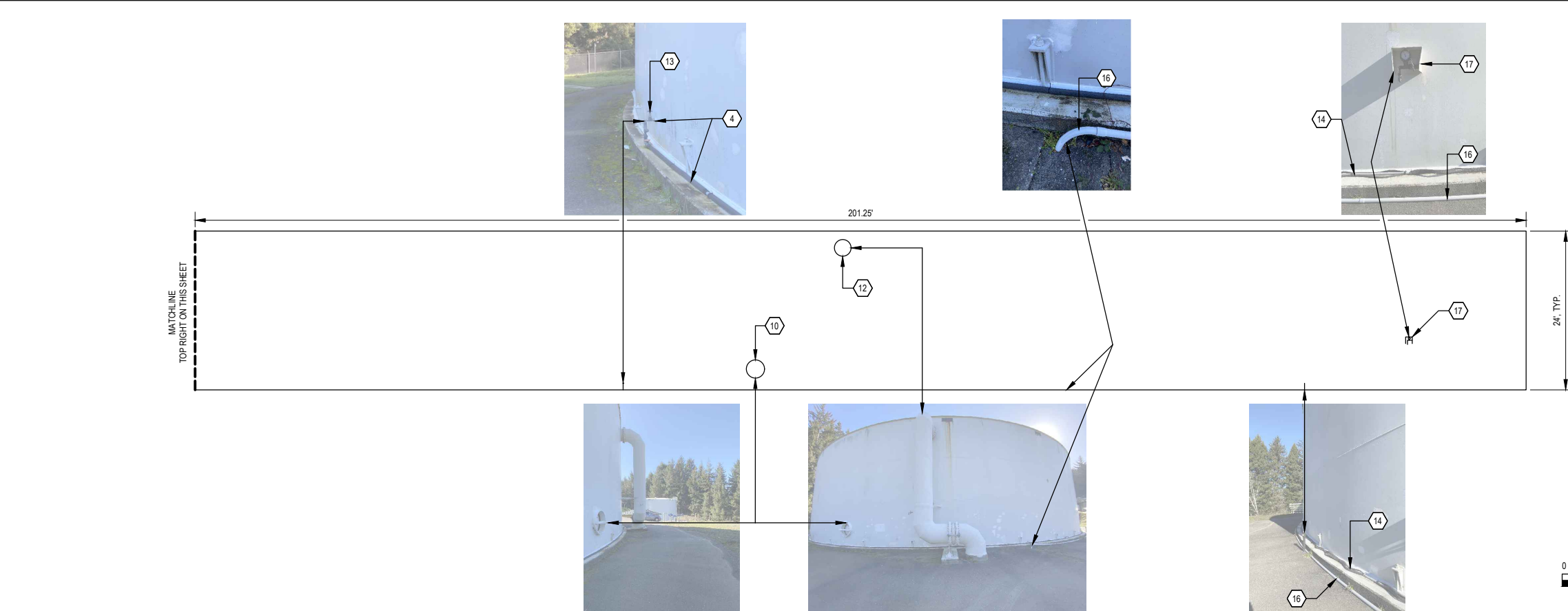
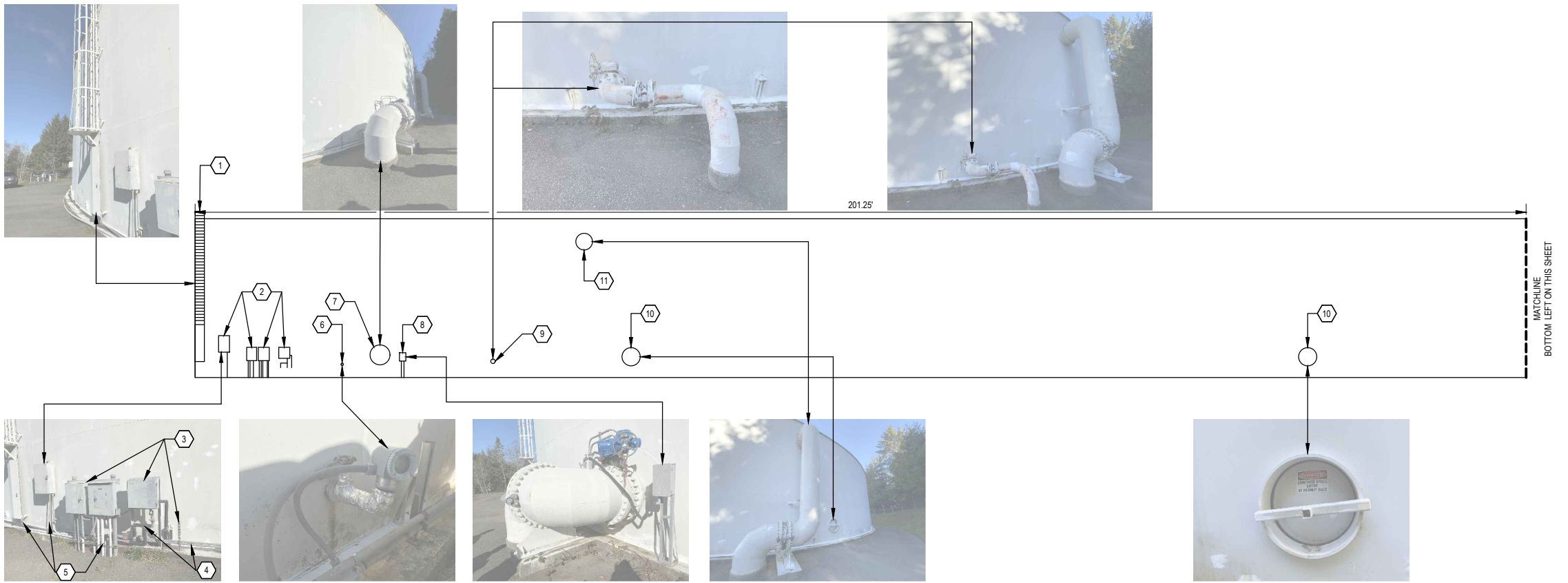


Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**  
Project **KORBLEX RESERVOIRS SEISMIC RETROFIT**

Title **1-MG DOMESTIC TANK SHELL ELEVATION**

Project No. **12627733** Date **2024-05-01** Scale **AS SHOWN**

Sheet No. **C-501** Sheet **6 of 18**



- ### SHEET GENERAL NOTES
- WHERE ITEMS ARE TO BE REMOVED FROM THE OUTSIDE OF THE TANK, THE CONTRACTOR SHALL GRIND DOWN AND PAINT OVER ALL (E) BOLT PENETRATIONS, BRACKETS, ETC. AND WELD 1/4" STEEL PLATES OVER OPENINGS. IT SHALL BE ASSUMED THAT THESE AND ANY OTHER LOCATIONS REQUIRING PAINTING SHALL BE PREPPED AND PAINTED PER SPECIFICATION SECTION 09 91 00.
  - ALL NEW METAL COMPONENTS SHALL BE PREPPED AND COATED IN ACCORDANCE WITH SPECIFICATION SECTION 09 91 00.
  - CONTRACTOR SHALL PROVIDE SUBMITTAL/SHOP DRAWINGS PRIOR TO FABRICATION AND/OR ORDERING OF ENCLOSURES, EQUIPMENT, PARTS, ETC.
  - FOR ALL HATCHES, COVERS AND FITTINGS REMOVED DURING PROJECT, REPLACE GASKETS AND BOLTS, NUTS, AND WASHERS.
  - ALL HARDWARE TO BE HOT DIPPED GALVANIZED UNLESS NOTED OTHERWISE.
  - WELD STEEL PLATES TO THE INTERIOR AND EXTERIOR OF THE TANK WHERE STEEL PLATES ARE REQUIRED USING 3/8" FILLET WELD ALL AROUND.

- ### SHEET KEYNOTES
- DEMOLISH (E) LADDER AND CAGE ASSEMBLY TO ACCOMMODATE FOR STRUCTURAL MODIFICATIONS AND REPLACE IN KIND WITH (N) LADDER AND APPURTENANCES, SIMILAR TO DETAIL 6 ON SHEET S-501.
  - RELOCATE AND MOUNT ENCLOSURES TO FACE OF STRUCTURAL MODIFICATIONS.
  - REMOVE AND DISPOSE OF SUPPORTS THAT ARE NOT REQUIRED AFTER RELOCATING EQUIPMENT.
  - REPLACE ALL PIPING, VALVES, AND FITTINGS AND REROUTE UNDERGROUND AS NEEDED TO ACCOMMODATE STRUCTURAL MODIFICATIONS.
  - REPLACE AND REROUTE CONDUITS AND CONDUCTORS UNDERGROUND TO RELOCATED PANELS AS REQUIRED. PROVIDE EXTENSIONS AND PULL BOXES AS NEEDED.
  - REMOVE AND EXTEND PRESSURE TRANSDUCER WITH COATED STEEL PIPE AS NEEDED TO ACCOMMODATE STRUCTURAL MODIFICATIONS.
  - (E) 36" WSP
  - RELOCATE SAMPLE STATION OUTSIDE OF STRUCTURAL MODIFICATIONS.
  - (E) 8" DRAIN OUTLET
  - (E) MANWAY
  - (E) 30" WSP OVERFLOW OUTLET
  - (E) 30" WSP INLET
  - EXTEND (E) FEATURE WITH COATED STEEL PIPE OUTSIDE OF STRUCTURAL MODIFICATIONS.
  - DEMOLISH (E) SAMPLE LINE PIPING, AND REPLACE UNDERGROUND MIN 36" OUTSIDE OF STRUCTURAL MODIFICATIONS. CONTRACTOR TO PROVIDE AND INSTALL (N) SCH 80 PIPING, FITTINGS, AND ALL OTHER MATERIALS REQUIRED TO REPLACE IN KIND.
  - NOT USED.
  - DEMOLISH (E) POWER CONDUIT TO VALVES, AND REPLACE UNDERGROUND. CONTRACTOR TO PROVIDE AND INSTALL ALL (N) CONDUIT, FITTINGS, WIRE, SPLICES, AND ALL OTHER MATERIALS REQUIRED TO REPLACE IN KIND.
  - CUT (E) SHIELD AND EXTEND PRESSURE GAUGE WITH COATED STEEL PIPING OUTSIDE STRUCTURAL MODIFICATIONS. REPLACE IN KIND INCLUDING SHIELD.

0 ISSUE FOR BID				NS	NS	2024-05-01
No.	Issue	Checked	Approved	Date		
Author	M. DUIN	Drafting Check	N. STEVENS	Project Manager	N. STEVENS	
Designer	M. DUIN	Design Check	S. MCHANEY	Project Director	K. TOBIN	



Bar is one inch on original size sheet  
0 1"



**GHD**  
GHD Inc.  
718 Third Street  
Eureka California 95501 USA  
T 1 707 443 8326 F 1 707 444 8330



Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**  
Project **KORBLEX RESERVOIRS SEISMIC RETROFIT**

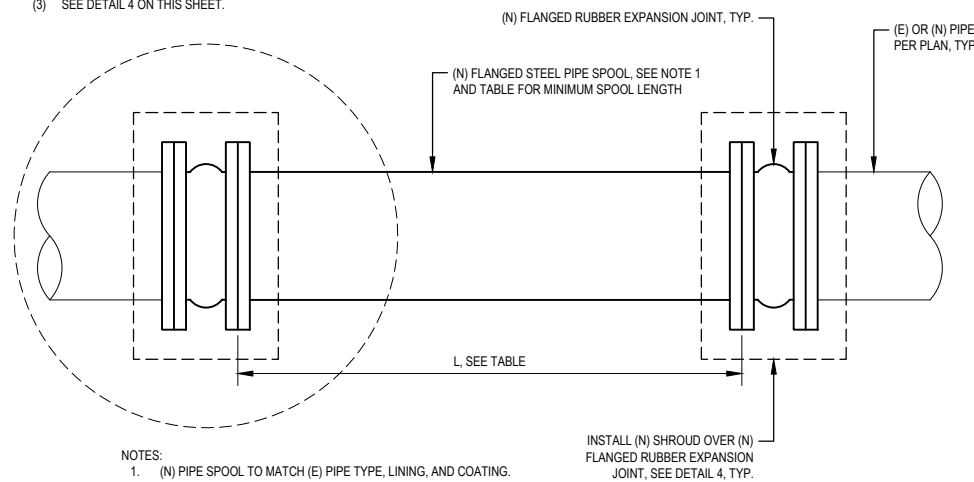
Title **2-MG DOMESTIC TANK SHELL ELEVATION**

Project No. **12627733** Date **2024-05-01** Scale **AS SHOWN**

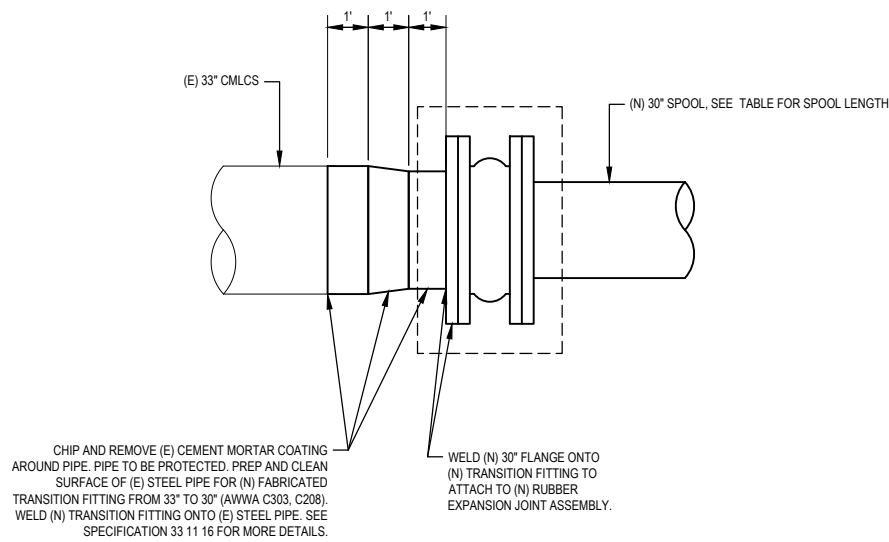
Sheet No. **C-502** Sheet **7 of 18**

EXPANSION JOINT ASSEMBLY FOR UP TO 3" OF SETTLEMENT							
PIPE DESIGNATION	EXISTING PIPE DIAMETER <sup>1</sup>	EXISTING PIPE MATERIAL <sup>1</sup>	NEW FLEX COUPLING DIAMETER	FLANGES NEEDED ON EXISTING PIPE	TRANSITION FITTING REQUIRED <sup>2</sup>	SHROUD REQUIRED <sup>3</sup>	MINIMUM SPOOL LENGTH (L <sub>min</sub> )
K1	8"	STEEL	8"	YES	NO	NO	18"
K2	30"	WSP	30"	YES	NO	YES	36"
K3	30"	CMLCS	30"	YES	NO	YES	36"
K4	33"	CMLCS	36"	YES	YES	YES	36"
K5	36"	WSP	36"	YES	NO	YES	36"

- (1) CONTRACTOR TO FIELD VERIFY EXISTING SIZES, MATERIALS, AND TRANSITION REQUIREMENTS PRIOR TO ORDERING MATERIALS.  
(2) SEE DETAIL B ON THIS SHEET.  
(3) SEE DETAIL 4 ON THIS SHEET.

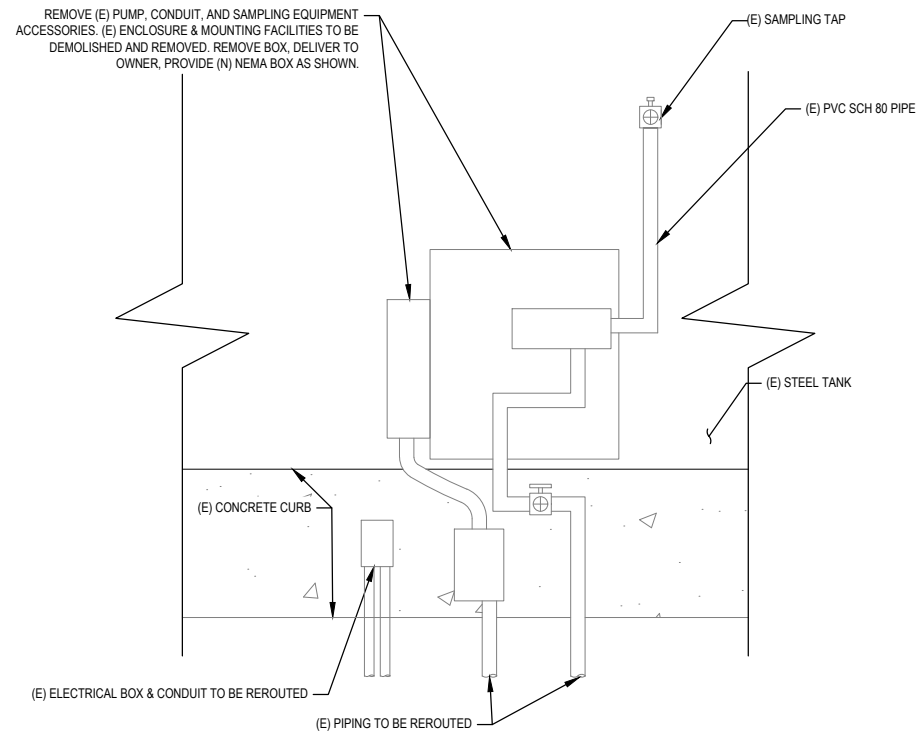


**A RUBBER EXPANSION JOINT AND TABLE DETAIL**

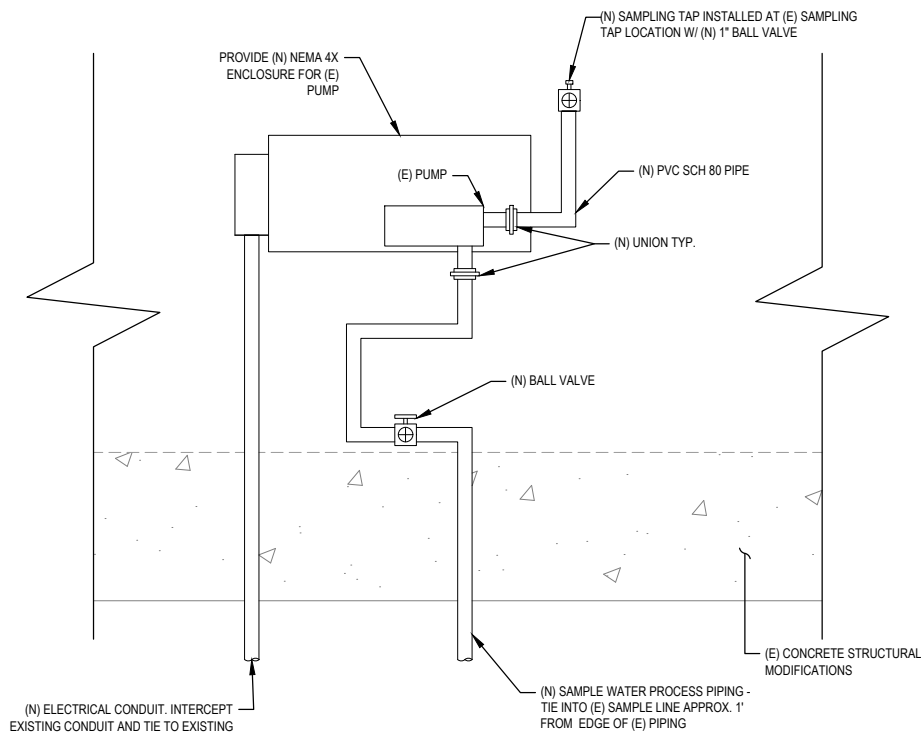


**B TRANSITION FITTING DETAIL**

**1 RUBBER EXPANSION JOINT ASSEMBLY DETAIL**  
SCALE: NTS



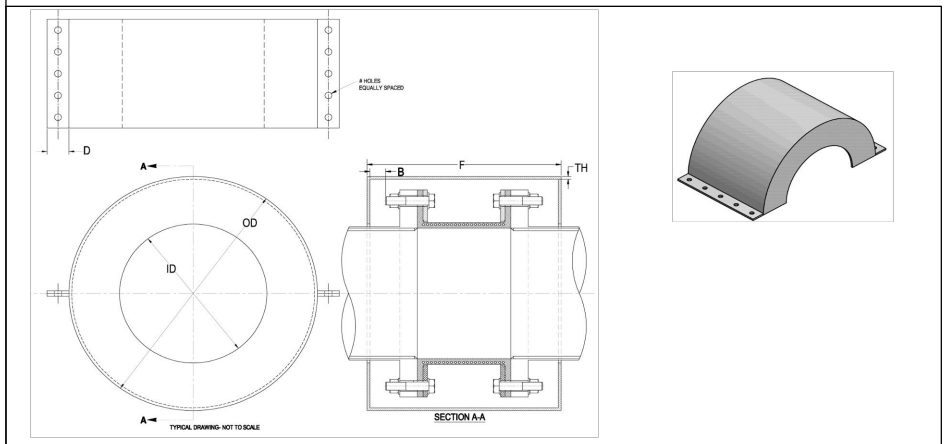
**EXISTING CONDITIONS**



**MODIFICATIONS**

**2 RESERVOIR SAMPLE PUMP MODIFICATIONS**  
SCALE: NTS

**3 NOT USED**  
C-503



- NOTES:  
1. SHROUD SHALL BE DESIGNED, FABRICATED AND INSTALLED PER THE FLEXIBLE COUPLER MANUFACTURER INSTRUCTIONS.  
2. SHROUD SHALL BE COATED PER MANUFACTURER RECOMMENDATIONS. ALL HARDWARE TO BE PER MANUFACTURER RECOMMENDATIONS.

**4 BURIED FLEXIBLE COUPLER SHROUD REFERENCE DETAIL**  
SCALE: NTS

No.	Issue	Checked	Approved	Date	
0	ISSUE FOR BID	NS	NS	2024-05-01	
Author	S. MCHANEY	Drafting Check	S. MCHANEY	Project Manager	N. STEVENS
Designer	M. DUIN	Design Check	S. MCHANEY	Project Director	K. TOBIN



Bar is one inch on original size sheet  
0 1"



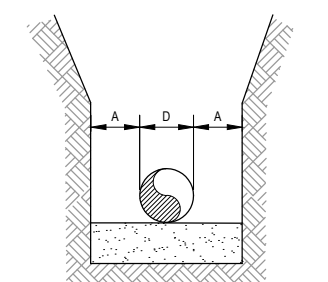
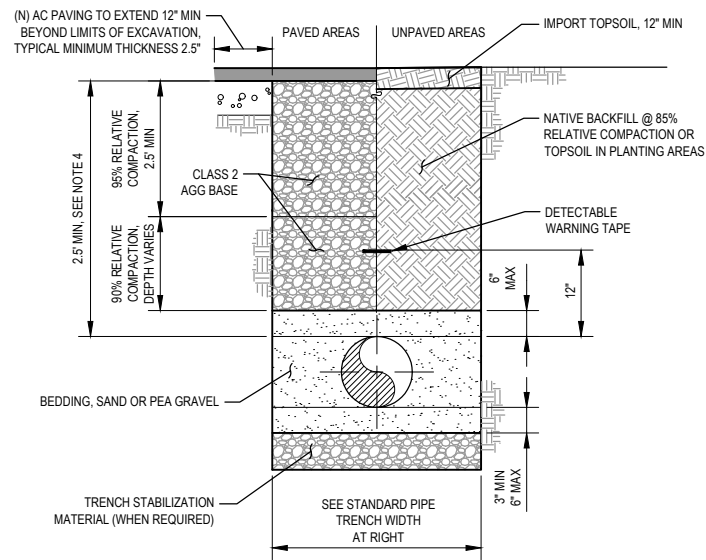
**GHD**  
GHD Inc.  
718 Third Street  
Eureka California 95501 USA  
T 1 707 443 8326 F 1 707 444 8330



Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**  
Project **KORBLEX RESERVOIRS SEISMIC RETROFIT**  
Project No. **12627733**  
Date **2024-05-01**  
Scale **AS SHOWN**

Title **SEISMIC CIVIL DETAILS**  
Sheet No. **C-503**  
Sheet **8 of 18**

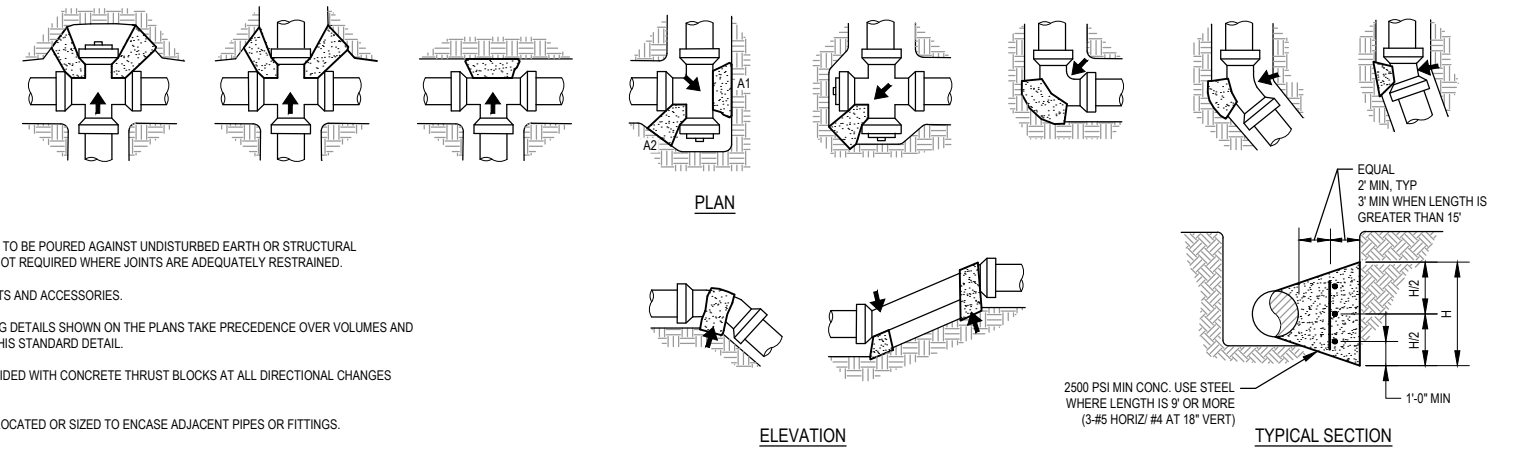




PIPE DIA "D"	MINIMUM "A"	MAXIMUM "A"
< 4"	3"	6"
4" TO 6"	6"	12"
6" TO 15"	8"	14"
16" TO 21"	10"	16"
24" TO 30"	12"	18"
33" TO 42"	15"	21"
48" & LARGER	18"	24"

- NOTES:**
- WIDER TRENCHES MAY REQUIRE HIGHER STRENGTH PIPE AND/OR SPECIAL BEDDING.
  - DIFFERING TRENCH WIDTHS REQUIRE PRIOR APPROVAL OF ENGINEER.
  - IN MAKING EXCAVATIONS FOR THIS PROJECT, THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR PROVIDING & INSTALLING ADEQUATE SHEETING, SHORING & BRACING AS MAY BE NECESSARY AS A PRECAUTION AGAINST SLIDES OR CAVE-INS, AND TO PROTECT ALL (E) IMPROVEMENTS OF ANY KIND, EITHER ON PUBLIC OR PRIVATE PROPERTY, FULLY FROM DAMAGE.
  - 2-SACK SLURRY BACKFILL MAY BE USED IN TRENCH WHEN MINIMUM PIPE COVER NOT POSSIBLE, WHEN APPROVED BY OWNER'S REPRESENTATIVE.
  - CLASS 2 AGGREGATE BASE SHALL BE COMPACTED TO 95% RELATIVE COMPACTION.
  - DETECTABLE WARNING TAPE SHALL BE BRIGHT COLORED, CONTINUOUSLY PRINTED, MINIMUM 6" WIDE BY 4 MIL. THICK, MANUFACTURED FOR DIRECT BURIAL.

**1 TYPICAL TRENCH AND PAVING DETAIL**  
SCALE: NTS

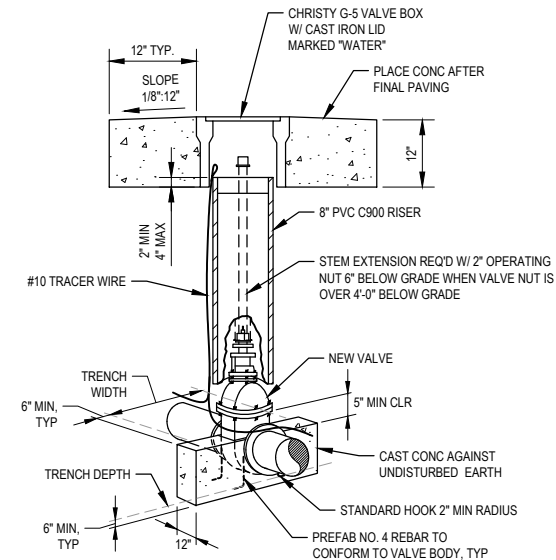


- NOTES:**
- CONCRETE THRUST BLOCKS ARE TO BE POURED AGAINST UNDISTURBED EARTH OR STRUCTURAL BACKFILL. THRUST BLOCKS ARE NOT REQUIRED WHERE JOINTS ARE ADEQUATELY RESTRAINED.
  - KEEP CONCRETE CLEAR OF JOINTS AND ACCESSORIES.
  - VOLUMES AND SPECIAL BLOCKING DETAILS SHOWN ON THE PLANS TAKE PRECEDENCE OVER VOLUMES AND BLOCKING DETAILS SHOWN ON THIS STANDARD DETAIL.
  - ALL BURIED PIPE SHALL BE PROVIDED WITH CONCRETE THRUST BLOCKS AT ALL DIRECTIONAL CHANGES UNLESS OTHERWISE NOTED.
  - THRUST BLOCKS SHALL NOT BE LOCATED OR SIZED TO ENCASE ADJACENT PIPES OR FITTINGS.
  - THE SIZE AND WEIGH OF ALL UPLIFT THRUST BLOCKS SHALL BE AS DETERMINED BY ENGINEER.
  - THE BEARING AREAS ARE BASED ON TEST PRESSURE OF 150 PSI AND ALLOWABLE SOIL BEARING STRESS OF 1000 POUNDS PER SQUARE FOOT. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES, USE THE FOLLOWING EQUATION:  
BEARING AREA = (TEST PRESSURE / 150) x (1000 / SOIL BEARING STRESS) x (TABLE VALUE)
  - CONTRACTOR TO PROVIDE ALL COMPONENTS.
  - ALL PIPE AND FITTINGS SHALL BE WRAPPED IN POLYETHYLENE TO PREVENT CORROSION AND CONC ADHESION.

**BEARING AREA OF THRUST BLOCK IN SQ. FT.**

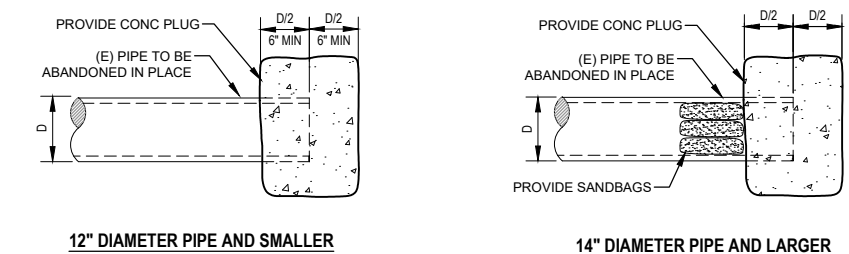
PIPE SIZE	TEE, WYE, PLUG OR CAP	90° BEND PLUGGED CROSS	TEE PLUGGED		45° BEND	22 1/2° BEND	11 1/4° BEND	PIPE SIZE	TEE, WYE, PLUG OR CAP	90° BEND PLUGGED CROSS	TEE PLUGGED		45° BEND	22 1/2° BEND	11 1/4° BEND
			A1	A2							A1	A2			
4	1.5	2	2	1.5	1.5	1	1	18	19	27	27	19	15	8	6
6	3	4.5	4.5	3	2.5	1.5	1	20	24	34	34	24	18	10	8
8	5	7	7	5	4	2	1	22	29	41	41	29	22	12	10
10	8	12	12	8	7	3	2	24	34	48	48	34	26.5	14	12
12	12	17	17	12	10	5	3	32	39	55	55	39	31.5	16	14
16	15	21.5	21.5	15	12	6	4								

**3 STANDARD THRUST BLOCK DETAILS**  
SCALE: NTS



- NOTES:**
- CONTRACTOR TO PROVIDE ALL COMPONENTS.
  - VALVE SIZES & ENDS AS SHOWN OR SPECIFIED ON PLANS

**2 STANDARD VALVE INSTALLATION**  
SCALE: NTS



- NOTES:**
- PIPE PLUGS SHALL BE INSTALLED TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE.
  - SHALL BE INSPECTED BY THE OWNER'S REPRESENTATIVE BEFORE COVERING.

**4 PLUG AND ABANDON EXISTING WATER PIPE**  
SCALE: NTS

No.	Issue	Author	Checked	Approved	Date
0	ISSUE FOR BID	S. MCHANEY	S. MCHANEY	N. STEVENS	2024-05-01
		M. DUIN	S. MCHANEY	K. TOBIN	



Bar is one inch on original size sheet  
0 1"



**GHD** Inc.  
718 Third Street  
Eureka California 95501 USA  
T 1 707 443 8326 F 1 707 444 8330

Conditions of Use  
This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of GHD. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.





Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**  
Project **KORBLEX RESERVOIRS SEISMIC RETROFIT**

Title **TYPICAL CIVIL DETAILS**

Project No. **12627733** Date **2024-05-01** Scale **AS SHOWN**

Sheet No. **C-504** Sheet **9 of 18**

SHEET GENERAL NOTES	STEEL	CONCRETE																		
<p>1. CONTRACTOR TO COORDINATE ALL STRUCTURAL DOCUMENTS WITH ALL OTHER DISCIPLINES AND REPORT ANY DISCREPANCIES TO THE OWNER PRIOR TO THE START OF ANY FABRICATION OR CONSTRUCTION.</p> <p>2. CONTRACTOR TO COORDINATE ALL NEW WORK WITH EXISTING SITE CONDITIONS AND REPORT ANY DISCREPANCIES TO THE OWNER PRIOR TO CONSTRUCTION.</p> <p>3. DO NOT SCALE DRAWINGS.</p> <p>4. DESIGN CRITERIA: 2019 CALIFORNIA BUILDING CODE (2019 CBC) AWWA D100-11 ACI 318-14 CAL / OSHA</p> <p>5. LOADS: ROOF LIVE LOADS: 20 PSF (REDUCTIONS TAKEN AS ALLOWED BY BUILDING CODE) MAINTENANCE PLATFORM: 60 PSF WIND LOADS: MAIN FORCE RESISTING SYSTEM: BASIC WIND SPEED: V = 115 MPH RISK CATEGORY: IV (ESSENTIAL FACILITY) EXPOSURE CATEGORY: C INTERNAL PRESSURE COEFFICIENT: ±0.18 SEISMIC LOADS (KORBLEX): SEISMIC IMPORTANCE FACTOR: I<sub>s</sub> = 1.50 MAPPED SPECTRAL RESPONSE ACCELERATIONS: S<sub>s</sub> = 2.61 g S<sub>1</sub> = 1.07 g SPECTRAL RESPONSE COEFFICIENTS: SDS = 2.09 g SD1 = 1.22 g SOIL SITE CLASS: D SEISMIC DESIGN CATEGORY: E</p> <p>6. REFERENCE TO CODES, RULES, REGULATIONS, STANDARDS, MANUFACTURER'S INSTRUCTIONS OR REQUIREMENTS OF REGULATORY AGENCIES IS TO THE LATEST PRINTED EDITION OF EACH IN EFFECT AT THE DATE OF SUBMISSION OF BID UNLESS THE DOCUMENT DATE IS SHOWN.</p> <p>7. THESE DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, USE SIMILAR DETAILS OF CONSTRUCTION, SUBJECT TO REVIEW BY THE OWNER'S REPRESENTATIVE.</p> <p>8. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES AND FOR CHECKING DIMENSIONS. NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES AND RESOLVE BEFORE PROCEEDING WITH THE WORK.</p> <p>9. PROVIDE MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES INCLUDE, BUT MAY NOT BE LIMITED TO, BRACING AND SHORING FOR LOADS DURING CONSTRUCTION. RETAIN A REGISTERED CIVIL ENGINEER WHO IS PROPERLY QUALIFIED TO DESIGN BRACING, SHORING, ETC. VISITS TO THE SITE BY THE OWNER'S REPRESENTATIVE WILL NOT INCLUDE OBSERVATION OF THE ABOVE NOTED ITEMS.</p> <p>10. INFORMATION SHOWN ON THE DRAWINGS RELATED TO EXISTING CONDITIONS REPRESENTS THE PRESENT KNOWLEDGE, BUT WITHOUT GUARANTEE OF ACCURACY. REPORT CONDITIONS THAT CONFLICT WITH THE CONTRACT DOCUMENTS TO THE OWNER'S REPRESENTATIVE. DO NOT DEVIATE FROM THE CONTRACT DOCUMENTS WITHOUT WRITTEN DIRECTION FROM THE OWNER'S REPRESENTATIVE.</p> <p>11. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING A SAFE PLACE TO WORK AND MEETING THE REQUIREMENTS OF ALL APPLICABLE JURISDICTIONS. EXECUTE WORK TO ENSURE THE SAFETY OF PERSONS AND ADJACENT PROPERTY AGAINST DAMAGE BY FALLING DEBRIS AND OTHER HAZARDS IN CONNECTION WITH THIS WORK.</p> <p>12. UNLESS NOTED OTHERWISE, REFER TO DRAWINGS OTHER THAN STRUCTURAL FOR FINISHES, SLOPES, DEPRESSIONS, OPENINGS, CURBS, STAIRS, RAMPS, TRENCHES, EQUIPMENT AND LOCATIONS AND EXTENT OF SUCH CONDITIONS.</p> <p>13. CONTRACTOR TO COORDINATE ALL NEW WORK WITH EXISTING SITE CONDITIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO CONSTRUCTION.</p> <p>14. DETAILS OR CONDITIONS NOT FULLY DEVELOPED ON STRUCTURAL DOCUMENTS ARE SIMILAR TO DEVELOPED DETAILS.</p> <p>15. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.</p> <p>16. ALL PLANS TO BE COORDINATED WITH GENERAL NOTES AND TYPICAL DETAILS AS APPLICABLE.</p> <p>17. ALL LADDERS, RAILINGS, PLATFORMS, AND SAFETY ELEMENTS SHALL BE PROVIDED IN CONFORMANCE WITH CAL / OSHA STANDARDS.</p>	<p>1. DETAIL, FABRICATE, AND ERECT STRUCTURAL STEEL IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS (LATEST EDITION AND SUPPLEMENTS).</p> <p>2. ANCHOR BOLTS: ASTM F1554 GRADE 55.</p> <p>3. ALL STEEL BARS &amp; PLATES SHALL BE ASTM A36 UNLESS OTHERWISE NOTED.</p> <p>4. ALL STEEL SHAPES SHALL BE ASTM A992 GRADE 50 UNLESS OTHERWISE NOTED.</p> <p>5. ALL TUBES SHALL BE ASTM A500 GRADE B.</p> <p>6. ALL PIPES TO BE ASTM A53 GRADE B.</p> <p>7. ALL THREADED RODS: ASTM F1554 GRADE 55.</p> <p>8. BOLTED CONNECTIONS, UNLESS NOTED OTHERWISE: 1-INCH DIAMETER A325-N BOLTS.</p> <p>9. INSTALL HIGH STRENGTH BOLTS IN ACCORDANCE WITH SECTION 8 OF THE "SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS", LATEST EDITION.</p> <p>10. PROVIDE BEVELED WASHERS ON ALL CONNECTION TO SLOPING FLANGES OF W SECTIONS AND CHANNELS WHERE SLOPE EXCEEDS 1:20.</p> <p>11. ANCHOR RODS SHALL BE THREADED ANCHOR RODS WITH NUT. THE EMBEDDED NUT SHALL BE TACK WELDED TO THE ANCHOR ROD TO PREVENT ROTATION DURING TIGHTENING.</p> <p>12. BOLT HOLES IN STEEL SHALL BE "STANDARD" (1/16-INCH LARGER IN DIAMETER THAN THE NOMINAL BOLT SIZE), UNLESS OTHERWISE NOTED.</p> <p>13. WELDING ELECTRODES (FILLER METAL): E70XX (70 KSI), WITH EXACT FILLER METAL SELECTED BY THE FABRICATOR.</p> <p>14. WELD LENGTHS CALLED FOR ON THE PLANS ARE THE NET EFFECTIVE LENGTH REQUIRED. WHERE LENGTH OF WELD IS NOT SHOWN IT SHALL BE THE FULL LENGTH OF THE JOINT.</p> <p>15. COMPLETE PENETRATION WELDS SHALL BE MADE WITH PROPER BACKING WHEREVER POSSIBLE. FULL PENETRATION WELDS MADE WITHOUT PROPER BACKING SHALL HAVE THE ROOT GOUGED BEFORE WELDING IS STARTED FROM THE OTHER SIDE EXCEPT AS PROVIDED IN AWS D1.1.</p> <p>16. ALL BUTT AND GROOVE WELDS SHALL BE FULL PENETRATION, UNLESS NOTED OTHERWISE.</p> <p>17. ALL SPLICING OF MEMBERS SHALL BE AS SHOWN ON THE DRAWINGS. ANY SPLICING OF THE STEEL MEMBERS PROPOSED BY THE STEEL FABRICATOR SHALL BE SHOWN ON SHOP DRAWINGS AND APPROVED BY THE ENGINEER PRIOR TO FABRICATION.</p> <p>18. ALL STEEL FABRICATION SHALL BE PERFORMED BY A FABRICATOR APPROVED BY THE OWNER.</p> <p>19. ALL ANCHOR BOLTS SHALL BE EMBEDDED AS SHOWN ON THE DRAWINGS.</p> <p>20. MINIMUM PLATE THICKNESS: 3/8 INCH UNLESS OTHERWISE NOTED. MINIMUM WELD: 1/4" UNLESS OTHERWISE NOTED.</p> <p>21. ALL STEEL FABRICATION AND DETAILS TO COMPLY WITH MOST STRINGENT OF: AISC CODE, AWS CODE, AND THE 2019 CBC.</p> <p>22. ALL WELDING TO BE BY AWS CERTIFIED WELDERS AND SHALL CONFORM TO ALL 2019 CBC AND AWS REQUIREMENTS. ALL WELDERS SHALL BE PRE-QUALIFIED BY THE PROJECT WELDING INSPECTOR FOR THE WELD TYPES AND POSITIONS USED IN THE PROCEDURES THEY WILL BE PERFORMING.</p> <p>23. UNLESS NOTED OTHERWISE, ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIP GALVANIZED, UNLESS IT IS PART OF THE PAINTED TANK ASSEMBLY.</p>	<p>1. ALL CONCRETE SHALL BE NORMAL WEIGHT, WITH A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI AT 28 DAYS.</p> <p>2. CONCRETE REINFORCING COVER SHALL BE AS FOLLOWS:  CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.....3 INCHES CONCRETE EXPOSED TO EARTH OR WEATHER .....2 INCHES</p> <p>3. ALL CONCRETE DIMENSIONS SHOWN ARE MINIMUM DIMENSIONS. CONTRACTOR TO REVIEW FORMING, REINFORCING DETAILS AND ANY EMBEDDED ITEMS AND DETERMINE PRIOR TO FABRICATION OF ANY REINFORCING, PLACEMENT REQUIREMENTS AND CLEARANCES.</p> <p>4. EPOXY ANCHORS SHALL BE ONE OF THE FOLLOWING, UNO:  HILTI HIT-HY 200 (ICC-ES REPORT ESR-3187)  HILT HIT-RE 500 (ICC-ES REPORT ESR-2322)  SIMPSON SET-3G (ICC-ES REPORT ESR-4057)</p>																		
<p>FOUNDATIONS</p> <p>1. FOUNDATION DESIGN WILL BE BASED ON CRITERIA AND RECOMMENDATIONS PRESENTED IN THE GEOTECHNICAL INVESTIGATION REPORT: HBMWD RESERVOIRS SEISMIC RETROFIT PROJECT, THREE WATER TANKS, KORBLEX AND SAMOA, CALIFORNIA, PREPARED BY PREPARED BY CRAWFORD &amp; ASSOCIATES, INC. DATED JULY 2021.</p> <p>2. ALLOWABLE BEARING PRESSURE FOR TANK FOUNDATIONS IS 3,000 PSF WITH A 1/3 INCREASE FOR SEISMIC, FOR BOTH TANK SITES.</p>	<p>HELICAL ANCHORS</p> <p>1. CONTRACTOR SHALL SUBMIT HELICAL ANCHOR SHOP DRAWINGS INCLUDING MANUFACTURER DATA, CURRENT VALID ENGINEERING TEST REPORTS, AND SITE SPECIFIC CAPACITY CALCULATIONS STAMPED AND SIGNED BY A CALIFORNIA LICENSED PROFESSIONAL ENGINEER. SITE SPECIFIC ANCHOR CALCULATIONS SHALL BE BASED UP ON THE PROJECT GEOTECHNICAL REPORT.</p> <p>2. FOR BIDDING PURPOSES, ANCHOR SCHEMATIC DESIGN IS BASED UPON HUBBELL POWER SYSTEMS INC. CHANCE ANCHORS PER ESR-2794.</p> <p>3. ANCHOR DESIGN SHALL PROVIDE FOR A MINIMUM 50 YEAR DESIGN LIFE WITH CORROSION ALLOWANCE BASED UPON THE SITE SPECIFIC SOIL CORROSION ANALYSIS REPORT.</p> <p>4. MINIMUM ANCHOR CAPACITY AND EMBEDMENT PARAMETERS ARE AS FOLLOWS:  a. 1MG KORBLEX TANK, 33 KIP TENSION CAPACITY WITH ANCHORS AT 4'-0" O/C AROUND PERIMETER. FINAL EMBEDMENT LENGTH BY ANCHOR DESIGNER, APPROXIMATED AT 20 FEET FOR BID PURPOSES.</p> <p>SPECIAL INSPECTIONS</p> <p>1. SPECIAL INSPECTION IN ACCORDANCE WITH 2019 CALIFORNIA BUILDING CODE CHAPTER 17 IS REQUIRED ON THE FOLLOWING PORTIONS OF THE WORK: • STRUCTURAL STEEL • CONCRETE • HELICAL ANCHORS</p> <p>2. (REFER TO THE STATEMENT OF SPECIAL INSPECTIONS FOR MORE SPECIFIC REQUIREMENTS)</p>	<p>REINFORCING</p> <p>1. ALL CONCRETE REINFORCING SHALL BE ASTM A615, F<sub>y</sub> = 60 KSI, UNLESS NOTED OTHERWISE.</p> <p>2. REINFORCING SHALL EXTEND CONTINUOUS FOR THE DIMENSION SHOWN.</p> <p>3. NO WELDING OF ANY REINFORCING IS PERMITTED, UNLESS SPECIFICALLY STATED ON THE PLANS. REINFORCEMENT TO BE WELDED TO MEET THE REQUIREMENTS OF ASTM A706.</p> <p>4. LOCATE ALL REINFORCING AS SHOWN ON DRAWINGS AND FASTEN SECURELY.</p> <p>5. LAP SPLICES AND DEVELOPMENT LENGTHS PER DETAIL ON DRAWING S-501.</p> <p>6. REINFORCEMENT SHALL BE PLACED SO AS NOT TO COME IN CONTACT WITH METALLIC CONCRETE PENETRATIONS.</p> <p>7. ALL REINFORCING TO TERMINATE WITH STANDARD HOOKS AS SHOWN ON PLANS. ALL STIRRUPS AND TIES TO BE CLOSED WITH 135° BENDS.</p> <p>8. IN WALL ELEMENTS, VERTICAL BARS SHALL BE LOCATED ON OUTERMOST LAYER UNLESS SPECIFICALLY NOTED OTHERWISE.</p>																		
<p>0 ISSUE FOR BID NS NS 2024-05-01</p> <table border="1"> <thead> <tr> <th>No.</th> <th>Issue</th> <th>Checked</th> <th>Approved</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>Author</td> <td>S. GOULD</td> <td>Drafting Check</td> <td>S. BURNS</td> <td>Project Manager</td> <td>N. STEVENS</td> </tr> <tr> <td>Designer</td> <td>S. BURNS</td> <td>Design Check</td> <td>S. BURNS</td> <td>Project Director</td> <td>K. TOBIN</td> </tr> </tbody> </table>	No.	Issue	Checked	Approved	Date	Author	S. GOULD	Drafting Check	S. BURNS	Project Manager	N. STEVENS	Designer	S. BURNS	Design Check	S. BURNS	Project Director	K. TOBIN	 <p>Bar is one inch on original size sheet 0 ————— 1"</p> 	<p>DEFERRED SUBMITTALS</p> <p>1. DEFERRED SUBMITTALS ARE BY THE CONTRACTOR. DETAILS SHOWN IN THESE SECTIONS ARE FOR BIDDING PURPOSES ONLY AND NOT FOR CONSTRUCTION.</p> <p>2. DEFERRED SUBMITTALS INCLUDE: • 2 MG KORBLEX TANK ROOF REPLACEMENT • 2 MG KORBLEX LADDER • 1 MG KORBLEX TANK HELICAL ANCHORS • 1 MG KORBLEX PLATFORM</p> <p>3. CONTRACTOR SHALL SUBMIT STEEL TANK ROOF PLANS AND CALCULATIONS TO THE OWNER FOR APPROVAL AND PERMIT PRIOR TO ANY CONSTRUCTION. PLANS AND CALCULATIONS MUST BE PREPARED, SEALED, AND SIGNED BY A CALIFORNIA LICENSED ENGINEER. CALCULATIONS SHALL INCLUDE ANALYSIS OF NEW ROOF WITH SEISMIC SLOSHING WAVE CONSIDERATION.</p> <p>4. CONTRACTOR'S STEEL TANK ROOF SUBMITTAL PACKAGE WILL BE SUBJECT TO OWNER REVIEW AND COMMENT. CONTRACTOR WILL BE RESPONSIBLE FOR ADDRESSING OWNER REVIEW COMMENTS AND RESUBMITTING THE TANK ROOF SUBMITTAL AS NECESSARY. OWNER RESERVES RIGHT TO REQUEST DESIGN MODIFICATIONS BASED ON SERVICEABILITY / MAINTENANCE REQUIREMENTS, ETC.</p>	
No.	Issue	Checked	Approved	Date																
Author	S. GOULD	Drafting Check	S. BURNS	Project Manager	N. STEVENS															
Designer	S. BURNS	Design Check	S. BURNS	Project Director	K. TOBIN															
<p>Plot Date: 30 April 2024 - 7:15 PM</p>	<p>Plotted By: Michelle Davidson</p>	<p>Path and Filename: I:\ghd\ghd\US\Eureka\Projects\5611\2627733\Digital_Design\ACAD 2022\Sheets\Korblex\12627733-GHD-001-DWG-ST-0001.dwg</p>	<p>Client <b>HUMBOLDT BAY MUNICIPAL WATER DISTRICT</b></p> <p>Project <b>KORBLEX RESERVOIRS SEISMIC RETROFIT</b></p> <p>Title <b>STRUCTURAL GENERAL NOTES</b></p> <p>Size <b>ANSI D</b></p> <p>Project No. <b>12627733</b></p> <p>Date <b>2024-05-01</b></p> <p>Scale <b>AS SHOWN</b></p> <p>Sheet No. <b>S-001</b></p> <p>Sheet <b>10 of 18</b></p>																	



**STATEMENT OF SPECIAL INSPECTIONS**

**STATEMENT OF SPECIAL INSPECTIONS**

THIS STATEMENT OF SPECIAL INSPECTIONS IS SUBMITTED IN ACCORDANCE WITH THE SPECIAL INSPECTION AND STRUCTURAL TESTING REQUIREMENTS OF THE BUILDING CODE SECTIONS 1704 AND 1705.

THIS STATEMENT OF SPECIAL INSPECTIONS ENCOMPASS THE FOLLOWING DISCIPLINES:

STRUCTURAL SPECIAL INSPECTIONS PER 1704  
 STRUCTURAL SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE  
 STRUCTURAL SPECIAL INSPECTIONS FOR WIND RESISTANCE

THE SCHEDULE OF SPECIAL INSPECTIONS SUMMARIZES THE SPECIAL INSPECTIONS AND TESTS REQUIRED. SPECIAL INSPECTORS WILL REFER TO THE APPROVED PLANS AND SPECIFICATIONS FOR DETAILED SPECIAL INSPECTION REQUIREMENTS. ANY ADDITIONAL TESTS AND INSPECTIONS REQUIRED BY THE APPROVED PLANS AND SPECIFICATIONS WILL ALSO BE PERFORMED.

THE SPECIAL INSPECTIONS IDENTIFIED ARE IN ADDITION TO THOSE REQUIRED BY OTHER SECTIONS OF THE BUILDING CODE.

THE SPECIAL INSPECTION COORDINATOR SHALL KEEP RECORDS OF ALL INSPECTIONS AND SHALL FURNISH INSPECTION REPORTS TO THE OWNER AND THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. DISCOVERED DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF SUCH DISCREPANCIES ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. THE SPECIAL INSPECTION PROGRAM DOES NOT RELIEVE THE CONTRACTOR OF HIS OR HER RESPONSIBILITIES.

INTERIM REPORTS SHALL BE SUBMITTED TO THE OWNER AND THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 1704.1.2.

A FINAL REPORT OF SPECIAL INSPECTIONS DOCUMENTING COMPLETION OF ALL REQUIRED SPECIAL INSPECTIONS, TESTING AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS SHALL BE SUBMITTED PRIOR TO PROJECT COMPLETION. THE FINAL REPORT WILL DOCUMENT THE REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF DISCREPANCIES NOTED IN INSPECTIONS.

JOB SITE SAFETY AND MEANS AND METHODS OF CONSTRUCTION ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.

THE CONTRACTOR IS REQUIRED TO COORDINATE ALL INSPECTIONS. THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE AND THE SPECIAL INSPECTOR A MINIMUM OF 24 HOURS PRIOR TO ANY SPECIAL INSPECTIONS THAT ARE REQUIRED. THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE AND THE SPECIAL INSPECTOR A MINIMUM OF 24 HOURS PRIOR TO ANY CONCRETE TO BE POURED.

ALL SPECIAL INSPECTORS AND QUALIFICATIONS SHALL BE SUBMITTED TO THE ENGINEER-OF-RECORD AND THE OWNER FOR REVIEW.

SPECIALY INSPECTED WORK THAT IS INSTALLED OR COVERED WITHOUT THE APPROVAL OF THE OWNER IS SUBJECT TO REMOVAL OR EXPOSURE.

CONTINUOUS INSPECTION IS ALWAYS REQUIRED DURING THE PERFORMANCE OF THE WORK UNLESS OTHERWISE SPECIFIED. WHEN WORK IN MORE THAN ONE CATEGORY OF WORK REQUIRING SPECIAL INSPECTION IS TO BE PERFORMED SIMULTANEOUSLY, OR THE GEOGRAPHIC LOCATION OF THE WORK IS SUCH THAT IT CANNOT BE CONTINUOUSLY OBSERVED, IT IS THE AGENT'S RESPONSIBILITY TO EMPLOY A SUFFICIENT NUMBER OF INSPECTORS TO ASSURE THAT ALL THE WORK IS INSPECTED IN ACCORDANCE WITH THE PROVISIONS OF THE BUILDING CODE.

**CONTRACTOR STATEMENT OF RESPONSIBILITY**

EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OR FABRICATION OF A SYSTEM OR COMPONENT DESIGNATED ABOVE AS PART OF THE MAIN WIND FORCE OR MAIN SEISMIC FORCE RESISTING SYSTEMS ABOVE MUST SUBMIT A STATEMENT OF RESPONSIBILITY PER SECTION 1706.

**SCHEDULE OF INSPECTION AND TESTING AGENCIES**

THIS STATEMENT OF SPECIAL INSPECTIONS / QUALITY ASSURANCE PLAN INCLUDES THE FOLLOWING BUILDING SYSTEMS:

SOILS AND FOUNDATIONS       WOOD CONSTRUCTION  
 CAST-IN-PLACE CONCRETE     MECHANICAL & ELECTRICAL SYSTEMS  
 PRECAST CONCRETE             ARCHITECTURAL SYSTEMS  
 MASONRY LEVEL 1               STRUCTURAL STEEL  
 MASONRY LEVEL 2               COLD-FORMED STEEL FRAMING

SPECIAL INSPECTION AGENCIES	FIRM AND CONTACT INFO.
1. SPECIAL INSPECTION COORDINATOR	TBD
2. CONCRETE INSPECTOR	TBD
3. STEEL INSPECTOR	TBD
4. SOILS INSPECTOR	TBD
5. CONCRETE TESTING AGENCY	TBD

**QUALIFICATIONS OF INSPECTORS AND TESTING TECHNICIANS**

THE QUALIFICATIONS OF ALL PERSONNEL PERFORMING SPECIAL INSPECTION AND TESTING ACTIVITIES ARE SUBJECT TO THE APPROVAL OF OWNER. THE CREDENTIALS OF ALL INSPECTORS AND TESTING TECHNICIANS SHALL BE PROVIDED IF REQUESTED.

**KEY FOR MINIMUM QUALIFICATIONS OF INSPECTION AGENTS:**

WHEN THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE DEEMS IT APPROPRIATE THAT THE INDIVIDUAL PERFORMING A STIPULATED TEST OR INSPECTION HAVE A SPECIFIC CERTIFICATION OR LICENSE AS INDICATED BELOW, SUCH DESIGNATION SHALL APPEAR BELOW THE AGENCY NUMBER ON THE SCHEDULE.

PE/SE      STRUCTURAL ENGINEER - A LICENSED SE OR PE SPECIALIZING IN THE DESIGN OF BUILDING STRUCTURES  
 PE/GE      GEOTECHNICAL ENGINEER - A LICENSED GE OR PE SPECIALIZING IN SOIL MECHANICS AND FOUNDATIONS  
 EIT         ENGINEER-IN-TRAINING - A GRADUATE ENGINEER WHO HAS PASSED THE FUNDAMENTALS OF ENGINEERING EXAMINATION

**AMERICAN CONCRETE INSTITUTE (ACI) CERTIFICATION**

ACI-CFTT    CONCRETE FIELD TESTING TECHNICIAN - GRADE 1  
 ACI-CCI    CONCRETE CONSTRUCTION INSPECTOR  
 ACI-LTT    LABORATORY TESTING TECHNICIAN - GRADE 1&2  
 ACI-STT    STRENGTH TESTING TECHNICIAN

**AMERICAN WELDING SOCIETY (AWS) CERTIFICATION**

AWS-CWI    CERTIFIED WELDING INSPECTOR  
 AWS/AISC-SSI    CERTIFIED STRUCTURAL STEEL INSPECTOR

**INTERNATIONAL CODE COUNCIL (ICC) CERTIFICATION**

ICC-SMSI    STRUCTURAL MASONRY SPECIAL INSPECTOR  
 ICC-SWSI    STRUCTURAL STEEL AND WELDING SPECIAL INSPECTOR  
 ICC-SFSI    SPRAY-APPLIED FIREPROOFING SPECIAL INSPECTOR  
 ICC-PCSI    PRESTRESSED CONCRETE SPECIAL INSPECTOR  
 ICC-RCSI    REINFORCED CONCRETE SPECIAL INSPECTOR

**AMERICAN SOCIETY OF NONDESTRUCTIVE TESTING (ASNT)**

**TABLE 1705.6 - SOILS**

ITEM 1: VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY. <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): PE/GE
ITEM 2: VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL. <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): PE/GE
ITEM 3: PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS. <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): PE/GE
ITEM 4: VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL. <input type="checkbox"/> PERIODIC <input checked="" type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): PE/GE
ITEM 5: PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY. <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): PE/GE

**TABLE 1705.2 - STEEL CONSTRUCTION**

ITEM 1: MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS, AND WASHERS. SCOPE: A. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS. <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS B. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED. <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): AWS/AISC-SSI, ICC-SWSI REFERENCE STDS.: AISC 360, SECTION A3.3 AND APPLICABLE ASTM MATERIAL STANDARDS
ITEM 2: INSPECTION OF HIGH-STRENGTH BOLTING: SCOPE: A. SNUG-TIGHT JOINTS. <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS B. PRETENSIONED AND SLIP-CRITICAL JOINTS USING TURN-OFF-NUT MATCHMAKING, TWIST-OFF BOLT OR DIRECT TENSION INDICATOR METHODS OF INSTALLATION. <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS C. PRETENSIONED AND SLIP-CRITICAL JOINTS USING TURN-OFF-NUT WITHOUT MATCHMAKING OR CALIBRATED WRENCH METHODS OF INSTALLATION. <input type="checkbox"/> PERIODIC <input checked="" type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): AWS/AISC-SSI, ICC-SWSI REFERENCE STDS.: AISC 360, SECTION M2.5
ITEM 3: MATERIAL VERIFICATION OF STRUCTURAL STEEL SCOPE: A. FOR STRUCTURAL STEEL, IDENTIFICATION MARKINGS TO CONFORM TO AISC 360 <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS B. FOR OTHER STEEL, IDENTIFICATION ON MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN APPROVED CONSTRUCTION DOCUMENTS. <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS C. MANUFACTURER'S CERTIFIED TEST REPORTS <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): PE/SE REFERENCE STDS.: AISC 360, SECTION A3.3 AND APPLICABLE ASTM MATERIAL STANDARDS
ITEM 4: MATERIAL VERIFICATION OF COLD-FORMED STEEL DECK SCOPE: A. MANUFACTURER'S CERTIFIED TEST REPORTS <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): AWS-CWI, ASNT
ITEM 5: MATERIAL VERIFICATION OF WELD FILLER MATERIALS SCOPE: A. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATION IN THE APPROVED CONSTRUCTION DOCUMENTS. <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS B. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED. <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): AWS-CWI, ASNT REFERENCE STDS.: AISC 360, SECTION A3.5 AND APPLICABLE AWS A5 DOCUMENTS
ITEM 6: INSPECTION OF WELDING SCOPE: A. STRUCTURAL STEEL AND COLD-FORMED STEEL DECK 1. COMPLETE AND PARTIAL JOINT PENETRATION GROOVE WELDS <input type="checkbox"/> PERIODIC <input checked="" type="checkbox"/> CONTINUOUS 2. MULTIPASS FILLET WELDS <input type="checkbox"/> PERIODIC <input checked="" type="checkbox"/> CONTINUOUS 3. SINGLE-PASS FILLET WELDS > 3/16". <input type="checkbox"/> PERIODIC <input checked="" type="checkbox"/> CONTINUOUS 4. PLUG AND SLOT WELDS <input type="checkbox"/> PERIODIC <input checked="" type="checkbox"/> CONTINUOUS 5. SINGLE-PASS FILLET WELDS < 3/16". <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS 6. FLOOR AND ROOF DECK WELDS. <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS B. REINFORCING STEEL: 1. VERIFICATION OF WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A706 <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS 2. REINFORCING STEEL RESISTING FLEXURAL AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL MOMENT FRAMES, AND BOUNDARY ELEMENTS OF SPECIAL STRUCTURAL WALLS OF CONCRETE AND SHEAR REINFORCEMENT. <input type="checkbox"/> PERIODIC <input checked="" type="checkbox"/> CONTINUOUS 3. SHEAR REINFORCEMENT. <input type="checkbox"/> PERIODIC <input checked="" type="checkbox"/> CONTINUOUS 4. OTHER REINFORCING STEEL. <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): AWS-CWI, ASNT REFERENCE STDS.: AWS D1.1 REFERENCE STDS.: AWS D1.3 REFERENCE STDS.: AWS D1.4 ACI 318 SECTION 4.2.2

**TABLE 1705.3 - CONCRETE CONSTRUCTION**

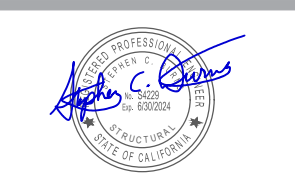
ITEM 7: INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE SCOPE: A. DETAILS SUCH AS BRACING AND STIFFENING. <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS B. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED. <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS C. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED. <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): AWS-CWI, ASNT
--	-----------------------------------

ITEM 1: INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT. <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): ACI-CCI, ICC-RCSI REFERENCE STDS.: ACI 318: CH. 20, 25.2, 25.3, 26.6.1-26.6.3
ITEM 2: REINFORCING BAR WELDING: SCOPE: A. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706; <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS B. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 3/16", AND: <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS C. INSPECT ALL WELDS. <input type="checkbox"/> PERIODIC <input checked="" type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): ACI-CWI REFERENCE STDS.: AWS D1.4 ACI 318: 26.6.4
ITEM 3: INSPECT ANCHORS CAST IN CONCRETE: <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): ACI-CCI, ICC-RCSI REFERENCE STDS.: ACI 318 17.8.2
ITEM 4: INSPECT TEST ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS. SCOPE: A. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS. <input type="checkbox"/> PERIODIC <input checked="" type="checkbox"/> CONTINUOUS B. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.A. <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): ACI-CCI, ICC-RCSI REFERENCE STDS.: ACI 318: 17.8.2.4 REFERENCE STDS.: ACI 318: 17.8.2
ITEM 5: VERIFY USE OF REQUIRED DESIGN MIX: <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): ACI-CCI, ICC-RCSI ACI 318 CH. 19, 26.4.3, 26.4.4
ITEM 6: PRIOR TO CONCRETE PLACEMENT, FABRICATED SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE. <input type="checkbox"/> PERIODIC <input checked="" type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): ACI-CFTT, ACI-STT REFERENCE STDS.: ASTM C172 ASTM C31 ACI 318: 26.4, 26.12
ITEM 7: INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES. <input type="checkbox"/> PERIODIC <input checked="" type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): ACI-CCI, ICC-RCSI REFERENCE STDS.: ACI 318: 26.5, ACI 506: 3.4
ITEM 8: VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES. <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): ACI-CCI, ICC-RCSI REFERENCE STDS.: ACI 318: 26.5.3-26.5.5
ITEM 9: INSPECT PRESTRESSED CONCRETE FOR: SCOPE: A. APPLICATION OF PRESTRESSING FORCES; AND: <input type="checkbox"/> PERIODIC <input checked="" type="checkbox"/> CONTINUOUS B. GROUTING OF BONDED PRESTRESSING TENDONS. <input type="checkbox"/> PERIODIC <input checked="" type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): ACI-CCI, ICC-RCSI REFERENCE STDS.: ACI 318: 26.10.2
ITEM 10: INSPECT ERECTION OF PRECAST CONCRETE MEMBERS. <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): ACI-CCI, ICC-RCSI REFERENCE STDS.: ACI 318: 26.9.2
ITEM 11: VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS WHEN BEAMS AND STRUCTURAL SLABS. <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): ACI-CFTT, ACI-STT REFERENCE STDS.: ACI 318: 26.10.2, 26.11.2
ITEM 11: INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED. <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): ACI-CCI, ICC-RCSI REFERENCE STDS.: ACI 318: 26.11.2(B)

No.	Issue	Checked	Approved	Date	
0	ISSUE FOR BID	NS	NS	2024-05-01	
Author	S. GOULD	Drafting Check	S. BURNS	Project Manager	N. STEVENS
Designer	S. BURNS	Design Check	S. BURNS	Project Director	K. TOBIN



Bar is one inch on original size sheet  
0 1"



**GHD** Inc.  
718 Third Street  
Eureka California 95501 USA  
T 1 707 443 8326 F 1 707 444 8330  
www.ghd.com

Conditions of Use  
This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of GHD. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.

Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**  
Project **KORBLEX RESERVOIRS SEISMIC RETROFIT**

Project No. **12627733**      Date **2024-05-01**      Scale **AS SHOWN**

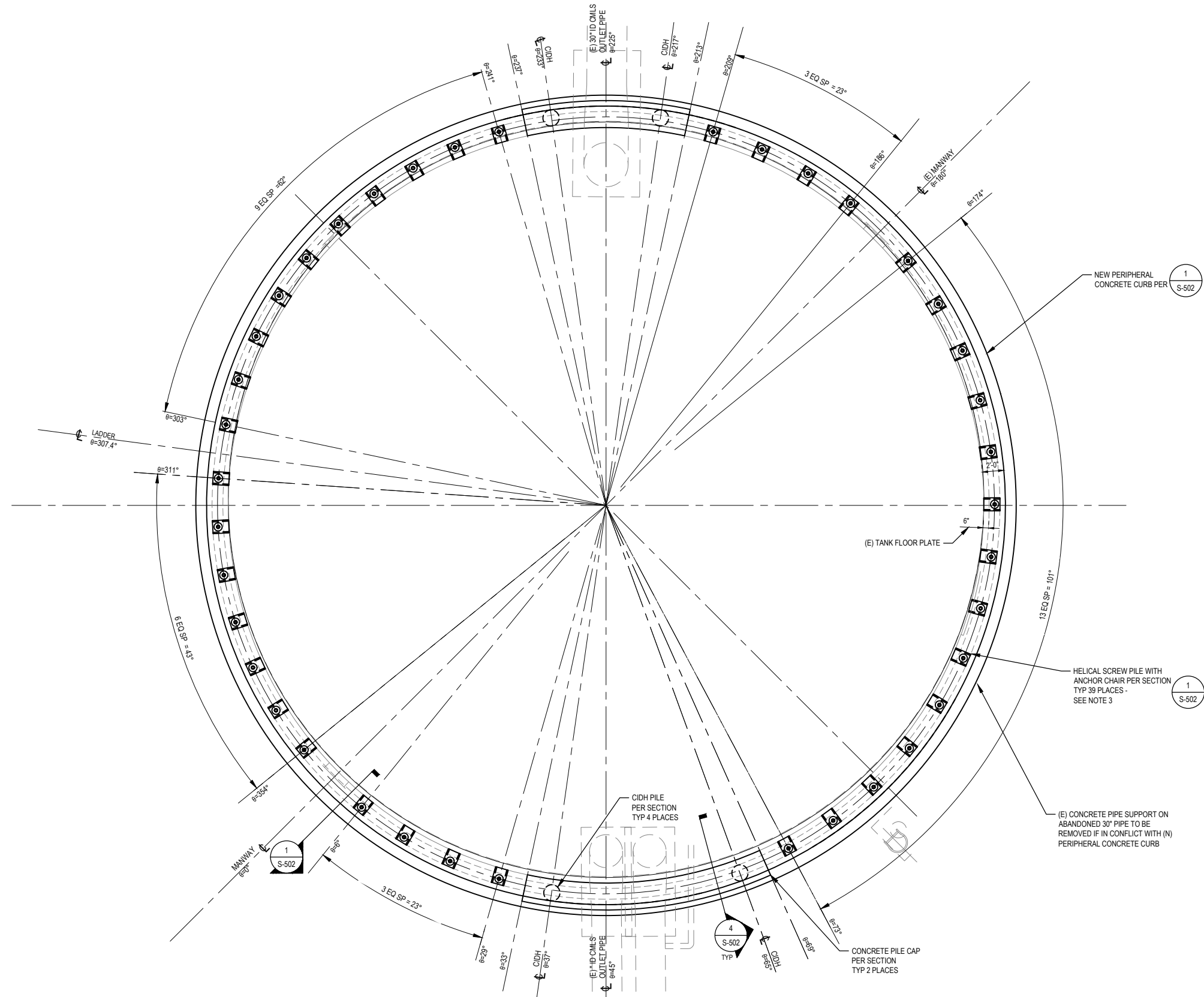
Title **SPECIAL INSPECTIONS**

Sheet No. **S-002**      Sheet **11 of 18**

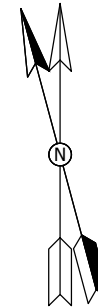
**SHEET GENERAL NOTES**

- CONTRACTOR TO PROVIDE ALL COMPONENTS TO CONSTRUCT / INSTALL NEW WORK.
- ALL ANGULAR MEASUREMENTS SHOWN ARE APPROXIMATE AND SHALL BE VERIFIED IN THE FIELD PRIOR TO ANY CONSTRUCTION OR FABRICATION. ANY DISCREPANCIES BETWEEN THIS LAYOUT PLAN AND FIELD MEASUREMENTS MADE BY THE CONTRACTOR SHALL BE SUBMITTED TO THE ENGINEER OF RECORD PRIOR TO ANY CONSTRUCTION OR FABRICATION. THE ENGINEER OF RECORD MAY MODIFY THIS LAYOUT TO MITIGATE ANY DISCREPANCIES AND ISSUE AN ADDENDUM TO THIS DRAWING. NO CONSTRUCTION OR FABRICATION SHALL BEGIN PRIOR TO RECEIPT OF THE ADDENDUM OR APPROVAL FROM THE ENGINEER OF RECORD.
- VERTICAL HELICAL SCREW ANCHOR (DESIGN AND CONSTRUCTION BY CONTRACTOR - REFERENCE SPECIFICATION SECTION 31 62 99). CHANGEHUBLE COMBINATION HELICAL PILE OR APPROVED EQUIVALENT, PILE SYSTEM TO BE MANUFACTURED AND INSTALLED PER THE FOLLOWING CRITERIA:

SHAFT MATERIAL:  
 TYPE SS200 2.0"x2.0" SOLID SQUARE SHAFT  
 EXTENSION: TYPE RS3500.300 (3.5 O.D., 0.300" WALL PIPE SHAFT)  
 HELICAL CONFIGURATION:  
 8"x10"x12" HELIX  
 ESTIMATED LENGTH:  
 27-30 FT (UPPERMOST HELIX TO BE LOCATED 5-FT BELOW FINISHED GRADE OR LIQUIFIABLE LAYER)  
 REQUIRED CAPACITY:  
 COMPRESSION: 88-KIPS ULTIMATE  
 TENSION: 80-KIPS ULTIMATE  
 MAX INSTALLATION TORQUE: 13,000 FT-LBS  
 (RS3500.300 SHAFT MAX WORKING TORQUE LIMIT)  
 MIN INSTALLATION TORQUE: 10,000 FT-LBS



TRUE NORTH PLAN NORTH



**1 FOUNDATION LAYOUT - PLAN**  
 SCALE: 3/16"=1'-0"

0 ISSUE FOR BID		NS	NS	2024-05-01
No.	Issue	Checked	Approved	Date
Author	S. BURNS	Drafting Check	S. BURNS	Project Manager
Designer	S. BURNS	Design Check	S. BURNS	Project Director
			N. STEVENS	K. TOBIN



Bar is one inch on original size sheet  
 0 1"



**GHD** GHD Inc.  
 718 Third Street  
 Eureka California 95501 USA  
 T 1 707 443 8326 F 1 707 444 8330  
 www.ghd.com

Conditions of Use  
 This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of GHD. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.

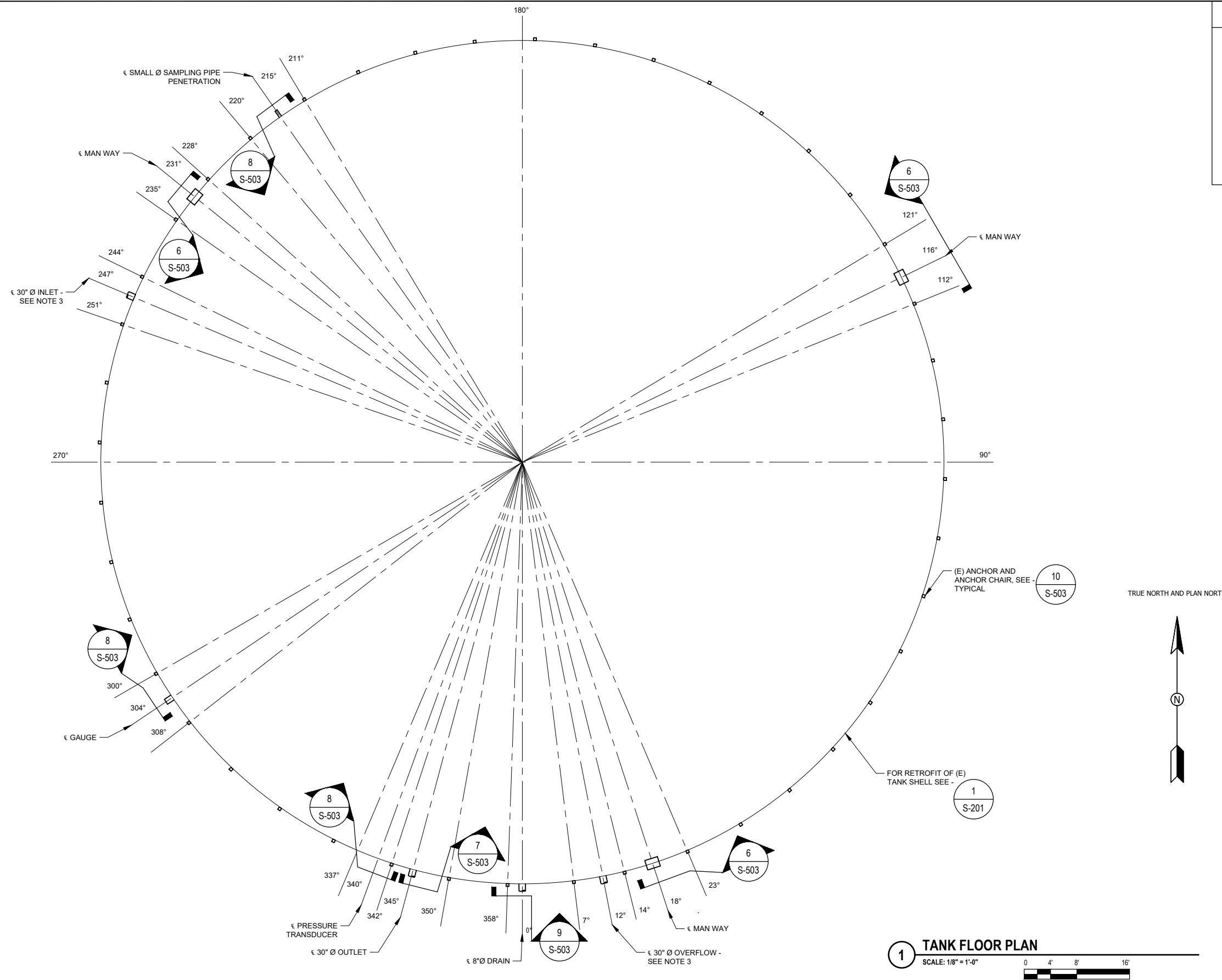


Client	<b>HUMBOLDT BAY MUNICIPAL WATER DISTRICT</b>
Project	<b>KORBLEX RESERVOIRS SEISMIC RETROFIT</b>
Project No.	12627733
Date	2024-05-01
Scale	AS SHOWN

Title	<b>1-MG DOMESTIC TANK FOUNDATION PLAN</b>
Sheet No.	<b>S-101</b>
Sheet	12 of 18

**SHEET GENERAL NOTES**

1. CONTRACTOR TO PROVIDE ALL COMPONENTS TO CONSTRUCT / INSTALL NEW WORK.
2. (E) ANCHOR CHAIRS ARE SPACED AT 8.182" AROUND THE TANK (44 EQUAL SPACES).
3. PENETRATION IN TANK WALLS IS ABOVE THE REINFORCING PLATES.
4. SMALL DIAMETER PIPE PENETRATION - FIELD VERIFY.
5. ALL ANGULAR MEASUREMENTS SHOWN ARE APPROXIMATE AND SHALL BE VERIFIED IN THE FIELD PRIOR TO ANY CONSTRUCTION OR FABRICATION. ANY DISCREPANCIES BETWEEN THIS LAYOUT PLAN AND FIELD MEASUREMENTS MADE BY THE CONTRACTOR SHALL BE SUBMITTED TO THE ENGINEER OF RECORD PRIOR TO ANY CONSTRUCTION OR FABRICATION. THE ENGINEER OF RECORD MAY MODIFY THIS LAYOUT TO MITIGATE ANY DISCREPANCIES AND ISSUE AN ADDENDUM TO THIS DRAWING. NO CONSTRUCTION OR FABRICATION SHALL BEGIN PRIOR TO RECEIPT OF THE ADDENDUM OR APPROVAL FROM THE ENGINEER OF RECORD.



**1 TANK FLOOR PLAN**  
SCALE: 1/8" = 1'-0"

0 ISSUE FOR BID				NS	NS	2024-05-01
No.	Issue	Checked	Approved	Date		
Author	S. BURNS	Drafting Check	S. BURNS	Project Manager	N. STEVENS	
Designer	S. BURNS	Design Check	S. BURNS	Project Director	K. TOBIN	



Bar is one inch on original size sheet  
0 1"



**GHD** Inc.  
718 Third Street  
Eureka California 95501 USA  
T 1 707 443 8326 F 1 707 444 8330

Conditions of Use  
This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of GHD. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.



Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**  
Project **KORBLEX RESERVOIRS SEISMIC RETROFIT**  
Project No. **12627733**  
Date **2024-05-01**  
Scale **AS SHOWN**

Title **2-MG DOMESTIC TANK SHELL REINFORCEMENT PLAN**

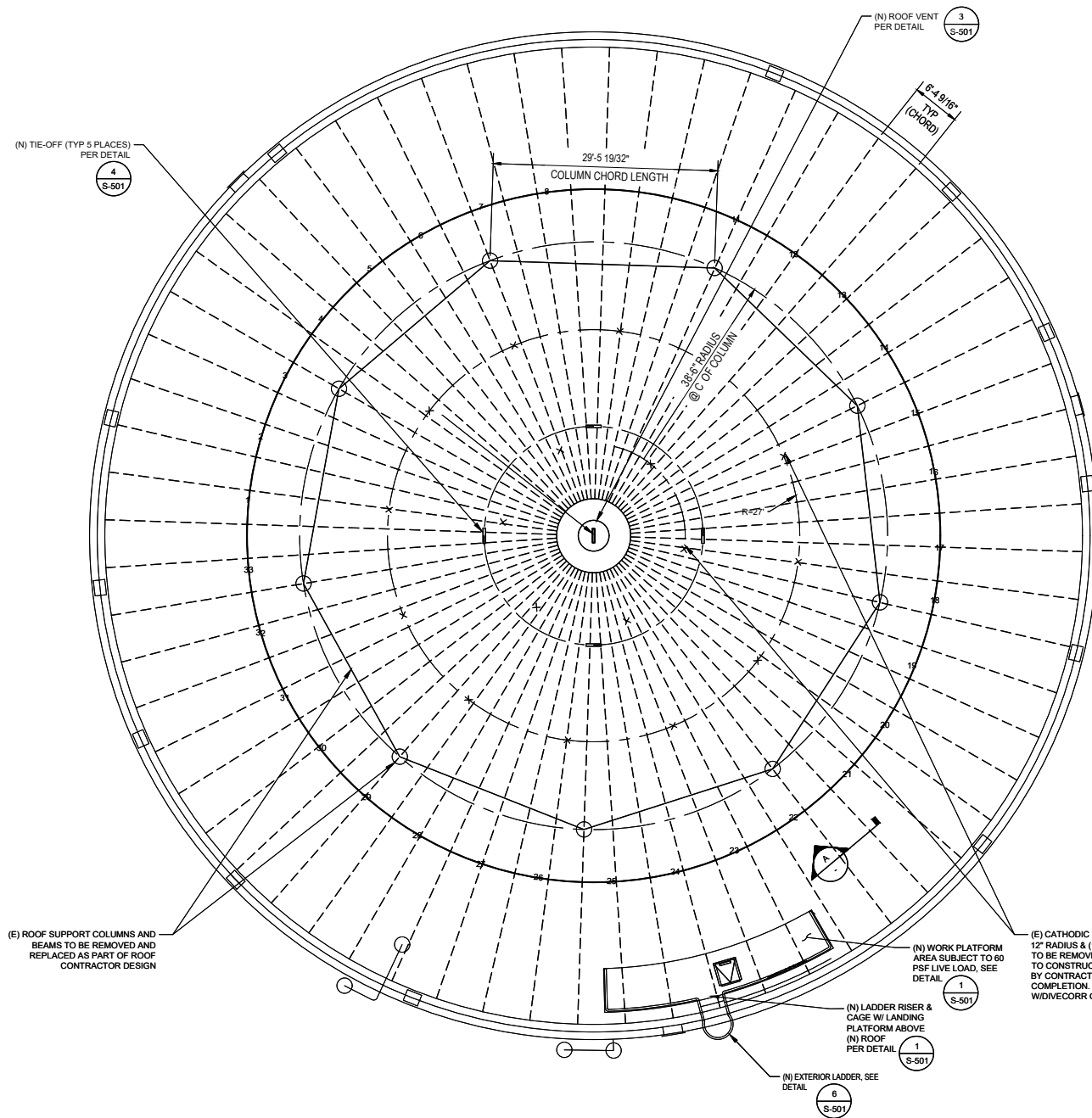
Size **ANSI D**  
Sheet No. **S-102**  
Sheet **13 of 18**

**SHEET GENERAL NOTES**

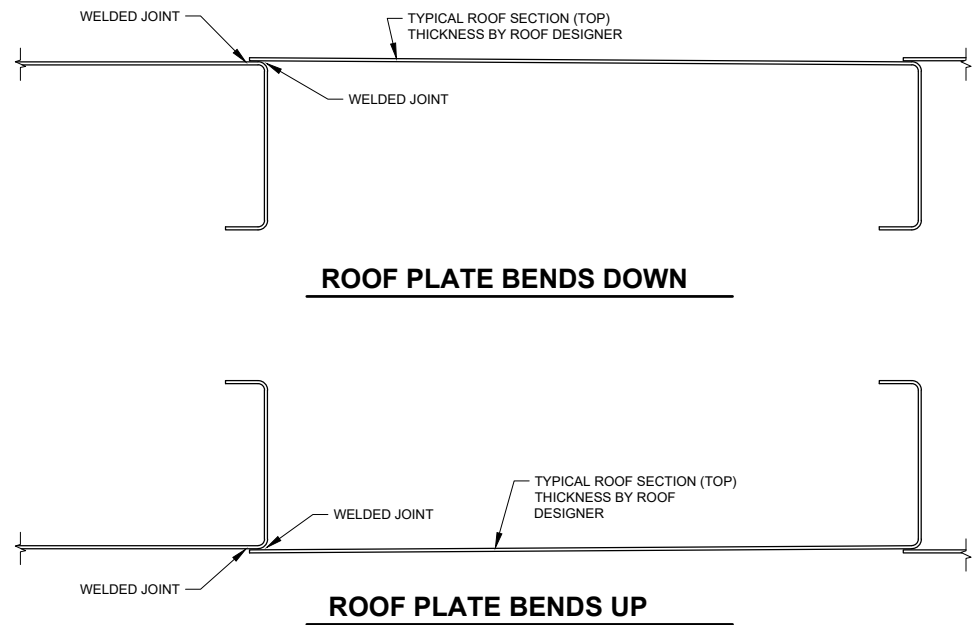
1. CONTRACTOR TO PROVIDE ALL COMPONENTS TO CONSTRUCT / INSTALL NEW WORK.

**ROOF BUILD NOTE:**

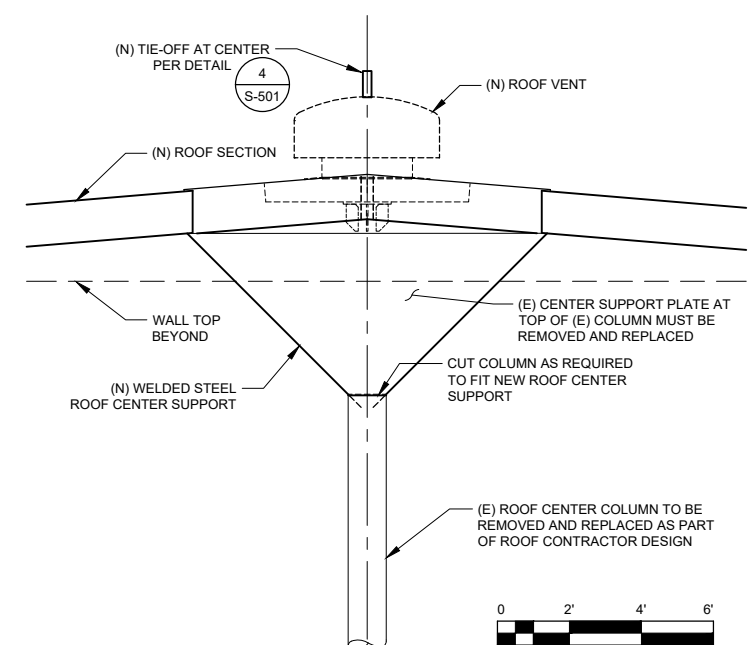
1. ROOF BUILD OPTIONS SHOWN ARE CONCEPTUAL ONLY. ONE-PIECE PRESS-BRAKE JOIST WITH ROOF PLATE SECTIONS WITH CONTINUOUS SEALED WELDED JOINTS ARE THE PREFERRED METHOD OF CONSTRUCTION TO PROVIDE A MORE SERVICEABLE INTERIOR ROOF SURFACE IN LIGHT OF CURRENT CORROSION ISSUES NECESSITATING THIS ROOF REPLACEMENT. CONTRACTOR BIDS SHALL INCLUDE THE METHOD OF FRAMING TO BE USED. CONTRACTOR BIDS SHALL ALSO INCLUDE JUSTIFICATION FOR ROOF FRAMING OPTION TO BE PROVIDED, INCLUDING ANY COST COMPARISON TO SERVICEABILITY/MAINTENANCE BENEFITS.



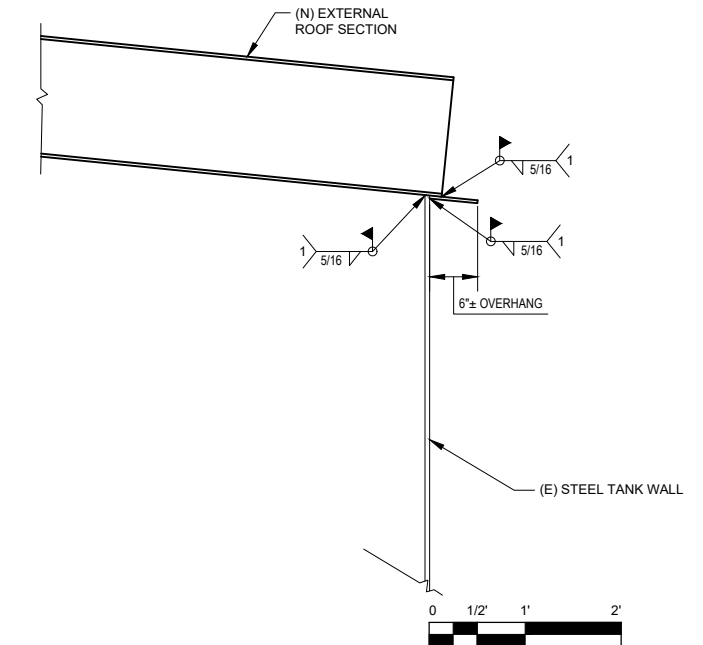
**1 ROOF LAYOUT - PLAN**  
SCALE: 3/32" - 1-0"



**A TYPICAL FORMED ROOF SECTIONS**  
SCALE: 1 1/2" - 1-0"



**2 CENTER SUPPORT COLUMN CONNECTION**  
SCALE: 3/8" - 1-0"



**3 ROOF TO WALL CONNECTION**  
SCALE: 1" - 1-0"

0 ISSUE FOR BID				NS	NS	2024-05-01
No.	Issue	Checked	Approved	Date		
Author	S. BURNS	Drafting Check	S. BURNS	Project Manager	N. STEVENS	
Designer	S. BURNS	Design Check	S. BURNS	Project Director	K. TOBIN	



Bar is one inch on original size sheet  
0 1"



**GHD** GHD Inc.  
718 Third Street  
Eureka California 95501 USA  
T 1 707 443 8326 F 1 707 444 8330

Conditions of Use  
This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of GHD. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.



Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**  
Project **KORBLEX RESERVOIRS SEISMIC RETROFIT**

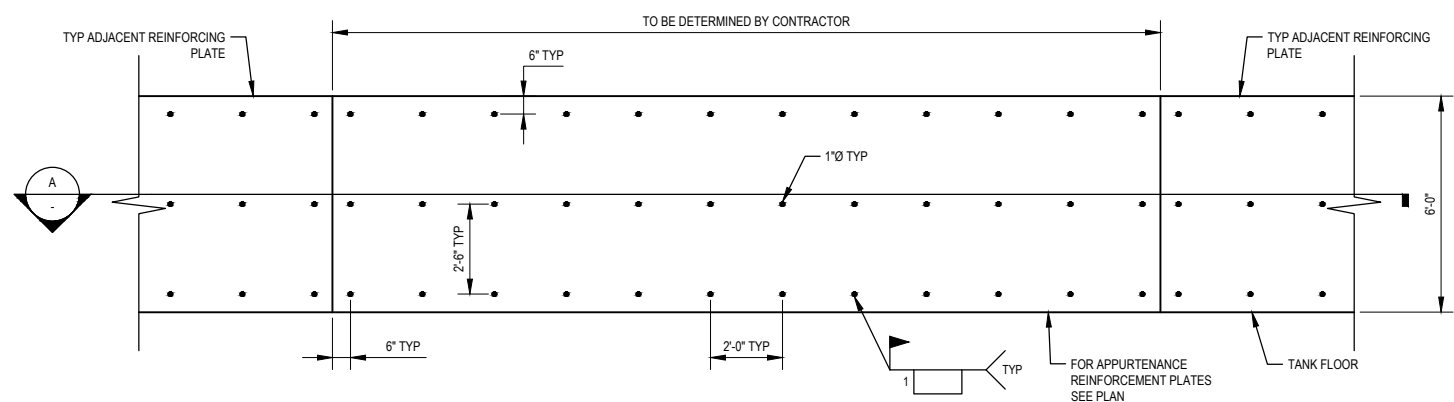
Project No. **12627733** Date **2024-05-01** Scale **AS SHOWN**

Title **2-MG DOMESTIC TANK ROOF PLAN**

Sheet No. **S-103** Sheet **14 of 18**

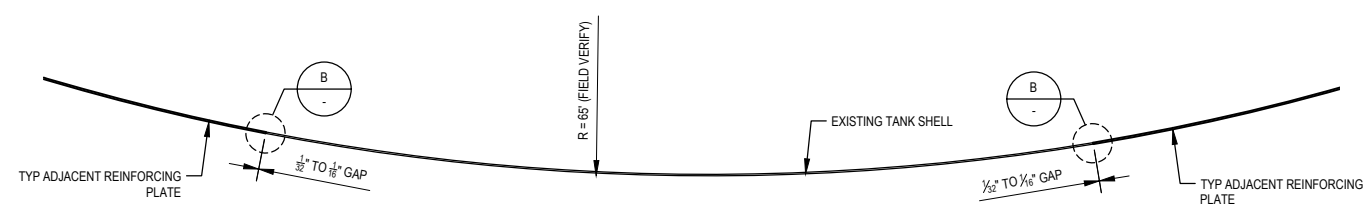
**SHEET GENERAL NOTES**

1. CONTRACTOR TO PROVIDE ALL COMPONENTS TO CONSTRUCT / INSTALL NEW WORK.
2. AT ALL LOCATIONS WHERE THERE WILL BE WELDING INTO EXISTING METAL SUCH AS PLUG WELDS, FILLET WELDS, OR FULL PENETRATION WELDS, GRIND OFF EXISTING COATING PRIOR TO WELDING TO ENSURE NO CONTAMINANTS WILL ENTER WELD METAL.



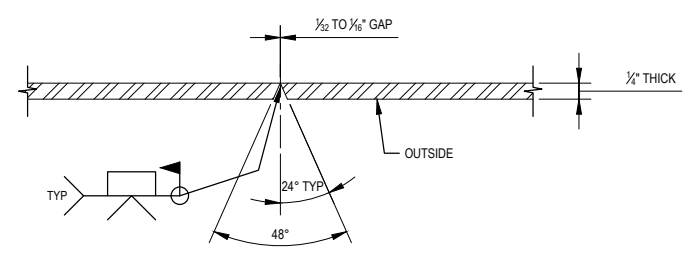
**ELEVATION VIEW TYP REINFORCING PLATE**

NOT TO SCALE



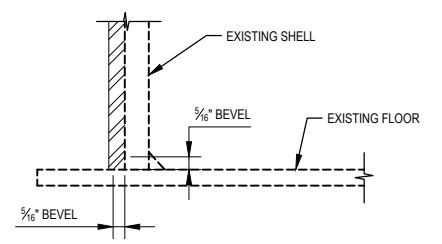
**PLAN VIEW SECTION**

NOT TO SCALE



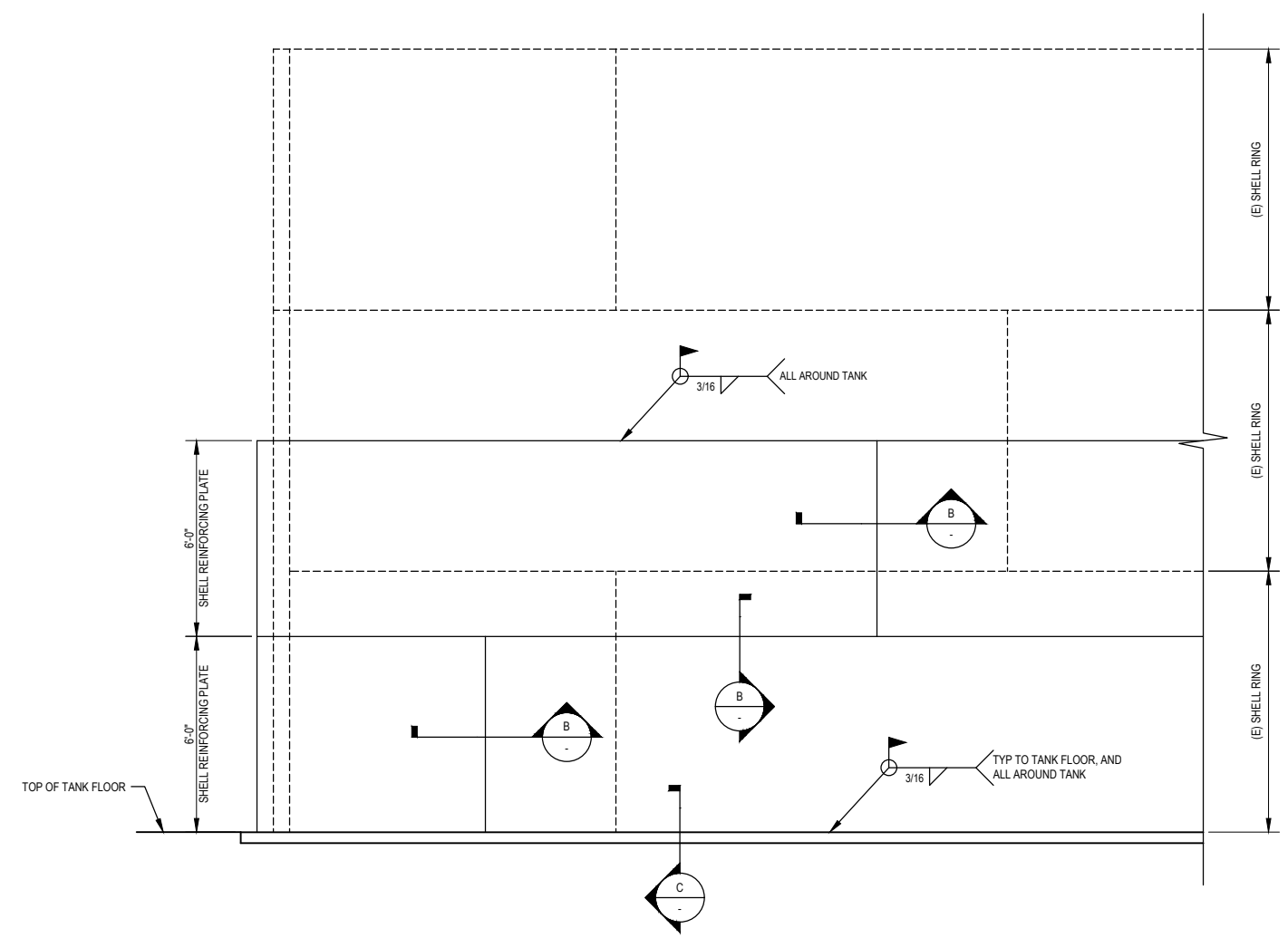
**B SECTION**

NOT TO SCALE



**C SECTION**

NOT TO SCALE



**1 TYPICAL TANK SHELL ELEVATION**

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

No.	Issue	Checked	Approved	Date
0	ISSUE FOR BID	NS	NS	2024-05-01
Author	D. SONG	Drafting Check	S. BURNS	Project Manager
Designer	S. BURNS	Design Check	S. BURNS	Project Director
			N. STEVENS	
			K. TOBIN	



Bar is one inch on original size sheet  
0 1"



**GHD**  
GHD Inc.  
718 Third Street  
Eureka California 95501 USA  
T 1 707 443 8326 F 1 707 444 8330

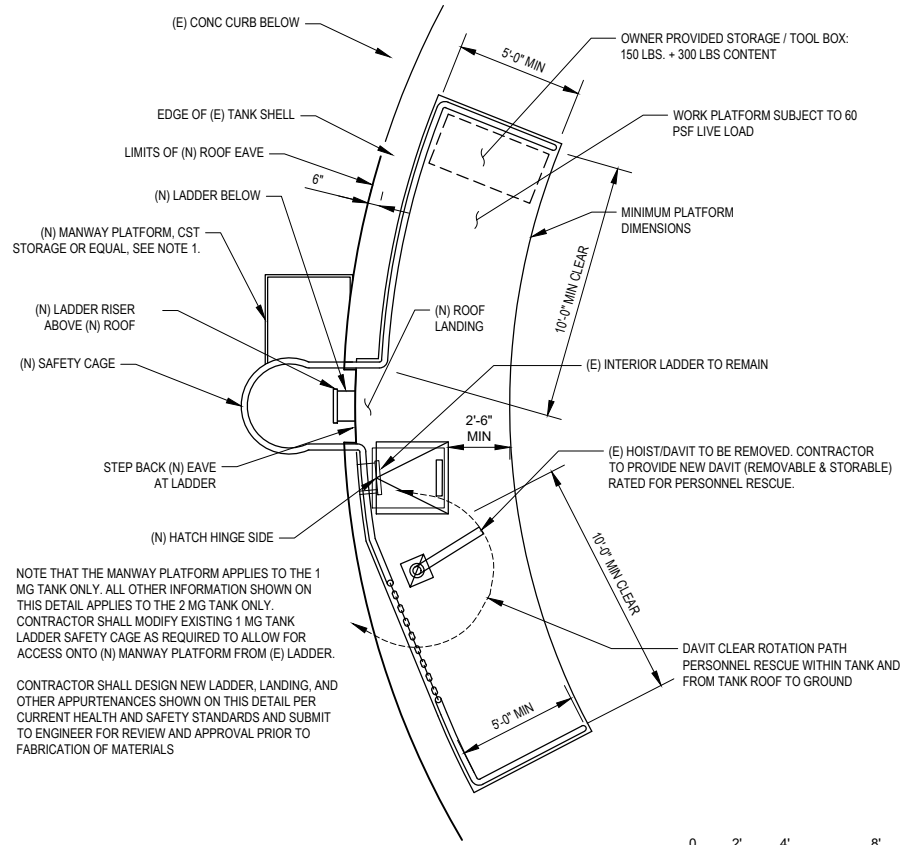


Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**  
Project **KORBLEX RESERVOIRS SEISMIC RETROFIT**

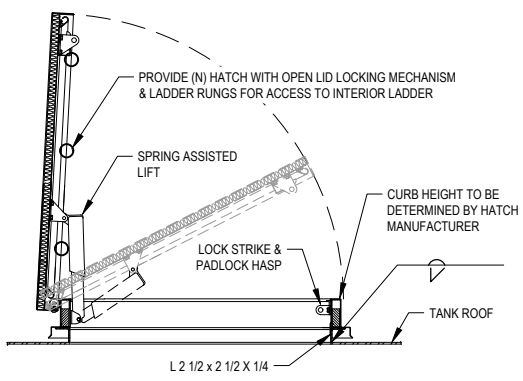
Title **TANK SECTION**

Project No. **12627733** Date **2024-05-01** Scale **AS SHOWN**

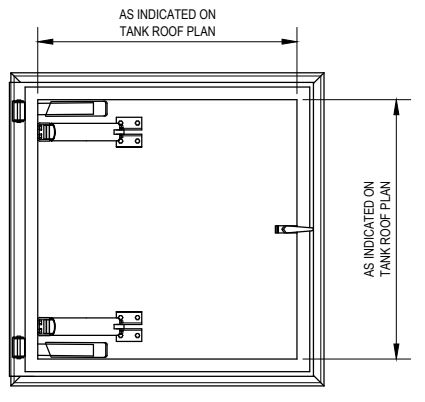
Sheet No. **S-201** Sheet **15 of 18**



**1 TANK PLATFORM & RAILING PLAN**  
SCALE: 1/4" = 1'-0"

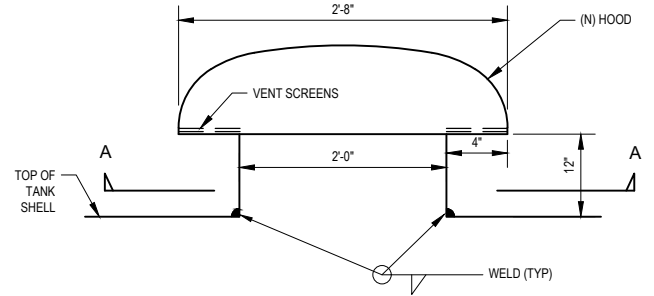


**ELEVATION**

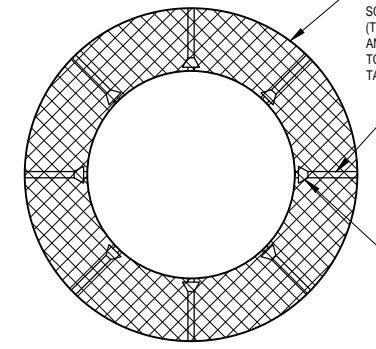


**PLAN**

**2 ROOF HATCH DETAIL**  
SCALE: NOT TO SCALE

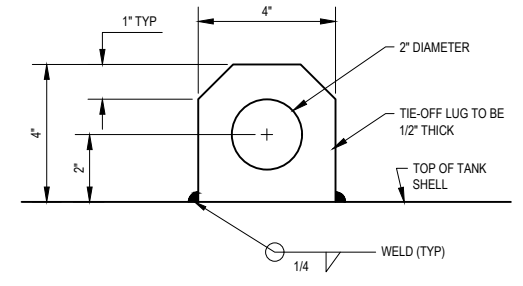


**FRONT VIEW**

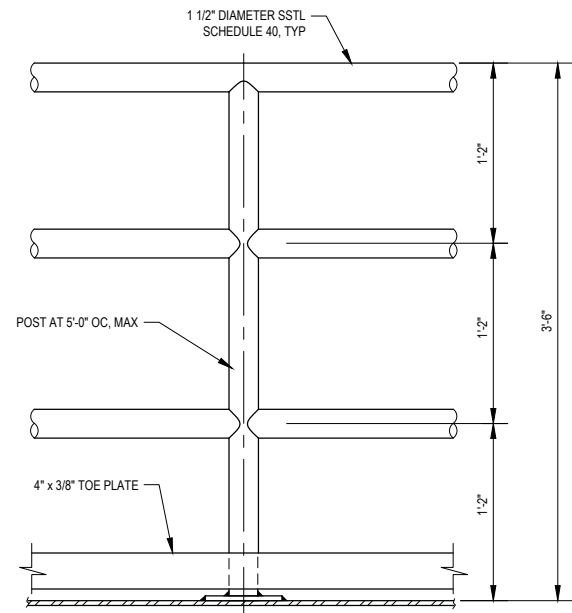


**BOTTOM VIEW (SECTION A - A)**

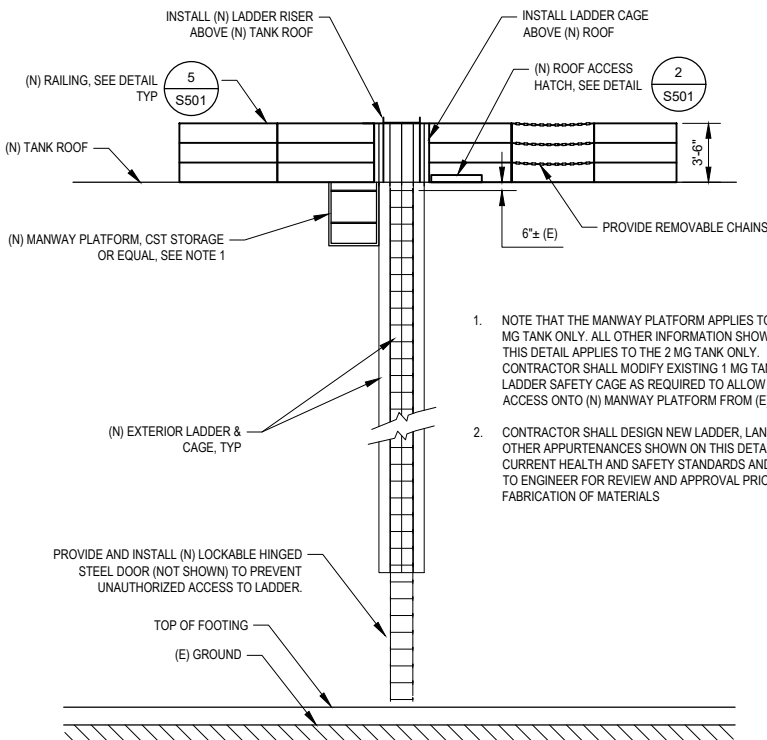
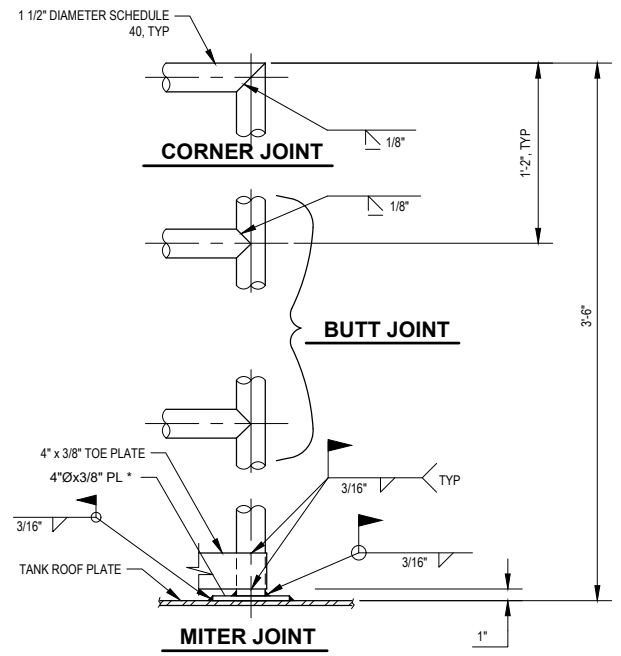
**3 ROOF VENT DETAILS**  
SCALE: NOT TO SCALE



**4 TIE-OFF DETAIL**  
SCALE: NOT TO SCALE

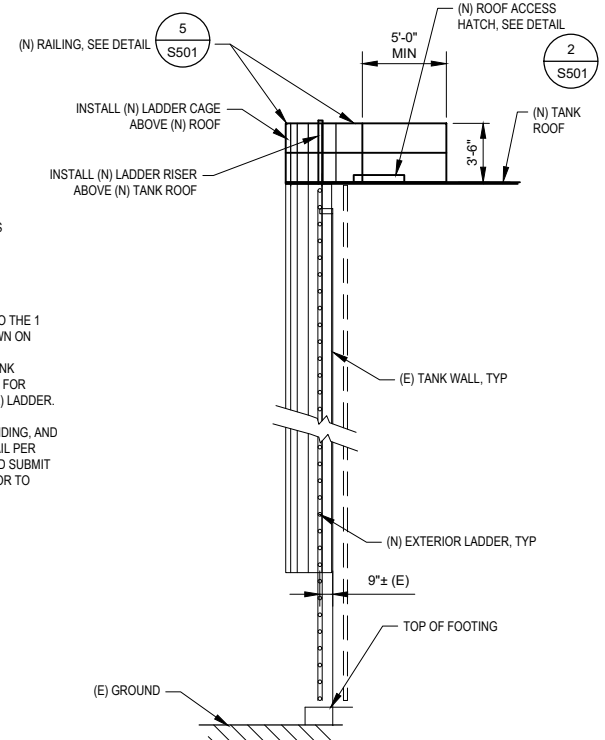


**5 SAFETY RAILING DETAIL**  
SCALE: NOT TO SCALE



**VIEW FACING TANK WALL**

**6 EXTERIOR LADDER DETAILS**  
SCALE: NOT TO SCALE



**SECTIONAL VIEW**

0	ISSUE FOR BID	NS	NS	2024-05-01
No.	Issue	Checked	Approved	Date
Author	S. GOULD	Drafting Check	S. BURNS	Project Manager
Designer	S. BURNS	Design Check	S. BURNS	Project Director
			N. STEVENS	K. TOBIN



Bar is one inch on original size sheet  
0 1"



**GHD** GHD Inc.  
718 Third Street  
Eureka California 95501 USA  
T 1 707 443 8326 F 1 707 444 8330



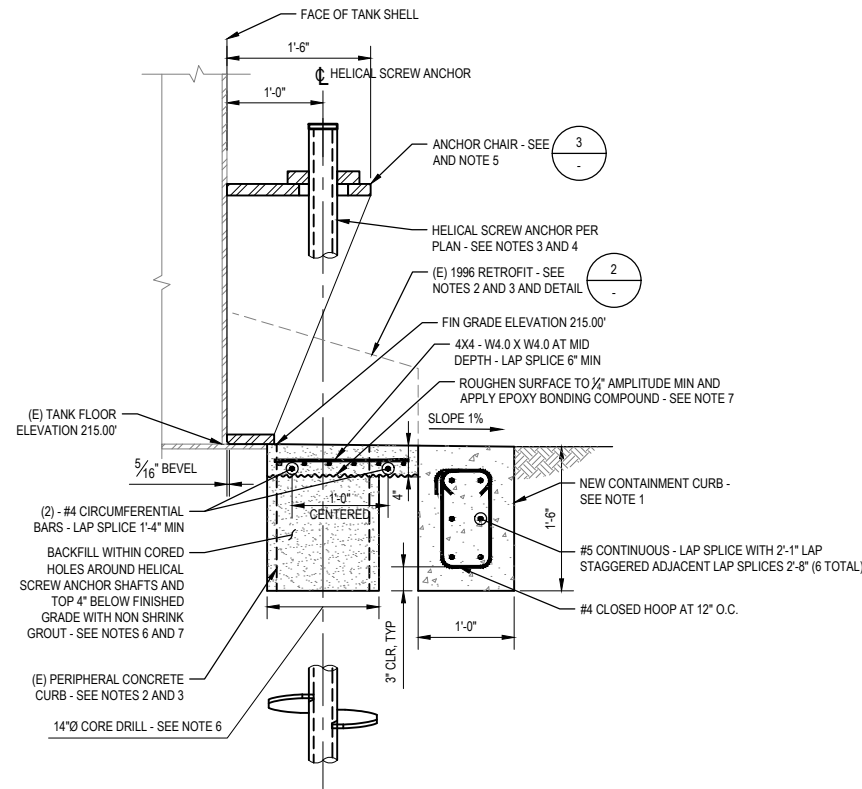
Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**  
Project **KORBLEX RESERVOIRS SEISMIC RETROFIT**

Title **TYPICAL DETAILS - 1**

Project No. **12627733** Date **2024-05-01** Scale **AS SHOWN**

Sheet No. **S-501** Sheet **16 of 18**



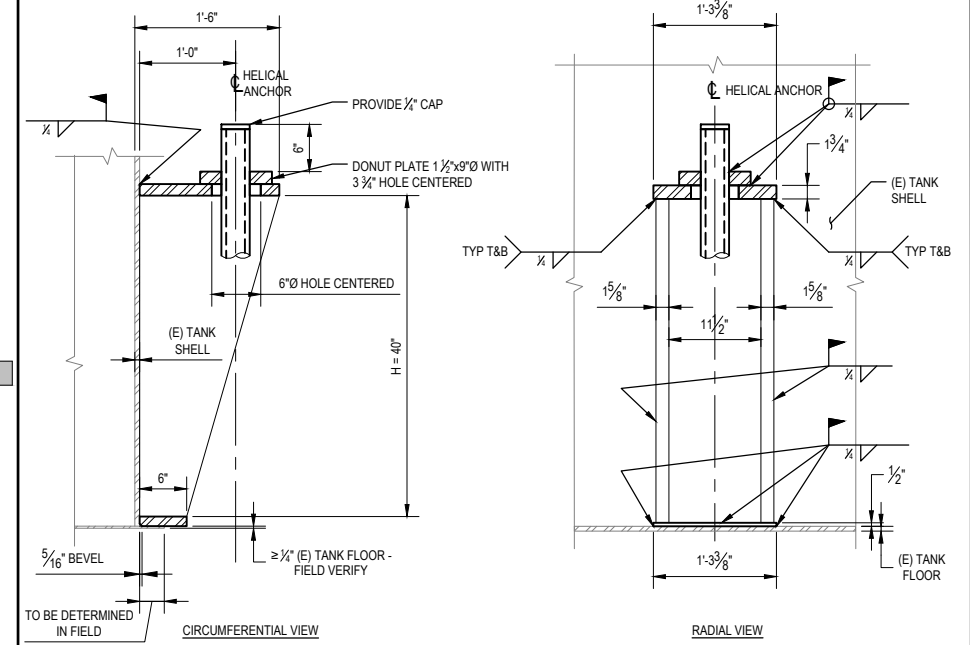


**1 TANK FOUNDATION RETROFIT AND CONSTRUCTION SEQUENCING**  
SCALE: 1" = 1'-0"

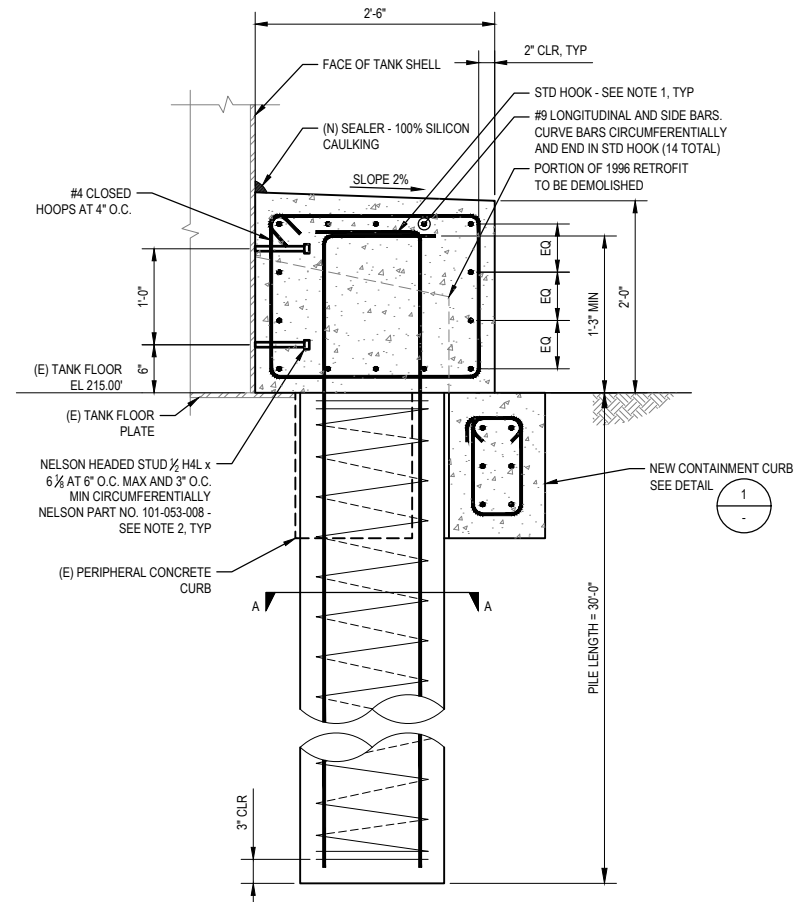
**CONSTRUCTION SEQUENCING:**

1. INSTALL NEW CONTAINMENT RING PRIOR TO ANY OTHER DEMOLITION, CONSTRUCTION, OR HELICAL PILE INSTALLATION. DO NOT PERFORM SEQUENCE NOTES 3 THROUGH 7 UNTIL NEW CONTAINMENT RING HAS ACHIEVED ITS 28-DAY CONCRETE STRENGTH.
2. REMOVE (E) 1966 RETROFIT CONCRETE ABOVE FINISHED GRADE ELEVATION. DO NOT DAMAGE (E) PERIPHERAL CONCRETE CURB OR CONCRETE STEM WALL OF (E) 1966 RETROFIT BELOW FINISHED GRADE.
3. AT EACH ANCHOR LOCATION INDICATED ON PLAN, CORE DRILL 14-INCH DIAMETER VERTICAL HOLE THROUGH (E) PERIPHERAL CONCRETE CURB AND REMAINING CONCRETE STEM WALL OF (E) 1966 RETROFIT BELOW FINISHED GRADE. DO NOT OTHERWISE DAMAGE (E) PERIPHERAL CONCRETE CURB OR STEM WALL OF (E) 1966 RETROFIT.
4. INSTALL HELICAL SCREW ANCHORS.
5. INSTALL ANCHOR CHAIRS.
6. GROUT AROUND HELICAL SCREW ANCHOR SHAFT UP TO 3" BELOW FINISHED GRADE.
7. REMOVE TOP 4" OF CONCRETE FROM (E) 1966 RETROFIT CONCRETE AND (E) PERIPHERAL CONCRETE CURB AND REPLACE BACK WITH NON-SHRINK GROUT. PROVIDE 1% SLOPE AWAY FROM TANK.
8. PAINT ALL EXPOSED METAL IN CONFORMANCE WITH PROJECT SPECIFICATION.

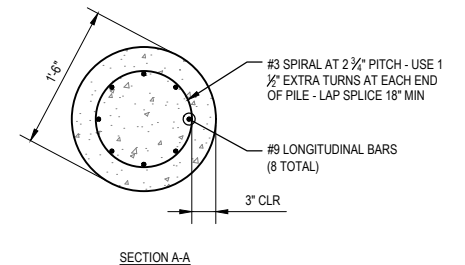
**2 EXISTING TANK CURBING PER 1996 RETROFIT**  
SCALE: 1" = 1'-0" (FOR REFERENCE)



**3 ANCHOR CHAIR DETAIL**  
SCALE: 1" = 1'-0"



**4 PILE CAP AND PILE DETAIL**  
SCALE: 1" = 1'-0"



- NOTES:**
1. ROTATE COLUMN LONGITUDINAL BAR HOOKS RADICALLY OUTWARD UNLESS THERE IS INSUFFICIENT SPACE TO DO SO.
  2. LOCATE FIRST AND LAST HEADED STUD IN A ROW 3" FROM ENDS OF PILE CAP.

0	ISSUE FOR BID	NS	NS	2024-05-01	
No.	Issue	Checked	Approved	Date	
Author	P. HERNANDEZ	Drafting Check	S. BURNS	Project Manager	N. STEVENS
Designer	S. BURNS	Design Check	S. BURNS	Project Director	K. TOBIN



Bar is one inch on original size sheet  
0 1"



**GHD** Inc.  
718 Third Street  
Eureka California 95501 USA  
T 1 707 443 8326 F 1 707 444 8330



Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**  
Project **KORBLEX RESERVOIRS SEISMIC RETROFIT**

Title **TYPICAL DETAILS - 2**

Project No. **12627733** Date **2024-05-01** Scale **AS SHOWN**

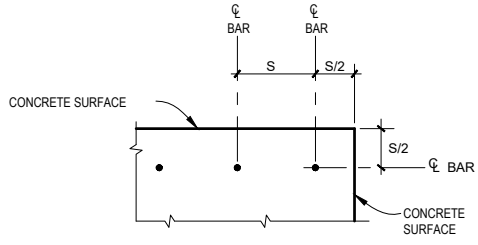
Sheet No. **S-502** Sheet **17 of 18**

BAR SIZE	DEVELOPMENT LENGTH ( $l_{dh}$ )											
	3000 PSI CONC (fc)				4000 PSI CONC (fc)				5000 PSI CONC (fc)			
	TOP		OTHER		TOP		OTHER		TOP		OTHER	
	$s \geq 6"$	$s < 6"$	$s \geq 6"$	$s < 6"$	$s \geq 6"$	$s < 6"$	$s \geq 6"$	$s < 6"$	$s \geq 6"$	$s < 6"$	$s \geq 6"$	$s < 6"$
#3	13	22	12	17	12	19	12	15	12	17	12	13
#4	18	29	14	22	15	25	12	19	14	23	12	17
#5	22	36	17	28	19	31	15	24	17	28	13	22
#6	26	43	20	33	23	37	18	29	20	34	16	26
#7	38	63	29	48	33	54	25	42	29	49	23	38
#8	43	72	33	55	37	62	29	48	34	56	26	43
#9	49	81	37	62	42	70	33	54	38	63	29	48
#10	56	89	43	69	49	78	38	60	44	69	34	54
#11	68	98	52	76	59	85	45	66	53	76	41	59

BAR SIZE	TENSION LAP SPLICE LENGTH (CLASS 'B' SPLICE)											
	3000 PSI CONC (fc)				4000 PSI CONC (fc)				5000 PSI CONC (fc)			
	TOP		OTHER		TOP		OTHER		TOP		OTHER	
	$s \geq 6"$	$s < 6"$	$s \geq 6"$	$s < 6"$	$s \geq 6"$	$s < 6"$	$s \geq 6"$	$s < 6"$	$s \geq 6"$	$s < 6"$	$s \geq 6"$	$s < 6"$
#3	17	28	16	22	16	25	16	19	16	22	16	17
#4	23	38	18	29	20	33	16	25	18	29	16	23
#5	28	47	22	36	25	41	19	31	22	36	17	28
#6	34	56	26	43	29	49	23	38	26	44	20	34
#7	49	82	38	63	43	71	33	55	38	63	30	49
#8	56	93	43	72	49	81	38	62	44	72	34	56
#9	63	105	49	81	55	91	42	70	49	81	38	63
#10	73	116	56	90	63	101	49	78	57	90	44	70
#11	88	128	68	99	76	111	59	85	68	99	53	76

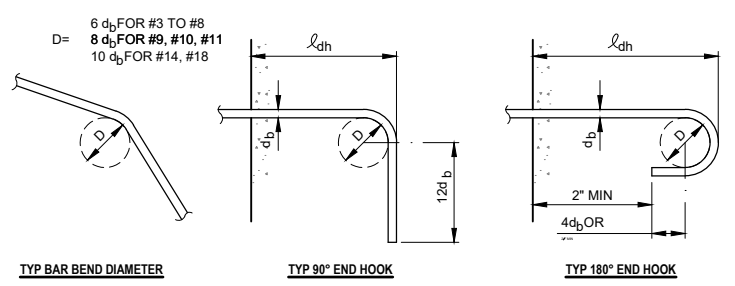
- NOTES:
- LENGTHS SHOWN ARE FOR GRADE 60 UNCOATED BARS.
  - LENGTHS SHOWN ARE IN INCHES.
  - INCREASE LENGTHS 30% FOR LIGHT WEIGHT CONCRETE
  - TOP BARS: HORIZONTAL BARS WITH MORE THAN 12' OF FRESH CONCRETE CAST BELOW THEM.
  - THE QUANTITY 'S' IS DEFINED AS FOLLOWS:



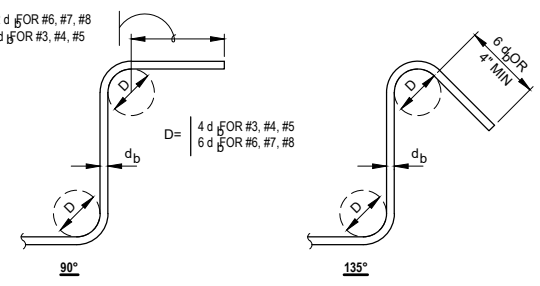
**1 BAR DEVELOPMENT LENGTHS AND LAP SPLICE LENGTHS FOR CONCRETE**  
NOT TO SCALE

**2 NOT USED**  
NOT TO SCALE

**3 NOT USED**  
NOT TO SCALE



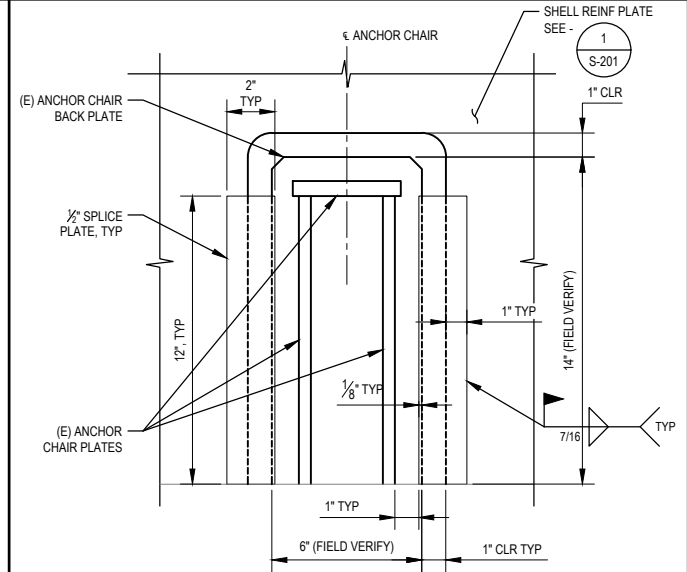
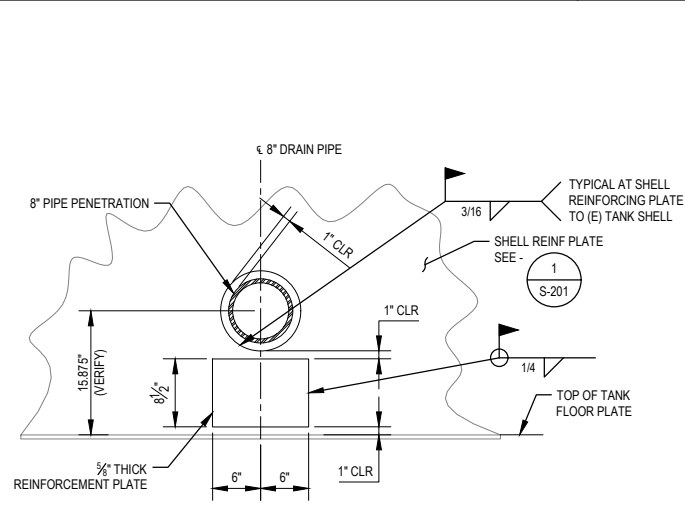
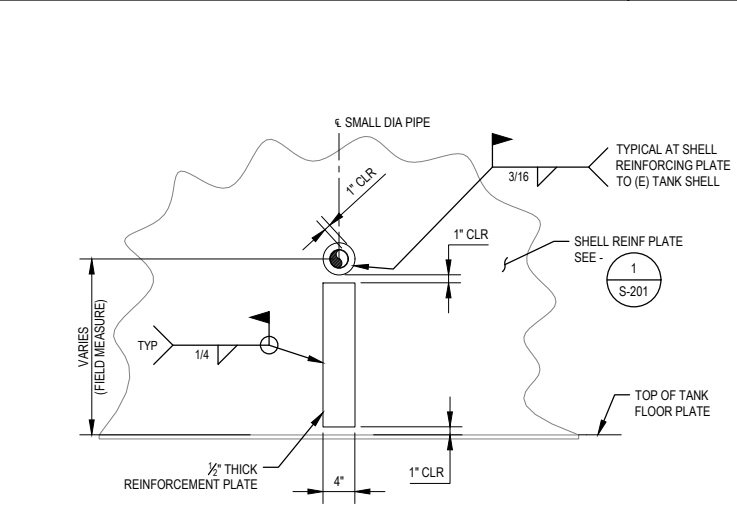
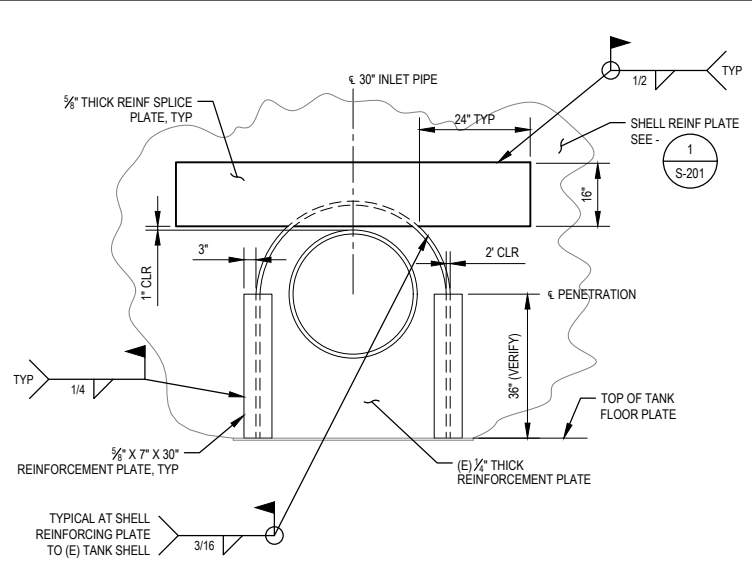
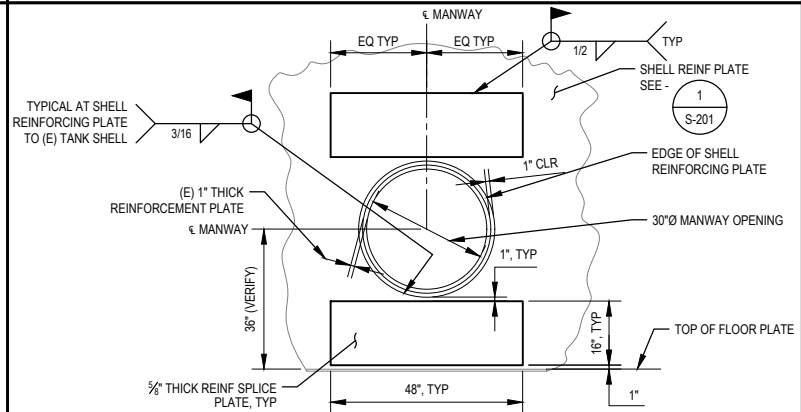
BAR SIZE	MINIMUM TENSION EMBEDMENT LENGTHS (IN.) $l_{dh}$ FOR STANDARD END HOOKS ON REINFORCING BARS			
	3000	4000	5000	6000
#3	6	6	6	6
#4	8	7	6	6
#5	10	9	8	7
#6	12	10	9	9
#7	14	12	11	10
#8	16	14	12	11
#9	18	15	14	13
#10	20	17	16	14
#11	22	19	17	16
#14	38	33	29	27
#18	50	43	39	35



**4 REINFORCING BAR ENDS AND BAR HOOKS**  
NOT TO SCALE

**5 STIRRUPS AND TIE HOOKS**  
NOT TO SCALE

**6 REIN SPlice PLATES AT MANWAY OPENINGS**  
NOT TO SCALE



**7 REIN SPlice PLATES AT 30" OUTLET PENETRATION**  
NOT TO SCALE

**8 REIN SPlice PLATES AT SMALL DIAMETER PIPE (< 2 1/2" I.D.) PENETRATIONS**  
NOT TO SCALE

**9 REIN SPlice PLATE AT 8" DRAIN**  
NOT TO SCALE

**10 SPlice PLATES AT (E) ANCHOR CHAIRS**  
NOT TO SCALE

0	ISSUE FOR BID	NS	NS	2024-05-01
No.	Issue	Checked	Approved	Date
Author	D. SONG	Drafting Check	S. BURNS	Project Manager
Designer	S. BURNS	Design Check	S. BURNS	Project Director
			N. STEVENS	
			K. TOBIN	



Bar is one inch on original size sheet  
0 1"



**GHD** GHD Inc.  
718 Third Street  
Eureka California 95501 USA  
T 1 707 443 8326 F 1 707 444 8330  
www.ghd.com

Conditions of Use  
This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of GHD. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.

Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**  
Project **KORBLEX RESERVOIRS SEISMIC RETROFIT**

Project No. **12627733** Date **2024-05-01** Scale **AS SHOWN**

Title **TYPICAL DETAILS - 3**

Sheet No. **S-503** Sheet **18 of 18**