



HUMBOLDT BAY MUNICIPAL WATER DISTRICT

Request for Qualifications (RFQ)

Reservoirs Seismic Retrofit Project (3 Tanks) Samoa Peninsula and Korblex, California

Bid Period Assistance and Construction Management

A. Invitation

You are invited to submit a Statement of Qualifications (SOQ) in accordance with the outline below to be considered for selection by the Humboldt Bay Municipal Water District (District) to perform bid period assistance and construction management services for the District's Reservoirs Seismic Retrofit Project.

The deadline to submit an SOQ is provided in Table 1 in Section F of this RFQ.

B. Project Overview

The project consists of a seismic retrofit of the District's three reservoirs. On Korblex Hill, there are two potable domestic water (DW) reservoirs, a 1 Million Gallon (MG) capacity, welded steel tank constructed in 1967, and a 2 MG welded steel tank constructed in 1996, which is used for disinfection contact time in the treatment process and storage. The District also has another 1 MG welded steel tank also constructed in 1967 located on the Samoa Peninsula and used for storage at that end of the District's non-potable Industrial Water (IW) system.

The District replaced the roof of the 1 MG domestic reservoir in 2017. As part of this roof replacement project, the seismic stability of the reservoir was assessed, and structural calculations were performed. It was found that the reservoir did not conform to the then-current California Building Code (CBC) seismic requirements, and its ability to resist seismic forces was 33% below what would be required for new tank construction. Based on our improved understanding of earthquake forces, the current CBC requires much stricter seismic design requirements based on the anticipated seismic forces at the project location. Humboldt County has some of the largest earthquake risk in California, and correspondingly some of the highest design parameters in the State and the United States. It was subsequently determined that the 1 MG Samoa IW reservoir, which was constructed with the same design and at the same time as the Korblex DW reservoir, and the 2 MG DW reservoir also require seismic retrofits.

The project is currently in the design phase. The construction work for the two project sites (Korblex and Samoa) is being broken up into two separate construction bid packages, and it is expected that construction will occur simultaneously at each site. The District's intent is to execute one agreement with a single consultant firm or team to provide the services as described in Section E for each construction project. GHD Inc. (GHD) has prepared 60% design documents (plans and specifications) for the project and is in the process of preparing final bid packages. The 60% design plans for the Korblex and Samoa sites have been included as Attachment 1 and Attachment 2, respectively.

A summary of the major design components is as follows:

- 1 MG Korblex tank
 - Install additional anchorage to lower shell ring and new concrete ring foundation with helical anchors that will integrate with existing foundation.
 - Install new flexible piping connections to accommodate potential differential settlement at necessary points of connection.
 - Spot coating as necessary.
- 2 MG Korblex tank
 - Install new roof and intermediate column supports designed to resist seismic sloshing wave.
 - Install new perimeter concrete ring wall connected to existing perimeter ring foundation and with anchorage connecting existing steel wall to new concrete ring.
 - Install new flexible piping connections to accommodate potential differential settlement at necessary points of connection.
 - Coating of the entire tank and roof.
- 1 MG Samoa tank
 - Install new roof and center column designed to resist seismic sloshing wave.
 - Install additional anchorage to lower shell ring. Install new concrete ring foundation with helical anchors that will integrate with existing foundation.
 - Install new flexible piping connections to accommodate potential differential settlement at necessary points of connection.
 - Coating of the entire tank and roof.

Note that the above bullet list is a summary of the major construction components, and it is not a comprehensive list of all the design components of the project. Furthermore, the major construction components are still subject to change and the 60% design documents are in the process of being developed into final design documents. While it is believed at this time that major design components will not be changed and will instead be refined to complete the design and allow for a competitive bid, design changes may occur, and the selected consultant will ultimately be responsible for performing construction management services in accordance with the final bid packages that are to be completed by GHD. Table 2 in Section G gives an estimated date for when final bid packages will be ready to advertise for construction bids.

C. Funding Sources

The project is being funded in part by a Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant being administered by the California Governor's Office of Emergency Services (Cal OES). Project activities must adhere to the requirements of both federal and state agencies related to the Hazard Mitigation Grant Program, National Environmental Policy Act (NEPA), and the California Environmental Quality Act (CEQA).

D. Selection Process

The District will establish a Selection Committee to review the SOQ submittals received. The Selection Committee will request a scope of work and fee proposal from the most qualified firm/team that is subject to negotiation of a fair and reasonable price. If negotiations are not successful, the District will terminate negotiations with the selected consultant and will begin to negotiate with other qualified consultants in the order

of their respective SOQ ranking (from highest to lowest) until an agreement is reached. The final proposal will be brought to the District's Board of Directors for potential approval.

E. Work to be Completed

The District is seeking a consultant firm or team to provide construction bid period assistance and construction management services for the seismic retrofit of the District's three welded steel reservoirs. One reservoir is located on the Samoa Peninsula, and the other two are located at the District's Korblex facility near Arcata, California. A single consultant firm or team will be selected encompassing all the required services. The services that are required include the following:

1. Bid period assistance

- 1.1 Assist the District with distributing and advertising the Plans and Specifications completed by GHD for a competitive sealed bid process for project construction.
- 1.2 Respond to contractor questions during the bid phase in the form of formal addenda. Consult the Engineer of Record for technical questions that are related to the intent of the project design.
- 1.3 Review and evaluate construction bids for compliance with project specifications. Confirm that the low-cost bidder is responsible and responsive per CA state law, meets the project bond requirements, holds a valid contractor license, is registered with the California Department of Industrial Relations, and is not ineligible for participation in federal assistance programs.
- 1.4 Following review of contractor bids, recommend award to District staff and Board of Directors.

2. Construction management and inspection services

- 2.1 Provide construction inspection services to monitor contractor compliance with the plans and specifications. This will include but not be limited to special inspections for structural work, welding, and coating. It will also include daily inspections, reports, photo documentation, and other standard construction inspection tasks. Compaction testing and concrete sampling and testing will be the responsibility of the contractor, not the consultant.
- 2.2 Consult and coordinate with the District throughout construction. Continually provide the District with ongoing construction documentation.
- 2.3 Consult and coordinate with the District and Engineer of Record when issues arise that are related to the intent of the project design.
- 2.4 Develop agendas and minutes for and coordinate and conduct project construction meetings.
- 2.5 Receive, log, and respond to Contractor's submittals. Engage the District as necessary and include District staff on correspondence. Consult the Engineer of Record for technical submittals that are related to the intent of the project design. Selected consultant will respond to all administrative submittals and those related to standard materials of construction, for example, concrete, aggregates, etc.
- 2.6 Receive, log, and respond to Contractor's Requests for Information (RFIs). Engage the District as necessary and include District staff on correspondence. Coordinate with the Engineer of Record for technical RFIs that are related to the intent of the project design.
- 2.7 Receive, log, review, and assist the District with processing legitimate change orders. Coordinate with the Engineer of Record for change orders that are related to the intent of the project design.
- 2.8 Receive, log, review, and assist the District with processing pay requests.
- 2.9 Confirm that the contractor provides as-built drawing markups and review for adequacy.
- 2.10 Provide one clean, complete, set of as-built drawing markups for each construction project that incorporate redlines from the contractor, construction manager, and owner and rectify any conflicts

prior to delivering to the Engineer of Record. Final as-built drawings will be prepared by the Engineer of Record using this information.

2.11 Prepare contract closeout documents and prepare the Notice of Completion.

2.12 Provide the District with a compiled package of all construction management documentation to be used for District records and for grant closeout purposes.

GHD is the Engineer of Record for the project. As such, GHD will perform engineering services during bidding and construction to address questions and issues related to the intent of the design. The District is contracted separately with GHD, and GHD is precluded from responding to this RFQ. GHD’s services during bidding and construction will be limited to the following:

1. Attending and participating in the pre-bid meeting that will be organized and coordinated by the consultant selected out of this RFQ process.
2. Providing responses to technical written questions received from the contractors during the bid period that are regarding the intent of the design.
3. Attending and participating in the contractor preconstruction meeting that will be organized and coordinated by the consultant selected out of this RFQ process.
4. Reviewing submittals, requests for information (RFIs), and change orders that have bearing on the intent of the design and being consulted on any issues regarding answering design questions or modifying the design.
 - a. This includes addressing changes that come up during construction that require design interpretation or changes, including issues such as differing site conditions.
5. Performing periodic site inspections to address potential changes and to confirm that construction is meeting the intent of the design.
6. Reviewing markups provided by consultant and preparing project record drawings.

The selected consultant will be responsible for coordinating with and engaging GHD when necessary, with prior written approval from the District.

F. Consultant Selection Schedule

The following schedule has been established for the consultant selection process. The District reserves the right to modify this schedule as required.

Issue <i>Table 1</i> <i>Consultant selection schedule</i>	
RFQ	January 4, 2024
Deadline to submit questions	January 26, 2024 (5:00 pm PST)
Deadline for addenda to be issued	February 1, 2024
Deadline to submit SOQ	February 8, 2024 (3:00 pm PST) No response received
Issue second RFQ Selection	February 16
Deadline to submit SOQ	March 14, 2024 (3:00 pm PST)
Selection committee review	March 15 to 19, 2024
Notify apparent most qualified consultant	March 19, 2024
Selected consultant submits scope of work and fee	March 27, 2024
District Board approves contract	March 28, 2024
Execute consultant contract	March 29, 2024

G. Project Schedule

The following is an estimated schedule for the project:

Table 2 *Estimated project schedule*

Advertise for construction bids	March 2024
Receive and evaluate construction bids	April 2024
Award project to contractor	May 2024
Construction	May 2024 through October 2024
Project closeout	October 2024 through December 2024

This estimated project schedule is subject to change and may be modified by the District if required.

H. SOQ Requirements

H.1 SOQ Contents

Firms or teams who are interested in providing the consultant services described above are to submit a Statement of Qualifications. The SOQ shall include the following:

1. Table of Contents
2. Cover Letter

Provide a cover letter, maximum length of 1 page, indicating the Consultant's interest and summary of qualifications. Include Consultant's name, office location, and years in operation. Include name and contact information for the officer authorized to represent the firm for any correspondence and negotiations.

3. Project Understanding and Approach

Summarize the Consultant's understanding of the services to be performed and specific challenges that are related to the delivery of the anticipated Scope of Services. The Approach section should include the following:

- How the Consultant will address the identified project challenges.
- Project management plan highlighting communication plan, schedule management, and how the consultant will integrate the District and Engineer of Record into the construction management process.
- Quality assurance and quality control approach and procedures.

4. Experience and Qualifications of Firm

Provide a project organization chart showing each team member who would be assigned to the project. Identify prime and subconsultants. Identify key team members who Consultant feels would be critical to the success of the project and describe how each will contribute to the project. Provide examples of project assignments in which they have played a similar role.

Describe qualifications of Consultant's firm and specific experience within the last 5 years providing similar services to those anticipated for this project. Include information related to Consultant's firm with state and federal grant funded projects. Provide descriptions (size, type, year, amount, and location) of three similar projects complete with contact information (name, title, phone number, and e-mail address) for each reference project provided. Cross reference key team members to the listed projects.

5. Provide information regarding present workload and staff availability.
6. List any potential conflicts of interest and a strategy for negating them.

H.2 Page Limit

SOQs shall be limited to a total of 12 pages which shall be numbered in consecutive order. The page limit excludes the SOQ cover page, table of contents, cover letter, section dividers, and resumes. SOQs shall be submitted on 8½ by 11 pages only with each double-sided sheet counted as two pages.

H.3 SOQ Submittal Requirements

Applicants who are interested in providing the services for this project are required to submit a Statement of Qualifications no later than the time and date noted in Table 1 in Section F. All SOQs and materials submitted in response to this RFQ will become the property of the District and will not be returned. The District is not responsible for any costs incurred in the preparation of a response to this RFQ. Please submit the SOQ to:

John Friedenbach, General Manager
Humboldt Bay Municipal Water District
828 7th Street
Eureka, CA 95501-1114

SOQs received after the deadline, regardless of postmark, will be rejected.

Applicants shall submit five bound copies of their SOQ, one unbound copy, and one electronic pdf copy on a CD or flash drive. All submission materials shall be included in a sealed envelope labeled with the following:

- Submitting firm’s name and address
- “Statement of Qualifications for Bid Assistance and Construction Management Services for HBMWD Reservoirs Seismic Retrofit Project”

H.4 Questions and Addenda

Questions regarding this RFQ must be submitted in writing, by e-mail only, to John Friedenbach, General Manager, at friedenbach@hbmwd.com by the deadline shown in Table 1 in Section F. Questions will be responded to in writing. Written summaries of all questions and answers will be distributed to each consultant. Addenda will be issued, if necessary, and posted to the District’s website.

Site visits are available upon request. Requests shall be in writing via email and directed to John Friedenbach, General Manager, at friedenbach@hbmwd.com and Dale Davidsen, Superintendent, at supt@hbmwd.com.

I. Selection Criteria

The District’s Selection Committee will evaluate all submitted SOQs in accordance with the criteria stated below. The District reserves the right to request interviews of the top ranked firms. Should interviews be required, those consultants participating in the interview process will have their SOQs rescored after the interview process, and final rankings will be based on those scores.

The Selection Committee will decide which applicant will be invited to submit a scope and fee proposal. Evaluation and selection criteria will include the following:

1. Consultant’s understanding of the project and conceptual approach – 20 points
2. Consultant firm or team’s qualifications and experience on similar projects, including transmission-level water infrastructure and construction / modifications to steel reservoirs – 25 points
3. Qualifications and experience of the project manager and key personnel – 20 points

4. Consultant's experience with grant-funded projects – 10 points
5. Consultant Team's present workload and staff availability – 5 points
6. References for prime and key sub consultants – 15 points
7. Consultant Team's ability to negate any identified conflicts of interest – 5 points

J. Attachments

Attachment 1: Korblex Reservoirs Seismic Retrofit Project – 60% Design Drawings

Attachment 2: Samoa Reservoir Seismic Retrofit Project – 60% Design Drawings

Attachments

Attachment 1

**Korblex Reservoirs Seismic Retrofit
Project – 60% Design Drawings**

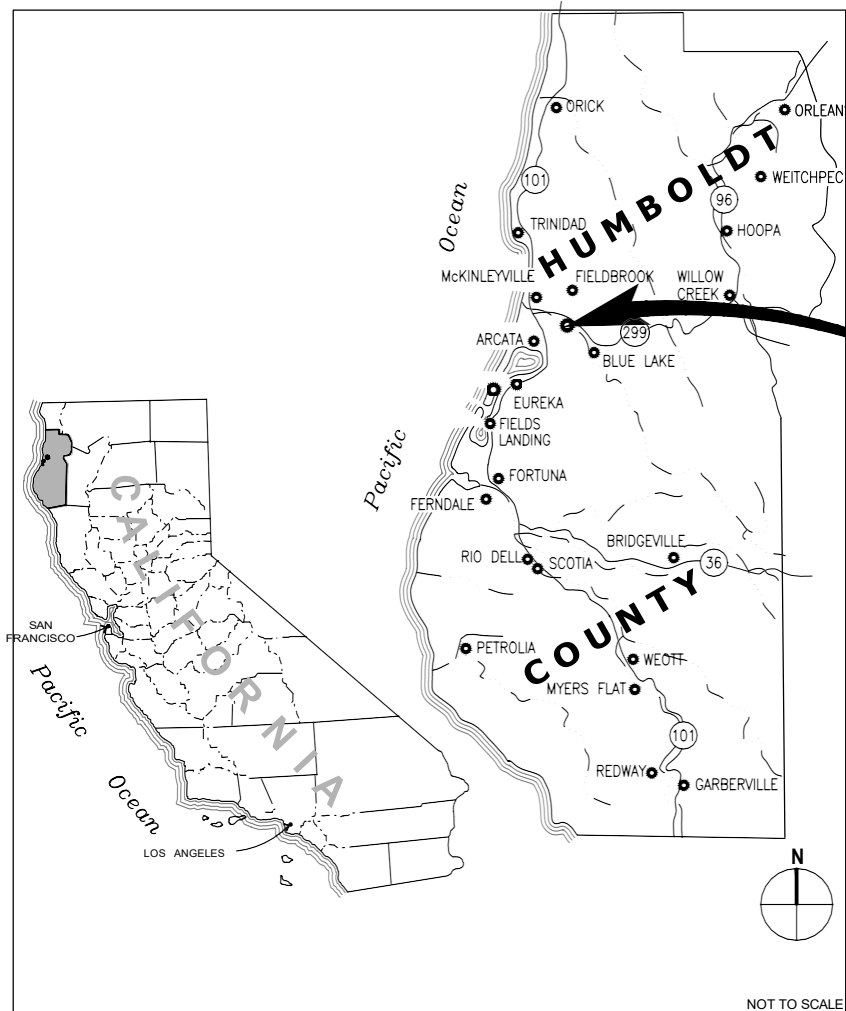
HUMBOLDT BAY MUNICIPAL WATER DISTRICT

KORBLEX RESERVOIRS SEISMIC RETROFIT PROJECT

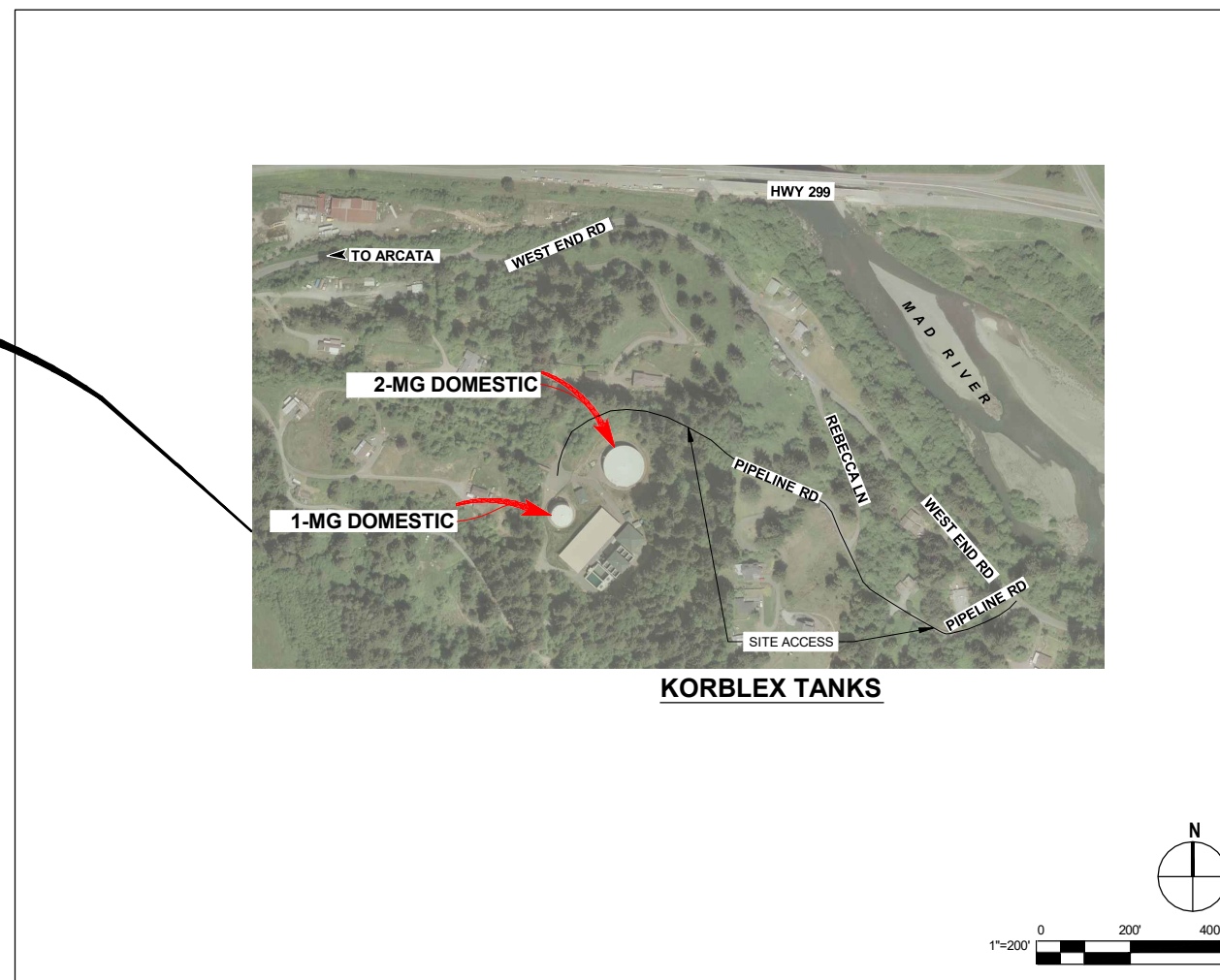
JULY 2021
PREPARED BY:



AREA MAP



LOCATION MAP



APPROVALS

PLANS AND SPECIFICATIONS APPROVED BY THE BOARD OF DIRECTORS OF THE HUMBOLDT BAY MUNICIPAL WATER DISTRICT, COUNTY OF HUMBOLDT, STATE OF CALIFORNIA, THIS ____ DAY OF _____, 2021.

GENERAL MANAGER
JOHN FRIEDENBACH _____ SIGNED

BOARD OF DIRECTORS

SHERI WOO	PRESIDENT
NEAL LATT	VICE PRESIDENT
J. BRUCE RUPP	SECRETARY-TREASURER
MICHELLE FULLER	ASSISTANT SECRETARY-TREASURER
DAVID LINDBERG	DIRECTOR

ENGINEER: GHD Inc.
STEVE MCHANEY _____ SIGNED

SHEET INDEX

SHEET NO.	DRAWING	DESCRIPTION
1	G-001	COVER SHEET AND SHEET INDEX
2	G-002	GENERAL NOTES, SYMBOLS AND ABBREVIATIONS
3	C-101	1 MG DOMESTIC EXISTING SITE CONDITIONS AND IMPROVEMENTS
4	C-102	2 MG DOMESTIC EXISTING SITE CONDITIONS AND 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	CIVIL DETAILS
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 FOUNDATION PLAN
14	S-103	2 MG DOMESTIC TANK ROOF PLAN
15	S-501	TANK ROOF DETAILS
16	S-502	TYPICAL CONCRETE DETAILS

60% DESIGN

No.	Issue	Checked	Approved	Date	
Author	SXM	Drafting Check	SXM	Project Manager	NS
Designer	BLC	Design Check	SXM	Project Director	SXM

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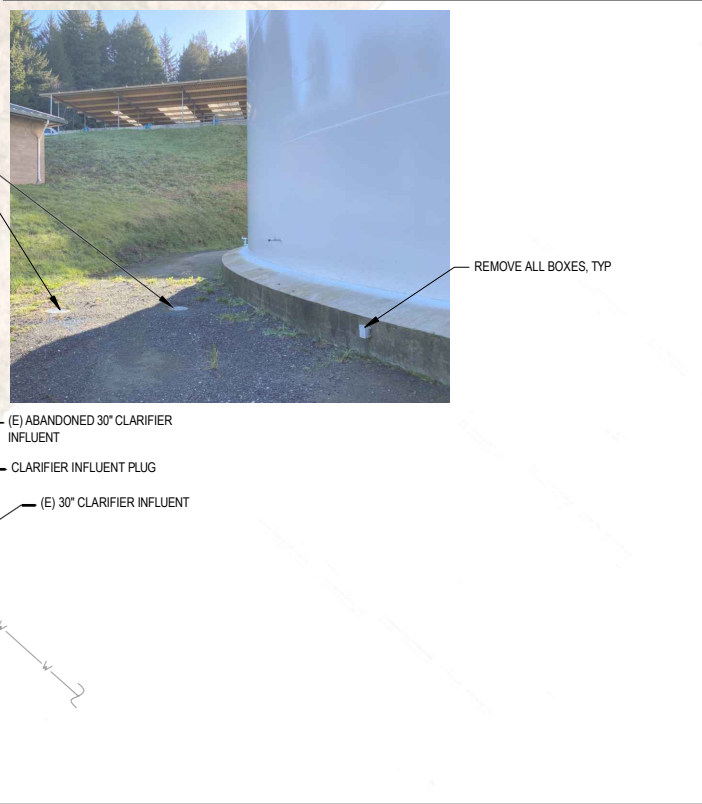
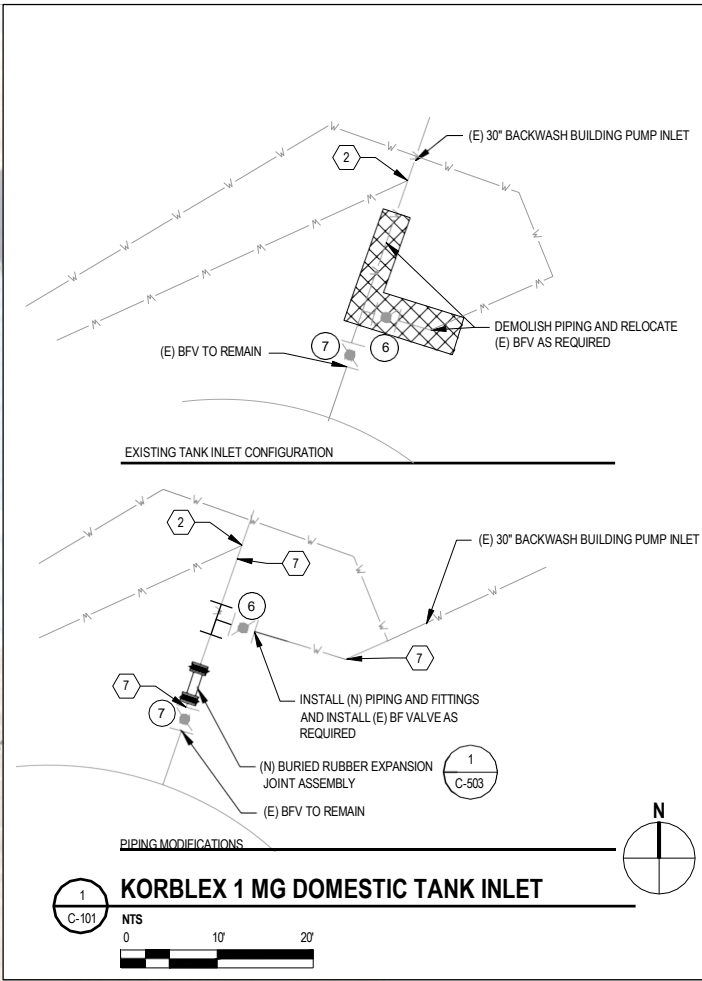
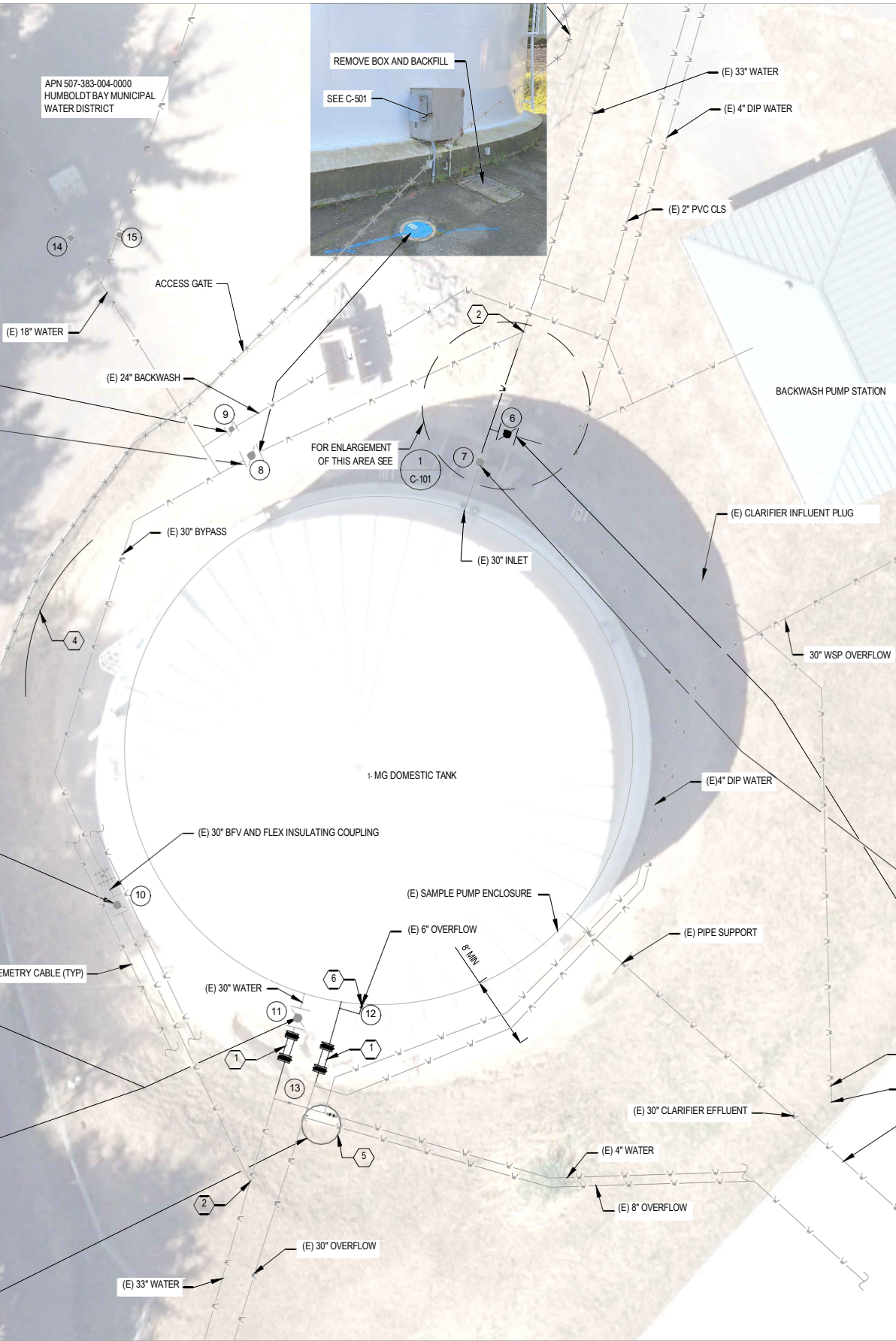


Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**
Project **KORBLEX RESERVOIRS SEISMIC RETROFIT**

Title **COVER SHEET AND SHEET INDEX**

Project No. **11218859** Date **07-23-2021** Scale **AS SHOWN**

Sheet No. **G-01** Sheet **1 of 16**

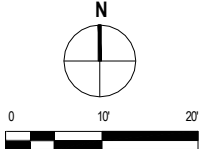


SHEET GENERAL NOTES

- CONTRACTOR TO VERIFY PIPE AND VALVE SIZES, TYPE, AND CONFIGURATION AND PROVIDE ALL TRANSITION FITTINGS AS REQUIRED.
- REPAIR ALL PAVING SIMILAR TO

SHEET KEYNOTES

- (N) BURIED RUBBER EXPANSION JOINT ASSEMBLY THIS IS ADDITIVE BID WORK.
- (E) TRANSITION FROM 30" TO 33".
- NOT USED
- INSTALL GABION WALL 30' LONG AND 4' HIGH TO MAINTAIN A MINIMUM OF 10' CLEAR FROM NEW LADDER AND PLATFORM. REMOVE AND REINSTALL FENCING AND RECONSTRUCT ROAD AS REQUIRED.
- (E) VALVE VAULT.
- REMOVE EXISTING DRAIN VALVE AND INSTALL (N) DRAIN VALVE OUTSIDE OF STRUCTURAL MODIFICATIONS AND INSTALL (N) CONNECTING PIPING AS REQUIRED. THIS IS BASE BID WORK.
- PROVIDE TRANSITION FITTINGS AS REQUIRED.



60% DESIGN

No.	Issue	Checked	Approved	Date	
Author	MD	Drafting Check	SG	Project Manager	NS
Designer	SXM	Design Check	MD	Project Director	SXM

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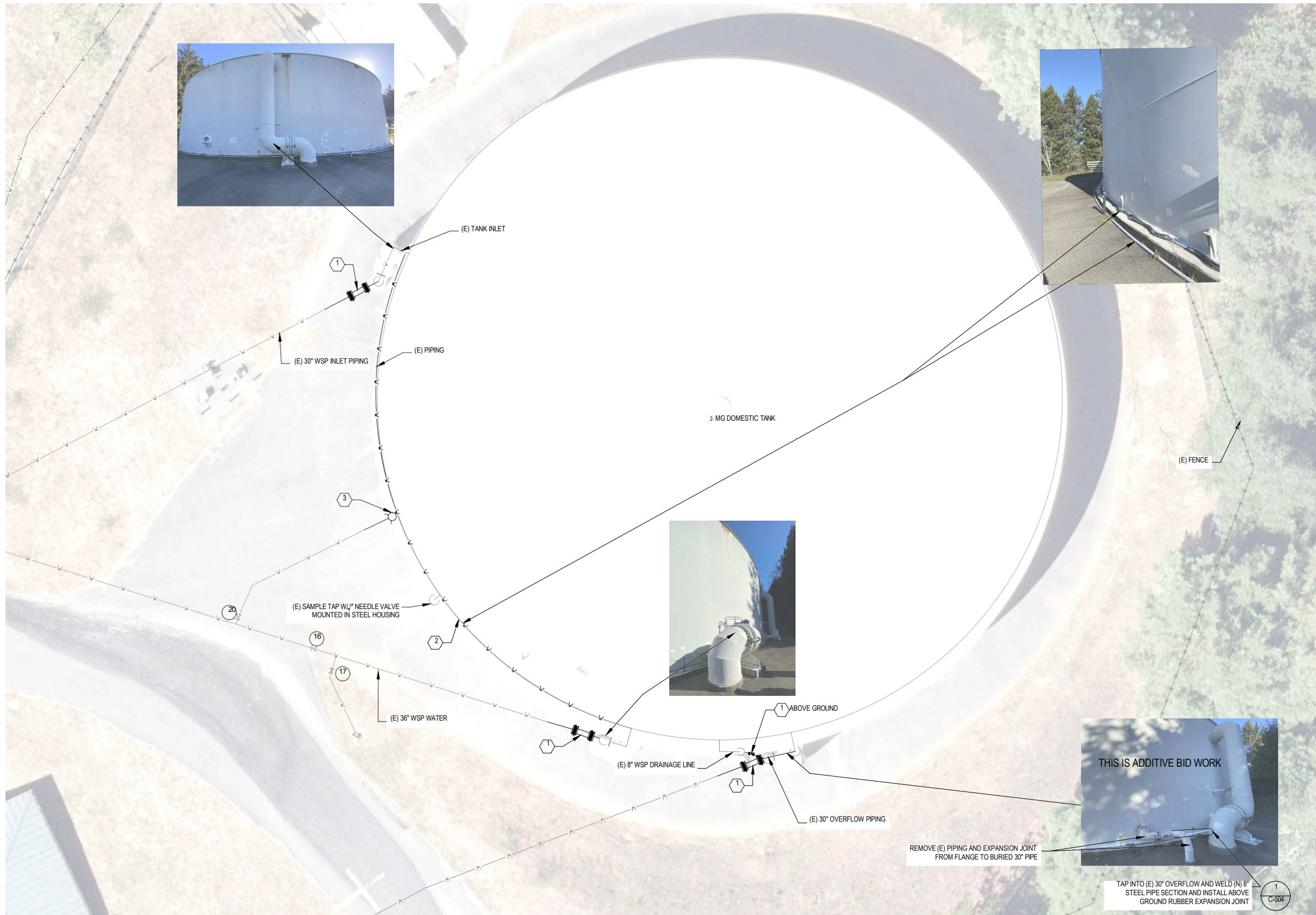
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Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**
Project **KORBLEX RESERVOIRS SEISMIC RETROFIT**

Project No. **11218859** Date **07-23-2021** Scale **AS SHOWN**

Title **1 MG DOMESTIC EXISTING SITE CONDITIONS AND IMPROVEMENTS**

Sheet No. **C-101** Sheet **3 of 16**

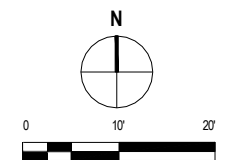


SHEET GENERAL NOTES

- CONTRACTOR TO VERIFY PIPE AND VALVE SIZES, TYPE, AND CONFIGURATION AND PROVIDE ALL TRANSITION FITTINGS AS REQUIRED.
- REPAIR ALL PAVING SIMILAR TO 1
C-504

SHEET KEYNOTES

- (N) BURIED RUBBER EXPANSION JOINT ASSEMBLY 1
C-504. THIS IS ADDITIVE BID WORK.
- DEMO EXISTING PIPING, FITTINGS, AND INSULATION ALONG BASE OF TANK AND REPLACE BURIED ALONG BASE OF (N) STRUCTURAL MODIFICATIONS
- RELOCATE 1 1/2" WHARF HYDRANT OUTSIDE OF (N) STRUCTURAL MODIFICATIONS. COORDINATE (N) LOCATION WITH OWNER.



60% DESIGN

No.	Issue	Checked	Approved	Date	
Author	MD	Drafting Check	SG	Project Manager	NS
Designer	SXM	Design Check	MD	Project Director	SXM

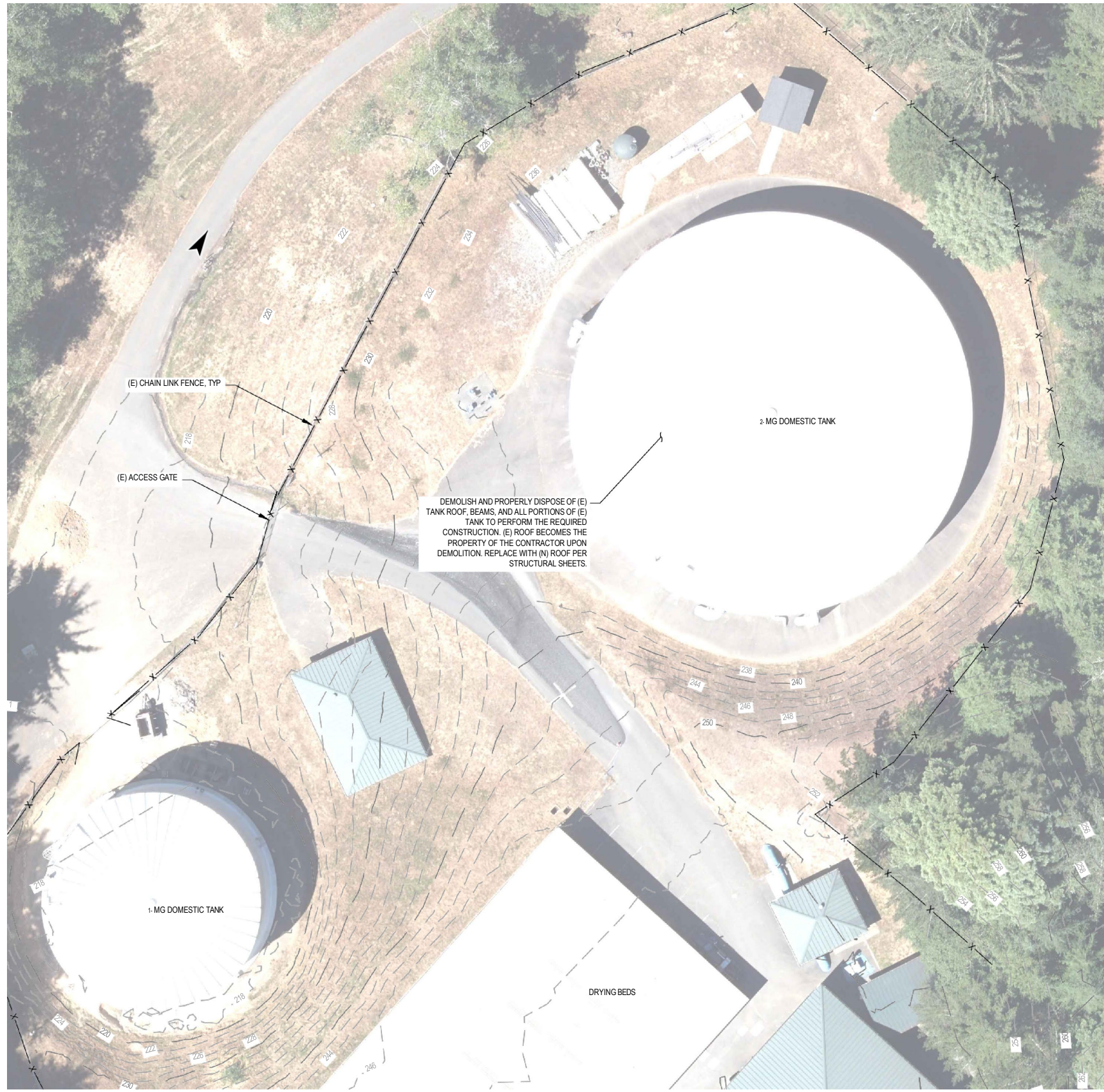
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Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**
Project **KORBLEX RESERVOIRS SEISMIC RETROFIT**
Project No. **11218859**
Date **07-23-2021**
Scale **AS SHOWN**

Title **2 MG DOMESTIC EXISTING SITE CONDITIONS AND IMPROVEMENTS**
ANSI D
Sheet No. **C-102**
Sheet **4 of 16**



DEMOLISH AND PROPERLY DISPOSE OF (E) TANK ROOF, BEAMS, AND ALL PORTIONS OF (E) TANK TO PERFORM THE REQUIRED CONSTRUCTION. (E) ROOF BECOMES THE PROPERTY OF THE CONTRACTOR UPON DEMOLITION. REPLACE WITH (N) ROOF PER STRUCTURAL SHEETS.

(E) CHAIN LINK FENCE, TYP

(E) ACCESS GATE

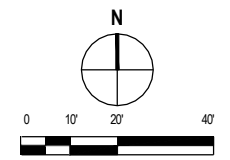
2 MG DOMESTIC TANK

1 MG DOMESTIC TANK

DRYING BEDS

SHEET GENERAL NOTES

1. CONTOURS SHOWN ON THIS DRAWING ARE NOT THE PRODUCT OF SURVEY AND ARE APPROXIMATE.
2. THE INTERIOR OF THE (E) 2-MG TANK AND NEW ROOF SHALL BE PREPPED AND PAINTED PER SPECIFICATION SECTION 09 91 00. TANK PREPARATION AND COATING, REQUIRED TOUCH-UP PAINT LOCATIONS ON THE EXTERIOR OF THE TANK SHALL ALSO BE PREPPED AND PAINTED PER THE ABOVE REFERENCED SPECIFICATION.
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 AREAS OF TANK TO BE COVERED IN CONCRETE SHALL BE PREPPED AND COATED IN ACCORDANCE WITH SPECIFICATION 09 91 00.
5. ALL NEW METAL COMPONENTS SHALL BE PREPPED AND COATED IN ACCORDANCE WITH SPECIFICATION SECTION 09 91 00.
6. CONTRACTOR SHALL COORDINATE WITH OWNER FOR TRANSFER OF UTILITY CONNECTIONS INSIDE ENCLOSURES THAT ARE TO BE REPLACED.
7. 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 REPLACEMENT OF TEMPORARY FENCING DURING THE PERFORMANCE OF THE WORK TO PREVENT PUBLIC ACCESS TO THE SITE.
8. THE CONTRACTOR SHALL REMOVE THE CATHODIC PROTECTION ANODES PRIOR TO THE PERFORMANCE OF THE WORK AND SHALL REPLACE THEM UPON COMPLETION.
9. THE OWNER SHALL DRAIN AND PERFORM INITIAL "MUCK OUT" OF THE TANK PRIOR TO THE PERFORMANCE OF THE WORK.
10. CONTRACTOR WILL PERFORM ALL ELECTRICAL WORK REQUIRED FOR REPLACEMENT OF ELECTRICAL COMPONENTS.
11. CONTRACTOR SHALL PROVIDE SUBMITTALS/SHOP DRAWINGS PRIOR TO FABRICATION AND/OR ORDERING OF ENCLOSURES, EQUIPMENT, PARTS, ETC.



DRAFT 60% DESIGN

No.	Issue	Checked	Approved	Date	
Author	MD	Drafting Check	SG	Project Manager	STEVE MCHANEY
Designer	SKM	Design Check	MD	Project Director	

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

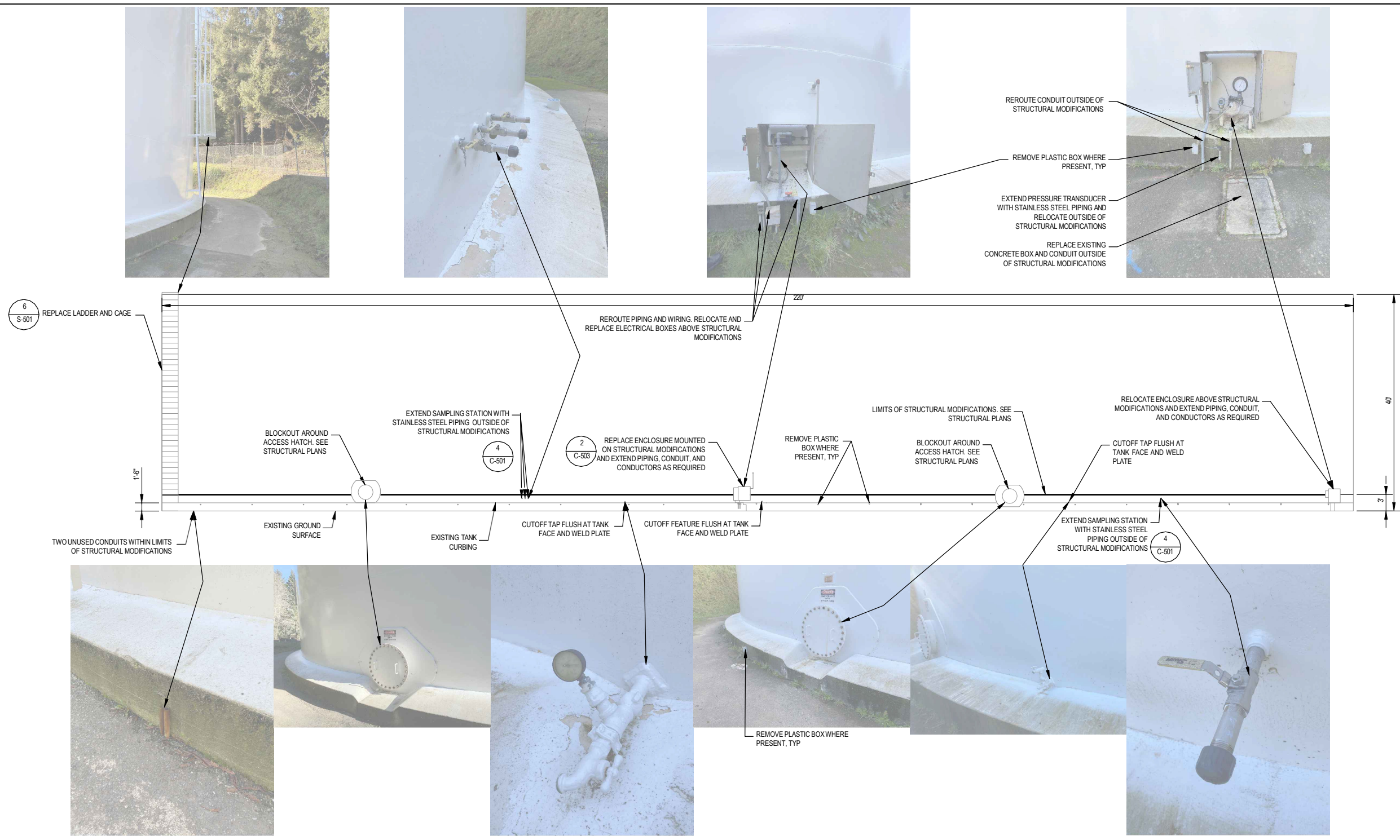
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Project No. **11218859** Date **04-01-2021** Scale **AS SHOWN**

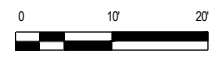
Sheet No. **C-103** Sheet **5 of 22**

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.
- ALL PIPING AND EQUIPMENT THAT WILL BE EXTENDED OR EXTRUDED BY THE WORK SHALL BE SLEEVED PER THE SPECIFICATIONS.



1 MG DOMESTIC TANK SHELL ELEVATION
SCALE: NTS



60% DESIGN

No.	Issue	Checked	Approved	Date	
Author	MD	Drafting Check	SG	Project Manager	NS
Designer	SXM	Design Check	MD	Project Director	SXM

Bar is one inch on original size sheet
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Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**
Project **KORBLEX RESERVOIRS SEISMIC RETROFIT**

Title **1 MG DOMESTIC TANK SHELL ELEVATION**

Project No. **11218859** Date **07-23-2021** Scale **AS SHOWN**

Sheet No. **C-501** Sheet **6 of 16**

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.
- ALL PIPING AND EQUIPMENT THAT WILL BE EXTENDED OR EXTRUDED BY THE WORK SHALL BE SLEEVED PER THE SPECIFICATIONS.



REPLACE LADDER AND CAGE
6 S-501



RELOCATE AND MOUNT ENCLOSURES TO FACE OF STRUCTURAL MODIFICATIONS

BLOCKOUT AROUND PIPE PENETRATION. SEE STRUCTURAL PLANS.

RELOCATE SAMPLE STATION OUTSIDE OF STRUCTURAL MODIFICATIONS

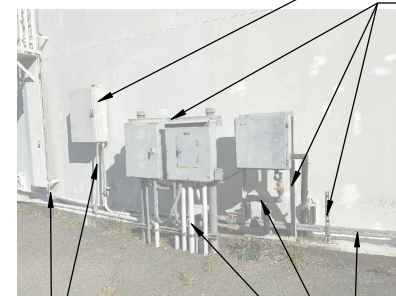
BLOCKOUT AROUND ACCESS HATCH. SEE STRUCTURAL PLANS. PLAQUE ABOVE HATCH TO BE REMOVED AND REMOUNTED OUTSIDE OF STRUCTURAL MODIFICATIONS.

LIMITS OF STRUCTURAL MODIFICATIONS. SEE STRUCTURAL PLANS

BLOCKOUT AROUND ACCESS HATCH. SEE STRUCTURAL PLANS

INSTALL (N) SAMPLE TAP AND BALL VALVE FIELD COORDINATE WITH OWNER
4 C-501

MATCHLINE



REMOVE AND DISPOSE OF PANEL AND OTHER SUPPORTS AS REQUIRED, TYP



REMOVE AND EXTEND PRESSURE TRANSDUCER WITH STAINLESS STEEL PIPE PAST STRUCTURAL MODIFICATIONS
4 C-501

BLOCKOUT AROUND PIPE PENETRATION. SEE STRUCTURAL PLANS



RELOCATE WHARF HYDRANT OUTSIDE OF STRUCTURAL MODIFICATIONS. CONFIRM NEW LOCATION WITH OWNER.

EXISTING GROUND SURFACE

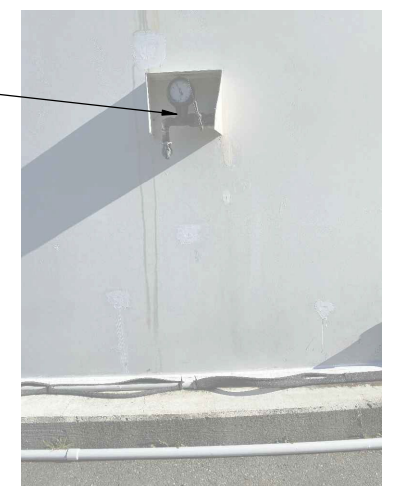
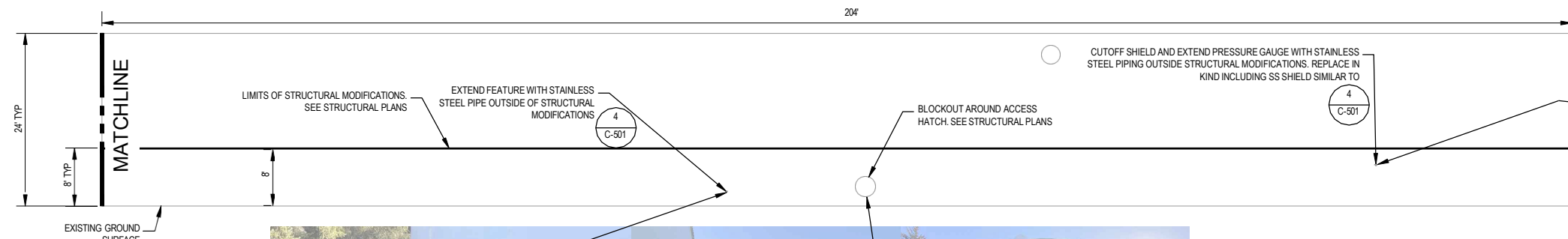


REPLACE (E) PIPING WITH (N) SCH 80 PVC AND BURY MIN 36" OUTSIDE OF STRUCTURAL MODIFICATIONS



REPLACE AND REROUTE CONDUITS AND CONDUCTORS UNDERGROUND TO RELOCATED PANELS AS REQUIRED. PROVIDE EXTENSIONS AND PULL BOXES AS REQUIRED

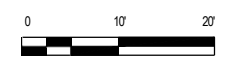
REPLACE ALL PIPING, VALVES, AND FITTINGS AND REROUTE UNDERGROUND, TYP



2MG DOMESTIC TANK SHELL ELEVATION
SCALE: NTS



REPLACE ALL (E) PIPING AND REROUTE UNDERGROUND



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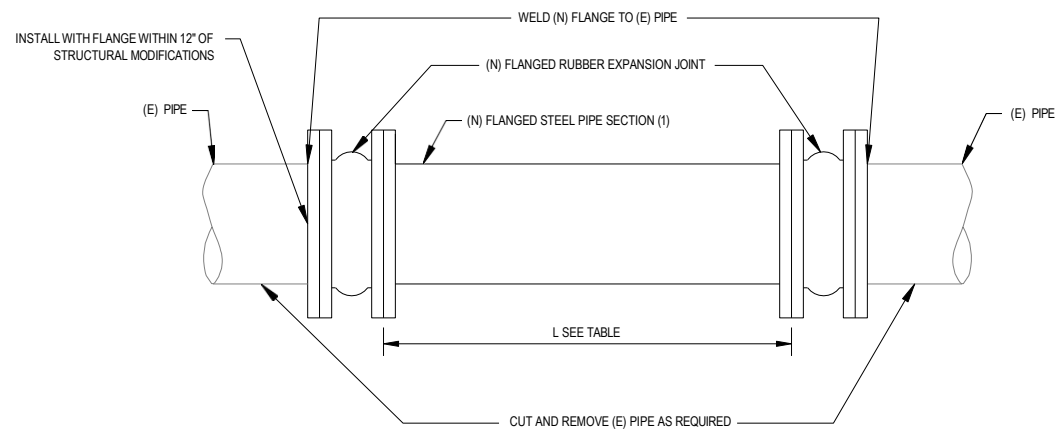
Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**
Project **KORBLEX RESERVOIRS SEISMIC RETROFIT**

Title **2 MG DOMESTIC TANK SHELL ELEVATION**

Project No. **11218859** Date **07-23-2021** Scale **AS SHOWN**

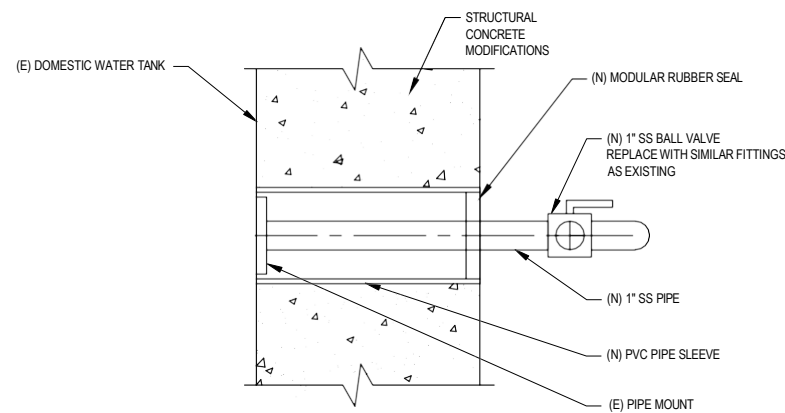
Sheet No. **C-502** Sheet **7 of 16**

MINIMUM SPOOL LENGTH	
EXISTING PIPE SIZE	L _{MIN}
6" / 8"	18"
30"	36"

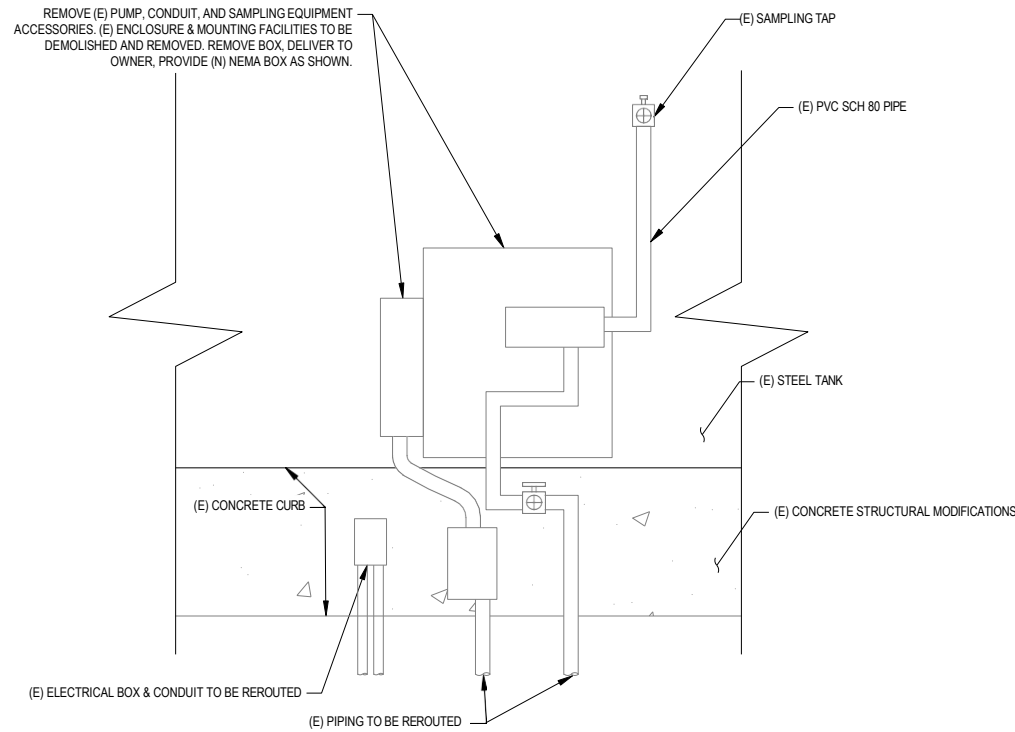


- (1). MATCH (E) PIPE TYPE, LINING, AND COATING.
- (2). (N) RUBBER EXPANSION JOINT ASSEMBLIES WILL BE INSTALLED WITHIN (E) PIPE RUNS OR ADJACENT TO (E) VALVES OR FITTINGS. CONTRACTOR TO PROVIDE AND INSTALL ALL REQUIRED TRANSITION FITTINGS AND COUPLERS.

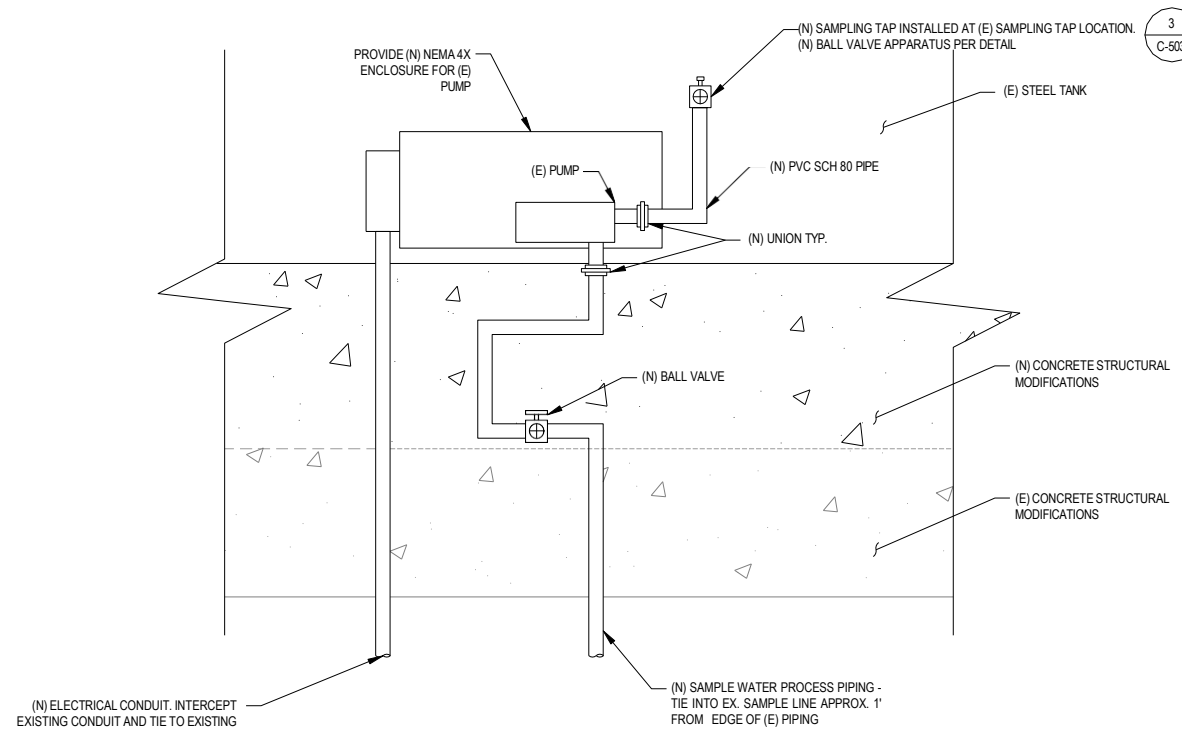
1 RUBBER EXPANSION JOINT ASSEMBLY DETAIL
SCALE: NTS



3 TYPICAL SAMPLE TAP SLEEVE
SCALE: NTS



EXISTING CONDITIONS
SCALE: NTS



MODIFICATIONS
SCALE: NTS

2 RESERVOIR SAMPLE PUMP MODIFICATIONS
SCALE: NTS

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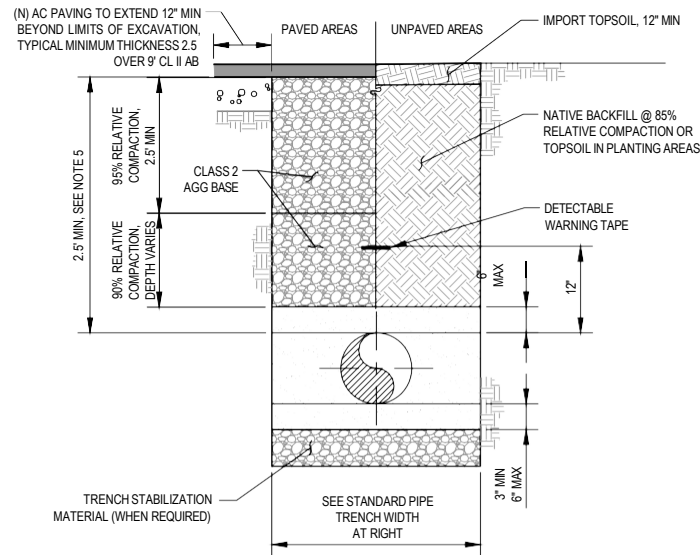


Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**
Project **KORBLEX RESERVOIRS SEISMIC RETROFIT**

Title **SEISMIC CIVIL DETAILS**

Project No. **11218859** Date **07-23-2021** Scale **AS SHOWN**

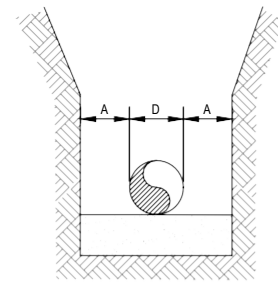
Sheet No. **C-503** Sheet **8 of 16**



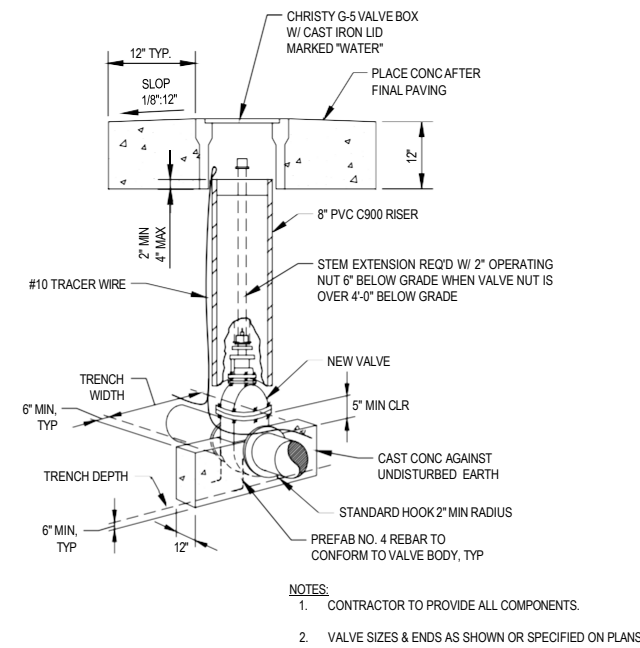
NOTES:

1. WIDER TRENCHES MAY REQUIRE HIGHER STRENGTH PIPE AND/OR SPECIAL BEDDING.
2. DIFFERING TRENCH WIDTHS REQUIRE PRIOR APPROVAL OF ENGINEER.
3. 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.
4. SATISFACTORY NATIVE BACKFILL MATERIAL USED AS UTILITY TRENCH BACKFILL BELOW UNPAVED AREAS SHALL BE APPROVED BY THE ENGINEER PRIOR TO USE.
5. 2-SACK SLURRY BACKFILL MAY BE USED IN TRENCH WHEN MINIMUM PIPE COVER NOT POSSIBLE, WHEN APPROVED BY OWNER'S REPRESENTATIVE.
6. CLASS 2 AGGREGATE BASE SHALL BE COMPACTED TO 95% RELATIVE COMPACTION.
7. DETECTABLE WARNING TAPE SHALL BE BRIGHT COLORED, CONTINUOUSLY PRINTED, MINIMUM 6" WIDE BY 4 MIL. THICK, MANUFACTURED FOR DIRECT BURIAL.
8. DETECTABLE WARNING TAPE NOT REQUIRED FOR IRRIGATION LINES.
9. GRAVEL ROADS SHALL USE PAVED AREA TRENCH SECTION BUT WITH AGGREGATE BASE TO SURFACE, UNLESS NOTED OTHERWISE.

TYPICAL TRENCH AND PAVING DETAIL
C-504 SCALE: NTS

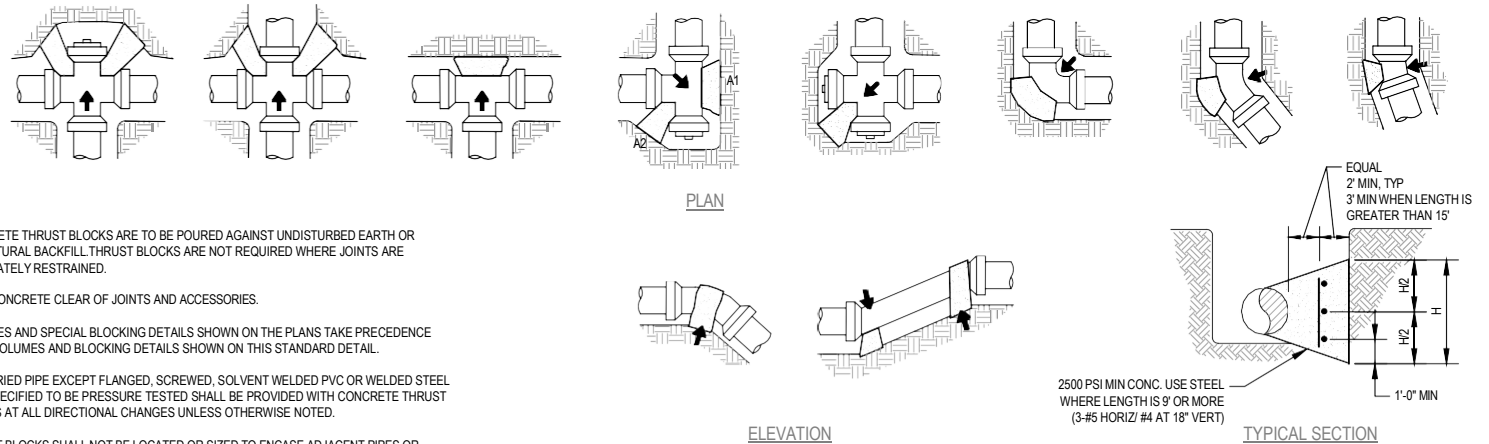


PIPE DIA "D"	MINIMUM "A"	MAXIMUM "A"
< 4"	3"	6"
4" TO 6"	6"	12"
6" TO 15"	8"	14"
16" TO 21"	10"	16"
24" TO 30"	12"	18"
33" TO 42"	15"	21"
48" & LARGER	18"	24"



STANDARD VALVE INSTALLATION

C-504 SCALE: NTS



NOTES:

1. CONCRETE THRUST BLOCKS ARE TO BE POURED AGAINST UNDISTURBED EARTH OR STRUCTURAL BACKFILL THRUST BLOCKS ARE NOT REQUIRED WHERE JOINTS ARE ADEQUATELY RESTRAINED.
2. KEEP CONCRETE CLEAR OF JOINTS AND ACCESSORIES.
3. VOLUMES AND SPECIAL BLOCKING DETAILS SHOWN ON THE PLANS TAKE PRECEDENCE OVER VOLUMES AND BLOCKING DETAILS SHOWN ON THIS STANDARD DETAIL.
4. ALL BURIED PIPE EXCEPT FLANGED, SCREWED, SOLVENT WELDED PVC OR WELDED STEEL PIPE SPECIFIED TO BE PRESSURE TESTED SHALL BE PROVIDED WITH CONCRETE THRUST BLOCKS AT ALL DIRECTIONAL CHANGES UNLESS OTHERWISE NOTED.
5. THRUST BLOCKS SHALL NOT BE LOCATED OR SIZED TO ENCASE ADJACENT PIPES OR FITTINGS.
6. THE SIZE AND WEIGH OF ALL UPLIFT THRUST BLOCKS SHALL BE AS DETERMINED BY ENGINEER.
7. 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)
8. THRUST BLOCKS REQUIRED AT ALL CHANGES IN DIRECTION OF PIPING UNLESS NOTED OTHERWISE.
9. CONTRACTOR TO PROVIDE ALL COMPONENTS.
10. 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 CROSS		45° BEND	22 1/2° BEND	11 1/4° BEND	PIPE SIZE	TEE, WYE, PLUG OR CAP	90° BEND PLUGGED CROSS	TEE PLUGGED CROSS		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								

STANDARD THRUST BLOCK DETAILS

C-504 SCALE: NTS

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

Title **CIVIL DETAILS**

Project No. **11218859** Date **07-23-2021** Scale **AS SHOWN**

Sheet No. **C-504** Sheet **9 of 16**

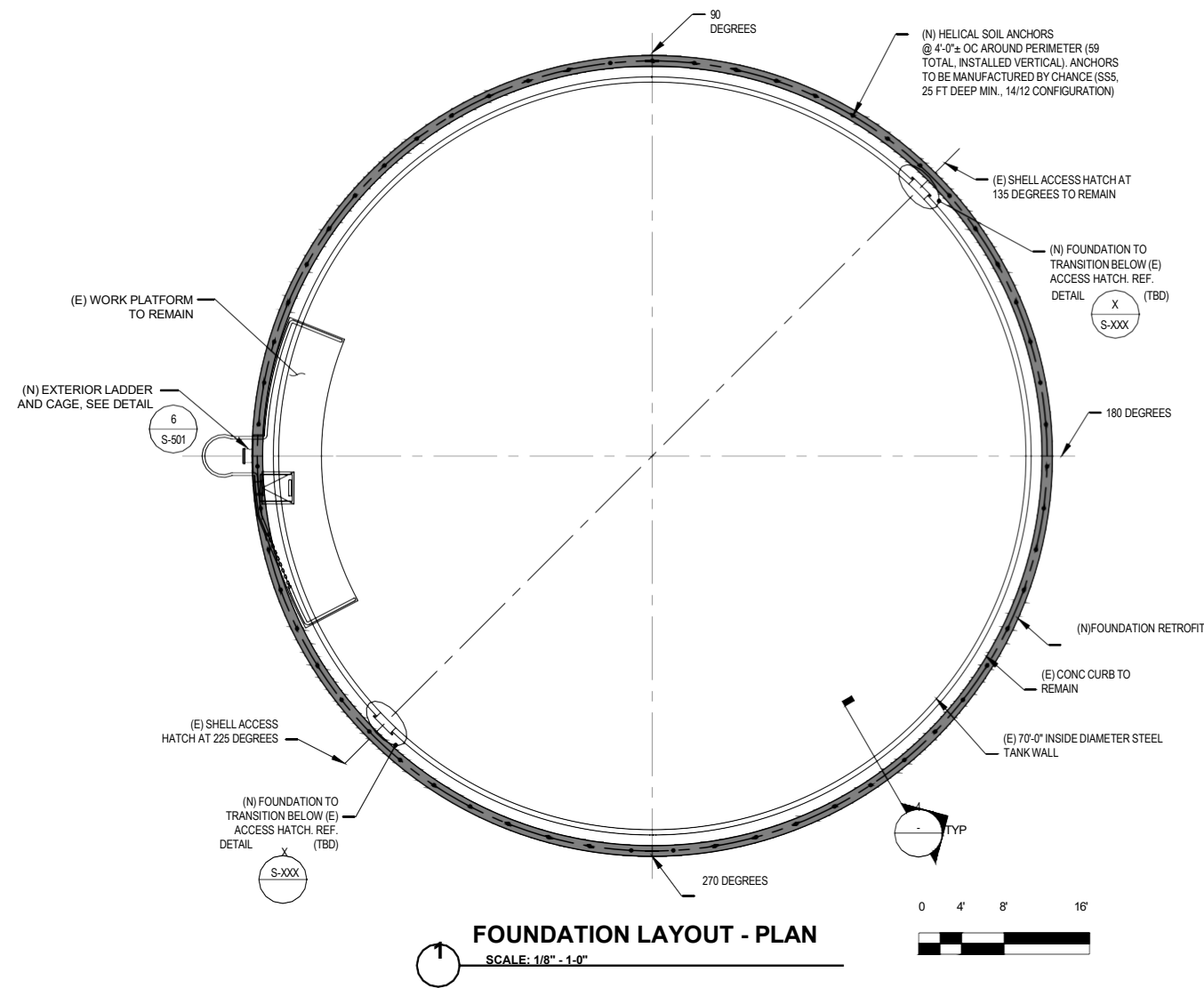
SHEET GENERAL NOTES	STEEL	CONCRETE	
<p>1. CONTRACTOR TO COORDINATE ALL STRUCTURAL DOCUMENTS WITH ALL OTHER DISCIPLINES AND REPORT ANY DISCREPANCIES TO THE OWNER PRIOR TO THE START OF ANY FABRICATION OR CONSTRUCTION.</p> <p>2. CONTRACTOR TO COORDINATE ALL NEW WORK WITH EXISTING SITE CONDITIONS AND REPORT 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_s = 1.50 MAPPED SPECTRAL RESPONSE ACCELERATIONS: S_s = 2.61 g S₁ = 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 WHOM 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 & 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) HILTI 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 & 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 UPON 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_y = 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>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 • 1 MG KORBLEX TANK HELICAL ANCHORS</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>	

60% DESIGN

<p>No. Issue Checked Approved Date</p> <p>Author S. GOULD Drafting Check S. MCHANEY Project Manager NS</p> <p>Designer S. GOULD Design Check B. CROWELL Project Director SKM</p>	<p>Bar is one inch on original size sheet</p> <p>0  1"</p>	 <p>GHD Inc. 718 Third Street Eureka California 95501 USA T 1 707 443 8326 F 1 707 444 8330</p> <p>www.ghd.com</p> <p>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.</p>	 <p>Client HUMBOLDT BAY MUNICIPAL WATER DISTRICT</p> <p>Project KORBLEX RESERVOIRS SEISMIC RETROFIT</p> <p>Project No. 11218859 Date 07-23-2021 Scale AS SHOWN</p>	<p>Title STRUCTURAL GENERAL NOTES</p> <p>Sheet No. S-01 Sheet 10 of 16</p>
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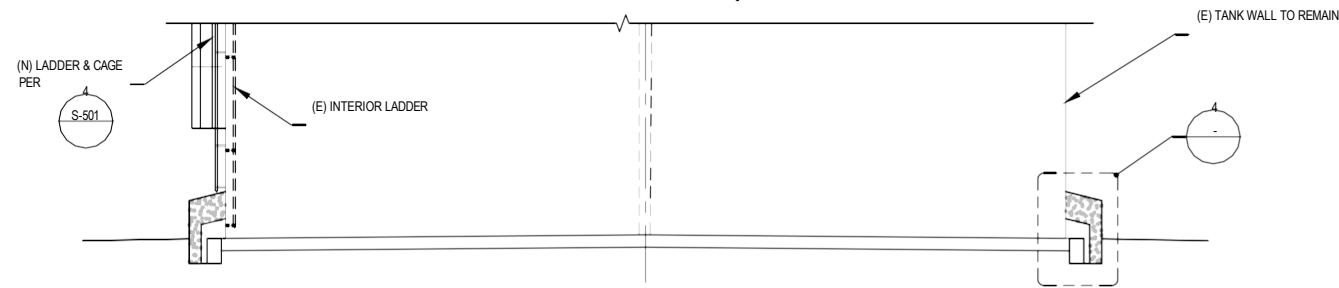
SHEET GENERAL NOTES

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



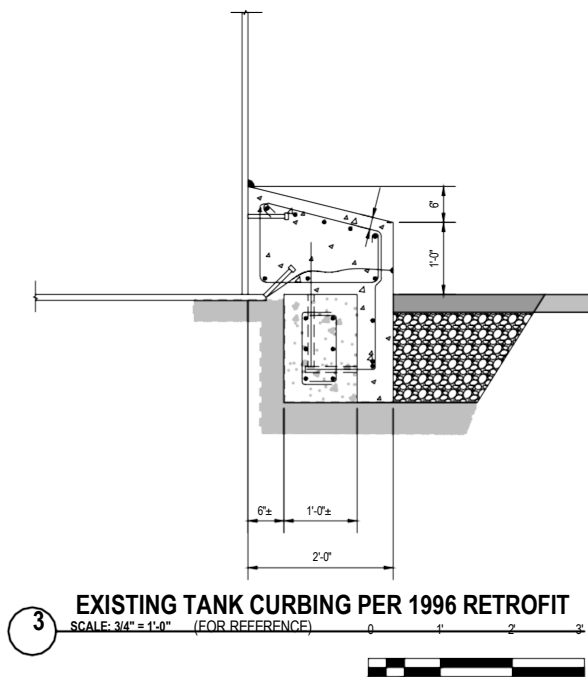
FOUNDATION LAYOUT - PLAN

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



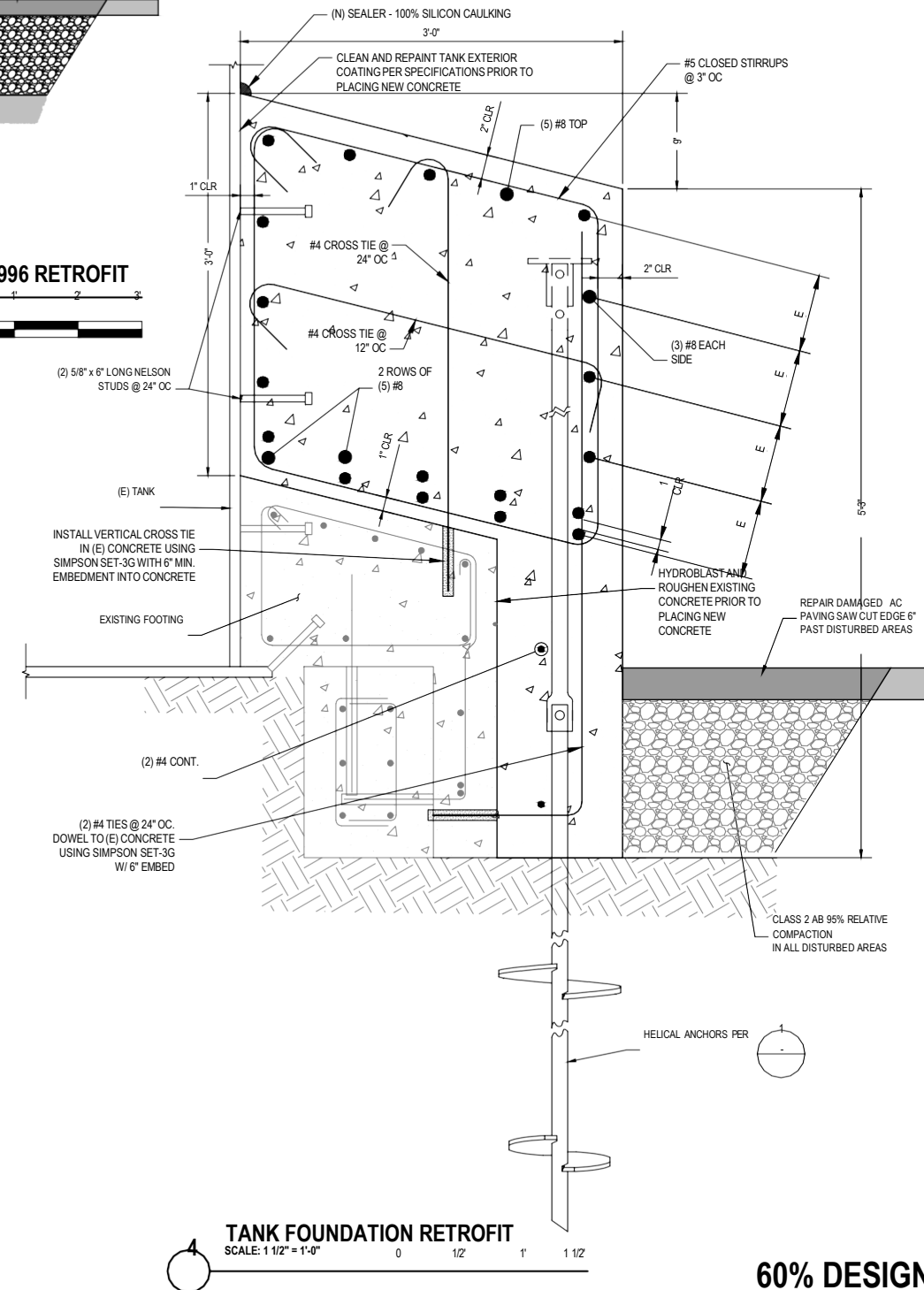
TANK SECTION

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



EXISTING TANK CURBING PER 1996 RETROFIT

SCALE: 3/4" = 1'-0" (FOR REFERENCE)

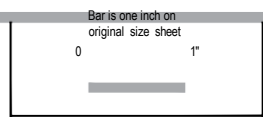


TANK FOUNDATION RETROFIT

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

60% DESIGN

No.	Issue	Checked	Approved	Date	
Author	S. GOULD	Drafting Check	B. CROWELL	Project Manager	NS
Designer	S. BURNS	Design Check	B. CROWELL	Project Director	SMM



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Client: HUMBOLDT BAY MUNICIPAL WATER

Project: DISTRICT KORBLEX RESERVOIRS SEISMIC RETROFIT

Project No. 11218859

Date: 07-23-2021

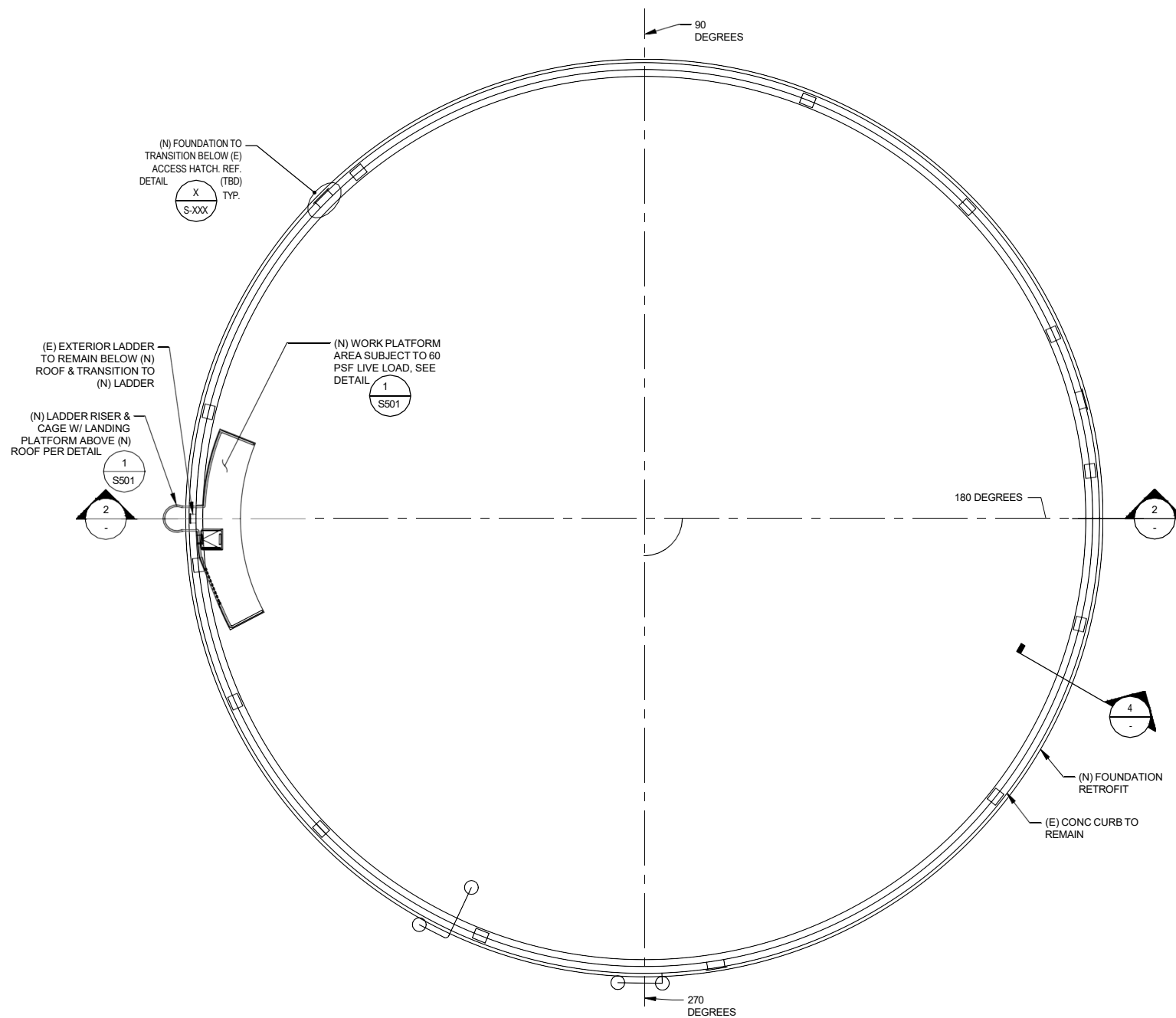
Scale: AS SHOWN

Title: 1 MG DOMESTIC TANK FOUNDATION PLAN

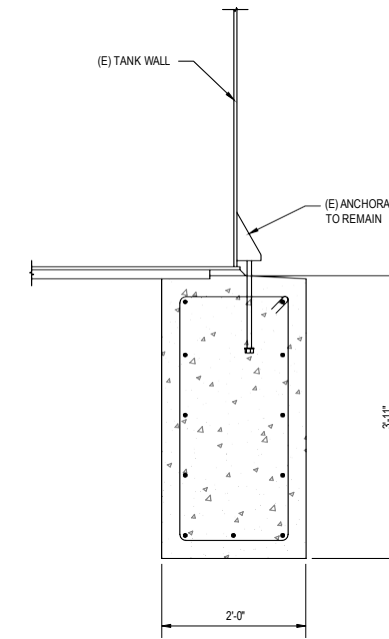
Sheet 12 of 16

SHEET GENERAL NOTES

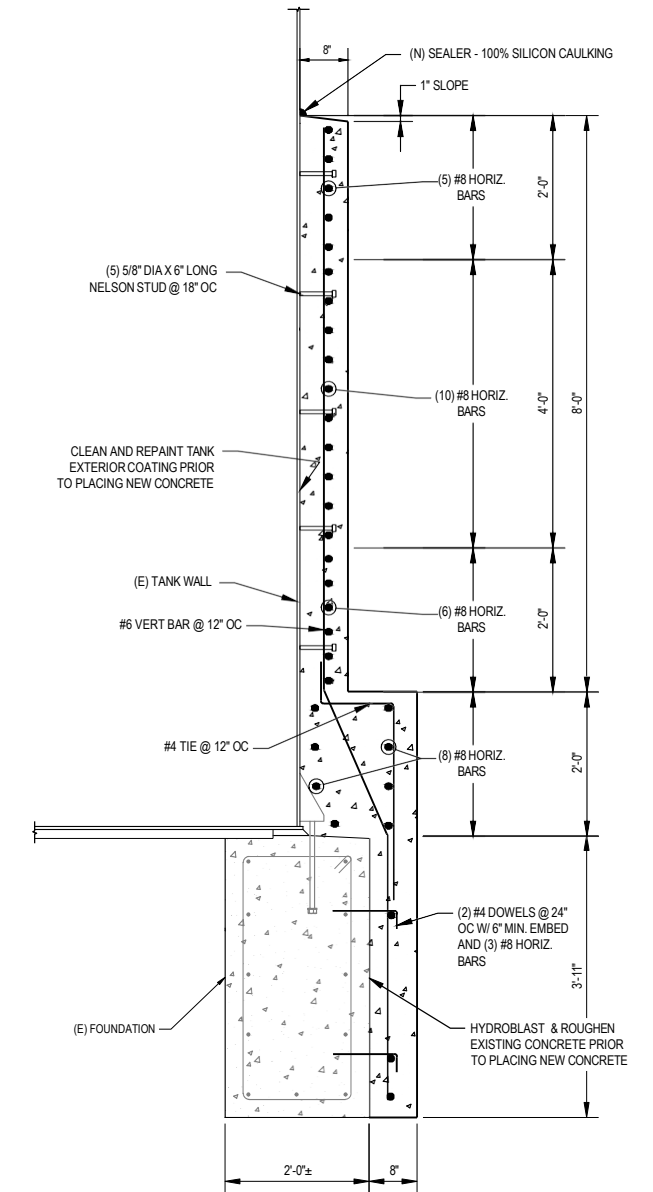
- CONTRACTOR TO PROVIDE ALL COMPONENTS TO CONSTRUCT / INSTALL NEW WORK.



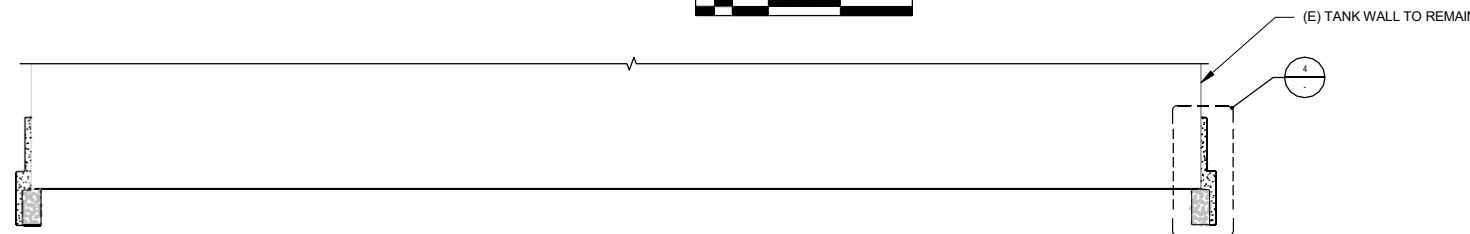
1 FOUNDATION LAYOUT - PLAN
SCALE: 3/32" = 1'-0"



3 EXISTING TANK FOUNDATION
SCALE: 3/4" = 1'-0" (FOR REFERENCE)



4 TANK FOUNDATION RETROFIT
SCALE: 3/4" = 1'-0"



2 TANK SECTION
SCALE: 3/32" = 1'-0"

60% DESIGN

No.	Issue	Checked	Approved	Date
Author	A. PRATT	Drafting Check	B. CROWELL	Project Manager NS
Designer	S. BURNS	Design Check	B. CROWELL	Project Director SXM

Bar is one inch on original size sheet
0 1"

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Client	HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Project	KORBLEX RESERVOIRS SEISMIC RETROFIT
Project No.	11218859
Date	07-23-2021
Scale	AS SHOWN

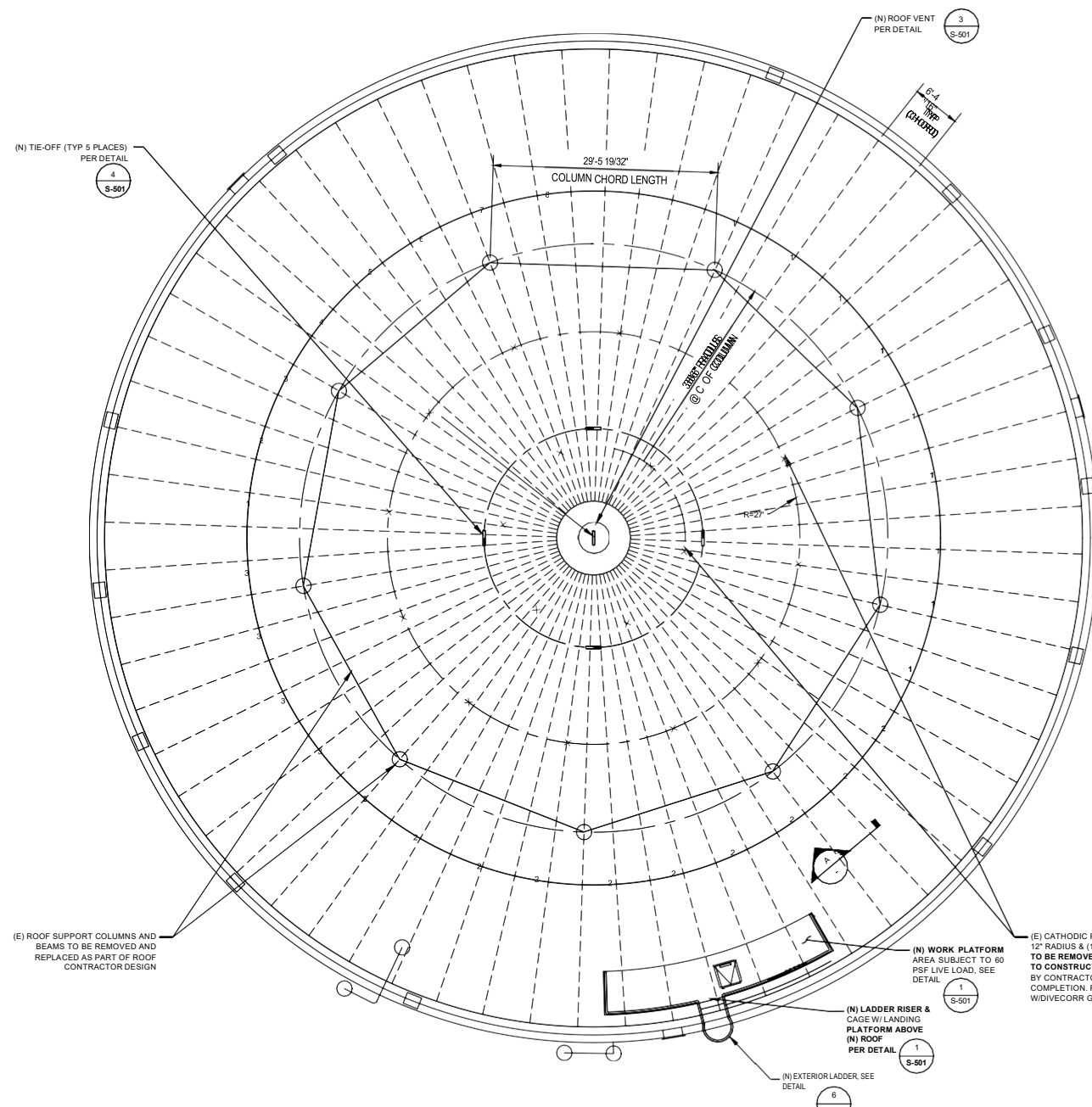
Title	2 MG DOMESTIC TANK FOUNDATION PLAN
Sheet No.	S-102
Sheet	13 of 16

SHEET GENERAL NOTES

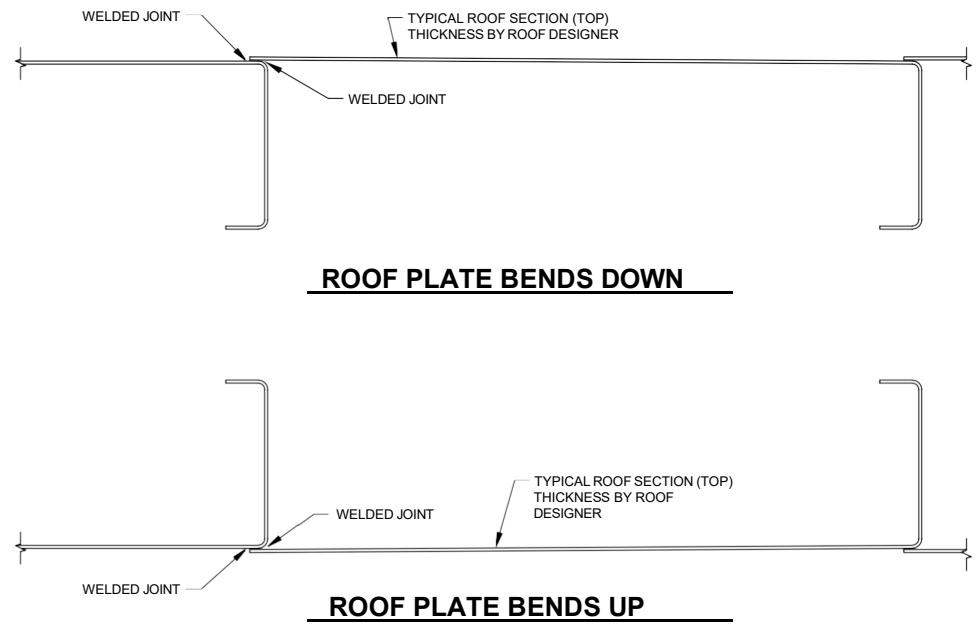
1. CONTRACTOR TO PROVIDE ALL COMPONENTS TO CONSTRUCT / INSTALL NEW WORK.

ROOF BUILD NOTE:

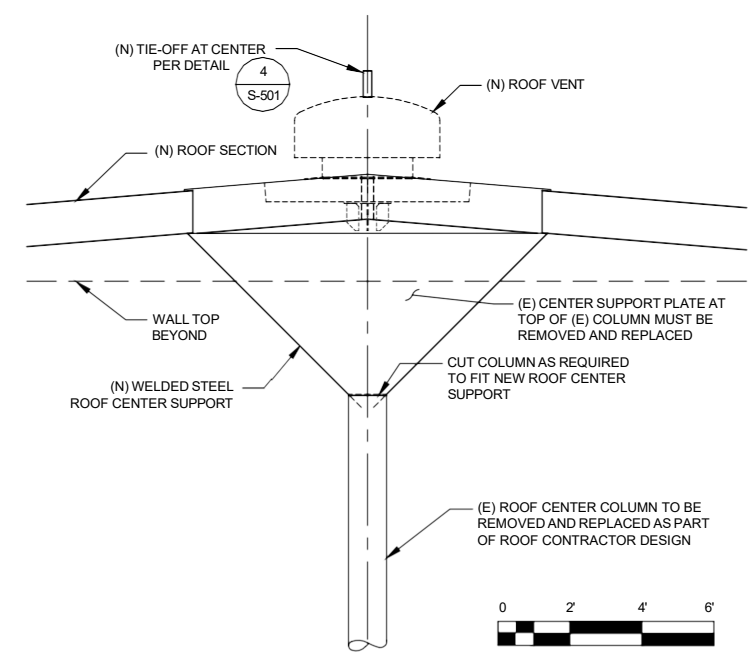
1. ROOF BUILD OPTIONS SHOWN ARE CONCEPTUAL ONLY. ONE-PIECE PRESS-BRAKE JOIST WITH ROOF PLATE SECTIONS WITH CONTINUOUS SEALED WELDED JOINTS ARE THE PREFERRED METHOD OF CONSTRUCTION TO PROVIDE A MORE SERVICEABLE INTERIOR ROOF SURFACE IN LIGHT OF CURRENT CORROSION ISSUES NECESSITATING THIS ROOF REPLACEMENT. 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.



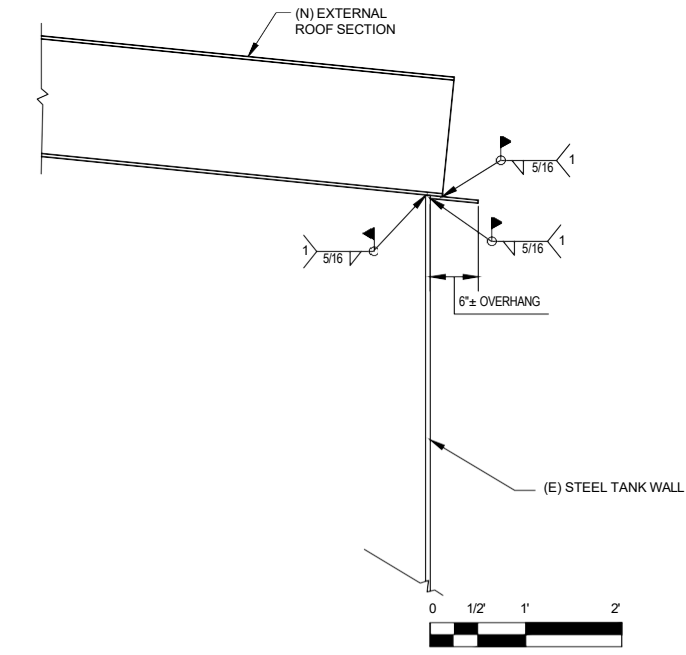
1 ROOF LAYOUT - PLAN
SCALE: 3/32" - 1'-0"



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"

60% DESIGN

No.	Issue	Checked	Approved	Date
Author	A. PRATT	Drafting Check	B. CROWELL	Project Manager
Designer	S. BURNS	Design Check	B. CROWELL	Project Director
			NS	SXM

Bar is one inch on original size sheet
0 1"

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0 1"

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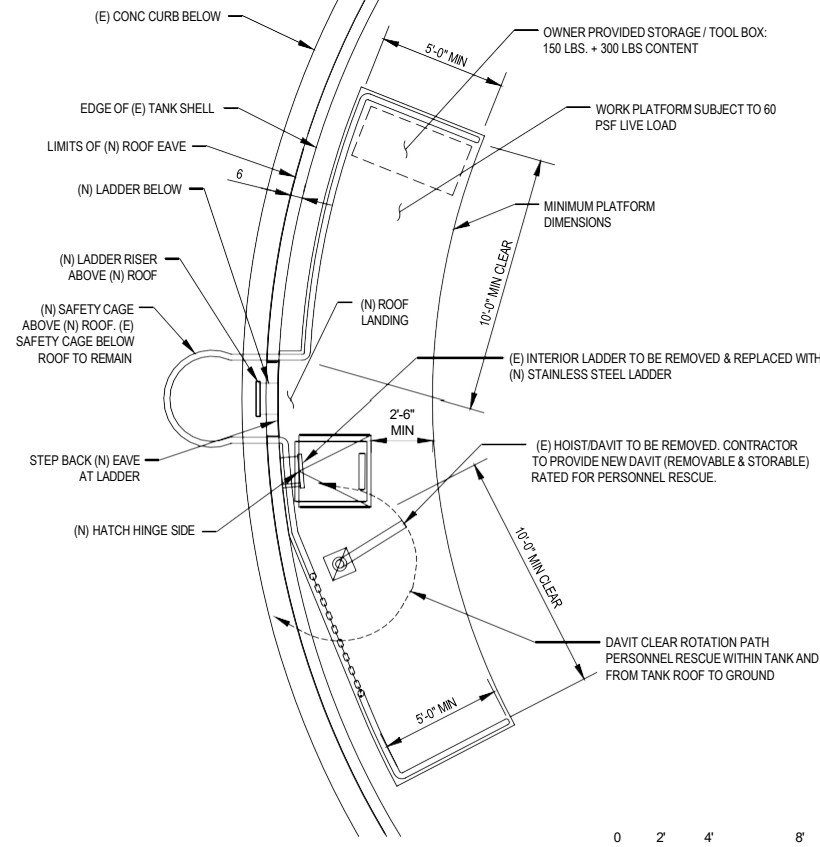
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Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**
Project **KORBLEX RESERVOIRS SEISMIC RETROFIT**

Project No. **11218859** Date **07-23-2021** Scale **AS SHOWN**

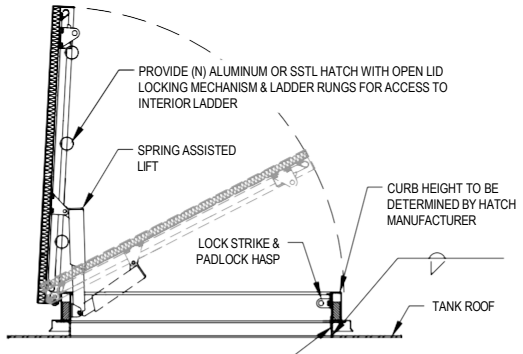
Title **2 MG DOMESTIC TANK ROOF PLAN** Size **ANSI D**

Sheet No. **S-103** Sheet **14 of 16**

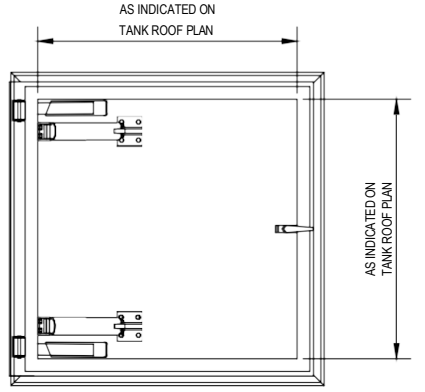


TANK PLATFORM & RAILING PLAN

1 S501 SCALE: 1/4" = 1'-0"

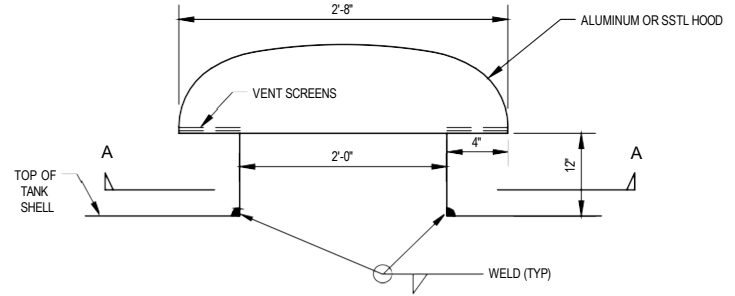


ELEVATION

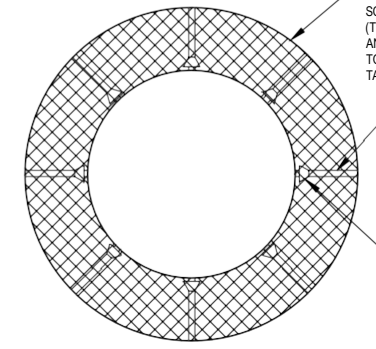


PLAN ROOF HATCH DETAIL

2 S501 SCALE: NOT TO SCALE



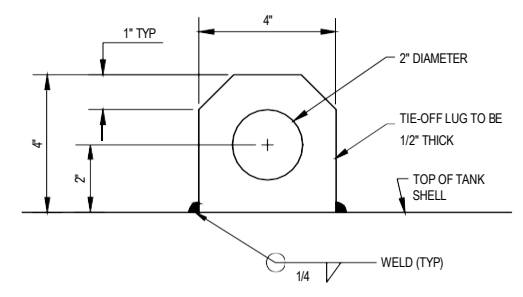
FRONT VIEW



BOTTOM VIEW (SECTION A - A)

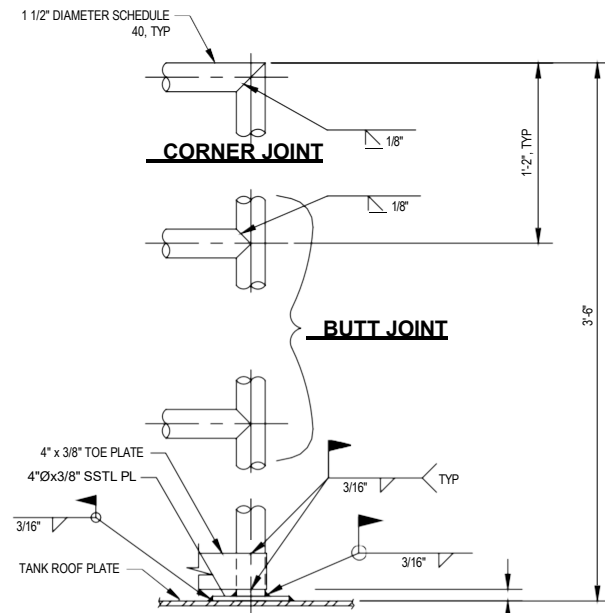
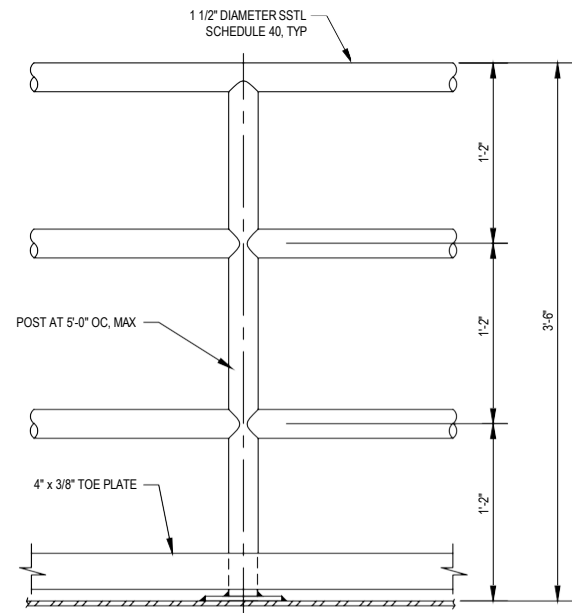
ROOF VENT DETAILS

3 S501 SCALE: NOT TO SCALE



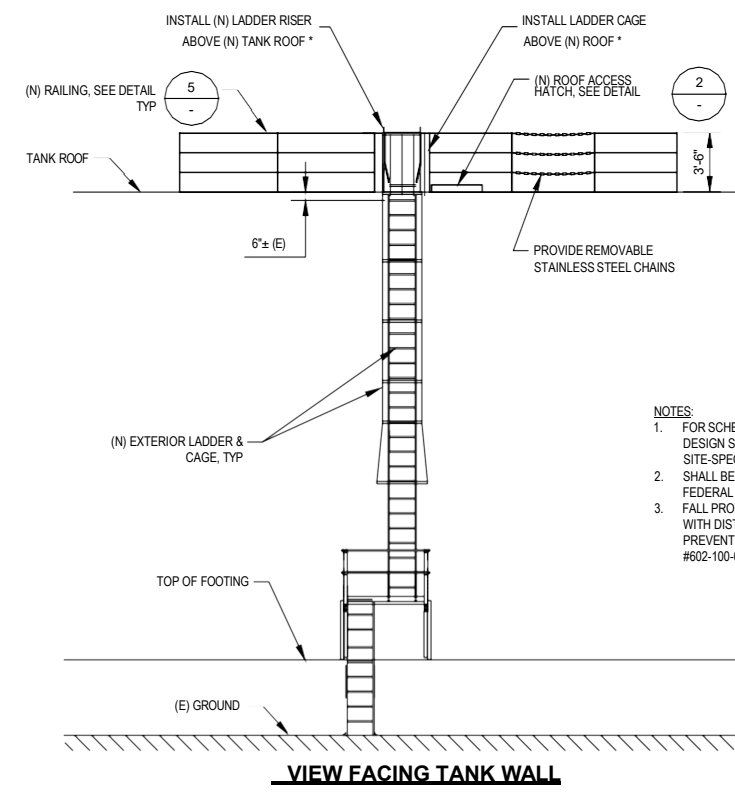
TIE-OFF DETAIL

4 S501 SCALE: NOT TO SCALE



SAFETY RAILING DETAIL

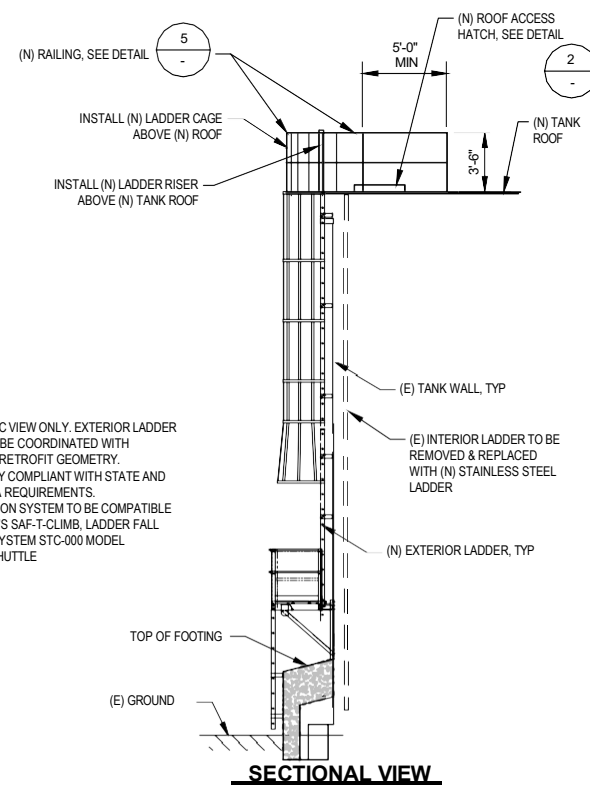
5 S501 SCALE: NOT TO SCALE



VIEW FACING TANK WALL

EXTERIOR LADDER DETAILS

6 S501 SCALE: NOT TO SCALE



SECTIONAL VIEW

- NOTES:**
1. FOR SCHEMATIC VIEW ONLY. EXTERIOR LADDER DESIGN SHALL BE COORDINATED WITH SITE-SPECIFIC RETROFIT GEOMETRY.
 2. SHALL BE FULLY COMPLIANT WITH STATE AND FEDERAL OSHA REQUIREMENTS.
 3. FALL PROTECTION SYSTEM TO BE COMPATIBLE WITH DISTRICT'S SAF-T-CLIMB, LADDER FALL PREVENTION SYSTEM STC-000 MODEL #602-100-003 SHUTTLE

60% DESIGN

No.	Issue	Checked	Approved	Date	
Author	A. PRATT	Drafting Check	B. CROWELL	Project Manager	NS
Designer	S. BURNS	Design Check	B. CROWELL	Project Director	SXM

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0 1"

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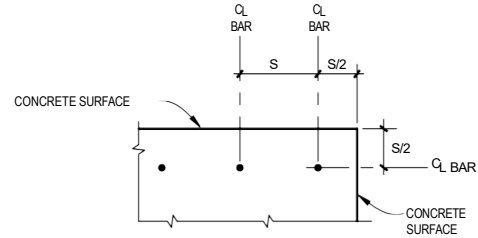
Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**
Project **KORBLEX RESERVOIRS SEISMIC RETROFIT**

Title **TANK ROOF DETAILS**

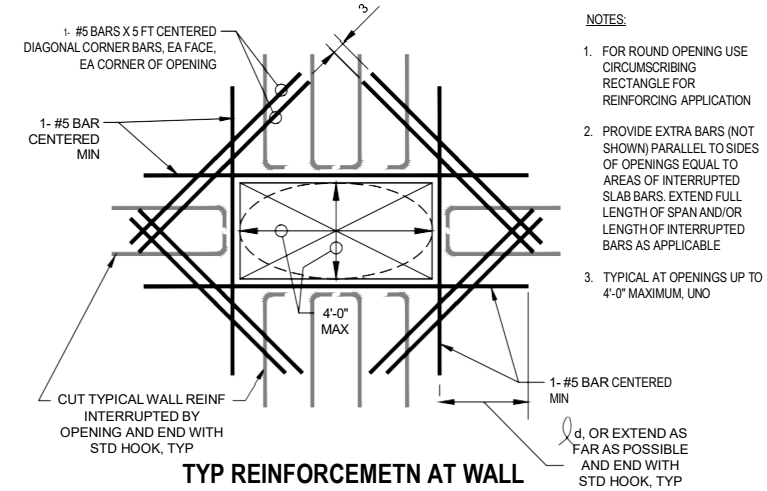
DEVELOPMENT LENGTH (ℓ_d)												
BAR SIZE	3000 PSI CONC (fc)				4000 PSI CONC (fc)				5000 PSI CONC (fc)			
	TOP		OTHER		TOP		OTHER		TOP		OTHER	
	$s \geq 6'$	$s < 6'$	$s \geq 6'$	$s < 6'$	$s \geq 6'$	$s < 6'$	$s \geq 6'$	$s < 6'$	$s \geq 6'$	$s < 6'$	$s \geq 6'$	$s < 6'$
#3	13	22	12	17	12	19	12	15	12	17	12	13
#4	18	29	14	22	15	25	12	19	14	23	12	17
#5	22	38	17	28	19	31	15	24	17	28	13	22
#6	26	43	20	33	23	37	18	29	20	34	15	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

TENSION LAP SPLICE LENGTH (CLASS 'B' SPLICE)												
BAR SIZE	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	25	43	29	49	23	38	25	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

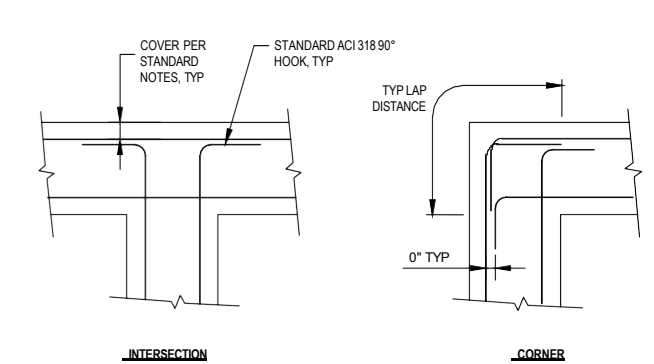
- NOTES:
- LENGTHS SHOWN ARE FOR GRADE 60 UNCOATED BARS.
 - LENGTHS SHOWN ARE IN INCHES.
 - INCREASE LENGTHS 30% FOR LIGHT WEIGHT CONCRETE
 - TOP BARS: HORIZONTAL BARS WITH MORE THAN 12' OF FRESH CONCRETE CAST BELOW THEM.
 - THE QUANTITY 'S' IS DEFINED AS FOLLOWS:



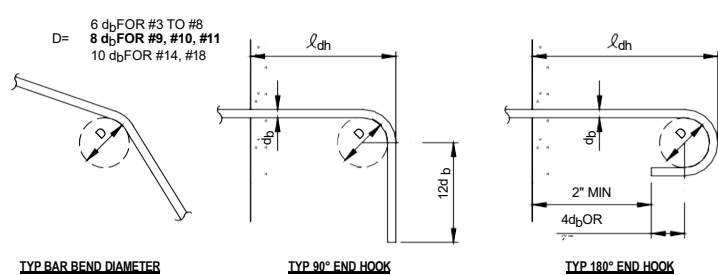
1 BAR DEVELOPMENT LENGTHS AND LAP SPLICE LENGTHS FOR CONCRETE
NOT TO SCALE



2 TYP REINFORCEMENT AT WALL & SLAB OPENINGS
NOT TO SCALE

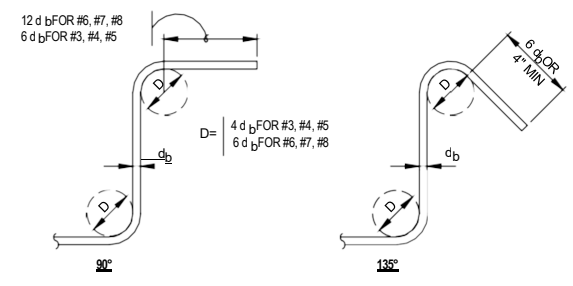


3 TYP REINFORCEMENT AT INTERSECTIONS AND CORNERS
NOT TO SCALE



BAR SIZE	MINIMUM TENSION EMBEDMENT LENGTHS FOR STANDARD END HOOKS ON REINFORCING BARS (IN) ℓ_{dh}			
	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

60% DESIGN

No. Issue Checked Approved Date Author S. GOULD Drafting Check B. CROWELL Project Manager NS Designer S. GOULD Design Check B. CROWELL Project Director SXM		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	Client HUMBOLDT BAY MUNICIPAL WATER DISTRICT Project KORBLEX RESERVOIRS SEISMIC RETROFIT	Title TYPICAL CONCRETE DETAILS Project No. 11218859 Date 07-23-2021 Scale AS SHOWN	Size ANSI D Sheet No. S-502 Sheet 16 of 14
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Attachment 2

**Samoa Reservoir Seismic Retrofit
Project – 60% Design Drawings**

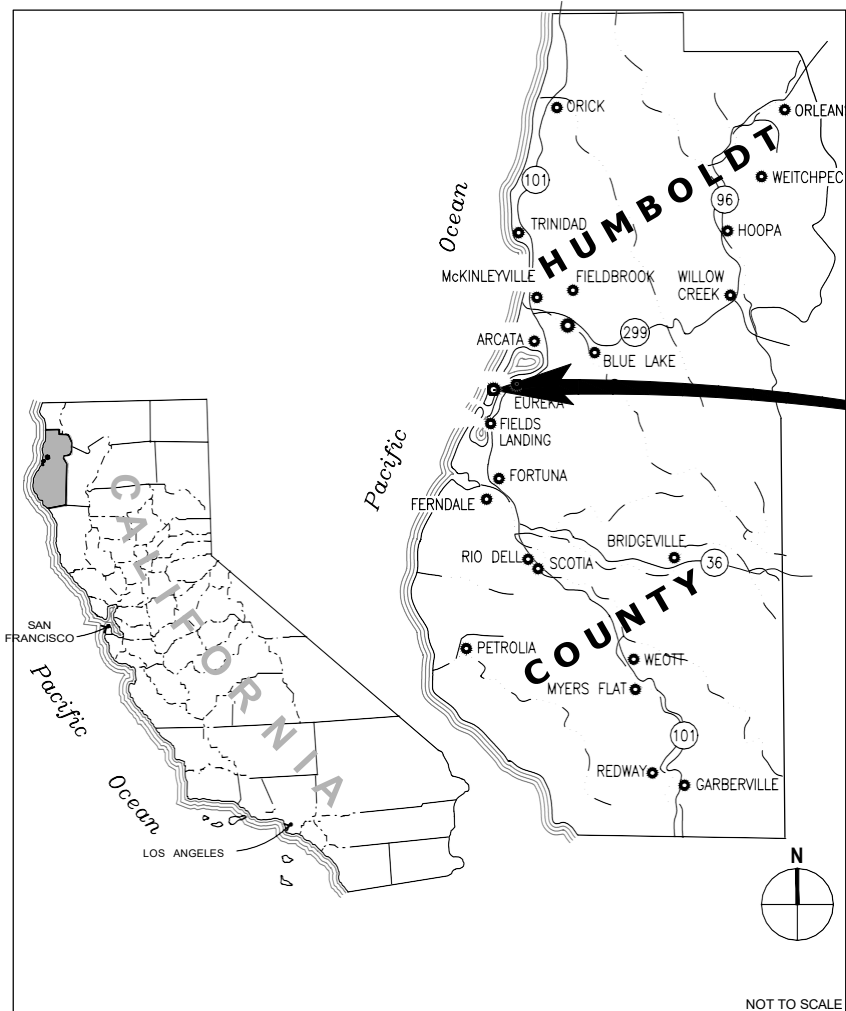
HUMBOLDT BAY MUNICIPAL WATER DISTRICT

SAMOA RESERVOIR SEISMIC RETROFIT PROJECT

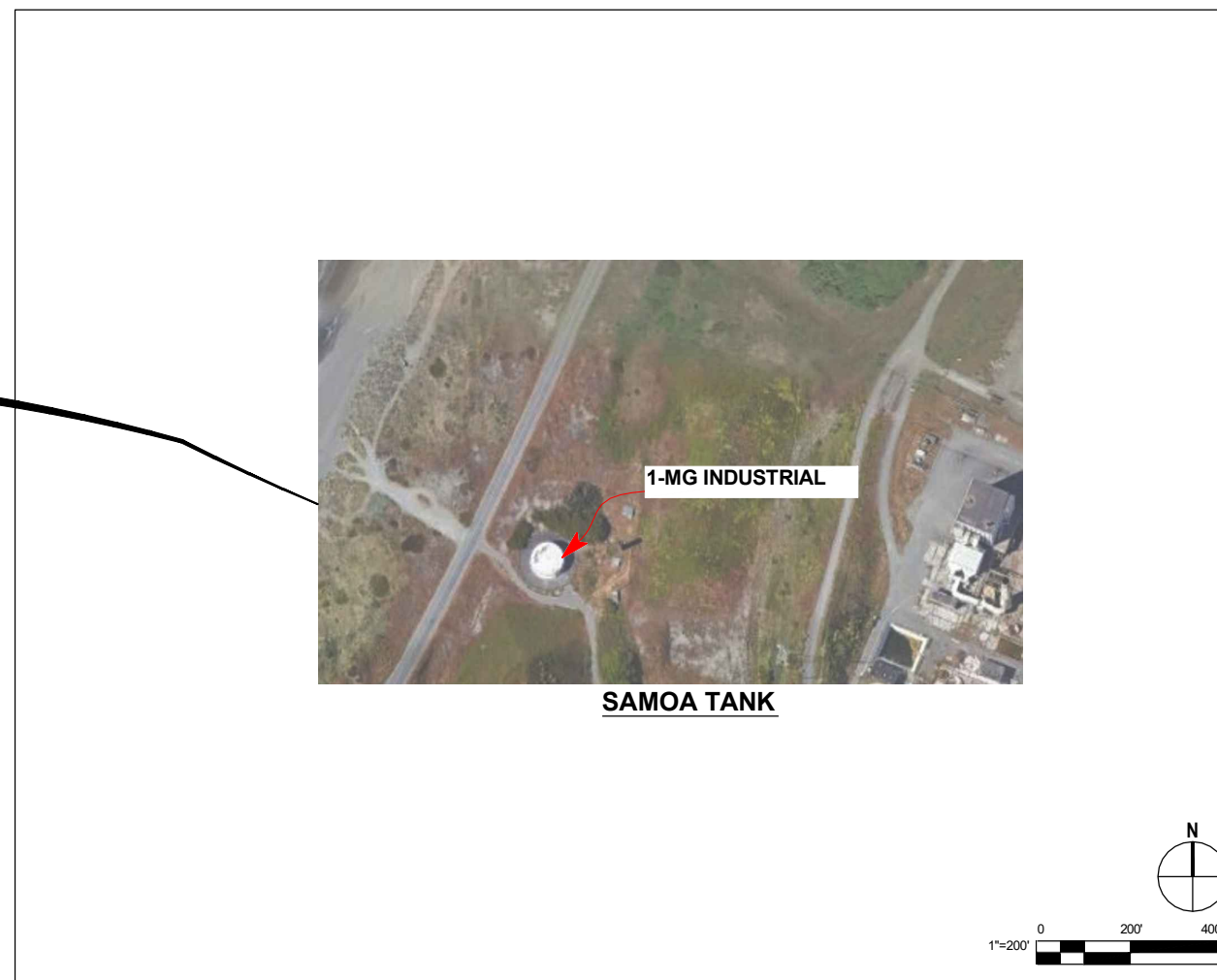
JULY 2021
PREPARED BY:



AREA MAP



LOCATION MAP



APPROVALS

PLANS AND SPECIFICATIONS APPROVED BY THE BOARD OF DIRECTORS OF THE HUMBOLDT BAY MUNICIPAL WATER DISTRICT, COUNTY OF HUMBOLDT, STATE OF CALIFORNIA, THIS ____ DAY OF _____, 2021.

GENERAL MANAGER
JOHN FRIEDENBACH _____ SIGNED

BOARD OF DIRECTORS

SHERI WOO	PRESIDENT
NEAL LATT	VICE PRESIDENT
J. BRUCE RUPP	SECRETARY-TREASURER
MICHELLE FULLER	ASSISTANT SECRETARY-TREASURER
DAVID LINDBERG	DIRECTOR

ENGINEER: GHD Inc.
STEVE MCHANEY _____ SIGNED

SHEET INDEX

SHEET NO.	DRAWING	DESCRIPTION
1	G-001	COVER SHEET AND SHEET INDEX
2	G-002	GENERAL NOTES, SYMBOLS AND ABBREVIATIONS
#	C-101	1 MG INDUSTRIAL EXISTING SITE CONDITIONS AND IMPROVEMENTS
#	C-102	1 MG INDUSTRIAL ROOF REPLACEMENT AND SITE PLAN
#	C-501	1 MG INDUSTRIAL TANK SHELL ELEVATION
#	C-502	SEISMIC CIVIL DETAILS 1
#	C-503	SEISMIC CIVIL DETAILS 2
6	C-504	CIVIL DETAILS
8	S-001	STRUCTURAL GENERAL NOTES
9	S-002	SPECIAL INSPECTIONS
10	S-101	1 MG INDUSTRIAL TANK FOUNDATION PLAN
12	S-102	1 MG INDUSTRIAL ROOF PLAN
13	S-501	TANK ROOF DETAILS
14	S-502	TYPICAL CONCRETE DETAILS

60% DESIGN

No.	Issue	Checked	Approved	Date	
Author	SXM	Drafting Check	SXM	Project Manager	NS
Designer	BLC	Design Check	SXM	Project Director	SXM

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Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**
Project **SAMOA RESERVOIR SEISMIC RETROFIT**

Title **COVER SHEET AND SHEET INDEX**

Project No. **11218859** Date **07-23-2021** Scale **AS SHOWN**

Sheet No. **G-01** Sheet **1 of 14**



SHEET GENERAL NOTES

- CONTRACTOR TO VERIFY PIPE AND VALVE SIZES, TYPE, AND CONFIGURATION AND PROVIDE ALL TRANSITION FITTINGS AS REQUIRED
- REPAIR ALL PAVING SIMILAR TO
- CONTRACTOR MAY STAGE ON (E) PAVED AREAS.

SHEET KEYNOTES

- REPLACE PORTION OF DRAIN LINE
- (N) BURIED RUBBER EXPANSION JOINT ASSEMBLY
- REPLACE FILL LINE FROM DOMESTIC WATER SYSTEM
- (E) CATHODIC PROTECTION TO REMAIN
- REPLACE PORTION OF 42\"/>

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Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**
Project **SAMOA RESERVOIR SEISMIC RETROFIT**

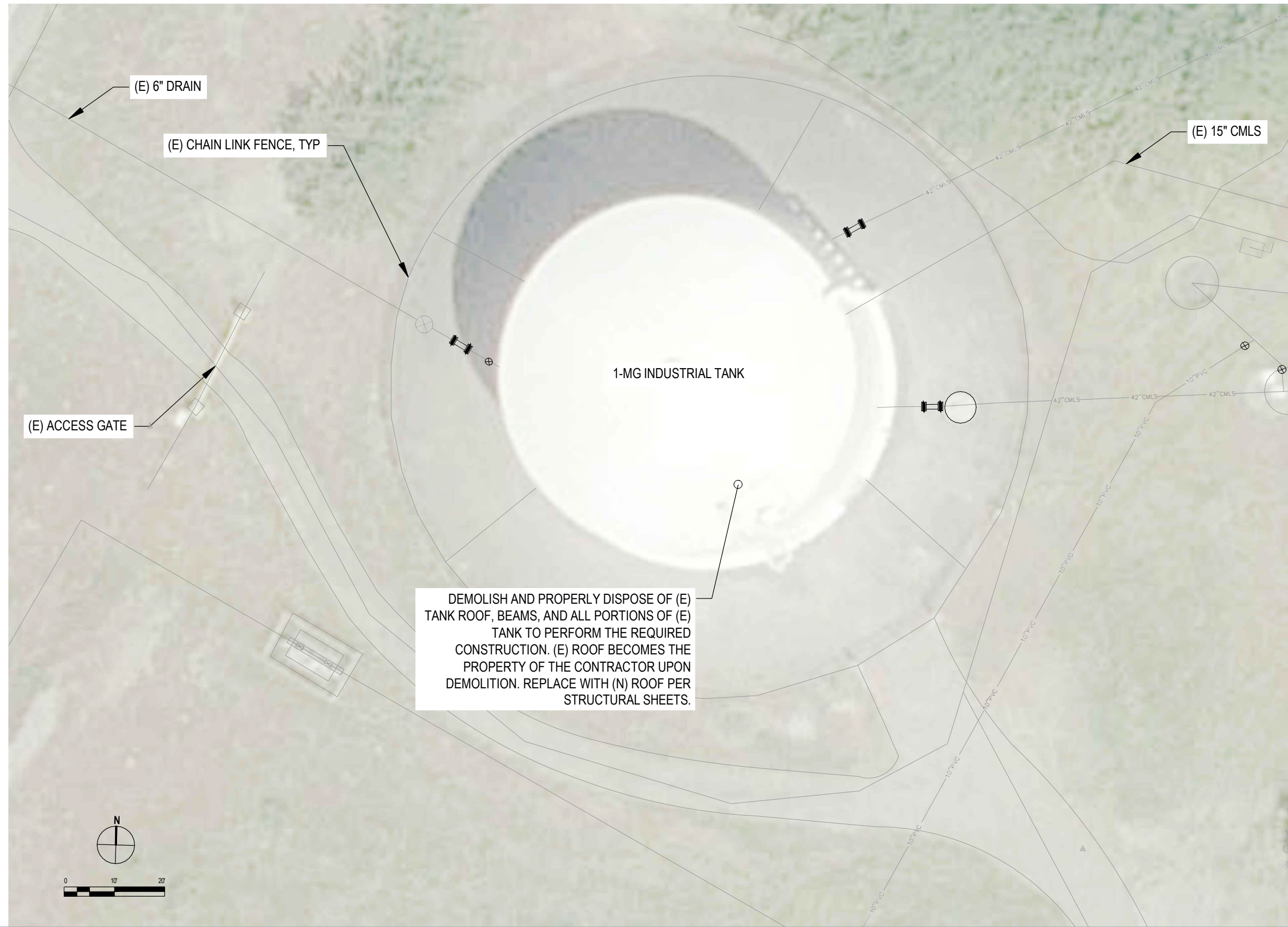
Project No. **11218859** Date **07-23-2021** Scale **AS SHOWN**

Title **1 MG INDUSTRIAL EXISTING SITE CONDITIONS AND IMPROVEMENTS**

Sheet No. **C-101** Sheet **3 of 14**

SHEET GENERAL NOTES

1. THE INTERIOR OF THE (E) 1-MG TANK AND NEW ROOF SHALL BE PREPPED AND PAINTED PER SPECIFICATION SECTION 09 91 00 - TANK PREPARATION AND COATING. REQUIRED TOUCH-UP PAINT LOCATIONS ON THE EXTERIOR OF THE TANK SHALL ALSO BE PREPPED AND PAINTED PER THE ABOVE REFERENCED SPECIFICATION.
2. 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.
3. ALL NEW METAL COMPONENTS SHALL BE PREPPED AND COATED IN ACCORDANCE WITH SPECIFICATION SECTION 09 91 00.
4. CONTRACTOR SHALL COORDINATE WITH OWNER FOR TRANSFER OF UTILITY CONNECTIONS INSIDE ENCLOSURES THAT ARE TO BE REPLACED.
5. 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 REPLACEMENT OF TEMPORARY FENCING DURING THE PERFORMANCE OF THE WORK TO PREVENT PUBLIC ACCESS TO THE SITE.
6. THE OWNER SHALL DRAIN AND PERFORM INITIAL "MUCK OUT" OF THE TANK PRIOR TO THE PERFORMANCE OF THE WORK.
7. CONTRACTOR WILL PERFORM ALL ELECTRICAL WORK REQUIRED FOR REPLACEMENT OF ELECTRICAL COMPONENTS.
8. CONTRACTOR SHALL PROVIDE SUBMITTAL/SHOP DRAWINGS PRIOR TO FABRICATION AND/OR ORDERING OF ENCLOSURES, EQUIPMENT, PARTS, ETC.



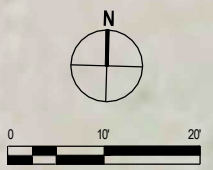
DEMOLISH AND PROPERLY DISPOSE OF (E) TANK ROOF, BEAMS, AND ALL PORTIONS OF (E) TANK TO PERFORM THE REQUIRED CONSTRUCTION. (E) ROOF BECOMES THE PROPERTY OF THE CONTRACTOR UPON DEMOLITION. REPLACE WITH (N) ROOF PER STRUCTURAL SHEETS.

(E) 6" DRAIN

(E) CHAIN LINK FENCE, TYP

(E) ACCESS GATE

(E) 15" CMLS



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Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**
Project **SAMOA RESERVOIR SEISMIC RETROFIT**

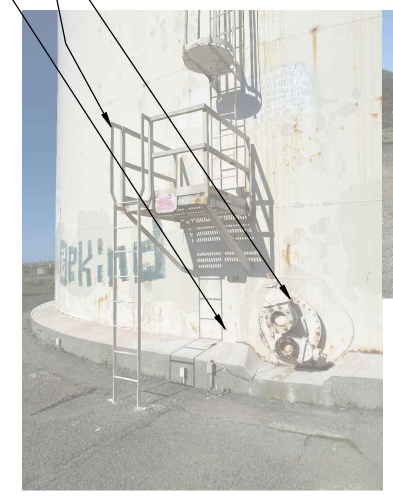
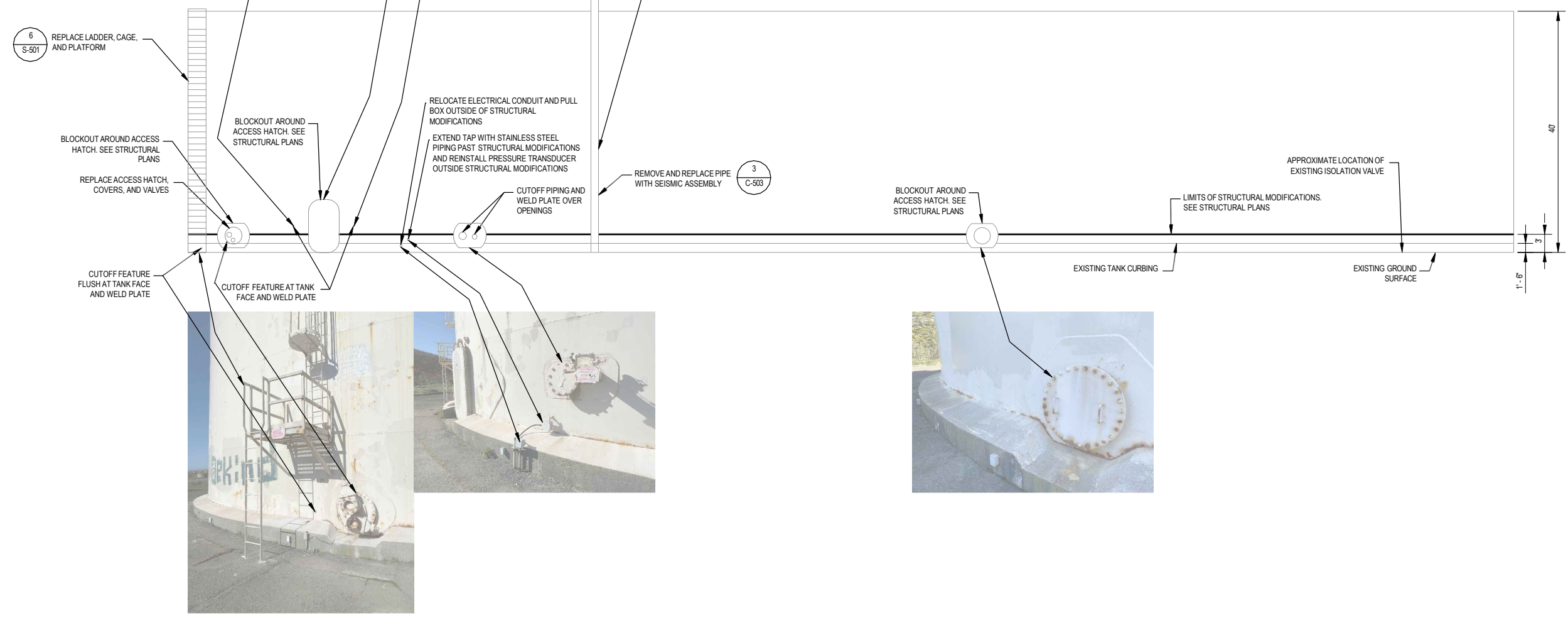
Title **1 MG INDUSTRIAL ROOF REPLACEMENT AND SITE PLAN**

Project No. **11218859** Date **07-23-2021** Scale **AS SHOWN**

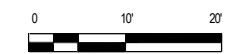
Sheet No. **C-102** Sheet **4 of 14**

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.



1 MG INDUSTRIAL TANK SHELL ELEVATION
SCALE: NTS



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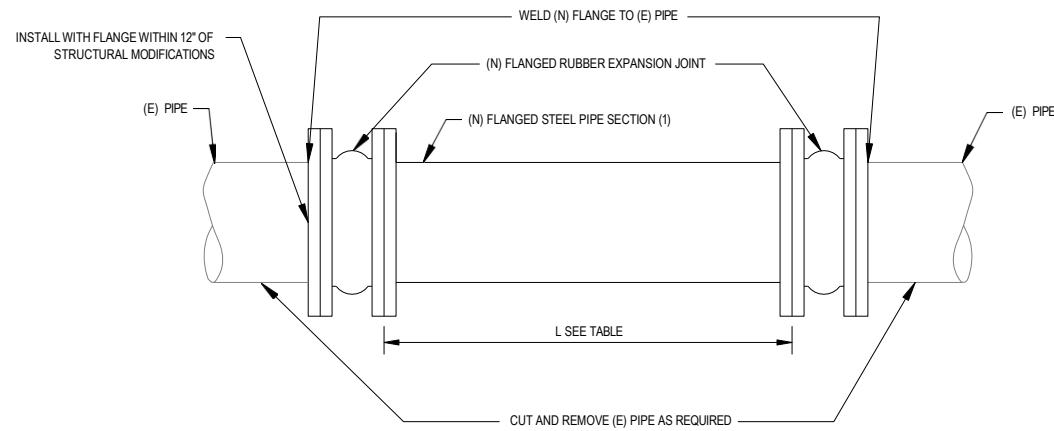
Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**
Project **SAMOA RESERVOIR SEISMIC RETROFIT**

Title **1 MG INDUSTRIAL TANK SHELL ELEVATION**

Project No. **11218859** Date **07-23-2021** Scale **AS SHOWN**

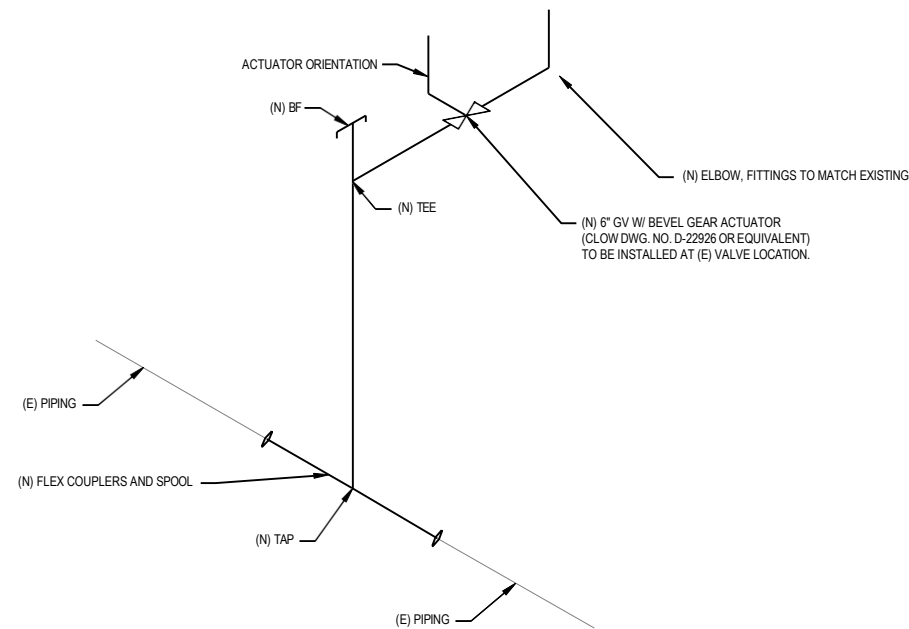
Sheet No. **C-501** Sheet **5 of 14**

MINIMUM SPOOL LENGTH	
EXISTING PIPE SIZE	L _{MIN}
6" / 8"	36"
15" / 16"	60"
30"	80"
42"	100"

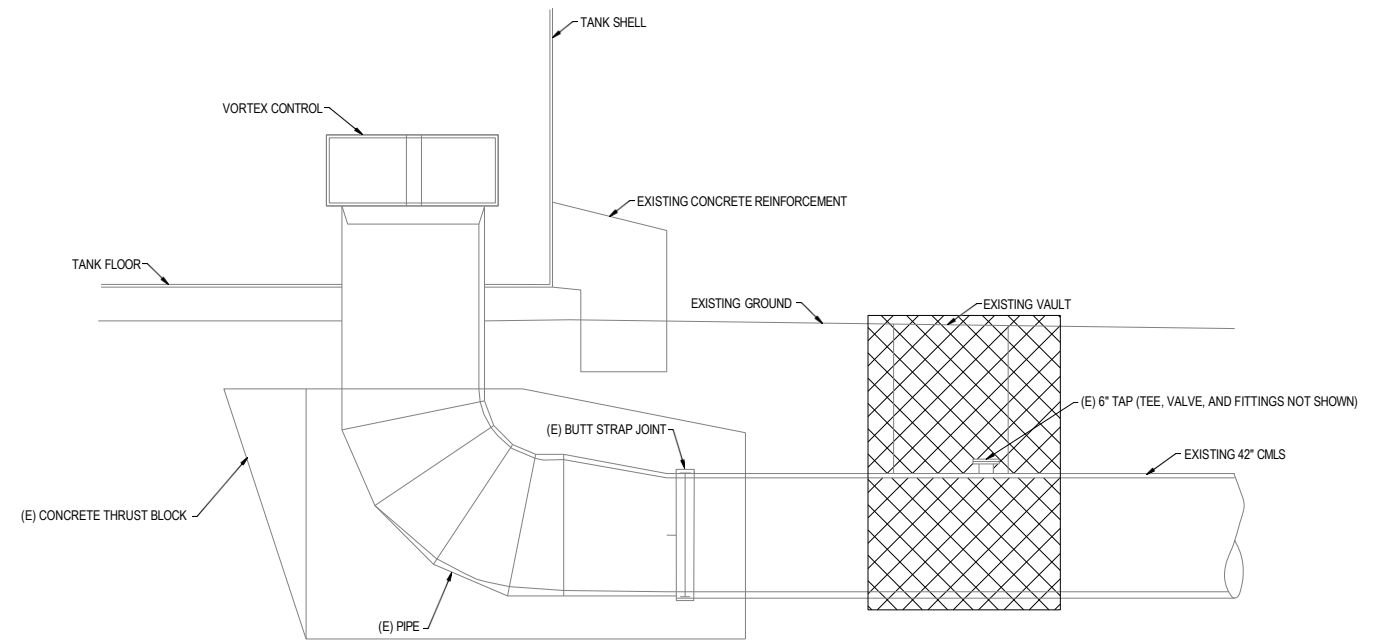


(1). MATCH (E) PIPE TYPE, LINING, AND COATING WHEN DIFFERENT

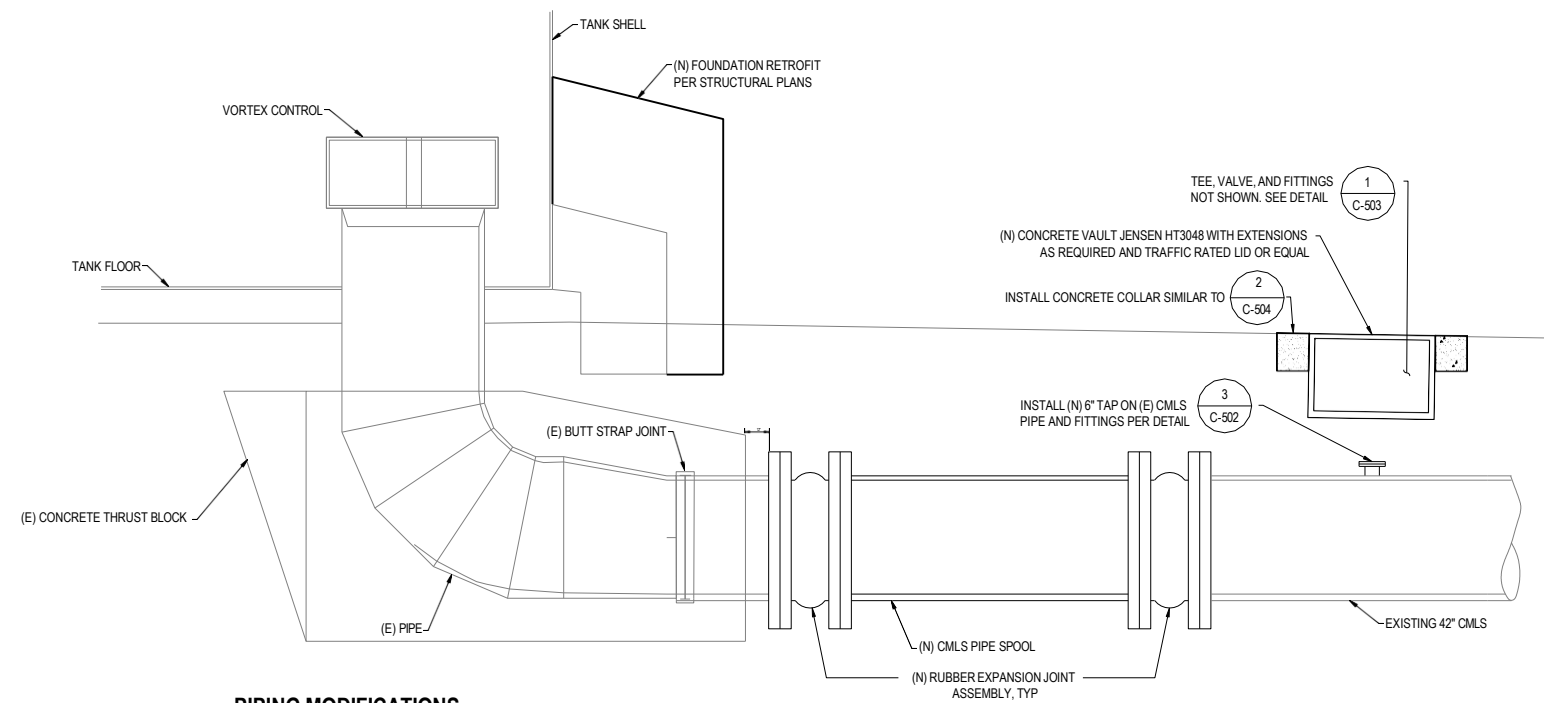
1 RUBBER EXPANSION JOINT ASSEMBLY DETAIL
SCALE: NTS



3 1 MG INDUSTRIAL PIPING LINE SCHEMATIC
SCALE: NTS



EXISTING CONDITIONS AND DEMOLITION
SCALE: NTS



PIPING MODIFICATIONS
SCALE: NTS

2 1 MG 42" CMLS INDUSTRIAL
SCALE: NTS

GENERAL NOTE: PIPING DETAILS APPLY TO BOTH INFLUENT AND EFFLUENT LINES. TAP, FITTINGS, AND VAULT APPLIES WHERE EXISTING.

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Project **SAMOA RESERVOIR SEISMIC RETROFIT**

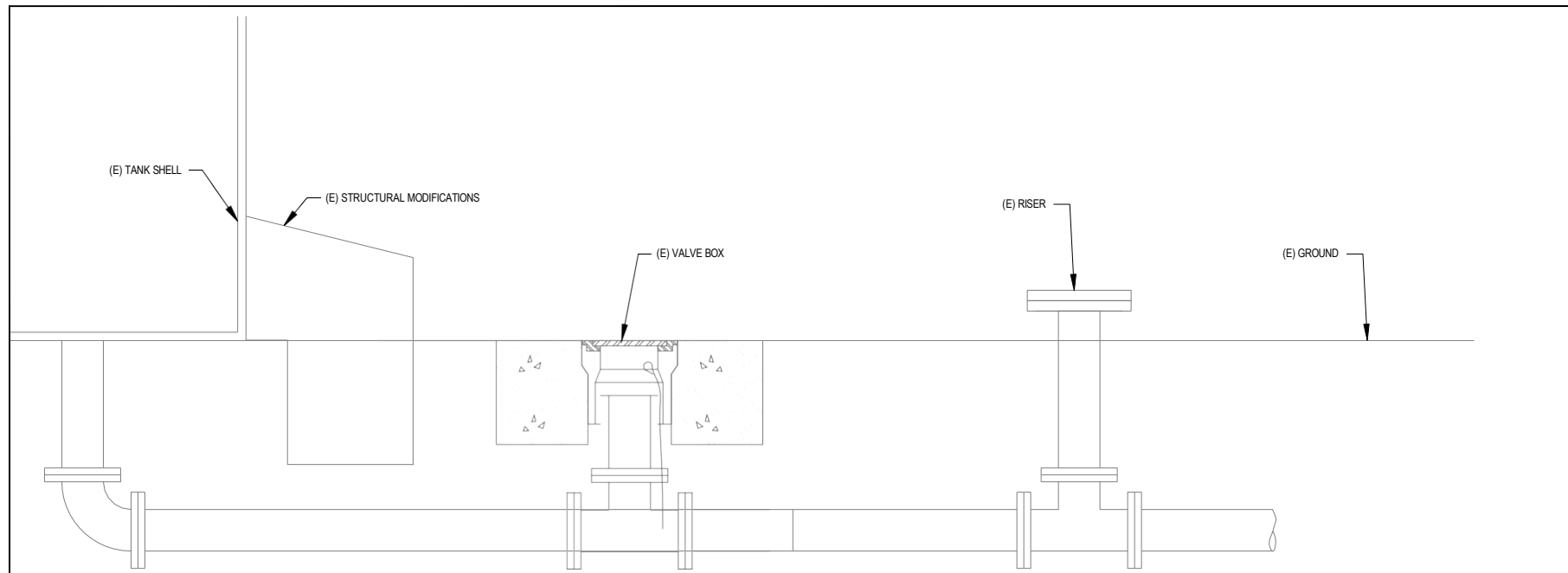
Title **SEISMIC CIVIL DETAILS 1**

Project No. **11218859**

Date **07-23-2021**

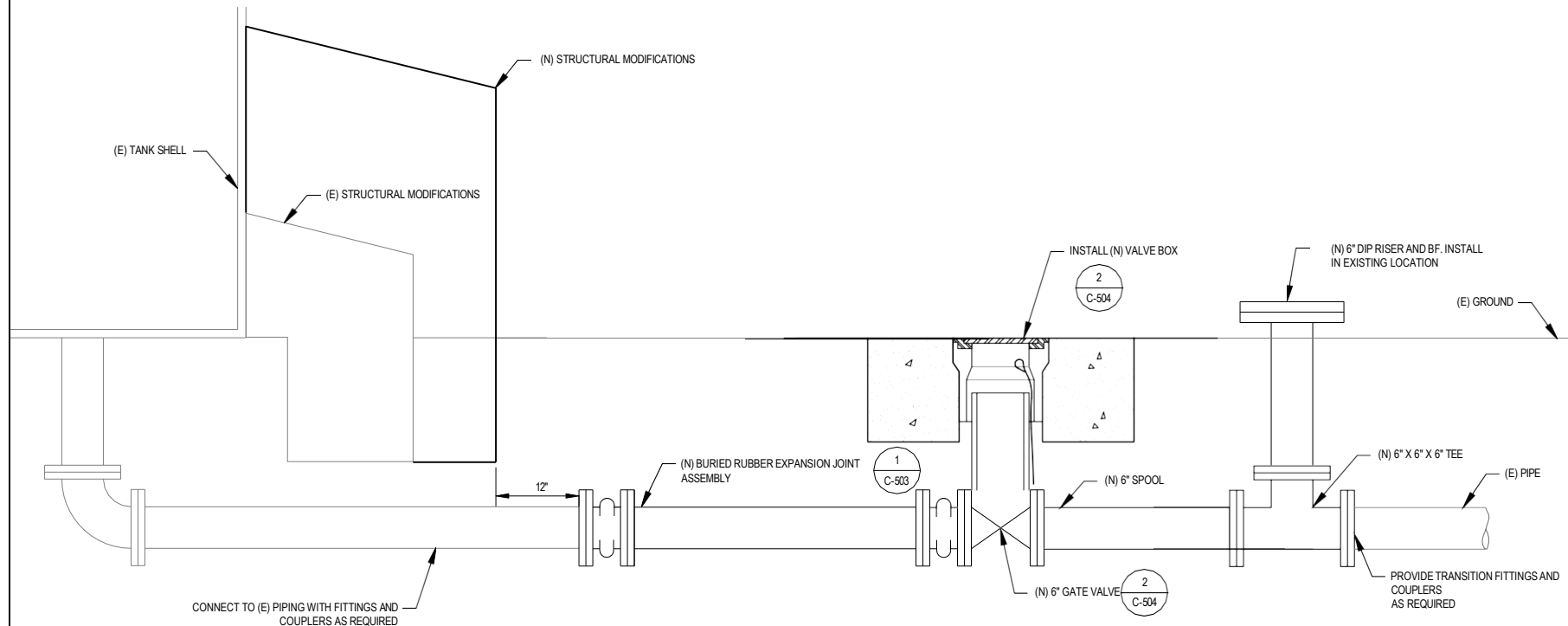
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Sheet No. **C-502**
6 of 14



EXISTING CONDITIONS

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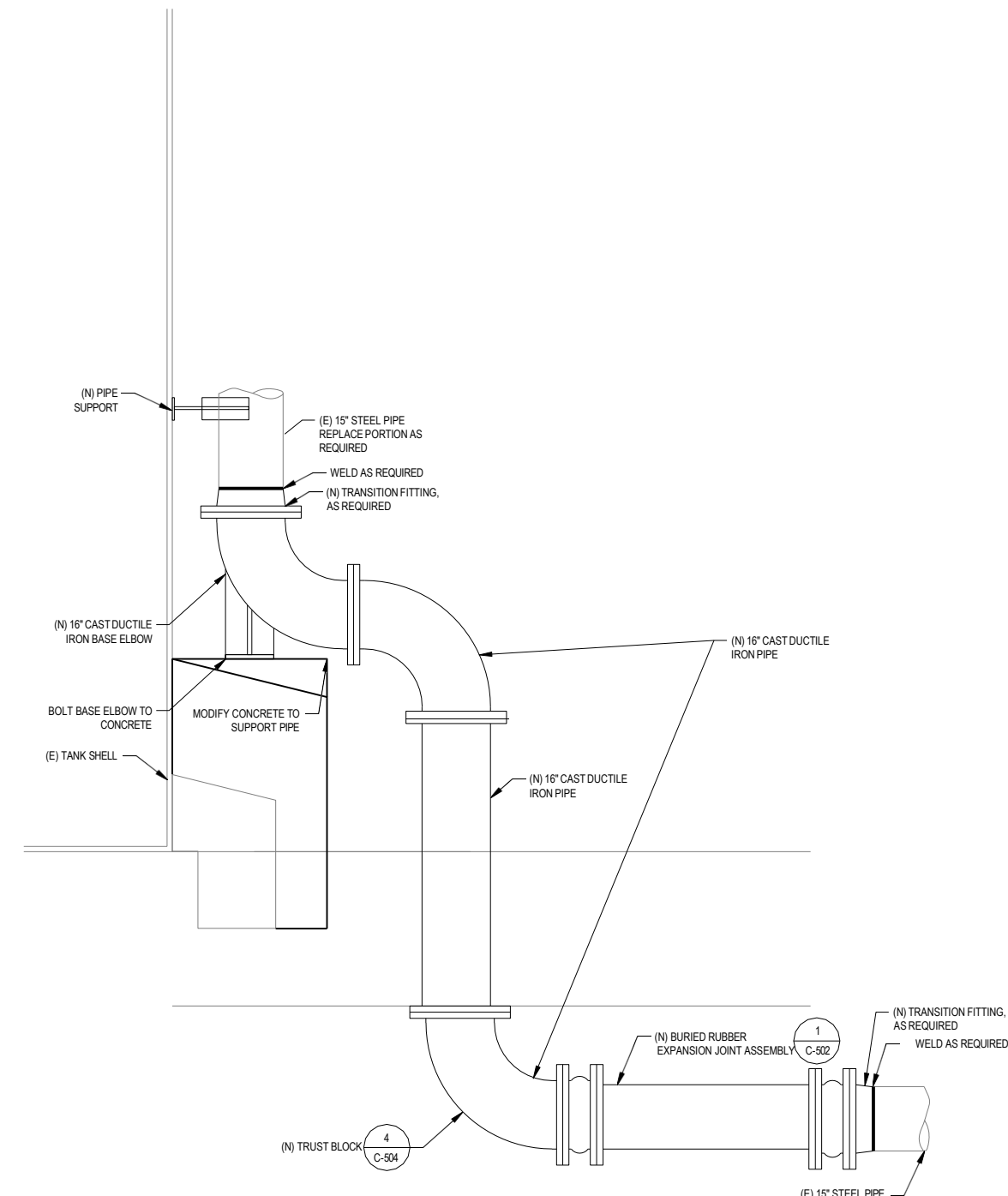


MODIFICATIONS

SCALE: NTS

1 MG INDUSTRIAL DRAIN OUTLET

SCALE: NTS



1 MG INDUSTRIAL INLET EXISTING CONDITIONS AND MODIFICATIONS

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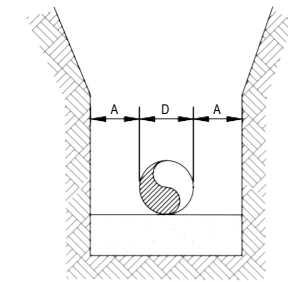
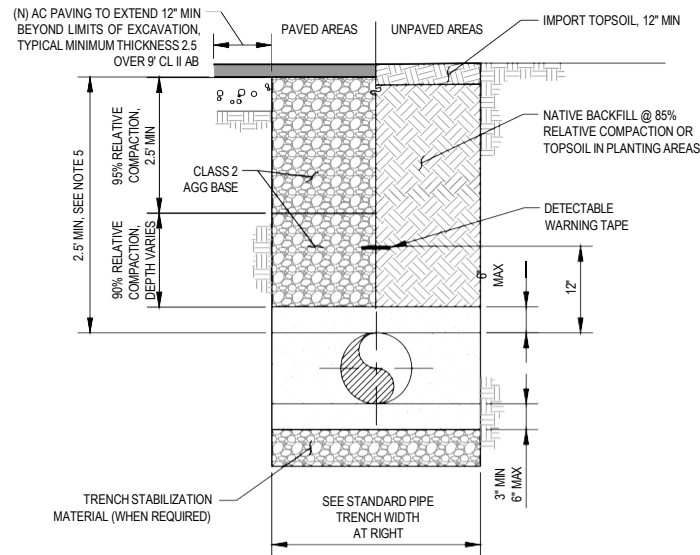
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Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**
Project **SAMOA RESERVOIR SEISMIC RETROFIT**

Project No. **11218859** Date **07-23-2021** Scale **AS SHOWN**

Title **SEISMIC CIVIL DETAILS 2**

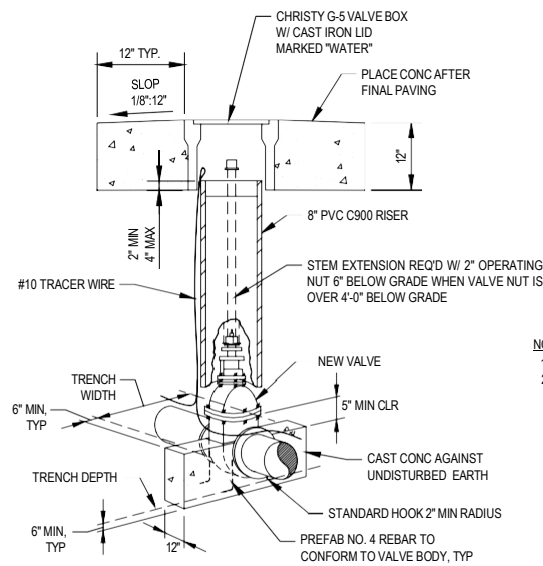
Sheet No. **C-503** of 14



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"

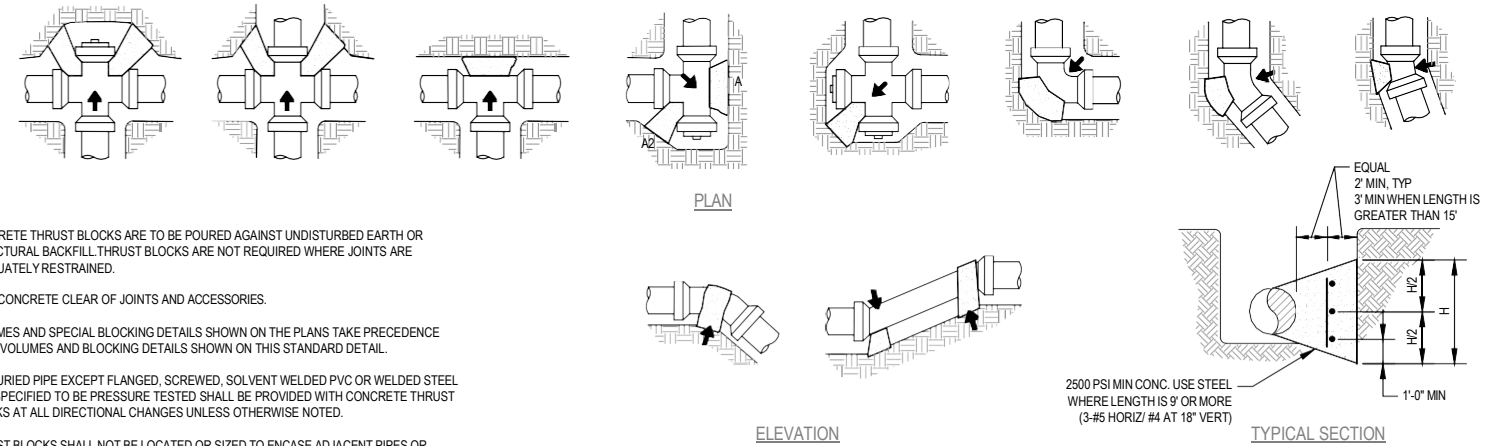
- NOTES:**
1. WIDER TRENCHES MAY REQUIRE HIGHER STRENGTH PIPE AND/OR SPECIAL BEDDING.
 2. DIFFERING TRENCH WIDTHS REQUIRE PRIOR APPROVAL OF ENGINEER.
 3. IN MAKING EXCAVATIONS FOR THIS PROJECT, THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR PROVIDING & INSTALLING ADEQUATE SHEETING, SHORING & BRACING AS 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.
 4. SATISFACTORY NATIVE BACKFILL MATERIAL USED AS UTILITY TRENCH BACKFILL BELOW UNPAVED AREAS SHALL BE APPROVED BY THE ENGINEER PRIOR TO USE.
 5. 2-SACK SLURRY BACKFILL MAY BE USED IN TRENCH WHEN MINIMUM PIPE COVER NOT POSSIBLE, WHEN APPROVED BY OWNER'S REPRESENTATIVE.
 6. CLASS 2 AGGREGATE BASE SHALL BE COMPACTED TO 95% RELATIVE COMPACTION.
 7. DETECTABLE WARNING TAPE SHALL BE BRIGHT COLORED, CONTINUOUSLY PRINTED, MINIMUM 6" WIDE BY 4 MIL. THICK, MANUFACTURED FOR DIRECT BURIAL.
 8. DETECTABLE WARNING TAPE NOT REQUIRED FOR IRRIGATION LINES.
 9. GRAVEL ROADS SHALL USE PAVED AREA TRENCH SECTION BUT WITH AGGREGATE BASE TO SURFACE, UNLESS NOTED OTHERWISE.

1 TYPICAL TRENCH AND PAVING DETAIL
SCALE: NTS



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

2 STANDARD VALVE INSTALLATION
SCALE: NTS



- NOTES:**
1. CONCRETE THRUST BLOCKS ARE TO BE POURED AGAINST UNDISTURBED EARTH OR STRUCTURAL BACKFILL THRUST BLOCKS ARE NOT REQUIRED WHERE JOINTS ARE ADEQUATELY RESTRAINED.
 2. KEEP CONCRETE CLEAR OF JOINTS AND ACCESSORIES.
 3. VOLUMES AND SPECIAL BLOCKING DETAILS SHOWN ON THE PLANS TAKE PRECEDENCE OVER VOLUMES AND BLOCKING DETAILS SHOWN ON THIS STANDARD DETAIL.
 4. ALL BURIED PIPE EXCEPT FLANGED, SCREWED, SOLVENT WELDED PVC OR WELDED STEEL PIPE SPECIFIED TO BE PRESSURE TESTED SHALL BE PROVIDED WITH CONCRETE THRUST BLOCKS AT ALL DIRECTIONAL CHANGES UNLESS OTHERWISE NOTED.
 5. THRUST BLOCKS SHALL NOT BE LOCATED OR SIZED TO ENCASE ADJACENT PIPES OR FITTINGS.
 6. THE SIZE AND WEIGH OF ALL UPLIFT THRUST BLOCKS SHALL BE AS DETERMINED BY ENGINEER.
 7. 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)
 8. THRUST BLOCKS REQUIRED AT ALL CHANGES IN DIRECTION OF PIPING UNLESS NOTED OTHERWISE.
 9. CONTRACTOR TO PROVIDE ALL COMPONENTS.
 10. 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

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Designer	MD	Design Check	SXM	Project Director	SXM

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Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**
Project **SAMOA RESERVOIR SEISMIC RETROFIT**

Title **CIVIL DETAILS**

Project No. **11218859** Date **07-23-2021** Scale **AS SHOWN**

Sheet No. **C-504** Sheet **8 of 14**

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 (SAMOA): SEISMIC IMPORTANCE FACTOR: I_s = 1.50 MAPPED SPECTRAL RESPONSE ACCELERATIONS: S_v = N/A S_d = N/A SPECTRAL RESPONSE COEFFICIENTS: SDS = 1.21 g SD1 = 1.87 g SOIL SITE CLASS: F 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 WHOM 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 & 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) HILTI 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 & 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 UPON 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 SAMOA TANK, 13 KIP TENSION CAPACITY WITH ANCHORS AT 4'-0" O/C AROUND PERIMETER. FINAL EMBEDMENT LENGTH BY ANCHOR DESIGNER, APPROXIMATED AT 17 FEET MAXIMUM AS TO REMAIN ABOVE EXISTING GROUND WATER TABLE AS IDENTIFIED IN THE PROJECT GEOTECHNICAL REPORT.</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_y = 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>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: • 1 MG SAMOA TANK ROOF REPLACEMENT • 1 MG SAMOA HELICAL ANCHORS</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>	

60% DESIGN

<p>No. Issue Checked Approved Date</p> <p>Author S. GOULD Drafting Check S. MCHANEY Project Manager NS</p> <p>Designer S. GOULD Design Check B. CROWELL Project Director SKM</p>	<p>Bar is one inch on original size sheet</p> <p>0  1"</p>	 <p>GHD Inc. 718 Third Street Eureka California 95501 USA T 1 707 443 8326 F 1 707 444 8330 www.ghd.com</p> <p>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.</p>	<p>Client HUMBOLDT BAY MUNICIPAL WATER DISTRICT</p> <p>Project SAMOA RESERVOIR SEISMIC RETROFIT</p> <p>Project No. 11218859 Date 07-23-2021 Scale AS SHOWN</p>	<p>Title STRUCTURAL GENERAL NOTES</p> <p>Sheet No. S-01 Sheet 9 of 14</p>
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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
- CAST-IN-PLACE CONCRETE
- PRECAST CONCRETE
- MASONRY LEVEL 1
- MASONRY LEVEL 2
- WOOD CONSTRUCTION
- MECHANICAL & ELECTRICAL SYSTEMS
- ARCHITECTURAL SYSTEMS
- STRUCTURAL STEEL
- 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-CW 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 MATCHMARKING 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

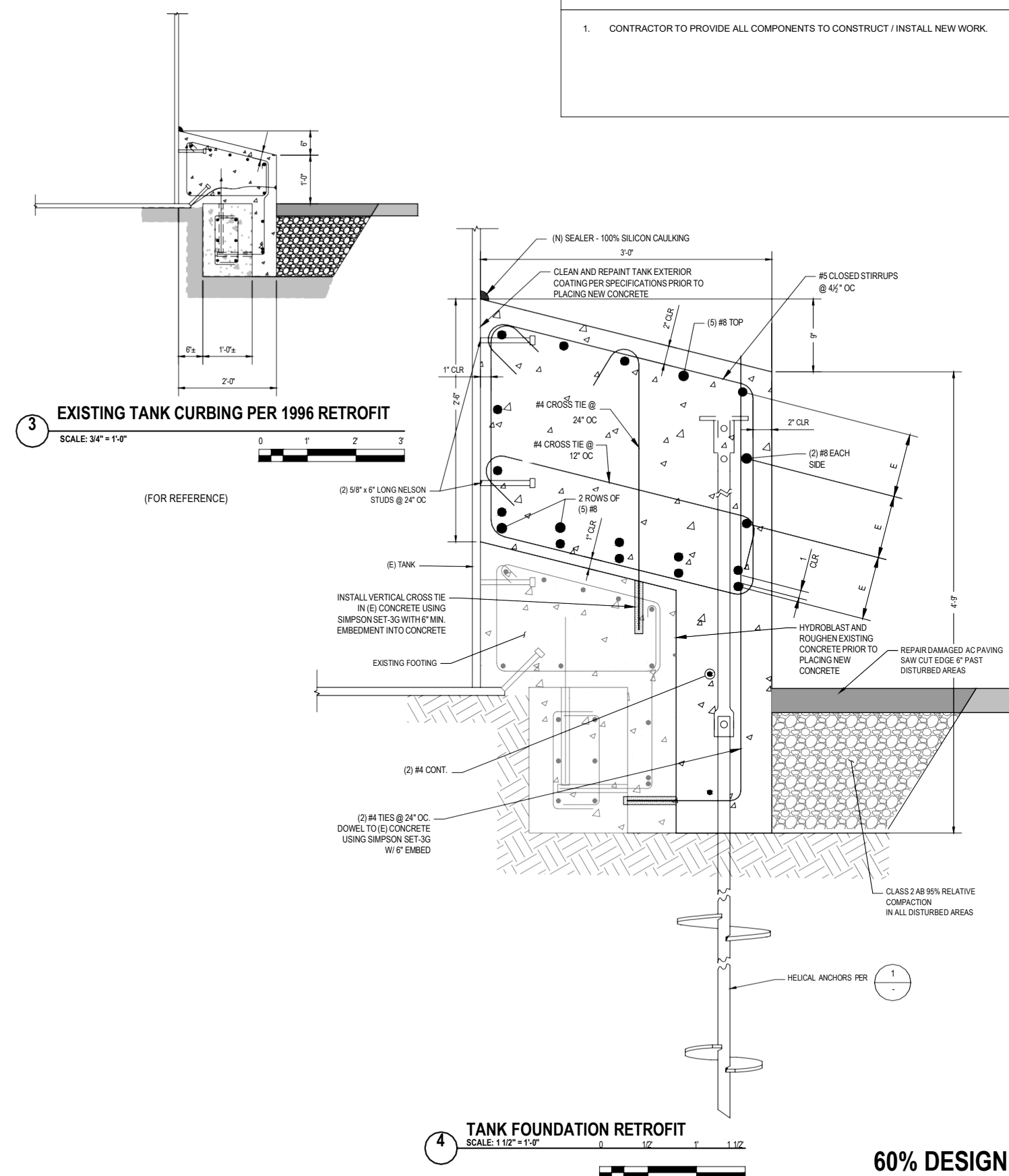
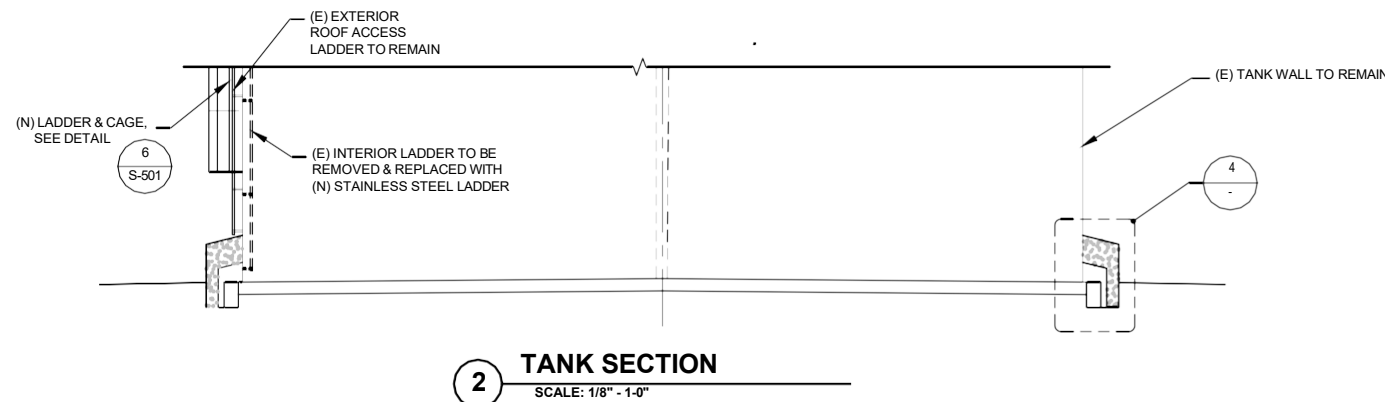
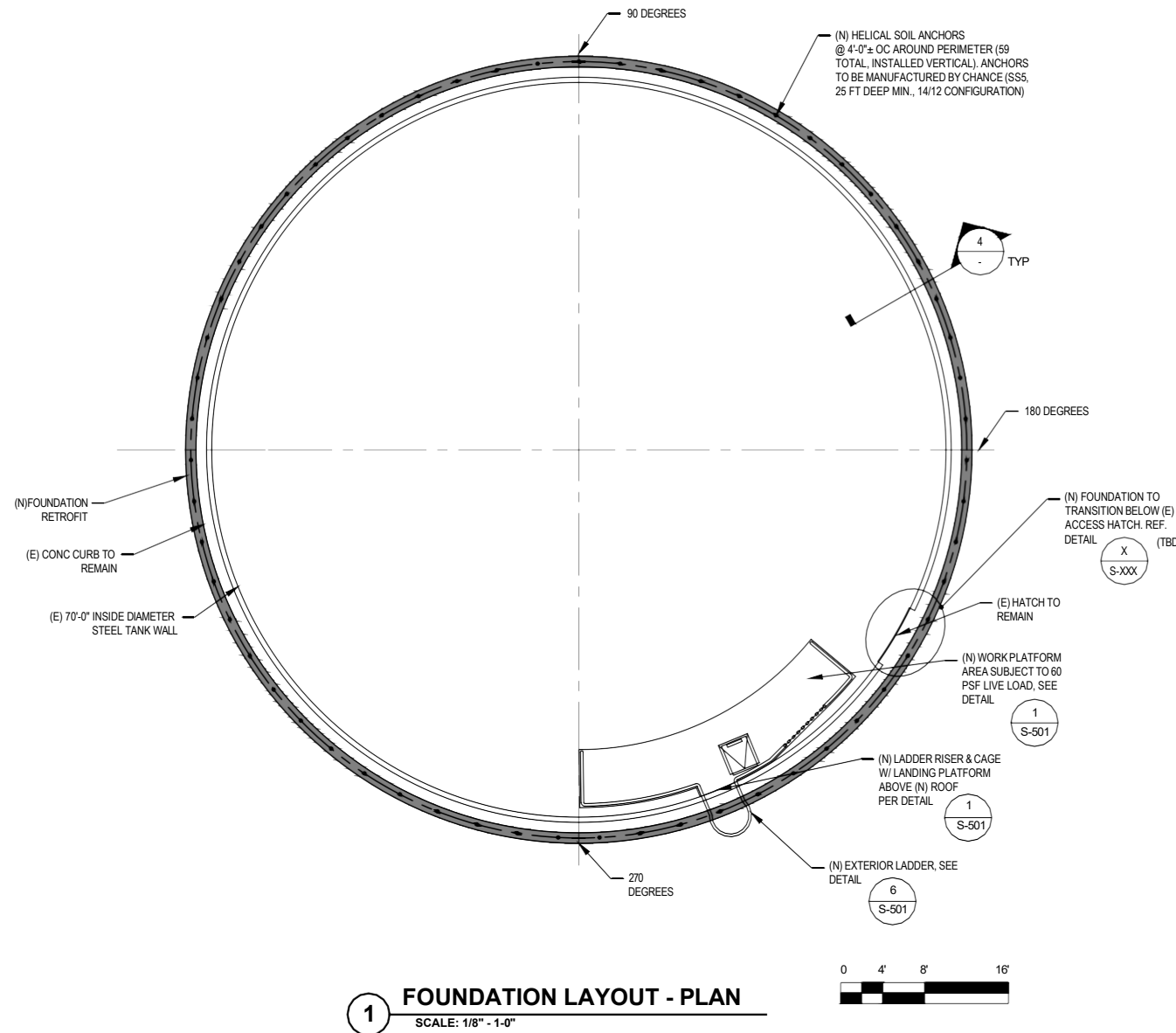
ITEM 1:	INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT. <input checked="" type="checkbox"/> PERIODIC <input type="checkbox"/> CONTINUOUS	AGENCY # (QUALIF.): ACI-COI, ICC-RCSI REFERENCE STDS.: ACI 318: CH. 20, 25.2, 25.3, 26.6.1-26.6.3
ITEM 2:	REINFORCING BAR WELDING: SCOPE: 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-COI, 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-COI, 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-COI, 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-COI, 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-COI, 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-COI, 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-COI, 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-COI, ICC-RCSI REFERENCE STDS.: ACI 318: 26.11.2(B)

60% DESIGN

 GHD Inc. 718 Third Street Eureka California 95501 USA T 1 707 443 8326 F 1 707 444 8330 www.ghd.com		Client HUMBOLDT BAY MUNICIPAL WATER DISTRICT Project SAMOA RESERVOIR SEISMIC RETROFIT		Title SPECIAL INSPECTIONS		Size ANSI D	
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No. Issue Checked Approved Date Author S. GOULD Drafting Check S. MCHANEY Project Manager NS Designer S. GOULD Design Check B. CROWELL Project Director SXM		Bar is one inch on original size sheet 0 _____ 1"		Plot Date: 29 July 2021 - 7:23 PM		Plotted By: Michelle Davidson	

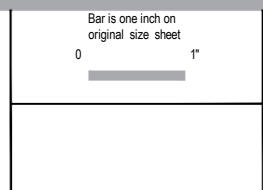
SHEET GENERAL NOTES

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



60% DESIGN

No.	Issue	Checked	Approved	Date	
Author	S. GOULD	Drafting Check	B. CROWELL	Project Manager	NS
Designer	S. BURNS	Design Check	B. CROWELL	Project Director	SXM

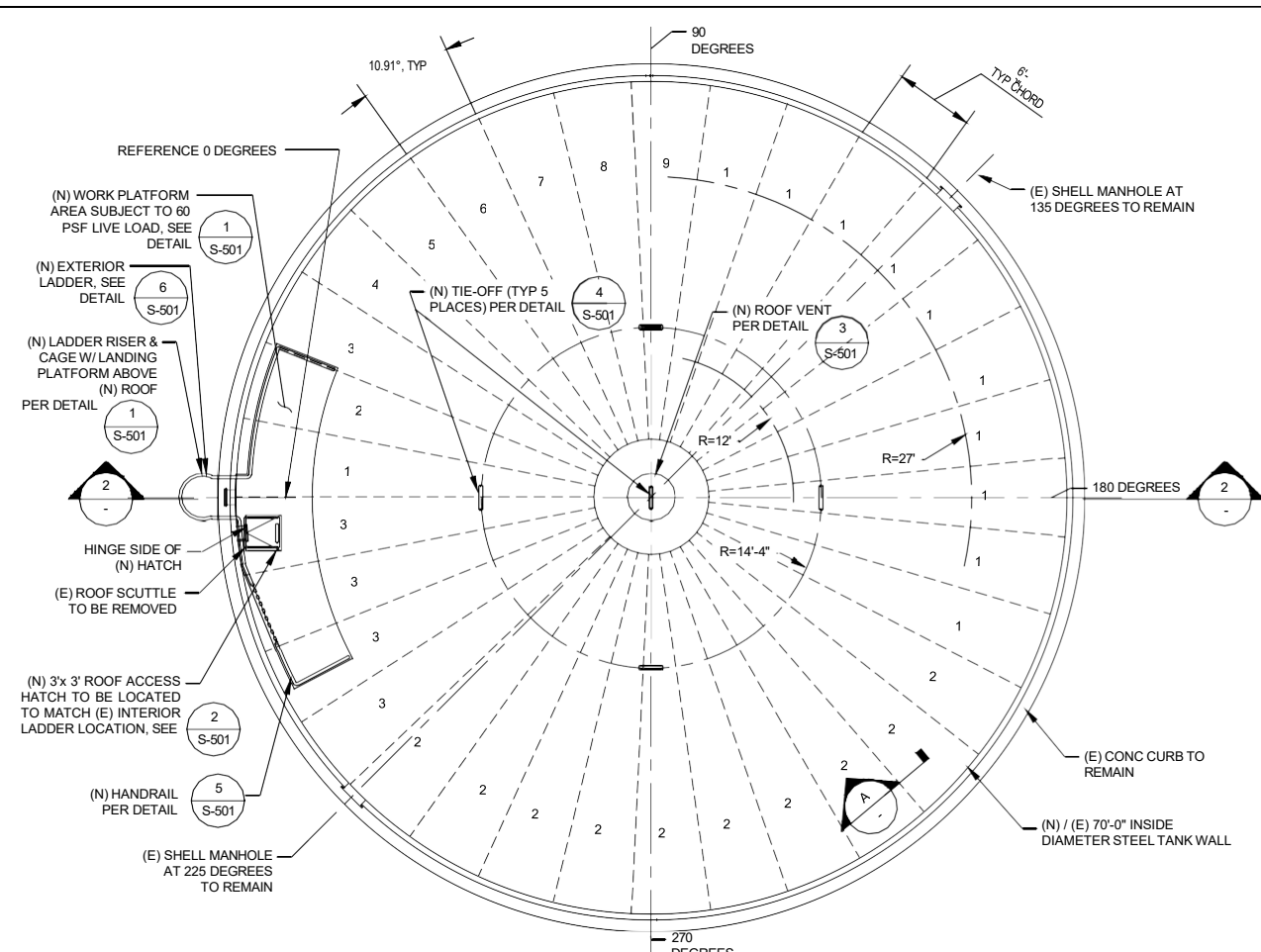


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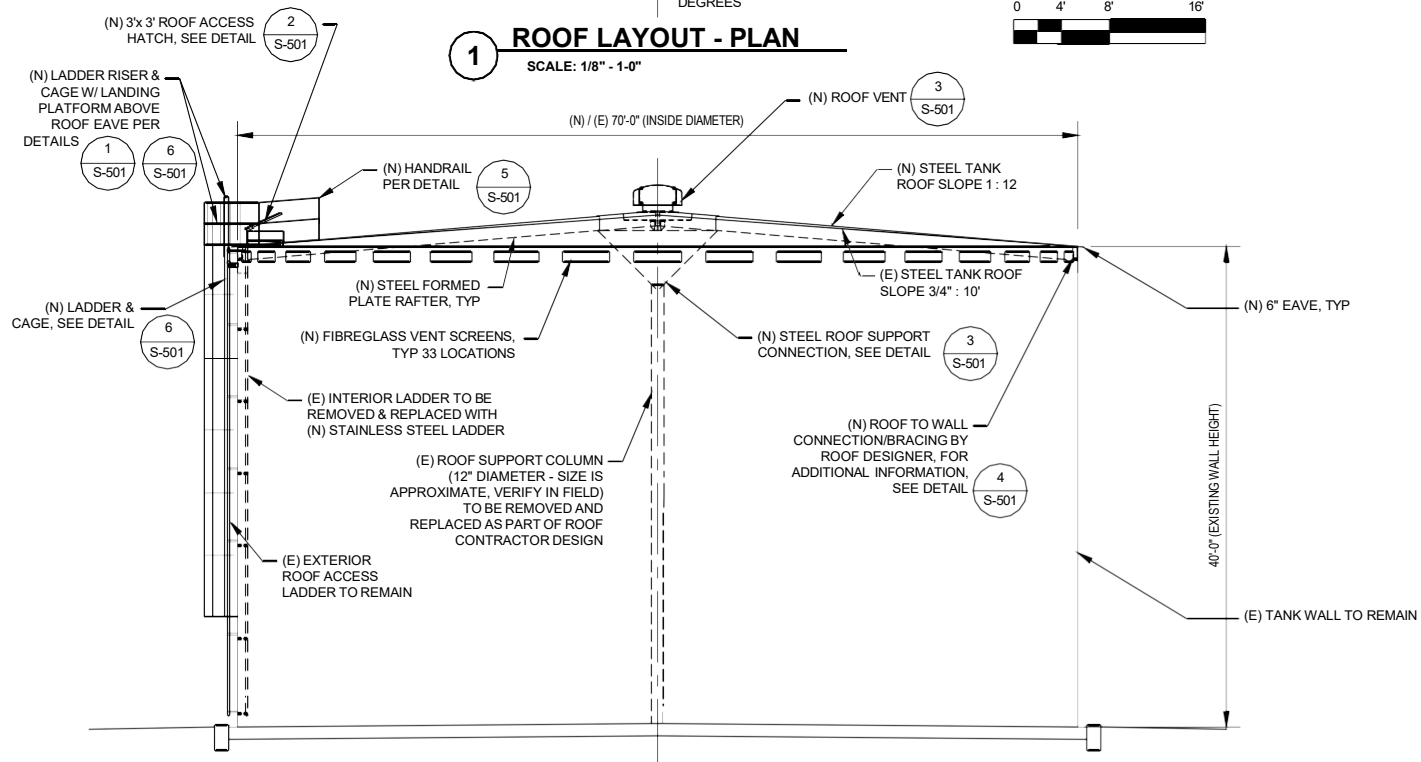
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Client: **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**
Project: **SAMOA RESERVOIR SEISMIC RETROFIT**
Project No.: **11218859**
Date: **07-23-2021**
Scale: **AS SHOWN**

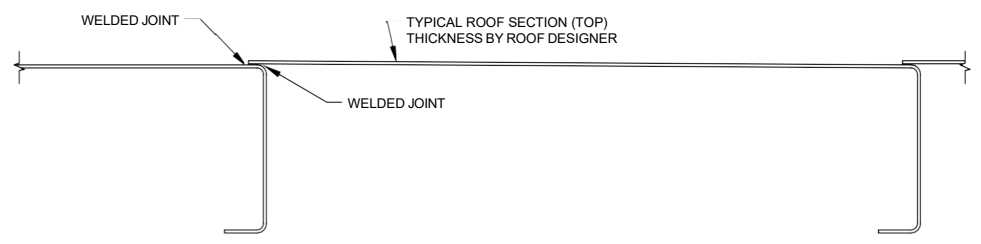
Title: **1 MG INDUSTRIAL TANK FOUNDATION PLAN**
ANSI D
Sheet: **S-101** of 14



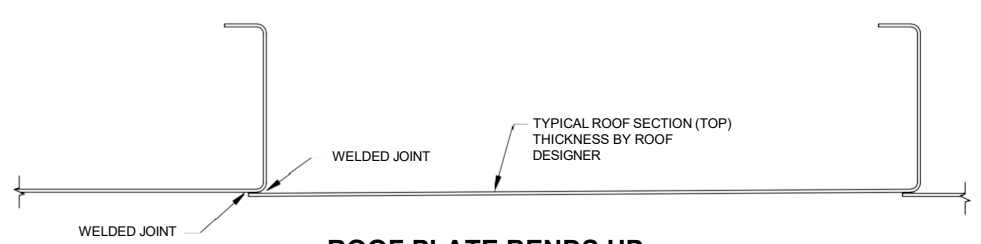
1 ROOF LAYOUT - PLAN
SCALE: 1/8" - 1-0"



2 TANK SECTION
SCALE: 1/8" - 1-0"

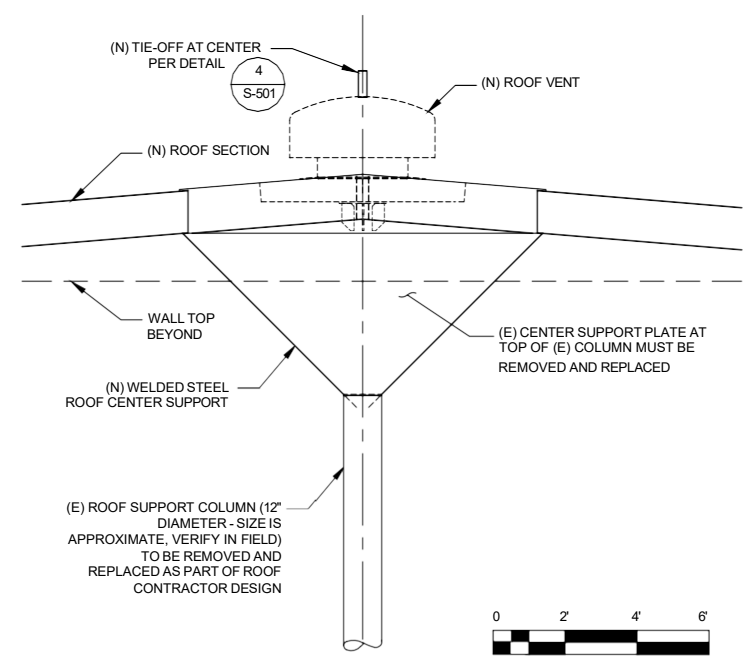


ROOF PLATE BENDS DOWN

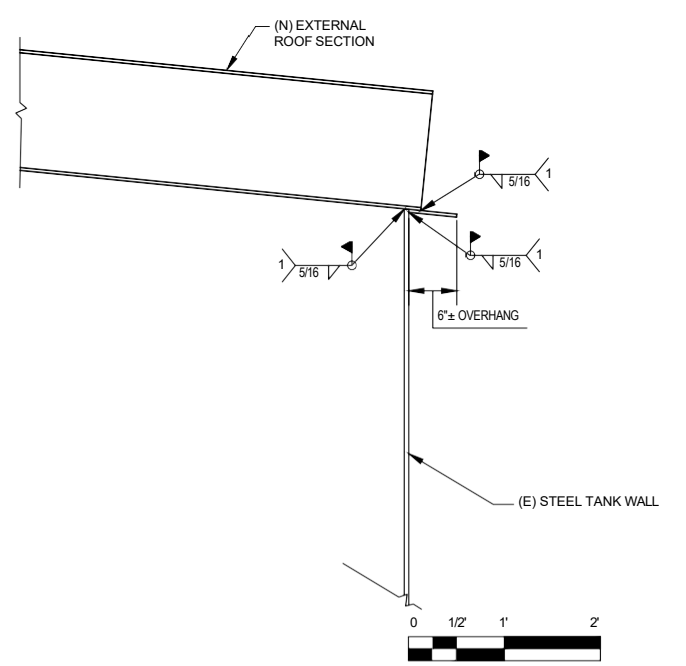


ROOF PLATE BENDS UP

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



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



4 ROOF TO WALL CONNECTION
SCALE: 1" - 1-0"

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.

60% DESIGN

No.	Issue	Checked	Approved	Date	
Author	A. PRATT	Drafting Check	B. CROWELL	Project Manager	NS
Designer	S. BURNS	Design Check	B. CROWELL	Project Director	SXM

Bar is one inch on original size sheet
0 1"

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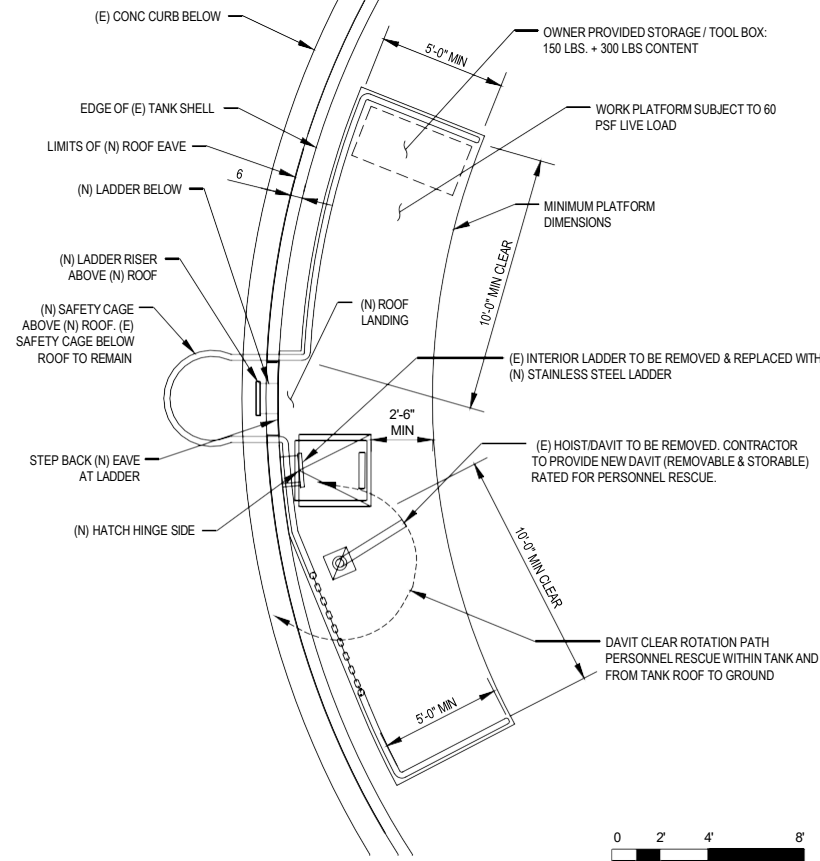


Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**
Project **SAMOA RESERVOIR SEISMIC RETROFIT**

Title **1 MG INDUSTRIAL ROOF PLAN**

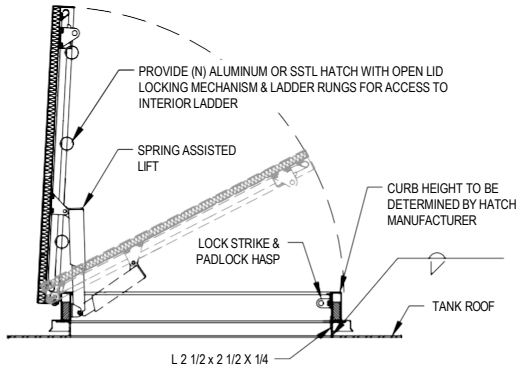
Project No. **11218859** Date **07-23-2021** Scale **AS SHOWN**

Sheet No. **S-102** Sheet **12 of 14**

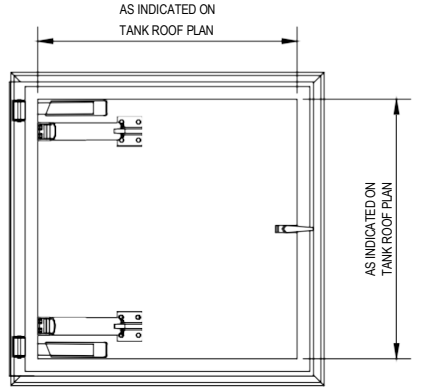


TANK PLATFORM & RAILING PLAN

1 S501 SCALE: 1/4" = 1'-0"



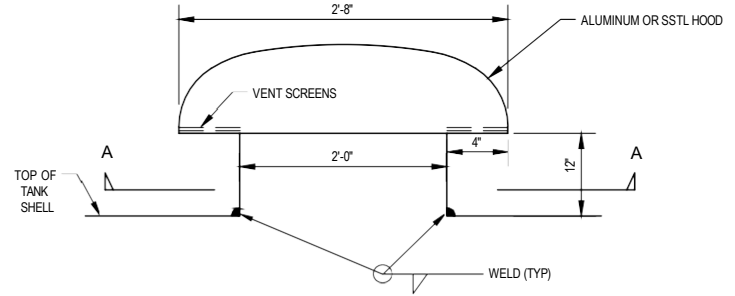
ELEVATION



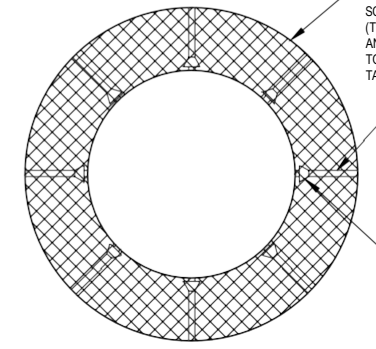
PLAN

ROOF HATCH DETAIL

2 S501 SCALE: NOT TO SCALE



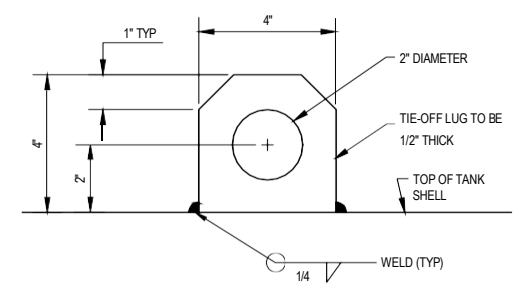
FRONT VIEW



BOTTOM VIEW (SECTION A - A)

ROOF VENT DETAILS

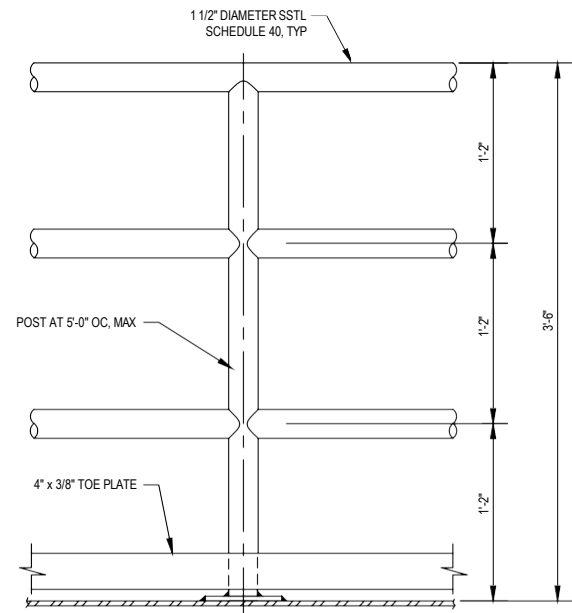
3 S501 SCALE: NOT TO SCALE



TIE-OFF DETAIL

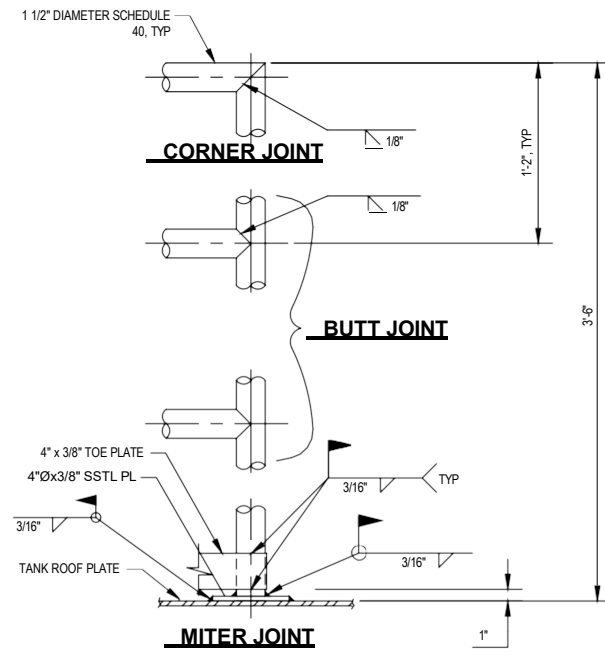
SCALE: NOT TO SCALE

4 S501



SAFETY RAILING DETAIL

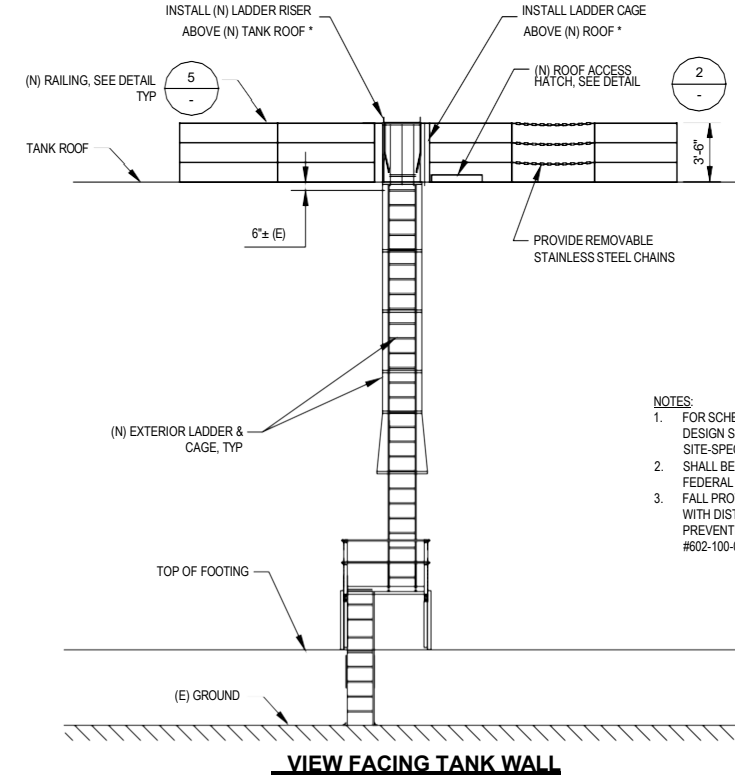
5 S501 SCALE: NOT TO SCALE



CORNER JOINT

BUTT JOINT

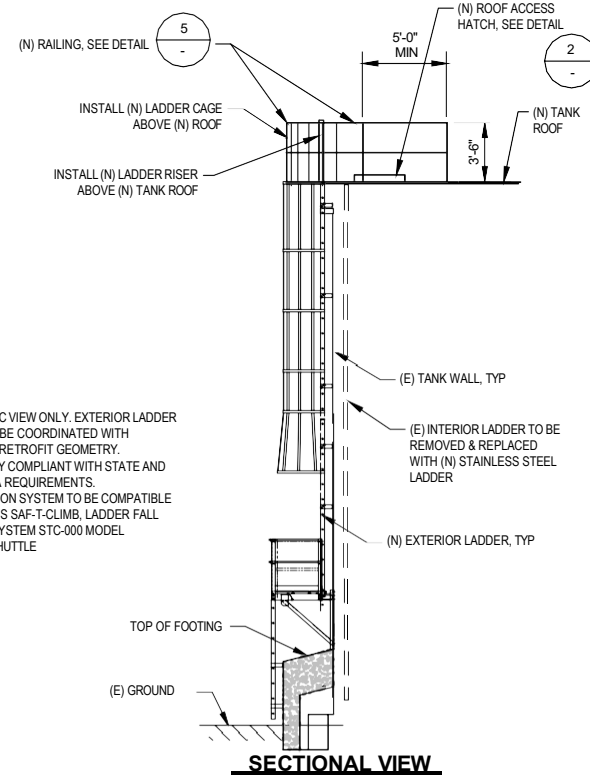
MITER JOINT



VIEW FACING TANK WALL

EXTERIOR LADDER DETAILS

6 S501 SCALE: NOT TO SCALE



SECTIONAL VIEW

- NOTES:**
- FOR SCHEMATIC VIEW ONLY. EXTERIOR LADDER DESIGN SHALL BE COORDINATED WITH SITE-SPECIFIC RETROFIT GEOMETRY.
 - SHALL BE FULLY COMPLIANT WITH STATE AND FEDERAL OSHA REQUIREMENTS.
 - FALL PROTECTION SYSTEM TO BE COMPATIBLE WITH DISTRICT'S SAF-T-CLIMB, LADDER FALL PREVENTION SYSTEM STC-000 MODEL #602-100-003 SHUTTLE

60% DESIGN

No.	Issue	Checked	Approved	Date	
Author	A. PRATT	Drafting Check	B. CROWELL	Project Manager	NS
Designer	S. BURNS	Design Check	B. CROWELL	Project Director	SXM

Bar is one inch on original size sheet
0 1"

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Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**
Project **SAMOA RESERVOIR SEISMIC RETROFIT**

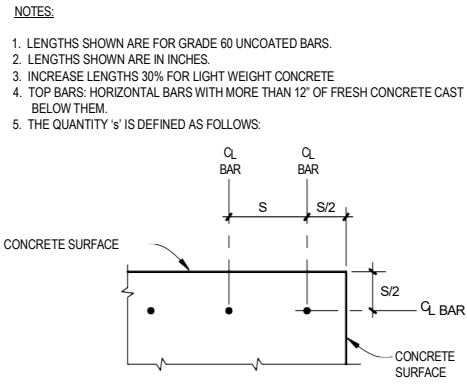
Title **TANK ROOF DETAILS**

Project No. **11218859** Date **07-23-2021** Scale **AS SHOWN**

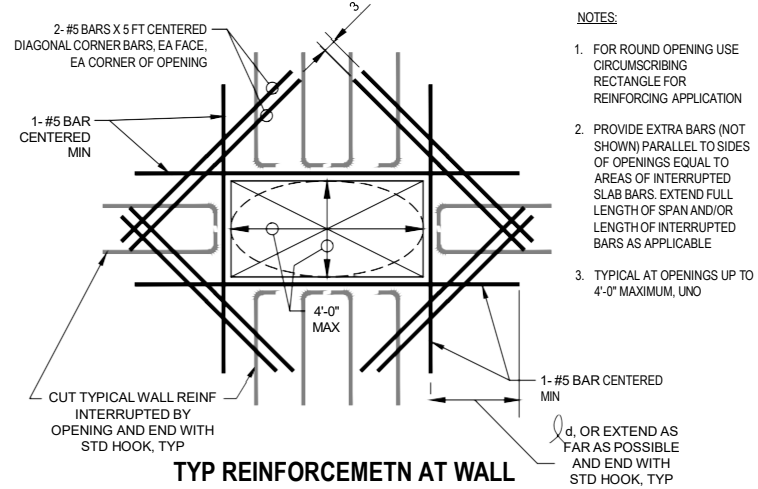
Sheet No. **S-501** Sheet **13 of 14**

DEVELOPMENT LENGTH (ℓ_d)												
BAR SIZE	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	38	17	28	19	31	15	24	17	28	13	22
#6	26	43	20	33	23	37	18	29	20	34	15	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

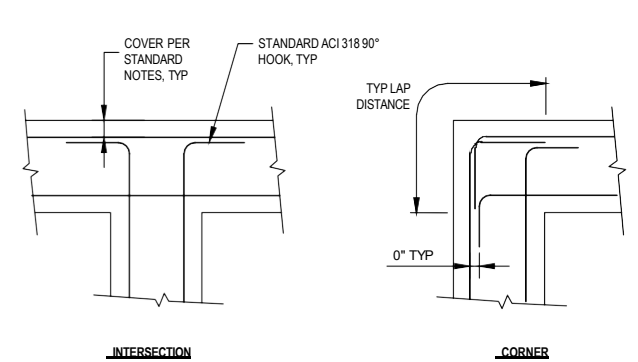
TENSION LAP SPLICE LENGTH (CLASS 'B' SPLICE)												
BAR SIZE	3000 PSI CONC (fc)				4000 PSI CONC (fc)				5000 PSI CONC (fc)			
	TOP		OTHER		TOP		OTHER		TOP		OTHER	
	$s \geq 6'$	$s < 6'$	$s \geq 6'$	$s < 6'$	$s \geq 6'$	$s < 6'$	$s \geq 6'$	$s < 6'$	$s \geq 6'$	$s < 6'$	$s \geq 6'$	$s < 6'$
#3	17	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	25	43	29	49	23	38	25	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



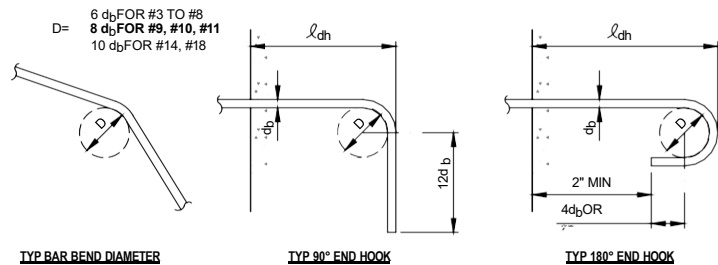
1 BAR DEVELOPMENT LENGTHS AND LAP SPLICE LENGTHS FOR CONCRETE
NOT TO SCALE



2 TYP REINFORCEMENT AT WALL & SLAB OPENINGS
NOT TO SCALE

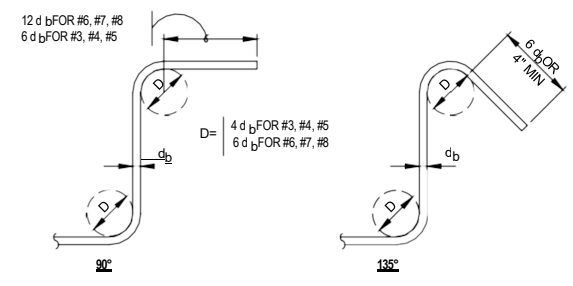


3 TYP REINFORCEMENT AT INTERSECTIONS AND CORNERS
NOT TO SCALE



BAR SIZE	MINIMUM TENSION EMBEDMENT LENGTHS FOR STANDARD END HOOKS ON REINFORCING BARS (IN) ℓ_{dh}			
	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

60% DESIGN

No. Issue Checked Approved Date Author S. GOULD Drafting Check B. CROWELL Project Manager NS Designer S. GOULD Design Check B. CROWELL Project Director SXM		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	Client HUMBOLDT BAY MUNICIPAL WATER DISTRICT Project SAMOA RESERVOIR SEISMIC RETROFIT	Title TYPICAL CONCRETE DETAILS	Project No. 11218859 Date 07-23-2021 Scale AS SHOWN	Sheet No. S-502 Sheet 14 of 14
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