

ADDENDUM NO. 3

RFP #22-53

Valve and Finished Water Tank & Reservoir Improvements

Bids Due: July 19, 2022 at 2:00 P.M. (Local Time)

The following changes, additions, and/or deletions shall be made to the Request for Proposal (RFP) for Water Treatment Service Unit – Valve and Finished Water Tank & Reservoir Improvements, RFP #22-53.

The information contained herein shall take precedence over the original documents and all previous addenda (if any), and is appended thereto. **This Addendum is twenty-six (26) pages, including attachments.**

Bidder is to acknowledge receipt of Addendum No. 3, including all attachments (if any) in its Bid by so indicating on Attachment B of the RFP. Bids submitted without acknowledgment of receipt of this addendum will be considered nonconforming.

I. CORRECTIONS/ADDITIONS/DELETIONS

Changes to the Bid document which are outlined below are referenced to a page or Section in which they appear conspicuously. The Bidder is to take note in its review of the documents and include these changes as they may affect work or details in other areas not specifically referenced here. Changes to the original text are bolded and italicized.

Section/Page(s) Change

CHANGES TO BID FORM:

Bid Form Replace the Bid Form with the attached reissued Bid Form, which includes changes to Base Bid #1:

BASE BID #1 – Water Treatment Plant – River Valve Replacement and Reservoir Improvements (Lump Sum)

Location: 919 Sunset Road, Ann Arbor, MI 48103

	Description	Units	Quantity	Unit Cost	Extended Cost
1.0	GENERAL				
1.1	General Conditions (Max 10%)	LS	1		\$
1.2	Mobilization (Max 10%)	LS	1		\$
1.3	Certified Payroll Compliance and Reporting	LS	1		\$
1.4	Permit Allowance	ALW	1		\$ 7,500
1.5	Miscellaneous Repair Allowance	ALW	1		\$ 50,000
1.6	Concrete Repair Allowance	ALW	1		\$ 50,000
1.7	Coating Inspection Services Allowance	ALW	1		\$ 5,000
1.8	Tank Inspection Services Allowance	ALW	1		\$ 10,000

BASE BID #1 – Water Treatment Plant – River Valve Replacement and Reservoir Improvements
(Lump Sum)

Location: 919 Sunset Road, Ann Arbor, MI 48103

	Description	Units	Quantity	Unit Cost	Extended Cost
2.0	RIVER VALVE REPLACEMENT				
2.1	Replace 30" Valve, Adjacent Piping and Supports	LS	1	\$	\$
2.2	Replace Existing Grating	LS	1	\$	\$
2.3	Replace Existing Hangers and Supports	LS	1	\$	\$
3.0	RESERVOIR VALVE VAULT IMPROVEMENTS				
3.1	Replace Reservoir Valves and Adjacent Piping	LS	1	\$	\$
3.2	Vault Structure Improvements	LS	1	\$	\$
3.3	Vault House Grating Replacement	LS	1	\$	\$
4.0	FILTER EFFLUENT PIPING IMPROVEMENTS				
4.1	Filter Effluent Piping Spot Repair	LS	1	\$	\$
4.2	Filter Effluent Piping Pipe Repair Wrap	LS	1	\$	\$
4.3	Filter Effluent Piping Support Replacement	LS	1	\$	\$
4.4	Filter Effluent Piping Coating Replacement	LS	1	\$	\$
5.0	RESERVOIR IMPROVEMENTS				
5.1	Replace Air Vent Screens	EA	6	\$	\$
5.2	Modify Existing Reservoir Access Hatch #1	LS	1	\$	\$
5.3	Modify Existing Reservoir Access Hatch #2	LS	1	\$	\$
5.4	Patch Concrete Spalls on Reservoir Ceiling, Shallow	EA	100	\$	\$
5.5	Coat Rebar and Patch Concrete Spalls on Reservoir Ceiling, Deep	EA	100	\$	\$
5.6	Patch Concrete Spalls on Reservoir Walls, Shallow	EA	100	\$	\$
5.7	Coat Rebar and Patch Concrete Spalls on Reservoir Walls, Deep	EA	100	\$	\$
5.8	Re-Coat All Wet Interior Piping and Appurtenances	LS	1	\$	\$
5.9	Modify Existing Overflow Piping	LS	1	\$	\$
5.10	Fire Hydrant	LS	1	\$	\$
5.11	Site Restoration	LS	1	\$	\$
BASE BID #1 TOTAL				\$	
Alternate #1 – Vault #2 Structure Improvements (Add)				\$	
Alternate #2 – Remove Valve FW 6317 Replacement (Deduct)				\$	
Alternate #8 – Install New Reservoir Access Hatches (Add)				\$	

CHANGES TO SPECIFICATIONS:

Section 01 21 13 Replace the table in Paragraph 1.3.A with the following:

Allowance Schedule	Base Bid				
	#1	#2	#3	#4	#5
Permit Allowance	\$ 7,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500
Concrete Repair Allowance	\$ 50,000	\$ 10,000	\$ 10,000		
Miscellaneous Repair Allowance	\$ 50,000	\$ 10,000	\$ 10,000	\$ 5,000	\$ 5,000
Coating Inspection Services Allowance	\$ 5,000				
Tank Inspection Services Allowance	\$ 10,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000
Subtotal	\$ 122,500	\$ 27,500	\$ 27,500	\$ 12,500	\$ 12,500

Section 01 22 00 Add the following to Paragraph 1.4:

CC. Alternate #8 – Install New Reservoir Access Hatches:

1. Includes the following in accordance with Division 03 Section “Cast-in-Place Concrete,” Division 08 Section “Access Hatches,” and Division III “Materials Standards” of the City of Ann Arbor Standard Specifications.
 - a. Installation of three new access hatches on the existing reservoir roof slab.
 - b. All materials, equipment and labor for excavation, temporary interior protection and backfill of the structure.
 - c. Removal and disposal of existing manhole frames and covers and concrete curb as needed for replacement.
 - d. Carbon fiber reinforcement and sawcutting of new roof slab opening.
 - e. Furnish and install new cast-in-place structural concrete curb sections and with integral access hatch.
 - f. Furnish and install new ladder rungs into reservoir.
2. Unit of Measure: Lump Sum.

Section 01 22 00 Replace Paragraph 1.6.F with the following:

F. Item No. 2.2 – Modify Existing Reservoir Access Hatch #1:

1. Includes the following in accordance with Division 03 Section “Cast-in-Place Concrete,” Division 08 Section “Access Hatches,” and Division III “Materials Standards” of the City of Ann Arbor Standard Specifications.
 - a. All materials, equipment and labor for excavation, temporary interior protection and backfill of the structure.
 - b. Removal and disposal of existing manhole frames and covers and concrete slab as needed for replacement.
 - c. Furnish and install new cast-in-place structural concrete curb sections with wall sleeves and integral access hatches.
 - d. Furnish and install vent piping and supports.
2. Unit of Measure: Lump Sum.

Section 01 22 00 Replace Paragraph 1.6.G with the following:

- G. Item No. 2.3 – Modify Existing Reservoir Access Hatch #2:
 - 1. Includes the following in accordance with Division 03 Section “Cast-in-Place Concrete,” Division 08 Section “Access Hatches,” and Division III “Materials Standards” of the City of Ann Arbor Standard Specifications.
 - a. All materials, equipment and labor for excavation, temporary interior protection and backfill of the structure.
 - b. Removal and disposal of existing hatches and curb as needed for replacement.
 - c. Furnish and install new cast-in-place structural concrete curb sections with integral access hatch.
 - 2. Unit of Measure: Lump Sum.

Section 01 23 00 Add the following to Paragraph 1.3:

- H. Alternate #8:
 - 1. **Install New Reservoir Access Hatches:**
 - a. Base Bid #1 does not include a pay item for Install New Reservoir Access Hatches as indicated on Sheets 16 and 30.
 - b. Add Item “Alternate #8 – Install New Reservoir Access Hatches” to Base Bid #5 as specified in Division 01 Section “Unit Prices – Measurement and Payment” and as indicated on Sheets 16 and 30.

Section 05 51 16 Add attached Section 05 51 16, Steel Railings, to the Specifications

CHANGES TO DRAWINGS:

- Sheet 11 Replace existing Sheet 11 with reissued Sheet 11 attached to this Addendum No. 3.
- Sheet 16 Replace existing Sheet 16 with reissued Sheet 16 attached to this Addendum No. 3.
- Sheet 19 Replace existing Sheet 19 with reissued Sheet 19 attached to this Addendum No. 3.
- Sheet 21 Replace existing Sheet 21 with reissued Sheet 21 attached to this Addendum No. 3.
- Sheet 27 Replace existing Sheet 27 with reissued Sheet 27 attached to this Addendum No. 3.
- Sheet 30 Add new Sheet 30 attached to this Addendum No. 3 to the Drawings.

Attachments:

Bid Form (Reissued, 12 pages)

Specification Section 05 51 16 (New, 3 pages)

Sheet 11 – WTP Vault 5 Plans, Sections and Isometrics (Reissued, 1 page)

Sheet 16 – WTP Reservoir Site Plan (Reissued, 1 page)

Sheet 19 – North Campus Reservoir Overflow and Isometrics (Reissued, 1 page)

Sheet 21 – Liberty Reservoir Overflow and Isometrics (Reissued, 1 page)

Sheet 27 – Liberty Reservoir Plans and Sections (Reissued, 1 page)

Sheet 30 – WTP Reservoir Plans and Sections (New, 1 page)

E. Schedule of Pricing/Cost – 20 Points

Company: _____

Bid Items

Notes:

1. All five (5) Base Bid sections shall be bid. Bidders shall provide a Unit Price for ALL bid items for each Base Bid section and Total Price for ALL Base Bid sections specified.
2. Bidder shall provide prices or acknowledge “No Bid” for all Alternate Bid items specified.
3. Quantities included in the bid tables represent estimated quantities for different work. The Contractor shall be compensated for the actual number of items completed using the unit prices provided.
4. Each item shall include all preparatory and post repair work, including but not limited to field measurements, shop drawings, scaffolding, demolition, dust control, protection of Owner equipment, protection of process water, clean up, restoration, and all related items.
5. The City, at its sole discretion, may elect to delete any portion of the work delineated below, with no change to the unit prices provided. Work shall be determined based upon the availability of funds.
6. Any item not provided in the following list shall be considered incidental.
7. Contract shall be awarded based on the Base Bid or any combination of a Base Bid(s) and Alternate Bid(s) in any manner the City believes to be in its best interest.

Schedule

1. The Bidder agrees that the Work will be substantially and fully completed on or before the dates specified under Article III of the Contract, Time of Completion. Anticipated Notice to Proceed is September 2022.
2. Any exceptions to this schedule can be proposed by the prospective bidder in Section 3 – Time Alternate.

Base Bids

For the entire work outlined in these documents for Valve and Finished Water Tank & Reservoir Improvements, complete as specified, using equipment and materials only of the type and manufacturers where specifically named.

BASE BID #1 – Water Treatment Plant – River Valve Replacement and Reservoir Improvements (Lump Sum)
 Location: 919 Sunset Road, Ann Arbor, MI 48103

	Description	Units	Quantity	Unit Cost	Extended Cost
1.0	GENERAL				
1.1	General Conditions (Max 10%)	LS	1		\$
1.2	Mobilization (Max 10%)	LS	1		\$
1.3	Certified Payroll Compliance and Reporting	LS	1		\$
1.4	Permit Allowance	ALW	1		\$ 7,500
1.5	Miscellaneous Repair Allowance	ALW	1		\$ 50,000
1.6	Concrete Repair Allowance	ALW	1		\$ 50,000

Addendum 3

BID FORM

BASE BID #1 – Water Treatment Plant – River Valve Replacement and Reservoir Improvements
(Lump Sum)

Location: 919 Sunset Road, Ann Arbor, MI 48103

	Description	Units	Quantity	Unit Cost	Extended Cost
1.7	Coating Inspection Services Allowance	ALW	1		\$ 5,000
1.8	Tank Inspection Services Allowance	ALW	1		\$ 10,000
2.0	RIVER VALVE REPLACEMENT				
2.1	Replace 30" Valve, Adjacent Piping and Supports	LS	1	\$	\$
2.2	Replace Existing Grating	LS	1	\$	\$
2.3	Replace Existing Hangers and Supports	LS	1	\$	\$
3.0	RESERVOIR VALVE VAULT IMPROVEMENTS				
3.1	Replace Reservoir Valves and Adjacent Piping	LS	1	\$	\$
3.2	Vault Structure Improvements	LS	1	\$	\$
3.3	Vault House Grating Replacement	LS	1	\$	\$
4.0	FILTER EFFLUENT PIPING IMPROVEMENTS				
4.1	Filter Effluent Piping Spot Repair	LS	1	\$	\$
4.2	Filter Effluent Piping Pipe Repair Wrap	LS	1	\$	\$
4.3	Filter Effluent Piping Support Replacement	LS	1	\$	\$
4.4	Filter Effluent Piping Coating Replacement	LS	1	\$	\$
5.0	RESERVOIR IMPROVEMENTS				
5.1	Replace Air Vent Screens	EA	6	\$	\$
5.2	Modify Existing Reservoir Access Hatch #1	LS	1	\$	\$
5.3	Modify Existing Reservoir Access Hatch #2	LS	1	\$	\$
5.4	Patch Concrete Spalls on Reservoir Ceiling, Shallow	EA	100	\$	\$
5.5	Coat Rebar and Patch Concrete Spalls on Reservoir Ceiling, Deep	EA	100	\$	\$
5.6	Patch Concrete Spalls on Reservoir Walls, Shallow	EA	100	\$	\$
5.7	Coat Rebar and Patch Concrete Spalls on Reservoir Walls, Deep	EA	100	\$	\$
5.8	Re-Coat All Wet Interior Piping and Appurtenances	LS	1	\$	\$
5.9	Modify Existing Overflow Piping	LS	1	\$	\$
5.10	Fire Hydrant	LS	1	\$	\$
5.11	Site Restoration	LS	1	\$	\$
BASE BID #1 TOTAL				\$	
Alternate #1 – Vault #2 Structure Improvements (Add)				\$	
Alternate #2 – Remove Valve FW 6317 Replacement (Deduct)				\$	
Alternate #8 – Install New Reservoir Access Hatches (Add)				\$	

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BID FORM

BASE BID #2 – North Campus – Reservoir Improvements (Lump Sum)					
Location: 1800 Beal Avenue, Ann Arbor, MI 48105					
	Description	Units	Quantity	Unit Cost	Extended Cost
1.0	GENERAL				
1.1	General Conditions (Max 10%)	LS	1		\$
1.2	Mobilization (Max 10%)	LS	1		\$
1.3	Certified Payroll Compliance and Reporting	LS	1		\$
1.4	Permit Allowance	ALW	1		\$ 2,500
1.5	Miscellaneous Repair Allowance	ALW	1		\$ 10,000
1.6	Concrete Repair Allowance	ALW	1		\$ 10,000
1.7	Tank Inspection Services Allowance	ALW	1		\$ 5,000
2.0	RESERVOIR IMPROVEMENTS				
2.1	Modify Existing Reservoir Access Hatch #1	LS	1	\$	\$
2.2	Modify Existing Reservoir Access Hatch #2	LS	1	\$	\$
2.3	Re-Coat All Wet Interior Piping and Appurtenances	LS	1	\$	\$
2.4	Modify Existing Overflow Piping	LS	1	\$	\$
2.5	Site Restoration	LS	1	\$	\$
BASE BID #2 TOTAL					\$
Alternate #3 – Relocate Existing Reservoir Access Hatch #1 (Add)					\$

BASE BID #3 – Liberty – Reservoir Improvements (Lump Sum)

Location: 2675 West Liberty Road, Ann Arbor, MI 48103

	Description	Units	Quantity	Unit Cost	Extended Cost
1.0	GENERAL				
1.1	General Conditions (Max 10%)	LS	1		\$
1.2	Mobilization (Max 10%)	LS	1		\$
1.3	Certified Payroll Compliance and Reporting	LS	1		\$
1.4	Permit Allowance	ALW	1		\$ 2,500
1.5	Miscellaneous Repair Allowance	ALW	1		\$ 10,000
1.6	Concrete Repair Allowance	ALW	1		\$ 10,000
1.7	Tank Inspection Services Allowance	ALW	1		\$ 5,000
2.0	RESERVOIR IMPROVEMENTS				
2.1	Modify Existing Overflow Piping	LS	1	\$	\$
2.2	Modify Existing Reservoir Access Hatch #1	LS	1	\$	\$
2.3	Modify Existing Reservoir Access Hatch #2	LS	1	\$	\$
2.4	Re-Coat All Wet Interior Piping and Appurtenances	LS	1	\$	\$
2.5	Coat Rebar and Patch Concrete Spalls on Reservoir Walls, Shallow	EA	5	\$	\$
2.6	Site Restoration	LS	1	\$	\$
BASE BID #3 TOTAL					\$

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BID FORM

BASE BID #4 – Manchester – Elevated Tank Improvements (Lump Sum)

Location: 2011 Manchester Road, Ann Arbor, MI 48104

	Description	Units	Quantity	Unit Cost	Extended Cost
1.0	GENERAL				
1.1	General Conditions (Max 10%)	LS	1		\$
1.2	Mobilization (Max 10%)	LS	1		\$
1.3	Certified Payroll Compliance and Reporting	LS	1		\$
1.4	Permit Allowance	ALW	1		\$ 2,500
1.5	Miscellaneous Repair Allowance	ALW	1		\$ 5,000
1.6	Tank Inspection Services Allowance	ALW	1		\$ 5,000
2.0	TANK IMPROVEMENTS				
2.1	Install 2-1/2" Check Valve on Condensate Drain	LS	1	\$	\$
2.2	Replace Gasket on Access Tube Roof Hatch	LS	1	\$	\$
2.3	Replace Existing Screen on 8" Overflow Pipe	LS	1	\$	\$
BASE BID #4 TOTAL				\$	
Alternate #4 – Replace Wet Interior Roof Hatch (Add)				\$	
Alternate #5 – Install Cathodic Protection in Wet Interior (Add)				\$	
Alternate #6 – Install Fall Protection Device on Wet Interior Ladder (Add)				\$	

BASE BID #5 – North Campus – Elevated Tank Improvements (Lump Sum)

Location: 3150 Plymouth Road, Ann Arbor, MI 48105

	Description	Units	Quantity	Unit Cost	Extended Cost
1.0	GENERAL				
1.1	General Conditions (Max 10%)	LS	1		\$
1.2	Mobilization (Max 10%)	LS	1		\$
1.3	Certified Payroll Compliance and Reporting	LS	1		\$
1.4	Permit Allowance	ALW	1		\$ 2,500
1.5	Miscellaneous Repair Allowance	ALW	1		\$ 5,000
1.6	Tank Inspection Services Allowance	ALW	1		\$ 5,000
2.0	TANK IMPROVEMENTS				
2.1	Dry Interior Maintenance Painting	LS	1	\$	\$
2.2	Replace Missing Fill Pipe Insulation and Frost Jacket	LS	1	\$	\$
2.3	Re-Coat Valve Pit Piping and Appurtenances	LS	1	\$	\$
2.4	Replace Gasket on Wet Interior Roof Hatch	LS	1	\$	\$
2.5	Replace Existing Screen on 8" Overflow Pipe	LS	1	\$	\$

Addendum 3

BID FORM

BASE BID #5 – North Campus – Elevated Tank Improvements (Lump Sum)
Location: 3150 Plymouth Road, Ann Arbor, MI 48105

	Description	Units	Quantity	Unit Cost	Extended Cost
BASE BID #5 TOTAL				\$	
Alternate #7 – Spot Coat Wet Interior Roof (Add)				\$	

Signature of Authorized Representative of Bidder _____ Date _____

MATERIAL, EQUIPMENT AND ENVIRONMENTAL ALTERNATES

The Base Bid proposal price shall include materials and equipment selected from the designated items and manufacturers listed in the bidding documents. This is done to establish uniformity in bidding and to establish standards of quality for the items named.

If the Contractor wishes to quote alternate items for consideration by the City, it may do so under this Section. A complete description of the item and the proposed price differential must be provided. Unless approved at the time of award, substitutions where items are specifically named will be considered only as a negotiated change in Contract Sum.

If an environmental alternative is bid the City strongly encourages bidders to provide recent examples of product testing and previous successful use for the City to properly evaluate the environmental alternative. Testing data from independent accredited organizations are strongly preferred.

<u>Item Number</u>	<u>Description</u>	<u>Add/Deduct Amount</u>
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If the Bidder does not suggest any material or equipment alternate, the Bidder **MUST** complete the following statement:

For the work outlined in this request for bid, the bidder does NOT propose any material or equipment alternate under the Contract.

Signature of Authorized Representative of Bidder _____ Date _____

TIME ALTERNATE

If the Bidder takes exception to the time stipulated in Article III of the Contract, Time of Completion, page C-1, it is requested to stipulate below its proposed time for performance of the work. Consideration will be given to time in evaluating bids.

If the Bidder does not suggest any time alternate, the Bidder **MUST** complete the following statement:

For the work outlined in this request for bid, the bidder does NOT propose any time alternate under the Contract.

Signature of Authorized Representative of Bidder _____ Date _____

MAJOR SUBCONTRACTORS

For purposes of this Contract, a Subcontractor is anyone (other than the Contractor) who performs work (other than or in addition to the furnishing of materials, plans or equipment) at or about the construction site, directly or indirectly for or on behalf of the Contractor (and whether or not in privity of Contract with the Contractor), but shall not include any individual who furnishes merely the individual's own personal labor or services.

Contractor agrees that all subcontracts entered into by the Contractor shall contain similar wage provision to Section 4 of the General Conditions covering subcontractor's employees who perform work on this contract.

For the work outlined in these documents the Bidder expects to engage the following major subcontractors to perform the work identified:

<u>Subcontractor (Name and Address)</u>	<u>Work</u>	<u>Amount</u>
	Concrete Contractor	
	Painting Contractor	
	Excavation Contractor	

If the Bidder does not expect to engage any major subcontractor, the Bidder **MUST** complete the following statement:

For the work outlined in this request for bid, the bidder does NOT expect to engage any major subcontractor to perform work under the Contract.

Signature of Authorized Representative of Bidder _____ Date _____

REFERENCES

GENERAL CONTRACTOR (if applicable) Name: _____

Include a minimum of three (3) references from similar projects involving building construction at similar facilities completed within the last seven (7) years.

1) _____
Project Name Cost Date Constructed

Contact Name Phone Number

2) _____
Project Name Cost Date Constructed

Contact Name Phone Number

3) _____
Project Name Cost Date Constructed

Contact Name Phone Number

REFERENCES

CONCRETE CONTRACTOR Name: _____

Include a minimum of three (3) references from similar projects involving roofing replacement at similar facilities completed within the last seven (7) years.

1) _____
Project Name Cost Date Constructed

_____ Phone Number

2) _____
Project Name Cost Date Constructed

_____ Phone Number

3) _____
Project Name Cost Date Constructed

_____ Phone Number

REFERENCES

PAINTING CONTRACTOR Name: _____

Include a minimum of three (3) references from similar projects involving masonry repairs at similar facilities completed within the last seven (7) years.

1) _____
Project Name Cost Date Constructed

_____ _____
Contact Name Phone Number

2) _____
Project Name Cost Date Constructed

_____ _____
Contact Name Phone Number

3) _____
Project Name Cost Date Constructed

_____ _____
Contact Name Phone Number

REFERENCES

EXCAVATION CONTRACTOR Name: _____

Include a minimum of three (3) references from similar projects involving interior finishes at similar facilities completed within the last seven (7) years.

1) _____
Project Name Cost Date Constructed

_____ _____
Contact Name Phone Number

2) _____
Project Name Cost Date Constructed

_____ _____
Contact Name Phone Number

3) _____
Project Name Cost Date Constructed

_____ _____
Contact Name Phone Number

SECTION 05 51 16 – STEEL RAILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the furnishing and installation of steel railings and related materials.

1.3 REFERENCES

- A. Except as herein specified or as indicated on the Drawings, the work of this Section shall comply with the following:
 - 1. ASTM Standard Specifications:
 - a. A36 - Structural Steel.
 - b. A53 - Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
 - c. A123 - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - d. A780 - Repair of Damaged Hot-Dip Galvanized Coatings.
 - e. D520 - Zinc Dust Pigment for Paint.
 - 2. AWS:
 - a. ANSI/AWS D1.1 - Structural Welding Code-Steel.
 - 3. OSHA - Occupational Safety and Health Administration:
 - a. 1910 - General Industry Standards and Interpretations.
 - 4. NAAMM - National Association of Architectural Metal Manufacturers:
 - a. Pipe Railing Manual.
 - 5. American Hot-Dip Galvanizers Association.

1.4 SUBMITTALS

- A. Shop Drawings: For metal railings to include:
 - 1. Dimensions.
 - 2. Connection and attachment details.
 - 3. Expansion joints.
 - 4. Materials.

1.5 QUALITY ASSURANCE

- A. Fabrication and Installation Personnel Qualifications:
 - 1. Trained and experienced in the fabrication and installation of the materials and equipment.
 - 2. Knowledgeable of the original design and the reviewed Shop Drawings.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Railings and Posts:
 - 1. ASTM A53, Grade B, Schedule 40, except hydrostatic test not required.
 - 2. Minimum Diameter: 1-1/2 inches nominal.
- B. Toe and Post Base Plates: ASTM A36.
- C. Fittings and Accessories: Miscellaneous fittings and accessories shall be carbon steel and of the sizes and shapes as indicated on the Drawings.

- D. Anchors: In accordance with Division 03 Section “Post-Installed Anchors.”
- E. Other Materials: Other materials not specifically described but required for a complete and proper installation of the work of this Section shall be new, first quality of their respective kinds, and as selected by Contractor subject to the review of Engineer.

2.2 FABRICATION

- A. General:
 - 1. Cut pipe square within 2 degrees and to lengths within 1/8-inch.
 - 2. Remove burrs from cut edges.
 - 3. Form elbow bends and wall returns to uniform radius, free from buckles and twists, with finished surfaces smooth.
 - a. Smoothly curve railing to match the exterior diameter of the vault.
 - 4. Close exposed ends of steel pipe by welding 3/16-inch thick steel plate in place or use prefabricated fittings.
 - 5. Guardrail:
 - a. 42 inches high above working surface.
 - b. Two rails, one at top and one at mid-height.
 - 6. Access Opening: Provide 30-inch wide gap in railing assembly for access.
 - 7. Safety Chains:
 - a. Galvanized steel.
 - b. Two chains at elevations of horizontal railing members, spanning across access opening.
 - c. With spring clips and eyes to clip to the adjacent posts.
 - 8. Post Spacing:
 - a. 6 feet maximum.
 - b. Space post evenly around the perimeter of the vault.
 - 9. Provide 1/4-inch toe plate 4 inches higher than working surface, smoothly curved to match curvature of railing.
- B. Welding:
 - 1. Shielded metal arc welding.
 - 2. Intersections:
 - a. Miter and cope intersections of posts and rails.
 - b. Fit to within 0.02 inches.
 - c. Weld all around.
 - 3. Fuse joints without undercutting or overlap.
 - 4. Remove weld splatter.
 - 5. Grind exposed welds to match adjacent contours.
- C. Galvanizing:
 - 1. Hot dip galvanized in accordance with ASTM A123.
 - 2. Coating Thickness: 2 ounces per square foot after fabrication.
 - 3. Surfaces: All railing, toe plates and fittings.
 - 4. No cutting of or welding to railing assembly permitted after galvanizing.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install metal railings in conformance with:
 - 1. The Shop Drawings reviewed by Engineer.
 - 2. The Manufacturer's recommendations.
- B. Anchorage: Anchor railings in accordance with detail indicated on the Drawings.
- C. Setting Posts:
 - 1. Set posts plumb and aligned to within 1/8-inch in 12 feet.
 - 2. Set rails horizontal to within 1/8-inch in 12 feet.

- D. Expansion Joints:
 - 1. Provide at approximately quarter points of vault.
 - a. Access opening may serve as one expansion joint.
 - 2. Provide internal sleeve extending 2 inches beyond each side of joint.
 - 3. Fasten to one side using either adhesive or 2 blind rivets, set at 120 degree and 240 degree intervals to either side of top of pipe.
 - 4. Locate within 12 inches of posts.
 - 5. Fabricate pipe to provide a gap sufficient to allow free expansion without impediment.

- E. Galvanizing Touch-up: Touch up damaged galvanized areas with a zinc rich paint in accordance with ASTM D520 and ASTM A780.

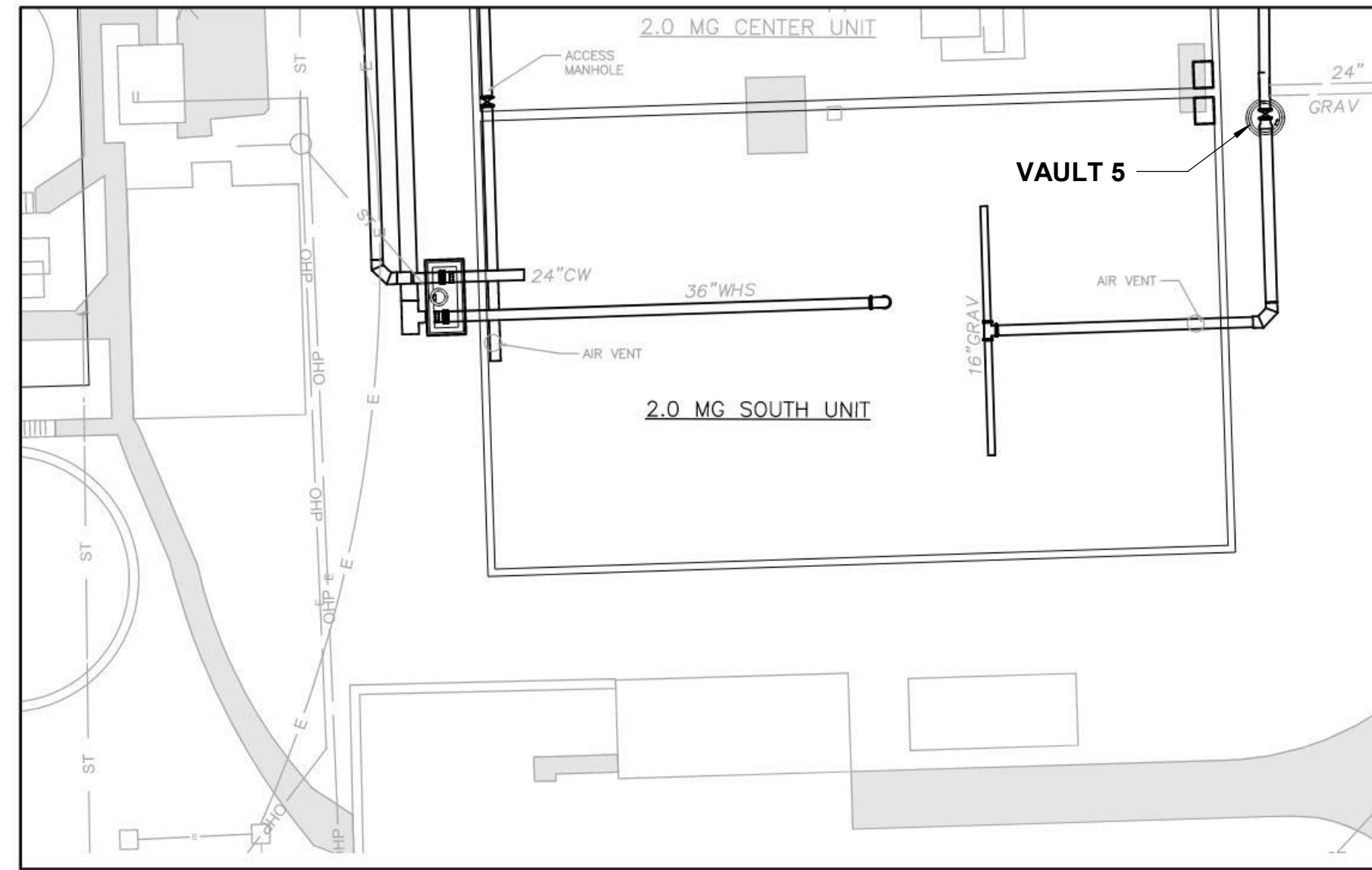
3.2 FIELD QUALITY CONTROL

- A. Remove stained or otherwise defective work and replace with materials that meet Specification requirements.

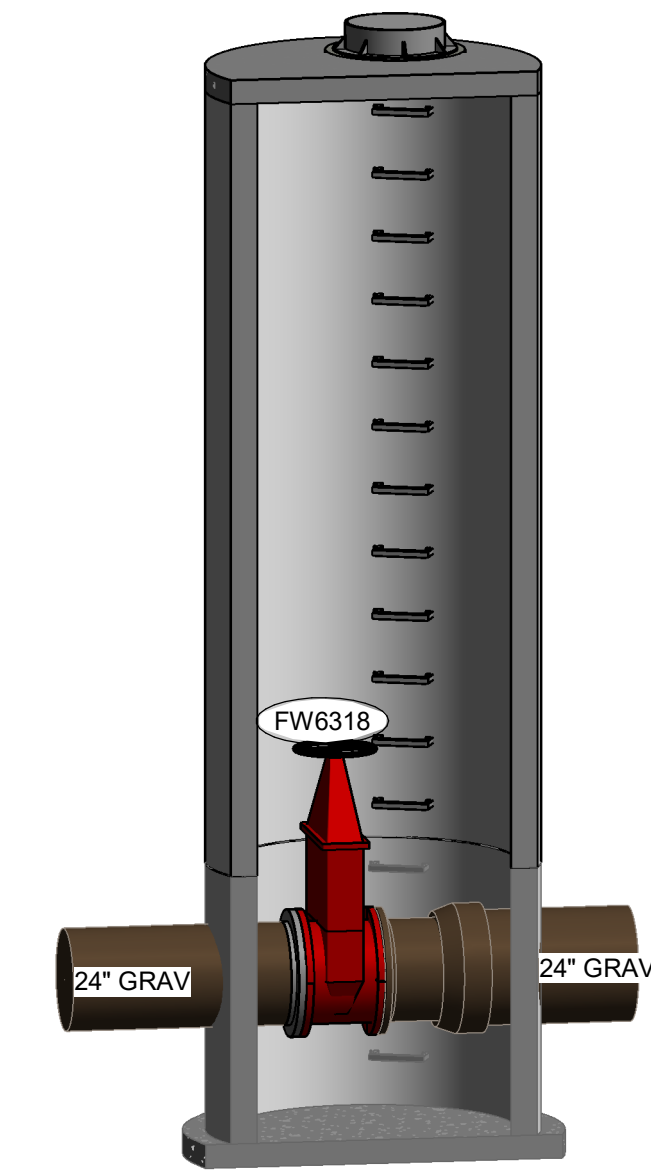
3.3 CLEANING

- A. Clean materials installed under this Section in accordance with Division 01 Section “Cleaning and Waste Management.”

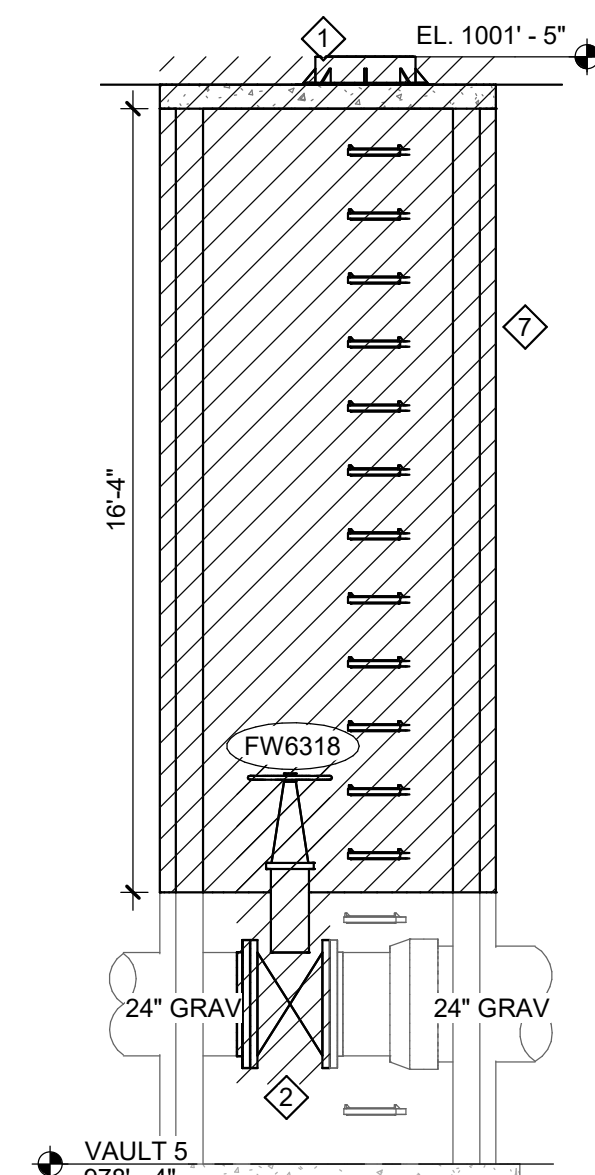
END OF SECTION 05 51 16



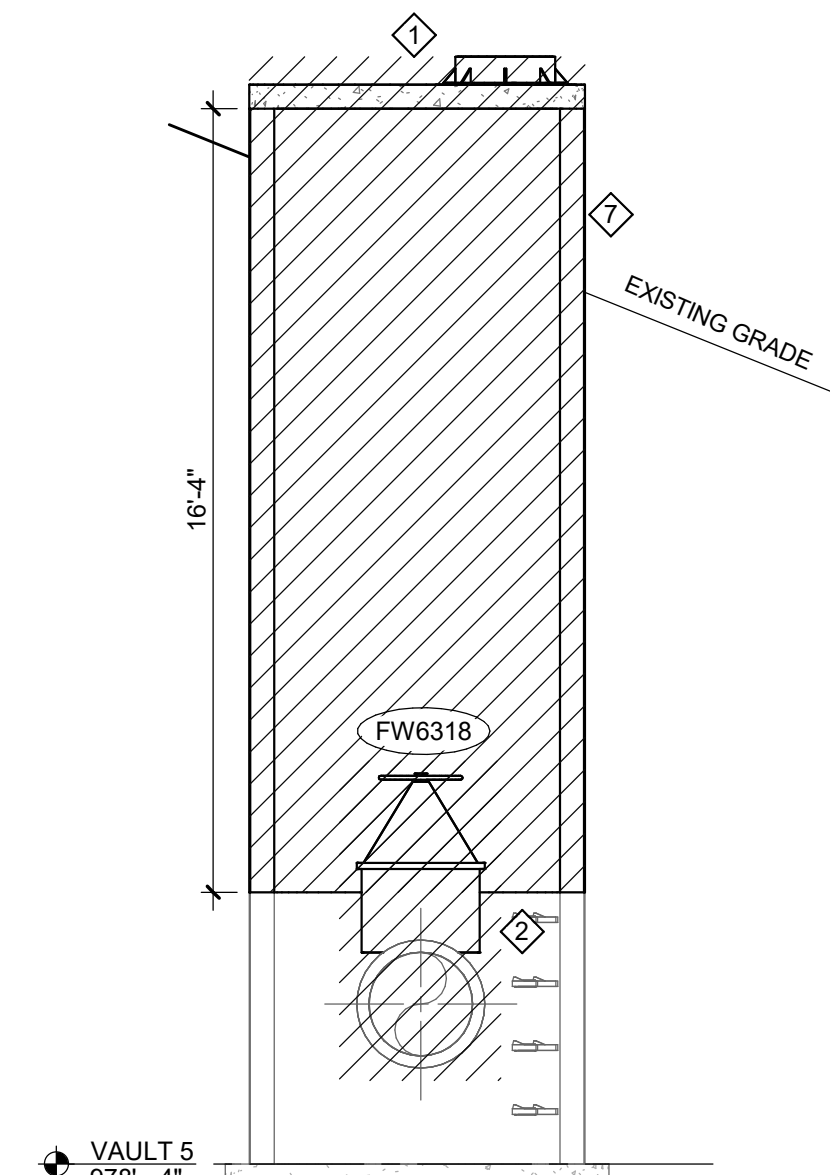
**VAULT 5
SITE LAYOUT PLAN**
SCALE: 1" = 30'-0"
NORTH



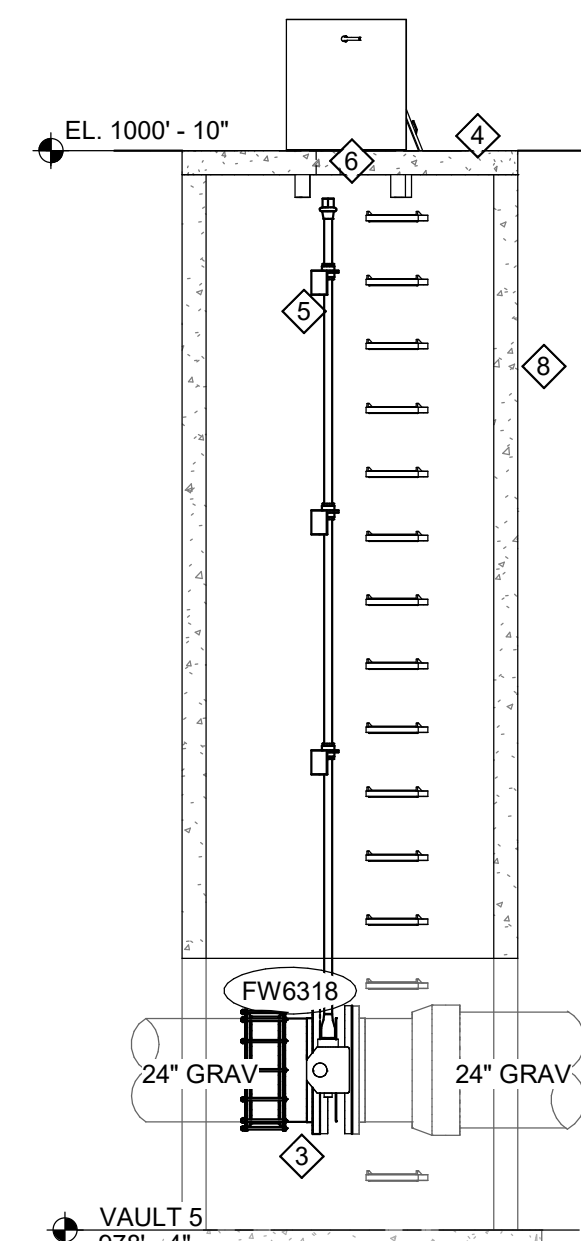
**VAULT 5
EXISTING ISOMETRIC**
SCALE:



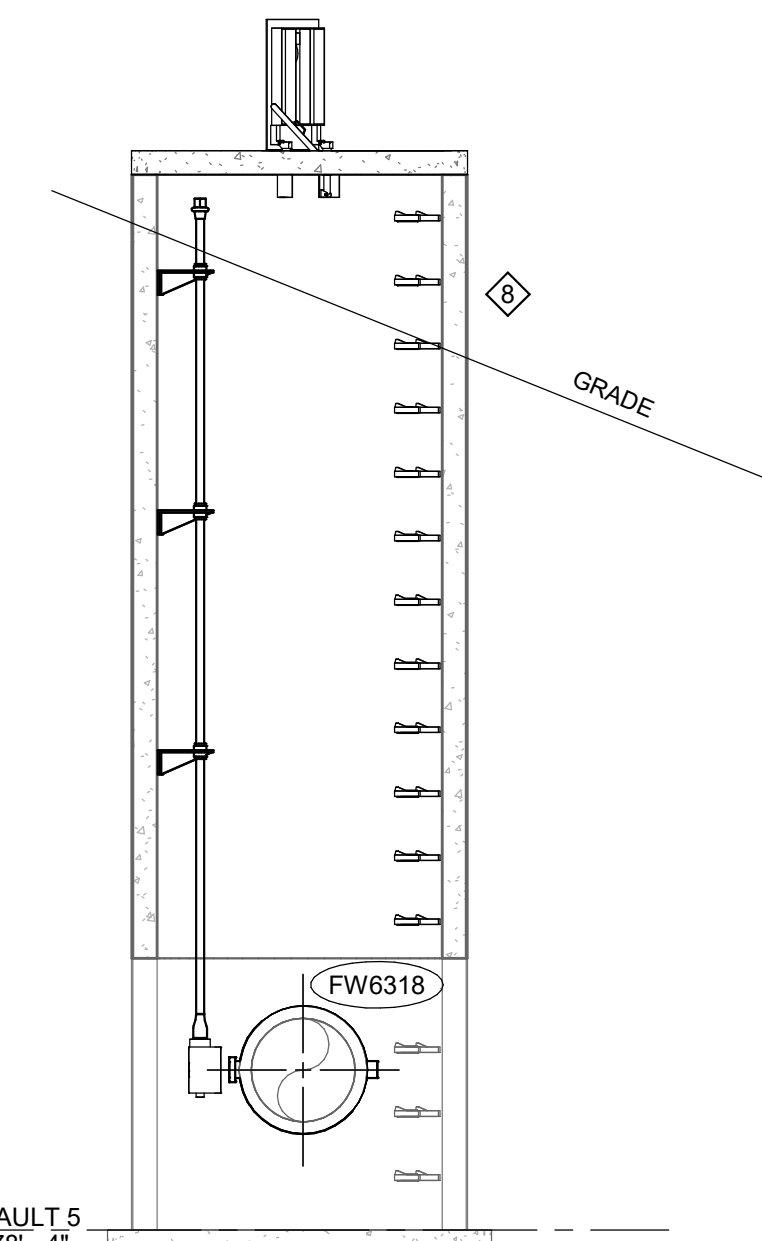
1 DEMOLITION SECTION
SCALE: 1/4" = 1'-0"



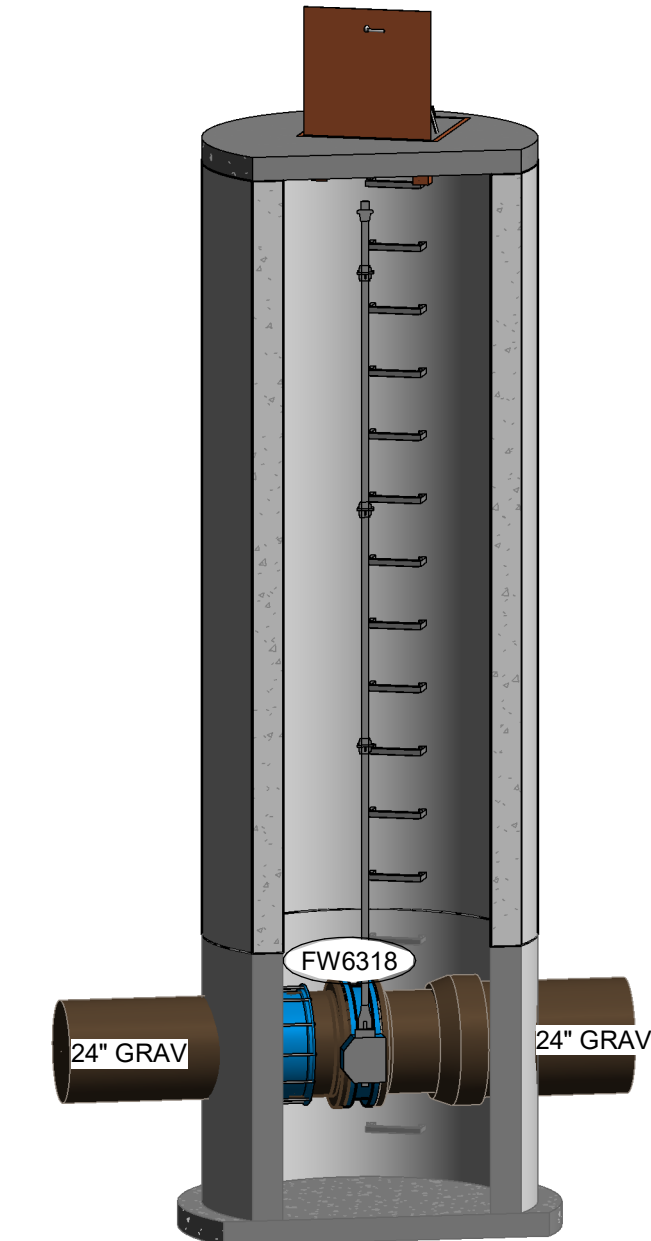
2 DEMOLITION SECTION
SCALE: 1/4" = 1'-0"



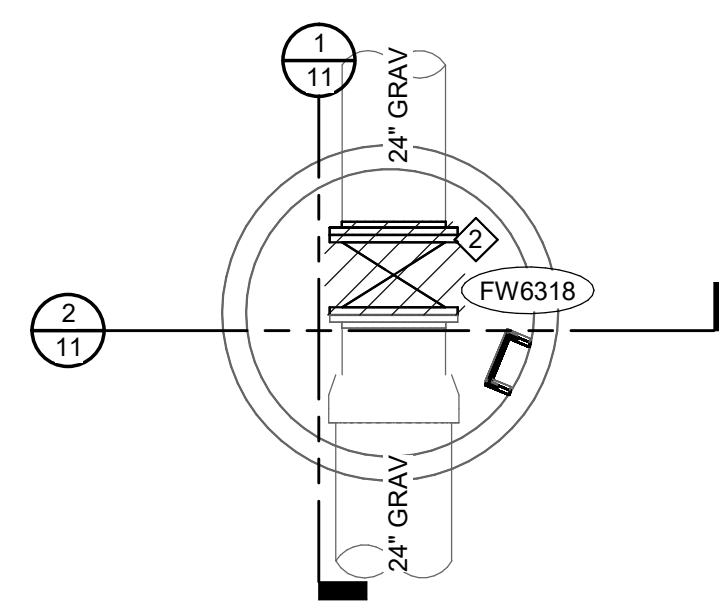
3 SECTION
SCALE: 1/4" = 1'-0"



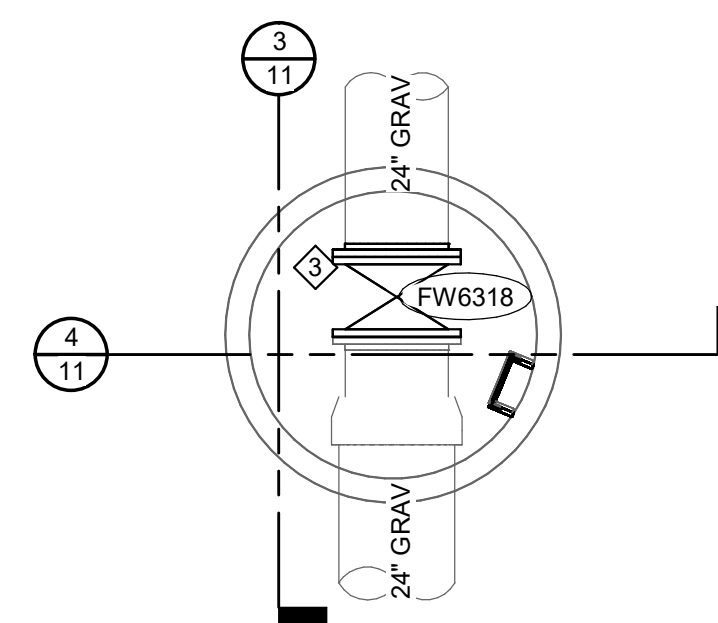
4 SECTION
SCALE: 1/4" = 1'-0"



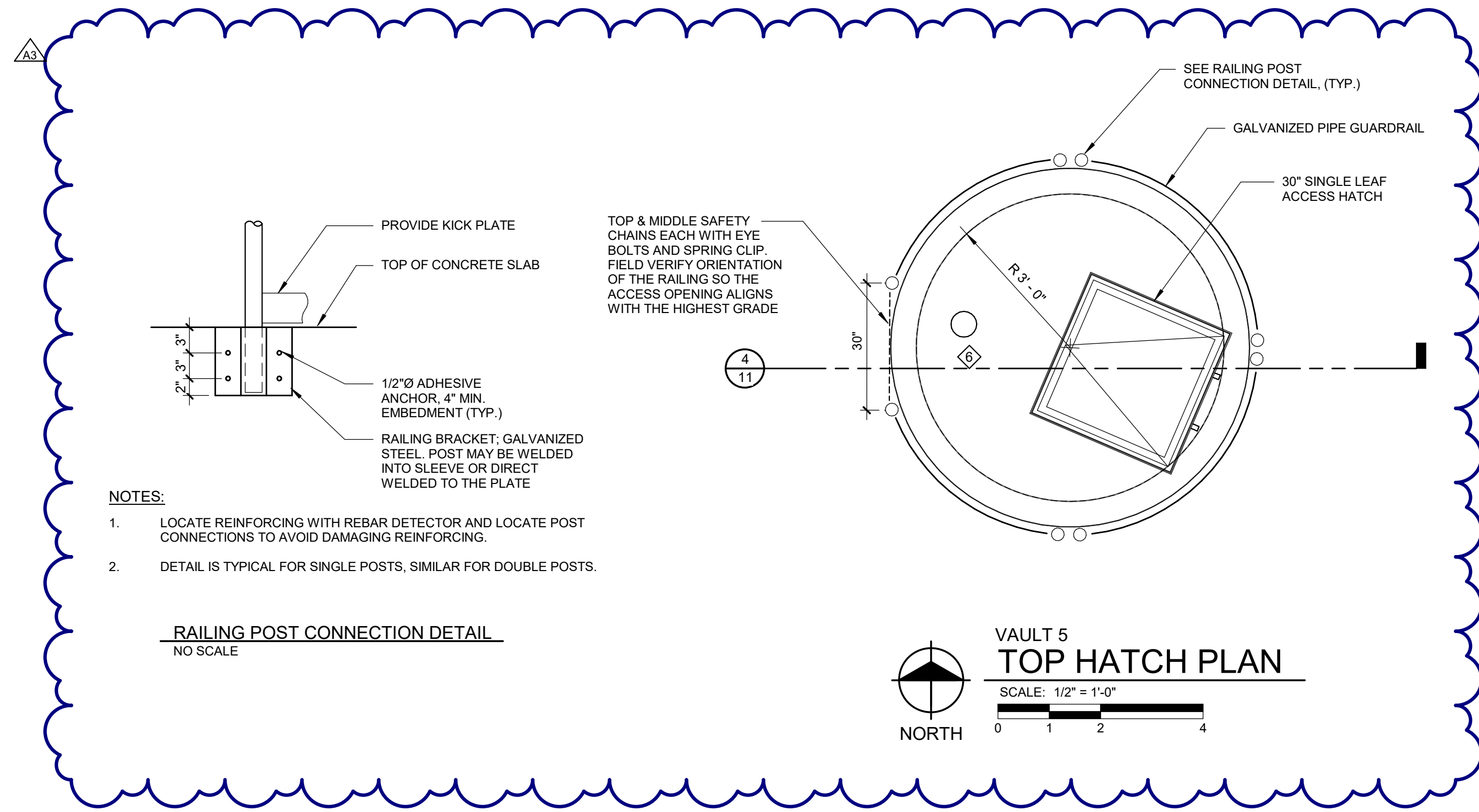
**VAULT 5
ISOMETRIC**
SCALE:



**VAULT 5
EQUIPMENT AND PIPING DEMOLITION PLAN**
SCALE: 1/4" = 1'-0"
NORTH



**VAULT 5
EQUIPMENT AND PIPING PLAN**
SCALE: 1/4" = 1'-0"
NORTH



- NOTES:**
1. LOCATE REINFORCING WITH REBAR DETECTOR AND LOCATE POST CONNECTIONS TO AVOID DAMAGING REINFORCING.
 2. DETAIL IS TYPICAL FOR SINGLE POSTS, SIMILAR FOR DOUBLE POSTS.

RAILING POST CONNECTION DETAIL
NO SCALE

**VAULT 5
TOP HATCH PLAN**
SCALE: 1/2" = 1'-0"
NORTH

NOTES

1. PAINT ALL NEW AND EXISTING FINISHED WATER PIPING IN VALVE VAULT IN ACCORDANCE WITH SECTION 09 91 00 - PROCESS PAINTING.
2. CLEAN AND INSPECT EXISTING PIPING AND CONCRETE STRUCTURE TO REMAIN, INCLUDING WALLS AND FLOORS. NOTIFY ENGINEER OF DEFECTS OR ABNORMALITIES.

KEY NOTES

1. REMOVE EXISTING PRECAST CONCRETE TOP SLAB, MANHOLE FRAME AND COVER.
2. REMOVE EXISTING 24" GATE VALVE.
3. 24" BUTTERFLY VALVE AND 24" COUPLING.
4. 6' DIA. PRECAST CONCRETE TOP SLAB WITH CAST 30" SQUARE HATCH.
5. VALVE STEM SUPPORTS SPACED 5'-0" APART MAX.
6. 6" VALVE BOX CAST IN TOP SLAB.
7. REMOVE PORTION OF EXISTING 6' DIAMETER BLOCK MANHOLE RISER NECESSARY TO COMPLETE VALVE REPLACEMENT.
8. RECONSTRUCT VALVE VAULT WITH PRECAST CONCRETE MANHOLE RISER SECTIONS.

REVISIONS	
7/13/22	A3 ADDENDUM NO. 3

5/25/2022 BIDS AND CONSTRUCTION

Drawn By RSZ
Designer JS
Reviewer TDM
Manager JS

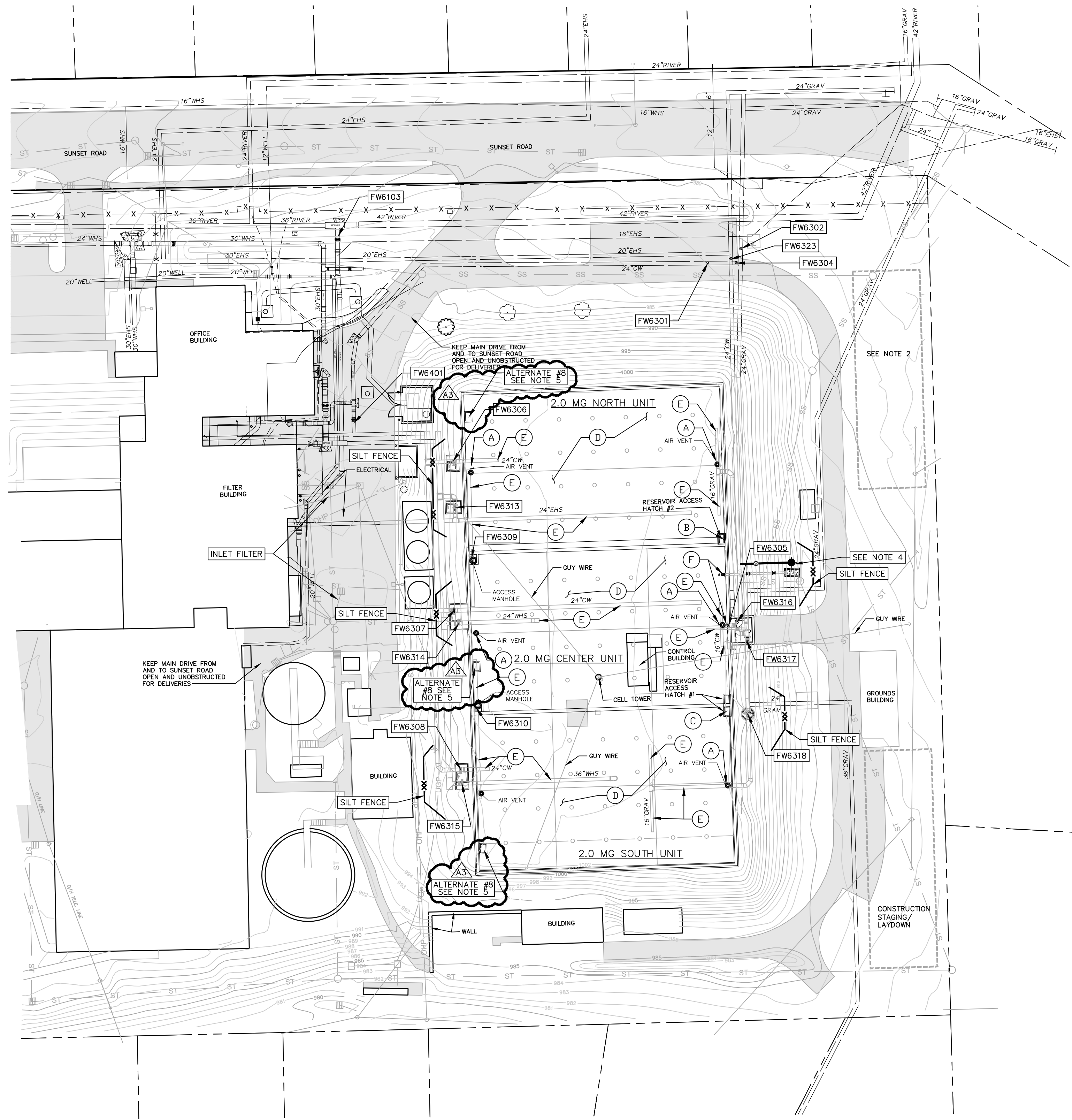
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PROJECT NO.
211162

SHEET NO.

11

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- NOTES:**
- COORDINATE OPERATIONS WITH THE EXISTING DAILY OPERATIONS OF THE WTP, AS WELL AS ANY CONCURRENT CONSTRUCTION PROJECTS AT THE WTP.
 - POTENTIAL CONSTRUCTION STAGING AND / OR LAY DOWN AREA. COORDINATE AREA NEEDED WITH OWNER.
 - INTERIOR ROOF SPALLING IS RANDOMLY LOCATED IN ALL THREE RESERVOIR UNITS. PER LATEST INSPECTION REPORT:
NORTH UNIT: APPROXIMATELY 200+ SPALLS, 1/2 - 3" DIA. AND 1/4-1/2" DEEP.
MIDDLE UNIT: APPROXIMATELY 100+ SPALLS, 1/2"-2" DIA. AND 1/4-1/2" DEEP.
SOUTH UNIT: APPROXIMATELY 100+ SPALLS, 1/4-1/2" DIA. AND 1/4-1/2" DEEP.
REINFORCEMENT IS VISIBLE AT SEVERAL SPALLS. ABRASIVE BLAST ALL EXPOSED REBAR AND COAT WITH EPOXY PRIOR TO PATCHING SPALLS.
 - INSTALL YARD HYDRANT ON 24" CW PIPING. RECORD DRAWING INDICATES PIPING MAY BE STEEL. CONTRACTOR TO EXCAVATE AND CONFIRM PIPING MATERIAL PRIOR TO ORDERING TAPPING SLEEVE. HYDRANT TO BE INSTALLED PRIOR TO VALVE REPLACEMENT TO FACILITATE FLUSHING DURING DISINFECTION AND REFILLING ACTIVITIES.
 - INSTALL NEW RESERVOIR ACCESS HATCH PER DETAIL ON SHEET 30.

<p>A REPLACE EXISTING AIR VENT SCREEN WITH #24 MESH SCREEN (6 EA)</p> 	<p>D COAT REBAR AND PATCH CONCRETE SPALLS INSIDE WET INTERIOR (SEE NOTE 3)</p> 
<p>B MODIFY EXISTING RESERVOIR ACCESS HATCH #1 (SEE DETAIL ON SHEET 25)</p> 	<p>E RE-COAT WET INTERIOR PIPING AND APPURTENANCES TYPICAL ALL UNITS, FILL, DRAW, INTERCONNECT AND OVERFLOW PIPING.</p> 
<p>C MODIFY EXISTING RESERVOIR ACCESS HATCH #2 (SEE DETAIL ON SHEET 25)</p> 	<p>F MODIFY EXISTING OVERFLOW PIPING PER SHEET 17</p> 
<p>F (continued) MODIFY EXISTING OVERFLOW PIPING PER SHEET 17</p> 	

WTP RESERVOIR SITE PLAN
SCALE: 1" = 40'
0 20 40 80

City of Ann Arbor
Ann Arbor, Michigan
Valve and Reservoir Improvements
WTP RESERVOIR SITE PLAN

REVISIONS

7/13/2022	A3	ADDENDUM NO. 3
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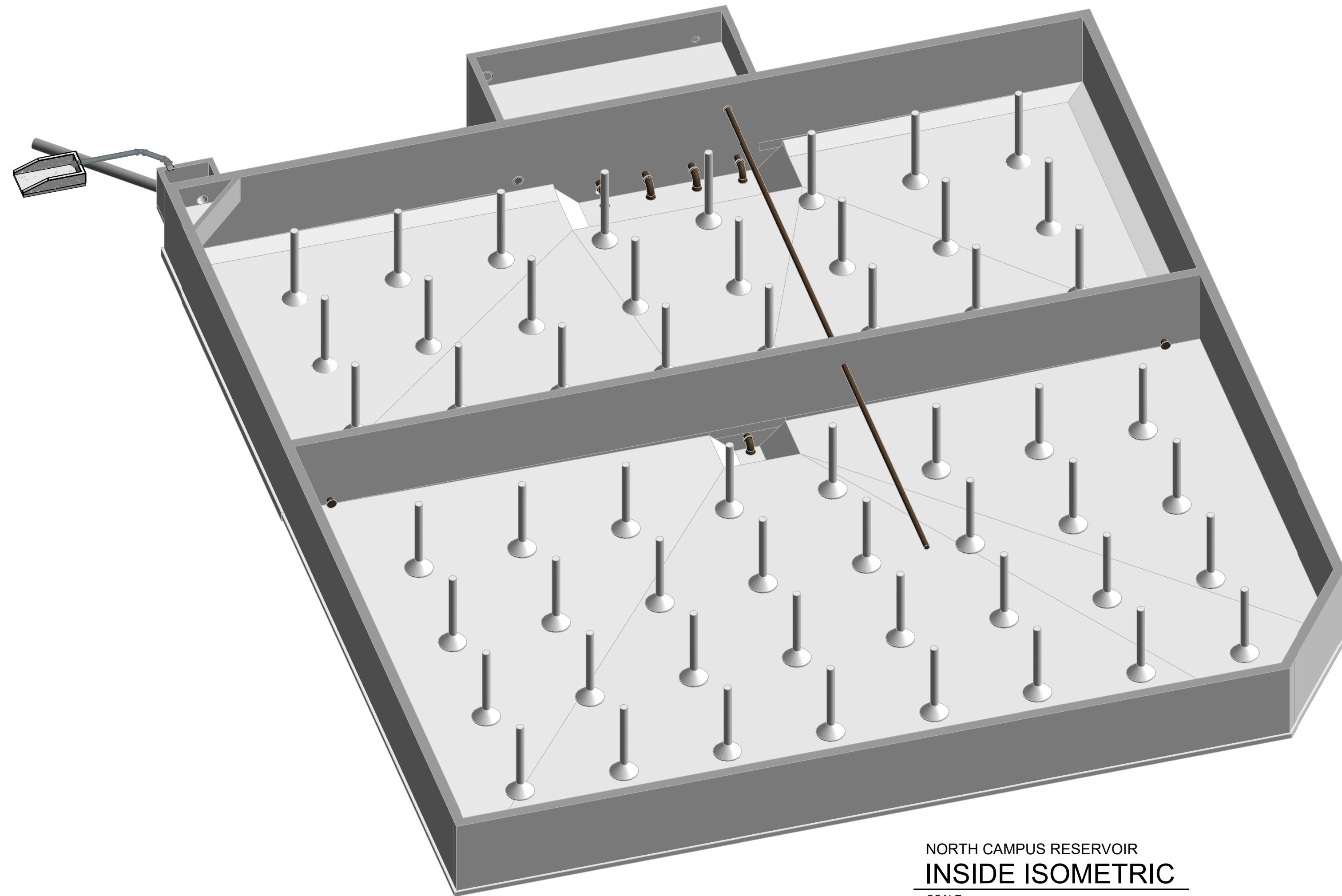
5/25/2022 BIDS AND CONSTRUCTION

Drawn By	IB
Designer	JS
Reviewer	TDM
Manager	JS

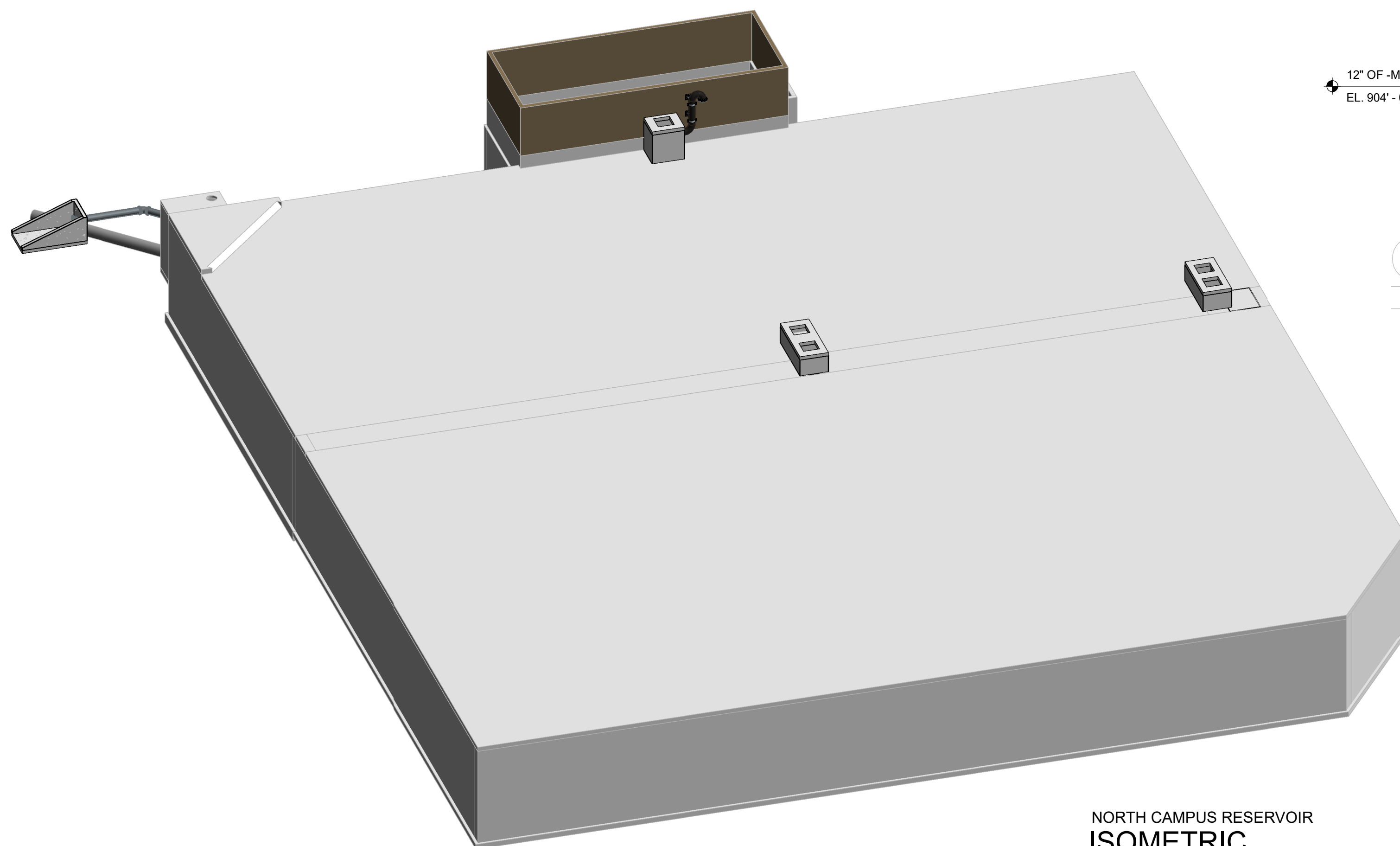
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SHEET NO.

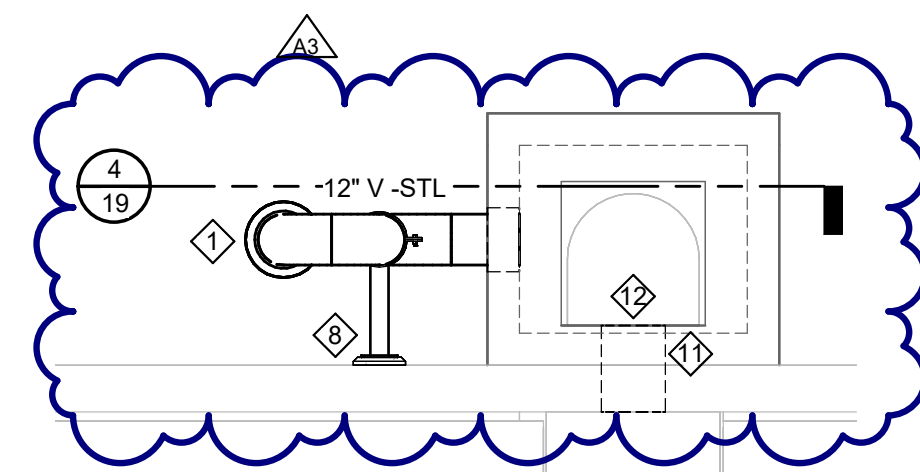
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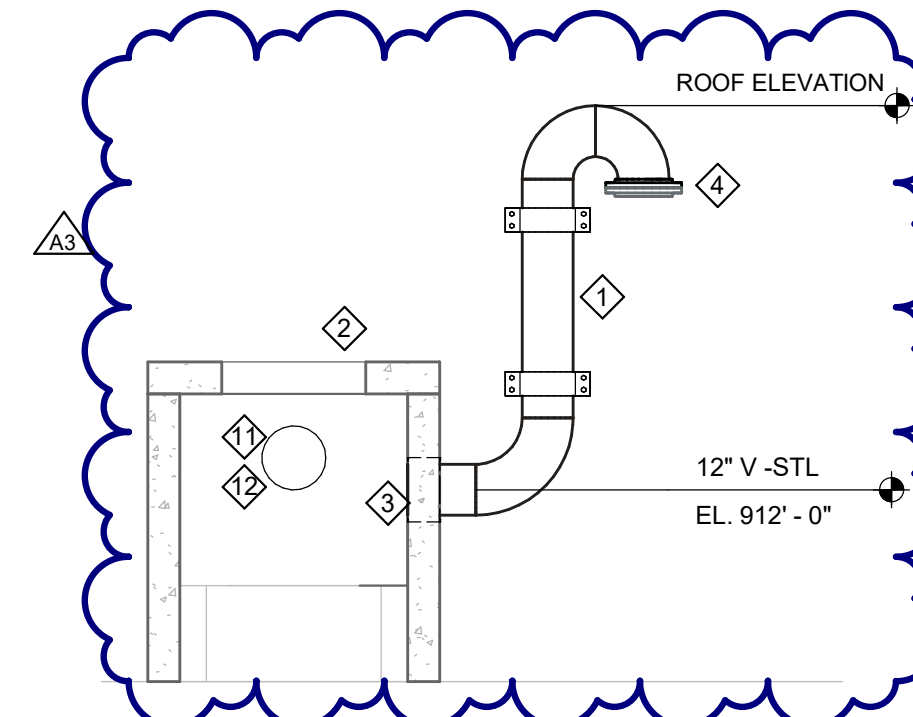
NORTH CAMPUS RESERVOIR
INSIDE ISOMETRIC
SCALE:



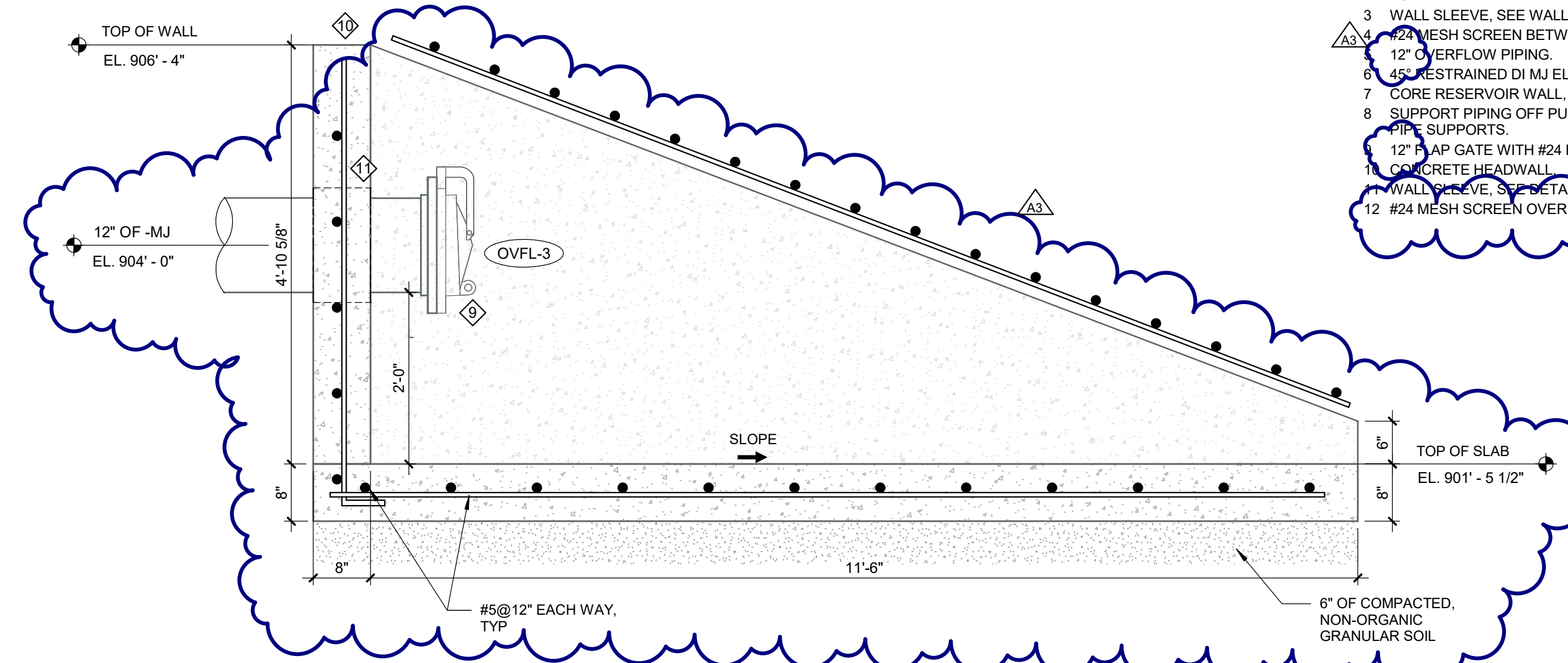
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ISOMETRIC
SCALE: NOT TO SCALE



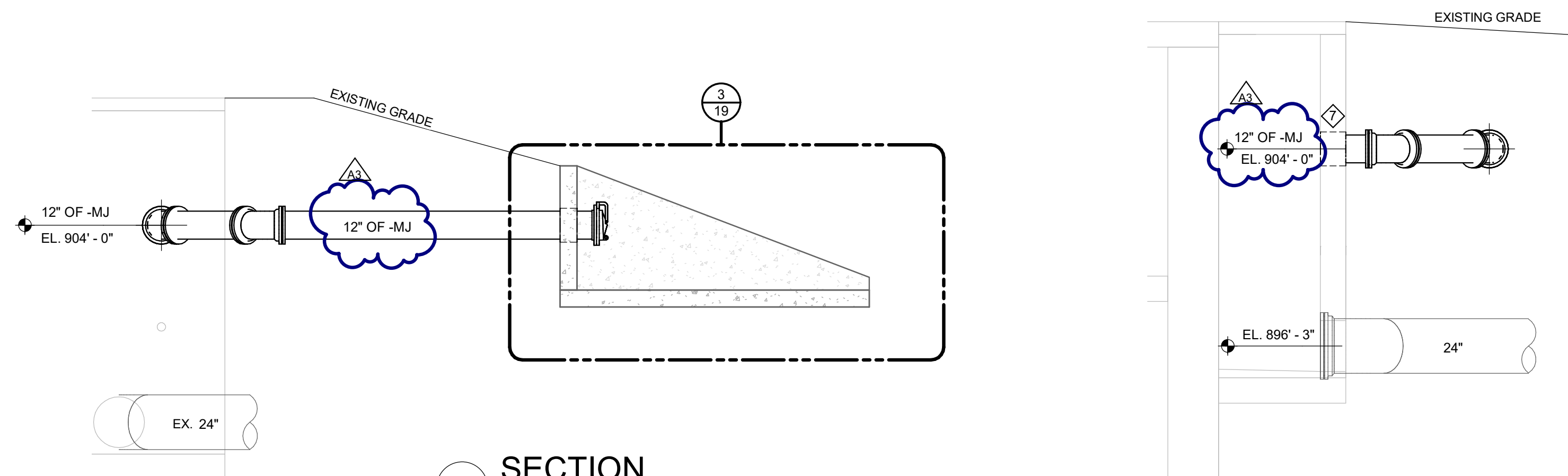
NORTH CAMPUS RESERVOIR
VENT PIPING PLAN
SCALE: 1/4" = 1'-0"
NORTH



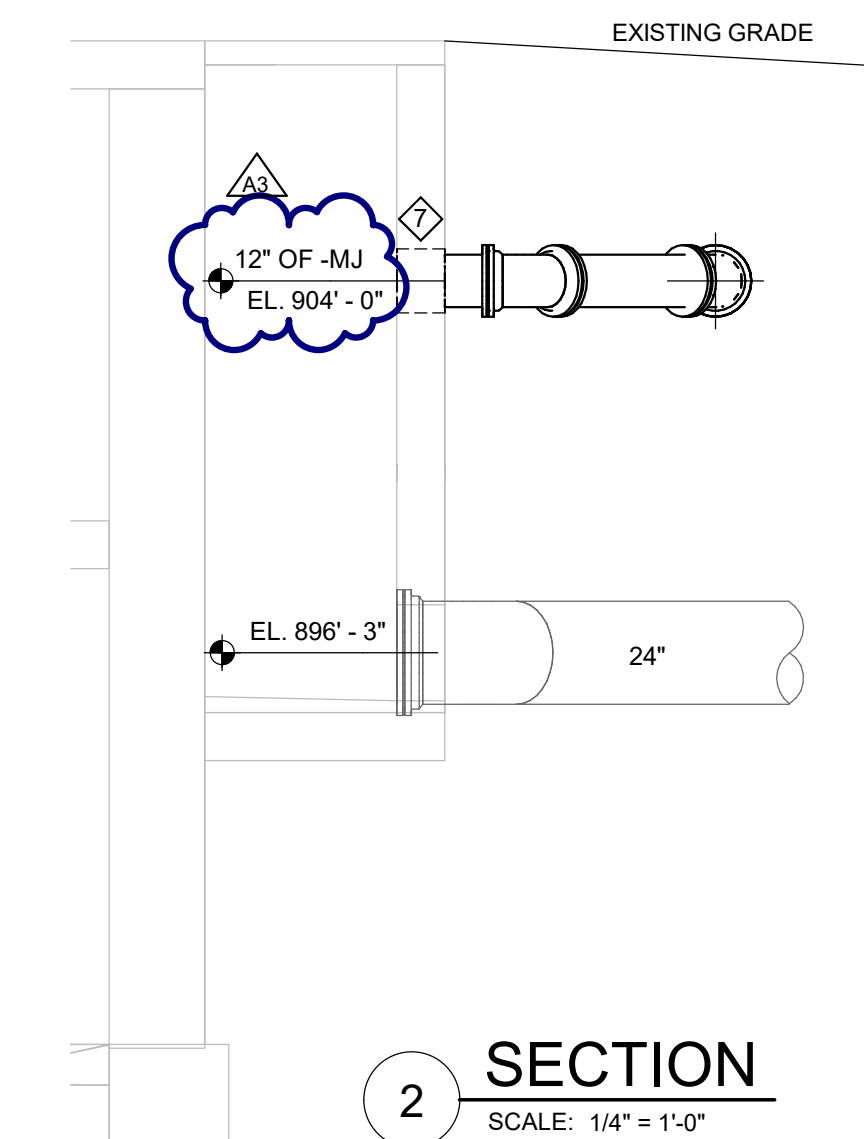
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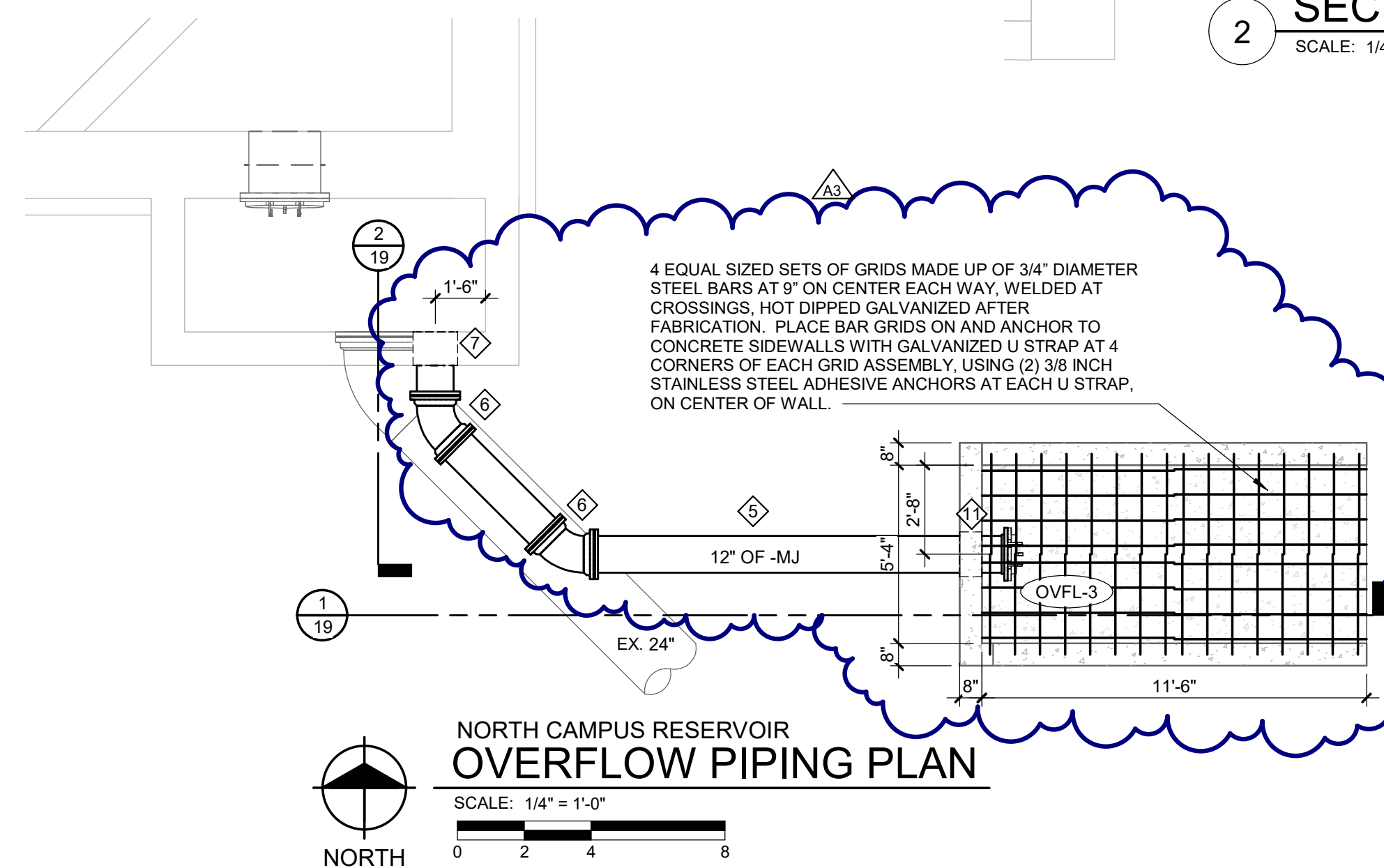
3 DETAIL
SCALE: 3/4" = 1'-0"



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



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



NORTH CAMPUS RESERVOIR
OVERFLOW PIPING PLAN
SCALE: 1/4" = 1'-0"
NORTH

NOTES

1. SEE STRUCTURAL FOR CONCRETE NOTES AND DETAILS.
2. FIELD VERIFY THE ELEVATION OF THE CONCRETE HEADWALL AND LOCATION WHERE PIPE WILL EXIT THE EMBANKMENT AND THE TOP OF THE HEADWALL SPLASH PAD MATCHES THE TOE OF THE SLOPE. ONCE CONFIRMED WITH THE ENGINEER, CONTRACTOR TO ADJUST THE FORMWORK FOR THE SIDEWALLS AS NEEDED TO MATCH THE EXISTING GRADE.
3. BACKFILL BEHIND HEADWALL AS NEEDED TO MATCH EXISTING SLOPE AND DIRECT DRAINAGE AROUND THE HEADWALL.
4. ALL #24 MESH SCREEN MUST HAVE A MINIMUM OF 50% OPEN AREA.

KEY NOTES

1. 12" VENT PIPING.
2. CONCRETE CURB AND ACCESS HATCH. SEE STRUCTURAL FOR DETAILS.
3. WALL SLEEVE. SEE WALL SLEEVE VENT DETAIL.
4. #24 MESH SCREEN BETWEEN FLANGES.
5. 12" OVERFLOW PIPING.
6. 45° RESTRAINED DI MJ ELBOW.
7. CORE RESERVOIR WALL. SEE WALL PENETRATION DETAIL.
8. SUPPORT PIPING OFF PUMP STATION WALL, MINIMUM OF 2 PIPE SUPPORTS.
9. 12" FLAP GATE WITH #24 MESH SCREEN.
10. CONCRETE HEADWALL.
11. WALL SLEEVE. SEE DETAIL.
12. #24 MESH SCREEN OVER SLEEVE END.

Ann Arbor Water Treatment Plant
Ann Arbor, Michigan
Valve and
Finished Water Tank & Reservoir Improvements
NORTH CAMPUS RESERVOIR OVERFLOW AND ISOMETRICS

REVISIONS	
7/13/2022	A3 ADDENDUM NO. 3

5/25/2022 BIDS AND CONSTRUCTION

Drawn By: rsz
Designer: js
Reviewer: TDM
Manager: JS

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REVISIONS		
7/13/2022	A3	ADDENDUM NO. 3

5/25/2022 BIDS AND CONSTRUCTION

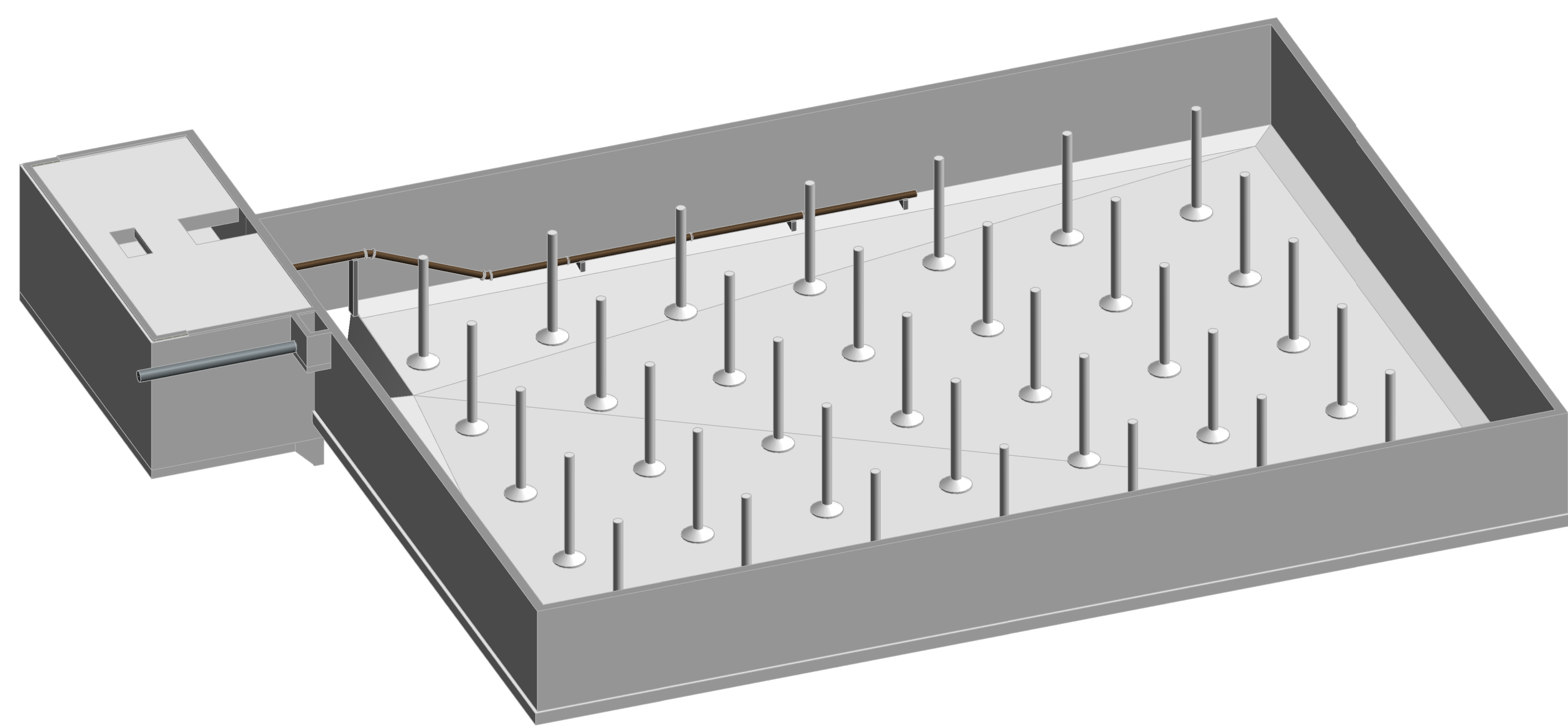
Drawn By: RSZ
 Designer: JS
 Reviewer: TDM
 Manager: JS

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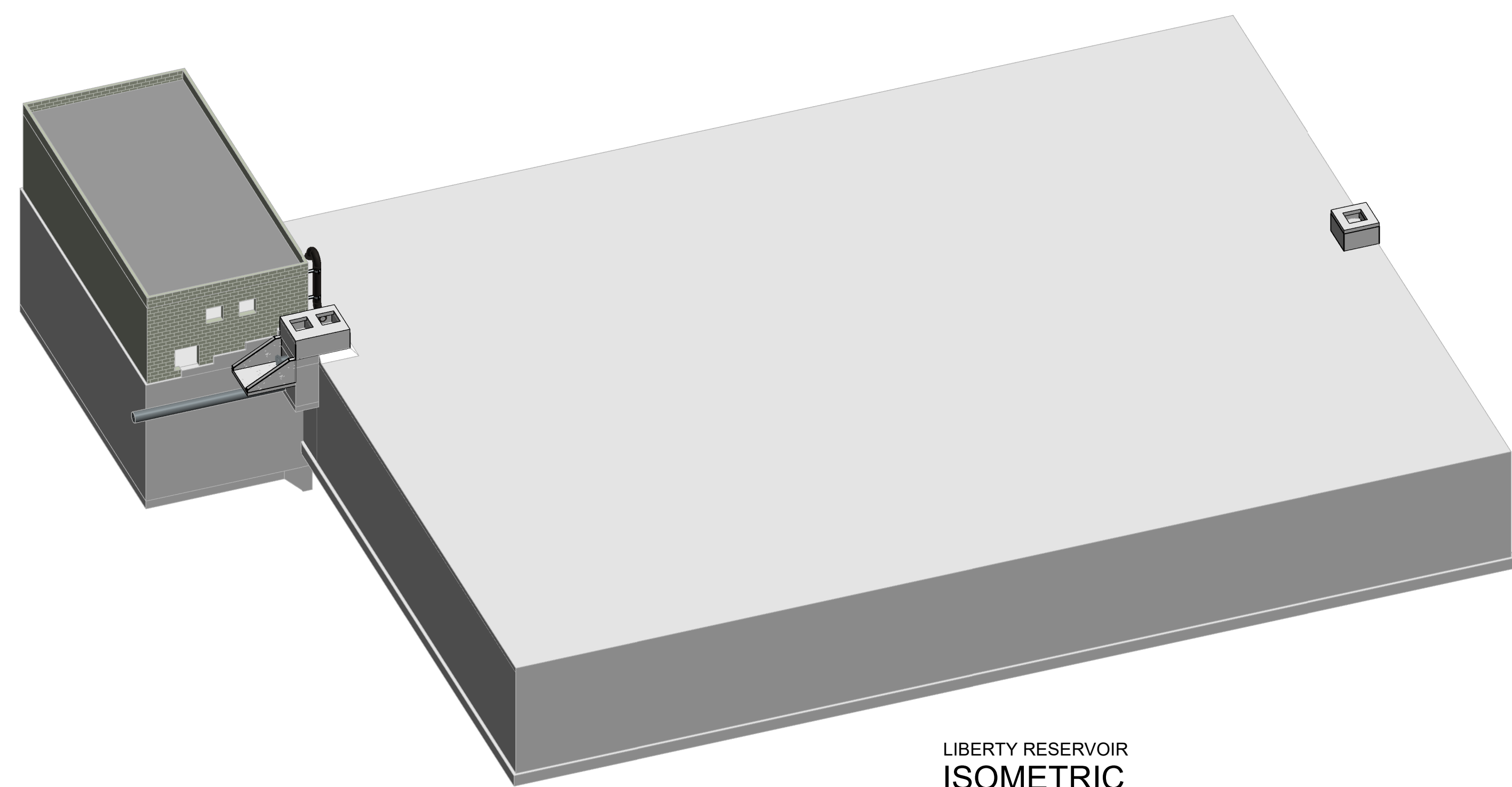
PROJECT NO.
 211162
 SHEET NO.

- NOTES**
- SEE STRUCTURAL FOR CONCRETE NOTES AND DETAILS.
 - FIELD VERIFY THE ELEVATION OF THE CONCRETE HEADWALL AND LOCATION WHERE PIPE WILL EXIT THE EMBANKMENT AND THE TOP OF THE HEADWALL SPLASH PAD MATCHES THE TOE OF THE SLOPE. ONCE CONFIRMED WITH THE ENGINEER, CONTRACTOR TO ADJUST THE FORMWORK FOR THE SIDEWALLS AS NEEDED TO MATCH THE EXISTING GRADE.
 - BACKFILL BEHIND HEADWALL AS NEEDED TO MATCH EXISTING SLOPE AND DIRECT DRAINAGE AROUND THE HEADWALL.

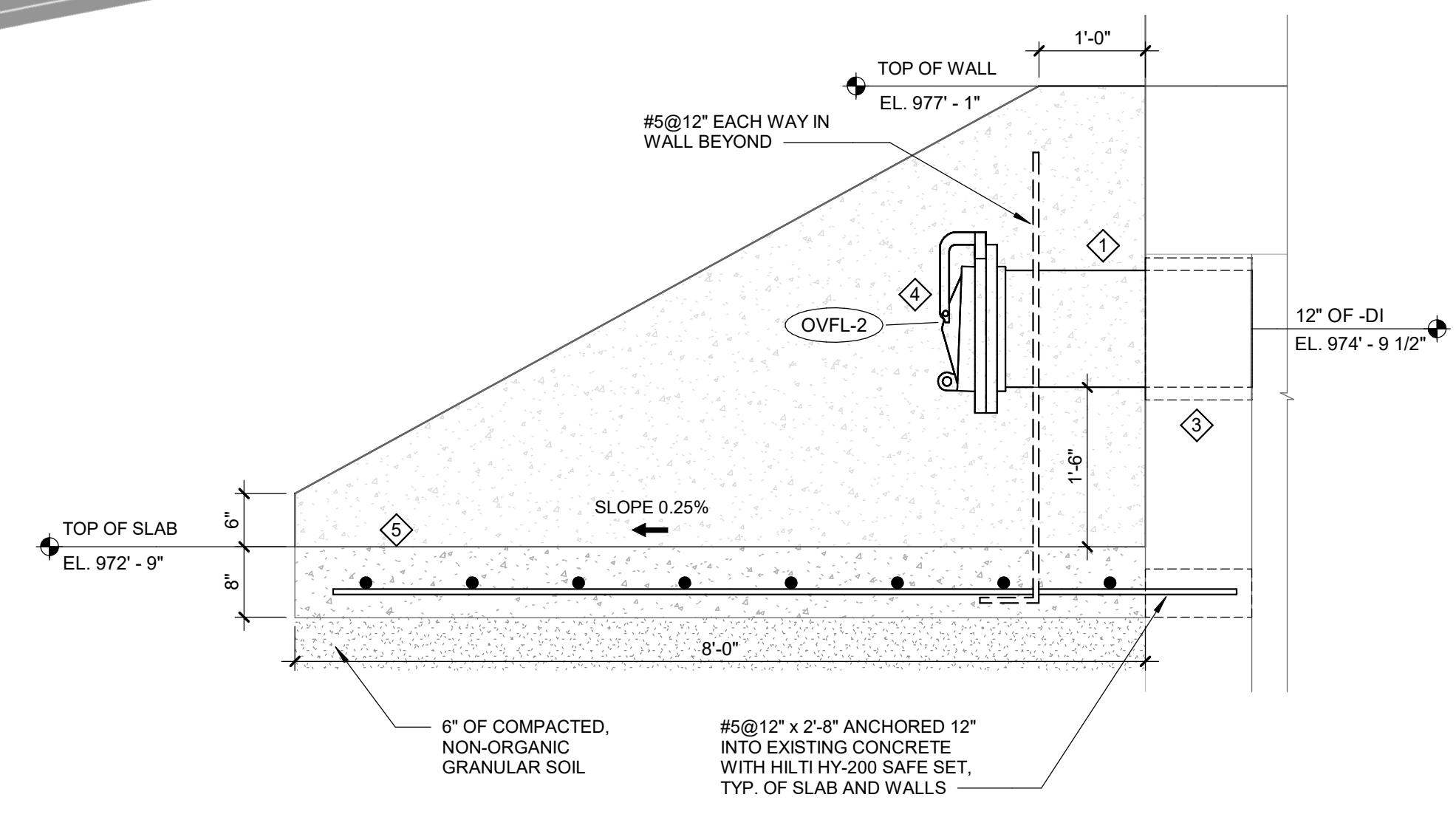
- KEY NOTES**
- 12" OVERFLOW PIPING. FIELD VERIFY ELEVATIONS OF EXISTING OVERFLOW VENT AND MATCH ELEVATIONS.
 - 12" VENT PIPING.
 - COBALT RESERVOIR WALL. SEE WALL PENETRATION DETAIL.
 - 12" FLAT GATE WITH #24 MESH SCREEN.
 - CONCRETE HEADWALL.
 - SUPPORT PIPING OFF PUMP STATION WALL, MINIMUM OF 2 PIPE SUPPORTS.
 - #24 MESH SCREEN BETWEEN FLANGES.
 - WALL SLEEVE. SEE WALL SLEEVE VENT DETAIL.



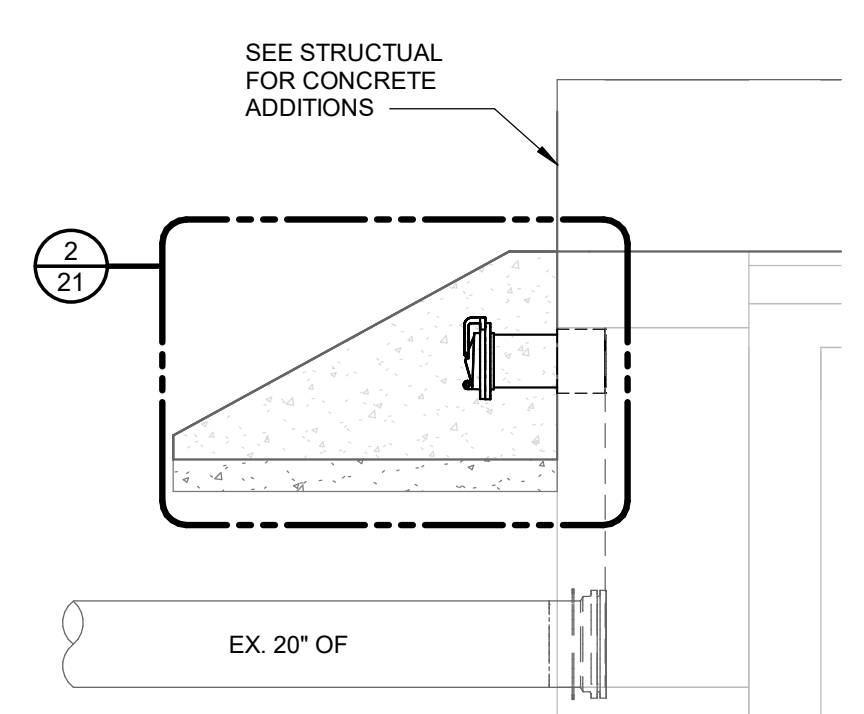
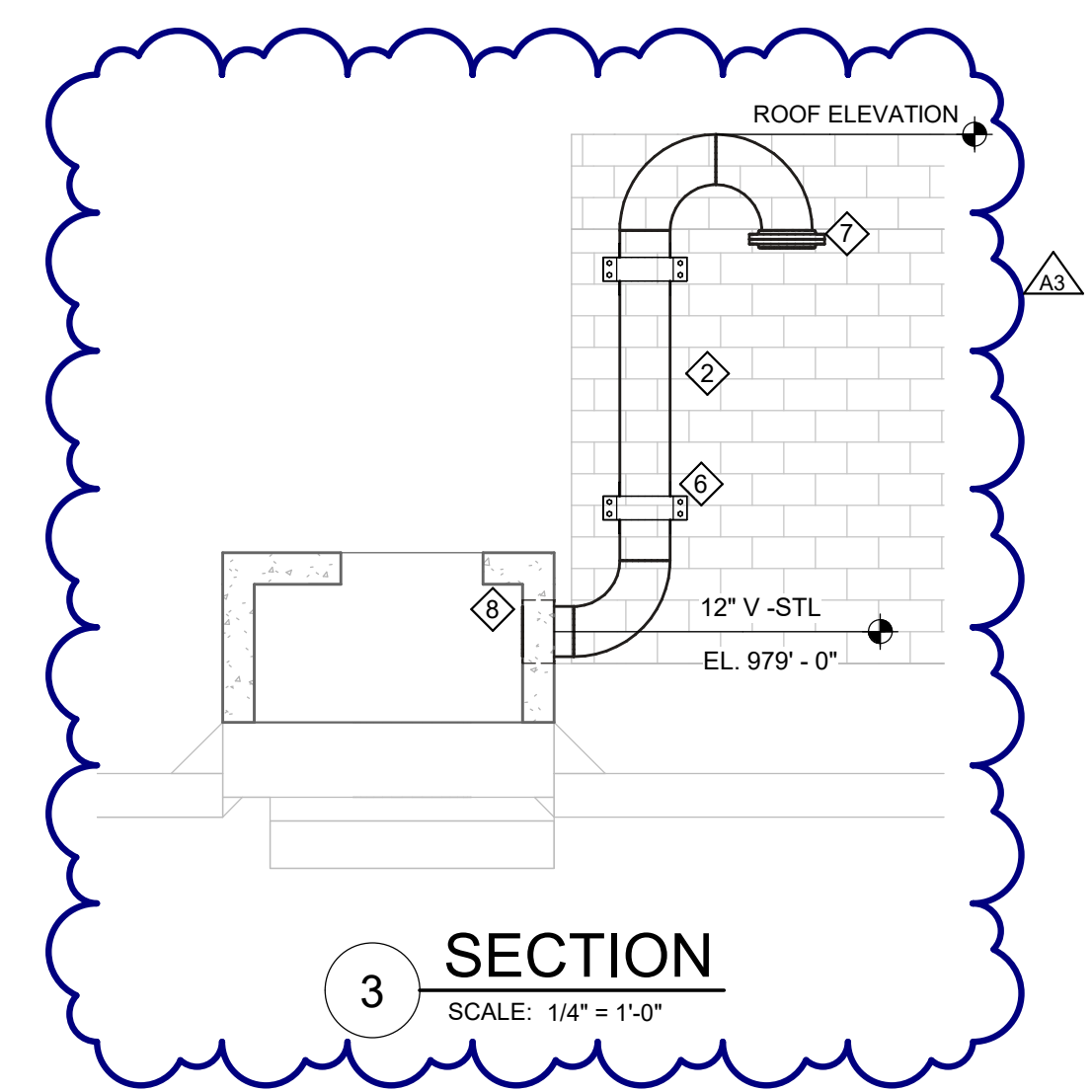
**LIBERTY RESERVOIR
 INSIDE ISOMETRIC**
 SCALE:



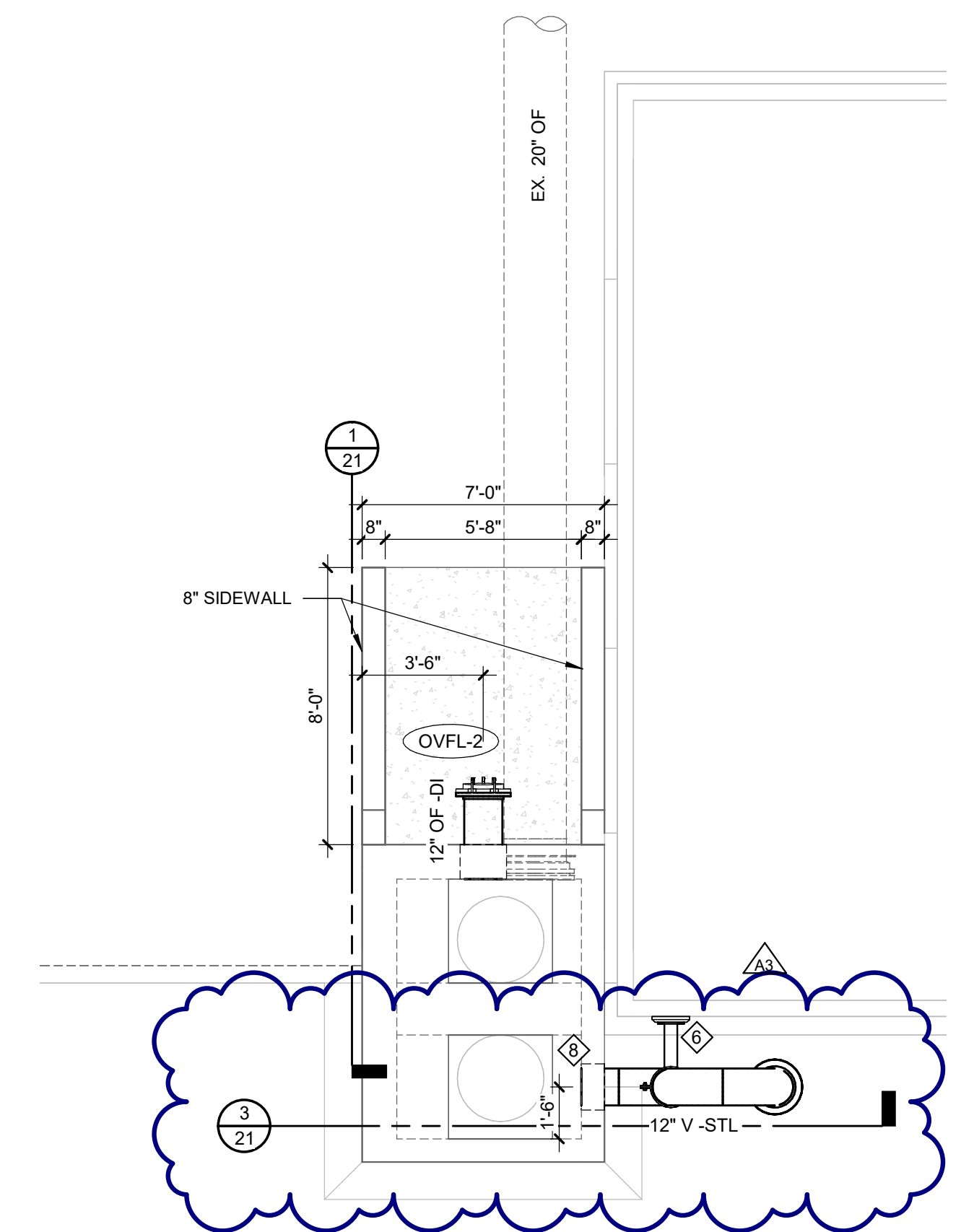
**LIBERTY RESERVOIR
 ISOMETRIC**
 SCALE: NOT TO SCALE



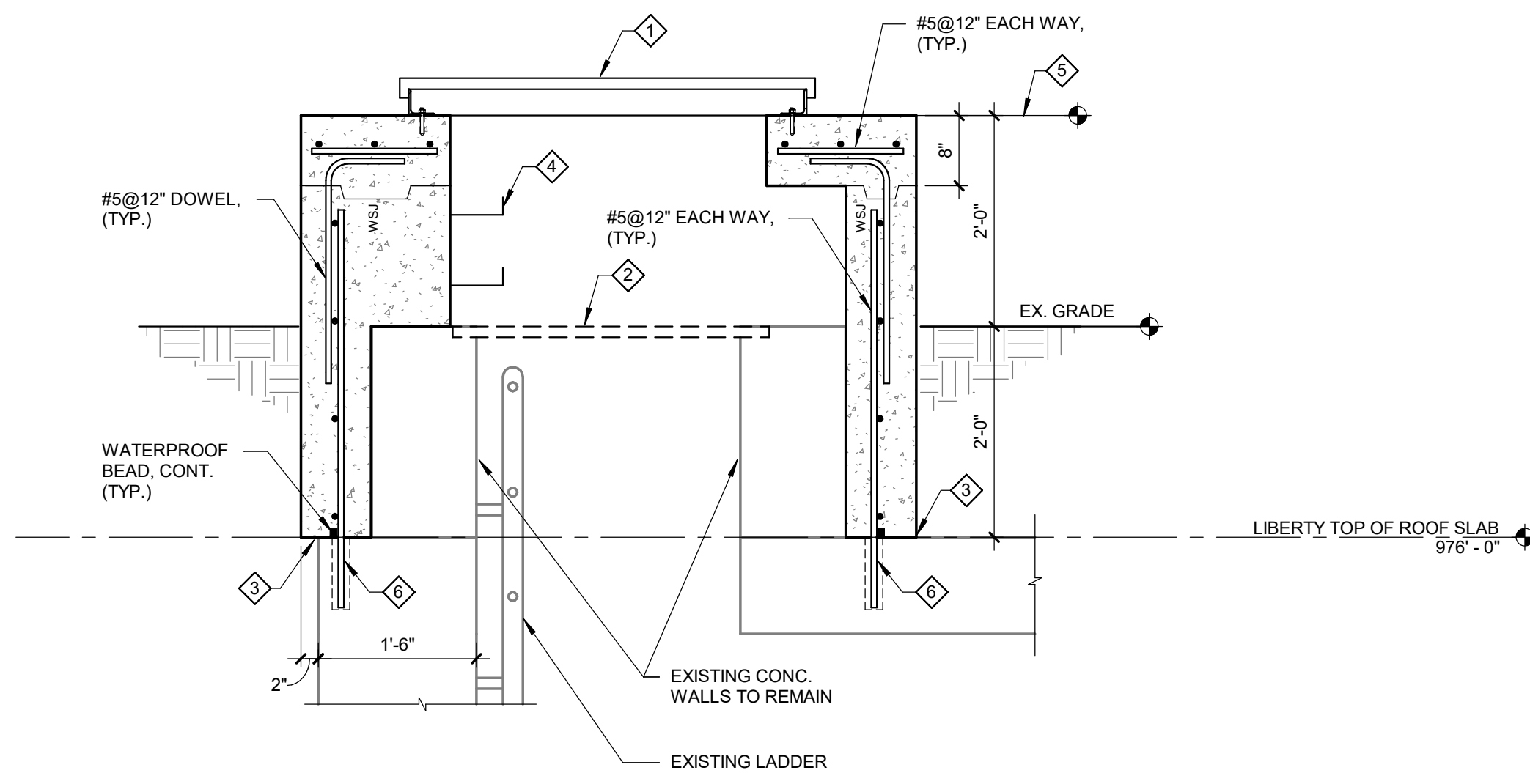
2 DETAIL
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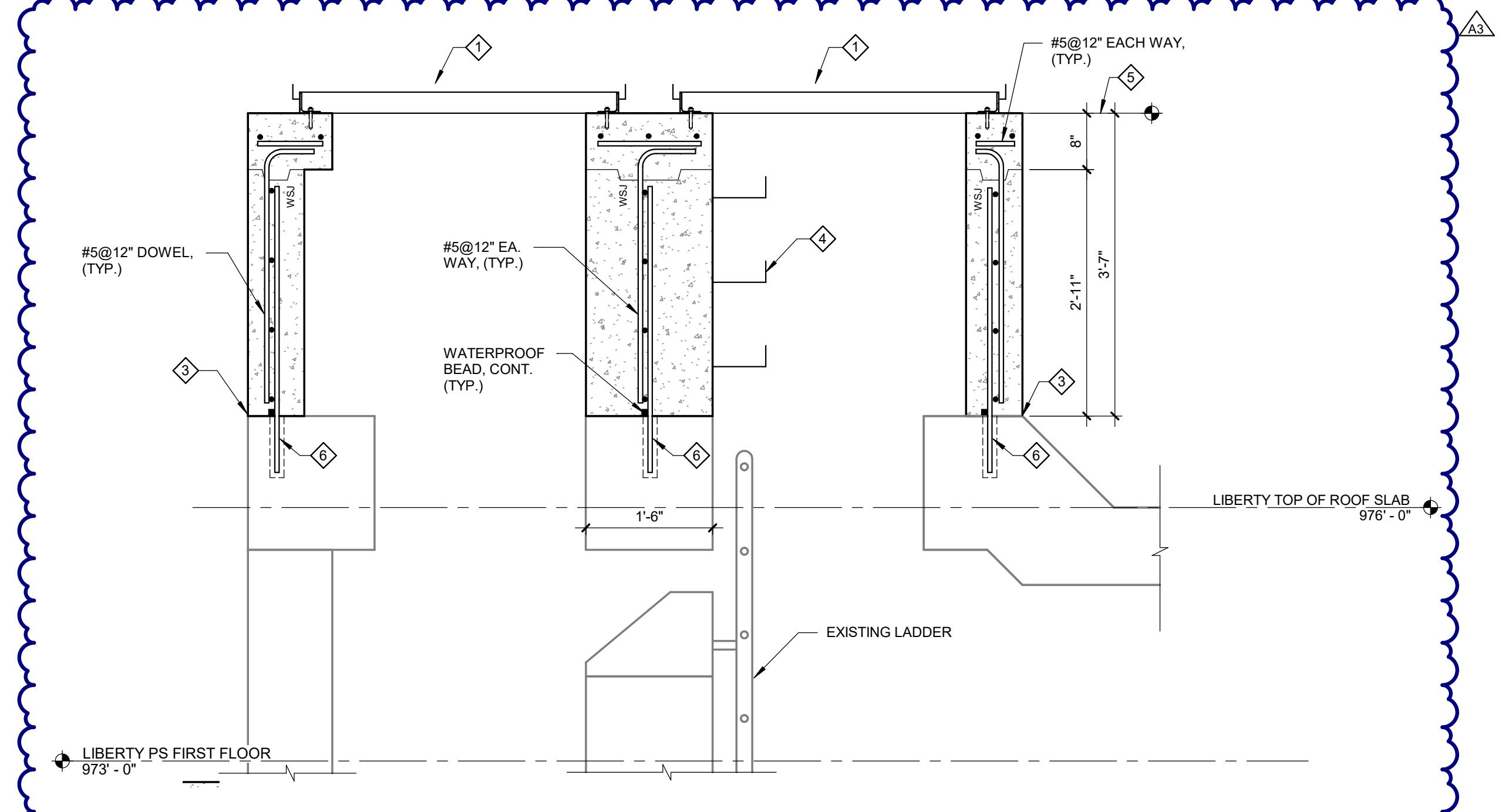
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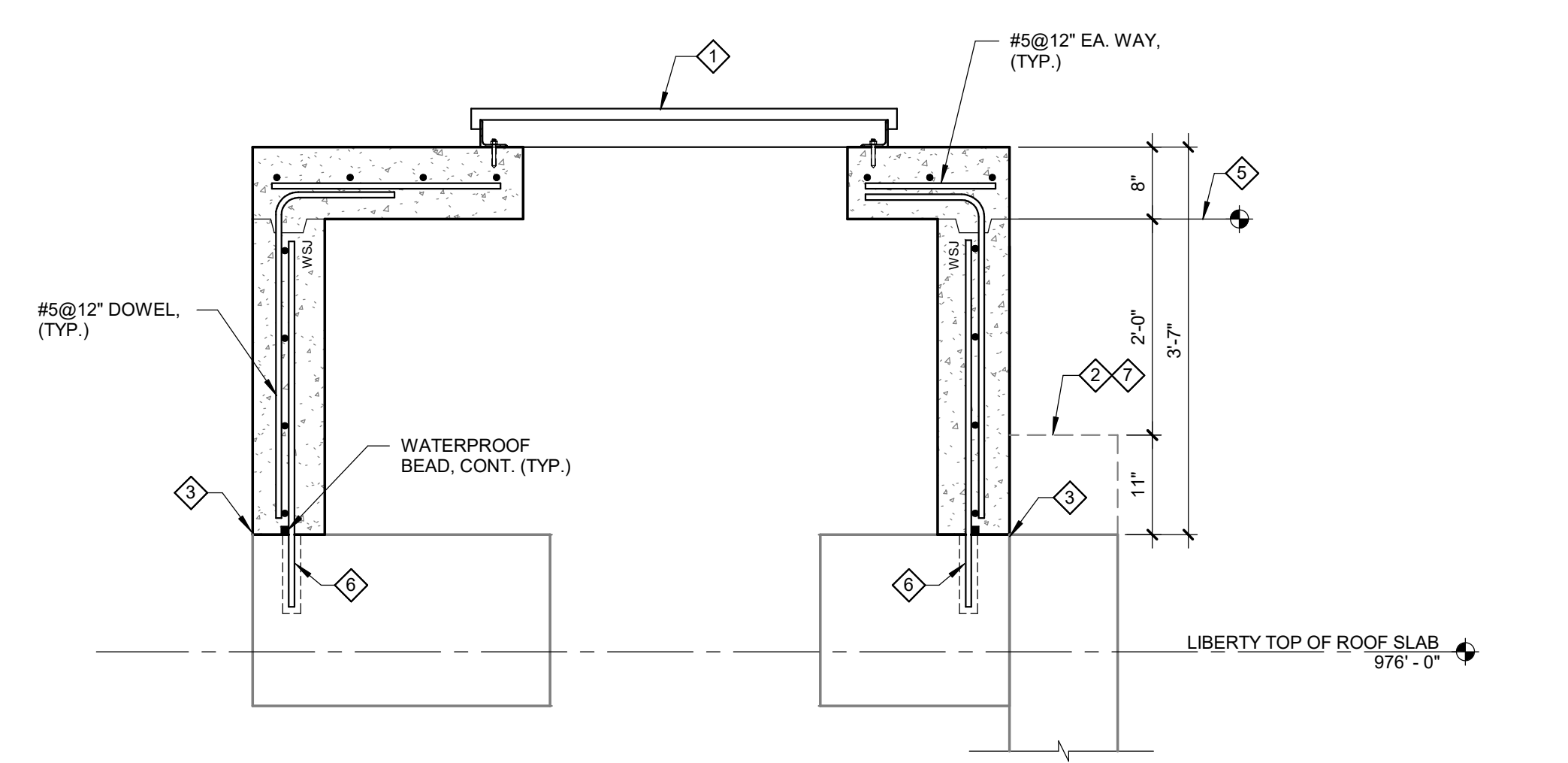
**LIBERTY RESERVOIR
 OVERFLOW PIPING PLAN**
 SCALE: 1/4" = 1'-0"



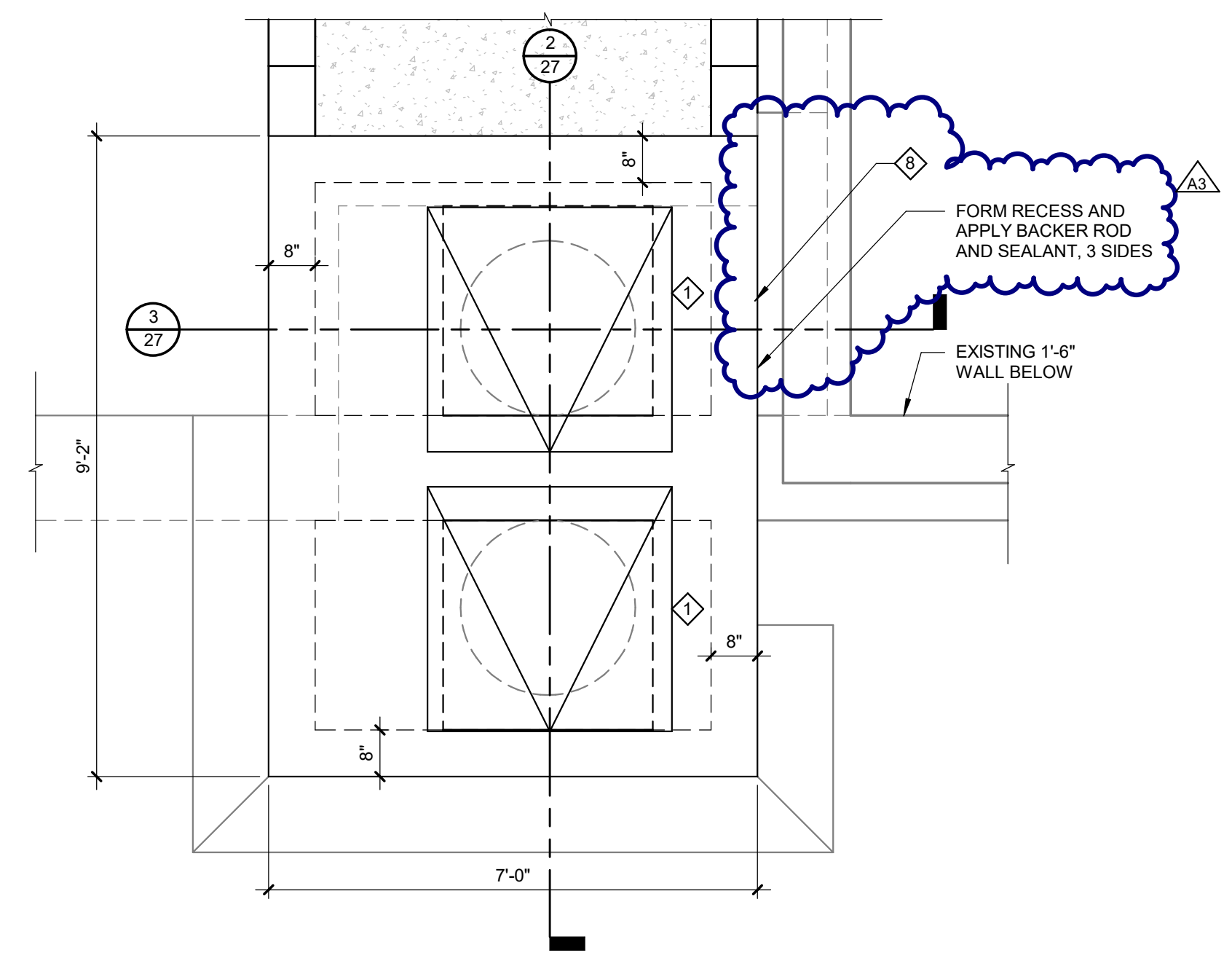
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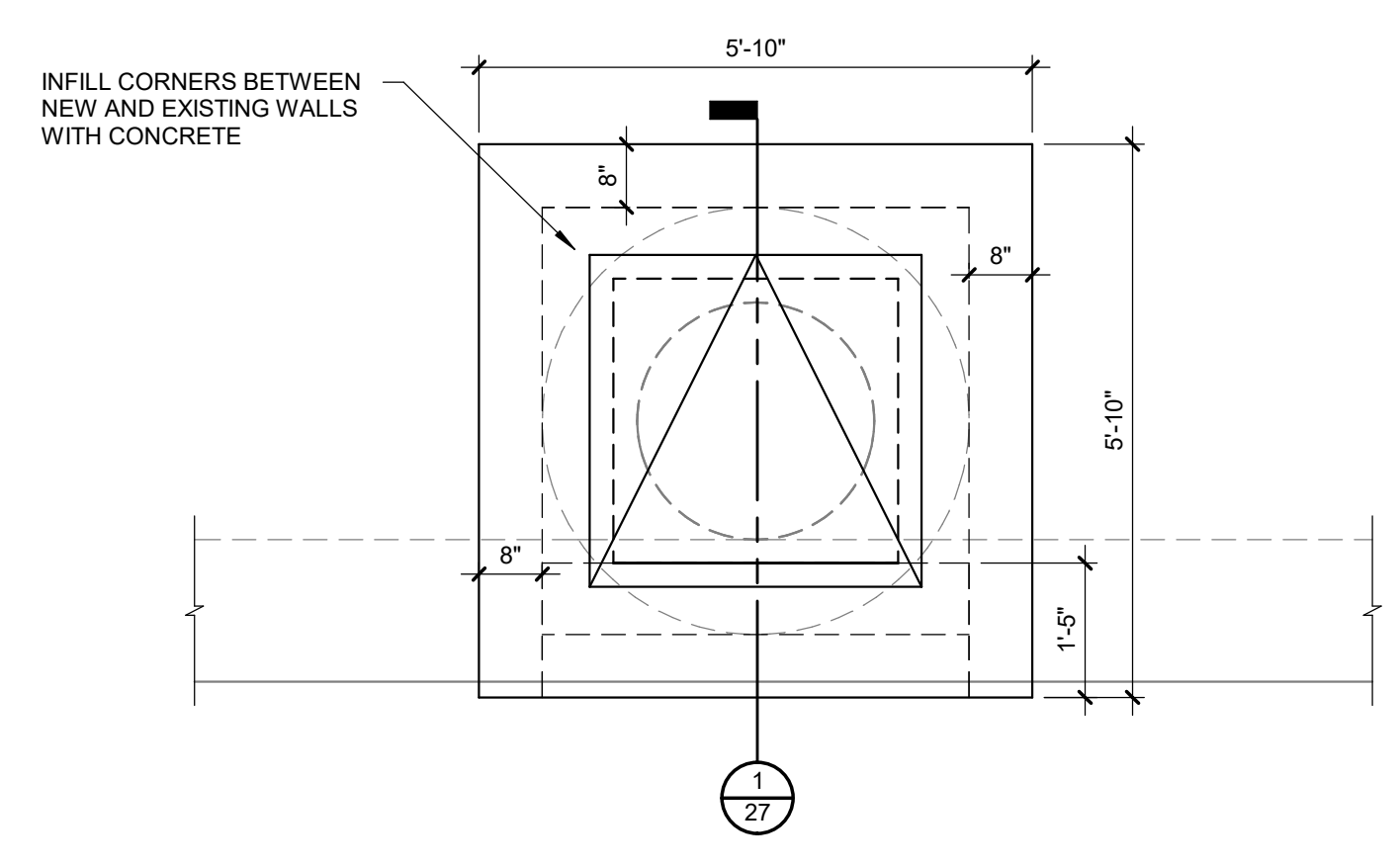
2 SECTION
SCALE: 3/4" = 1'-0"



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



DOUBLE ACCESS HATCH #1 PLAN
LIBERTY RESERVOIR
SCALE: 1/2" = 1'-0"



SINGLE ACCESS HATCH #2 PLAN
LIBERTY RESERVOIR
SCALE: 1/2" = 1'-0"



KEY NOTES

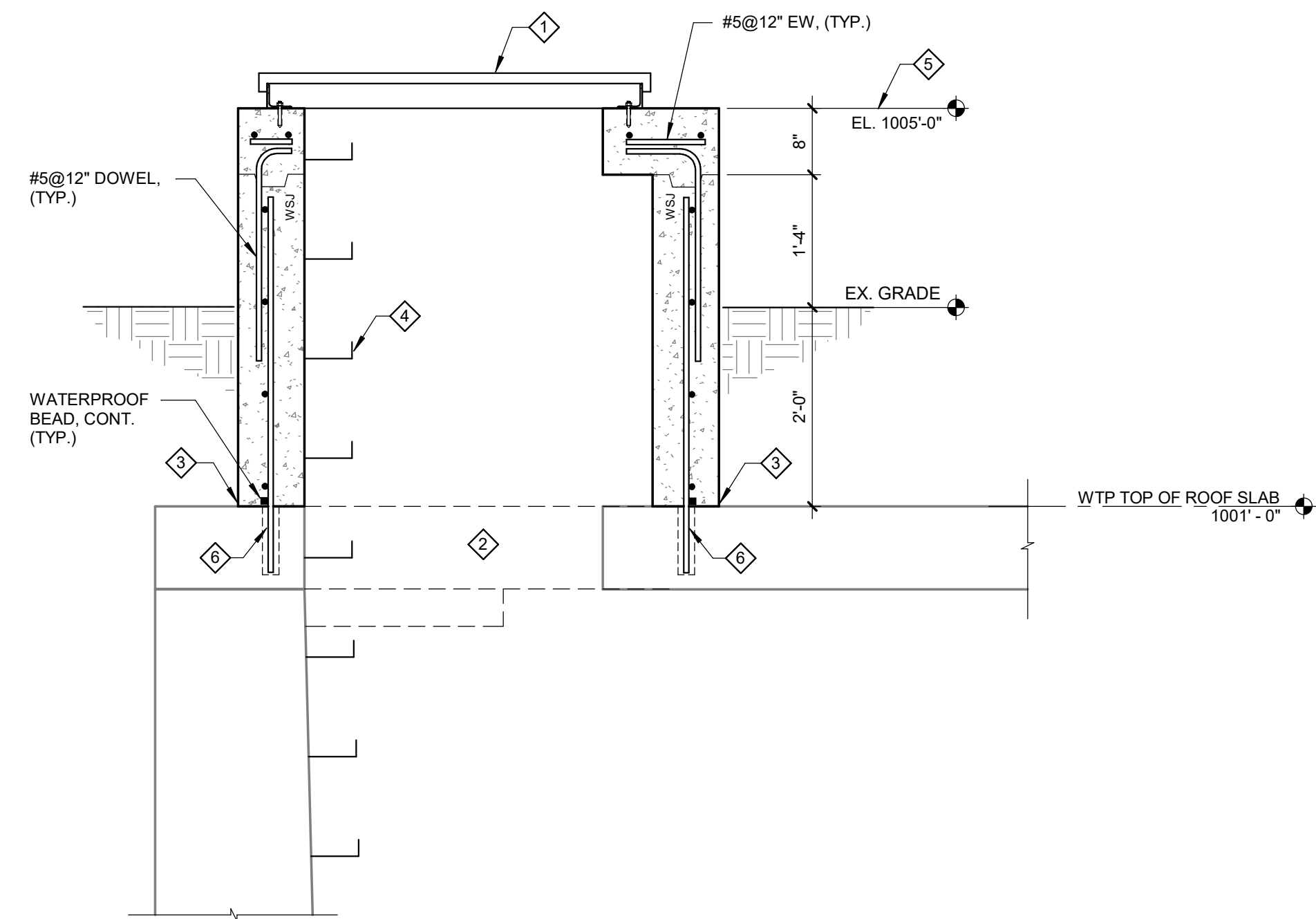
1. 42" SQUARE SURFACE MOUNTED ACCESS HATCH CENTERED OVER 36" SQUARE OPENING IN NEW SLAB. POSITIONED OVER EXISTING MANHOLE OPENING. FIELD VERIFY NEW HATCH ORIENTATION WITH RESPECT TO EXISTING LADDERS OR MANHOLE RUNGS AND WITH OWNER.
2. REMOVE EXISTING MANHOLE COVER; MANHOLE FRAME TO REMAIN. DO NOT DISTURB EXISTING CAM LOCK COVER BELOW MANHOLE COVER.
3. FIELD VERIFY EXISTING WATERPROOFING. REMOVE AS REQUIRED TO PLACE NEW CONCRETE. PROTECT REMAINING WATERPROOFING IN PLACE. PLACE NEW WATERPROOFING AND PROTECTION BOARD, LAPPED WATERTIGHT OVER EXISTING AND UP NEW WALLS TO GRADE. SECURE TOP WITH CONTINUOUS TERMINATION BAR. VERIFY COMPATIBILITY OF NEW WATERPROOFING WITH EXISTING, IF ANY.
4. NEW MANHOLE RUNGS AT 12" ON CENTER. ALIGN OVER AND SPACE TO EXISTING LADDER OR RUNGS.
5. FIELD VERIFY THAT TOP OF NEW SLAB WILL BE 2'-0" MINIMUM ABOVE EXISTING GRADE.
6. ANCHOR BAR 8" INTO EXISTING SLAB WITH HILTI HY-200 SAFE SET.
7. DEMOLISH EXISTING 11' x 5'-4" x 8'-8" (APPROX.) SLAB. CUT EXISTING DOWELS FLUSH OR BELOW REMAINING CONCRETE SURFACE. FOR SOUTH HATCH #1 ONLY, REMOVE CAM LOCK HATCH AFTER CONSTRUCTION IS COMPLETE AND SALVAGE TO OWNER, TO ALLOW RESERVOIR TO VENT TO NEW VENT PIPE.
8. PLACE 15# FELT BOND BREAKER BETWEEN EXISTING WALL AND NEW CONCRETE. TRIM EXPOSED EDGES AFTER FORM REMOVAL.

REVISIONS	
7/13/22	A3 ADDENDUM NO. 3

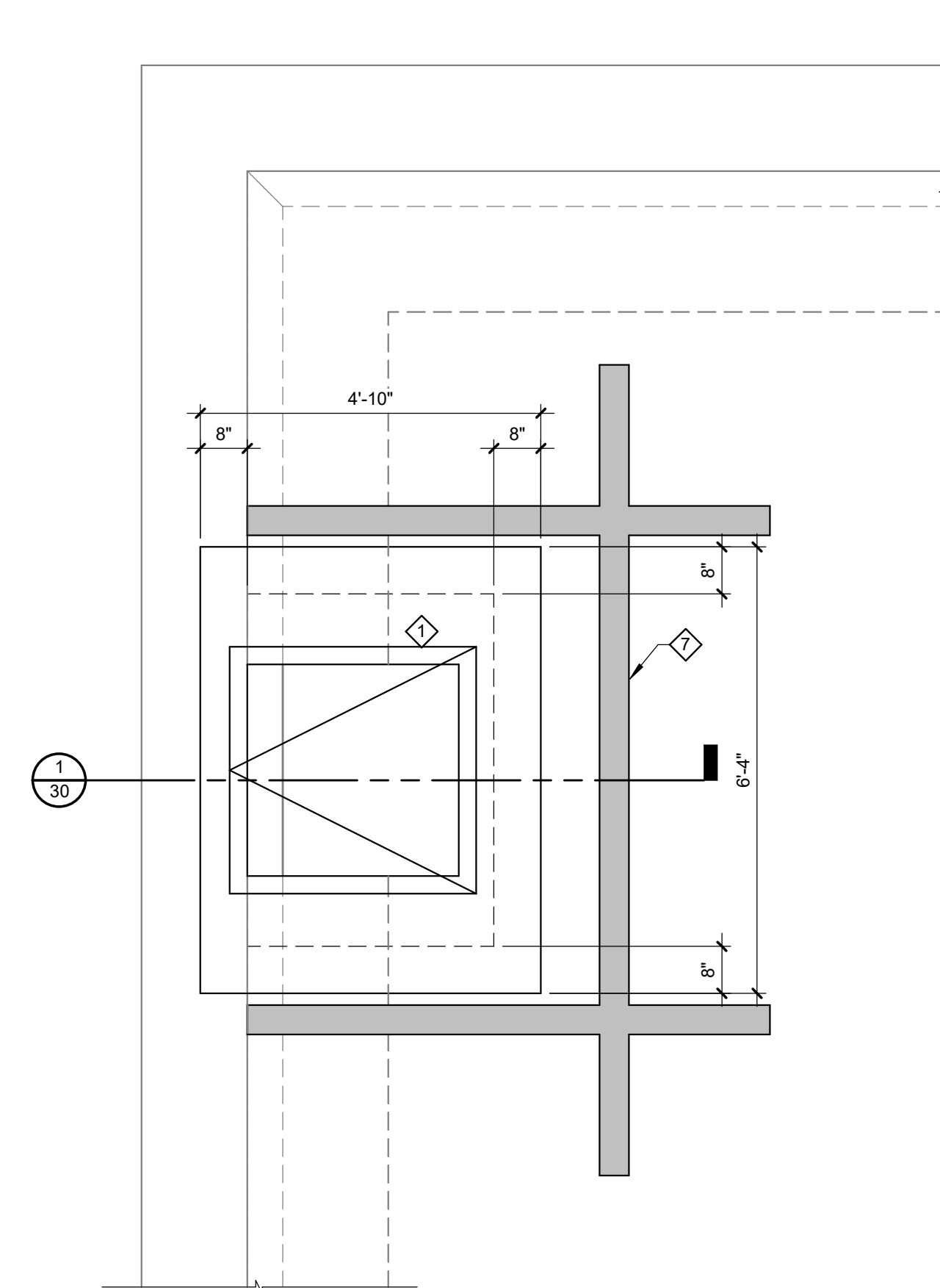
5/25/2022 BIDS AND CONSTRUCTION
Drawn By RJM
Designer DJV
Reviewer DJV
Manager JS

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211162
SHEET NO.



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



SINGLE SECONDARY ACCESS HATCH PLAN
WATER TREATMENT RESERVOIR
SCALE: 1/2" = 1'-0"
NORTH

◆ KEY NOTES

- 42" SQUARE SURFACE MOUNTED ACCESS HATCH CENTERED OVER 36" SQUARE OPENING IN NEW SLAB, POSITIONED OVER NEW SAWCUT OPENING IN EXISTING SLAB.
- SAWCUT NEW 24" WIDE (NORTH/SOUTH) x 36" LONG ACCESS HOLE IN RESERVOIR TOP SLAB.
- FIELD VERIFY EXISTING WATERPROOFING. REMOVE AS REQUIRED TO PLACE NEW CONCRETE AND CFRP. PROTECT REMAINING WATERPROOFING IN PLACE. PLACE NEW WATERPROOFING AND PROTECTION BOARD, LAPPED WATERTIGHT OVER EXISTING AND UP NEW WALLS TO GRADE AND SECURE TOP WITH TERMINATION BAR. VERIFY COMPATIBILITY OF NEW WATERPROOFING WITH EXISTING, IF ANY.
- NEW MANHOLE RUNGS AT 12" ON CENTER TO RESERVOIR FLOOR AT ELEVATION 980'-0".
- FIELD VERIFY THAT TOP OF NEW SLAB WILL BE 2'-0" MINIMUM ABOVE EXISTING GRADE.
- ANCHOR BAR 8" INTO EXISTING SLAB WITH HILTI HY-200 SAFE SET.
- PROVIDE CARBON FIBER REINFORCING PLASTIC (CFRP) ON TOP OF TOP SLAB OF RESERVOIR, EACH SIDE OF NEW ACCESS HOLES, EACH DESIGNED TO OFFSET THE CUTTING OF 2.17 SQ. IN. OF GRADE 33 REINFORCING TOP BARS. LAP CFRP PAST HOLES AS REQUIRED TO DEVELOP FULL STRENGTH OF CFRP. WRAP CFRP OVER EDGE OF SLAB AS NECESSARY FOR DEVELOPMENT.

NOTES

- THE INFORMATION OF THIS SHEET APPLIES TO EACH OF 3 NEW HATCHES FOR THE WATER TREATMENT PLANT RESERVOIR; SEE THE SITE PLAN ON SHEET 16 FOR LOCATIONS.
- THE INFORMATION ON THIS SHEET IS PART OF ALTERNATE NO. 8.

REVISIONS	
7/13/22	A3 ADDENDUM NO. 3

5/25/2022 BIDS AND CONSTRUCTION

Drawn By RJM
Designer DJV
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Manager JS

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A3
30
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